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Natural resources and the salience of ethnic identities*

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Abstract. This paper documents a new channel of the natural resource curse: the fragmentation of identities, between ethnic groups and nations. We combine individual data on the strength of ethnic – relative to national – identities with geo-localized information on the contours of ethnic homelands and on the timing and location of mineral resources exploitation in 25 African countries, from 2005 to 2015. Our strategy takes advantage of several dimensions of exposure to resources exploitation: time, spatial proximity, and ethnic proximity. We show that the strength of an ethnic group identity increases when mineral resource exploitation in that group's historical homeland intensifies. This result holds independently of the impact of resources on local economic conditions and conflicts. We then investigate the various potential channels of transmission. Our findings suggest that feelings of economic deprivation and political exclusion associated with natural resources exploitation drive their impact on the strength of ethnic identities.

JEL Codes: J15, N57, 012, O55, Q32.
Keywords: identity, ethnicity, natural resources.

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1 Introduction

An abundant literature has documented the mixed local and aggregate effects of natural resources extraction on economic development. In Sub-Saharan African (SSA) countries, natural resources have been shown to be associated with development through different outcomes, namely living standards, health concerns, conflict, and institutional or environmental degradation.[1] In this paper, we emphasize an alternative channel through which natural resources, in the form of minerals, might affect SSA development: by fostering individual identification to ethnic groups rather than nations. This channel may be especially important, as ethnic identities are considered to be a first-order determinant of a large group of social, economic, institutional and political outcomes (Alesina and Ferrara, 2005).

Two specificities of mineral resources make this question relevant. First, these are point-source resources, which by definition are associated with specific locations. In the case of SSA, these locations are part of the historical and pre-colonial homelands of different ethnic groups. Despite colonization and subsequent nation-building policies, homeland boundaries are still prevalent in many African countries, and have been shown to influence current economic and political outcomes (Michalopoulos and Papaionnaou, 2020). Second, the perceived ownership of natural resources is a recurrent subject of debate and dispute. This debate may escalate up to secession attempts as in Biafra and Katanga, or to the emergence of secessionist parties (Gehring and Schneider, 2020). Collier (2017) distinguishes three types of individuals who may claim rights to ownership of – and thus potential rents associated with – natural resources: nationals from the State where the resource is, those who feel ownership of the land above the resource (the locals, or the members of the resource rich ethnic group), and those who discover or exploit the resource. We focus on the two first groups and ask the following question: how does the exploitation of mineral resources in the historical homeland of an ethnic group affect individual identification to that group?

To answer to this question, we combine three main sources of data covering 25 SSA countries between 2005 and 2015. First, we exploit geo-localized individual data on the salience of ethnic (*versus* national) identification from four survey waves of the Afrobarometer. Second, we match the information on the ethnic group of each Afrobarometer respondent with a list of historical ethnicities, which gives us the geographical boundaries of ethnic homelands. Last, we make use of time-varying information on the location and exploitation of mineral resources to compute the yearly number of active large-scale mines in the ethnic homeland of each Afrobarometer respondent. Equipped with these data, we estimate how respondents from different ethnic backgrounds respond to changes in the relative intensity of natural resources exploitation in their historical ethnic homeland.

Our identification strategy exploits three dimensions of variation in exposure to mineral exploitation: time, geographic proximity and identity proximity. Consider two individuals living at a given point in time but belonging to different ethnic groups. Based on our combined data on the contours of each ethnic homeland and on time variations in mineral exploitation, we identify how changes in relative mining activity, over time and across the ethnic groups of these two individuals, affect their identification to their ethnic groups. The structure of the data also allows

[1] For a literature review on the effects of natural resources on local development, see for instance, van der Ploeg (2011); Aragón et al. (2015); Cust and Poelhekke (2015); Venables (2016).

to partial out any local time-varying shocks affecting both individuals, and to account for any time-invariant differences in the level of identification to a given ethnicity in a given country, such as a group size or its historical political dominance.

We first document that ethnic identification becomes stronger when mineral resources exploitation intensifies in the historical homeland of the respondent's ethnic group. Resources exploitation is proxied in our baseline estimations by the number of active mines in the homeland. Interestingly, the effect of resources does not depend on whether the exploitation takes place in the respondent's country of residence or abroad; this resonates with the idea that ethnic borders continue to matter in a continent where national delimitations largely ignore them (the "scramble for Africa", e.g. Michalopoulos and Papaionnaou, 2020). We also find that the effect of mineral resources on ethnic identification is persistent (and stronger two to three year after the exploitation starts), and tends to be magnified during electoral periods. The baseline estimates are robust to a large battery of checks, including various definitions of ethnic homelands, or using alternative measures of mineral resources exploitation, namely changes in the value of mining production generated by variations in the world prices of minerals. We also reproduce our main analysis using weather fluctuations in the historical homeland of the respondent instead of mineral resources; we do not find any effect of such climate shocks, which suggests that our main results are indeed driven by specificities of mineral resources extraction.

The second part of the paper explores a number of plausible channels through which the extraction of such resources might affect feelings of ethnic identity. Following Shayo (2009) and Atkin et al. (2019), the choice of one's identity depends on both the salience and the payoff of that identity. We consider three types of mechanisms. The first is conflict: mineral resources might make ethnic group boundaries more salient through their effect on violence. The second relates to the payoffs of belonging to an ethnic group: if mineral resources have positive economic effects, locally or regionally, or if they increase the political power of the locally dominant ethnic group, they might reinforce ethnic identities. On the other hand, if the revenues from mineral resources extraction are unequally distributed or have little impact on local public spending or welfare, extraction might foster feelings of economic deprivation and political exclusion; this is the third channel we consider.

We estimate the relevance of these channels using a variety of indicators, proxying for conflict, economic activity, living conditions or ethnic groups' political power. Our results clearly point at the third channel. The relationship between ethnic identification and mineral resources does not appear to originate from a change in local economic conditions, as the effect of mineral extraction on ethnic identification is similar for individuals living inside or outside the historical homeland of the group. In addition, we show that controlling for the occurrence of conflicts in the homeland leaves our results unchanged. Results are instead consistent with households turning to their ethnic group identity as mineral resources exploitation strengthens their feelings of economic deprivation, despite having a null (or weakly positive) effect on actual wealth. Results also show that members of resource rich groups are more likely to feel that their government treats their ethnic group unfairly. Along the same lines, using data from the Ethnic Power Relations (EPR) dataset, we find that the effect of resources on identification is mostly driven by ethnic groups excluded from political power.

As abstention and political disaffiliation are a concern for democracies across the world (Miller,

2008; Pande, 2011; Hodler et al., 2015), we close the paper by studying the consequences of our results for the political sphere. We show that individuals of resource rich groups which are excluded from power are tend to be more likely to abstain from voting and tend to become more politically disaffiliated. Put differently, natural resources extraction may further reinforce the degree of political exclusion of those ethnic groups.

Literature. Our paper relates to several strands of the literature. It first speaks to a very large literature on the "resource curse" and complements existing works on the local effects of natural resources, surveyed by van der Ploeg (2011) or Venables (2016). We relate more directly to a body of work which has connected natural resources to ethnic identities, through their effect on political power (Mamo and Bhattacharyya, 2018) and conflict (e.g. Morelli and Rohner, 2015; Berman et al., 2017; Vogt, 2017; Lessmann and Steinkraus, 2019). Groups demarcated by ethnicity indeed account for 50 to 75% of all internal conflicts since 1945 (Fearon and Laitin, 2003; Doyle and Sambanis, 2006). Understanding what motivates individuals living in resource-rich environments to engage in violence – beyond pure rent-seeking motives – is key. By documenting a link between natural resources, identity and deprivation feelings, our work can be viewed as an additional step in that direction.

The channel of transmission suggested by our results – feelings of economic deprivation and political exclusion – accords well with a part of the recourse curse literature which has documented that rents from natural resources, and mining activities in particular, are unequally distributed, locally and across regions.[2] Our results are particularly consistent with a recent literature that documents discrepancies between expected and actual resources-related payoffs (Cust and Mihahyi, 2017, Cust and Mensah, 2020), and how these are linked to the contestable nature of natural resources rents and ownership (Collier, 2017; Christensen, 2019; Girard et al., 2020).

We also contribute to research on the formation of identities. This literature, motivated by the recognition of the central part played by social identities in our lives, emphasizes the fluidity of identity and social capital to a variety of circumstances (Akerlof and Kranton, 2010).[3] While documenting interesting aspects of ethnic identities, to the best of our knowledge none of these works has exploited a shock that is both ethnic group and country specific, as we are be able to do combining data on mineral resources geo-location and ethnic homelands borders. This setting also allows us to show that the effect of resources on identification crosses country borders.[4]

Our results also contribute to this literature on identity endogenization by documenting how identities fragmentation takes place, as we examine the trade off between a fragmented (ethnic) *versus* an encompassing (national) identity. The majority of respondents in our sample view their ethnic group identity as either equally important or more important than their national identity. Since the seminal work of Easterly and Levine (1997), numerous works have emphasized the detrimental economic consequences of fragmented identities. The reasoning is that identities

[2]See for instance Cust and Poelhekke (2015), Loayza and Rigolini (2016), Fenske and Zurimendi (2017), Lessmann and Steinkraus (2019), Monteiro and Ferraz (2010), Caselli and Michaels (2013).

[3]See for instance Bisin et al. (2016); Shayo (2009); Klor and Shayo (2010); Eifert et al. (2010); Rohner et al. (2013); Atkin et al. (2019); Ahlerup et al. (2017); Depetris-Chauvin et al. (forthcoming).

[4]Ahlerup et al. (2017) show that local income, proxied by nighttime light and instrumented by mineral production, is associated with more identification to the nation using Afrobarometer data from a cross section of 16 African countries. Our work differs both in the question we ask (we consider mineral resources shocks in general, not local income) and in the methodology (we connect the resources to individuals' homelands, and focus on variations over time, which allows to control for both local time-varying shocks and time-invariant ethnic group characteristics).

craft differences in preferences, or in cohesion (Esteban et al., 2012). As neither preferences nor cohesion are binary features, an emerging literature goes beyond population headcount to outline distance between groups matter (be it for trust and conflicts Esteban et al., 2012; Jha, 2014, 2018; Hodler et al., 2020; patronage Dickens, 2018; or other political economy outcomes, Desmet et al., 2017). To contribute to this literature, we want to assess when and why individuals would value a fragmented ethnic identity over a more encompassing identity such as a national identity. The most recent rounds of the Afrobarometer ask the exact question allowing us to study this choice. We also show that the presence of natural resources only affects the strength of ethnic identification, it does not change ethnic groups' population shares.

Finally, our work also indirectly relates to the literature on political borders in Africa, which shows that, perhaps due to the arbitrary way in which borders were designed by colonial powers (the "scramble for Africa"), pre-colonial ethnic institutions persist and have still observable effects today (see the survey by Michalopoulos and Papaionnaou, 2020). We find that what occurs inside historical ethnic homelands matter, even for individuals living outside their historical homelands. We also find that natural resources in one's homeland have a significant effect on ethnic identification when the resources are located in a part of the homeland which is outside the respondent's country of residence. Put differently, nation borders do not here appear to matter as much as ethnic ones.[5]

The rest of the paper is organized as follows. Section 2 discusses the channels through which natural resources might impact the strength of ethnic identities. Section 3 present the data and our baseline empirical strategy. Section 4 and 5 contains respectively the main results and the test of the suggested channels. The last section concludes.

2 Natural resources and ethnic identities: theory

Previous works have found that the strength of ethnic identification, rather than being fixed, varies over time. In other words, ethnic identification – as other types of social identification – is malleable. Researchers have shown association with factors such as economic modernization (Robinson, 2014), political competition (Eifert et al., 2010), ethnic group's political power (Green, 2018) or nation building (Depetris-Chauvin et al., forthcoming). More generally, how strongly individuals identify to their ethnic group – and, at the extreme, which group they choose to identify to – depends on the salience of ethnic boundaries as well as on the material payoffs associated with that ethnic identity (Shayo, 2009, Atkin et al., 2019). Our empirical strategy identifies how natural resources extraction – in the form of minerals – taking place in the historical homeland an ethnic group affect the strength of the ethnic identity declared by the members of that group. Natural resources may affect identification to one's ethnicity in three different ways.

First, natural resources, and especially minerals, tend to exacerbate conflicts (increasing the conflict prize, or fighters' resources, Berman et al., 2017; Adhvaryu et al., 2018; Christensen, 2019; Lessmann and Steinkraus, 2019; Sanchez de la Sierra, 2020), in particular secessionist conflicts (Morelli and Rohner, 2015; Hunziker and Cederman, 2017; Gehring and Schneider, 2020). Such

[5]Our results align well with what Aker et al. (2014) document at the border of Niger and Nigeria. For traders in that region, crossing an ethnic homeland border is just as costly as crossing the international border.

conflict may make the boundaries of ethnic identities more salient, and, in the case of secessionist wars, reduce identification to the nation. In both cases, individuals might identify more to their ethnic group.

A second channel relates to the payoffs associated with being part of a particular ethnic group. Put differently, the presence of mineral resources in the homeland of a group could affect the likelihood for individuals to identify to that group because the payoffs of doing so increase. This would be the case, for instance, if minerals have positive local economic effects, or if they increase the political power and representation of the ethnic group. Positive economic effects of minerals extraction have indeed been found by recent literature (e.g. Aragón and Rud, 2013; Cust and Poelhekke, 2015; Mamo et al., 2019; Benshaul-Tolonen, 2019), and some resource discoveries have a positive impact on the political power of ethnic groups (Mamo and Bhattacharyya, 2018). The results from these papers suggest that mining activities might impact local development and living standards in the vicinity of mines, especially if mines have backward linkages (Aragón and Rud, 2013). They may also have indirect income effects through redistribution in favor of the group originating from the homeland where extraction takes place, through local redistribution of royalties (Caselli and Michaels, 2013), or political patronage along ethnic lines (Dickens, 2018). These effects might increase the perceived payoffs of identifying to the ethnic group, so ethnic identities could become more salient.

The former channel, however, implies that the benefits of natural resources extraction are non-negligible, and disproportionately felt by the group historically present in the region where the extraction takes place. While there is some case-specific evidence of such distributive effects (e.g. Fenske and Zurimendi, 2017 in the case of oil in Nigeria), whether this is generally the case is not obvious. Research has documented that the revenues from mining activities tend to be unequally distributed (e.g. Cust and Poelhekke, 2015; Loayza and Rigolini, 2016; Lessmann and Steinkraus, 2019), do not have discernible effects on local public spending or public good indicators (the so-called "political resource curse", see Monteiro and Ferraz, 2010; Caselli and Michaels, 2013), may leave unchanged the living standards of neighboring households (Bazillier and Girard, 2020), and tends to be overestimated in macroeconomic projections (Cust and Mihahyi, 2017). In addition, due to the contestable nature of natural resources rents, there may be a discrepancy between expected and actual payoffs (Collier, 2017; Christensen, 2019; Girard et al., 2020). Cust and Mensah (2020) indeed find that natural resources discoveries tend to increase expectations of better economic conditions in the short-run; after a year however, those expectations go back to pre-discovery levels.

These various results suggest a third channel: natural resource extraction might trigger strengthened ethnic identities by generating grievances, feelings of economic deprivation and political exclusion. This channel may be especially relevant in our case, as we look at ethnic identity as opposed to identification to the nation: if the rents from minerals are primarily captured by the ethnic group(s) in power, it might increase the perceived distance to the nation, and reduce identification with the nation at the same time as it exacerbates ethnic group identities.[6]

[6]This channel also relates to the tension that is inherent to the ownership of point-source resources. Collier (2017) illustrates this tension using the example of the rise of the Scottish Nationalist Party (SNP) after oil discoveries in Scotland. Collier writes: "the remarkable rise in electoral support for the SNP cannot readily be accounted for in terms of rational self-interest. Public expenditure per capita has been heavily skewed in favour of Scotland by the 'Barnett Formula', so that while Independence would notionally capture all the oil revenues, it would be more than offset by the loss of the disproportionate share in public expenditure." (Collier, 2017, p.221)

The last section of the paper aims at testing the relevance of each of these channels, using various data on conflict, proxies for individual income, as well as indicators of feelings of deprivation and political power of the ethnic groups.

3 Data and Empirical Strategy

To assess the impact of mineral resources on ethnic identification, we combine data on (i) the location and incidence of resources' production; (ii) the historical borders of ethnic groups' homelands; (iii) individuals' level of identification to their ethnic group. The appendix contains more details about the dataset construction.

3.1 Ethnic identification

We exploit rounds 3 to 6 of the Afrobarometer surveys. The data are repeated cross-sections and cover a total sample of more than 100,000 respondents in 25 Sub-Saharan African countries over the period 2005-2015.[7] For each round, the Afrobarometer reports the exact centroid coordinate of respondents' town, village or neighborhood of residence, and provides detailed individual characteristics such as age, gender, education level, employment status, as well as ethnic group identification.

Our main outcome variable is the strength of individual feelings toward their ethnic group identity. It comes from the following question: *"Let us suppose that you had to choose between being a [National] and being a[R's Ethnic Group]. Which of the following best expresses your feelings?"* Our baseline variable of "ethnic identification" takes the inverse of the values suggested in the questionnaire, hence the highest values denote the strongest identity feeling: *5=I feel only (R's ethnic group), 4=I feel more (R's ethnic group) than national, 3=I feel equally national and (R's ethnic group), 2=I feel more national than (R's ethnic group), 1=I feel only national.* Alternatively, we use a binary variable taking the values 1 if respondent's answer is *I feel only* or *I feel more* or *I feel equally*. In total, 53% of the respondents declare to feel at least equally strongly or more strongly about their ethnic identity than about their national identity.

The Afrobarometer surveys also contain several other variables that we exploit to estimate the channels of transmission. In particular, we make use information on feeling of economic deprivation, and proxies for wealth. We also exploit a question where respondents are asked whether they believe that their ethnic group is treated unfairly.[8] We describe these variables in section 5 and present their summary statistics in Appendix Table 10.

In our context, the fact that production takes place in an ethnic group homeland may create or reinforce ethnic identities, rationally or not, even in cases where redistribution favors local groups, because the very existence of natural resources creates a tension versus national and ethnic ownerships.

[7]The countries covered are: Benin, Botswana, Burkina Faso, Cameroon, Cote d'Ivoire, Ghana, Guinea, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mozambique, Namibia, Niger, Nigeria, Senegal, Sierra Leone, South Africa, Tanzania, Togo, Uganda, Zambia, and Zimbabwe. Each survey round in each country has a nationally representative sample of either 1,200 or 2,400 respondents. Data available at http://www.afrobarometer.org.

[8]Another relevant variable relates to interpersonal trust, particularly to trust on co-ethnics versus other ethnic groups. Unfortunately, this variable only in one of the four Afrobarometer rounds that we consider, which makes it unusable in our context.

3.2 Boundaries of ethnic homelands

We combine the Afrobarometer surveys with information on the respondents ethnic homelands to assess individuals' reactions to shocks occurring in these homelands. Our baseline estimations exploit the digital maps of historical ethnic homelands of Nunn (2008), based on the compilation by Murdock (1959) of the ethnographic information available in the late nineteenth century. We match the self-reported ethnicity of respondents to a Murdock homeland for 90% of the respondents.[9] This results in a total of 351 ethnic homelands located in 40 countries.[10] These homelands are represented in Figure 1, which also displays the average level of ethnic identification by ethnic homeland, computed from Afrobarometer data. More precisely, the map shows, for each ethnic group, the share of members of that group who value their ethnic identity equally or more than their national identity. As shown in Figure 1, there is substantial variation across and within countries in the salience ethnic identification.

In our baseline estimations, we match each ethnic group of the Afrobarometer surveys with a single, main group from Murdock (1959). This matching procedure is the most direct, and also used by Nunn (2008) and Nunn and Wantchekon (2011). It is however restrictive: Afrobarometer and Murdock groups might not share a unique correspondence. An Afrobarometer group, for instance, might appear as several sub-groups in Murdock.[11] This explains why multiple blank areas appear in Figure 1, even in countries covered by the Afrobarometer. To take into account this limitation, we also match Afrobarometer and Murdock groups using an alternative matching rule allowing for multiple correspondence between the two datasets. In this "grouped" definition, a single ethnic group of the Afrobarometer surveys can be matched with several Murdock homelands. The outcome of this procedure is shown in Figure 3 in the appendix, where the procedure is also described in more details. Afrobarometer countries are now covered almost entirely.[12] Last, we make use of an aggregated definition of groups present in the Murdock Atlas, namely the "cultural" groups. The Murdock Atlas attributes each of its 835 ethnic homelands to 104 distinct Cultural groups.[13] Each of the three matching procedures is described and discussed in more details in the Appendix 6.

Though the data is widely used by the literature (for example in Gennaioli and Rainer, 2007; Nunn, 2008; Michalopoulos and Papaioannou, 2013; Alsan, 2015), the fact that homelands are a snapshot from historical maps comes both as an advantage and as an inconvenient. On the negative side, settlement patterns may be outdated. Also, as homelands maps were built based on existing anthropological work, the level of accuracy and resolution varies for different regions in the continent (coastal areas are typically more accurately described than remote inland areas, see e.g. Michalopoulos and Papaionnaou, 2020 for a discussion). On the positive side, this

[9] We attribute to the respondent an ethnic group based on the following question: *"What is your ethnic community, cultural group or tribe?"* Only 0.5% of the respondents do not answer the question and 1% of them answer a national identity only.

[10] This number is larger than the 25 countries included in the Afrobarometer, as the homelands of the Afrobarometer's respondents often span over countries that are not necessarily in the Afrobarometer.

[11] Indeed, although the Afrobarometer questionnaire on ethnic groups is supposed to use the same classification as Murdock (1959), the overlap is far from perfect. The most extreme case may be in Ivory Coast where the Afrobarometer only records 5 different ethnic groups while the Murdock Atlas contains 35 distinct groups.

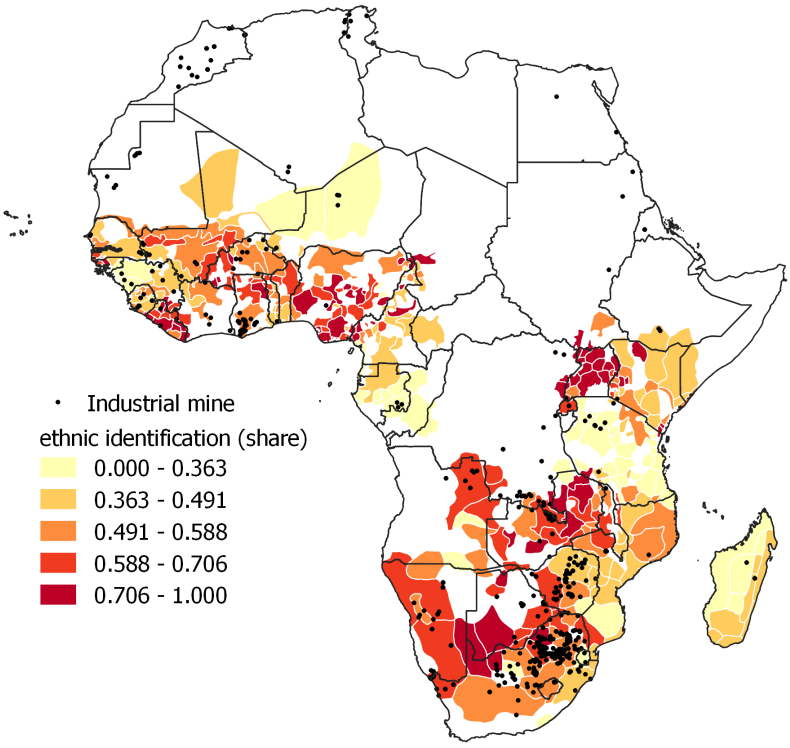
[12] We do not use this measure as baseline as the matching procedure implies making some subjective choices based on available information. In addition, the relationships between groups in Afrobarometer and Murdock using this method might be looser. Both issues might generate additional measurement error.

[13] The "Lobi" cultural group territory will for example consist of the homelands of four ethnic groups, namely that of the Birifon, Dorosie, Kulango and Lobi.

historical snapshot alleviates concerns of ethnic group location being endogenous to the evolution of ethnicity salience that we aim at explaining.

As an alternative strategy, we also match ethnic groups of the Afrobarometer to homelands from the Ethnic Power Relations dataset (EPR). The EPR dataset being based on both contemporaneous and time-varying information, the borders of the EPR ethnic groups are more likely to be affected by contemporaneous shocks than the Murdock data. We also note that the focus of the EPR data on politically relevant groups leads to omitting many ethnic groups – and sometimes entire countries – from the EPR sample.[14] On the other hand, boundaries of the EPR data are *de facto* more accurate. Moreover, we make use of the richness of the EPR records on the political status of each group. These data allow us to estimate how our results vary across ethnic groups with different degrees of access to political power.

Figure 1: Ethnic homelands, mining and ethnic identification



Source: Authors' computations from the Afrobarometer surveys, Murdock and S&P data. See main text for data sources. The map shows the location of each industrial mine that has been active between the years 2005 and 2015 and the baseline matching of Afrobarometer and Murdock ethnic groups. For each ethnic group, the map shows the share of members of that group who value their ethnic identity equally or more than their national identity. Each share takes in account the answers of all the members of each ethnic group, independently of the homeland in which these members live.

3.3 Mineral resources

Data on natural resources come from S&P Global - SNL Metals and Mining. The dataset includes large-scale mines (industrial mines), usually owned and operated by multinationals or national firms. It covers 33 minerals, as well as information on the location of the mine, whether

[14] Vogt et al. (2015), p. 4, note that "An ethnic group is considered politically relevant if at least one political organization has claimed to represent its interests at the national level or if its members are subjected to state-led political discrimination (Cederman, Wimmer, and Min 2010, 99)."

it is active, the level of production, and the year production started.[15] We are therefore able to compute the number of active mines in the ethnic homeland e of individual i at time t, which we use as our main explanatory variable. The location of mines is shown in Figure 1. Mining activity is clustered: on average, each ethnic homeland contains 1 mine, homelands with at least a mine contain on average 5 mines.

3.4 Descriptive statistics

Table 1 contains descriptive statistics on our final sample made of 116,247 respondents (the sample of our baseline estimates, column 1, Table 2). Most respondents live outside their ethnic homeland and in rural areas (55% and 63%, respectively). Respondents split evenly across genders, 61% of them have completed a primary eduction degree (or more), and 64% are active (either employed or looking for a job).

The respondents are divided across 296 ethnic groups in the final sample, with 21.6% of these ethnic groups hosting at least one mineral activity in their homeland over the 2005-2015 period. As resource rich ethnic groups are on average bigger than resource poor ethnic groups, 35% of the respondents report coming from a group rich in minerals.[16] The average number of mines substantially varies when we move from the most restrictive to the broader homeland definition: The average number of mines in our final sample is 2.13 with our baseline measure, and goes up to 17.8 when we use Murdock's more aggregated "cultural groups" definition.

Table 1: Summary statistics for the main variables

	Mean	S.D.	1st Quartile	Median	3rd Quartile
Ethnic identity	2.35	1.19	1	3	3
Ethnic identity (dummy)	0.53	0.5	0	1	1
# mines in homeland	2.13	6.06	0	0	1
# mines in homeland, in country	1.36	4.91	0	0	1
# mines in homeland, abroad	0.77	3.76	0	0	0
# mines in homeland, Grouped homelands	2.98	8.4	0	0	2
# mines in homeland, Cultural homelands	17.81	35.35	0	3	14
# mines in homeland, EPR homelands[a]	6.73	22.22	0	0	1
Residence in homeland (dummy)	0.45	0.5	0	0	1
Residence in rural area (dummy)	0.63	0.48	0	1	1
Female (dummy)	0.5	0.5	0	0	1
Primary education or more (dummy)[b]	0.61	0.49	0	1	1
Active (employed or looking) (dummy)[b]	0.64	0.48	0	1	1
Age	36.71	14.49	25	33	45
Number of respondents = 116,247					

Source: Authors' computations from the Afrobarometer surveys, Murdock and S&P data. See main text for data sources. [a] The EPR descriptive statistics come from the reduced sample of 84,841 households who belong to groups identified in the EPR dataset. [b] In our estimations, we control for all nine education categories and all four employment categories provided by the Afrobarometer surveys.

[15] The following minerals are covered: U3O8, bauxite, chromite, chromium, coal, cobalt, copper, diamond, ferro chrome, gold, graphite, heavy mineral sand, ilmenite, iron, lanthanide, lead, lithium, manganese, molybdenum, nickel, niobium, phosphate, platinum, potash, rutile, silver, tantalum, tin, titanium, tungsten, vanadium, zinc, zircon. It omits artisanal and small-scale mines.

[16] The complete sample – just after matching the self-reporting ethnicity of respondents and Murdock homelands – covers 351 groups. In this complete sample, 31.8% of the respondents report coming from an ethnic group rich in minerals.

3.5 Identification strategy

The purpose of our empirical strategy is to estimate how natural resources extraction - in the form of minerals - taking place in the historical homeland an ethnic group affects the strength of identity feelings declared by the members of that ethnic group. Our source of identification relies on the comparison of two individuals living in the same region, in the same month of a given year, but who belong to two different ethnic groups. Combining our data on the contours of each individuals' ethnic homelands and the time-varying information of mining activity location, we identify how changes in relative mining activity across each individuals' homelands, over time, affect their relative ethnic identification:

Formally, for an individual i belonging to ethnic group e, living in region r of a country c at time t (the specific month of each year), we estimate the following specification:

$$\text{ETHNIC IDENTIFICATION}_{i,e,r,t} = \alpha \times (\#\text{MINES})_{i,e,t} + \mathbf{C_i}'\beta + \mathbf{FE}_{e,c} + \mathbf{FE}_{c,r,t} + \varepsilon_{i,e,r,t} \quad (1)$$

The dependent variable represents the strength of ethnic identification of individual i (as a categorical or as a dummy variable), and our main explanatory variable is the number of active mineral resources exploitations in the ethnic homeland e of individual i at time t ($\#\text{MINES}_{i,e,t}$). We test the robustness of our results to using various definitions of ethnic homelands based on different matching procedures between the Afrobarometer's ethnic groups and Murdock's homelands, as explained in section 3. We will also show results using the homelands boundaries from EPR.

The vector $\mathbf{C_i}$ includes a large set of respondent characteristics: gender, age and its square, a set of dummies controlling for education levels and employment status, and residence in a rural area. We also control for a dummy coded one if individual i is living in her ethnic homeland at the time of the survey, and zero otherwise. We include ethnic homeland-country fixed effects ($\mathbf{FE}_{e,c}$) and country $\times$ region of residence $\times$ year $\times$ month fixed effects ($\mathbf{FE}_{c,r,t}$). The former capture inherent differences in the level of identification to a given ethnicity in each country (and other historical aspects like its historical political dominance), while the latter accounts for local shocks such as climate variations or crop prices. Any local economic spillover of natural resources exploitation that would be specific to a location, without affecting differentially the members of the different ethnic groups, will also be picked up by these fixed effects. Given the inclusion of these fixed effects, α identifies the effect of mining activity in individual i's homeland on that individual's ethnic identification, relative to individuals of a different ethnic group living in the same location at a given point in time. Finally, standard errors are clustered at the ethnic group level.

A potential endogeneity concern is that observed changes in mining activity over time – opening and closing of mines – could be driven by ethnic groups' behaviors that correlate with the strength of ethnic identities. For instance, the political power of the ethnic group might both drive ethnic identification and changes in natural resource production. Our results are difficult to reconcile with this view: in fact, the strongest effect is found for the least politically relevant groups. Still, we will check that our main findings are robust to using exogenous variations in the world prices of the minerals produced in the ethnic homeland instead of changes in the number of mines.

4 Mineral resources activity and ethnic identification

4.1 Baseline estimates

Table 2 displays the baseline estimates. All columns include country × region of residence × year × month fixed effects and country × ethnic group fixed effects. We also control for a set of respondents' characteristics – gender, education, whether the respondent is in a rural or urban area and whether the respondent is located in her historical homeland.[17]

Table 2: Natural resources extraction and ethnic identification

	(1)	(2)	(3)	(4)	(5)
Dep. Var.	Salience of ethnic group identification				
Version	Categorical	Dummy	Categorical	Categorical	Categorical
Ethnic Homeland Def.	Murdock			Grouped	Cultural
# mines: ethnic homeland	0.019^a	0.006^a		0.012^a	0.006^a
	(0.004)	(0.002)		(0.004)	(0.002)
# mines: ethnic homeland, in country			0.018^a		
			(0.004)		
# mines: ethnic homeland, abroad			0.019^a		
			(0.006)		
Residence in homeland	0.040^a	0.013^a	0.040^a	0.027^b	0.030^b
	(0.012)	(0.005)	(0.012)	(0.013)	(0.014)
Country×region×year×month FE			Yes		
Country×ethnic group FE			Yes		
Additional controls			Yes		
Observations	116247	116247	116247	116247	116243
R^2	0.185	0.190	0.185	0.184	0.180

OLS estimations. ^{c} significant at 10%; ^{b} at 5%; ^{a} at 1%. Standard errors are clustered at the ethnic group level. The dependent variable is the level of ethnic identification with respect to state identification in all columns but (1), ranging from categories 1 to 5. In column (2) we use as dependent variable a dummy taking the value 1 if the individual identifies at least as much to the ethnic group than the country. Columns (1) to (3) use our baseline measure of ethnic homelands, constructed from a one-to-one matching between Murdock and Afrobarometer data. In columns (4) and (5) we use our alternative definitions of ethnic homelands, a defined in the main text. Controls include age and its square, gender, rural/urban dummy, education categories and employment status.

In column (1), we start by estimating the impact of the number of mines in the respondent's ethnic homeland on the categorical measure of ethnic identification. The measure ranges from 1 to 5, with higher levels denoting stronger identification of the respondent to her ethnic group. The coefficient on the number of mines is positive and significant at the 1% level: an ethnic identity becomes more salient as the number of mines in its ethnic homeland increases. Quantitatively, an additional mine raises the level of ethnic identification by 0.019, and a standard deviation increase in the number of mines is associated with a 0.11 higher level of ethnic identification. The effect is qualitatively similar for a binary measure of identification that takes the value one for all respondents who report feeling "only ethnic", "more ethnic than national", or "equally ethnic and national", i.e. if the variable equals 3 or more (column 2). As a comparison, the magnitude

[17] Table 11 in Appendix reports the results from the same estimations as Table 2 but in an exhaustive manner, including the coefficients of respondents' characteristics. Coefficients are in line with the literature (Robinson, 2014): Female, uneducated and rural respondents tend to identify more to their ethnic group.

of the effect of an additional mine represents half of the impact of a major determinant of the salience of ethnic group identification: residence in the historical homeland of the ethnic group.

It is well known that the historical homelands of many ethnic African ethnic groups have been partitioned by the national borders drawn by colonial powers: 163 of the 296 ethnic homelands of our sample span over more than one country. We investigate whether the effect of natural resources production differs depending on whether it takes place in a part of the respondent's homeland which lies inside or outside the respondent's country (column 3). We do not detect any significant difference.[18] Finally, in columns (4) and (5) we replicate the estimates of column (1) using the two alternative definitions of ethnic homelands discussed in section 3. First, the "grouped" definition, which allows multiple correspondence between Murdock and Afrobarometer groups. Second, the broader cultural groups recorded in the Murdock Atlas. In both cases, our results are qualitatively unchanged.[19]

4.2 Persistence

Lagged effects. Our results of Table 2 are silent on the persistence of the effect of mining activity on individual ethnic identification. Indeed, given that the rounds of the Afrobarometer occur several years apart, the changes in mineral exploitation could have occurred at the time of the survey or several years before. In other words, our estimates could reflect either a short-lived effect or a more permanent one. To test whether the impact of mining activity on the ethnic identification is persistent, we include lags of the mining variable. We also include a lead term.

Figure 2 shows the impact of changes in mining activity taking place from four years before the survey up to a year after the survey. The estimation strategy is the same as in column (1) of Table 2, but we replace the variable telling the number of mines at the time of the survey with separate variables representing the contemporaneous, past, and future changes in the yearly number of mines. The figure shows estimated coefficients as well as 90% confidence intervals. We find that the effect of changes in mining activity on identification to one's ethnic groups is quite persistent: in fact, the effect gets reinforced over time.

Before the start of mining operation, a phase of one or two years is required for investment (Benshaul-Tolonen, 2019). Locations where a mine started producing the year of the survey should already witness mine related activity (and most likely media coverage) the year before the start of the production. Yet, as shown in Figure 2 we detect no significant effect of changes in mining activity occurring a year following the survey. Hence, production appears to matter *per se*, not prospects of production.

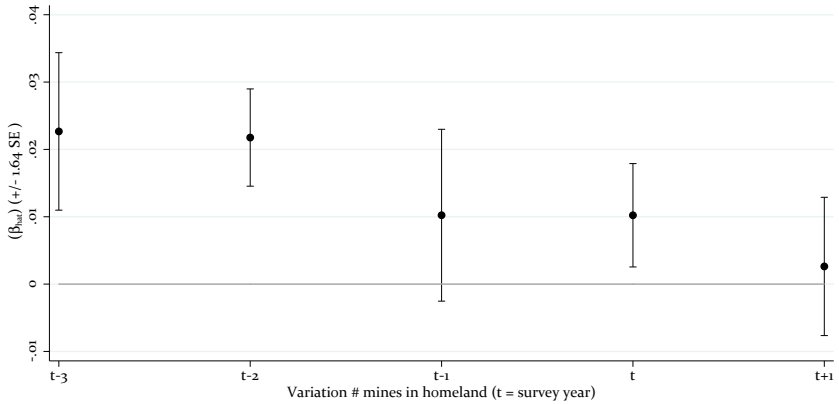
Electoral periods. We pursue an alternative strategy to study persistence: we match our data with information on the timing of (presidential and legislative) elections and estimate whether proximity of elections affects our estimates.[20] The underlying idea is that, if the effect is stronger

[18] These results should not be seen as a comparison within ethnic groups: in our sample, groups partitioned across national borders and having natural resources on both sides of the border represent less than 3% of the groups. Hence, the coefficients shown in column (3) are identified across rather than within groups.

[19] We also allowed the effect of natural resources to vary with individual characteristics such as gender, education or type of residence, the estimates did not display significant differences along these dimensions.

[20] To construct our measure of proximity of elections, we make use of the two following sources: https://www.eisa.org.za/calendar-comprehensive.php and http://africanelections.tripod.com/chronology.html

Figure 2: Persistence of the effect of natural resource extraction on ethnic identification



This figure reports the results of an estimation akin to equation (1), except that instead of including the number of mines at the time of survey, we include variables representing variations in the number of mines in the year of the survey as well as in previous years and subsequent year. The figure depicts the coefficients and 90% confidence intervals.

during electoral periods, natural resources might have persistent impacts on ethnic identities through voting patterns, even if their impact is otherwise temporary. In the spirit of Eifert et al. (2010), we interact our main variable with a dummy which equals one if elections take place in the six months after the survey. We restrict our sample to countries-waves in which some elections are taking place in the following eighteen months. We find that the impact of changes in the number of mines on ethnic identity is slightly stronger in the six months before elections, though the statistical significance of the coefficients varies across specifications (Table 12 in the Appendix).[21] Whether these results imply that natural resources have a persistent effect through elections or not depends ultimately on how changes in stronger identification to one's ethnicity affects participation and voting behavior. We come back to this issue at the end of the paper.

4.3 Sensitivity analysis and additional results

In this subsection we test the robustness of the baseline estimates of Table 2 to a variety of sensitivity checks.

Endogeneity of mining activity. A potential issue is that the variations in minerals' extraction in a specific homeland could be a function of the ethnic group's political power, which in turns might correlate with ethnic identification. This would bias upward our estimates. We consider this concern as quite unlikely given the findings that we discuss in the Section 5 of the paper and in particular in Table 8: our estimates appear to be mostly driven by politically powerless groups. Still, to further ensure that our results do not reflect such potential endogeneity bias, we use an alternative measure of natural resources: variations in the value of mineral production that are driven by fluctuations of the world prices of the minerals. More precisely, this alternative measure is defined as the quantity produced at the beginning of the study period, evaluated at the current (real) world prices for each of the study years. The data on world prices come from the World Bank Commodity Dataset. The inclusion of ethnic group × country fixed

[21] The p-values associated with the interaction term between our main variable with a dummy which equals 1 if elections take place in the six months after the survey ranges from a minimum of 0.4% (col. 4) and a maximum of 14.4% (col. 1).

effects absorbs differences in the levels of production at the beginning of the period, hence the identification relies on yearly variations in world commodity prices which are arguably exogenous to local ethnic identification, especially given that the countries in our sample are typically small producers at the world level.[22] This alternative measure is not immune of criticisms as individuals are arguably less likely to have information about changes in the world value of minerals than about the activity status of a mine.[23] Despite this downside, our results are robust to this alternative measure of mining activity (Table 13 in the Appendix).[24]

Weather shocks in ethnic homelands. In Table 14, we add to our baseline estimation other ethnic homeland-specific and time-varying shocks, which might affect ethnic identification, namely weather shocks. We include, sequentially or jointly, data on aggregate rainfall and average temperature in the historical homeland of the respondents.[25] The estimates on these variables are statistically insignificant. The objective of this exercise is twofold. First, these tests further ensure that our baseline results are not due to omitted factors that might correlate with mining activity. Second and more importantly, the fact that variations in climatic conditions do not appear to affect the salience of ethnic identification suggests that our baseline results are indeed driven by specificities of minerals' extraction, rather than economic shocks in general. We come back to the question of economic shocks in the next section.

Sensitivity to specific groups, countries or time periods. In the Appendix, we show that our results are not driven by specific subsets of observations. We first drop countries and survey waves one by one (Figure 4 and Table 15, respectively). The results are remarkably stable. Figure 5 displays the estimated coefficients for each ethnic group separately: 65% of the coefficients are positive (69% if we only consider the set of coefficients statistically significant at 10%).

Strength of an identity *versus* changing identity. All our estimations rest on the ethnic groups that the respondents declare. However, this declaration, i.e. the ethnic identity of the respondent, could itself be endogenous to natural resources. In particular, if natural resources benefit to certain groups, it might create some incentives for individuals to change their ethnic identities. Although ethnic identities are usually considered to be quite fixed, the literature has also documented that "passing" may respond to economic incentives (Cornwell et al., 2017; Dahis et al., 2019), and that even ethnic identities can be prone to noisy signaling and manipulation in a lab setting (Harris et al., 2018). We check whether natural resources affect the endogenous choice of ethnic identity, in the sense of passing from one group to another. We perform two different tests (Table 16). First, we estimate how mining activity in the ethnic homeland of a group affects the population share of that group at the country-level. For each ethnic group×survey

[22] See Berman et al. (2017) for a discussion on this issue using similar data.

[23] Even today, local populations may be unaware of some important economic shocks. More that half of the respondents in Armand et al. (2019) have limited knowledge about the recent major discoveries of gaz offshore of their region.

[24] We consider various definitions of beginning-of-the-period production. To ensure exogeneity, we consider quantities produced before the first survey year, taking the average per mineral and homeland either over the 1995-2004 period (columns 1 and 4), or the 2000-2004 period (columns 2 and 5), or the year 2004 alone (columns 3 and 6). These quantities are then multiplied by each mineral's contemporaneous real price.

[25] Both variables are aggregated at the Murdock homeland level from underlying cell-specific PRIO-GRID data (Tollefsen et al., 2012, version 2), original data from Fan and Dool (2008); Huffman and Bolvin (2013).

year, we compute the share of respondents that self-report belonging to that group. We regress this variable on the number of mines in the historical homeland of the group, as in our baseline estimations, also including ethnic group×country and country×year fixed effects. The estimates are close to zero and statistically insignificant across our different definitions of ethnic groups (columns 1 to 4). Second, we estimate whether mineral resources in an ethnic homeland affects the probability for the respondent to choose that ethnic group among all groups present in the country. We include the same set of fixed effects as in our baseline estimates. Despite the very large number of observations, column (5) shows statistically insignificant estimates. Overall, the results suggest that mining activity affects the strength of ethnic identities, but not the change from one ethnic identity to another (Table 16).

5 Mechanisms

As discussed in Section 2, several mechanisms may underlie our findings. First, mineral resource extraction might make identities more salient through their effect on conflict. Second, it might affect the payoffs of being part to a given ethnic group if the group benefits relatively more than the others from the local extraction of the resources. We refer to this second channel as "strategic motive". Third, the existence of mineral resources may cause feelings of economic deprivation and political exclusion, for instance if rents are mostly captured by the State or unequally distributed in the homelands where mineral extraction takes place. The objective of this section is to further assess the relevance of these different mechanisms by exploiting the various dimensions of our data, namely the geolocation of the respondents and alternative outcomes in the Afrobarometer surveys.

5.1 Conflict

Mining activity tends to trigger conflict in Africa (Berman et al., 2017; Christensen, 2019; Lessmann and Steinkraus, 2019). Such conflict might trigger ethnic tension and make identities more salient. In addition, specific types of conflict, such as separatist ones, might increase the perceived distance between the ethnic groups and the State (Nair and Sambanis, 2019). We do not have information on the participation nor perception in conflicts at the individual level to examine how it reacts to resources. Instead, we make use of the information from the Armed Conflict Location Events Data (ACLED, Raleigh et al., 2010), on the location, date and types of conflict events to build up a control for the level of conflicts taking place in each homeland and year. The ACLED data is available across our entire period of study and has been widely used in recent conflict literature (e.g. Berman et al., 2017; Harari and Ferrara, 2018; Manacorda and Tesei, 2020). It compiles events from various sources, including press accounts from regional and local news, humanitarian agencies, and research publications. For each ethnic homeland and year, we compute the number of events observed in ACLED and include in our estimation a dummy which equals one if at least a conflict event has been observed in the ethnic homeland-year of the respondent.[26]

[26]In our sample, 77% of the ethnic homelands (and 78% of the respondents) witnessed at least one ACLED event in a given year. Making use of the information on the nature of violence, 37% of respondents witnessed at least one battle taking place in their homeland, 55% at least one event of violence against civilians, and 68% "other" sort of event (Table 10 in the appendix).

Column (1) of Table 3 replicates the estimates of column 1 of Table 2 for the sake of comparison, while column (2) displays the estimates obtained when controlling for conflict. Then, we disaggregate the conflict variables by types of events – battles, violence against civilians and "other", which includes protests and other types of lower scale events (column 3). Conflict incidence is found to have a positive and significant effect on the salience of ethnic identification. Yet, accounting for conflict has very little impact on the size and statistical significance of our estimates.[27]

Table 3: Natural resources extraction and ethnic identification: conflicts, residence, nightlights

	(1)	(2)	(3)	(4)	(5)	(6)
Dep. var	Salience of ethnic identification					
Sample	Full			Outside homeland	Full	Outside homeland
# mines: ethnic homeland	0.019^a	0.018^a	0.018^a	0.017^a	0.018^a	0.017^a
	(0.004)	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)
Conflicts in homeland		0.048^b				
		(0.019)				
Battles in homeland			0.007			
			(0.020)			
Violence against civilians in homeland			0.004			
			(0.019)			
Other events in homeland			-0.001			
			(0.019)			
Nightlights emissions in homeland					0.001	0.006^c
					(0.002)	(0.004)
Residence in homeland	0.040^a	0.040^a	0.040^a		0.040^a	
	(0.012)	(0.012)	(0.013)		(0.012)	
Country×region×year×month FE				Yes		
Country×ethnic group FE				Yes		
Additional controls				Yes		
Observations	116247	116247	116247	63872	116239	63864
R^2	0.185	0.185	0.185	0.180	0.185	0.180

OLS estimations. ^{c} significant at 10%; ^{b} at 5%; ^{a} at 1%. Standard errors are clustered at the ethnic group level. The dependent variable is the level of ethnic identification with respect to state identification, ranging from categories 1 to 5. Column (1) reproduces our baseline estimation of column (1), Table 2. ACLED event in ethnic homeland is a dummy taking the value 1 if at least a conflict event is recorded in the ethnic homeland of the individual. Column (3) disaggregates this variable by type of event. Columns (4) and (6) restrict the sample to individuals living outside their ethnic homeland. Column (5) controls for the level of nighttime lights in the ethnic homeland of the individual. Controls include age and its square, gender, rural/urban dummy, education categories and employment status.

5.2 Strategic motives

Mining activities may foster local economic development in the surrounding of industrial mines (see Cust and Poelhekke, 2015, for a literature review). This local windfall could represent an economic motive for respondents to feel closer to their ethnic group, consistent with the channel of a change in the payoff of the group identity. The set of fixed effects included in all estimations

[27] Our estimated coefficients remain also stable to the inclusion of the number of events or controlling for events by types of actors.

already account for local economic shocks that would affect ethnic groups indistinctly. However, it may be the case that the ethnic group on whose homeland the mining activity is located benefits more from the mine's local economic spillovers. We follow three distinct approaches to estimate how this channel may explain our effect.

First, we exclude from our baseline sample respondents who live in the ethnic homeland, i.e. we focus only on a sub-sample of respondents living outside the vicinity the natural resources exploitation (column 4, Table 3). Respondents living outside their homeland are further away from mining activity, hence less exposed to potential economic spillovers. Excluding individuals who live in their ethnic homeland reduces our sample by half, but barely changes the magnitude or precision of our estimate.

Second, we control for nighttime luminosity in the respondent's ethnic homeland (columns 5 and 6, Table 3). Nighttime lights emissions have been widely used by recent literature as a proxy for local income (Donaldson and Storeygard, 2016).[28] Nighttime lights emissions weakly increase the degree of ethnic group identification, although the coefficient is significant only for households living outside their homeland (column 6). More importantly, our coefficient of interest is left unaffected by the inclusion of a proxy of the local income.

Last, we also test the strategic motives channel by estimating the impact of mineral resources in the respondent's homeland on various objective indicators of material wealth of the household (Table 4). We make use of the Afrobarometer survey questions related to household ownership of radio, TV and vehicle.[29] We consider these measures separately from columns (1) to (3), as well as a "family of outcomes" test (from Kling et al., 2007, results in columns 4 and 5).[30] Under the assumption that mineral resources' exploitation impacts more (positively) the members of the ethnic group where mines are located, we would expect respondent's to report owning more those goods. Support for this hypothesis is quite weak: estimates are significantly different from zero only for TV ownership (column 2). Using a "family of outcomes", or restricting the sample to individuals living outside their homeland, have little impact on the estimates (columns 4 and 5, respectively).

Overall, these results converge to suggest that changes in the salience of ethnic identity are unlikely to be driven by increasing material payoffs stemming from mineral resource extraction. However, we only focused on strategic motives driven by economic payoffs so far. An alternative possibility is that individuals may identify to their ethnic group more if mining activity positively affects the political power of the group (Mamo and Bhattacharyya, 2018). We test this political payoff possibility at the end of the next subsection.

5.3 Economic deprivation and political exclusion

Resource windfalls are not always redistributed locally (Monteiro and Ferraz, 2010; Caselli and Michaels, 2013; Bazillier and Girard, 2020), or unequally so (Cust and Poelhekke, 2015; Loayza and Rigolini, 2016), while creating high expectations (Cust and Mihahyi, 2017). Individuals living in these homelands might feel economically deprived, and this feeling of deprivation might be

[28] The data come from the National Oceanic and Atmospheric Administration.

[29] The precise question is the following: "*Which of these things do you personally own: [Radio] / [TV] / [Vehicle]?*". The result is a binary variable coded as 1 if the respondent owns the specific good.

[30] This index is computed as the mean of the standardized variables. Variables are standardized by subtracting sample their mean and dividing by their standard deviation.

Table 4: Natural resources extraction and individual wealth

Dep. Var. HH owns...	(1) radio	(2) TV	(3) vehicle	(4) index	(5) index
Sample			Full		Outside homeland
# mines: ethnic homeland	0.001	0.004[b]	0.002	0.005	0.004
	(0.002)	(0.002)	(0.001)	(0.004)	(0.003)
Country×region×year×month FE			Yes		
Country×ethnic group FE			Yes		
Additional controls			Yes		
Observations	118883	118786	118537	118922	65909
R^2	0.164	0.391	0.199	0.326	0.337

OLS estimations. [c] significant at 10%; [b] at 5%; [a] at 1%. Standard errors are clustered at the ethnic group level. In columns (1) to (3) the dependent variable is a dummy which equals 1 if the respondent owns a radio, TV or vehicle. In column (4) and (5), the dependent variable is an index based on these variables. Column (5) restricts the sample to individuals residing outside their homeland. Controls include age and its square, gender, rural/urban dummy, education categories, employment status and, in columns (1) to (4), a dummy for residence in the ethnic homeland.

transmitted to co-ethnics living outside these homelands. We present in the following a number of results in line with this mechanism.

Perceptions of living conditions. First, we use a set of proxies for economic deprivation at the individual level from the Afrobarometer. We use five different questions in which individuals report whether their household has lacked in the past year essential welfare-related items: food, income, water, medicine or fuel (Table 5).[31] As previously, we perform a "family of outcomes" test (Kling et al., 2007). Mining activity increases deprivation feelings for four out of five questions and the effect is more precisely estimated using the "family of outcomes", both on the full sample or on the sample restricted to individuals living outside their homeland (columns 6 and 7). This set of negative results is stands in sharp contrast with the weak previous findings on objective wealth measures (Table 4).

Second, we make use of information on the individual perceptions of changes in living conditions. Individuals are asked about how their living conditions today compare to their living conditions 12 months before. In Table 6, we first estimate the effect of mining activity on the raw categorical variables[32] (columns 1 and 2), as well as on a dummy variable which equals one if the respondent declares that living conditions have improved or remained the same (column 3). We find that a more intense mining activity in a respondent's ethnic homeland is associated with a worsening of perceived living conditions. This is especially the case – statistically and quantitatively – for individuals living outside their homeland (column 2). In columns (4) and (5) of Table 6, we assess how mining activity affects the respondent's perceptions of their household's economic conditions compared to that of their country. The dependent variable is the difference between these two perceptions (household economic conditions *versus* country economic condi-

[31] The precise question is the following: "*Over the past year, how often, if ever, have you or anyone in your family gone without:[Food] / [Cash income] / [Enough clean water for home use] / [Medicines or medical treatment] / [Enough fuel to cook your food?]* ". Answers are the following: 0=Never, 1=Just once or twice, 2=Several times, 3=Many times, 4=Always.

[32] The original question is the following: *"Looking back, how do you rate the following compared to twelve months ago: Your living conditions?"*. Answers are the following: 1=Much worse, 2=Worse, 3=Same, 4=Better, 5=Much better.

Table 5: Natural resources extraction and perceived economic deprivation

Dep. Var.: Ever gone without...	(1) food	(2) income	(3) water	(4) medicine	(5) fuel	(6) index	(7) index
Sample				Full			Outside homeland
# mines: ethnic homeland	0.010^{b}	0.007^{c}	0.007	0.007^{b}	0.007^{c}	0.006^{a}	0.009^{a}
	(0.004)	(0.004)	(0.004)	(0.003)	(0.004)	(0.002)	(0.003)
Country×region×year×month FE				Yes			
Country×ethnic group FE				Yes			
Additional controls				Yes			
Observations	118791	118521	118810	118476	118458	118935	65913
R^2	0.203	0.266	0.177	0.202	0.156	0.265	0.287

OLS estimations. ^{c} significant at 10%; ^{b} at 5%; ^{a} at 1%. Standard errors are clustered at the ethnic group level. In columns (1) to (5) the dependent variable is a categorical variable denoting the frequency at which the respondent's household has gone without one of the following elements over the last year: food, income, water, medicine, fuel. Columns (6) and (7) consider an index computed as the mean of the standardized version of the dependent variables in columns (1) to (5). Column (7) restricts the sample to individual living outside their ethnic homeland. Controls include age and its square, gender, rural/urban dummy, education categories, employment status and, in columns (1) to (6), a dummy for residence in the ethnic homeland.

tions), to mirror the question on ethnic *versus* national identification.[33] Although the estimates are less precise, once again we find evidence that individuals tend to perceive that their conditions have worsened, compared to that of the country, when more mineral resources exploitation takes place in their ethnic homeland.

Overall, our findings suggest that, while the presence of mineral resources in one's homeland seems to have little impact her material wealth, it is associated with more intense feelings of economic deprivation and more pessimism with respect to living conditions.

Table 6: Mineral resources extraction and perceptions of living conditions

	(1)	(2)	(3)	(4)	(5)
Dep. Var. perception wr. t - 1 of the economic condition of...	—— household ——			– country –	
Dep. Var. definition	Cat.		Dummy	Cat.	
Sample	Full	Outside homeland		Full	Outside homeland
# mines: ethnic homeland	-0.008^{c}	-0.013^{a}	-0.006^{b}	-0.005	-0.007^{c}
	(0.004)	(0.004)	(0.002)	(0.004)	(0.004)
Country×region×year×month FE			Yes		
Country×ethnic group FE			Yes		
Additional controls			Yes		
Observations	81377	44851	81377	80097	44180
R^2	0.153	0.154	0.137	0.086	0.100

OLS estimations. ^{c} significant at 10%; ^{b} at 5%; ^{a} at 1%. Standard errors are clustered at the ethnic group level. In columns (1) and (2), the dependent variable is a categorical variable capturing the respondent's perception of his/her own living conditions compared to twelve months before. Column (3) uses a dummy variable equal to one if the respondent declares that living conditions have improved or remained the same. In columns (4) and (5), the dependent variable is the difference between the variable of columns (1)-(2) and the perceived change in the country's economic conditions by the respondent. Column (3) and (5) restrict the sample to individual living outside their ethnic homeland. Controls include age and its square, gender, rural/urban dummy, education categories, employment status and, in columns (1 to (6), a dummy for residence in the ethnic homeland.

[33]The question on the perception of the economic condition of the country is asked as follows: *"Looking back, how do you rate the following compared to twelve months ago: Economic conditions in this country"*.

Ethnic groups' exclusion and political power. Although the previous results suggest that mining activity in an ethnic homeland does not benefit disproportionately the members of that ethnic group, they are not informative about the distribution of political power between groups.

We perform a series of tests. First, to assess the impact of mining activity on the sharing of power across ethnic groups, as perceived by local households, we make use of an Afrobarometer question in which individuals are asked whether they believe that their ethnic group is treated unfairly by the government.[34] Here again, we use alternatively the raw categorical variable or a dummy which equals one if the respondent answers that the ethnic group is treated unfairly at least sometimes. We find a positive and significant effect of mining activity on perceptions of unequal ethnic group treatment (Table 7). The effect is similar for individuals living outside their homeland.

Table 7: Natural resources extraction and unequal treatment of ethnic groups

	(1)	(2)	(3)
Dep. Var.	Ethnic group treated unfairly		
Definition	Cat.	Cat.	Dummy
Sample	Full	Outside homeland	Full
# mines: ethnic homeland	0.012^a	0.012^a	0.006^a
	(0.004)	(0.004)	(0.002)
Country×region×year×month FE		Yes	
Country×ethnic group FE		Yes	
Additional controls		Yes	
Observations	110883	60961	110883
R^2	0.262	0.251	0.282

OLS estimations. ^{c} significant at 10%; ^{b} at 5%; ^{a} at 1%. Standard errors are clustered at the ethnic group level. The dependent variable is a categorical variable denoting whether individuals believe that their ethnic group is treated unfairly by the government in column (1) and (3). In column (2) it is a dummy variable taking the value 1 if the individual answers that the ethnic group is at least sometimes treated unfairly. In column (2), the sample is restricted to individuals living outside their homeland. Controls include age and its square, gender, rural/urban dummy, education categories and employment status.

Second, we consider more directly whether our effect depends on pre-existing differences across ethnic groups in terms of access to power. In the case of conflicts, Vogt (2017) emphasizes that "ethnic power sharing [...] mediates the conflict-fueling effect of resource production: Only where relevant ethnic groups are excluded does resource wealth lead to conflict". We make use of specific information about the political power of ethnic groups from the Ethnic Power Relations Dataset (EPR, Wucherpfennig et al., 2011; Vogt et al., 2015), which contains information on contemporaneous ethnic homeland boundaries as well as on time-varying political power. The aim of the EPR data is to focus on ethnic groups who have a clear political relevance in their countries, leaving many groups outside its sample.[35] As a preliminary check, we thus replicate

[34]The question is stated as: *"How often is [Respondent?s Ethnic Group] treated unfairly by the government"*. Answers are the following: 0=Never, 1=Sometimes, 2=Often, 3=Always

[35]It may even be entire countries which do not appear in the EPR data. Vogt et al. (2015), p. 4, note that "An ethnic group is considered politically relevant if at least one political organization has claimed to represent its interests at the national level or if its members are subjected to state-led political discrimination (Cederman, Wimmer, and Min 2010, 99)." Group identities may be salient in everyday lives, like in wedding or business networks, while still not having a formal political representation. In Burkina Faso for example, the share of inter-ethnic marriages among married couples in 2003 was only 11.5%, while this rate would have been 67.5% if marriage matches were orthogonal to ethnic group identities(Crespin-Boucaud, 2020, online appendix Table 2). Yet, Burkina Faso is a country where the EPR dataset does not record a single ethnic group.

the results of the baseline Table 2, after restricting the sample to groups which *do not* appear in the EPR sample. The magnitude of the estimates of mineral resources extraction in an ethnic homeland is systematically higher in the restricted sample than in the baseline sample (Table 17 in the Appendix). In other words, the effect of mineral resources on ethnic identification appears to be magnified in the sample of groups without any ethnic political representation. We then exploit the information present in the EPR dataset. We replicate our baseline estimates using EPR's ethnic groups and homelands instead of Murdock's (column 1, Table 8). Note that this results in an important drop in sample size, but we still find a positive effect of mineral resources extraction, although the coefficient is smaller than in our baseline estimates and less precisely estimated. Next, we interact the mining variable with dummies capturing the degree of political power of the group (columns 2 and 3). While all groups of the EPR sample are politically relevant, they differ in their ability to influence political decisions. We split the groups into two exclusive categories: powerful groups, which have some access to power, and powerless ones, which do not.[36] Because the EPR status may be endogenous to variations in mineral resource production, we use the political status of groups before the start of our study period, in 2004. We find that hosting mineral resources production has no significant effect on the level of ethnic identification of groups with access to power. On the other hand, the effect is large and significant for powerless groups – an order of magnitude higher than in our baseline estimates.[37]

The various tests presented in this section suggest that our baseline findings on the salience of ethnic identification are consistent with a channel of economic deprivation (independently of the null or positive impact of mineral resources on actual economics conditions) and unequal treatment. Exploiting the information from the EPR allows us to further show that these results are driven exclusively by respondents belonging to groups who do not have a say in the political management of the resources. To do so, we combine information on the political power of ethnic groups with our various proxies for economic deprivation, living conditions and unequal treatment of ethnic groups. The estimated coefficients with the largest magnitude are systematically found for powerless ethnic groups (Table 18 in the Appendix). The extraction of mineral resources in the homeland of a politically powerful ethnic groups either has a smaller, or a statistically insignificant effect on the various outcomes.

Political implications. In Section 4, we found that natural resources tend to increase more ethnic identification during electoral periods. This does not necessarily imply, however, that

[36]We include the following EPR categories in the groups with access to power: dominant, junior partner, senior partner. 87% of the Afrobarometer respondents belong to a group with access to power while 13% of the respondents belong to a powerless group. The powerless groups contain the following EPR categories: discriminated, irrelevant, powerless. The other categories (e.g. monopoly, self-exclusion) are never present in our sample. The EPR categories definition are as follows. "1. The group rules alone: monopoly or dominant. In contrast to monopoly power, the status of dominant indicates 'token' representation of other ethnic groups in the executive. 2. The group shares power: senior partner or junior partner, depending on the group's absolute influence in the executive (i.e. irrespective of group size). 3. The group is excluded: powerless, discriminated, or self-exclusion. While powerless means that the group is simply not represented (or does not have influence) in the executive, discrimination indicates an active, intentional, and targeted discrimination by the state against group members in the domain of public politics." (Vogt et al., 2015, p. 6-7)

[37]Note that we split the effect only for the number of mines in the ethnic homeland, in the country of the respondent, because in our sample mines located abroad are systematically in the homelands of groups who have access to political power. This lack of variation prevents us from identifying the effect of mines abroad. However, it is interesting to note that the coefficients have closer magnitude for resources abroad and resources in the homeland of a powerful group, than for resources in the homeland of a powerless group.

Table 8: Natural resources extraction and ethnic group identification, EPR

	(1)	(2)	(3)
Dep. Var.	Salience of ethnic identification		
Sample		Full homeland	Outside
# mines: ethnic homeland	0.007^{c}		
	(0.003)		
# mines: ethnic homeland × powerful		0.009	0.014
		(0.008)	(0.009)
# mines: ethnic homeland × powerless		0.186^{a}	0.178^{a}
		(0.021)	(0.059)
# mines: ethnic homeland, abroad		0.005^{b}	0.005^{c}
		(0.002)	(0.003)
Country×region×year×month FE		Yes	
Country×ethnic group FE		Yes	
Additional controls		Yes	
Observations	84841	84841	35996
R^2	0.177	0.177	0.167

OLS estimations. ^{c} significant at 10%; ^{b} at 5%; ^{a} at 1%. Standard errors are clustered at the ethnic group level. The dependent variable is the level of ethnic identification with respect to state identification in all columns, ranging from categories 1 to 5. Ethnic homeland and ethnic groups are based on data from EPR. Powerful groups which fall into one of the following EPR categories in the EPR dataset at the beginning of the period: dominant, junior and senior partners. Powerless are groups will fall in the following categories: discriminated, irrelevant, powerless. Controls include age and its square, gender, rural/urban dummy, education categories and employment status.

natural resources trigger changes in electoral outcomes. In the remaining of the section we study specifically how natural resources affect voting and political affiliation. We consider questions from the Afrobarometer related to abstention and proximity to existing political parties. Political disaffiliation is a worldwide concern today (Miller, 2008; Pande, 2011; Hodler et al., 2015) and Huddy and Khatib (2007) show that in the USA this affiliation correlates with the strength of national identities. We focus on EPR ethnic groups, split as before into politically powerful and powerless groups.

Table 9 contains the results. We find that natural resources are associated with a larger number of individuals who did not vote, but only for groups excluded from power (column 1). Conditional on not voting, members of these groups are more likely to report having purposefully abstained, and having been prevented from voting (columns 2 and 3). In all cases, the effect for groups excluded from power is significantly higher than for powerful groups. Reassuringly, other motives for not voting, like having failed to find the polling station, are not significantly associated with variation in natural resources productions in ones' homeland (column 4). We then consider questions related to political affiliation: whether the individual declares a political party to which she feels close to (column 5); and whether the individual declares a party she would vote for if elections were held at the time of the survey (column 6). Though the coefficients are not statistically different in column (5), the broad picture that emerges from these specifications is that individuals belonging to powerless groups tend to report more political disaffiliation when more natural resources are exploited in their homeland. Overall, the results of Table 9 highlight a possible consequence of the impact of natural resources – a decrease in political affiliation and participation of ethnic groups already poorly represented at the national level.

Table 9: Voting and political participation

Dep. Var.	(1) Didn't vote	(2) Reason not voting	(3)	(4)	(5) Feels close to political party	(6) Will vote for political party
		Abstained	Prevented	Couldn't find		
Sample		Non-voters				
# mines: ethnic homeland × powerful	0.001	0.003	0.002	-0.000	-0.006[a]	-0.003
	(0.002)	(0.004)	(0.001)	(0.002)	(0.002)	(0.002)
# mines: ethnic homeland × powerless	0.041[a]	0.053[a]	0.036[a]	0.002	-0.010	-0.032[c]
	(0.006)	(0.016)	(0.009)	(0.006)	(0.011)	(0.018)
# mines: ethnic homeland, abroad	0.002[c]	0.000	-0.001	0.001	0.001	0.004[b]
	(0.001)	(0.003)	(0.001)	(0.001)	(0.001)	(0.002)
Country×region×time FE				Yes		
Country×ethnic group FE				Yes		
Additional controls				Yes		
Observations	51292	13998	13998	13998	85907	85907
R^2	0.218	0.209	0.117	0.111	0.138	0.120
F-stat	33.54	10.79	16.28	0.09	0.15	3.11
P-value	0.000	0.001	0.000	0.768	0.704	0.081

OLS estimations. [c] significant at 10%; [b] at 5%; [a] at 1%. Standard errors are clustered at the ethnic group level. The dependent variables are binary variables which equal 1 in the following case: in column (1), if the individual declares not having voting in the last election; in column (2) if the individual did not vote because she chose to abstain; in column (3), if the individual did not vote because she was prevented from doing so; in column (4), if the individual did not vote because she did not find the polling station; in column (5), if the individual declares a party to which she feels close to; in column (6) if the individual declares a party for which she would vote if elections were held tomorrow. In columns (2) to (5) the sample is restricted to individuals who did not vote in the previous elections. In columns (1) to (4) the number of mines is computed for the year of the last election. To construct our measure of proximity of elections, we make use of the two following sources: https://www.eisa.org.za/calendar-comprehensive.php and http://africanelections.tripod.com/chronology.html. In columns (5) and (6) the number of mines at the times of the survey is used. Ethnic homeland and ethnic groups are based on data from EPR. Powerful groups which fall into one of the following EPR categories in the EPR dataset at the beginning of the period: dominant, junior and senior partners. Powerless are groups will fall in the following categories: discriminated, irrelevant, powerless. Controls include age and its square, gender, rural/urban dummy, education categories and employment status. The F-test tests for the difference between the estimates of $\#mines : ethnic\ homeland \times powerful$ and $\#mines : ethnic\ homeland \times powerless$.

6 Conclusion

The way in which resource windfalls impact economic development is still debated. We document a new channel through which mineral resource wealth may have an adverse economic impact: identities fragmentation. We exploit geo-localized individual data on the strength of ethnic *versus* national identification in 25 countries of sub-Saharan Africa from 2005 to 2015, matched to the respondents' ethnic homelands, and mineral resources exploitation in these homelands.

Our results suggest that mineral resources fosters identity fragmentation. We document a significant increase in the strength of ethnic identification, relative to national identification, as a response to the exploitation of mineral resources. The effect of resources on ethnic identification is significant regardless of whether resources are exploited within or outside the country of residence of the respondent. The effect is persistent, and strongest two to three years after the exploitation starts. The effect also tends to be magnified during elections periods, which implies that changes in resource exploitation might have long-lasting impact on ethnic identification through voting patterns.

At the root of our main finding appears to be a channel of economic deprivation and political exclusion. Indeed, the relationship between identification and resources does not appear to come from either local conflicts, improved local conditions, or economic spillovers. Rather, individuals declare higher levels of perceived losses in wealth following more intense resources exploitation in their ethnic homelands, and more unfair treatment of their ethnic groups. Finally, our results

appear to be driven by individuals belonging to ethnic groups excluded from the political power in the country where the resource is exploited.

Overall, this paper documents a potentially understudied consequence of natural resources extraction, and at the same time sheds new light on the sources of identities fragmentation, an issue which has potential implications for inter-group conflict as well as economic performance. Our results suggest that perceptions of economic or political deprivation can play a substantial role in driving identity constructions, regardless of actual economic achievements.

References

Adhvaryu, A., J. E. Fenske, G. Khanna, and A. Nyshadham (2018). Resources, conflict, and economic development in Africa. *National Bureau of Economic Research Working Paper Series*.

Ahlerup, P., T. Baskaran, and A. Bigsten (2017). Regional development and national identity in sub-Saharan Africa. *Journal of Comparative Economics 45*(3), 622–643.

Aker, J. C., M. W. Klein, S. A. O'Connell, and M. Yang (2014). Borders, ethnicity and trade. *Journal of Development Economics 107*(C), 1–16.

Akerlof, G. A. and R. E. Kranton (2010). *Identity Economics: How Our Identities Shape Our Work, Wages, and Well-Being*. Princeton University Press.

Alesina, A. and E. L. Ferrara (2005). Ethnic diversity and economic performance. *Journal of Economic Literature 43*(3), 762–800.

Alsan, M. (2015). The Effect of the TseTse Fly on African Development. *American Economic Review 105*(1), 382–410.

Aragón, F. M., P. Chuhan-Pole, and B. C. Land (2015). *The local economic impacts of resource abundance: What have we learned?* The World Bank.

Aragón, F. M. and J. P. Rud (2013). Natural resources and local communities: Evidence from a Peruvian gold mine. *American Economic Journal: Economic Policy 5*(2), 1–25.

Armand, A., A. Coutts, P. C. Vicente, and I. Vilela (2019). Does information break the political resource curse? Experimental evidence from Mozambique. IFS Working Papers W19/01, London.

Atkin, D., E. Colson-Sihra, and M. Shayo (2019, March). How do we choose our identity? a revealed preference approach using food consumption. *National Bureau of Economic Research Working Paper Series*.

Bazillier, R. and V. Girard (2020). The gold digger and the machine. Evidence on the distributive effect of the artisanal and industrial gold rushes in Burkina Faso. *Journal of Development Economics 143*, 102411.

Benshaul-Tolonen, A. (2019). Local industrial shocks and infant mortality. *The Economic Journal 129*(620), 1561–1592.

Berman, N., M. Couttenier, D. Rohner, and M. Thoenig (2017). This Mine Is Mine! How Minerals Fuel Conflicts in Africa. *American Economic Review 107*(6), 1564–1610.

Bisin, A., E. Patacchini, T. Verdier, and Y. Zenou (2016). Bend it like Beckham: Ethnic identity and integration. *European Economic Review 90*(C), 146–164.

Caselli, F. and G. Michaels (2013). Do Oil Windfalls Improve Living Standards? Evidence from Brazil. *American Economic Journal: Applied Economics 5*(1), 208–38.

Christensen, D. (2019). Concession Stands: How Mining Investments Incite Protest in Africa. *International Organization 73*(1), 65–101.

Collier, P. (2017). The institutional and psychological foundations of natural resource policies. *The Journal of Development Studies 53*(2), 217–228.

Cornwell, C., J. Rivera, and I. Schmutte (2017, 06). Wage discrimination when identity is subjective: Evidence from changes in employer-reported race. *Journal of Human Resources 52*, 719–755.

Crespin-Boucaud, J. (2020). Interethnic and interfaith marriages in sub-Saharan Africa. *World Development 125*, 104668.

Cust, J. and J. Mensah (2020). Natural resource discoveries, citizen expectations and decisions.

Cust, J. and D. Mihahyi (2017). Evidence for a presource curse? Oil discoveries, elevated expectations, and growth disappointments. *World Bank Working Paper Series*.

Cust, J. and S. Poelhekke (2015, October). The Local Economic Impacts of Natural Resource Extraction. *Annual Review of Resource Economics 7*(1), 251–268.

Dahis, R., Emily, and N. Qian (2019). Choosing Racial Identity in the United States, 1880-1940. *National Bureau of Economic Research Working Paper Series* (26465).

Depetris-Chauvin, E., R. Durante, and F. R. Campante (forthcoming). Building Nations Through Shared Experiences: Evidence from African Football. *The American Economic Review*.

Desmet, K., I. Ortuño Ortìn, and R. Wacziarg (2017). Culture, ethnicity, and diversity. *American Economic Review 107*(9), 2479–2513.

Dickens, A. (2018). Ethnolinguistic Favoritism in African Politics. *American Economic Journal: Applied Economics 10*(3), 370–402.

Donaldson, D. and A. Storeygard (2016). The View from Above: Applications of Satellite Data in Economics. *Journal of Economic Perspective*, 171–98.

Doyle, M. and N. Sambanis (2006). *Making War and Building Peace: United Nations Peace Operations*. Princeton paperbacks. Princeton University Press.

Easterly, W. and R. Levine (1997). Africa's Growth Tragedy: Policies and Ethnic Divisions. *The Quarterly Journal of Economics, MIT Press 112*(4), 1203–50.

Eifert, B., E. Miguel, and D. N. Posner (2010). Political Competition and Ethnic Identification in Africa. *American Journal of Political Science 54*(2), 494–510.

Esteban, J., L. Mayoral, and D. Ray (2012). Ethnicity and conflict: An empirical study. *American Economic Review 102*(4), 1310–42.

Fan, Y. and H. v. d. Dool (2008). A global monthly land surface air temperature an analysis for 1948 to present. *Journal of Geophysical Research 113*.

Fearon, J. D. and D. D. Laitin (2003). Ethnicity, insurgency, and civil war. *American Political Science Review* (01), 75–90.

Fenske, J. and I. Zurimendi (2017). Oil and ethnic inequality in Nigeria. *Journal of Economic Growth 22*(4), 397–420.

Gehring, K. and S. A. Schneider (2020). Regional resources and democratic secessionism. *Journal of Public Economics 181*, 104073.

Gennaioli, N. and I. Rainer (2007). The modern impact of precolonial centralization in Africa. *Journal of Economic Growth 12*(3), 185–234.

Girard, V., A. Kudebayeva, and G. Toews (2020). Inflated expectations and commodity prices: Evidence from kazakhstan.

Green, E. (2018). Ethnicity, National Identity and the State: Evidence from Sub-Saharan Africa. *British Journal of Political Science*, 1–23.

Harari, M. and E. L. Ferrara (2018). Conflict, climate, and cells: A disaggregated analysis. *The Review of Economics and Statistics 100*(4), 594–608.

Harris, A., D. L. Nielson, L. Medina, W. Berlin, C. B. M. Correia, M. G. Findley, J. M. Weinstein, J. Habyarimana, M. Humphreys, and D. N. Posner (2018). Experimental Evidence from Uganda, South Africa, and the United States on Ethnic Identification and Ethnic Deception. *Prepared for the APSA Annual Conference, Boston*.

Hodler, R., S. Luechinger, and A. Stutzer (2015, February). The effects of voting costs on the democratic process and public finances. *American Economic Journal: Economic Policy 7*(1), 141–71.

Hodler, R., S. Srisuma, A. Vesperoni, and N. Zurlinden (2020). Measuring ethnic stratification and its effect on trust in africa. *Journal of Development Economics 146*, 102475.

Huddy, L. and N. Khatib (2007). American patriotism, national identity, and political involvement. *American Journal of Political Science 51*(1), 63–77.

Huffman, G. J. and D. T. Bolvin (2013). Gpcp version 2.2 sg combined precipitation data set documentation. *NASA GSFC Doc.*

Hunziker, P. and L.-E. Cederman (2017). No extraction without representation: The ethno-regional oil curse and secessionist conflict. *Journal of Peace Research 54*(3), 365–381.

Jha, S. (2014). 'unfinished business': Historic complementarities, political competition and ethnic violence in Gujarat. *Journal of Economic Behavior & Organization 104*, 18 – 36. Economics, Religion, and Culture.

Jha, S. (2018). Trading for peace. *Economic Policy 33*(95), 485–526.

Kling, J. R., J. B. Liebman, and L. F. Katz (2007). Experimental analysis of neighborhood effects. *Econometrica 75*(1), 83–119.

Klor, E. and M. Shayo (2010). Social identity and preferences over redistribution. *Journal of Public Economics 94*(3-4), 269–278.

Lessmann, C. and A. Steinkraus (2019). The geography of natural resources, ethnic inequality and civil conflicts. *European Journal of Political Economy 59*, 33–51.

Loayza, N. and J. Rigolini (2016). The local impact of mining on poverty and inequality: evidence from the commodity boom in Peru. *World Development 84*, 219–234.

Mamo, N. and S. Bhattacharyya (2018). Natural Resources and Political Patronage in Africa: An Ethnicity Level Analysis. *Department of Economics, University of Sussex Business School* (0418).

Mamo, N., S. Bhattacharyya, and A. Moradi (2019). Intensive and extensive margins of mining and development: evidence from Sub-Saharan Africa. *Journal of Development Economics 139*, 28–49.

Manacorda, M. and A. Tesei (2020). Liberation Technology: Mobile Phones and Political Mobilization in Africa. *Econometrica*.

Michalopoulos, S. and E. Papaioannou (2013). Pre-Colonial Ethnic Institutions and Contemporary African Development. *Econometrica 81*(1), 113–152.

Michalopoulos, S. and E. Papaionnaou (2020). Historical legacies and African Development. *Journal of Economic Literature*.

Miller, G. (2008, 08). Women's Suffrage, Political Responsiveness, and Child Survival in American History*. *The Quarterly Journal of Economics 123*(3), 1287–1327.

Monteiro, J. and C. Ferraz (2010). Does oil make leaders unaccountable? evidence from brazil's offshore oil boom. *unpublished, PUC-Rio*.

Morelli, M. and D. Rohner (2015). Resource concentration and civil wars. *Journal of Development Economics 117*, 32 – 47.

Murdock, G. P. (1959). An Atlas of African History. JD Fage. *American Anthropologist 61*(3), 530–531.

Nair, G. and N. Sambanis (2019). Violence Exposure and Ethnic Identification: Evidence from Kashmir. *International Organization 73*(2), 329–363.

Nunn, N. (2008). The Long-term Effects of Africa's Slave Trades. *The Quarterly Journal of Economics 123*(1), 139–176.

Nunn, N. and L. Wantchekon (2011). The Slave Trade and the Origins of Mistrust in Africa. *American Economic Review 101*(7), 3221–52.

Pande, R. (2011). Can informed voters enforce better governance? experiments in low-income democracies. *Annual Review of Economics 3*(1), 215–237.

Raleigh, C., A. Linke, H. Hegre, and J. Karlsen (2010). Introducing acled: an armed conflict location and event dataset: special data feature. *Journal of Peace Research 47*(5), 651–660.

Robinson, A. L. (2014). National versus ethnic identification in Africa: Modernization, colonial legacy, and the origins of territorial nationalism. *World Politics 66*(4), 709–746.

Rohner, D., M. Thoenig, and F. Zilibotti (2013). Seeds of distrust: conflict in Uganda. *Journal of Economic Growth 18*(3), 217–252.

Sanchez de la Sierra, R. (2020). On the Origins of the State: Stationary Bandits and Taxation in Eastern Congo. *Journal of Political Economy*.

Shayo, M. (2009). A model of social identity with an application to political economy: Nation, class, and redistribution. *American Political Science Review 103*(2), 147–174.

Tollefsen, A. F., H. Strand, and H. Buhaug (2012). Prio-grid: A unified spatial data structure. *Journal of Peace Research 49*(2), 363–374.

van der Ploeg, F. (2011, June). Natural Resources: Curse or Blessing? *Journal of Economic Literature 49*(2), 366–420.

Venables, A. J. (2016, February). Using natural resources for development: Why has it proven so difficult? *Journal of Economic Perspectives 30*(1), 161–84.

Vogt, M. (2017). Escaping the resource curse: Ethnic inclusion in resource-rich states in west africa. In *Issues in African Political Economies*, pp. 199–225. Carolina Academic Press.

Vogt, M., N.-C. Bormann, S. Rüegger, L.-E. Cederman, P. Hunziker, and L. Girardin (2015). Integrating data on ethnicity, geography, and conflict: The ethnic power relations data set family. *Journal of Conflict Resolution 59*(7), 1327–1342.

Wucherpfennig, J., N. B. Weidmann, L. Girardin, L.-E. Cederman, and A. Wimmer (2011). Politically relevant ethnic groups across space and time: Introducing the geoepr dataset. *Conflict Management and Peace Science 28*(5), 423–437.

Appendix

Matching Afrobarometer ethnic groups to Murdock homelands

We pursue different strategies to match the ethnic groups recorded in the Afrobarometer surveys and in the Murdock Atlas. The list of ethnic groups recorded in the Afrobarometer is directly inspired from the Murdock Atlas. However, the Afrobarometer also updates that list. As a result, Afrobarometer acknowledges that some homelands recorded in Murdock have given rise to different groups today. For example, the Kifipa and the Mfipa ethnic groups that the Afrobarometer records in Tanzania correspond to a single ethnic homeland from Murdock, that of the Fipa. Conversely, some of the ethnic homelands recorded distinctly in Murdock shared proximities such that it makes sense to record them as a single entity in the Afrobarometer. In Ivory coast for example, the Afrobarometer questionnaire records only five ethnic groups, while the Murdock Atlas records 35 ethnic groups.

We exploit three main sources to match the groups recorded in the Afrobarometer and the Murdock Atlas (we used the same for the matching to the EPR dataset): online extracts and trees of relations between groups from the Murdock Atlas,[38] the matching made by Nunn (2008) for countries of the survey round 3, and the Ethnologue.[39] In the cases when none of the above was enough, we crossed information from the Joshua Project,[40] Wikipedia entries on the ethnic group name,[41] and press articles.

Our baseline data matches each Afrobarometer group to a single one Murdock homeland, while allowing Murdock homelands to be matched to more than one Afrobarometer group (like Nunn, 2008). In Ivory Coast for example, this means that we match the Gur ethnic group of the Afrobarometer only to the main subgroup to which it corresponds, which would be the Guro.

We check the robustness of our results to two alternative definitions of ethnic homelands in the Murdock Atlas. In the first, we aim at linking each Murdock homeland present in a country to a group from the Afrobarometer, in a "grouped" approach. To do so, we allow multiple correspondence between Murdock and Afrobarometer groups. In other words, a single Afrobarometer group will sometimes be matched to a single Murdock homeland (if the levels of aggregation of both records correspond), and sometimes a single Afrobarometer group will be matched with several Murdock homelands (because the levels of aggregation are different). Such matching results in 280 groupings, that cover 550 single Murdock homelands. In Ivory Coast for example, this means that we match the Gur ethnic group of the Afrobarometer to four different ethnic homelands of the Murdock Atlas (namely the Gagu, Guro, Ngere and Wobe). Figure 3 shows a representation of the ethnic homelands of the Murdock Atlas when several of them are matched to a single ethnic group from the Afrobarometer (so that the map now covers all the 35 homelands recorded in Ivory Coast, although we ended up grouping them in five homelands to match the number of ethnic groups recorded in the Afrobarometer).

Second, we check the robustness of our results to splitting respondents between Cultural areas

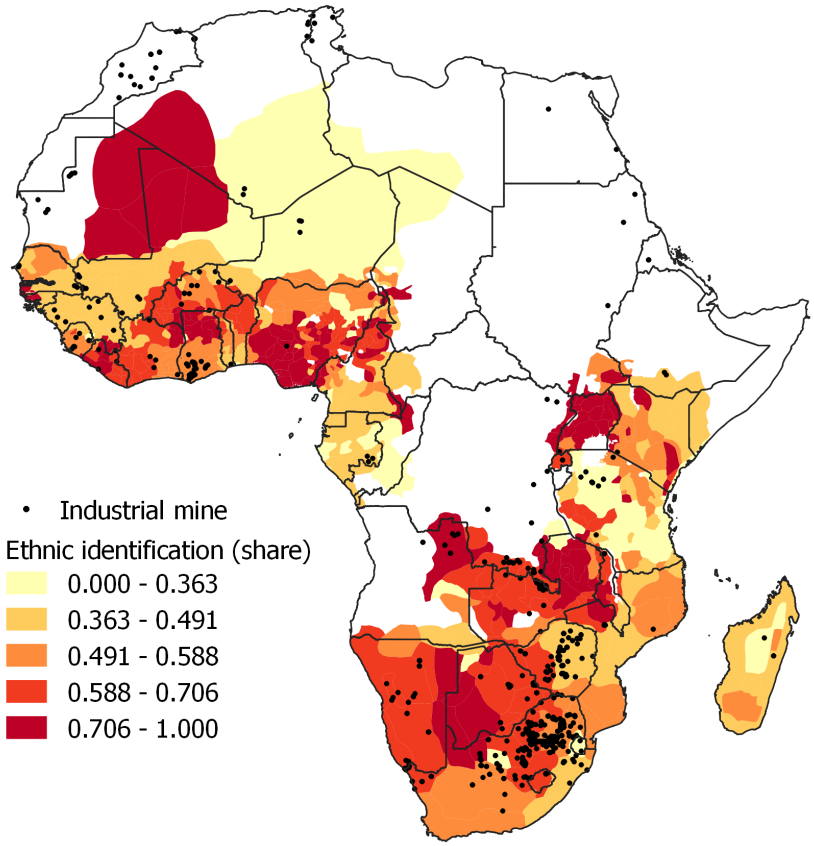
[38] https://www.webafriqa.net/library/anthropology/murdock/

[39] https://www.ethnologue.com/

[40] https://joshuaproject.net/ which shows a contemporaneous catalog of ethnic groups and their languages compiled by a missionary group, as was the initial trigger of the Ethnologue catalog.

[41] Mainly to check the translation of the group names in different languages by changing the language of the Wikipedia entry. Wikipedia also provides information on synonymous and related groups for example in https://en.wikipedia.org/wiki/List_of_contemporary_ethnic_groups.

Figure 3: Identification to ethnic identity and natural resources, 'grouped' definition of ethnic homelands

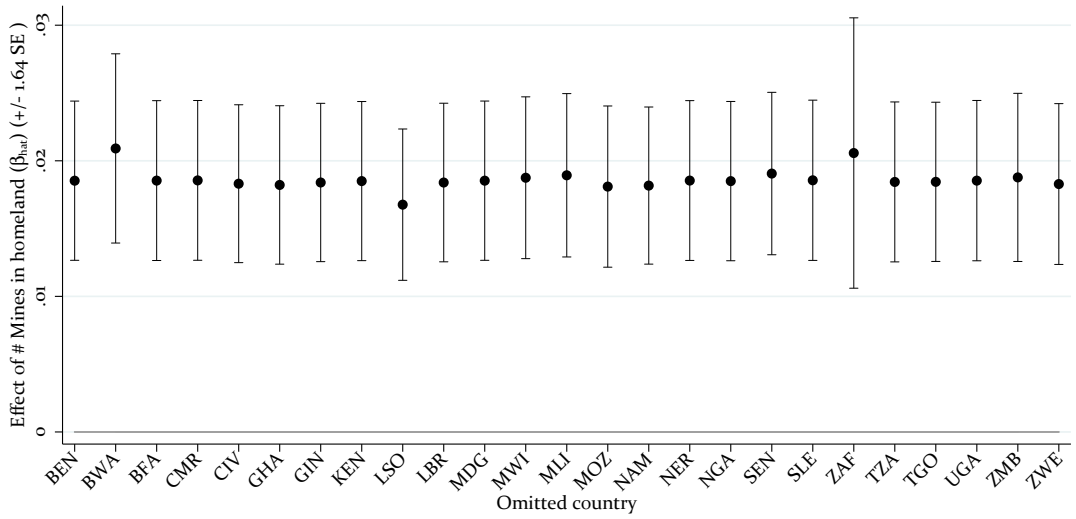


Source: Authors' computations from the Afrobarometer surveys, Murdock and S&P data. The map shows the location of each industrial mine that has been active between the years 2005 and 2015 and the 'grouped' matching of Afrobarometer and Murdock ethnic groups. For each ethnic group, the map shows the share of members of that group who value their ethnic identity equally or more than their national identity. Each share takes in account the answers of all the members of each ethnic group, independently of the homeland in which these members live.

rather than Murdock homelands. The Murdock Atlas attributes each ethnic group to a Cultural group, Cultural groups thus cover bigger geographic areas than Murdock homelands. Cultural groups correspond to a very aggregated definition of what is an ethnic homeland: the 303 Murdock ethnic groups we record belong to only 72 distinct Cultural areas. However, cultural groups allow to cover virtually all the relevant geographic areas (expanding in space our baseline definition) without leaving any endogeneity in the choice of which group stands alone and which group get merged to others (as we do in the "grouped" approach).

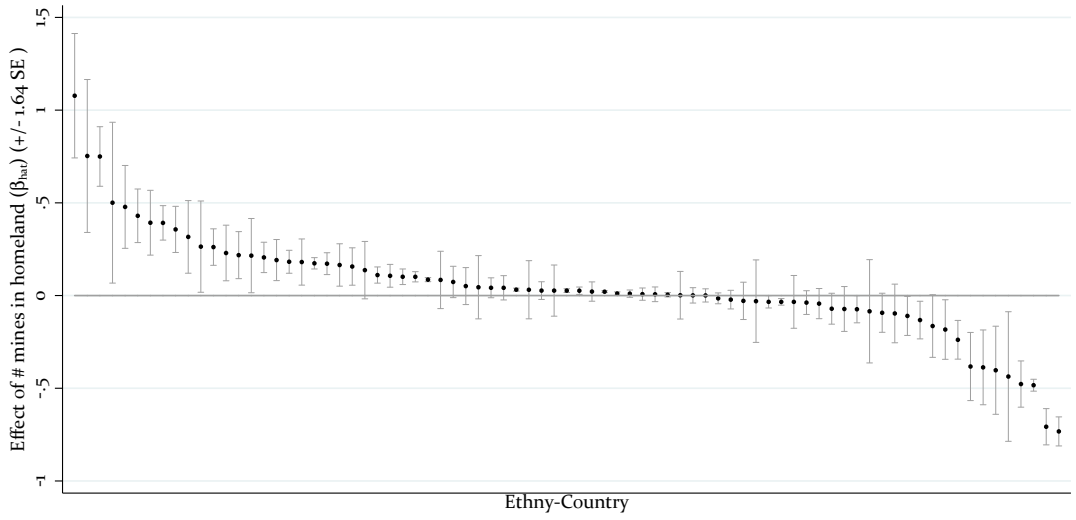
Additional Figures

Figure 4: Dropping countries one by one



This figure reports our the effect of the number of mines in the ethnic homeland of the respondent on the strength of ethnic identification, estimated using equation (1). Coefficients and 90% confidence interval depicted. Each coefficient is obtained by dropping a specific country from the estimation.

Figure 5: Baseline results by ethnic group



This figure reports the effect of the number of mines in the ethnic homeland of the respondent on the strength of ethnic identification, estimated using equation (1), except that we allow the coefficient to vary by ethnic group-country by including a set of interaction term between the mining variable and each dummies for each ethnic group-country. Coefficients and 90% confidence interval depicted.

Additional Tables

Table 10: Summary statistics, complement to Table 1

	Mean	S.D.	1st Quartile	Median	3rd Quartile
Production value: ethnic homeland. ref years: 1995-2004	0.51	2.54	0	0	0
Production value: ethnic homeland. ref years: 2000-2004	0.55	3.18	0	0	0
Production value: ethnic homeland. ref years: 2004	0.54	3.58	0	0	0
Rainfall: ethnic homeland	0.58	0.32	0.37	0.51	0.75
Temperatures: ethnic homeland	13.63	3.03	11.68	13.70	15.89
ACLED events in ethnic homeland	0.78	0.41	1	1	1
Battles in homeland	0.37	0.48	0	0	1
Violence against civilians in homeland	0.55	0.5	0	1	1
Other events in homeland	0.69	0.46	0	1	1
Nightlights emissions in homeland	0.6	2.03	0.04	0.11	0.42
Owns radio	0.71	0.45	0	1	1
Owns tv	0.36	0.48	0	0	1
Owns vehicle	0.16	0.36	0	0	0
Ever gone without enough food	1.12	1.22	0	1	2
Ever gone without enough income	2.14	1.36	1	2	3
Ever gone without enough water	1.16	1.38	0	0	2
Ever gone without enough medicine	1.23	1.28	0	1	2
Ever gone without enough fuel	0.88	1.19	0	0	2
Perception wr. t - 1 of the economic condition of HH	2.96	1.05	2	3	4
Dummy on perceptions wr. t - 1 for HH	0.66	0.47	0	1	1
Differential perception from HH to country conditions	0.06	0.86	0	0	0
Ethnic group treated unfairly	0.71	0.96	0	0	1
Dummy on ethnic group treated unfairly	0.43	0.5	0	0	1
Powerful group (2004 EPR status)[a]	0.87	0.33	1	1	1
Excluded group (2004 EPR status)[a]	0.12	0.33	0	0	0

Source: Authors' computations from the Afrobarometer surveys, Murdock and S&P data. See main text for data sources. [a] The EPR descriptive statistics come from the reduced sample of 84,841 households who belong to groups identified in the EPR dataset.

Table 11: Natural resources extraction and ethnic identification

	(1)	(2)	(3)	(4)	(5)
Dep. Var.	Salience of ethnic group identification				
Version	Categorical	Dummy	Categorical	Categorical	Categorical
Ethnic Homeland Def.		Murdock		Grouped	Cultural
# mines: ethnic homeland	0.019^{a}	0.006^{a}		0.012^{a}	0.006^{a}
	(0.004)	(0.002)		(0.004)	(0.002)
# mines: ethnic homeland, in country			0.018^{a}		
			(0.004)		
# mines: ethnic homeland, abroad			0.019^{a}		
			(0.006)		
Residence in homeland	0.040^{a}	0.013^{a}	0.040^{a}	0.027^{b}	0.030^{b}
	(0.012)	(0.005)	(0.012)	(0.013)	(0.014)
Residence in rural area	0.033^{a}	0.008^{c}	0.033^{a}	0.033^{a}	0.038^{a}
	(0.012)	(0.005)	(0.012)	(0.012)	(0.013)
Female respondent	0.051^{a}	0.019^{a}	0.051^{a}	0.051^{a}	0.050^{a}
	(0.010)	(0.003)	(0.010)	(0.010)	(0.011)
Age	-0.004^{a}	-0.001	-0.004^{a}	-0.004^{a}	-0.004^{a}
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age squared	0.000^{b}	0.000	0.000^{b}	0.000^{b}	0.000^{b}
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
No formal schooling	0.191^{a}	0.055^{b}	0.191^{a}	0.191^{a}	0.191^{a}
	(0.054)	(0.022)	(0.054)	(0.054)	(0.040)
Informal schooling only	0.092	0.032	0.092	0.093	0.089^{c}
	(0.057)	(0.024)	(0.057)	(0.057)	(0.045)
Some primary schooling	0.111^{b}	0.038^{c}	0.111^{b}	0.111^{b}	0.110^{b}
	(0.054)	(0.022)	(0.054)	(0.055)	(0.043)
Primary school completed	0.060	0.026	0.060	0.059	0.058
	(0.053)	(0.022)	(0.053)	(0.053)	(0.037)
Some secondary school / high school	0.023	0.019	0.023	0.023	0.021
	(0.054)	(0.022)	(0.054)	(0.053)	(0.039)
Secondary school / high school completed	0.010	0.015	0.010	0.009	0.005
	(0.053)	(0.022)	(0.053)	(0.054)	(0.042)
Post-secondary qualifications, other than university	0.005	0.015	0.005	0.004	0.000
	(0.055)	(0.023)	(0.055)	(0.055)	(0.040)
Some university	-0.019	-0.004	-0.019	-0.019	-0.019
	(0.057)	(0.023)	(0.057)	(0.059)	(0.047)
University completed	0.013	0.003	0.013	0.013	0.012
	(0.056)	(0.023)	(0.056)	(0.056)	(0.037)
Inactive	0.049^{a}	0.019^{a}	0.049^{a}	0.049^{a}	0.050^{a}
	(0.014)	(0.006)	(0.014)	(0.013)	(0.014)
Unemployed	0.062^{a}	0.022^{a}	0.062^{a}	0.062^{a}	0.063^{a}
	(0.013)	(0.006)	(0.013)	(0.013)	(0.014)
Employed part time	0.038^{a}	0.016^{a}	0.038^{a}	0.038^{a}	0.038^{a}
	(0.012)	(0.005)	(0.012)	(0.012)	(0.011)
Country×region×year×month FE			Yes		
Country×ethnic group FE			Yes		
Additional controls			Yes		
Observations	116247	116247	116247	116247	116243
R^2	0.185	0.190	0.185	0.184	0.180

OLS estimations. ^{c} significant at 10%; ^{b} at 5%; ^{a} at 1%. Standard errors are clustered at the ethnic group level. The dependent variable is the level of ethnic identification with respect to state identification in all columns but (1), ranging from categories 1 to 5. In column (2) we use as dependent variable a dummy taking the value 1 if the individual identifies at least as much to the ethnic group than the country. Columns (1) to (3) use our baseline measure of ethnic homelands, constructed from a one-to-one matching between Murdock and Afrobarometer data. In columns (4) and (5) we use our alternative definitions of ethnic homelands, a defined in the main text.

Table 12: Natural resources extraction and ethnic identification during electoral periods

	(1)	(2)	(3)	(4)
Dep. Var.	Salience of ethnic group identification			
Version	Categorical	Dummy	Categorical	Categorical
Ethnic Homeland Def.	Murdock		Grouped	Cultural
# mines: ethnic homeland, in country	0.084^{c}	0.033^{c}	0.062	-0.011
	(0.050)	(0.017)	(0.049)	(0.007)
× 6 months before the election	0.032	0.009^{c}	0.032	0.019^{a}
	(0.022)	(0.005)	(0.021)	(0.006)
Country×region×year×month FE			Yes	
Country×ethnic group FE			Yes	
Additional controls			Yes	
Observations	39490	39490	39490	39490
R^2	0.187	0.196	0.187	0.178

OLS estimations. ^{c} significant at 10%; ^{b} at 5%; ^{a} at 1%. Standard errors are clustered at the ethnic group level. We restrict our sample to countries-waves in which some elections (presidential or legislative) are taking place in the following eighteen months. o construct our measure of proximity of elections, we make use of the two following sources: https://www.eisa.org.za/calendar-comprehensive.php and http://africanelections.tripod.com/chronology.html. The dependent variable is the level of ethnic identification with respect to state identification in all columns but (1), ranging from categories 1 to 5. In column (2) we use as dependent variable a dummy taking the value 1 if the individual identifies at least as much to the ethnic group than the country. Columns (1) and (2) use our baseline measure of ethnic homelands, constructed from a one-to-one matching between Murdock and Afrobarometer data. In columns (3) and (4) we use our alternative definitions of ethnic homelands, a defined in the main text. Controls include age and its square, gender, rural/urban dummy, education categories and employment status.

Table 13: Natural resources extraction and ethnic identification: variations in world prices

	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var.	Salience of ethnic group identification					
Dep Var. Def.	Categorical			Dummy		
Production value: ethnic homeland	0.009^{b}			0.003^{c}		
ref years: 1995-2004	(0.004)			(0.002)		
Production value: ethnic homeland		0.008^{a}			0.003^{a}	
ref years: 2000-2004		(0.003)			(0.001)	
Production value: ethnic homeland			0.007^{b}			0.003^{a}
ref years: 2004			(0.003)			(0.001)
Residence in homeland	0.041^{a}	0.041^{a}	0.041^{a}	0.013^{a}	0.013^{a}	0.013^{a}
	(0.012)	(0.012)	(0.012)	(0.005)	(0.005)	(0.005)
Country×region×year×month FE			Yes			
Country×ethnic group FE			Yes			
Additional controls			Yes			
Observations	116247	116247	116247	117573	117573	117573
R^2	0.185	0.185	0.185	0.200	0.201	0.201

OLS estimations. ^{c} significant at 10%; ^{b} at 5%; ^{a} at 1%. Standard errors are clustered at the ethnic group level. In columns (1) to (3), the dependent variable is the level of ethnic identification with respect to state identification, ranging from 1 to 5. In column (3) to (6) we use as dependent variable a dummy taking the value 1 if the individual identifies at least as much to the ethnic group than the country. Production value: ethnic homeland: is the price of each mineral weighted by their volume of production at the beginning of the period. Beginning of the period means 1995-2004 in columns (1) and (4), 2000-2004 in columns (2) and (5) and 2004 in columns (3) and (6). Additional controls include age and its square, gender, rural/urban dummy, education categories and employment status.

Table 14: Weather shocks and ethnic identification

	(1)	(2)	(3)	(4)
Dep. Var.	Salience of ethnic group identification			
Version	Categorical			Dummy
# mines: ethnic homeland	0.019^a	0.018^a	0.018^a	0.006^a
	(0.004)	(0.004)	(0.004)	(0.002)
Rainfall: ethnic homeland	-0.023		0.021	-0.004
	(0.144)		(0.160)	(0.066)
Temperature: ethnic homeland		0.021	0.020	-0.011
		(0.092)	(0.094)	(0.040)
Residence in homeland	0.040^a	0.030^b	0.030^b	0.010^b
	(0.013)	(0.014)	(0.014)	(0.005)
Country×region×year×month FE			Yes	
Country×ethnic group FE			Yes	
Additional controls			Yes	
Observations	116239	104529	104529	104529
R^2	0.185	0.185	0.185	0.192

OLS estimations. ^{c} significant at 10%; ^{b} at 5%; ^{a} at 1%. Standard errors are clustered at the ethnic group level. The dependent variable is the level of ethnic identification with respect to state identification in all columns but (4), ranging from categories 1 to 5. In column (4) we use as dependent variable a dummy taking the value 1 if the individual identifies at least as much to the ethnic group than the country. All estimations use our baseline measure of ethnic homelands, constructed from a one-to-one matching between Murdock and Afrobarometer data.

Table 15: Natural resources extraction and salience of ethnic identification: dropping survey waves one by one

	(1)	(2)	(3)	(4)
Dep. Var.	Salience of ethnic group identification			
Survey Wave Omitted	3	4	5	6
# mines: ethnic homeland	0.023^a	0.019^a	0.017^a	0.014^b
	(0.005)	(0.004)	(0.003)	(0.006)
Residence in homeland	0.033^b	0.041^a	0.051^a	0.038^a
	(0.015)	(0.013)	(0.015)	(0.013)
Country×region×year×month FE			Yes	
Country×ethnic group FE			Yes	
Additional controls			Yes	
Observations	95745	93203	79755	80032
R^2	0.173	0.187	0.188	0.193

OLS estimations. ^{c} significant at 10%; ^{b} at 5%; ^{a} at 1%. Standard errors are clustered at the ethnic group level. The dependent variable is the level of ethnic identification with respect to state identification, ranging from 1 to 5. Additional controls include age and its square, gender, rural/urban dummy, education categories and employment status.

Table 16: Natural resources extraction and switches in ethnic group identity

	(1)	(2)	(3)	(4)	(5)
Dep. Var.	Share ethnic group				Group dummy
Ethnic Homeland Def.	Baseline	Grouped	Cultural	EPR	Baseline
# mines: ethnic homeland, in country	-0.000	0.000	0.000	0.000	-0.001
	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)
Country × year FE	Yes	Yes	Yes	Yes	No
Ethnic group × Country	Yes	Yes	Yes	Yes	No
Country×region×year×month FE	No	No	No	No	Yes
Country×ethnic group FE	No	No	No	No	Yes
Additional controls			Yes		
Observations	1188	1143	541	564	1821563
R^2	0.980	0.982	0.989	0.747	0.287

OLS estimations. ^{c} significant at 10%; ^{b} at 5%; ^{a} at 1%. Standard errors are clustered at the ethnic group level. In columns (1) to (4) the dependent variable is the share of Afrobarometer respondents who declare they below to that ethnic group, computed by country and wave of survey. Columns (1) to (3) use different versions of Murdock ethnic homelands, as defined in the text. Column (4) use ethnic groups homelands from EPR. In column (5) the level of observation is the individual-ethnic group. The dependent variable is a dummy taking the value 1 if the individual declares belonging to that ethnic group. We consider all combinations respondent × ethnic group observed in the country. Controls include age and its square, gender, rural/urban dummy, education categories and employment status.

Table 17: Natural resources extraction and ethnic identification, excluding EPR sample

	(1)	(2)	(3)	(4)	(5)
Dep. Var.	Salience of ethnic group identification				
Version	Categorical	Dummy	Categorical	Categorical	Categorical
Ethnic Homeland Def.	Murdock			Grouped	Cultural
# mines: ethnic homeland	0.060^{a}	0.029^{a}		0.041^{a}	0.008^{a}
	(0.016)	(0.007)		(0.009)	(0.001)
# mines: ethnic homeland, in country			0.080^{b}		
			(0.035)		
# mines: ethnic homeland, abroad			0.053^{a}		
			(0.013)		
Residence in homeland	0.047^{b}	0.012	0.048^{b}	0.043^{c}	0.013
	(0.023)	(0.009)	(0.023)	(0.022)	(0.028)
Country×region×year×month FE			Yes		
Country×ethnic group FE			Yes		
Additional controls			Yes		
Observations	34972	34972	34972	34972	34976
R^2	0.201	0.210	0.201	0.201	0.198

OLS estimations. ^{c} significant at 10%; ^{b} at 5%; ^{a} at 1%. Standard errors are clustered at the ethnic group level. The sample includes only ethnic groups that at not covered by the EPR dataset. The dependent variable is the level of ethnic identification with respect to state identification in all columns but (1), ranging from categories 1 to 5. In column (2) we use as dependent variable a dummy taking the value 1 if the individual identifies at least as much to the ethnic group than the country. Columns (1) to (3) use our baseline measure of ethnic homelands, constructed from a one-to-one matching between Murdock and Afrobarometer data. In columns (4) and (5) we use our alternative definitions of ethnic homelands, a defined in the main text. Controls include age and its square, gender, rural/urban dummy, education categories and employment status.

Table 18: Natural resources, conflicts, economic perceptions and reality, and unfair treatment, by EPR groups status

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				eco	gone	indiv.	country	treated
Dep. Var.	Salience of ethnic identity			index	index	optimism	optimism	unfairly
# mines: ethnic homeland × powerful	0.009	0.009	0.011	-0.002	0.000	-0.006	0.009^a	0.022^a
	(0.008)	(0.008)	(0.009)	(0.003)	(0.002)	(0.006)	(0.002)	(0.006)
# mines: ethnic homeland × powerless	0.186^a	0.187^a	0.193^a	-0.015	0.033	-0.059^b	0.069^a	0.331^a
	(0.021)	(0.022)	(0.023)	(0.016)	(0.022)	(0.028)	(0.010)	(0.065)
# mines: ethnic homeland, abroad	0.005^b	0.005^b	0.005^b	0.001	0.004^b	0.004	-0.001	0.004
	(0.002)	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.002)	(0.004)
ACLED events		0.013						
		(0.023)						
Nightlights emissions			-0.002					
			(0.002)					
Country×region×year×month FE					Yes			
Country×ethnic group FE					Yes			
Observations	84841	84841	81123	82052	85865	58492	57680	81138
R^2	0.177	0.177	0.179	0.325	0.284	0.147	0.097	0.228

OLS estimations. ^{c} significant at 10%; ^{b} at 5%; ^{a} at 1%. Standard errors are clustered at the ethnic group level. In columns (1) to (3), the dependent variable is the level of ethnic identification with respect to state identification, ranging from categories 1 to 5. In column (4) the dependent variable is an index computed as the mean of the standardized version of the dependent variables of the first three columns in Table 4, this mean tells the share of the following items the household owns: radio, TV, vehicle. In column (5) it is an index computed as the mean of the standardized version of the dependent variables of the first five columns in Table 5, this mean tells the share of the following items that the household went without over the previous year: food, income, water, medicine, fuel. In column (6), the dependent variable is a categorical variable capturing the respondents perception of his/her own living conditions compared to twelve months before. In column (7), the dependent variable is the difference between the variable of columns (6) and the perceived change in the country economic conditions by the respondent. In column (8), the dependent variable is a categorical variable denoting whether individuals believe that their ethnic group is treated unfairly by the government. Controls include age and its square, gender, rural/urban dummy, education categories, employment status and a dummy for residence in the ethnic homeland.