

Ethnofederalism and ethnic voting^{*}

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Abstract

We study how the design of subnational political borders shapes the ethnicization of national politics. We introduce novel measures that approximate the extent to which political boundaries follow a country’s ethnic geography. We then analyze the effects of the 2010 constitutional reform in Kenya, which divided the country’s eight provinces into 47 counties and devolved power to these new counties. Using difference-in-difference designs, we find that ethnofederal reforms, reforms that increase the alignment between political divisions and ethnic geography, reduce ethnic voting in national elections. A key channel is that ethnofederalism “tranquilizes” locally powerful groups that control the provision of local public goods. Finally, we evaluate the counterfactual effects of alternative boundary proposals on ethnic voting in Kenya.

Keywords: Ethnofederalism, decentralization, territorial structure, ethnic divisions, ethnic voting, ethnic politics, Kenya.

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1. Introduction

Identity is an important organizing principle in politics. Identity-based parties can be instrumental in creating political recognition for specific groups or simply reflect differences in preferences, but they become harmful when they represent a political logic of “us against them.” In many diverse developing countries, ethnic identities are highly salient and their role in national politics stands in the way of nation-building. Once entrenched, ethnic politics prevent the formation of parties with broad support and becomes self-reinforcing. Politicians engage in patronage and allocate public goods along ethnic lines, while voters cast ethnic “bloc” votes with little regard for the performance of the politicians. The consequences can be dire. Ethnic competition for state resources brought Kenya to the brink of civil war after the 2007 presidential election. However, turning the state into a prize undermines development even without outright conflict.

What can be done to reduce ethnic divisions? In this paper, we analyze whether changes in formal political institutions can alter the salience of ethnicity in national politics. Specifically, we examine whether and how reforming subnational boundaries in such a way that federal (political) divisions align more closely with a country’s ethnic geography, in combination with devolution of power, can reduce ethnic voting in national elections. Our main contribution is twofold: *i)* we introduce a new framework for measuring and classifying the impact of subnational border reforms at the micro level, and *ii)* we apply this framework to analyze the effect of Kenya’s 2010 constitutional reform on ethnic voting. Our findings illustrate that the design of political institutions can help manage ethnic cleavages and alter incentives to vote along ethnic lines by shifting the trade-off between favoritism and performance toward the latter.

We first characterize subnational borders and administrative designs along two margins. For a given ethnic geography, all border designs differ in whether they unite or divide those who share an ethnic (or other) identity. At the same time, their importance within the administrative hierarchy varies with how much (or how little) power is devolved to these political units. Ethnofederal designs combine relatively homogeneous units with powerful regional governments in an effort to tie the hands of the central government (Lijphart, 1977; Horowitz, 1985; Weingast, 1995; Rohner and Zhuravskaya, 2023). Horowitz (1985), for example, argues that such a shift from federal to local has a “tranquilizing effect” on ethnic divisions in that it reduces the salience of ethnicity in national politics by shifting contentious issues, such as education or language policy, to homogeneous units. Economic theory supports such designs, as federations can be larger, more stable, and more accountable if political borders are drawn in a way that ensures limited preference heterogeneity within regions (e.g., Alesina and Spolaore, 1997, 2005; Spolaore, 2010). Moreover, if economies of scale and information externalities play a role, then there should be few homogeneous units (e.g., Tiebout, 1956; Oates, 1972;

Boffa et al., 2016). This is what separates proper ethnofederal designs from what we call “provincial designs” which have similar characteristics but feature more units. On the opposite side of the spectrum, crosscutting designs deliberately mix ethnic groups within political units in the hope of creating alternative potential cleavages (Coser, 1956; Dahl, 1956; Lipset, 1960; Rokkan and Lipset, 1967), while unitary designs mix groups in very few (or no) units. Empirically, it is difficult to provide credible evidence on the effects of ethnofederalism, as measures of border alignment are typically thought of as country-level aggregates (e.g., Taylor and Rae, 1969; Anderson and Lochery, 2008; Rohner and Zhuravskaya, 2023).

We address these challenges by proposing two new measures to characterize how individuals holding different ethnic identities and living in different places are exposed to a given border reform. The first is a well-established established index of regional (country) fractionalization measuring ethnic heterogeneity within political or geographic units.¹ The index corresponds to the probability that two randomly selected individuals from a given unit identify with a different ethnic group. The second is an index of ethnic fragmentation measuring the fractionalization of groups across political regions. The index corresponds to the probability that two randomly selected individuals from the same ethnic group live in different political units. The index is novel but it takes a perspective on how groups are divided by political boundaries that is not (see, e.g., Michalopoulos and Papaioannou, 2016, on national borders).

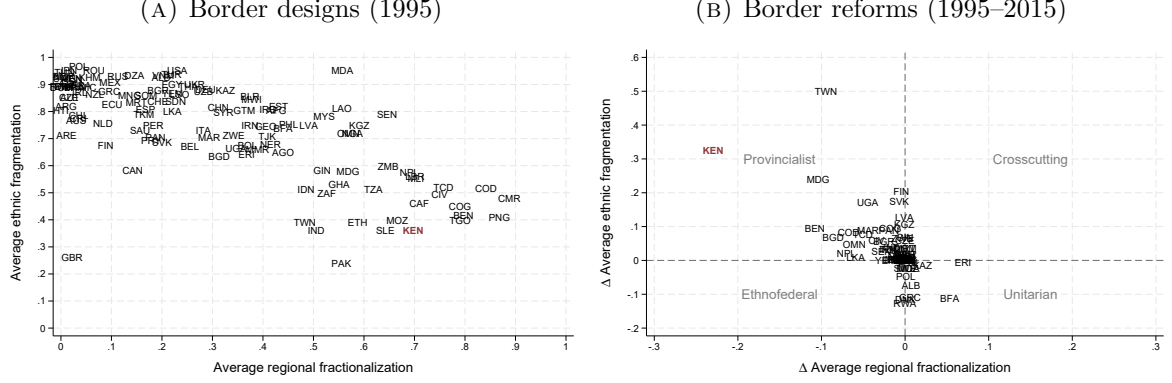
Aggregating the border alignment measures to the country level provides a bird’s-eye view of the configurations that individual countries exhibit. For a given ethnic geography, both indices will be low in the case of a prototypical ethnofederal border design and high in the case of a prototypical crosscutting border design.² Empirically, we observe that many countries have subnational units that are relatively homogeneous but tend to separate members of the same group across many units. Other countries, including pre-reform Kenya, feature diverse units that unite groups within their boundaries (see panel A of Figure I). Comparing levels is challenging, however, since countries typically differ in their ethnic geography and the design of their political units. Changes in these measures for a given distribution of ethnic groups have a straightforward interpretation. Any boundary reform—a change in the number of units and/or a change in shape—for a given ethnic geography will move individuals living in the reformed units and all members of the affected group in a well-defined direction (see panel B of Figure I). Panel B shows that the border design of most countries has become more provincial because

¹Versions of this measure have been used to study how ethnic diversity affects various outcomes, such as economic performance, public good provision (see Alesina and La Ferrara, 2005, , for an overview), and urbanization (Eberle et al., 2020).

²They also systematically indicate two other stylized designs. On average, regional fractionalization tends to be low, and ethnic fragmentation tends to be high in “provincialist” systems with many small political regions. The reverse is true in unitarian systems without meaningful political units below the national level.

most countries have created new subnational units that tend to be more homogeneous and split the average group across more units. While these broad patterns are informative, the disaggregated nature of the indices allows us to exploit within-country variation for causal identification.

FIGURE I
Cross-country comparisons of border designs and border reforms



Notes: Panel A plots the population-weighted average regional fractionalization $\overline{RF}$ and the population-weighted average ethnic fragmentation $\overline{EF}$ across countries. Panel B plots the change in those averages from 1995 to 2015. The quadrants in panel B allow classifying the different border reforms. The population data is from the Global Human Settlement Layer (Florczyk et al., 2019), political boundaries in 1995 and 2015 are from Bluhm et al. (2020), and the underlying ethnic geography is proxied by rasterized data from Ethnologue following the approach by Eberle et al. (2020). Further details are provided in Online Appendix A.

Our empirical analysis focuses on Kenya—a diverse country with a prominent history of ethnic politics in presidential elections—and exploits quasi-experimental variation introduced by the 2010 constitutional reform. The two key features of the reform were replacing eight provinces with 47 counties as primary political regions and devolving power to these new counties. Hence, the reform was a bundle of treatments, combining new political borders with new political powers. It transformed Kenya’s winner-take-all system into a system with explicit revenue sharing between counties and the federal level. Even though Kenya has a history of constitutional proposals aimed at redesigning and strengthening (ethnic) regions, incumbents had previously blocked these efforts to fully remain in control of centralized patronage. The aftermath of the 2007/2008 election violence presented an opportunity for reform. The new constitution was designed to make violence less likely in the future. While political devolution affected all regions equally, reforming the subnational borders affected individuals living in different locations and identifying with different ethnic groups differently.³ Moreover, there had been widespread disagreement and very different counterproposals touching on all aspects of the reform (including the administrative tiers and number of units in each tier), making it unlikely

³We discuss other features of the 2010 constitutional reform in Section 3 and show that our results are not driven by those features in Section 5.2.

that voters could anticipate outcomes before 2010. The reform was exceptionally large. It allocated most locations to more homogeneous political units but also increased the fragmentation of all ethnic groups (see [Figure I](#)). Average (population-weighted) regional fractionalization fell by 0.23, while the average ethnic fragmentation rose by 0.45., based on official census data that we use for our main analysis in Kenya.⁴ According to our classification, most individuals were exposed to a provincial reform and some individuals to a crosscutting reform.

Our primary outcome is an indicator of ethnic voting that is appropriate in contexts where there are many more groups than parties or presidential candidates. Inspired by [Huber \(2012\)](#) and the particulars of Kenya’s political landscape, we take a group-based perspective and measure ethnic voting by an indicator that captures whether individuals intend to vote for the party (or coalition) for which most of their co-ethnics would vote. Thus, ethnic voting is high when individuals identifying with the same group tend to vote for the same party (or coalition). A key advantage of this measure is that it does not require an ad hoc definition of ethnic parties or coalitions, but rather defines them from the data. We use seven rounds of Afrobarometer surveys (conducted from 2005-2021) to measure ethnic voting before and after the constitutional reform. The surveys include information on the ethnic identity of respondents and how they would vote if presidential elections were to take place tomorrow. Since the surveys are conducted in off-election years, we use a representative exit poll to illustrate that ethnic voting intentions reflect actual voting behavior. We also document that our measure closely tracks the behavior of groups that typically have co-ethnic candidates in the race and for whom alternatives can be constructed.

We use a generalized difference-in-differences strategy that relies on two sources of variation. The first source is changes in regional fractionalization for specific locations due to changes in political boundaries. The second is border-induced changes in regional fractionalization for a particular group. Both are computed using population data from the 1989 Kenya Population and Housing Census to hold the population distribution constant and isolate the effects of changing borders. Our specification relates the vote choices of individuals in the repeated cross-section Afrobarometer data to these two sources of regional and group-level variation. We always include time and county-by-ethnicity and time fixed effects to account for important aspects of the underlying ethnic geography (e.g., some members of an ethnic group living outside of their traditional homeland) and the reform itself, such as the general impact of devolution or the fact that some counties delivered services more effectively than others. We support the validity of this design by, among other things, providing evidence that ethnic voting before the

⁴The measures based on the census data and our more coarse cross-country proxies are highly correlated. In fact, changes in regional fractionalization are identical. The change in ethnic fragmentation is somewhat larger based on the official census data.

reform did not respond to subsequent treatment intensity and that our treatments do not affect voting intentions or the willingness to reveal party preferences.

Our main results show that ethnic voting is increasing in regional fractionalization as well as ethnic fragmentation. The event study estimates add that the effects of the former materialize quickly after the first election under the new constitution in 2013 and remain stable thereafter, while the latter takes a few years to build up. This strongly supports the notion that ethnofederal reforms, which reduce regional heterogeneity and unite members of the same group as much as possible, are most effective at reducing ethnic voting. However, this is not what happened in Kenya. Our evaluation of the 2010 reform shows that only a few groups experienced a net decrease in ethnic voting, while the increase in ethnic fragmentation more than offset the reduction in regional heterogeneity for most groups. In fact, our estimates suggest that the border reform increased ethnic voting by about 8 percentage points in aggregate.

Constitutional reforms are bundles that often change several features of the political system. We interpret our estimates as the differential effect of changing the alignment of subnational borders with the distribution of ethnic groups in space while holding the extent of devolution constant. This interpretation requires that other heterogeneous impacts of devolution are not correlated with our two treatment variables. To address potential confounders, we show that controlling for differences in the size of political regions, proximity to regional capitals, or support for the referendum has little impact on our results. We also rule out that other boundary changes, such as the redrawing of parliamentary constituencies, drive our estimates. We run a battery of additional robustness tests. We do not find that our results are sensitive to differential changes in voter turnout, nonlinear estimation methods, our definition of ethnic voting, migration, or the way we cluster standard errors. We also run randomization inference tests where we create placebo changes in regional fractionalization across counties and changes in ethnic fragmentation across groups.

How exactly does ethnofederalism “tranquelize” ethnic groups and modify their incentives to vote along ethnic lines in national elections? Consistent with [Horowitz \(1985\)](#), we show that controlling the new county government and thus the provision of local public goods amplifies the effects of regional fractionalization and ethnic fragmentation. We formalize this idea in a simple model of ethnic voting in which the central government generates all revenue and distributes a share to local governments, while both the central and local governments have a co-ethnic bias in the provision of public goods. Intuitively, voters face a trade-off between electing higher quality presidential candidates, which results in higher regional transfers, and receiving more centrally provided public goods via a co-ethnic president. Devolution to homogeneous units shifts the balance toward the former. Moreover, we find that the effects of control are stronger when co-ethnics are united in one unit, which likely increases the pool of

capable (co-ethnic) candidates and improves the accountability of county governors (Boffa et al., 2016).⁵

Finally, we consider alternatives to Kenya’s 2010 boundary reform. We use our estimates to simulate the counterfactual effects of earlier constitutional proposals—the Bomas and Wako draft constitutions—and the optimal political map, i.e., the map that would minimize ethnic voting, subject to realistic constraints met by the actual reform. We find that the optimal map has 14 instead of 47 subnational units, matching the number of regions proposed in the Bomas draft, which came out of a long and inclusive constitutional review process but was never put to a referendum. Implied ethnic voting would be 5.5 percentage points lower than in the pre-reform provinces and 13.5 percentage points lower than in the post-reform counties. The Bomas draft would have reduced ethnic voting by about 2.6 percentage points and the Wako draft would have increased ethnic voting by 9.8 percentage points on average (both relative to the pre-reform provinces). These results show that boundary reforms can potentially reduce the salience of ethnicity in national politics. They underscore that the 2010 reform was not properly ethnofederal but rather provincialist by aggressively fragmenting ethnic groups into too many units and suggest that political elites supporting the different reform proposals were at least partially aware of their electoral implications.

Our findings contribute to several strands of the literature. First and foremost, we show that the design of political institutions matters for nation-building and can mitigate the importance of ethnicity at the ballot box in the short run. This distinguishes our contribution from costly policies such as large-scale resettlement programs (Bazzi and Gudgeon, 2021), education programs (Miguel, 2004; Clots-Figueras and Masella, 2013; Cantoni et al., 2017; Bandiera et al., 2019), or a mix of the two (Carlitz et al., 2022), which typically take a long time to affect the salience of ethnicity more generally.⁶ Shared experiences (see, e.g., Depetris-Chauvin et al., 2020; Cáceres-Delpiano et al., 2021) and a common narrative (Esposito et al., 2023) can also contribute to nation-building in the short run but are—at best—only partially in the control of policymakers.

Second, we relate to the literature on political borders and their effects in two key ways. We directly contribute to the long-standing debate on the benefits of ethnofederal and crosscutting designs in the larger social sciences (e.g., Lipset, 1960; Lijphart, 1977; Horowitz, 1985; Roeder, 1991) by providing new measures that characterize these designs at the subnational level together with quasi-experimental evidence on the benefits of

⁵We also look into whether ethnofederal reforms indeed strengthen ethnic identities (as some scholars fear) or whether they even strengthen the national identity. Using Afrobarometer survey data, we find no evidence that lower regional fractionalization or ethnic fragmentation impacts whether respondents primarily identify with their ethnic group or the nation. However, given how the survey question is asked, we cannot rule out that these changes increase (or decrease) both group identification and national identification—similar as the Nigerian youth service program studied by Okunogbe (2024).

⁶Rohner and Zhuravskaya (2023) provide an excellent overview of the recent literature.

ethnofederal designs.⁷ Moreover, we indirectly contribute to the literature on artificial national borders in Africa (Alesina et al., 2011; Michalopoulos and Papaioannou, 2016) by showing that the design of subnational borders plays an important role in managing the diversity African countries have inherited from the colonial period.

Third, we contribute to research on ethnic politics in general and ethnic voting in Kenya in particular. We build on a sizable body of work documenting the existence of ethnic favoritism in the distribution of public goods (e.g., Franck and Rainer, 2012; Burgess et al., 2015; Kramon and Posner, 2016; De Luca et al., 2018) and on how voting on ethnic identities hampers performance (see, e.g., Padró i Miquel, 2007; Francois et al., 2014; Pande, 2020). By showing that changes in political institutions and political boundaries affect the incentives to cross the ethnic divide, we provide evidence in favor of a practical policy tool that could increase local performance and accountability (see also Boffa et al., 2016). Finally, we contribute to the literature on the role of ethnicity in Kenyan politics and society (e.g., Gibson and Long, 2009; Ferree et al., 2014; Burgess et al., 2015; Kramon and Posner, 2016; Kramon et al., 2022; Marx et al., 2021).

The remainder of is structured as follows. Section 2 discusses our conceptual framework and how different administrative designs map onto our two heterogeneity measures. Section 3 summarizes Kenya’s institutional background and the important aspects of the reform. Section 4 presents the data, describes our empirical strategy, and discusses identification issues. Section 5 presents the main results, alternative explanation, and sensitivity analysis. Section 6 discusses local control as the main mechanism. Section 7 presents counterfactual border-designs that minimize ethnic voting, and Section 8 concludes.

2. Conceptual framework: Measuring ethnofederal and crosscutting border designs

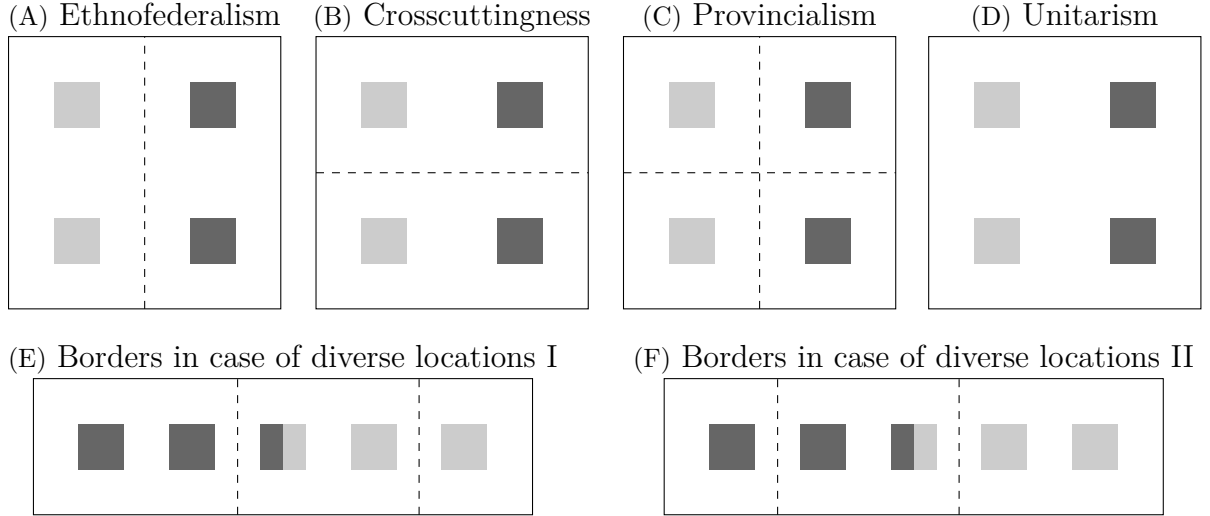
In this section, we first discuss different prototypical border designs, including ethnofederal ones, and introduce two indices that capture key characteristics of these border designs. We then show that these indices can capture how differently different individuals experience the same border reform, depending on their place of residence and their ethnic identity. Finally, we discuss how these indices can be used in micro-level analyses, and we illustrate how country-level averages of these indices can be used to compare border designs and border reforms across countries.

⁷See Dunning and Harrison (2010) for causal estimates on the effects of another type of crosscutting cleavages, namely cleavages between ethnicity and cousinage in Mali.

2.1. Prototypical border designs and their properties

Panels A–D of [Figure II](#) presents four different prototypical border designs for the same stylized country with four locations and two spatially segregated ethnic groups. Ethnofederal border designs are characterized by political borders that follow the boundaries of ethnic homelands. These borders guarantee that most individuals living in the same federal entity (state, for simplicity) identify with the same ethnic group and that most members of the same ethnic group live in the same state. Panel A shows an extreme case in which the political borders ensure that individuals belong to the same political region if and only if they identify with the same ethnic group (which is only possible due to the ethnic homogeneity of each location in our stylized country). In contrast, the political borders in panel B are crosscutting; they cut through ethnic homelands and create ethnically heterogeneous regions.⁸ The next two panels show the two extreme configurations with respect to the number of political regions: Provincialism with many small regions in panel C, and unitarism without meaningful political units below the national level in panel D.

FIGURE II
Illustration of various border designs



Notes: The squares represent equally sized locations, and the different shades of gray represent different ethnic groups. Hence, all locations are ethnically homogeneous except the central location in panels B.1 and B.2, which are ethnically diverse. The dashed lines represent political borders.

These four prototypical border configurations differ in two key characteristics. The

⁸Panels A and B of [Figure II](#) illustrate the role of political borders for different measures of ethnic segregation. Measures of *spatial* segregation, e.g., the index introduced by [Hodler et al. \(2021\)](#), are computed based on spatial distances between individuals. Hence, they are independent of whether political borders are ethnofederal or crosscutting. In contrast, measures of *a-spatial* or political segregation, e.g., those used by [Alesina and Zhuravskaya \(2011\)](#), are computed based on population shares in different political units. Therefore, political segregation is high when ethnofederal borders ensure very different distributions of ethnic groups across regions but low (zero) when crosscutting borders ensure similar (identical) distributions of ethnic groups across regions.

first is the ethnic diversity within political regions. We quantify this diversity by an index of regional fractionalization that measures the within-region fractionalization across ethnic groups and, thereby, the ethnic diversity of political regions:

$$RF_r = 1 - \sum_{e=1}^n (s_e^r)^2, \quad (1)$$

where r is a political region, e an ethnic group, n the number of ethnic groups, and s_e^r the population share of group e in region r .⁹ Regional fractionalization RF_r is low in all political regions r in the ethnofederal and provincialist border designs of panels A and C but high in the crosscutting and unitarian border designs of panels B and D, which assign locations with very different ethnic compositions to the same political region(s).

The second key characteristic is the extent to which members of the same ethnic group live in different political regions. We propose to capture this extent by a novel index of ethnic fragmentation that measures the within-group fractionalization across political regions:

$$EF_e = 1 - \sum_{r=1}^m (s_r^e)^2, \quad (2)$$

where m is the number of political regions and s_r^e the population share of residents in political region r among members of ethnic group e . Ethnic fragmentation EF_e must be zero for all ethnic groups e in case of unitarism. Moreover, it is low in ethnofederal border designs. In contrast, it is high in crosscutting and provincialist border designs, which assign locations with similar ethnic compositions to different political regions.

2.2. Individual exposure to border designs and border reforms

Unlike the stylized country shown in panels A–D, most real-world countries are not perfectly ethnically segregated and instead feature ethnically diverse locations. Therefore, it is not typically possible to find border designs that ensure zero regional fractionalization RF_r in all political regions r or zero ethnic fragmentation EF_e for all ethnic groups (such as the ethnofederal borders in panel A). More generally, these measures will typically vary across regions and groups. Panel E of [Figure II](#) presents another stylized country—one with an ethnically diverse location in the center—to illustrate this variation. The border design in panel E implies zero regional fractionalization in the Western and the Eastern region but $RF_r = 0.375$ in the central region (which contains the ethnically diverse location). Ethnic fragmentation is 0.32 for the dark gray group and 0.32 for the light gray group.

This variation implies that different individuals are exposed to the same border design differently depending on their place of residence and their ethnic identity. The same

⁹ RF_r is the standard index of ethno-linguistic fractionalization computed at the regional level.

applies to border reforms. Suppose there is a border reform in the country depicted in Panel E of [Figure II](#) that shifts the two political borders westwards, leading to the border design shown in panel F. The individuals living in the central-western location (i.e., the second location from the left) experience an increase in regional fractionalization, as their location was part of an ethnically homogenous political region prior to the reform, but part of an ethnically diverse region after the reform. In contrast, the individuals living in the central-eastern location (i.e., the second location from the right) experience a drop in regional fractionalization. Moreover, the dark gray group experiences an increase in ethnic fragmentation while the light gray group experiences a decrease therein. Hence, individuals living in the central-western location and identifying with the dark gray group are exposed to a crosscutting reform, while individuals living in the central-eastern location and identifying with the light gray group are exposed to an ethnofederal reform.

There are multiple ways in which one can use our two location- and group-specific measures of border designs. First, we can average both the experienced regional fractionalization RF_r and ethnic fragmentation EF_e across all individuals of, say, a given country. This yields a set of two country-level measures capturing the average propensities of individuals to belong to diverse political regions and fragmented ethnic groups.¹⁰ These measures can be used for cross-country comparisons as in [Figure I](#) above. Alternatively, we can compute how these two country-level measures change over time and then classify border reforms as being either ethnofederal, crosscutting, provincialist, or unitarian on average.

Second, we can use our measures of regional fractionalization RF_r and ethnic fragmentation EF_e in micro-level analyses. We can exploit the fact that different individuals typically experience the same border reform differently (depending on their place of residence and their ethnic identity) to causally estimate how different border designs impact the ethnicization of national politics. This is exactly how we will use our measures in our empirical analysis.

3. Institutional background

Kenya is exceptionally diverse, and ethnic identity is a prominent fault line in Kenyan politics. The probability that two randomly drawn individuals from the country’s population identify with different groups is 88% (according to the 1989 census). The five largest groups make up about two-thirds of the population, are spatially segregated

¹⁰These country-level averages of our measures are related to existing measures of crosscuttingness. [Taylor and Rae \(1969, p. 537\)](#) define crosscuttingness as “the proportion of all the pairs of individuals, whose two members are in the same group of one cleavage [e.g., ethnicity] but in different groups in the other cleavage [e.g., region].” They introduce a country-level measure of crosscuttingness and show that it decreases in aggregate measures of ethnic and regional fractionalization. See [Selway \(2011\)](#) and [Desmet et al. \(2017\)](#) for alternative aggregate measures of crosscuttingness.

(outside Nairobi), and compete for power at the national level.¹¹ These ethnic divisions are apparent in elections in which members of these large groups typically vote for their ethnic kin (Gibson and Long, 2009; Long and Gibson, 2015) and in which violence among ethnic groups has erupted frequently since the return to multi-party politics in 1992.¹²

The most significant outbreak of ethnically motivated violence occurred after the December 2007 presidential election and cost the lives of more than 1,000 people while internally displacing hundreds of thousands. Most violence was concentrated in the Rift Valley province, where Kalenjin and Kikuyu groups clashed (Anderson and Lochery, 2008), and in Nairobi. The crisis pushed Kenya to the brink of civil war, which was only appeased by an African Union-led conciliation process. A commission headed by former UN Secretary-General Kofi Annan brokered a deal for a unity government among the two main contenders—Mwai Kibaki (a Kikuyu) and Raila Odinga (a Luo)—and paved the way for an extensive constitutional reform. 68% of voters approved the reform by referendum in August 2010.

The new constitution constrains the powers of the presidency and radically alters the country’s governance structure. Two key features of the constitutional reform are political devolution—in the form of more local responsibilities for health care, pre-primary education, and roads—and the splitting of Kenya’s eight provinces into 47 counties. Before the constitutional reform, Kenya had a five-tier administrative system. The first and most important tier was the provinces, which the central government directly controlled. A World Bank (2008) report summarized the situation as follows: “power rests with the executive branch and the most powerful force in local government is the provincial administration” (p. 8).¹³ Since the constitutional reform, the newly created counties have been the first and most important tier. Each county has an elected governor and a county assembly, receives a population-based share of 15% of central government revenue, and sends a representative to the new senate, which controls the allocation of resources to county governments (Kramon and Posner, 2011).¹⁴ The territorial reform and the new devolved government structure were implemented with the 2013 national elections. The counties are based on Kenya’s pre-1992 districts, as these were the only borders the parliament could agree on (Kramon and Posner, 2011). They are also the last borders implemented by the British colonial government. Hence, while following historical ethnic divisions, these borders are unlikely to be driven by contemporary

¹¹In 1989, the largest groups were the Kikuyu (20.9%), Luhya (12.4%), Luo (12.4%), Kalenjin (11.5%), and Kamba (9.8%). The 2019 population shares of these groups differ by less than 3 percentage points.

¹²The exit polls conducted by Gibson and Long (2009) during the 2007 election show 94.2% of Kikuyu and 97.8% of Luo voted for their coethnic candidate.

¹³Districts were the second tier of the pre-reform administrative system. They had some political importance (see Section 5.2). The three remaining tiers—divisions, locations, and sublocations—were politically unimportant.

¹⁴The further tiers of the post-reform administrative system are sub-counties and wards, which have no political powers but coincide with constituency boundaries.

political motivations.

The timing of the constitutional reform, the division of powers, and the resulting administrative-territorial structure could have hardly been anticipated beforehand. Earlier attempts at reforming the country’s constitution failed several times. The reason was that controlling the presidency was an important source of patronage for incumbents, who worked hard to stave off previous attempts at devolution and a weakened presidency (Kramon and Posner, 2011). Given a large variety of past reform proposals and entrenched factions, most people could neither know how many layers of government or administrative units the 2010 proposal would entail nor the number and shape of the primary administrative units.¹⁵

Figure III shows the pre-reform provinces in panel A and the post-reform counties in Panel B. This change in boundaries fundamentally changed how regions aligned with Kenya’s complex ethnic geography. While the population share of the largest group was 14.4% in the average province, it is 74.7% in the average county, significantly reducing regional fractionalization.¹⁶

The replacement of the eight provinces with 47 counties coincided with other territorial changes to the governance structure (districts, constituencies, and local governments). These changes altered territories that were unlikely to affect ethnic voting in presidential elections. Section 5.2 discusses and studies these changes in detail.

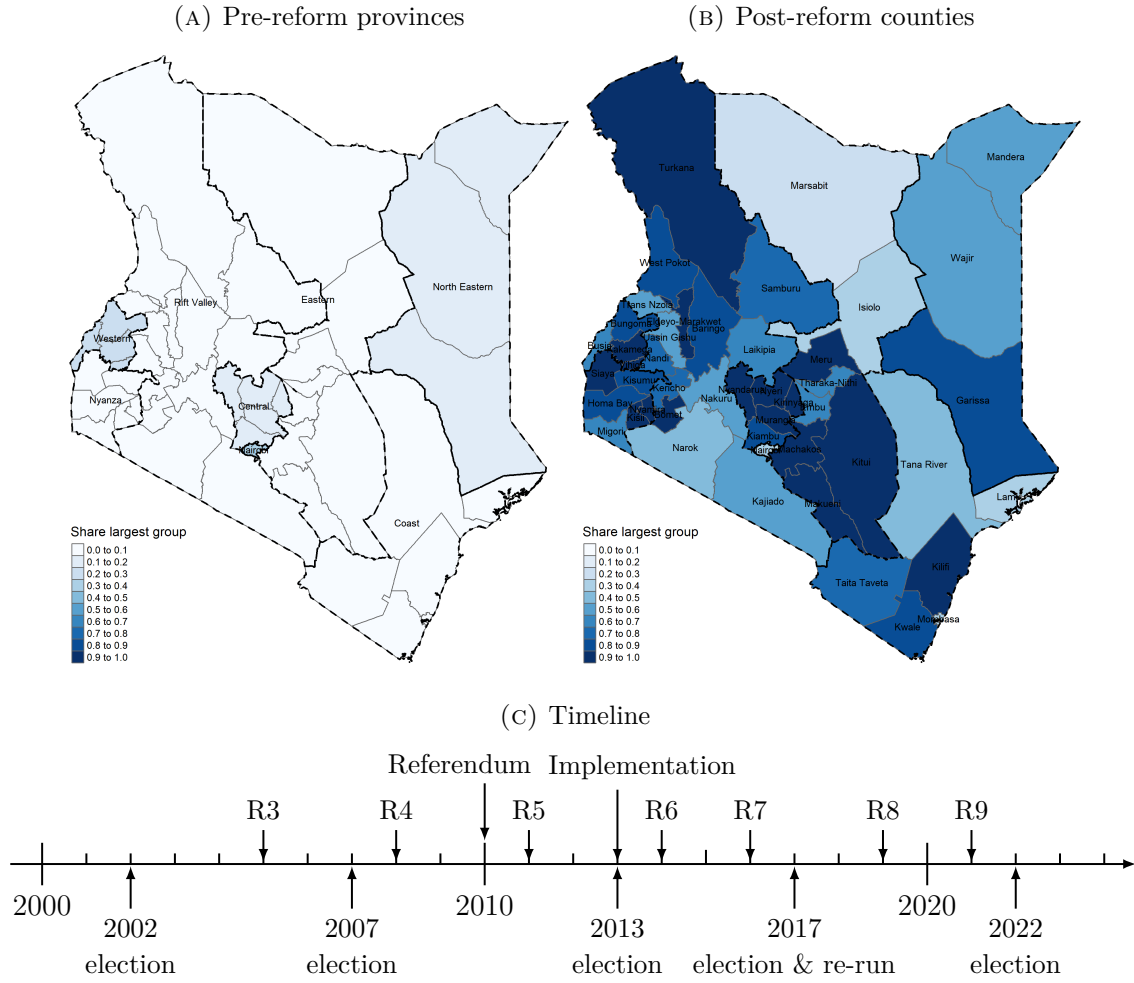
Three presidential elections took place during our sample period: the 2007, 2013, and 2017 general elections. In certain aspects, political competition has been stable. In all these elections, the former incumbent Mwai Kibaki or the current incumbent Uhuru Kenyatta (both Kikuyus) and their opponent Raila Odinga (a Luo) gained over 90% of the popular vote between them.¹⁷ The new constitution explicitly requires that each candidate name a running mate for vice president, and the other halves of the tickets have remained constant since 2013 as well. William Ruto (a Kalenjin) and Kalonzo Musyoka (a Kamba) were the vice-presidential candidates in both the 2013 and 2017 elections. In 2022, when Uhuru Kenyatta was term-limited, William Ruto narrowly won against Raila Odinga. Panel C of Figure III summarizes the timing of the election years and the constitutional reform.

¹⁵Serious efforts had been made at reforming Kenya’s constitution. The Constitution of Kenya Review Commission (CKRC) draft in 2002 included a four-tiered structure (regions, districts, locations, and villages). The final Bomas draft in 2004 included 14 regions with 74 districts. The competing Wako draft envisioned only 70 districts. In 2008, a committee of experts was tasked to make reform recommendations to a parliamentary subcommittee (PSC). In 2010, the “PSC simply could not form a consensus [...], with strong disagreements surfacing about the exact number of devolved units and their boundaries [...] the timeline imposed by the power-sharing agreement forced the committee to move forward [...]. The PSC thus agreed to the least controversial position: a two-tier system with 47 county governments” (Kramon and Posner, 2011, p. 94).

¹⁶Panel D of Figure VII below depicts the largest groups across the new counties.

¹⁷Furthermore, a candidate needs to win at least 25% of the vote in at least half of the provinces/counties. Kibaki, Kenyatta, and Odinga have always met this requirement comfortably.

FIGURE III
Kenya: Border reforms and timeline



Notes: The figure illustrates the 2010 constitutional reform in Kenya. Panels A and B show pre-reform province borders using thick dashed lines and post-reform county borders using fine lines. In addition, Panel A shows the population shares of the largest group in the pre-reform provinces, and Panel B the population shares of the largest group in the post-reform counties. Panel C shows a timeline indicating i) the election years, ii) the years in which the constitutional referendum took place and in which the political devolution and the territorial reform were implemented, and iii) the years in which the Afrobarometer survey rounds 3–8 (denoted R3–R8) were conducted. (The Supreme Court nullified the 2017 presidential election, leading to a re-run, which was boycotted by Odinga and won by Kenyatta with 98.3% of the vote.)

4. Data and empirical strategy

In this section, we first explain how we use micro data from the 1989 Kenya Population and Housing Census to compute the reform-induced changes in regional fractionalization and ethnic fragmentation for all locations and all ethnicities, respectively. We then discuss how we use multiple Afrobarometer survey rounds to measure ethnic voting at the individual (respondent) level, which is our unit of observation. Finally, we introduce our empirical strategy.

4.1. Computing changes in regional fractionalization and ethnic fragmentation

Our main source of population data is micro data for every 20th household from the 1989 Kenya Population and Housing Census. Although later censuses are available, the 1989 census is the last census in Kenya that disclosed ethnic identities in the micro data. These data cover slightly more than a million people in 3,600 sublocations, which we assign to pre-reform provinces and post-reform counties.¹⁸

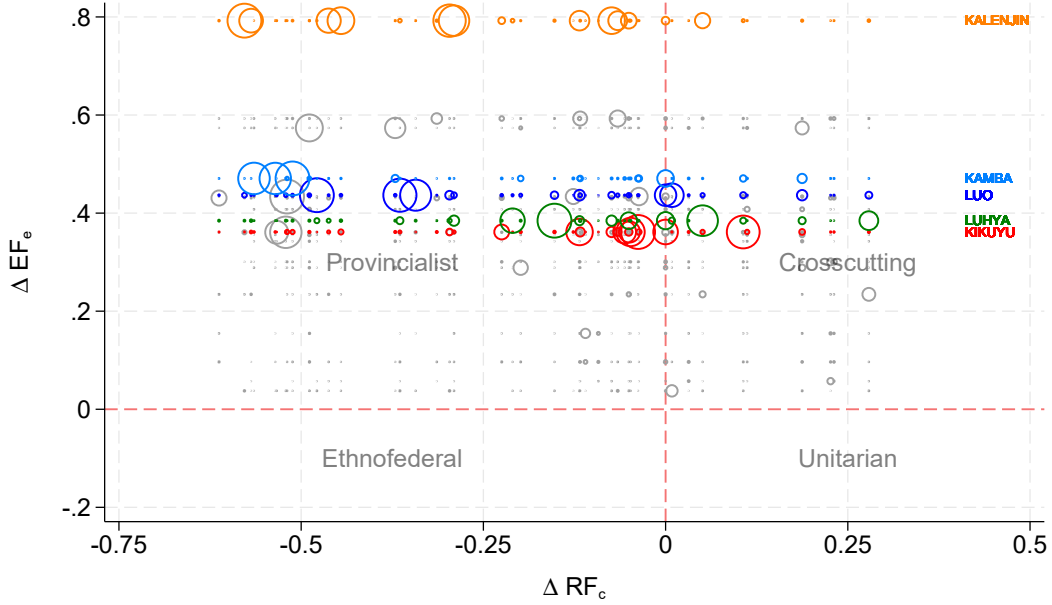
We use these data to compute regional fractionalization RF_c for each region c and ethnic fragmentation EF_e for each group e twice: once based on the pre-reform province borders and once on the post-reform county borders. We denote by ΔRF_c the reform-induced change in regional fractionalization experienced by individuals living in county c . This change equals the difference between the post-reform county-level RF_c and the pre-reform province-level $RF_{p(c)}$ of the province p enclosing future county c . We denote by ΔEF_e the reform-induced change in ethnic fragmentation experienced by individuals of ethnic group e . This change equals the difference between EF_e computed for the post-reform county borders and EF_e computed for the pre-reform province borders. Using pre-reform population data ensures that only the boundary reform drives changes in these measures.

The boundary reform decreased average (population-weighted) regional fractionalization from 0.53 to 0.30 and increased average (population-weighted) ethnic fragmentation from 0.32 to 0.77. Hence, our classification suggests that the overall reform is of the provincialist type (see [Figure I](#)). However, these averages mask considerable variation across individuals who reside in different places and identify with different ethnicities.

[Figure IV](#) illustrates the changes ΔRF_c and ΔEF_e experienced by individuals for all existing county-ethnicity combinations (with the size of the circle being proportional to the population of the corresponding combination). ΔRF_c is depicted on the horizontal axis. It ranges from -0.61 (in Turkana County in the former Rift Valley Province) to 0.28 (in Busia County in the former Western Province). On the vertical axis, ΔEF_e ranges from 0.04 (for the Kuria) to 0.79 (for the Kalenjin). All ethnic groups became more fragmented because the reform split every province (except Nairobi Province) into multiple counties. Hence, there are two types of experienced border reforms. A reform towards provincialism for all circles (representing county-ethnicity combinations) to the left of the red vertical line, and a reform towards crosscuttingness for all the circles to the right of the red vertical line. Importantly, there is substantial variation in the direction and degree of ΔRF_c among members of the same ethnic group. For example,

¹⁸Sublocations are the smallest units above enumeration areas. We use the matching of (unnamed) sublocations in the micro data to official census tabulations created by [Asmus et al. \(2019\)](#).

FIGURE IV
Reform-induced changes in regional fractionalization and ethnic fragmentation



Notes: The figure illustrates how the change in subnational boundaries from provinces to counties induces variation in treatment intensity across ethnic groups and administrative units. In particular, it shows the changes in regional fractionalization (ΔRF_c) and the changes in ethnic fragmentation (ΔEF_e) for each county-ethnic group combination (see the main text for details). The size of the circles are proportional to the population of the corresponding combination. Major ethnic groups are highlighted in different colors.

some Kalenjin live in counties with $\Delta RF_c < -0.5$ and others in counties with $\Delta RF_c > 0$. Similarly, there is substantial variation in ΔEF_e among residents of the same county. Our empirical strategy exploits this variation within ethnic groups and counties.

4.2. Measuring ethnic voting

To measure ethnic voting, we use information on voting intentions from the geocoded Afrobarometer survey rounds 3–9.¹⁹ The relevant question is phrased consistently throughout these survey rounds and asks: “If presidential elections were held tomorrow, which party’s candidate would you vote for?”

For our analysis, we need to classify each vote choice as ethnic or non-ethnic. Since the appropriate way of measuring ethnic voting depends on the context, we first highlight some peculiarities of Kenyan politics that such a voting measure should capture. First, there are many more ethnic groups than parties, which are at most 11 during our sample (see panel A of Figure A.4). There are even fewer parties with coethnic (vice-) presidential

¹⁹Survey rounds 3 and 4 were conducted in the pre-treatment period, survey round 5 in the period between the referendum and the implementation of the reform, and survey rounds 6–9 in the post-implementation period (see panel C of Figure III). We use the coordinates of the cluster locations provided by BenYishay et al. (2017) for rounds 3–6 and the GPS coordinates collected by Afrobarometer in rounds 7–9. We cannot use survey rounds 1 and 2, as they do not report the respondents’ ethnicity.

candidates for most groups at any point in time. Typically, such candidates exist only four of the big four ethnic groups.²⁰ Hence, classifying ethnic voting as voting for a party with a coethnic (vice-) presidential candidate would come at the cost of losing respondents from all the other ethnic groups (about 49% of the population in 2019).

Second, parties are fluid. For example, the current president, William Ruto (a Kalenjin), has been a member of five different parties over the last 20 years. Reflecting this fluidity, five different parties received most of their votes from the Kalenjin respondents across the seven Afrobarometer survey rounds we use (see Table A.2). Kenya’s parties are non-programmatic personalized vehicles that, at times, lack physical offices or official programs, and are exclusively designed to get politicians into power (Mueller, 2020). Hence, we prefer taking a “group-based perspective” that focuses on voting cohesion among coethnics, rather than focusing on parties and their platforms (see Huber, 2012, for a classification of both).

Third, voting cohesion varies across ethnic groups and within groups over time. For example, the share of Luo respondents supporting their most popular party varies between 81 and 100 percent across survey rounds, while the share of Kamba respondents supporting their most popular party varies between 36 and 73 percent (see Table A.2).

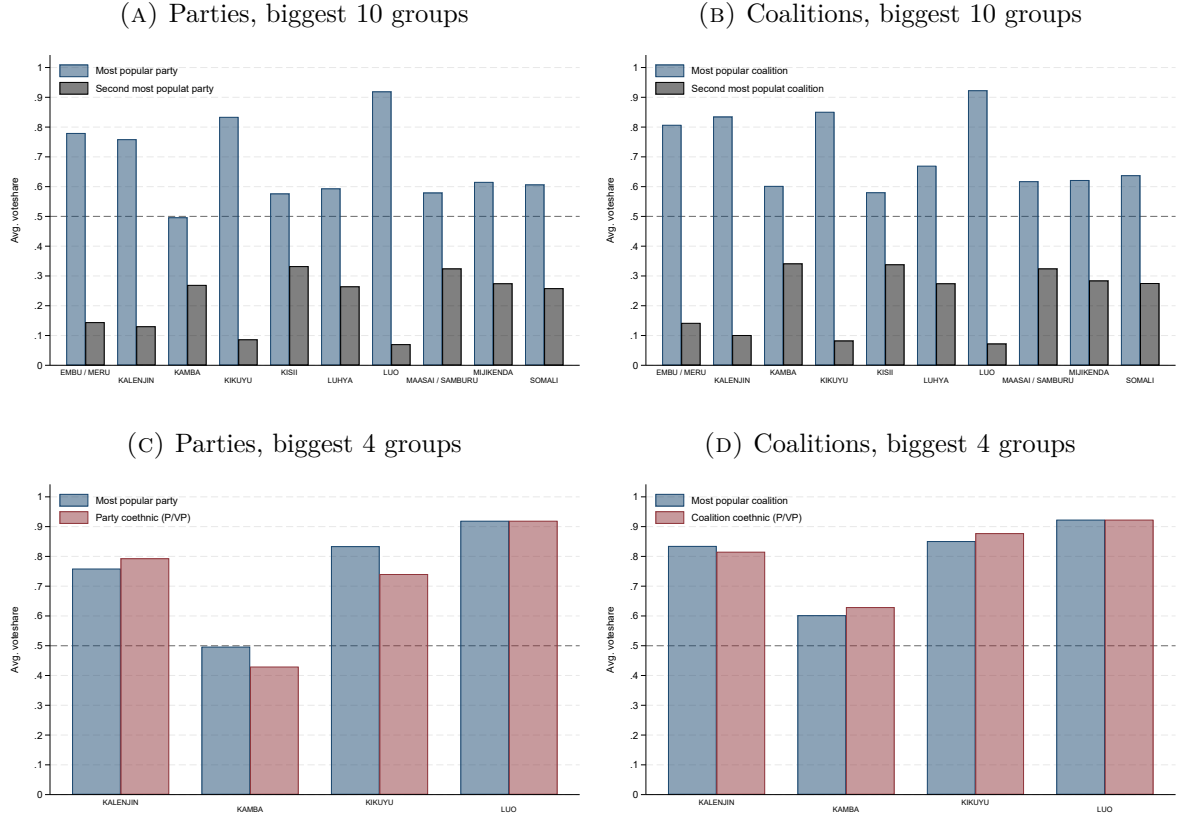
Finally, ethnic parties form fluid coalitions to win elections, often led by two major groups (who have been explicitly on the ticket since 2013) that share most of the cabinet posts. These coalitions, rather than individual parties, typically determine patronage and public goods provision (Mueller, 2020), which is why we also aggregate parties into coalitions supporting the same presidential ticket. The coalitions are assigned to parties based on information from the last election unless the party has already publicly declared to switch camps in the next election at the time of the Afrobarometer survey (see Table A.3 for details).

Our main dependent variable is a simple plurality measure, that is, an indicator for ethnic voting, EV_{iet} , which equals one if respondent i would have voted for the party (or coalition) that is the most popular among ethnic group e in survey round t , and zero otherwise. The simple plurality measure has two distinct advantages: *i*) it defines ethnic parties from the data, and *ii*) it does not impose arbitrary restrictions on the degree of vote coordination within groups (e.g., a clear majority party), which would exclude important groups in some surveys (most notably the Kamba in survey round 6, see Table A.2).

In the sensitivity analysis, we use several alternatives, such as majority party of co-ethnics, imposing a certain threshold, using indicators for voting for parties headed by co-ethnic (vice-)presidential candidates for groups that have such a choice, or proxies

²⁰In addition, there were two parties from different coalitions with a Kikuyu (vice-)presidential candidate in the 2022 elections, reportedly due to a deal between Ruto and Kenyatta that the latter reneged on (see <https://www.washingtonpost.com/politics/2022/08/24/kenya-elections-kenyatta-ruto-odinga>).

FIGURE V
Ethnic voting across all survey rounds



Notes: Panel A plots the vote shares of the two most popular parties for or each of the largest 10 ethnic groups in Kenya, averaged across Afrobarometer survey rounds. Panel B replicates panel A but aggregates the political parties at the level of coalitions. Note that the voteshares do not sum up to one because there are many parties and more than two coalitions in many years. Panel C plots the average voteshare for the most popular party (in blue) and the party headed (either presidential candidate or VP nominee) by a coethnic candidate (in red). Panel D replicates panel C but uses coalitions instead of parties.

for the overrepresentation of co-ethnics in a particular party (similar to [Amodio et al., 2024](#)).²¹

The plurality measure effectively captures the relevant ethnic voting patterns across and within groups. Panel A of [Figure V](#) shows the vote share of the group-specific first and second most popular parties for the ten major groups, averaged across all the survey rounds. The vote share of the most popular party ranges from just below 50 percent for the Kamba (who switched coalitions from 2007 to 2013) to slightly above 90 percent for the Luo (who have a candidate and coalition formed around Odinga in every race). The average gap between the vote shares of a group's first and second most popular parties is substantial, ranging from 22.7 percentage points for the Kamba to 84.5 percentage points for the Luo. Panel B shows the same information for coalitions rather than groups. We observe that the first choice is even more dominant than the party

²¹See [Online Appendix A](#) for details.

classification. Finally, panels C and D confirm that voting for the most popular party or coalition of coethnics is highly correlated with voting for the party headed by a co-ethnic (vice)-presidential candidate for the four groups that typically have such a choice (Kalenjin, Kamba, Kikuyu, and Luo). Moreover, [Figure A.2](#) in the Online Appendix shows that group-level voting intentions closely match the exit poll data available for the 2013 election, particularly for coalitions. This suggests that neither the off-election timing of the Afrobarometer surveys nor the precise definition of ethnic voting changes the qualitative pattern in important ways.

4.3. Empirical strategy

Our units of observation are repeated cross-sections of respondents i who identify with an ethnic group e , reside in a (post-reform) county c , and are surveyed in a survey round t . We use the Afrobarometer surveys not only for information on voting intentions but also for information on age, gender, various assets, and urban versus rural locations to proxy for other common characteristics that predict a person’s political leanings.²² The complete information is available for 7,225 respondents from 1,207 different clusters and 17 different ethnic groups.²³

Our identification strategy relies on the following flexible generalized difference-in-differences specification:

$$EV_{it} = \beta (\Delta RF_c \times D_t) + \gamma (\Delta EF_e \times D_t) + \mathbf{Z}'_{it}\boldsymbol{\xi} + \mu_{ce} + \lambda_t + \epsilon_{it}, \quad (3)$$

Our coefficients of interest are β and γ . They capture the effects of the reform-induced changes in regional fractionalization and ethnic fragmentation on ethnic voting. The identifying variation comes from how the changes in regional fractionalization and ethnic fragmentation, which respondents experience, correlate with ethnic voting in different years. We interpret these coefficients as average causal responses. To account for the clustered nature of the treatment, we use two-way clustered standard errors at the province-by-ethnicity and county levels.

The key identification assumption is that changes in ethnic voting for respondents living in counties (identifying with groups) that experienced small changes in regional fractionalization (or ethnic fragmentation) provide a good counterfactual for respondents in counties (identifying with groups) that experienced larger changes if their border-induced change in heterogeneity would have been similar. In other words, we need more than standard parallel trends, which requires that unobserved time-varying confounds

²²See [Online Appendix A.3.1](#) for details on these control variables and [Online Appendix A.4](#) for summary statistics for all variables.

²³[Online Appendix A.2](#) illustrates the spatial distribution and the size of the Afrobarometer survey clusters.

behave similarly in groups or counties that are treated differently by the border reform (i.e., in terms of ΔRF_c or ΔEF_e). As Callaway et al. (2021) show, we also need to assume a particular form of treatment homogeneity that rules out that respondents select into higher intensities of ΔRF_c or ΔEF_e .²⁴ That is, the average outcomes over time for a high-intensity treatment group are a good counterfactual for outcomes in any lower-intensity treatment group if they had been assigned the same intensity. If such a “strong parallel trends” assumption is satisfied, then two-way fixed-effects estimation of these two coefficients identifies weighted averages of the average causal responses at different treatment intensities of ΔRF_c or ΔEF_e (Callaway et al., 2021).²⁵

We run a number of tests to ensure that no anticipation and no selection on gains are plausible in our setting. We test part of this assumption using event study plots and leverage survey round specific effects of ΔRF_c and ΔEF_e . We also test if the characteristics of respondents, such as their age, residency (urban/rural), assets, gender are balanced with respect to ΔRF_c and ΔEF_e (Figure B-1 suggest they are), and examine symmetry for positive and negative values of ΔRF_c (but not ΔEF_e , since $\Delta EF_e > 0$ for all e). Finally, selection on gains implies that respondents would have to move to districts with larger ΔRF_c as the reform takes effect (or change their ethnic identity in the case of ΔEF_e). While such a migration response is possible, the reform and its effects on ethnic voting were difficult to anticipate. Hence, such a response would take some time and affect the medium-term estimates more than the immediate response.

5. Results

In this section, we present our main results and use our point estimates to evaluate how the boundary reform changed ethnic voting in Kenya. We then provide evidence showing that the estimated effects are driven by the border changes from provinces to counties rather than other parts of the constitutional reform, such as border changes of lower-tier administrative units or features of the devolution process. Finally, we present a battery of robustness tests.

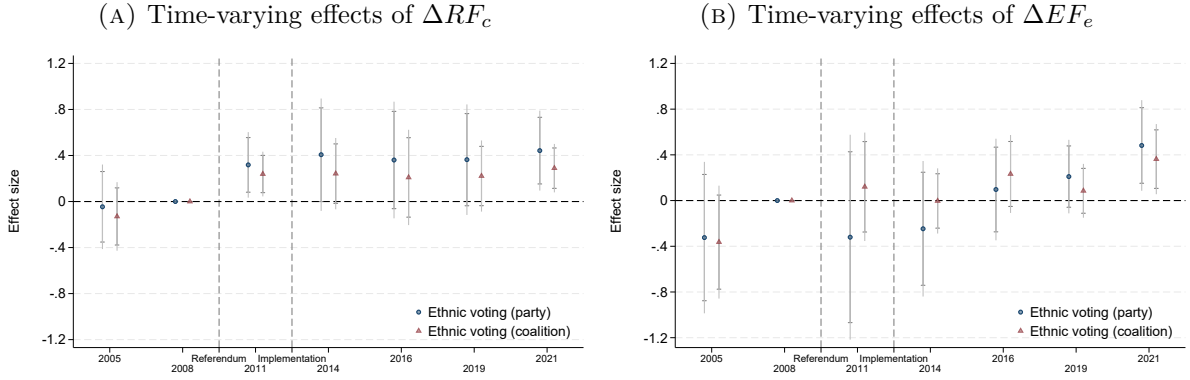
²⁴This treatment homogeneity assumption is stronger than assuming unconfoundedness of the treatment, which only requires that ΔRF_c and ΔEF_e are not proxying for some other county or group characteristic that changes as a result of the reform and is also correlated with voting patterns.

²⁵Two-way fixed effects estimation does not always recover treatment effects in staggered difference-in-differences and event study designs with treatment heterogeneity over treated cohorts and/or dynamic treatment effects (e.g., Borusyak and Jaravel, 2017; Callaway and Sant’Anna, 2021; Sun and Abraham, 2021). This differs from our setting, where treatment occurs simultaneously, but its intensity varies across units. Callaway et al. (2021) show that the weights on the underlying causal responses are always positive if the data are a proper panel. We interpret our repeated cross-section estimates along these lines.

5.1. Main results and evaluation of the reform

Panel A of Figure VI presents the β_t 's capturing the (potentially time-varying) effects of a change in regional fractionalization on ethnic voting, and panel B the γ_t 's capturing the effects of a change in ethnic fragmentation. Blue circles represent results when using the party-based measure of ethnic voting, and red triangles when using the coalition-based measure of ethnic voting. For both measures of ethnic voting, we cannot reject the null hypothesis of no pretends for the two sets of coefficients of interest. Moreover, the estimates for the interim period (round 5 in 2011) are relatively small and marginally (in)significant at conventional levels. We take this as evidence of limited anticipation effects before the new borders became politically relevant with the 2013 election.

FIGURE VI
Event study estimates



Notes: The figure shows event study coefficients for the effect of reform-induced changes in regional fractionalization (ΔRF_c) and ethnic fragmentation (ΔEF_e) on our main indicator for ethnic voting, i.e., plurality party (blue circles) or plurality coalition (red triangles). Specifically, we estimate $EV_{it} = \sum_t \beta_t \Delta RF_c + \sum_t \gamma_t \Delta EF_e + \mathbf{Z}'_{it} \boldsymbol{\xi}_t + \mu_{ce} + \lambda_t + \epsilon_{it}$, where t are survey years and $t = 2008$ the omitted reference category. Panel A focuses on ΔRF_c and reports the β_t 's, and panel B on ΔEF_e and reports the γ_t 's. All specifications include county-by-ethnicity fixed effects and time-fixed effects. 95% and 90% confidence intervals are plotted as gray bars. They are based on two-way clustered standard errors at the province-by-ethnicity level and county level.

The effects of a change in regional fractionalization and ethnic fragmentation materialize once the reform is implemented. In the case of regional fractionalization, the effect size is fairly constant across the post-treatment period (panel A), while we observe some build-up of the effect of ethnic fragmentation (panel B).²⁶ Furthermore, Figure B-3 shows that there are no anticipation or treatment effects with respect to the probability of voting or disclosing the party a respondent intends to vote for across survey rounds. Finally, we find no evidence that this differential response to our treatments is driven by changing self-identification patterns—with the nation or one's ethnic group—

²⁶Figure B-2 shows that increases and decreases in regional fractionalization have symmetric effects (while ethnic fragmentation decreases for all ethnic groups).

between members of those groups likely in local control vs. not (see [Figure B-4](#)).²⁷ We take this as suggestive evidence that ethnofederal reforms do not necessarily lead to less identification with the nation (or perhaps even separatism).

TABLE I
Main results: Difference-in-difference

	<i>Dependent variables: Ethnic voting</i>					
	<i>Party</i>			<i>Coalition</i>		
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta RF_c \times D_t$	0.418** (0.170)	0.421** (0.172)	0.407** (0.196)	0.315*** (0.092)	0.316*** (0.094)	0.291*** (0.108)
$\Delta EF_e \times D_t$	0.396** (0.151)	0.389** (0.152)	0.366** (0.151)	0.414*** (0.112)	0.409*** (0.111)	0.388*** (0.113)
<i>Ethnofederal effect</i>						
$-(\beta\hat{\sigma}_{\Delta RF_c} + \gamma\hat{\sigma}_{\Delta EF_e})$	-0.133 (0.042)	-0.132 (0.043)	-0.126 (0.046)	-0.119 (0.026)	-0.118 (0.027)	-0.111 (0.028)
County-by-ethnicity FE	✓	✓	✓	✓	✓	✓
Time FE	✓	✓	✓	✓	✓	✓
Controls	—	✓	✓	—	✓	✓
Controls $\times D_t$	—	—	✓	—	—	✓
Obs	6328	6328	6328	6328	6328	6328

Notes: The table reports the regression results of regressing our main ethnic voting proxy (plurality, based on the party classification columns 1 to 3 and coalition classification columns 4 to 6) on the post-treatment indicator times change in regional fractionalization ($\Delta RF_c \times D_t$), and change ethnic fragmentation ($\Delta EF_e \times D_t$). All specifications include county-by-ethnicity and time-fixed effects. Controls include the age of a respondent, indicators if they live in an urban survey cluster, are female, and indicators whether respondents own a TV, radio, or motorized vehicle. Standard errors are two-way clustered at the province-by-ethnicity and county levels. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

We collapse the event study to our preferred difference-in-differences design (see [equation 3](#)). We drop survey round 5 (in 2011), which is neither clearly in the pre-treatment nor the post-treatment period (resulting 897 fewer observations). [Table I](#) presents the corresponding results. Column 1 shows that increases in regional fractionalization and ethnic fragmentation are associated with higher incidences of party-based ethnic voting. Our headline findings are similar when using the coalition-based measure of ethnic voting (column 4), adding respondent-level controls (columns 2 and 4) or respondent-level controls and their interaction with the post-treatment indicator (columns 3 and 6). Moreover, we cannot reject the equality of both coefficients in any column. These findings are consistent with the idea that ethnofederal structures (characterized by low RF_c and EF_e) de-ethnizise politics at the center while crosscutting

²⁷There is an important caveat due to the way Afrobarometer surveys ask about self-identification. We cannot rule out that ethnofederal reforms increase (or decrease) both group identification and national identification—similar to the Nigerian youth service program studied by [Okunogbe \(2024\)](#).

structures (characterized by high RF_c and EF_e) increase the importance of ethnicity in national elections and national politics more generally. The coefficients for ΔRF_c and ΔEF_e capture precisely this trade-off, and the magnitudes suggest it close to one-to-one.

The estimated effects are quantitatively important. The sample mean of ΔRF_c is -0.168, and the estimated β is 0.421 (column 2). Hence, our results predict that the average reform-induced change in regional fractionalization *reduced* ethnic voting by 7.1 percentage points. Similarly, the sample mean of ΔEF_e is 0.384, and the estimated γ is 0.389 (column 2), predicting that the average reform-induced change in ethnic fragmentation *increased* ethnic voting by 14.9 percentage points. Thus, the predicted net average effect of the reform would be an increase in ethnic voting of roughly 7.8 percentage points. Table I also reports the estimated effect of a standard deviation reduction in both measures, corresponding to a large ethnofederal reform, below the main estimates. The joint effect is stable at around -13 percentage points for parties and -12 percentage points for coalitions. In summary, the net effect of any boundary reform depends on how large reductions in regional fractionalization are relative to the increases in ethnic fragmentation.

TABLE II
Aggregate effects of reform on ethnic voting

Ethnic group	Predicted change in ethnic voting due to			Population share
	ΔEF	ΔRF	both	
Kikuyu	0.141	-0.016	0.124	0.208
Luhya	0.150	-0.027	0.123	0.148
Luo	0.170	-0.115	0.055	0.124
Kamba	0.183	-0.188	-0.005	0.115
Kalenjin	0.308	-0.136	0.172	0.113
Embu / Meru	0.169	-0.150	0.018	0.063
Kisii	0.140	-0.198	-0.057	0.062
Mijikenda	0.223	-0.150	0.073	0.047
Maasai / Samburu	0.231	-0.053	0.178	0.023
Turkana	0.168	-0.181	-0.013	0.013
Change in ethnic voting for big 4: 0.092				
Change in ethnic voting for Kenya: 0.080				

Notes: The table reports the predicted aggregate changes in party-based ethnic voting for each of the 10 largest groups. These changes are computed by multiplying the difference-in-difference coefficients estimated in column (3) of Table I with the group-county-specific populations. The table also reports the change in the population-weighted predicted ethnic voting change for the big 4 ethnic groups and the country as a whole.

The average change in ethnic voting masks substantial differences across ethnic groups. Table II shows the predicted changes in ethnic voting for each of the largest ten ethnic groups separately by using population-weighted averages of the changes in

regional fractionalization and ethnic fragmentation. The reform substantially increased ethnic voting among the Kalenjin and the Kikuyu but had only modest effects on the Luo and the Kamba, based on our predictions. These differences are likely to have been electorally significant. According to official counts, Kenyatta (a Kikuyu) won the 2013 general election with 50.1% of the votes, while Odinga (a Luo) received 43.3%. There would have been a run-off election if Kenyatta had missed an absolute majority. Hence, the reform’s differential effect on ethnic voting among the Kikuyu and the Luo likely contributed to Kenyatta’s (first-round) victory.

Our results so far suggest that political border reforms can reduce ethnic voting in the short and medium run if they lead to more ethnofederal structures (characterized by lower RF_c and EF_e), but not if they lead to more crosscutting structures (characterized by higher RF_c and EF_e). Given that Kenya’s 2010 reform is predicted to have increased ethnic voting on average, it clearly did not strike an optimal balance. An open question is whether alternatives such as the Boma and Wako proposals or simply less “provincialist” border reforms that would have reduced regional fractionalization without strongly increasing ethnic fragmentation could have achieved reductions in ethnic voting. We discuss such alternatives in [Section 7](#).

5.2. Sensitivity

Additional administrative-territorial changes: As discussed in [Section 3](#), the constitutional reform did not only replace the eight provinces with 47 counties as the primary subnational administrative units but also included two other administrative-territorial changes. First, the number of electoral constituencies was increased from 210 to 290 (and MPs can use development funds for projects in their constituencies). Second, 175 local authorities (comparable to municipalities in other countries) were abolished, while their basic functions were subsumed into elected county governments. In addition, another administrative territorial change occurred around the same time: 210 districts created by Daniel Arap Moi and Mwai Kibaki were declared illegal by the High Court in September 2009 ([BBC Monitoring Africa, 2009](#)).

A priori, these three changes are unlikely to affect ethnic voting in presidential elections. First, the constituency change should only be relevant for parliamentary (rather than presidential) elections. Second, the abolition of local authorities should, at most, affect local (but not presidential) elections. However, the local authorities were weak, lacked sufficient funds, and had very limited responsibilities. Third, the newly created and short-lived districts were used by the central government for distributing patronage but were not controlled by the local population. Moreover, the intensity of district proliferation in the early 2000s weakened the importance of any one district.

We proceed in three steps to rule out that these other administrative-territorial

changes drive our main results. First, we collect data on the borders changed by the reform and identify the appropriate counterfactual. Specifically, changes across electoral constituencies and changes from local authorities to counties and districts to counties (see [Online Appendix A](#) for details). Second, we use the pre- and post-reform borders for these three boundary changes to compute the corresponding changes in subnational (regional) fractionalization and ethnic fragmentation.²⁸ We then rerun our main specification while controlling for the impact of the changes in subnational regional fractionalization and ethnic fragmentation resulting from these other boundary changes. Columns 1–3 of [Table III](#) show that the estimates on our main treatments remain similar and size and precision. Moreover, none of the alternative treatments is statistically different from zero.

Devolution and reform support: While our time-fixed effects absorb the overall effect of devolution, devolution might still heterogeneously impact voting behavior in a way that correlates with our treatment. We control for three ways by which the devolution might condition our main effects. First, voters in smaller political regions may need to rely less on ethnicized national politics. Hence, the reform could have less of an impact on ethnic voting for respondent experiencing a larger decrease in their political region’s population size (i.e., the difference between the county- and the province-level population size). Second, voters close to the centers of regional power may need to rely less on ethnicized national politics. Hence, the reform could have a smaller effect for respondents being located closer to the regional capital after the reform than before it. Third, the constitutional reform could have had a differential impact on ethnic voting depending on its popularity in the different provinces (measured by the province-level share of voters voting in favor of the constitutional referendum). Columns 4 to 6 of [Table III](#) show that the coefficient estimates on our main treatments remain similar in size and remain statistically significant when controlling for these three additional factors.

Further robustness checks: We conduct a battery of additional tests. First, we employ logistic regressions and estimate marginal effects. [Table B-1](#) and [Figure B-6](#) show that our results remain qualitatively similar and that the marginal effect of ΔRF_c does not depend on ΔEF_e , or vice versa, which is important for the extrapolations we conduct later on.

Second, we test if our results are sensitive to employing alternative measures of ethnic voting. [Figure B-7](#) documents that we obtain similar effects when using the likelihood to vote the party or coalition that receives the majority of votes from a respondents group, use the continuous vote share, the probability to vote for the party most overrepresented by a respondents group (similar to [Amodio et al., 2024](#)), or alternative coalition codings (based on the observed coalitions of the past or next election). We obtain similar results

²⁸There is no clear pattern in how the different measures are correlated ([Table A.4](#)).

TABLE III
Controlling for other constitutional changes

	<i>Dependent variables: Ethnic voting (party)</i>					
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta RF_c \times D_t$	0.422** (0.181)	0.415** (0.190)	0.410** (0.183)	0.430** (0.194)	0.405** (0.183)	0.445*** (0.137)
$\Delta EF_e \times D_t$	0.432*** (0.157)	0.387** (0.160)	0.382** (0.163)	0.385** (0.149)	0.399** (0.157)	0.382*** (0.100)
$\Delta RF_c(\text{Constituencies}) \times D_t$	-0.037 (0.098)					
$\Delta EF_e(\text{Constituencies}) \times D_t$	0.511 (0.311)					
$\Delta RF_c(\text{Local authority}) \times D_t$		-0.036 (0.043)				
$\Delta EF_e(\text{Local authority}) \times D_t$		0.033 (0.411)				
$\Delta RF_c(\text{District}) \times D_t$			-0.023 (0.049)			
$\Delta EF_e(\text{District}) \times D_t$			0.094 (0.383)			
$\Delta \text{Adm. unit size}(\text{pop}) \times D_t$				-0.020 (0.075)		
$\Delta \text{Capital proximity} \times D_t$					0.035 (0.070)	
Support referendum $\times D_t$						0.134** (0.065)
County-by-ethnicity FE	✓	✓	✓	✓	✓	✓
Time FE	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓
Obs	5895	5984	5987	6328	6328	6328

Notes: The table reports the regression results of regressing our main ethnic voting proxy (plurality), based on the party classification on the post-treatment indicator times change in regional fractionalization ($\Delta RF_c \times D_t$), and change ethnic fragmentation ($\Delta EF_e \times D_t$), controlling for alternative border changes (columns 1 to 3). Specifically, changes between electoral constituencies, local authorities to counties, and districts to counties. Columns 4 and 5 add controls for proxies of the degree of decentralization. The admin unit size (proxied by population), the average distance of respondents to the county capital compared to the province capital. Column 6 controls for the province-level support of the constitutional referendum. All specifications include county-by-ethnicity and time-fixed effects. Controls include the age of a respondent, indicators if they live in an urban survey cluster, are female, and indicators whether respondents own a TV, radio, or motorized vehicle. Standard errors are two-way clustered at the province-ethnicity and county levels. $p < 0.1$, $p < 0.05$, $p < 0.01$.

if we use probability to vote for a coethnic presidential or vice-presidential candidate for the big four (Kalenjin, Kamba, Kikuyu, and Luo). All in all, these tests show that the main results hold up under a variety of different ways of measuring ethnic voting, although precision sometimes becomes an issue.

Third, we test if our results are sensitive to alternative measures of our independent

variables. [Figure B-8](#) documents that our results remain very similar when replacing our two fractionalization measures with stratification measures that can account for wealth differences across regions or ethnic groups.²⁹

Fourth, we test for the impact of sample perturbations. [Figure B-8](#) shows that our results for regional fractionalization remain similar when using the survey weights provided by Afrobarometer, excluding the Rift Valley (which is mostly affected by the violence in 2007 and experienced selective out-migration), including survey round 5, controlling for language matches between the interviewer and respondent in the Afrobarometer, or controlling for the post-reform political alignment between counties and the presidency that could potentially influence the voting decision. Results are also mostly similar for EF, although excluding the Rift Valley and including survey round 5 reduces the effect size and precision of the ethnic fragmentation estimate. Note that excluding the Rift Valley greatly diminishes the variation in ΔEF_e as we lose most of the Kalenjin and other groups residing there which experience the largest changes in ethnic fragmentation (see [Figure IV](#)).

Finally, we show in [Figure B-9](#) that the statistical significance of our main results is robust to various ways to cluster out standard errors.

6. Mechanism: Local control

A key motive for voting along ethnic lines in national elections is that presidents often favor their coethnics in the allocation of public goods such as education, health care, and roads (e.g., [Franck and Rainer, 2012](#); [Burgess et al., 2015](#); [Kramon and Posner, 2016](#); [De Luca et al., 2018](#)). [Horowitz \(1985\)](#) suggests that the tranquilizing effect of ethnofederal reforms arises because ethnic groups controlling the provision of local public goods become empowered relative to the national government, weakening the importance of the national bias in the allocation of public goods.

In [Online Appendix C](#), we outline a simple framework that applies these ideas to ethnic voting at the national level. The intuition is as follows. The central government raises most of the revenue and distributes some share to local governments according to population size. Crucially, the performance (or honesty) of presidents matters in that it affects how much revenue is collected. Like the national government, local governments provide public goods, which they may also bias in favor of specific locations (and therefore groups). Voters vote for national leaders that maximize their level of public goods. The

²⁹We base our stratification measures on [Hodler et al. \(2020\)](#). We replace ΔRF_c by changes in a measure of regional stratification that is high if regional fractionalization in region c is high and if ethnic differences and wealth differences between respondents in this region go hand-in-hand. Similarly, we replace ΔEF_e by changes in a measure of ethnic stratification that is high if ethnic fragmentation of group e is high and if location differences and wealth differences between respondents from this group go hand-in-hand.

framework yields three key results. First, devolution shifts the vote towards more honest and non-coethnic candidates because coethnicity becomes less important for receiving national public goods, and local public goods increase. Second, members of the local majority group in a homogenous county get the desired public goods locally, so their preferences shift towards honest candidates (and higher transfers) over coethnics at the national level. Third, larger regions benefit more from economies of scale, and voters in these regions benefit more from an honest, relative to a coethnic, president.³⁰

We provide indirect evidence for this mechanism by testing whether the effect of reform-induced changes in regional fractionalization and ethnic fragmentation on ethnic voting varies over proxies for local control of ethnic groups in the new counties. We employ three different proxies for local control. The first is electoral safety in post-reform gubernatorial elections. Specifically, we define an indicator for counties where the governor of one of the big four groups is a co-ethnic and won the gubernatorial election by ten or more percentage points (see [Online Appendix A](#) for details). The second proxy is the 1989 population share of a group, which is not an outcome of the political process. The third proxy is the share of public employees in the county administration that identify with the ethnic group of a respondent (obtained from [National Cohesion and Integration Commission, 2016](#)).³¹ While these proxies pick up different aspects of local control, they are highly correlated in the data (see [Table A.6](#)).

[Table IV](#) shows that the data support these predictions. The interactions of local control with the two border alignment measures consistently point in the expected direction and are often statistically significant. For example, the effect of ΔRF_c is considerably stronger for groups that have a co-ethnic governor that won with a large margin of victory, in line with the notion that local control of the provision of public goods makes it easier for them to cross the ethnic line nationally. Similarly, the effect of ΔEF_e is larger for those groups, suggesting that economies of scale matter, in the sense that having more members of a group in the same region reduces ethnic voting. The other two proxies confirm these results with two caveats. The effect of the interactions with ΔEF_e is more stable throughout, and the effects are somewhat more consistent for the big four groups.

³⁰This is related to the argument in [Boffa et al. \(2016\)](#), who shows that information heterogeneity pushes towards centralization (larger units), because the share of informed voters increases accountability and decreases rent extraction of office holders.

³¹We build this measure using all public employees of the county as of the time of the reform implementation in 2013.

TABLE IV
Mechanism: Local political control

	<i>Dependent variables: Ethnic voting (party)</i>					
	<i>Local control proxy:</i>					
	<i>MoV ≥ 10 pp</i>		<i>Population share</i>		<i>Employment share</i>	
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta RF_c \times D_t$	0.262** (0.113)	0.412*** (0.140)	0.464*** (0.171)	0.686*** (0.198)	0.509*** (0.180)	0.752*** (0.222)
$\Delta RF_c \times D_t \times local\ control_{ce}$	0.678** (0.255)	0.560** (0.210)	0.402 (0.302)	1.043** (0.387)	0.099 (0.093)	0.220 (0.157)
$\Delta EF_e \times D_t$	0.141 (0.188)	-0.953 (0.666)	0.440*** (0.138)	0.362* (0.209)	0.334*** (0.079)	0.280 (0.210)
$\Delta EF_c \times D_t \times local\ control_{ce}$	0.713* (0.373)	1.846** (0.793)	0.489 (0.377)	2.127** (0.838)	0.337*** (0.092)	0.613** (0.263)
County-by-ethnicity FE	✓	✓	✓	✓	✓	✓
Time-FE	✓	✓	✓	✓	✓	✓
Big 4 only	—	✓	—	✓	—	✓
Obs	6328	3751	6328	3751	6328	3751

Notes: The table reports the regression results of regressing our main ethnic voting proxy (plurality party) on the post-treatment indicator times change in regional fractionalization ($\Delta RF_c \times D_t$), and change ethnic fragmentation ($\Delta EF_e \times D_t$), interacted with proxy for local control. We always control for an interaction of local control with the treatment indicator. In columns 1 and 2, We interact our treatment ΔRF_c with an indicator variable for electoral safety, that is, unity if the coethnic party of a respondent in a county won the gubernatorial election by more than 10 percentage points, and zero otherwise. In columns 3 and 4, we use the (standardized) continuous population share of groups. In columns 5 and 6, we use the (standardized) continuous employment share of coethnics in the county administration of a respondent. All specifications include county-by-ethnicity and time-fixed effects. Controls include the age of a respondent, indicators if they live in an urban survey cluster, are female, and indicators whether respondents own a TV, radio, or motorized vehicle. Columns 2, 4, and 6 restrict the sample to the big 4 (Kalenjin, Kamba, Kikuyu, and Luo). Standard errors are two-way clustered at the province-ethnicity and county levels. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

7. Counterfactual border designs

Our results show that Kenya’s border reform likely increased ethnic voting and the salience of ethnicity in national elections. In contrast, less “provincialist” border reforms might reduce ethnic voting by lowering regional fractionalization without increasing ethnic fragmentation. In fact, Kenya has a history of different constitutional proposals that would likely have had very different electoral implications, which we explore in this section, along with a benchmark design that would minimize ethnic voting.

The Bomas and Wako draft constitutions: As discussed briefly in [Section 3](#), the Bomas proposal resulted from a constitutional review process initiated in 2000 by the Constitution of Kenya Review Commission (CKRC). It was endorsed by more than 600 representatives of political parties, civil society, religious groups, and ethnic communities. The key provisions were strong devolution to a multi-tiered system of 14

regions (with 74 districts and numerous locations), a bicameral legislature with a senate, and a substantially weakened presidency. Creating more ethnically homogeneous regions was one of the considerations, which was to be balanced with the costs of the regions and economies of scale. Panel A of Figure VII shows the 14 regions that the Bomas draft envisioned superimposed on the 47 counties that were ultimately created. Panel D shows the largest group in each county to illustrate the ethnic geography of Kenya.

The CKRC handed the Bomas draft over to parliament in 2005. The Kibaki government opposed the new constitutional draft and pushed for a legislative process to substantially alter the document (Posner, 2005). The so-called Wako draft constitution (named after the Attorney General at the time) undid many of the Bomas provisions. It proposed a single layer of developed government with 70 districts and less devolution, a unicameral system, and a much stronger presidency. Panel B of Figure VII shows the 70 districts that the Bomas draft envisioned.

The Wako draft was adopted by parliament and put to a referendum in November 2005. The referendum pitted Odinga, who opposed it and founded the Orange Democratic Movement (ODM) to challenge it, against the Kibaki government, which favored it. The Wako draft was rejected by 58% of the vote. The Bomas draft was never voted on, even though it remained part of the political discourse well after the 2010 constitution was enacted.³²

The optimal partition among the set of “less provincialist” partitions:

Understanding the implications of different constitutional proposals is difficult without some benchmark of how much ethnofederalism would have been possible in Kenya. To this end, let’s envision a policymaker who wishes to minimize ethnic voting in national elections in Kenya. The policymaker is considering different border designs (assuming that all other aspects of the reform remain the same). However, they face two realistic constraints, which were both met by the 2010 constitutional reform and (almost perfectly) adhered to by the draft constitutions. First, the new political regions must be nested within the former provinces.³³ Second, these political regions have to be contiguous.

An additional requirement is that the policymaker should focus on border designs with no more than 47 political regions because the 2010 constitutional reform increased ethnic voting by creating too many counties. These constraints dramatically reduce the number of border designs the policymaker needs to consider.³⁴ In fact, they allow us to

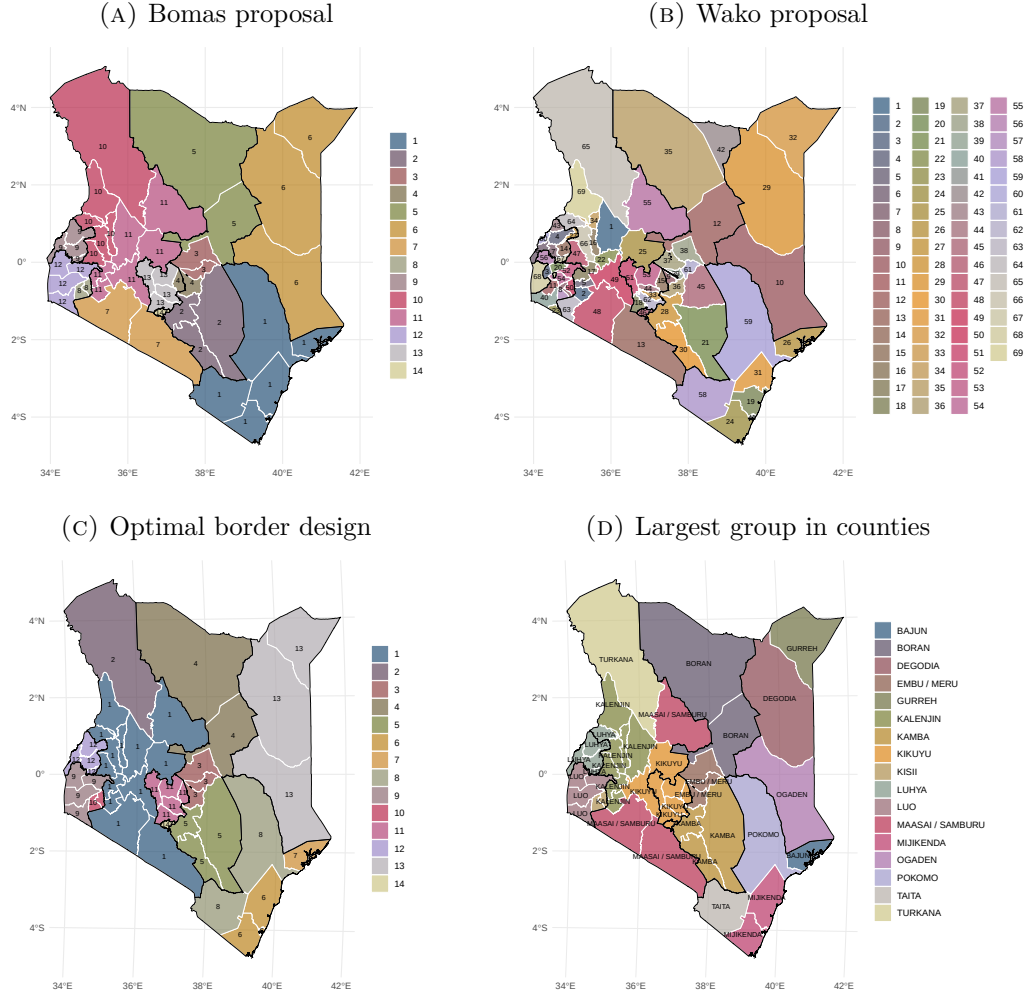
³²Odinga still called for the Bomas draft in 2020 (see <https://nation.africa/kenya/news/politics/raila-steps-up-call-for-14-regional-governments-1927152>).

³³The Bomas draft violates this only in one instance (see region 4 in Panel A of Figure VII which crosses into Central Province).

³⁴Without these constraints, the number of possible mappings of sub-provincial units into different political regions is extremely large, and optimizing over potentially unbounded sample spaces is challenging (Fifield et al., 2020). For instance, there are already approximately 6.6×10^{41} ways of partitioning 47 sub-provincial units into exactly 20 political regions. The state space becomes smaller

enumerate the space of all contiguous partitions completely.³⁵

FIGURE VII
Counterfactual deviations



Notes: The figure illustrates the counterfactual map divisions. Panel A depicts the divisions as suggested by the Bomas proposal, panel B by the Wako proposal. Panel C shows the optimal map derived under the assumptions described in the main text. Numbers and colors correspond to the units drawn by the algorithm. White outlines mark the 47 counties. Black outlines mark the pre-reform provinces (and country borders). Panel D depicts the largest ethnic group for each county implied by the 2010 reform.

when contiguity and other (usually legal) constraints are imposed but typically remains “astronomically large and non-trivial” (Cho and Liu, 2018), making it impossible to compute all the combinations or search the space for optimal solutions. Monte Carlo algorithms can sample from unknown distributions and take biased random walks or short bursts with unbiased random walks that can find locally optimal solutions but are not guaranteed to be globally optimal (Cho and Liu, 2018; Fifield et al., 2020). In contrast, there are only 352,834 possible political border designs when restricting ourselves to simulating all contiguous divisions of the 47 counties (or pre-1992 districts) into a smaller number $K \in \{8, 9, 10, \dots, 47\}$ of alternative political regions within the borders of each former province.

³⁵The constraint that new political borders must be nested within the former provinces allows us to determine optimal partitions within each province separately, from which we can later construct the complete map of optimal borders. Our local homogeneity and group compactness measures are additively separable and do not depend on changes in other provinces. This is easy to see for county-level ΔRF_c but also applies to the group-level ΔEF_e , where changes in the other (unreformed) provinces cancel out.

To find the optimum among these candidate maps, the policymaker needs to determine the design that strikes a balance between regional fractionalization RF_c and ethnic fragmentation EF_e . Ideally, the two indices would both be low, but an increase in the number of political regions tends to pull them in opposite directions (by decreasing average RF_c but increasing average EF_e). Hence, the objective of the policymaker is to find the border design, $\mathcal{D}^*$, that balances these two effects with some weights—say, $\omega \in [0, 1]$ for ΔRF_c and $(1 - \omega)$ for ΔEF_e . The policymaker uses this weight to determine the political border design from the set of all possible designs that minimizes the ω -weighted average of our two heterogeneity measures.³⁶ Our estimates in column (3) of Table I suggest $\omega = 0.52$. Panel C of Figure VII shows the 14 regions implied by the optimal map under the imposed constraints, which implies a geography of regions that is strikingly similar to the 14 regions envisioned in the Bomas draft.

Electoral implications of counterfactual maps: For each proposed map, we use the unit-by-group-level population data to compute regional fractionalization and ethnic fragmentation for each of these possible border designs. As before, we take the difference of these measures with the pre-reform situation to compute the counterfactual effects of the constitutional proposals and optimal map using the coefficient estimates from column (2) of Table I. Despite relying on strong *ceteris paribus* assumptions, such as constant political competition and voting incentives varying solely along previously estimated treatment effects, this evaluation shows that these proposals would have had very different implications for ethnic politics.

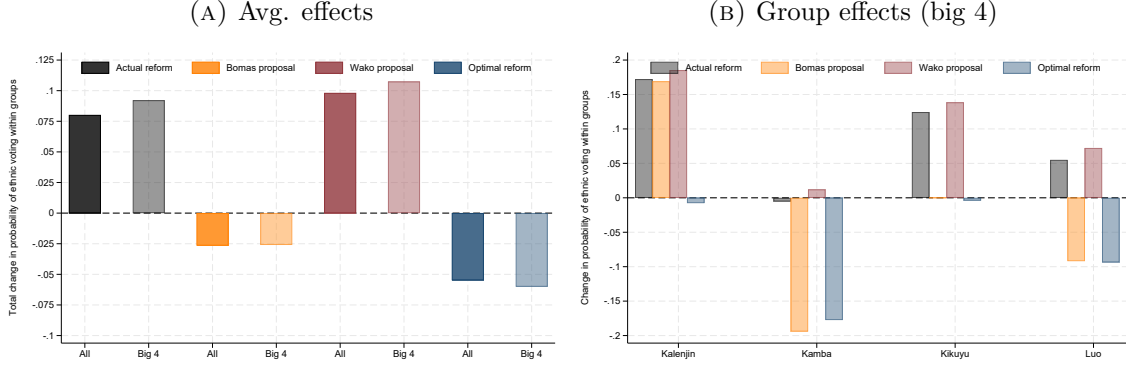
Results: Panel A of Figure VIII shows how the two draft proposals and the optimal map would have affected ethnic voting and compares these effects to those of the 2010 constitution. We observe that only the Bomas draft and the optimal reform would have decreased ethnic voting on average. In the case of Bomas, the reduction is about 2.6 percentage points for all groups and the big four groups relative to the pre-reform situation. Relative to the 2010 constitution, ethnic voting would decline by about 10.6 percentage points for all groups and 11.8 for the big four groups.

The predicted electoral effects of the Wako proposal point in the opposite direction. Based on our predictions, the Wako proposal would have increased ethnic voting by 9.8 percentage points on average (10.7 for the big 4), which is slightly higher than the actual reform that was implemented. Our optimal reform, in turn, is predicted to decrease average ethnic voting by 5.5 (6.0 for the big 4) percentage points relative to the pre-reform provinces. Thus, the optimal reform represents a 13.5 percentage point reduction in ethnic voting relative to the counties implemented in the 2010 constitutional reform.³⁷

³⁶In this case, the population-weighted average of regional fractionalization and the population-weighted average of ethnic fragmentation.

³⁷We also assess the stability of the optimal border design based on the estimated treatment effects by

FIGURE VIII
Predicted effects of counterfactual reforms on ethnic voting



Notes: Panel A of the figure reports the net (population-weighted) effect of each map on ethnic voting in Kenya. Bars show results for the actual reform, the bomas proposal, the Wako proposal, and the optimal reform, both for the total population and for the four ethnic groups with the most political influence (Kikuyu, Kamba, Kalenjin, and Luo). Panel B plots the impact of each reform proposal for each of the big 4 groups separately.

The different divisions also have very different implications for the different groups. We already highlighted that the actual reform reduced ethnic voting much more for the Kamba than the other big 4 groups. Panel B of [Figure VIII](#) highlights that only the optimal reform (blue bars) is predicted to reduce ethnic voting for all of the big 4 groups, but the predicted impact is very heterogeneous. It is small for the Kalenjin and Kikuyu but large for the Kambda and Luo. Even the Bomas proposal (orange bars) is predicted to increase ethnic voting for the Kalenjin, while we predict at least weakly reduced ethnic voting for all other groups. The Wako proposal, in turn, would have increased ethnic voting for all of the big 4 groups (red bars). This broadly matches the patterns of support of the two proposals. The Luo-lead ODM coalition was founded in opposition to the Wako draft, which would have introduced many weak regions and reinforced ethnic voting in Kenya—a system from which the Kikuyu-led governing coalition benefited.

8. Conclusion

Ethnic politics impedes economic and social development in many diverse countries. However, until now, “the evidence of formal institutional reforms mitigating negative ethnicity [has been] unconvincing” ([Mueller, 2020](#), p. 353). In this paper, we fill this gap.

We provide the first evidence of the benefits of ethnofederal reforms on ethnic voting in a quasi-experimental setting. We use generalized difference-in-difference and event study designs in combination with micro data on voting intentions to study the effects

running a grid search to find the policy weights ω for which the map remains precisely the one shown in panel C of [Figure VII](#). We find this to be the case for all $\omega \in [0.456, 0.539]$, suggesting that the optimal border design is robust to some uncertainty in the estimated treatment effects.

of the change in subnational administrative borders and political devolution stipulated by the 2010 constitutional reform in Kenya. To enable this design, we introduce novel measures of ethnofederal territorial structures at the regional and ethnic group levels, as well as ethnic voting at the respondent-pair level.

The key mechanism behind the ethnicization of national elections is local control of county politics by large groups, an explicit feature of ethnofederal reforms. Our simulations further highlight the potential of such reforms and document that the 2010 constitutional reform in Kenya has been too provincial. This is a worrying finding, given that substantial district proliferation is part of the institutional reforms of many countries across Africa and Asia.

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Figures and Tables

Online Appendix

Content:

A. Additional information on data

A.1. Cross-country border-homeland alignment and reform classification

A.2. Spatial coverage of Afrobarometer surveys

A.3. Definition of variables

A.4. Summary statistics

A.5. Ethnic voting: data and patterns

B. Additional results

B.1. Additional figures

B.2. Additional tables

C. Framework: Ethnofederalism and voting choice

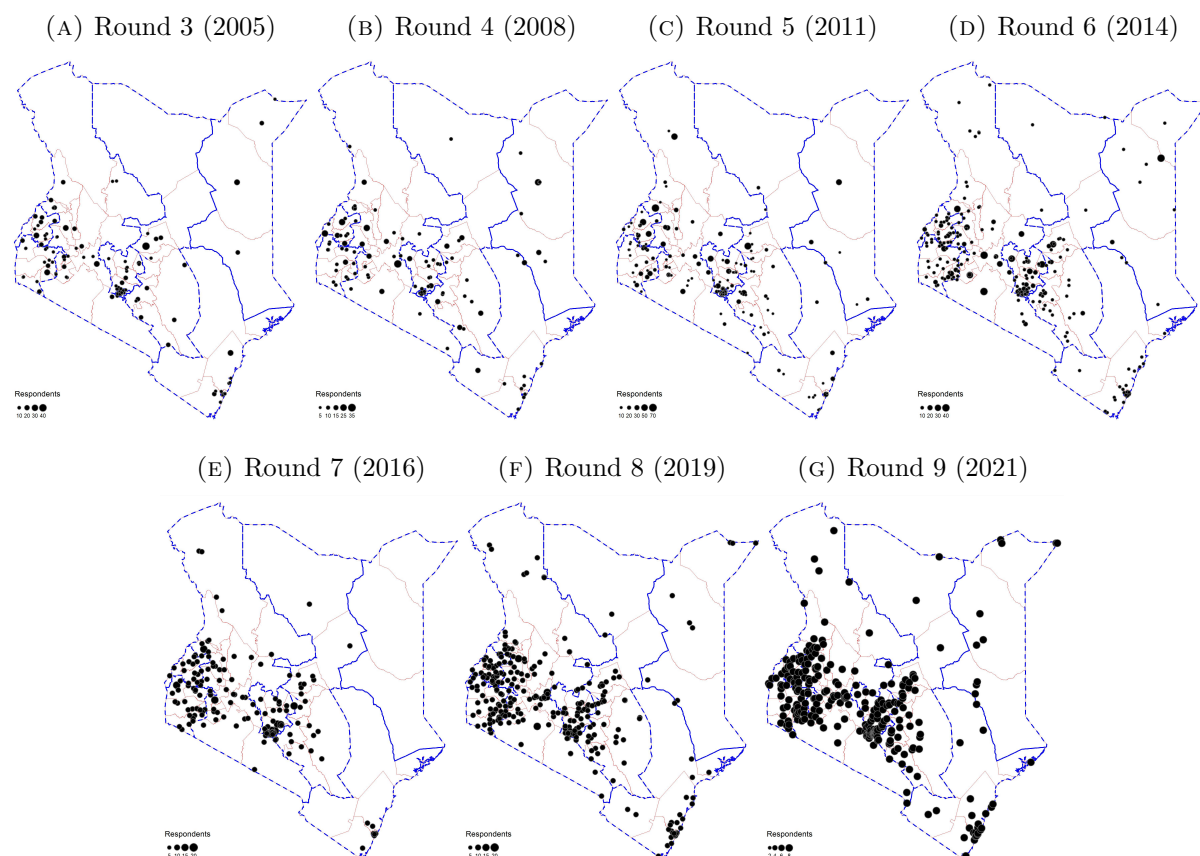
A. Additional information on data

A.1. Cross-country border alignment and reform classification

TBA.

A.2. Spatial coverage of Afrobarometer surveys

FIGURE A.1
Afrobarometer coverage



Notes: Panels A–G show the location of Afrobarometer survey clusters in the different survey rounds. The size of the dots is proportional to the number of respondents in the corresponding cluster. Pre-reform province borders are highlighted in blue, and post-reform county borders in red.

A.3. Definition of variables

A.3.1. Variables used in the main text (Figures III and IV)

Ethnic voting (plurality party 10pp) is an indicator variable that is equal to one if respondents i from group e would vote for the party that receives the most votes of members of groups e during survey round t if and only if the party that receives the second most votes of group e in survey round t receives 10 percentage points less of the vote share of group e . The vote shares are constructed from the voting intention question in the Afrobarometer. (*Source: Q99 in Afrobarometer rounds 3 and 5–8, Q97 in round 4, and Q96 in round 9*).

Ethnic voting (plurality coalition 10pp) is an indicator variable that is equal to one if respondents i from group e would vote for the coalition that receives the most votes of members of groups e during survey round t if and only if the coalition that receives the second most votes of group e in survey round t receives 10 percentage points less of the vote share of group e . The vote shares are constructed from the voting intention question in the Afrobarometer matched to the known coalitions at the time of the survey (see [Table A.3](#)). (*Source: Q99 in Afrobarometer rounds 3 and 5–8, Q97 in round 4, and Q96 in round 9*).

Change in regional fractionalization, denoted ΔRF_e , measures the change in regional fractionalization resulting from the administrative-territorial reform where respondents i resides. (*Source: Own computation based on micro data from the 1989 census; Kenya National Bureau of Statistics*).

Change in ethnic fragmentation, denoted ΔEF_e , measures the change in ethnic fragmentation resulting from the administrative-territorial reform for ethnic group e with which respondents i identifies. (*Source: Own computation based on micro data from the 1989 census; Kenya National Bureau of Statistics*).

Age is the age in years of respondent i . (*Source: Q1 in Afrobarometer rounds 3–9*).

Urban indicator is unity if respondent i resides in an Afrobarometer survey cluster designated as urban. (*Source: “urbrur” in Afrobarometer rounds 3–9*).

Female indicator indicates whether none respondent i identifies female. (*Source: “currnt” in Afrobarometer round 3, “thisint” in Afrobarometer rounds 4–9*).

Radio indicator indicates whether respondent i lives in a household where somebody owns a radio. (*Source: Q93b in Afrobarometer round 3, Q92a in round 4, Q90a in round 5, Q91a in round 6, Q89a in round 7, Q92a in round 8, and Q90a in round 9*).

TV indicator indicates whether respondent i lives in a household where somebody owns a TV. (*Source: Q93c in Afrobarometer round 3, Q92b in round 4, Q90b in round 5, Q91b in round 6, Q89b in round 7, Q92b in round 8, and Q90b round in round 9*).

Motorized vehicle indicator indicates whether respondent i lives in a household where somebody owns a motorized vehicle. (*Source: Q93f in Afrobarometer round 3, Q92c in round 4, Q90c in round 5, Q91c in round 6, Q89c in round 7, Q92c in round 8, and Q90c in round 9.*)

ΔRF_{cd} - **electoral constituencies**, denoted ΔRF_c - electoral constituencies, measures the change in regional fractionalization resulting from the administrative-territorial reform, where respondents i resides. In contrast to our main measure, we use changes (splits) in the electoral constituencies to obtain variation in the regional fractionalization measure. (*Source: Own computation based on micro data from the 1989 census; Kenya National Bureau of Statistics*).

ΔEF_e - **electoral constituencies**, denoted ΔEF_e - electoral constituencies, measures the change in ethnic fragmentation resulting from the administrative-territorial reform for ethnic group e with which respondents i identifies. In contrast to our main measure, we use changes (splits) in the electoral constituencies to obtain variation in the ethnic fragmentation measure. (*Source: Own computation based on micro data from the 1989 census; Kenya National Bureau of Statistics*).

ΔRF_c - **local authorities to county**, denoted ΔRF_c - local authorities to county, measures the change in regional fractionalization resulting from the administrative-territorial reform, where respondents i resides. In contrast to our main measure, we use the abolishing of local authorities within counties to obtain variation in the regional fractionalization measure (*Source: Own computation based on microdata from the 1989 census; Kenya National Bureau of Statistics*).

ΔEF_e - **local authorities to county**, denoted ΔEF_e - local authorities to county, measures the change in ethnic fragmentation resulting from the administrative-territorial reform for ethnic group e with which respondent i identifies. In contrast to our main measure, we use the abolishing of local authorities within counties to obtain variation in the ethnic fragmentation measure. (*Source: Own computation based on micro data from the 1989 census; Kenya National Bureau of Statistics*).

ΔRF_c - **change in regional fractionalization from districts to counties** measures the change in regional fractionalization resulting from the administrative-territorial reform, where respondents i resides. In contrast to our main measure we use the abolishing of districts within counties to obtain variation in the regional fractionalization measure. (*Source: Own computation based on micro data from the 1989 census; Kenya National Bureau of Statistics*).

ΔEF_e - **districts to county**, denoted ΔEF_e - districts to county, measures the change in ethnic fragmentation resulting from the administrative-territorial reform for ethnic group e with which respondent i identifies. In contrast to our main measure we use the

abolishing of districts within counties to obtain variation in the ethnic fragmentation measure. (*Source: Own computation based on micro data from the 1989 census; Kenya National Bureau of Statistics*).

Average change in administrative unit size is the percentage change in the sizes of the subnational administrative unit where respondent i resides, resulting from the change from province to county. (*Source: Own computation based on microdata from the 1989 census; Kenya National Bureau of Statistics*).

Average change in capital proximity is the county-averaged percentage change of distance between the cluster locations of respondents residing in county c and the subnational capital city in the corresponding province/county, resulting from the creation of 39 new subnational capital cities. (*Own calculation.*)

Vote share in favor of new constitution is the vote share in favor of the new constitution in the province (former province) in which a respondent resides, during the national referendum in 2010. (*Source: [African election database](#).*)

Largest group indicator indicates if respondent i residing in county c identifies with the ethnic group e with the highest population share in the county. (*Own calculation.*)

Administrative employment share is the share of public employees in the county c which are of ethnic group e with which respondent i identifies. (*Source: Ethnic and Diversity Audit of the County Public Service ([National Cohesion and Integration Commission, 2016](#)).*)

A.3.2. Variables used in the additional results (Online Appendix B)

Intention to vote is an indicator variable that is equal to one unless the respondent answers “would not vote” in response to the question about which party’s candidate he would vote for if presidential elections were held tomorrow. (*Source: Q99 in Afrobarometer rounds 3 and 5–8, Q97 in round 4, and Q96 in round 9*).

Willingness to state party preference is an indicator variable that is equal to one unless the respondent answers “refused to answer” or “don’t know” to the question about which party’s candidate he would vote for if presidential elections were held tomorrow. It is also zero if the respondent is not intending to vote in the next election. (*Source: Q99 in Afrobarometer rounds 3 and 5–8, Q97 in round 4, and Q96 in round 9*).

Ethnic voting (plurality party) is an indicator variable that is equal to one if respondents i from group e would vote for the party that receives the most votes of members of groups e during survey round t . The vote shares are constructed from the voting intention question in the Afrobarometer. (*Source: Q99 in Afrobarometer rounds 3 and 5–8, Q97 in round 4, and Q96 in round 9*).

Ethnic voting (plurality coalition) is an indicator variable that is equal to one if respondents i from group e would vote for the coalition that receives the most votes of members of groups e during survey round t . The vote shares are constructed from the voting intention question in the Afrobarometer matched to the known coalitions at the time of the survey (see [Table A.3](#)). (*Source: Q99 in Afrobarometer rounds 3 and 5–8, Q97 in round 4, and Q96 in round 9*).

Ethnic voting (majority party) is an indicator variable that is equal to one if respondents i from group e would vote for the party that receives the most votes of members of groups e during survey round t if the party also receives more than 50% of the vote share of group e . The vote shares are constructed from the voting intention question in the Afrobarometer. (*Source: Q99 in Afrobarometer rounds 3 and 5–8, Q97 in round 4, and Q96 in round 9*).

Ethnic voting (majority coalition) is an indicator variable that is equal to one if respondents i from group e would vote for the coalition that receives the most votes of members of groups e during survey round t if the coalition also receives more than 50% of the vote share of group e . The vote shares are constructed from the voting intention question in the Afrobarometer matched to the known coalitions at the time of the survey (see [Table A.3](#)). (*Source: Q99 in Afrobarometer rounds 3 and 5–8, Q97 in round 4, and Q96 in round 9*).

Ethnic voting (vote share party) is the share of co-ethnics that vote for the same party as respondent i . The vote shares are constructed from the voting intention question in the Afrobarometer. (*Source: Q99 in Afrobarometer rounds 3 and 5–8, Q97 in round 4, and Q96 in round 9*).

Ethnic voting (vote share coalition) is the share of co-ethnics that vote for the same coalition as respondent i . The vote shares are constructed from the voting intention question in the Afrobarometer matched to the known coalitions at the time of the survey (see [Table A.3](#)). (*Source: Q99 in Afrobarometer rounds 3 and 5–8, Q97 in round 4, and Q96 in round 9*).

Ethnic voting (coethnic candidate party) is an indicator variable that is equal to one if respondent i would vote for the party that runs their coethnic candidates if presidential elections were held tomorrow. The coethnic parties are only defined for the big 4 (Kamba, Kalenjin, Kikuyu, and Luo) based on the ethnic identity of the presidential and vice-presidential candidates. (*Source: Q99 in Afrobarometer rounds 3 and 5–8, Q97 in round 4, and Q96 in round 9*).

Ethnic voting (coethnic candidate coalition) is an indicator variable that is equal to one if respondent i would vote for the coalition that runs their coethnic candidates if presidential elections were held tomorrow. The vote shares are constructed from the

voting intention question in the Afrobarometer matched to the known coalitions at the time of the survey (see [Table A.3](#)). The coethnic coalitions are only defined for the big 4 (Kamba, Kalenjin, Kikuyu, and Luo) based on the ethnic identity of the presidential and vice-presidential candidates. (*Source: Q99 in Afrobarometer rounds 3 and 5–8, Q97 in round 4, and Q96 in round 9*).

Ethnic voting (Over-representation party) is an indicator variable that is equal to one if respondent i would vote for the party in which the ethnic group e the respondent identifies with is most over-represented following [Amodio et al. \(2024\)](#). The vote shares are constructed from the voting intention question in the Afrobarometer. (*Source: Q99 in Afrobarometer rounds 3 and 5–8, Q97 in round 4, and Q96 in round 9*).

Ethnic voting (Over-representation coalition) is an indicator variable that is equal to one if respondent i would vote for the coalition in which the ethnic group e the respondent identifies with is most over-represented following [Amodio et al. \(2024\)](#). The vote shares are constructed from the voting intention question in the Afrobarometer matched to the known coalitions at the time of the survey (see [Table A.3](#)). (*Source: Q99 in Afrobarometer rounds 3 and 5–8, Q97 in round 4, and Q96 in round 9*).

Regional voting (plurality party) is an indicator variable that is equal to one if respondents i from county r would vote for the party that receives the most votes of residents of county r during survey round t . The vote shares are constructed from the voting intention question in the Afrobarometer. (*Source: Q99 in Afrobarometer rounds 3 and 5–8, Q97 in round 4, and Q96 in round 9*).

Change in regional stratification, denoted ΔRS_c , measures the reform-induced change in regional stratification resulting from the administrative-territorial reform, where respondents i resides. The stratification measure is calculated following [Hodler et al. \(2020\)](#) using the housing variables from the 1989 census. (*Source: Own computation based on micro data from the 1989 census; Kenya National Bureau of Statistics*).

Change in ethnic stratification, denoted ΔES_e , measures the reform-induced change in ethnic stratification across subnational units resulting from the administrative-territorial reform. The stratification measure is calculated following [Hodler et al. \(2020\)](#) using the housing variables from the 1989 census. (*Source: Own computation based on micro data from the 1989 census; Kenya National Bureau of Statistics*).

Ethnic match (interviewer) is an indicator variable taking unity if the home language of the respondent and the interviewer match and zero otherwise. (*Source home language interviewer, home language as stated above Q114 in Afrobarometer round 3, Q117 in round 4, Q116 in round 5, 6, 7, 8, and 9*).

Population share coethnics in county is the county population share of ethnic group e with whom respondent i residing in county c identifies. (*Source: Own computation*

based on micro data from the 1989 census; Kenya National Bureau of Statistics).

MoV indicator is an indicator variable that is equal to one for respondents living in a county in which the gubernatorial candidate representing their ethnic group won the 2013 gubernatorial race with a margin of victory of at least 20 percentage points. This variable is only available for respondent pairs identifying with one of the four main ethnic groups (Kamba, Kikuyu, Kalenjin, Luo); and it is only applicable to the restricted sample based on coethnic respondent pairs residing in the same county. (*Source: Independent Electoral and borders Commission, 2013*).

Administrative employment share (incl new hires) is the share of public employees (including new hires up until 2016) in the county c which are of ethnic group e with which respondent i identifies. (*Source: Ethnic and Diversity Audit of the County Public Service (National Cohesion and Integration Commission, 2016).*)

Indicator: Identification state qeg tribe indicates that a respondent identifies equally or more with Kenya, the country, than their ethnic group. (*Source: Afrobarometer self-identification question: Q82 in Afrobarometer round 3, Q83 in round 4, Q85b in round 5, Q88b in round 6, Q85b in round 7, Q82b in round 8, and Q84c in round 9.*)

Indicator: Identification state $>$ tribe indicates that a respondent identifies more with Kenya, the country than with their ethnic group. (*Source: Afrobarometer self-identification question: Q82 in Afrobarometer round 3, Q83 in round 4, Q85b in round 5, Q88b in round 6, Q85b in round 7, Q82b in round 8, and Q84c in round 9.*)

Indicator: Ethnic discrimination indicates that a respondent feels more ethnically discriminated by the government than the average respondent from his or her groups in a survey round. (*Source: Afrobarometer self-identification question: Q81 in Afrobarometer round 3, Q82 in round 4, Q85a in round 5, Q88a in round 6, Q85a in round 7, Q82a in round 8, and Q84b in round 9.*)

Indicator: Alignment indicates that a county has a governor belonging to the same party as either the vice president or president currently in power. (*Source: Independent Electoral and borders Commission, 2013 and 2017*)

A.4. Summary statistics

TABLE A.1
Summary statistics

Variable	Mean	SD	Min	Max	N
Respondent id	5,194.60	2,991.72	1.00	10,357.00	10,222
Afrobarometer wave	6.78	1.88	3.00	9.00	10,222
Ethnic vote (party plurality)	0.72	0.45	0.00	1.00	7,225
Ethnic vote (coalition plurality)	0.76	0.43	0.00	1.00	7,225
Ethnic vote (party majority)	0.77	0.42	0.00	1.00	6,088
Ethnic vote (coalition majority)	0.77	0.42	0.00	1.00	6,803
Votes share coethnics party	0.60	0.30	0.00	1.00	7,225
Votes share coethnics coalition	0.66	0.28	0.00	1.00	7,195
Ethnic vote (party Amodio et al.)	0.33	0.47	0.00	1.00	7,225
Ethnic vote (party Amodio et al.)	0.63	0.48	0.00	1.00	7,225
Vote for party (coethnic P/VP)	0.55	0.50	0.00	1.00	5,704
Vote for coalition (coethnic P/VP)	0.60	0.49	0.00	1.00	5,704
Votes share coethnics coalition (E-1)	0.76	0.43	0.00	1.00	7,225
Votes share coethnics coalition (E+1)	0.82	0.39	0.00	1.00	7,225
Indicator: intends to vote	0.92	0.27	0.00	1.00	10,222
Indicator: Discloses party choice	0.97	0.17	0.00	1.00	10,222
ΔRF_c	-0.20	0.25	-0.61	0.28	10,222
ΔEF_e	0.45	0.16	0.04	0.79	10,222
$\Delta RF_c \times D_t$	-0.15	0.23	-0.61	0.28	10,222
$\Delta EF_e \times D_t$	0.34	0.24	0.00	0.79	10,222
Age	36.12	14.01	18.00	112.00	10,192
Indicator: Respondent is female	0.50	0.50	0.00	1.00	10,222
Indicator: Urban cluster	0.38	0.49	0.00	1.00	10,222
Indicator: Respondent owns a radio	0.85	0.36	0.00	1.00	10,222
Indicator: Respondent owns a TV	0.51	0.50	0.00	1.00	10,222
Indicator: Respondent owns a vehicle	0.24	0.43	0.00	1.00	10,222
ΔRF - districts to county	0.02	0.13	-0.35	0.46	9,715
ΔEF - districts to county	-0.14	0.08	-0.38	0.01	9,715
ΔRF - local authorities to county	0.01	0.13	-0.43	0.51	9,707
ΔEF - local authorities to county	-0.11	0.07	-0.27	0.02	9,707
ΔRF - electoral constituencies	0.00	0.08	-0.49	0.42	9,542
ΔEF - electoral constituencies	0.01	0.03	0.00	0.35	9,542
$\Delta Adm. unitsize(pop)$	-0.71	0.28	-0.98	0.00	10,222
$\Delta Capital proximity$	-0.46	0.34	-0.94	0.00	10,222
Indicator: Support referendum	0.55	0.50	0.00	1.00	10,222
Δ Ethnic strat. in regions	-0.40	0.53	-1.60	0.88	10,222
Δ Regional strat. in ethnic groups	0.77	0.24	0.15	1.33	9,796
ΔRF_e (ethnic families)	0.19	0.25	-0.41	0.61	10,222
ΔEF_e (ethnic families)	-0.36	0.20	-0.79	-0.04	10,222
Δ Ethnic strat. in regions	-0.40	0.53	-1.60	0.88	10,222
Δ Regional strat. in ethnic groups	0.77	0.24	0.15	1.33	9,796
Indicator: Ethnic match respondent interviewer	0.79	0.41	0.00	1.00	10,222
Population share county (e)	0.61	0.37	0.00	0.99	10,222

Continued on next page

Table A.1 – *Continued from previous page*

Variable	Mean	SD	Min	Max	N
Indicator: Largest group in county	0.72	0.45	0.00	1.00	10,222
Staff share public admin county	0.58	0.33	-0.00	1.00	10,222
Staff share public admin county, incl. new hires	0.59	0.33	0.00	0.97	10,222
Indicator: Gubernatorial MoV > 10pp	0.32	0.47	0.00	1.00	10,222
Big 4	0.56	0.50	0.00	1.00	10,222
Indicator: Identification state tribe	0.90	0.30	0.00	1.00	10,222
Indicator: Identification state > tribe	0.45	0.50	0.00	1.00	10,222

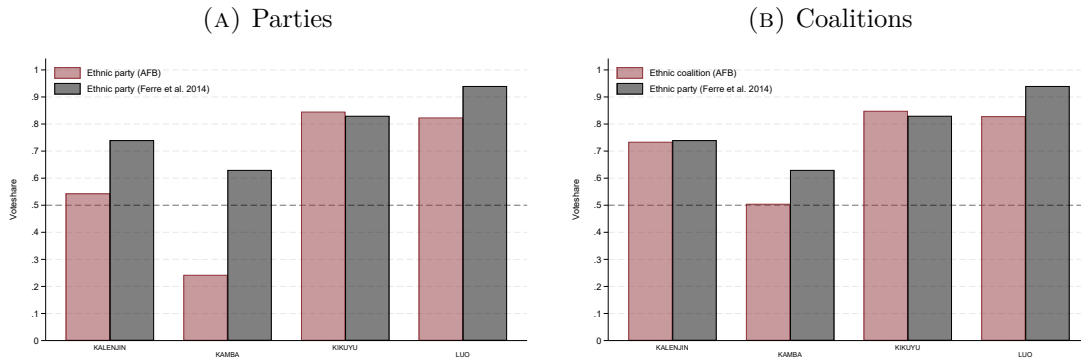
Notes: The table reports the summary statistics of our variables of interests across samples.

A.5. Ethnic voting: Validating voting intentions

This section provides some further evidence supporting the validity of co-voting data. The main concern, using the survey data from the Afrobarometer, is about data quality and, in particular, the fact that we rely on data about voting intentions (if presidential elections were held tomorrow) rather than actual voting behavior.

To address these concerns, we compare the voting intentions of Afrobarometer survey respondents with the self-reported voting behavior of the respondents in the exit polls conducted by [Ferree et al. \(2014\)](#). We focus on the so-called “big four” ethnic groups, i.e., the Kalenjin, the Kamba, the Kikuyu, and the Luo. These groups are typically represented by presidential or vice-presidential candidates, which makes it straightforward to assign an ethnic party to each of these groups. It would be much harder to assign ethnic parties for ethnic groups other than the big four.¹

FIGURE A.2
Similarity of ethnic party voting in Afrobarometer and exit polls



Notes: Panel A of the figure plots the share of respondents from the big four ethnic groups who intend to vote for the party with a coethnic presidential or vice-presidential candidate according to the Afrobarometer survey data (in maroon) and the share of voters from these groups who voted for the presidential ticket with coethnic presidential or vice-presidential candidate according to the exit polls by [Ferree et al. \(2014\)](#) (in grey). Panel B replicates panel A but aggregates the political parties at the level of coalitions, as coalitions correspond more closely to the presidential tickets used in the exit polls. The Afrobarometer voteshare is based on wave 6 (2014), which is closest to the exit polls in [Ferree et al. \(2014\)](#) conducted in 2013.

Panel A in [Figure A.2](#) then reports the share of respondents from each of these four groups who support their ethnic party according to the Afrobarometer survey data as well as the exit polls by [Ferree et al. \(2014\)](#). Panel B aggregates the Afrobarometer-based voting intentions at the level of coalitions, as coalitions may correspond more closely to the presidential tickets used in [Ferree et al. \(2014\)](#). We find a striking similarity in the extent to which respondents from the different ethnic groups vote for their ethnic coalition

¹The process of assigning ethnic groups to parties that are not led by coethnics would involve a fair amount of subjectivity and researcher degrees of freedom. Moreover, unique labels could not do justice to situations in which ethnic groups are split over, say, just two parties but with very few coethnics supporting any other party.

across these two datasets (despite being administered in different points in time). This similarity lends credibility to our choice of relying on Afrobarometer survey data on voting intentions.

TABLE A.2
Most popular parties by group and survey round

Ethnic group	Survey round	Resp. party	Most popular party	Vote share 1st party	Second most popular party	Vote share 2nd party
EMBU / MERU	3	30	NARC-K	.85	KANU	.07
EMBU / MERU	4	37	PNU	.46	ODM	.36
EMBU / MERU	5	67	PNU	.52	ODM	.4
EMBU / MERU	6	111	TNA	.9	ODM	.04
EMBU / MERU	7	90	JAP	.9	TNA	.06
EMBU / MERU	8	145	JAP	.85	ODM	.12
EMBU / MERU	9	151	UDA	.7	ODM	.17
KALENJIN	3	104	KANU	.52	NARC-K	.26
KALENJIN	4	41	ODM	.97	PNU	.03
KALENJIN	5	105	UDM	.44	ODM	.29
KALENJIN	6	173	URP	.62	TNA	.22
KALENJIN	7	167	JAP	.81	URP	.09
KALENJIN	8	355	JAP	.88	ODM	.06
KALENJIN	9	294	UDA	.84	JAP	.09
KAMBA	3	109	NARC-K	.66	LDP	.22
KAMBA	4	66	ODM	.71	PNU	.22
KAMBA	5	150	ODM	.73	PNU	.19
KAMBA	6	202	ODM	.36	WDM-K	.33
KAMBA	7	142	JAP	.44	ODM	.33
KAMBA	8	239	JAP	.43	ODM	.27
KAMBA	9	254	UDA	.39	WDM-K	.28
KIKUYU	3	153	NARC-K	.7	KANU	.17
KIKUYU	4	141	PNU	.65	ODM	.22
KIKUYU	5	249	PNU	.74	KANU	.09
KIKUYU	6	343	TNA	.96	ODM	.02
KIKUYU	7	229	JAP	.92	TNA	.05
KIKUYU	8	410	JAP	.93	ODM	.04
KIKUYU	9	444	UDA	.7	JAP	.15
KISII	3	88	NARC-K	.49	KANU	.19
KISII	4	38	ODM	.86	PNU	.14
KISII	5	68	ODM	.67	PNU	.28
KISII	6	121	ODM	.58	TNA	.36
KISII	7	93	JAP	.55	ODM	.42
KISII	8	160	ODM	.53	JAP	.44
KISII	9	142	ODM	.59	UDA	.29
LUHYA	3	105	NARC-K	.48	LDP	.26
LUHYA	4	62	ODM	.91	KADDU-ASIL	.04
LUHYA	5	192	ODM	.84	PNU	.1

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Table A.2 – *Continued from previous page*

Ethnic group	Wave	Resp. party	Most popular party	Vote share 1st party	Second most popular party	Vote share 2nd party
LUHYA	6	256	ODM	.65	TNA	.22
LUHYA	7	198	ODM	.54	JAP	.39
LUHYA	8	349	ODM	.44	JAP	.38
LUHYA	9	387	ODM	.55	UDA	.26
LUO	3	118	LDP	.81	NARC-K	.15
LUO	4	97	ODM	1		0
LUO	5	207	ODM	.96	NARC-K	.02
LUO	6	210	ODM	.93	TNA	.07
LUO	7	170	ODM	.93	JAP	.05
LUO	8	283	ODM	.88	JAP	.1
LUO	9	249	ODM	.92	UDA	.06
MAASAI / SAMBURU	3	15	NARC-K	.46	KANU	.38
MAASAI / SAMBURU	4	9	ODM	.57	PNU	.29
MAASAI / SAMBURU	5	28	ODM	.82	KANU	.05
MAASAI / SAMBURU	6	26	TNA	.6	ODM	.25
MAASAI / SAMBURU	7	43	JAP	.61	ODM	.22
MAASAI / SAMBURU	8	72	JAP	.55	ODM	.45
MAASAI / SAMBURU	9	50	ODM	.48	UDA	.39
MIJIKENDA	3	72	NARC-K	.51	KANU	.21
MIJIKENDA	4	17	ODM	.83	PNU	.17
MIJIKENDA	5	78	ODM	.59	PNU	.29
MIJIKENDA	6	88	ODM	.76	TNA	.18
MIJIKENDA	7	23	ODM	.56	JAP	.31
MIJIKENDA	8	107	ODM	.59	JAP	.41
MIJIKENDA	9	136	ODM	.62	UDA	.22
SOMALI	3	12	KANU	.5	NARC-K	.3
SOMALI	4	51	ODM	.82	PNU	.15
SOMALI	5	90	ODM	.65	PNU	.29
SOMALI	6	100	TNA	.57	ODM	.27
SOMALI	7	8	JAP	.8	ODM	.2
SOMALI	8	82	JAP	.71	ODM	.2
SOMALI	9	91	UDA	.4	ODM	.32

Notes: The table reports the names and vote share of each ethnic group's most popular party and second most popular party, as well as the vote fractionalization across parties for each of the 10 largest ethnic groups in Afrobarometer survey round.

A.6. Matching parties to coalitions

TABLE A.3
Match parties coalitions over survey rounds

Survey round	Party	Coalition past election	Coalition next election	Coalition	Resp.
3	DP	.	NARC	PNU	12
3	FORD-K	.	NARC	PNU	18
3	KANU	.	KANU	PNU	128
3	LDP	ODM	NARC	.	150
3	NARC-K	NARC-K	NARC-K	PNU	317
3	NPK	.	NARC	.	3
3	Shirikisho	.			4
3	SDP	.	SDP	SDP	1
4	FORD-K	PNU	PNU	CORD	1
4	KADDU-ASIL	.	KADDU-ASIL	.	2
4	KANU	PNU	PNU	Amani	8
4	NARC-K	PNU	PNU	NARC-K	14
4	ODM	ODM	ODM	CORD	312
4	PNU	PNU	PNU	Jubilee (JAP)	107
5	DP	.	PNU	.	2
5	FORD-K	.	PNU	CORD	2
5	G7	.	.	.	3
5	KADDU-ASIL	.	KADDU-ASIL	.	1
5	KANU	.	PNU	Amani	27
5	NARC-K	.	PNU	NARC-K	37
5	NFK	.	NFK	Amani	3
5	ODM	ODM	ODM	CORD	549
5	PNU	PNU	PNU	Jubilee (JAP)	244
5	SAFINA	.	.	SAFINA	1
5	UDM	ODM	ODM	CORD	41
6	FORD-K	CORD	CORD	NASA	8
6	KSC	CORD	CORD	.	3
6	NARC-K	.	NARC-K	NARC-K	10
6	ODM	CORD	CORD	NASA	503
6	RBK	.	RBK	.	2
6	SAFINA	.	SAFINA	.	2
6	TNA	Jubilee (JAP)	Jubilee (JAP)	Jubilee (JAP)	599
6	UDF	.	Amani	Jubilee (JAP)	13
6	URP	Jubilee (JAP)	Jubilee (JAP)	Jubilee (JAP)	125
6	WDM-K	CORD	CORD	NASA	53
7	JAP	Jubilee (JAP)	Jubilee (JAP)	Jubilee (JAP)	529
7	NARC-K	.	NARC-K	.	3
7	ODM	CORD	CORD	NASA	295
7	RBK	.	RBK	.	2
7	SAFINA	.	SAFINA	.	1
7	TNA	Jubilee (JAP)	Jubilee (JAP)	Jubilee (JAP)	27
7	UDF	Jubilee (JAP)	Amani	Jubilee (JAP)	4

Continued on next page

Table A.3 – *Continued from previous page*

Survey round	Party	Coalition past election	Coalition next election	Coalition	Resp.
7	URP	Jubilee (JAP)	Jubilee (JAP)	Jubilee (JAP)	13
7	WDM-K	CORD	CORD	NASA	22
8	Amani National Congress	NASA	NASA	KK	28
8	FORD-K	NASA	NASA	KK	15
8	JAP	Jubilee (JAP)	Jubilee (JAP)	Azimio	951
8	KANU	.	KANU	Azimio	13
8	KSC	.	.	.	1
8	Maendeleo Chap Chap	Jubilee (JAP)	Jubilee (JAP)	KK	9
8	NARC-K	.	.	.	5
8	ODM	NASA	NASA	Azimio	548
8	Thirdway Alliance	.	Thirdway Alliance	Thirdway Alliance	14
8	UDF	Jubilee (JAP)	Jubilee (JAP)	Jubilee (JAP)	2
8	WDM-K	NASA	NASA	Azimio	41
9	Amani National Congress	NASA	NASA	KK	27
9	JAP	.	Jubilee (JAP)	Azimio	161
9	KANU	.	KANU	Azimio	6
9	KSC	.	.	.	1
9	Maendeleo Chap Chap	.	Jubilee (JAP)	KK	2
9	NARC-K	.	.	.	4
9	ODM	NASA	NASA	Azimio	563
9	UDA	UDA	UDA	KK	691
9	WDM-K	NASA	NASA	Azimio	34

Notes: The table reports the matching of parties to coalitions over the different Afrobarometer waves.

A.7. Additional border changes in Kenya

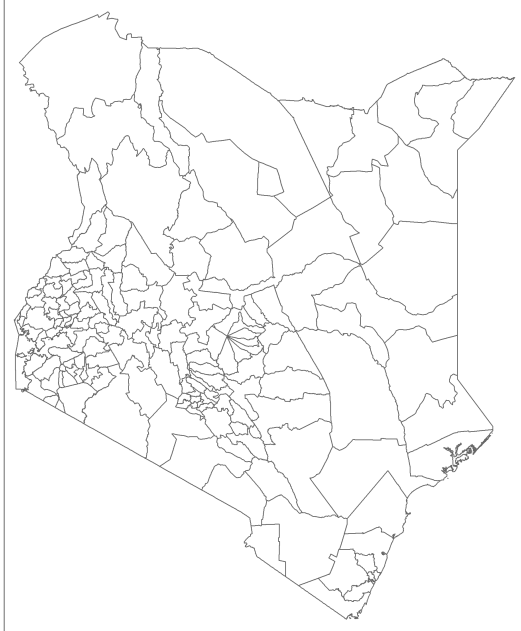
We collect data on the additional border changes and identify the appropriate counterfactual. In two cases, this is straightforward. The Independent Electoral and Boundaries Commission (IEBC) publishes constituency borders for Kenya for each election. The pre-and post-reform constituency borders are those of the 2007 and 2013 elections. In the case of the local authorities, we take the 175 city, municipal, county, and town council borders that were in effect from 1963 until 2010 as the pre-reform baseline (Mboga, 2009), and the borders of the 47 counties as the post-reform geographies (as they completely replaced the lower and less-well funded layer). We could not identify geometries for all 257 districts that existed (even if only on paper) by early September 2009. This is because the Kibaki government was still actively creating new districts in March 2009 (when it finalized the conversion of all 210 constituencies into districts and planned to set up 70 additional district headquarters by the end of the year).² The High Court decision interrupted this process so that many of those districts were never established or only existed for a few months. Instead, we use the 158 districts that were

²Kenya; All Constituencies Now Turned Into Districts. Africa News, July 13, 2009 Monday. advance.lexis.com/api/document?collection=news&id=urn:contentItem:7W4Y-7370-Y9KG-Y1KK-00000-00&context=1516831.

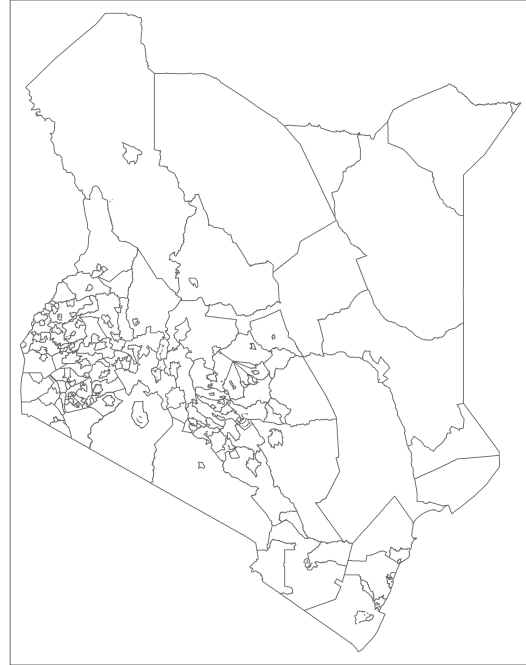
used as a basis for the 2009 census. The post-reform borders are those of the 47 counties. Constituencies were split while local authorities and districts were merged into counties as part of the reform process.

FIGURE A.3
Other political borders affected by the reform

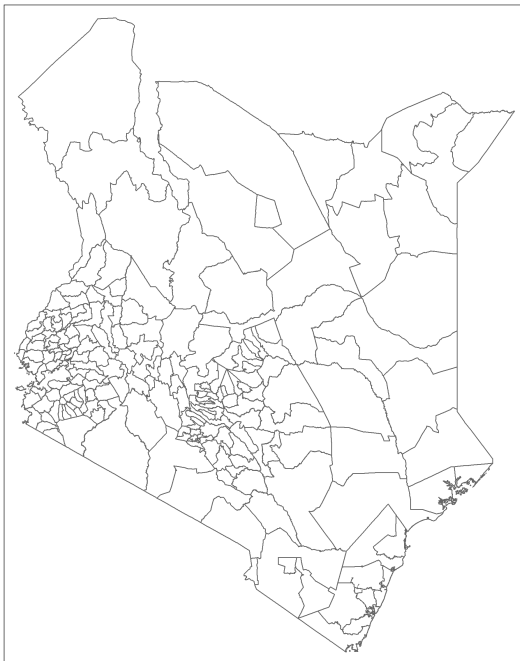
(A) Districts



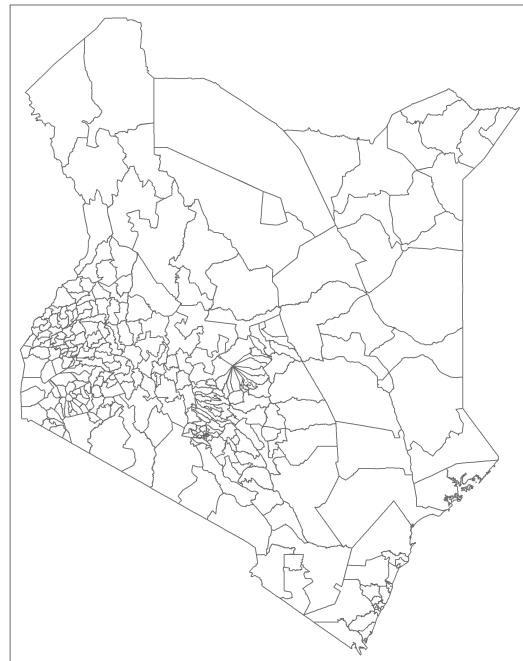
(B) Local Authorities



(C) Constituencies (pre-reform)



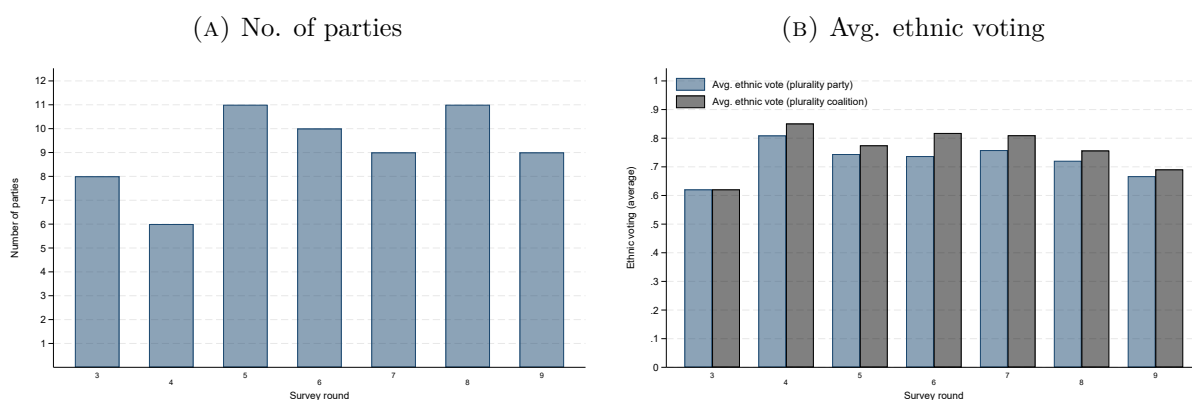
(D) Constituencies (post-reform)



Notes: Panel A depicts the districts of Kenya as of 2008. They were abolished with the constitutional reform. Panel B depicts the local authorities prior to the reform. Panel C depicts the pre-reform electoral constituencies, and panel D post-reform ones.

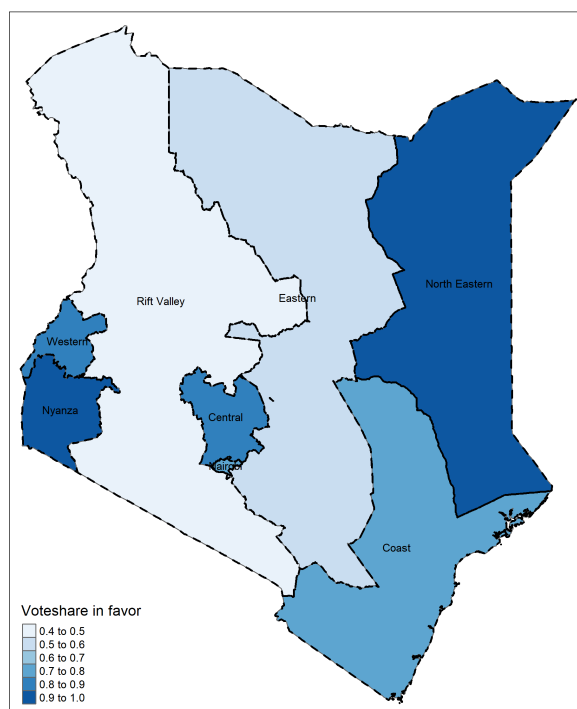
A.8. Further descriptive statistics

FIGURE A.4
Number of parties and average ethnic voting



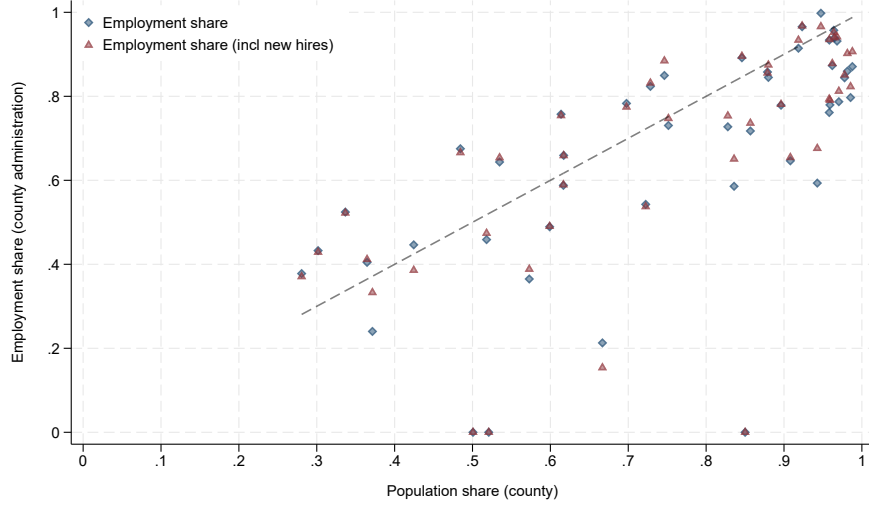
Notes: Panel A of the figure plots the number of parties stated as voting choices by respondents in the Afrobarometer survey during each survey round. Panel B of the figure plots average ethnic voting (plurality party in blue, plurality coalition in black) over the survey rounds.

FIGURE A.5
2010 Referendum support for the constitutional reform across provinces



Notes: The figure plots the vote share in favor of the constitutional reform during the 2010 referendum across provinces.

FIGURE A.6
Largest groups: Population shares and public employment share



Notes: The figure plots the correlations between the county population share of the largest ethnic group in the county and its public employment share (excluding and including post-reform hires up until 2016).

TABLE A.4
Correlation of treatments

Panel A: ΔRF_c				
	ΔRF_c : County vs.			
	Provinces	Districts	LA	EC
ΔRF_c	1			
ΔRF_c (Districts in 2008)	0.164	1		
ΔRF_c (Local authorities)	0.0957	0.657	1	
ΔRF_c (Electoral constituencies)	0.0481	0.0507	-0.0226	1
Panel B: ΔEF_e				
	ΔEF_e : County vs.			
	Provinces	Districts	LA	EC
ΔEF_e	1			
ΔEF_e (Districts in 2008)	0.114	1		
ΔEF_e (Local authorities)	0.0676	0.854	1	
ΔEF_e (Electoral constituencies)	-0.121	-0.446	-0.0981	1

Notes: The table reports the correlations between our two main empirical measures ΔRF and ΔEF constructed from the border changes from provinces to counties, and our alternative boundary changes employed in [Section 5.2](#). Specifically, the ΔRF and ΔEF constructed from the 2008 districts to counties, the local authorities to counties, and the electoral constituencies to counties.

TABLE A.5
Correlation of treatment with administrative unit size

	ΔRF_c	ΔEF_c	Δ adm. unit size		
			population	area	pop. density
ΔRF_c	1				
ΔEF_c	-0.258	1			
Δ adm. unit size (pop)	0.421	-0.299	1		
Δ adm. unit size (area)	0.426	-0.324	0.950	1	
Δ adm. unit size (pop density)	0.009	0.189	-0.125	-0.222	1

Notes: The table reports the correlations between our two main empirical measures ΔRF and ΔEF and several proxies for the size change of administrative units.

TABLE A.6
Correlation of population share and employment shares in counties

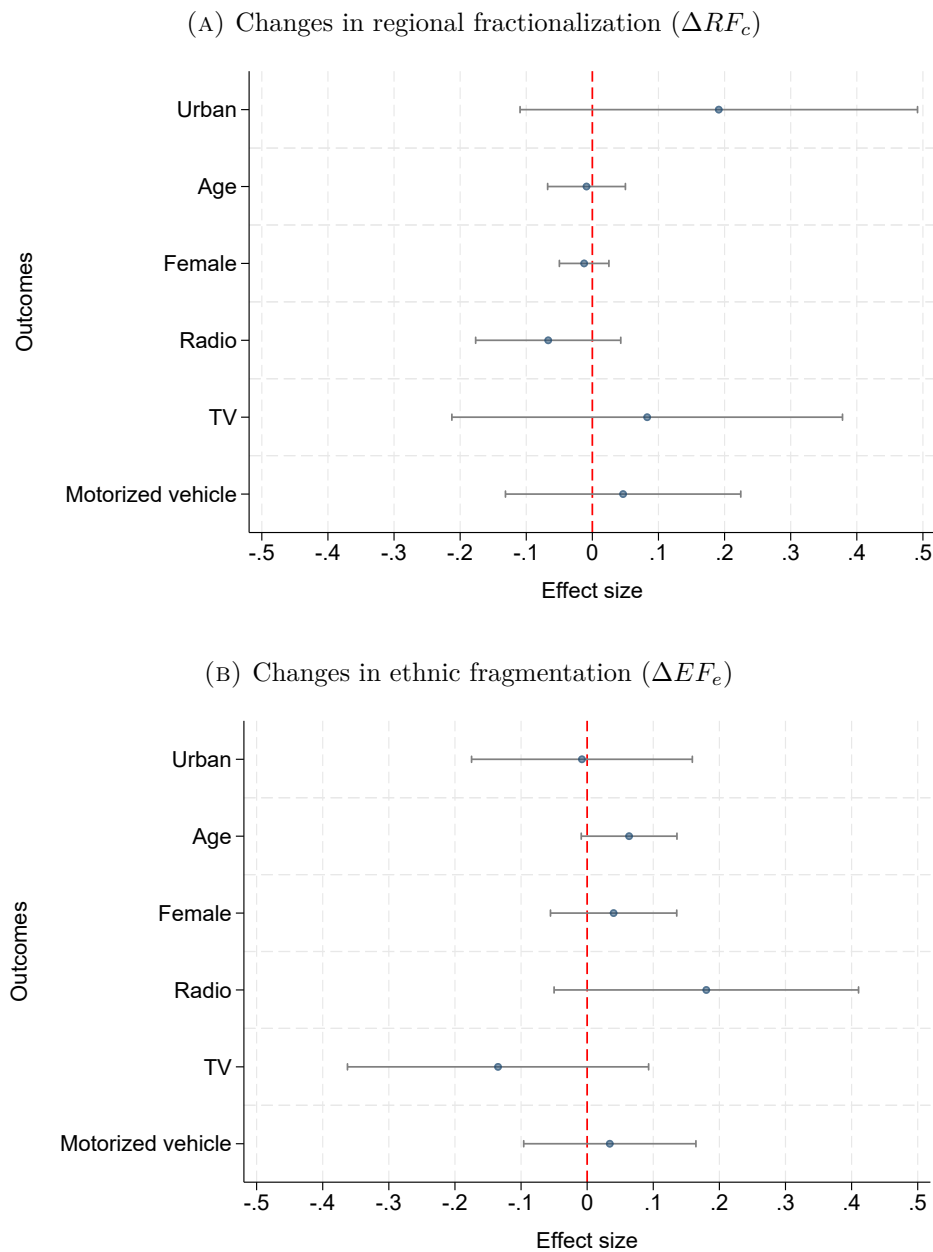
	Largest group	Group population share	Emp. share	Emp. share incl. new hires	Indicator: Gubernatorial MoV $\hat{\iota}$ 10pp
Largest group (county)	1				
Group population share (county)	0.935	1			
Emp. share (county)	0.870	0.918	1		
Emp. share incl. new hires (county)	0.867	0.918	0.998	1	
Indicator: Gubernatorial MoV $\hat{\iota}$ 10pp (ec)	0.445	0.484	0.506	0.505	1

Notes: The table reports the correlations between the largest population indicator, an ethnic group's population share within the county, the public employment share of a group within the county, and the public employment share, including new hires (post-2013).

B. Additional results

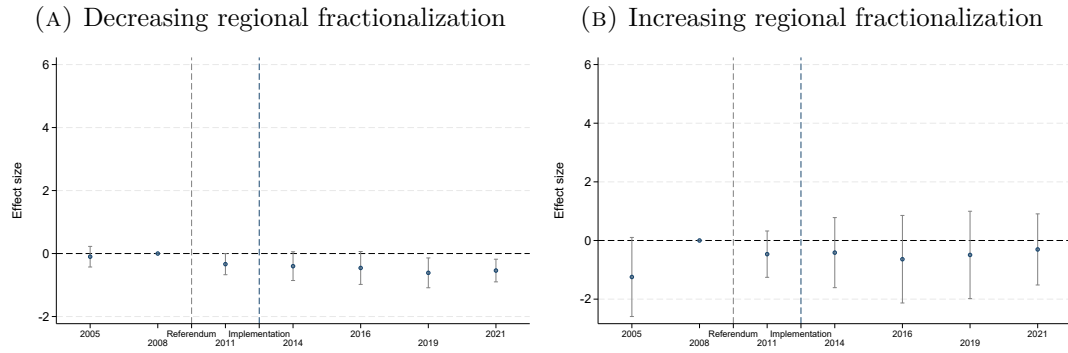
B.1. Figures

FIGURE B-1
Balancing results



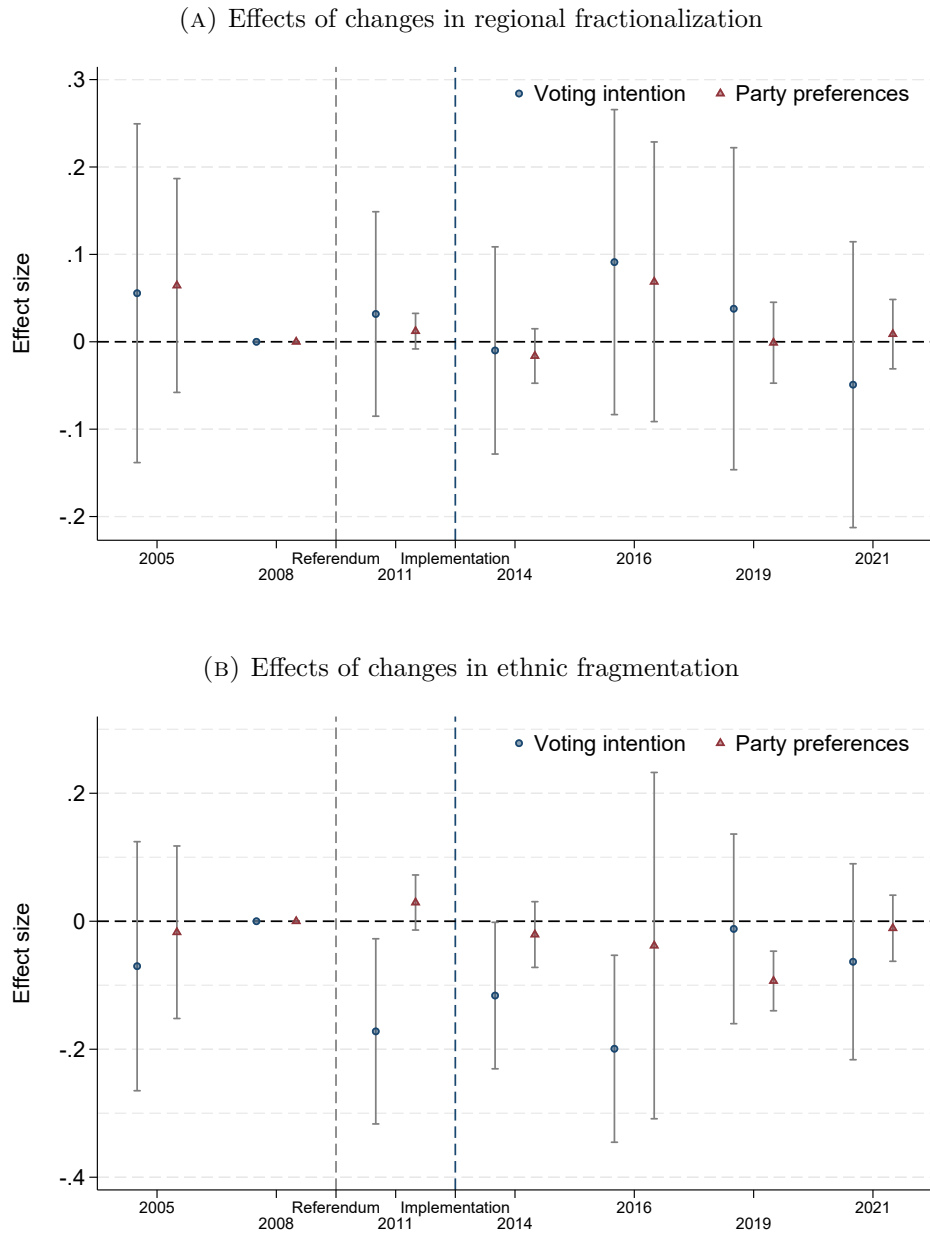
Notes: The figure summarizes the balancing tests on individual characteristics with respect to our treatments. Panels (A) and (B) report the point estimates and 95% confidence intervals of a change in regional fractionalization and ethnic fragmentation over different individual controls. The 95% confidence intervals based on two-way clustered standard errors at the county and province-by-ethnicity level are plotted as gray error bars.

FIGURE B-2
Effect symmetry



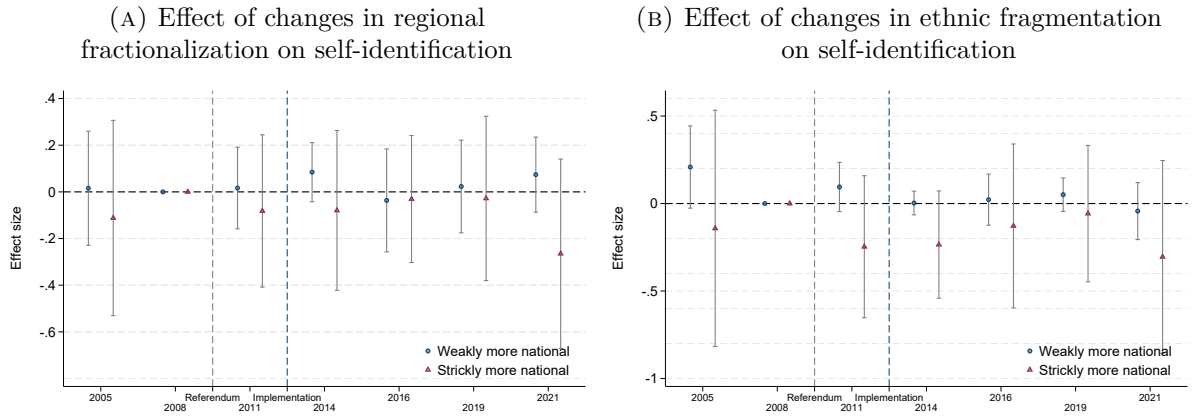
Notes: The figure shows event study coefficients of the effect of reform-induced changes in regional fractionalization on ethnic voting split by whether regional fractionalization increases or decreases, thereby controlling for changes in ethnic fragmentation. Panel A shows estimates for reductions in regional fractionalization, and panel B shows estimates for increases in regional fractionalization. Note that the negative ΔRF_c values in panel A are multiplied by -1 to report the effect of reductions in regional fractionalization. Not that ethnic fragmentation increases for all groups which is why we do not show its effect. All specifications control for changes in ethnic fragmentation and include county-by-ethnicity and time fixed effects. 95% confidence intervals based on two-way clustered standard errors at the province-by-ethnicity and county level are plotted as gray error bars.

FIGURE B-3
Voting intentions and willingness to reveal party preferences



Notes: The figure shows event study coefficients of reform-induced changes in regional fractionalization and ethnic fragmentation on whether a respondent indicates an intention to vote (circles) and whether they are willing to reveal the party's candidate they intend to vote for (triangles). The event study specifications include county-by-ethnicity and time-fixed effects as well as the following individual-level control variables: Age and indicator variables for residence in an urban cluster, being female, owning a radio, TV, and motorized vehicle. 95% confidence intervals based on standard errors clustered at the province-by-ethnicity and county level are plotted as gray error bars.

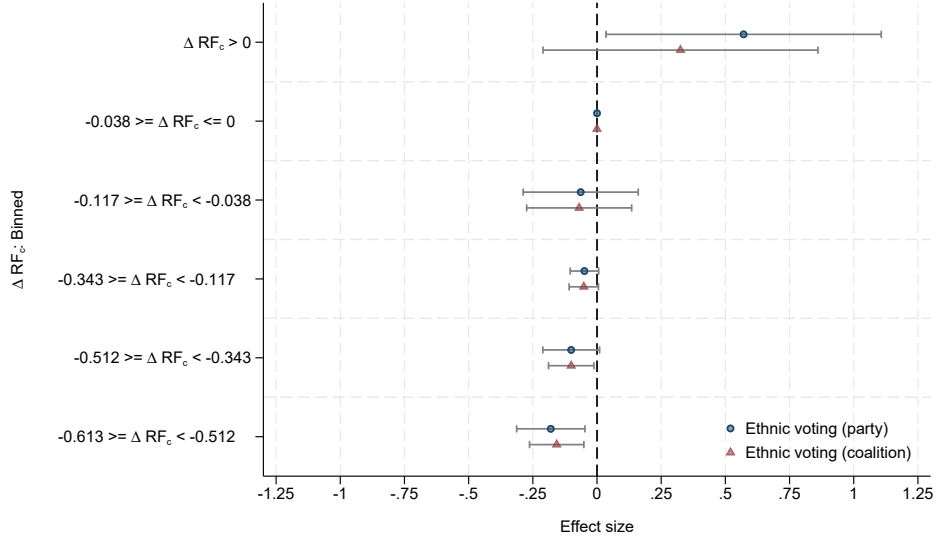
FIGURE B-4
Self-identification: Nation vs. ethnic group



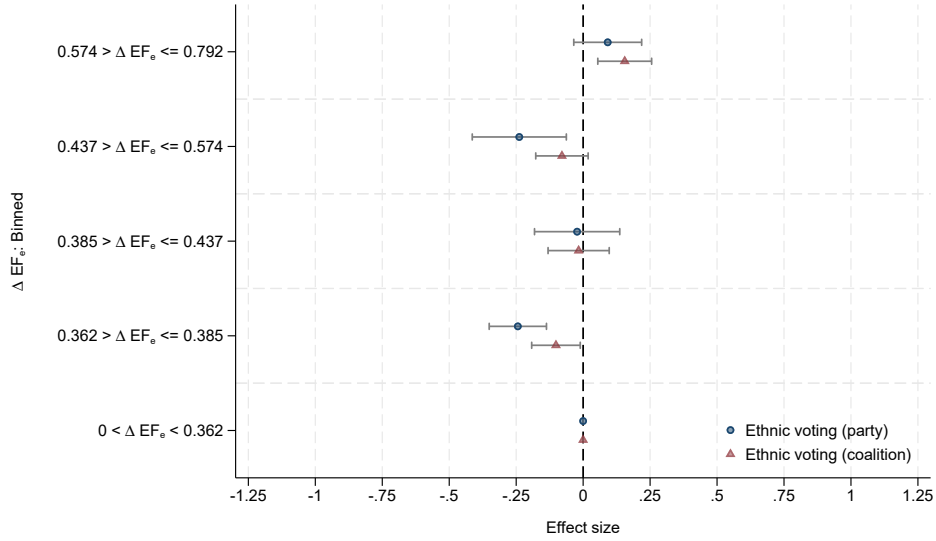
Notes: The figure shows event study coefficients for the effect of reform-induced changes in regional fractionalization (ΔRF_c) and ethnic fragmentation (ΔEF_e) on self-identification. Panel (A) focuses on ΔRF_c and reports the β_t 's; panel (B) focuses on ΔEF_e and reports the γ_t 's. Circles represent estimates based on a specification with an indicator for identifying equally or more with the nation compared to the respondent's ethnic groups; red triangles restrict the indicator to identifying more with the nation compared to one's ethnicity. All specifications include the following pair controls: Age and indicator variables for residence in an urban cluster, being female, owning a radio, TV, and motorized vehicle. All specifications include county and time fixed effects. 95% confidence intervals based on two-way clustered standard errors at the province-ethnicity and county level are plotted as gray error bars.

FIGURE B-5
Effect heterogeneity by treatment dosage

(A) Regional fractionalization (binned)

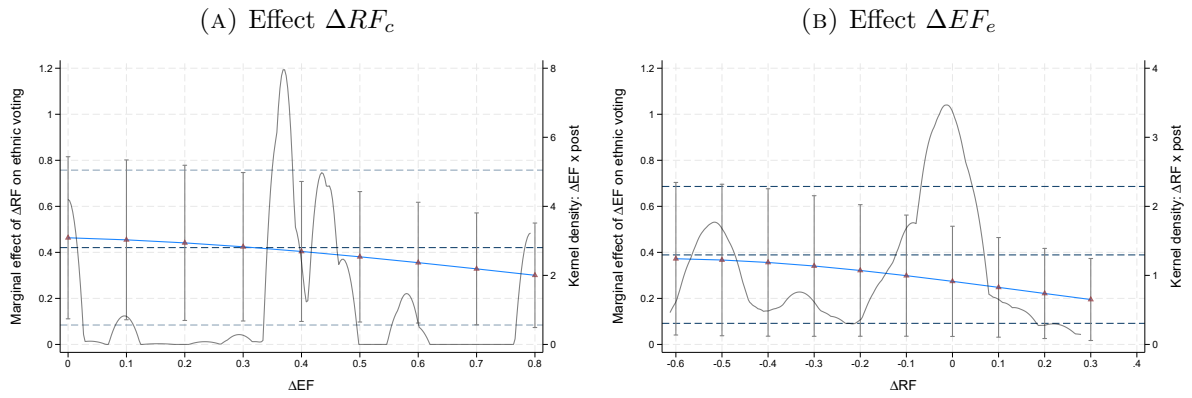


(B) Ethnic fragmentation (binned)



Notes: The figure reports the coefficients binned coefficients of $\Delta RF_c \times D_t$ (panel A) and $\Delta EF_e \times D_t$ obtained from out baseline specification (column 2 of [Table I](#)). The underlying specification includes county-by-ethnicity and time-fixed effects, and controls for the age of a respondent, indicators if they live in an urban survey cluster, are female, and indicators whether respondents own a TV, radio, or motorized vehicle. Standard errors are two-way clustered at the province-by-ethnicity and county levels. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

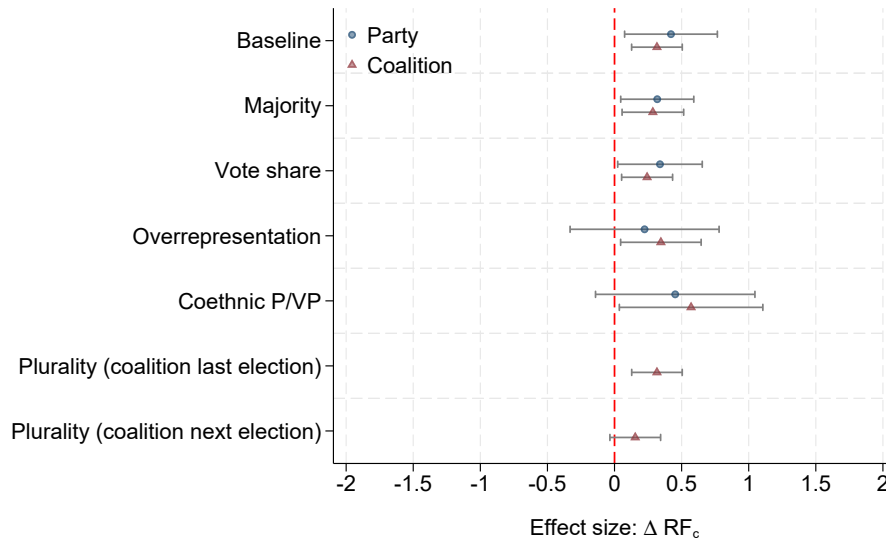
FIGURE B-6
Marginal effects: ΔRF & ΔEF



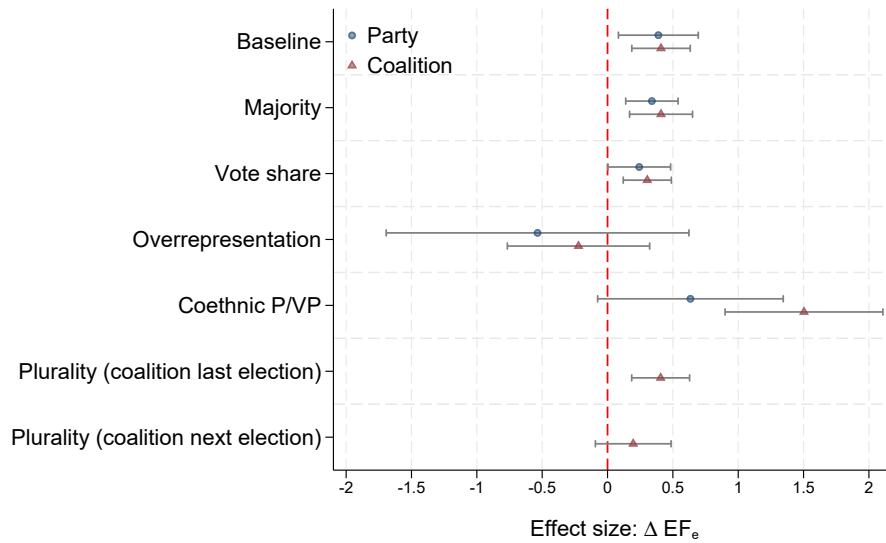
Notes: The figure plots the marginal effects on $\Delta RF \times D_t$ (panel A) and $\Delta EF \times D_t$ (panel B), over the empirical distribution of the respective other measure on party-based ethnic voting. The plots are based on the logit specification depicted in column (4) of [Table B-1](#).

FIGURE B-7
Robustness tests with alternative voting outcomes

(A) Effect of changes in regional fractionalization on ethnic voting



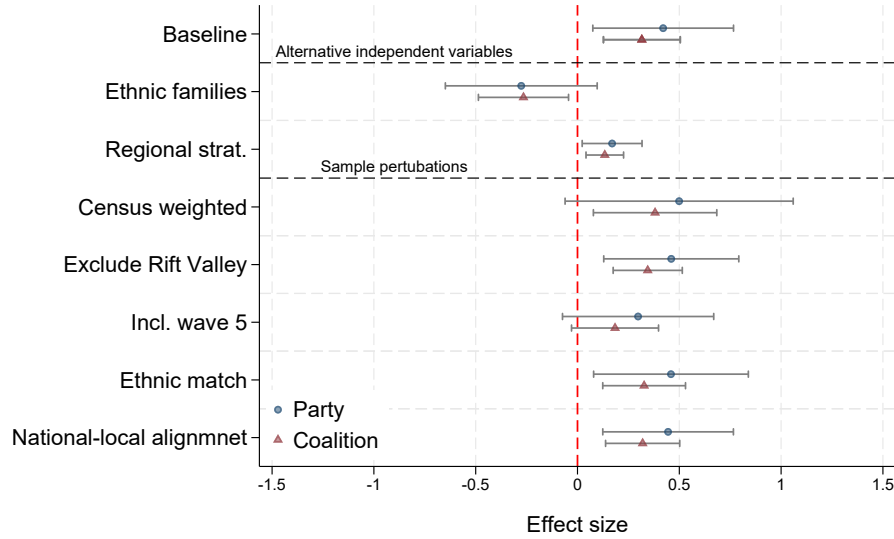
(B) Effect of changes in ethnic fragmentation on ethnic voting



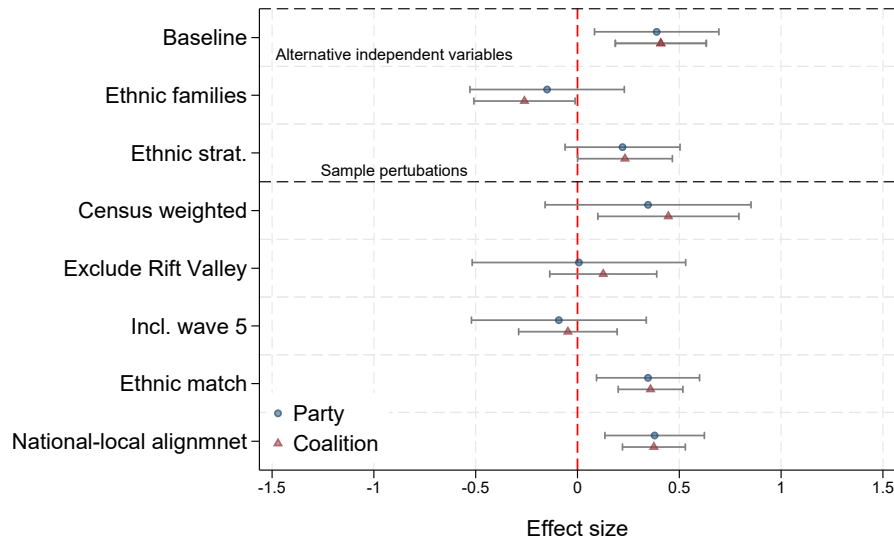
Notes: The figure shows difference-in-differences coefficients based on the main results, including controls of Table I of alternative voting measures (party-based measures in blue circles and coalition-based measures in red triangles). Panel A shows estimates for regional fractionalization, and panel B shows estimates for ethnic fragmentation. Baseline is our main plurality measure. Majority is only unity for parties/coalitions that receive 50% or more of the vote share of an ethnic group in a survey round. Group share uses the continuous vote share of the plurality party. Overrepresentation is the voting dummy for the party that is most overrepresented by groups within a survey round (Amodio et al., 2024). Coethnic P/VP is voting for a party headed by a co-ethnic candidate for president or vice-president (only defined for the Kalenjin, Kamba, Kikuyu, and Luo). Plurality (coalition past election) and plurality (coalition next election) replicate the plurality measure but construct the coalitions based on the past or next election (rather than known as of the survey date). 95% confidence intervals based on two-way clustered standard errors at the province-by-ethnicity and county level are plotted as gray error bars.

FIGURE B-8
Robustness tests with alternative independent variables and perturbed samples

(A) Effect of changes in regional fractionalization on ethnic voting

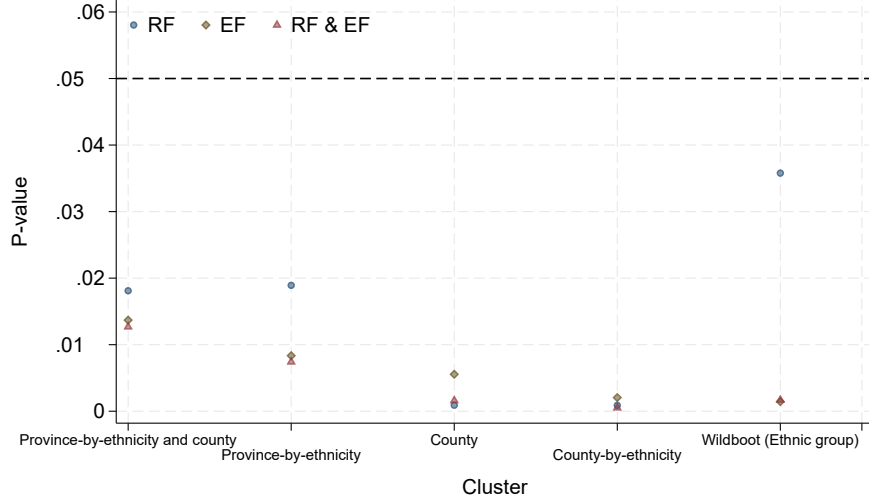


(B) Effect of changes in ethnic fragmentation on ethnic voting



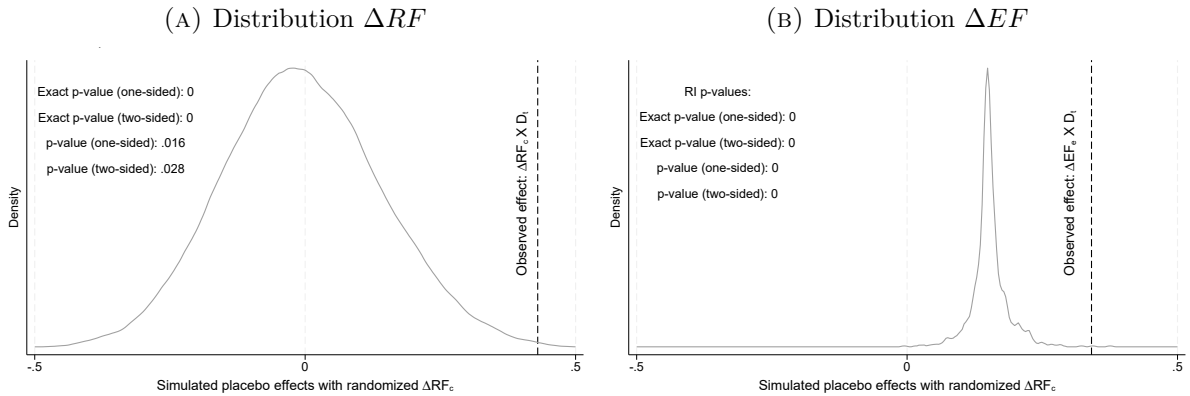
Notes: The figure shows difference-in-differences coefficients of the effect of reform-induced changes in border alignment on party-based ethnic voting for alternative independent variables and sample perturbations. Panel A shows estimates for regional fractionalization, and panel B shows estimates for ethnic fragmentation. Ethnic families indicate that we treat the Kikuyu, Meru, and Embu, Luo, and Luhya as one group when calculating ΔRF_c and ΔEF_e . Regional stratification and Ethnic stratification indicate that we replace ΔRF_c and ΔEF_e by the corresponding stratification measures of Hodler et al. (2020) (see the intuition in the main text). Census weight indicates that we apply the census weights for all respondents. Exclude Rift Valley indicates that we exclude all counties of the former Rift Valley Province. Ethnic match indicates that we exclude all respondents whose language spoken at home does not match the language spoken at home by the Afrobarometer interviewer. National-local alignment, controls 95% confidence intervals based on two-way clustered standard errors at the province-by-ethnicity and county level are plotted as gray error bars.

FIGURE B-9
Alternative clustering of the standard errors



Notes: The figure reports estimated p-values of regional fractionalization (blue dots) and ethnic fragmentation (olive diamonds) and the p-value of the joint F-test (red triangles) of our baseline specification (column 2 of Table I) for alternative forms of standard error clustering or their calculation.

FIGURE B-10
Randomization results: Randomized ΔRF across counties



Notes: The figure reports the kernel density distribution of ΔRF and ΔEF based on 1000 randomization of ΔRF across counties. The underlying specification is based on column 2 Table I.

FIGURE B-11
Randomization results: Randomized ΔEF across ethnic groups

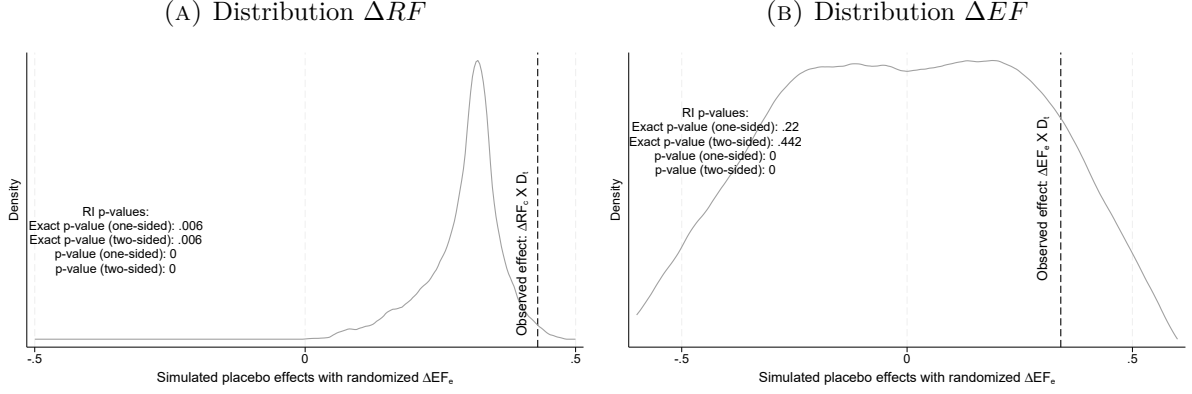


FIGURE B-12
Randomization results: Randomized ΔRF across counties & ΔEF across ethnic groups

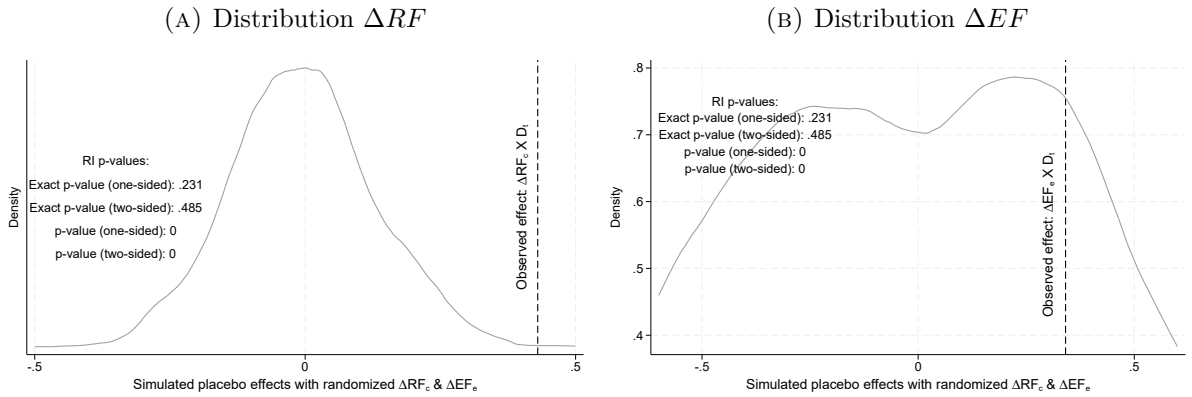
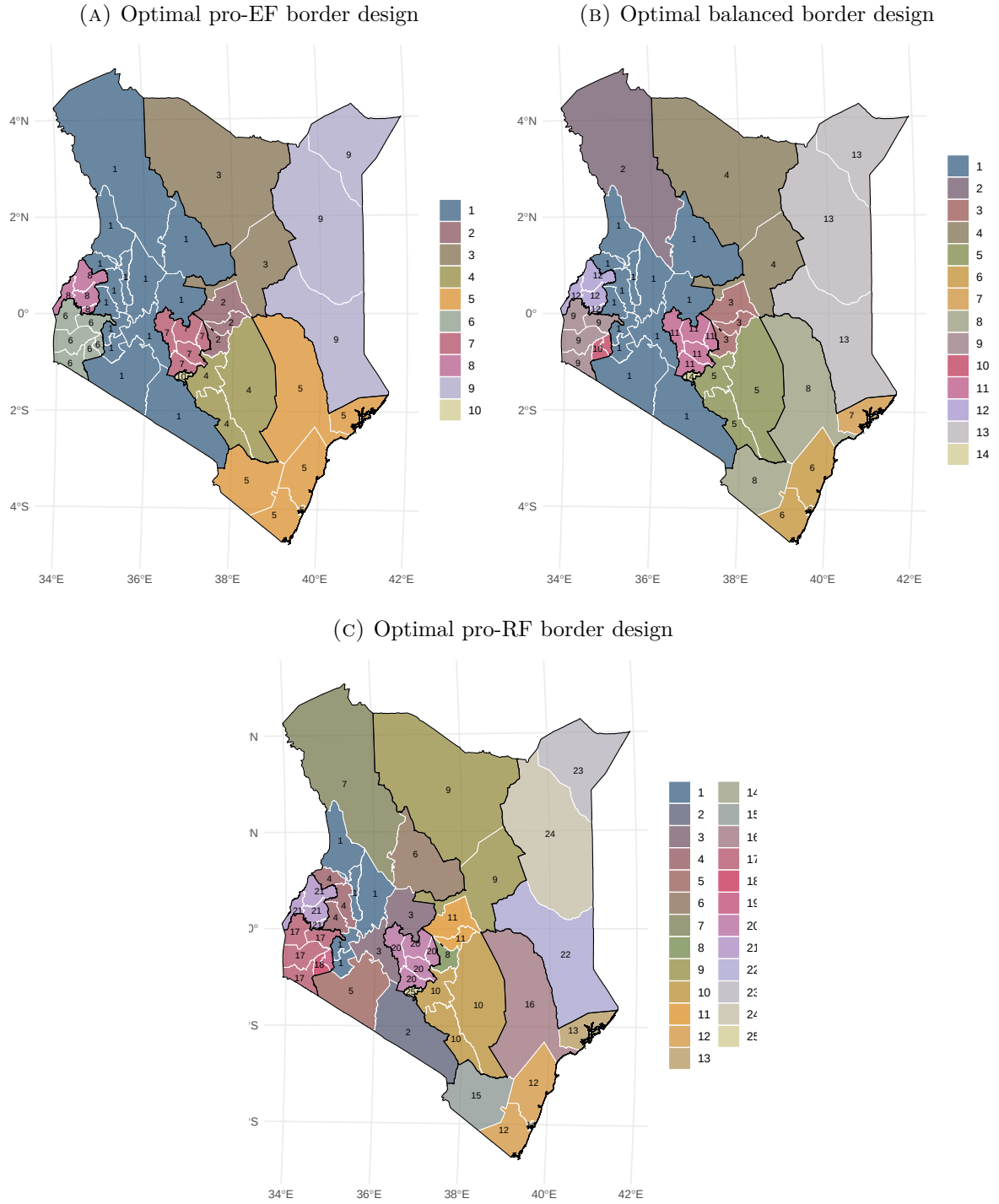


FIGURE B-13
Optimal border designs for different policy weights



Notes: The figure illustrates the results of our simulations of optimal border designs for different policy weights ω for ΔRF . Panel A is based on $\omega = 0.25$, panel B on $\omega = 0.5$, and panel C on $\omega = 0.25$.

B.2. Tables

TABLE B-1
Main results: Logit and triple-interaction

	<i>Dependent variables: Ethnic voting (party-based)</i>					
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta RF_c \times D_t$	2.332*** (0.898)	2.334** (0.915)	4.670** (2.035)	4.708** (2.028)	0.410** (0.163)	0.407** (0.165)
$\Delta EF_e \times D_t$	1.912** (0.837)	1.853** (0.848)	0.361 (1.230)	0.275 (1.202)	0.307* (0.154)	0.293* (0.153)
$\Delta RF_c \times \Delta EF_e \times D_t$			-5.266 (3.419)	-5.354 (3.341)	-0.804 (0.671)	-0.826 (0.652)
Est-M.	LPM	LPM	Logit	Logit	Logit	Logit
County-by-ethnicity FE	✓	✓	✓	✓	✓	✓
Time-FE	✓	✓	✓	✓	✓	✓
Controls	—	✓	—	✓	—	✓
Obs	6106	6097	6106	6097	6337	6328

Notes: The table reports the regression results of regressing our main ethnic voting proxy (plurality) on the post-treatment indicator times change in regional fractionalization ($\Delta RF_c \times D_t$), and change ethnic fragmentation ($\Delta EF_e \times D_t$). All specifications include county-by-ethnicity and time-fixed effects. Controls include the age of a respondent, indicators if they live in an urban survey cluster, are female, and indicators whether respondents own a TV, radio, or motorized vehicle. Standard errors are two-way clustered at the province-by-ethnicity and county levels. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

TABLE B-2
Main results: Single component effects

	<i>Dependent variables:</i>					
	<i>Party</i>			<i>Coalition</i>		
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta RF_c \times D_t$	0.421** (0.172)	0.227** (0.093)		0.316*** (0.094)	0.204** (0.081)	
$\Delta EF_e \times D_t$	0.389** (0.152)		0.218 (0.345)	0.409*** (0.111)		0.316 (0.254)
<i>Ethnofederal effect</i>						
$\beta \hat{\sigma}_{\Delta RF_c} + \gamma \hat{\sigma}_{\Delta EF_e}$	0.128	0.0358	0.0344	0.115	0.0322	0.0499
SE	0.0413	0.0148	0.0544	0.0257	0.0127	0.0402
County-by-ethnicity FE	✓	✓	✓	✓	✓	✓
Time FE	✓	✓	✓	✓	✓	✓
Tribe-by-time FE	—	✓	—	—	✓	—
County-by-time FE	—	—	✓	—	—	✓
Controls	✓	✓	✓	✓	✓	✓
Obs	6328	6328	6328	6328	6328	6328

Notes: The table reports the regression results of regressing our main ethnic voting proxy (plurality party in columns 1 to 3) on the post-treatment indicator times change in regional fractionalization ($\Delta RF_c \times D_t$), and change ethnic fragmentation ($\Delta EF_e \times D_t$). Columns 4 to 6 replicate columns 1 to 3 using the coalition based measure of ethnic voting. All specifications include county-by-ethnicity and time-fixed effects. In columns 2 Controls include the age of a respondent, indicators if they live in an urban survey cluster, are female, and indicators whether respondents own a TV, radio, or motorized vehicle. In columns 2 and 5 we include Tribe-by-time fixed effects to isolate the partial impact of a change in regional fractionalization. In columns 3 and 6 we include County-by-time fixed effects to isolate the partial impact of a change in ethnic fragmentation. Standard errors are two-way clustered at the province-by-ethnicity and county levels. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

TABLE B-3
Robustness: Local political control

	<i>Dependent variables: Ethnic voting (party)</i>					
	<i>Population share</i>		<i>Local control proxy: Margin of victory</i>		<i>Admin emp. share (incl. new hires)</i>	
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta RF_c \times D_t$	0.463*** (0.169)	0.464*** (0.171)	0.265** (0.113)	0.262** (0.113)	0.498*** (0.178)	0.500*** (0.180)
$\Delta EF_e \times D_t$	0.448*** (0.137)	0.440*** (0.138)	0.143 (0.193)	0.141 (0.188)	0.332*** (0.080)	0.327*** (0.080)
$\Delta RF_c \times D_t \times local\ control_{ce}$	0.395 (0.301)	0.402 (0.302)	0.661** (0.253)	0.678** (0.255)	0.113 (0.091)	0.113 (0.090)
$\Delta EF_c \times D_t \times local\ control_{ce}$	0.497 (0.386)	0.489 (0.377)	0.715* (0.374)	0.713* (0.373)	0.355*** (0.092)	0.348*** (0.091)
$Local\ control_{ce} \times post_t$	-0.075 (0.190)	-0.071 (0.189)	-0.100 (0.163)	-0.095 (0.162)	-0.096* (0.048)	-0.092* (0.048)
County-by-ethnicity FE	✓	✓	✓	✓	✓	✓
Time-FE	✓	✓	✓	✓	✓	✓
Controls	—	✓	—	✓	—	✓
Adj. R2	0.180	0.182	0.183	0.185	0.181	0.183
Obs	6328	6328	6328	6328	6328	6328

Notes: The table reports the regression results of regressing our main ethnic voting proxy (plurality with a 10 pp lead), based on the party classification on the post-treatment indicator times change in regional fractionalization ($\Delta RF_c \times D_t$), and change ethnic fragmentation ($\Delta EF_e \times D_t$), interacted with proxy for local control. We interact our treatment variables with the county population share of a group (columns 1 and 2), an indicator for groups that have a governor winning the election with their respective co-ethnic candidate at the presidential ticket with more than 10 percentage points, and the county public employment share (including post-reform hires until 2016). All specifications include county-by-ethnicity and time-fixed effects. Controls include the age of a respondent, indicators if they live in an urban survey cluster, are female, and indicators of whether respondents own a TV, radio, or motorized vehicle.. Standard errors are two-way clustered at the province-ethnicity and county levels. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

TABLE B-4
Effects of optimal reform on ethnic voting

Ethnic group	Predicted change in ethnic voting due to			Population share
	ΔEF	ΔRF	$\Delta EF + \Delta RF$	
Kikuyu	0.000	-0.004	-0.004	0.208
Luhya	0.000	-0.006	-0.006	0.148
Luo	0.002	-0.096	-0.094	0.124
Kamba	0.010	-0.187	-0.177	0.115
Kalenjin	0.000	-0.008	-0.008	0.113
Embu / Meru	0.005	-0.112	-0.107	0.063
Kisii	0.010	-0.190	-0.180	0.062
Mijikenda	0.010	-0.069	-0.059	0.047
Maasai / Samburu	0.001	-0.007	-0.006	0.023
Turkana	0.142	-0.155	-0.013	0.013
Change in ethnic voting for these six groups: -0.060				
Change in ethnic voting for Kenya: -0.055				

Notes: The table reports the aggregate voting change per group (for the largest 10 groups) by multiplying the difference-in-difference coefficients with the group-county-specific populations. It also reports the population-weighted predicted ethnic voting change for the Big 4 and the country as a whole below.

C. Framework: Ethnofederalism and voting incentives

This section presents a simple theoretical framework explaining both our RF- and our EF-related mechanism.

Setting: There is a country with ethnic groups $e = 1, \dots, N_e$ and political regions $r = 1, \dots, N_r$. The share of the total population identifying with group e and living in region r is $s_{e,r} \geq 0$. Hence, the population share of region r is $s_r = \sum_{e=1}^{N_e} s_{e,r}$ and the population share of group e is $s_e = \sum_{r=1}^{N_r} s_{e,r}$. We denote the largest group in region r by e_r .

We assume that each region r has a governor identifying with its largest group e_r and focus on the national presidential election. There are different presidential candidates (or parties) p differing in their ethnicity e_p and their ability $\alpha_p \in [0, 1]$ in collecting tax revenues. Alternatively, we can think of α_p as their honesty, which affects the tax revenues that are not “eaten” by the president and their clan.

A central government headed by president p raises tax revenues $T_p = a_p \tau Y$, where τ and Y are the exogenous tax rate and the exogenous aggregate income. The share $d \in (0, 1)$ (where d may stand for devolution) of the tax revenues T_p are distributed to the political regions in proportion to their population sizes s_r , while $(1 - d)T_p$ remain at the central government. The president provides the national public goods $G_p = (1 - d)T_p$, which generates utility G_p for coethnic individuals, i.e., individuals identifying with group e_p , and ψG for all other individuals, where $\psi \in (0, 1)$. The governor of region r provides the regional public good $g_r = s_r d T$, which generates utility g_r for coethnic individuals, i.e., individuals identifying with group e_r) and ψg_r for all other individuals in region r , where $\psi \in (0, 1)$.³

Vote choices: We assume that individuals vote for the presidential candidate who would maximize their utility if elected. All voters would find it ideal to have a coethnic president with high ability a_p . Hence, each voter would prefer a coethnic presidential candidate over an equally or less skilled candidate from another group. Here we focus on how much lower the ability of a coethnic presidential candidate would need to be such that a voter would prefer a non-coethnic presidential candidate. For this purpose, let us denote the ability of the coethnic presidential candidate by $\underline{\alpha}$ and the ability of the non-coethnic presidential candidate by $\bar{\alpha}$.

Let us first look at voters in region r who identify with the largest group $e = e_r$ in this region. These voters get utility $[(1 - d) + s_r d] \underline{\alpha} \tau Y$ when voting for the coethnic presidential candidate, and utility $[\psi(1 - d) + s_r d] \bar{\alpha} \tau Y$ when voting for the non-coethnic

³For our results, it is important that g_r is increasing in s_r and d (and that G_p is decreasing in d), but it is not important that these effects are linear.

presidential candidate. (In both cases, the first product is their utility from national public goods and the second product their utility from regional public goods.) Hence, they prefer the coethnic presidential candidate if and only if

$$\frac{\bar{\alpha}}{\underline{\alpha}} < \hat{\alpha}(e = e_r) \equiv \frac{(1-d) + s_r d}{\Psi(1-d) + s_r d}.$$

Similarly, voters in region r who identify a minority group $e \neq e_r$ prefer the coethnic presidential candidate if and only if

$$\frac{\bar{\alpha}}{\underline{\alpha}} < \hat{\alpha}(e \neq e_r) \equiv \frac{(1-d) + \psi s_r d}{\Psi(1-d) + \psi s_r d}.$$

We now present and discuss some insights that we can gain from this simple theoretical framework.

Result 1: Devolution reduces ethnic voting.

Proof: The thresholds $\hat{\alpha}(e = e_r)$ and $\hat{\alpha}(e \neq e_r)$ are both decreasing in d because $\Psi < 1$. Hence, larger d induces voters to prefer the non-coethnic presidential candidate already for lower relative skills $\frac{\bar{\alpha}}{\underline{\alpha}}$.

Intuition: Devolution implies that most public resources are spent at the regional level. This reduces the benefits of having a coethnic president allocating the national public goods but does not change the importance of having an able president who can generate high revenues. Hence, devolution makes the coethnicity of the presidential candidate relatively less important.

Result 2: Identifying with the regional majority group reduces ethnic voting.

Proof: It holds that $\hat{\alpha}(e = e_r) > \hat{\alpha}(e \neq e_r)$ because $\psi < 1$. Hence, voters prefer the non-coethnic presidential candidate already for lower relative skills $\frac{\bar{\alpha}}{\underline{\alpha}}$ if $e = e_r$.

Intuition: Regional public goods are relatively more important for voters identifying with the regional majority group. This increases the benefits of having an able president who can generate high revenues. Hence, the coethnicity of the presidential candidate becomes relatively less important.

Result 3: Larger regions reduce ethnic voting.

Proof: The thresholds $\hat{\alpha}(e = e_r)$ and $\hat{\alpha}(e \neq e_r)$ are both decreasing in s_r because $\Psi < 1$. Hence, larger s_1 induces voters to prefer the non-coethnic presidential candidate already for lower relative skills $\frac{\bar{\alpha}}{\underline{\alpha}}$.

Intuition: Economies of scale make regional public goods relatively more important for voters in larger regions. This increases the benefits of having an able president who

can generate high revenues. Hence, the coethnicity of the presidential candidate becomes relatively less important.