Divide and empower?
Federalism, maps, and identity politics*

Richard Bluhm† Roland Hodler‡ Paul Schaudt§

October 2026

Abstract

Democracies often turn to federalism to manage identity politics. Yet federalism comes with a map that determines which groups control regional governments and their resources, and whether groups are split across regions. We introduce two measures of individual exposure to border changes, capturing changes in within-region diversity and in the fragmentation of groups across regions. We apply them to Kenya's 2010 constitutional reform, which devolved substantial fiscal resources and replaced eight provinces with 47 counties. We find that ethnic voting declines when regions become more homogeneous and rises when ethnic groups become more fragmented. Greater fiscal decentralization has no detectable effect on average but reduces ethnic voting where regions become more homogeneous. In such counties, large groups usually control the county government, making them less dependent on national politics. We predict that Kenya's new map increases ethnic voting and show that alternative reforms could reduce it.

Keywords: Borders, Ethnic politics, Federalism, Fiscal decentralization.
JEL classification: D02, D72, H77, J15, O55.

*We thank Samuel Bazzi, Johannes Buggle, Filipe Campante, Klaus Desmet, Quoc-Anh Do, Ruben Durante, Siddharth George, Clark Gibson, Davia Kündig, James D. Long, Joris Mueller, Elias Papaioannou, Giacomo Ponzetto, Philip G. Roeder, Tuan-Hwee Sng, Mathias Thoenig, and Pedro Vicente for helpful comments; conference participants at the BSE, CEPR Workshop on Ethnicity, Identity and Conflict, CSAE, DENS, EEA, EPCS, GDE, IEA, the Silvaplana Workshop, and the ZEW-ifo Political Economy Workshop; and seminar participants at Brown, CERGE-EI, GIGA Hamburg, King's College London, Monash, NOVA, NUS, SIOE, UCSD, ULB, WU Vienna, and the Universities of Bergen, Fribourg, Heidelberg, Innsbruck, Leipzig, St.Gallen, and Tübingen. Schaudt acknowledges funding from the SNSF (Ambizione grant PZ00P1208916); Bluhm from the Humboldt Foundation.

†University of Stuttgart; CESifo, Munich; e-mail: *richard.bluhm@ivr.uni-stuttgart.de*
‡University of St.Gallen; CEPR, London; CESifo, Munich; e-mail: *roland.hodler@unisg.ch*
§KU Leuven; e-mail: *paul.schaudt@kuleuven.be*

1. Introduction

Democracies often struggle with identity politics. When national political competition is organized along identity lines, elections become high-stakes, zero-sum contests over access to state resources. In such environments, politicians and voters have incentives to prioritize group-based interests and patronage over broad performance, undermining accountability and stability.[1] Federalism promises a way out of national winner-take-all competition. By reallocating authority and revenue to subnational governments, it allows locally dominant groups to influence policy and access public resources without controlling the national government.

Yet federalism always comes with a map. Federal designs involve two fundamental choices: how much authority and revenue to devolve, and how to draw the borders of the subnational units that receive them. Regional borders determine which citizens are governed together, which identity groups control regional governments, and whether these groups remain united or are divided across multiple jurisdictions. The same degree of decentralization may therefore weaken identity-based electoral competition under one map and intensify it under another. While a rich theoretical tradition studies the benefits and trade-offs associated with both choices (e.g., Tiebout, 1956; Oates, 1972; Horowitz, 1985; Boffa et al., 2016), there is little evidence on how these two choices together shape national electoral competition.

In this paper, we provide micro-level evidence on how changes in the map and fiscal transfers affect ethnic voting in national elections. We focus on Kenya, a country long troubled by ethnic politics, and exploit quasi-experimental variation from its 2010 constitutional reform, which split its eight provinces into 47 counties. Individual exposure to the border reform varies along two dimensions: changes in the ethnic diversity of the region where a person resides and changes in the fragmentation of their ethnic group across regions. We find that ethnic voting declines when regions become less diverse but rises when groups become more fragmented. This points to a trade-off: increasing the number of regions tends to reduce within-region diversity but increase group fragmentation. Kenya's 2010 reform did not balance this trade-off well. It created so many regions that the increase in ethnic voting from higher group fragmentation outweighed the decrease from lower regional diversity. The estimated average effect of fiscal transfers is small, but transfers reduce ethnic voting where regions become more homogeneous. Our counterfactual analyses show that greater fiscal decentralization makes maps with more (and more homogeneous) regions preferable, but no plausible level of decentralization suggests a map with as many as 47 counties.

[1] See, e.g., Franck and Rainer (2012), Burgess et al. (2015), De Luca et al. (2018), and Amodio et al. (2024) for evidence on patronage and favoritism; Padró i Miquel (2007) for accountability; Esteban et al. (2012) on ethnic divisions and conflict; and Ali et al. (2025) and Chinoy et al. (2026) on zero-sum thinking in politics.

Micro-level evidence on border reforms requires measures of individual exposure along two margins: the ethnic diversity within regions and the division of groups across regions. We propose a pair of such measures. The first is regional fractionalization, a standard fractionalization index applied at the subnational level. It is the probability that two randomly chosen individuals from the same region belong to different ethnic groups. The second is ethnic fragmentation. It is the probability that two randomly chosen individuals from the same ethnic group reside in different regions. Together, these indices allow for a typology of border reforms that speaks to a long-standing debate on the optimal governance of diverse countries. Ethnofederal reforms reduce both regional fractionalization and ethnic fragmentation, and may have a "tranquilizing effect" on identity politics by shifting contentious issues to homogeneous regions (Horowitz, 1985). Crosscutting reforms mix ethnic groups within regions and split each group across regions, increasing both indices. They may reduce identity politics by creating alternative cleavages (e.g., Dahl, 1956; Lipset and Rokkan, 1967). Provincial reforms reduce fractionalization but increase fragmentation, and unitary reforms do the opposite. Most border reforms since 1995 were provincial, and Kenya's is a stark example.[2]

Like many federal reforms, Kenya's reform simultaneously altered the map and introduced political and fiscal decentralization. In 2009, the High Court declared all districts created after 1992 illegal, and parliament settled on the remaining 47 units as the most viable option. Hence, the resulting county map is unlikely to have been gerrymandered based on contemporary political motives. The border reform lowered average regional fractionalization from 0.53 to 0.32 while increasing average ethnic fragmentation from 0.32 to 0.76. These countrywide averages, however, conceal considerable heterogeneity across counties and groups. The constitutional reform also established elected county governors and county assemblies with legislative and oversight powers, and devolved responsibility for key public goods and services. The new county governments became operational in 2013 and receive formula-based fiscal transfers from a pool consisting of at least 15 percent of national revenue. The per-capita transfers predicted by the formula are our primary measure of fiscal decentralization.

We measure ethnic voting with Afrobarometer survey data.[3] Parties and coalitions in Kenya are fluid, and ethnic groups outnumber parties and presidential candidates. We therefore define ethnic parties (and ethnic coalitions) using two criteria: plurality and overrepresentation. Plurality requires that no other party receives more votes from a given ethnic group. Overrepresentation requires that the party is relatively more popular

[2]Since 1990, many countries have decentralized and increased the number of their administrative units (Grossman and Lewis, 2014; Bluhm et al., 2026). Figure A.1 compares border reforms between 1995 and 2015. Many of these reforms took place in federal or federalizing countries (countries with elected regional governments by 2015).

[3]Afrobarometer surveys ask about voting intentions. We use a representative exit poll from Ferree et al. (2014) to show that voting intentions reflect actual voting behavior.

in that group than among other voters. Our definition builds on recent survey-based approaches (e.g., Amodio et al., 2024), but the combination of the two criteria ensures that a group's ethnic party is both commonly and disproportionately supported by group members. We report all our results for party- and coalition-based ethnic voting.

We implement a generalized difference-in-differences design with three continuous treatments: *(i)* formula-based per-capita transfers to each county, *(ii)* reform-induced changes in regional fractionalization in each county, and *(iii)* reform-induced changes in ethnic fragmentation of each group. We compute the two border-change measures using population data from the 1989 census, holding the population distribution constant so that they capture border changes rather than subsequent population movements. We relate changes in ethnic voting before and after the reform to differences in these treatment intensities, controlling for county, ethnicity, and time (survey round) fixed effects. These fixed effects absorb time-invariant differences across counties and groups, as well as aggregate shifts in political competition. Hence, our specification estimates the effects of differential exposure to the reform. We also interact border changes and fiscal transfers to study their joint effect on ethnic voting.

The key identification assumption is that, absent the reform, ethnic voting would have evolved similarly across respondents with different levels of exposure to border changes and fiscal transfers. One threat is anticipation. Kenyan voters could have anticipated how the border reform would be implemented. Yet the territorial and fiscal design of the reform remained contested until late in the process (see Section 3), and anticipation would threaten our design only if it varied systematically with subsequent treatment intensity. A second threat is that reform exposure is correlated with other changes in political competition across counties and ethnic groups. Event studies show no differential pre-trends in ethnic voting for any of the three treatments. We also find no evidence that exposure affected respondents' turnout intentions or their willingness to reveal party preferences.

We find sizable effects of changes to the federal map. A 20 percentage point reduction in regional fractionalization, about the average change induced by the reform, reduces coalition-based ethnic voting by about 6 percentage points. A 20 percentage point increase in ethnic fragmentation raises ethnic voting by about 11 percentage points. Results using party-based ethnic voting are similar. The average effect of fiscal decentralization is small and statistically insignificant, but transfers work differently under different maps. A one-standard-deviation increase in transfers lowers ethnic voting by 3 to 4 percentage points in counties where regional fractionalization falls by 20 percentage points, and raises it by 6 to 7 percentage points in counties where it rises by as much. Reforms that decrease regional fractionalization typically increase ethnic fragmentation and thus pull in opposite directions. Greater fiscal decentralization shifts this trade-off toward reducing regional fractionalization.

Our results are robust to three sets of concerns. The first is measurement. Estimates are similar when we define ethnic parties and coalitions by plurality or overrepresentation alone, when we aggregate groups by language branches rather than census classification, or when we use alternative measures of fiscal decentralization. The border changes do not predict voting for the strongest party or coalition in a county, so our main estimates do not capture regional voting. The second set of concerns is about identification. As pre-reform ethnic geography determines the feasible range of border changes, we rerun our estimates after subtracting the component predicted by baseline ethnic geography from each border treatment. As heterogeneous effects of one treatment can also contaminate the estimates of the others (Goldsmith-Pinkham et al., 2024), we add county-by-time fixed effects when estimating the effect of ethnic fragmentation and ethnicity-by-time fixed effects when estimating the effects of regional fractionalization and fiscal transfers. As the reform also bundled other territorial changes, we control for the abolition of local authorities, the redrawing of parliamentary constituencies, and the short-lived districts declared illegal in 2009. As selective migration could alter the sample composition over time, we use DHS data to show that our treatments do not predict whether respondents have ever moved. The third concern is inference. Ethnic fragmentation varies across only 20 groups. We verify that our estimates survive alternative clustering schemes and a wild bootstrap. Coalition-based estimates are stable throughout, whereas party-based estimates lose some precision under interacted fixed effects and alternative inference.

We investigate three mechanisms—regional control, identity, and the supply side of politics—through which border reforms and fiscal decentralization could shape voting in national elections. First, where the reform made counties more homogeneous, a single group can expect to control the county government, its budget allocation, and its hiring. National elections may then become less of a zero-sum contest over group access to state resources. To test this, we compile data on the ethnicity of governors and the co-ethnic shares of county executive boards and new public-service appointments. A 20 percentage point lower level of regional fractionalization is associated with an 11 percentage point higher probability of a co-ethnic governor and similar gains in executive boards and appointments. Second, borders aligned with ethnic geography could strengthen national identification or, conversely, harden ethnic identities (e.g., Desmet et al., 2025). We find that reform exposure does not predict national relative to ethnic self-identification measured by Afrobarometer survey data. Third, the reform could alter both the coalition arithmetic and coalition platforms. While groups that became more valuable coalition partners vote more along ethnic lines, pivotality does not explain the effect of ethnic fragmentation. We collect coalition platforms and analyze their content using large language models. Post-reform platforms are similar on key dimensions, but place somewhat greater emphasis on national identity. However, reform exposure does not predict how voters sort across platforms. Taken together, the evidence points to

regional control rather than identity or supply-side channels.

Finally, we use our estimates to evaluate the 2010 constitutional reform and to compare it to alternative maps. We predict that the Kenyan border reform, given its fiscal decentralization, increased ethnic voting by 17.7 percentage points on average.[4] The reform did not strike the right balance between reducing regional fractionalization and limiting ethnic fragmentation at the chosen level of fiscal decentralization. We evaluate many alternatives at the average post-reform level of fiscal transfers. Many would have performed better than the actual reform. Most notably, the inclusive Bomas draft proposed in 2004 would have left ethnic voting almost unchanged, despite increasing the number of regions from eight to 14. Others, such as the Wako counterdraft, would have performed even worse than the actual reform. The map that would minimize predicted ethnic voting (which we call the "optimal map"), subject to realistic constraints that the 2010 map itself satisfies, has 13 regions. It resembles the Bomas draft in many parts of Kenya and would have reduced ethnic voting by 4.7 percentage points. The optimal map's number of regions would rise to 17, 23, and 24 as fiscal transfers increased by one, two, and three standard deviations above that average, that is, from about 21 to about 60 percent of national revenue. However, a map with as many as 47 counties is not optimal at any realistic level of fiscal decentralization.

Our findings contribute to two broad strands of the literature. The first is the literature on federalism and fiscal decentralization (see Agrawal et al., 2024, for an overview), which studies how authority and resources should be allocated across levels of government to improve efficiency, equity, accountability, and stability (e.g., Tiebout, 1956; Musgrave, 1959; Oates, 1972; Weingast, 1995; Bardhan and Mookherjee, 2000; Spolaore, 2010; Boffa et al., 2016). Empirical work in this literature typically focuses on the political power or the fiscal resources of subnational units rather than the federal map (e.g., Treisman, 2007; Gadenne, 2017; Carreri and Martinez, 2026). A growing literature studies the local effects of redrawing subnational borders (e.g., Burgess et al., 2012; Dahis and Szerman, 2026; Narasimhan and Weaver, 2024; Bluhm et al., 2026) and of the ethnic composition of subnational regions (e.g., Alesina et al., 1999; Desmet et al., 2020). Closest to us, Bazzi and Gudgeon (2021) show that redrawing subnational borders can reduce local conflict, but not when it increases polarization. We go beyond local effects by linking border reforms to national elections. Our ethnic fragmentation measure, in particular, brings the idea of ethnic groups partitioned by national borders to subnational borders (Alesina et al., 2011; Michalopoulos and Papaioannou, 2016). Our evidence also speaks to a long debate in political science on whether regional borders drawn along ethnic lines tranquilize or entrench ethnic divisions (e.g., Lijphart, 1977; Horowitz, 1985; Roeder, 1991; Brancati, 2006). Finally, our optimal maps relate to work on the number and

[4]The contributions are 24.2 percentage points from ethnic fragmentation, −6.3 from regional fractionalization, and −0.2 from differences in fiscal transfers.

size of nations and jurisdictions, which trades off the benefits of size against the costs of heterogeneity (Alesina and Spolaore, 1997; Alesina et al., 2004). We highlight that smaller regions tend to be less heterogeneous but to fragment ethnic groups more, and that fiscal decentralization shifts this trade-off in favor of homogeneous regions.

The second strand studies ethnic politics and policies or institutions that might help to overcome it. Electoral competition and political institutions affect when and where ethnicity becomes politically salient (e.g., Posner, 2005; Eifert et al., 2010; Huber, 2012), and local ethnic geography influences vote choices in national elections (Ichino and Nathan, 2013). Presidential candidates often build ethnic coalitions to win, and incumbents favor their co-ethnics in the allocation of public goods and jobs (e.g., Padró i Miquel, 2007; Francois et al., 2015; Kramon and Posner, 2016). Kenya is a prominent example of such high-stakes ethnic politics (e.g., Ferree et al., 2014; Horowitz, 2019; Mueller, 2020; Marx et al., 2021; Kramon et al., 2022). The nation-building literature (see Rohner and Zhuravskaya, 2025, for an overview) focuses on policies that change identities and preferences, such as resettlement programs (Bazzi et al., 2019), education (Miguel, 2004; Clots-Figueras and Masella, 2013; Cantoni et al., 2017; Bandiera et al., 2019), or a combination of the two (Carlitz et al., 2025). Such policies are slow to affect identities. Shared experiences (Depetris-Chauvin et al., 2020; Cáceres-Delpiano et al., 2021; Okunogbe, 2024) and propaganda or common narratives (Blouin and Mukand, 2019; Esposito et al., 2023) can work faster but are hard to scale and only partially within policymakers' control. We take identities as given and ask whether federal reforms that change the map can change the incentives for ethnic voting in national elections. Our results show that they can. In fact, because federal maps appear to work through incentives rather than identities, they can complement nation-building policies aiming to change identities in the long run.

The remainder is structured as follows. Section 2 discusses our conceptual framework for measuring and classifying border designs and reforms. Section 3 summarizes Kenya's institutional background and the important aspects of the 2010 constitutional reform. Section 4 presents the data, describes our empirical strategy, and discusses identification issues. Section 5 presents evidence in support of our identifying assumptions, the main results, and sensitivity analysis. Section 6 presents evidence on mechanisms. Section 7 quantifies the overall reform impact and compares it to counterfactual border designs, and Section 8 concludes.

2. Measuring federal border designs and reforms

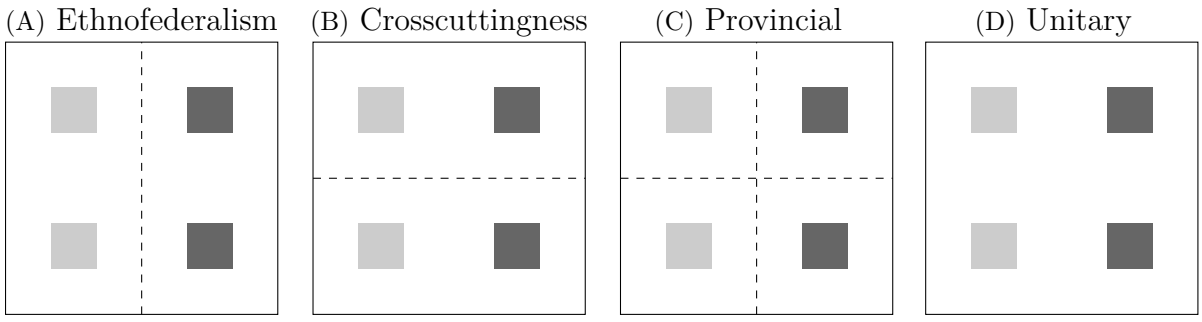
Subnational border designs matter in federal countries where subnational units have considerable authority and resources. We first discuss stylized border designs and present two indices that describe key properties of border designs. We then show how changes

in these indices can capture how individuals are exposed to the same border reform differently, depending on their place of residence and ethnic identity.

2.1. Prototypical border designs and their properties

Panels A and B of Figure I present prototypical ethnofederal and crosscutting border designs in a stylized country with four locations and two spatially segregated ethnic groups. Ethnofederal border designs align political borders with ethnic homelands, ensuring that most individuals in a region share the same ethnic identity and that most members of an ethnic group live in the same province. In the extreme case shown in Panel A, political regions perfectly coincide with ethnic groups due to the homogeneity of each location. In contrast, Panel B illustrates a crosscutting border design, where political borders cut through ethnic homelands, dividing co-ethnics across heterogeneous regions.

FIGURE I
Illustration of various border designs



Notes: The squares represent equally sized ethnically homogeneous locations, and the two different shades of gray represent two different ethnic groups. The dashed lines represent political borders.

Ethnofederal and crosscutting border designs differ along two dimensions. Inspired by measures of country-level crosscuttingness that build on or relate to fractionalization indices (Taylor and Rae, 1969; Selway, 2011; Desmet et al., 2017), we capture and isolate these two dimensions by applying fractionalization indices at the subnational level.[5] The first dimension along which ethnofederal and crosscutting border designs differ is the level of ethnic diversity within political regions. We measure this diversity using a regional fractionalization index, which quantifies the degree of ethnic diversity within each political region:

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

[5] 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. Our approach differs by computing fractionalization indices at the level of individual groups and locations.

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. This index measures the probability that two randomly selected individuals from a given region identify with different groups. It is low in all political regions in the prototypical ethnofederal border design, but high in the prototypical crosscutting border design, where political regions unite locations with very different ethnic compositions.

The second difference between these border designs is the extent to which members of the same ethnic group are dispersed across different political regions. We propose to capture this margin by an index of ethnic fragmentation that measures the within-group fractionalization across political regions:

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

where m is the number of political regions and s_r^e the population share of residents in political region r among all members of ethnic group e. This index corresponds to the probability that two randomly selected individuals from the same ethnic group live in different political regions. It is low for all groups in the prototypical ethnofederal border design but high in the prototypical crosscutting border design, which assigns locations with similar ethnic compositions to different political regions.

Panels C and D of Figure I present two mixed border designs, differing in the number of political regions. Panel C depicts a provincial design with many small, homogeneous regions. This border design is mixed in that it combines the low regional fractionalization of ethnofederal designs with the high ethnic fragmentation of crosscutting designs. Panel D presents a unitary design with no meaningful political regions below the national level. This border design is mixed in that it combines the low ethnic fragmentation of ethnofederal designs with the high regional fractionalization of crosscutting designs.

Our ethnic fragmentation index captures a feature of political borders that conventional segregation measures do not. Segregation is fundamentally about whether some ethnic groups live in different locations than the rest of the population. The isolation index (IS_e) and the dissimilarity index (DI_e) answer this for each group e, while the segregation index used by Alesina and Zhuravskaya (2011) (S^{AZ}) aggregates this information into a country-level measure. These segregation measures do not capture whether subnational borders fragment ethnic groups. Figure I helps to illustrate this. Dividing the two homogeneous regions in Panel A produces the provincial design in Panel C, and horizontally dividing the mixed national unit in Panel D produces the crosscutting design in Panel B. Conventional segregation indices give the same values within each border design pair, whereas these divisions both increase ethnic fragmentation.[6] Hence,

[6]Specifically, $IS_e = DI_e = S^{AZ} = 1$ for both groups e in Panels A and C, and $IS_e = 1/2$ and $DI_e = S^{AZ} = 0$ for both e in Panels B and D, while EF_e goes from 0 to 1/2 in A to C and D to B.

these segregation measures cannot differentiate the stylized ethnofederal design from the provincial one, nor the crosscutting design from the unitary one.[7]

2.2. Individual exposure to border reforms

We rely on changes in regional fractionalization and ethnic fragmentation to classify border reforms. We denote by $\Delta RF_{r(l)}$ the reform-induced change in regional fractionalization that individuals living in location l are exposed to. This change equals the difference between RF_r of the region r to which l belongs after the reform and RF_r of the region r to which l belonged prior to the reform. Similarly, we denote by ΔEF_e the reform-induced change in ethnic fragmentation that individuals of ethnic group e are exposed to. This change equals the difference between EF_e given the post-reform borders and EF_e given the pre-reform borders.

For a simple example, consider the stylized country shown in Figure I. Suppose this country used to have the crosscutting border design shown in Panel B and now implements a border reform leading to the ethnofederal border design shown in Panel A. This reform would be characterized by $\Delta RF_{r(l)} < 0$ for all locations l and $\Delta EF_e < 0$ for all ethnic groups e, implying that all individuals are exposed to an ethnofederal border reform, independently of where they live and which group they identify with.

However, unlike this stylized country, most real-world countries have ethnically diverse locations. In this case, different individuals are typically exposed to the same border reform differently, because the changes in regional fractionalization and ethnic fragmentation that an individual experiences depend on where they live and which group they identify with. To illustrate this, Figure II presents a stylized country with three ethnically diverse locations (with the population share of the dark-gray group being 0.75, 0.5, and 0.25 in the Western, central, and Eastern locations, respectively). Suppose the government implements a reform changing the border design from the one shown in Panel A to the one shown in Panel B. The reform makes individuals living in the Western location part of a more fractionalized region, and those living in the Eastern location part of a less fractionalized region (while regional fractionalization remains unchanged in the region hosting the central location). Furthermore, the reform reduces ethnic fragmentation within the dark-gray group but increases it within the light-gray group.[8] Given these differences in $\Delta RF_{r(l)}$ and ΔEF_e across locations l and ethnic groups

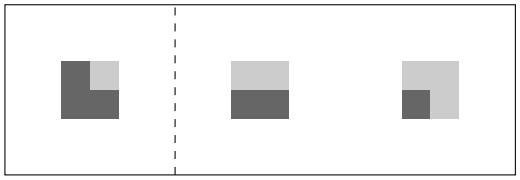
[7]The discussed segregation measures are all "aspatial" (in the terminology of Reardon and O'Sullivan, 2004) as they are based on population shares in subnational units. Conceptually, our ethnic fragmentation index is even further from "spatial" segregation indices, which are based on spatial distances between locations, such as the index introduced by Hodler et al. (2021).

[8]Denoting the two regions in Figure II as E and W for East and West and the two groups as D and L for dark- and light-gray, it holds that $RF_W = 0.38$, $RF_E = 0.47$, $EF_D = 0.50$, and $EF_L = 0.28$ given border design I in Panel A; and, symmetrically, $RF_W = 0.47$, $RF_E = 0.38$, $EF_D = 0.28$, and $EF_L = 0.50$ given border design II in Panel B.

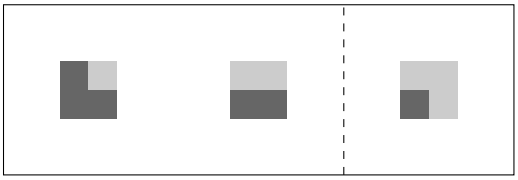
e, different individuals experience this reform very differently depending on where they live and which group they identify with. Some experience the reform as ethnofederal, others as crosscutting, unitary, or provincial.

FIGURE II
Illustration of border designs for diverse locations

(A) Diverse locations and border design I



(B) Diverse locations and border design II



Notes: The squares represent equally sized locations, and the two different shades of gray represent two different ethnic groups. All locations are ethnically diverse, with the population share of the dark-gray group being 0.75, 0.5, and 0.25 in the Western, central, and Eastern locations. The dashed lines represent political borders.

We will exploit such location- and group-specific differences in the exposure to Kenya's 2010 constitutional reform in our main analysis below. The ability to conduct such micro-level analyses of the effects of border reforms is the main strength of our measurement approach. In addition, our indices can be averaged across all individuals in a country, which allows classifying border reforms as ethnofederal, crosscutting, provincial, or unitary in their overall nature and facilitates cross-country comparisons as in Figure A.1.

3. Institutional background

Ethnic politics in pre-reform Kenya: Kenya is exceptionally diverse. The probability that two randomly drawn individuals from the country's population identify with different groups is 88%. The five largest groups make up more than two-thirds of the population.[9] Outside Nairobi, these groups are spatially segregated.

Ethnicity has played an important role in national electoral competition ever since the transition to multiparty democracy in 1992. Four groups—the Kikuyu, Luo, Kalenjin, and Kamba—regularly compete for national power by fielding presidential or vice-presidential candidates in most elections. Voters from larger groups often coordinate around co-ethnic presidential candidates (Gibson and Long, 2009; Long and Gibson, 2015). However, since no group is large enough to win alone, presidential competition is organized around multi-ethnic coalitions, which typically combine one or two large groups with smaller groups lacking co-ethnic candidates. The parties making up these coalitions are fluid and institutionally weak (Mueller, 2020; Oloo, 2020). Control of the national

[9]The largest groups in 1989 were the Kikuyu (20.8%), Luhya (14.8%), Luo (12.4%), Kamba (11.4%), and Kalenjin (11.3%). Their 2019 population shares differ by less than four percentage points.

executive is widely perceived as materially important. In fact, the notion that co-ethnic rule brings material benefits has become encapsulated in the phrase "it's our turn to eat" (Wrong, 2009). A large literature on Kenya documents ethnic favoritism in at least some periods and for at least some types of public goods (e.g., Burgess et al., 2015; Kramon and Posner, 2016; Horowitz, 2019; Hassan, 2020).

Prior to 2010, power was heavily concentrated in the presidency, giving elections a "winner-take-all" character (Mueller, 2020). Kenya's territorial governance was also highly centralized and organized primarily around the Provincial Administration (Oyugi and Ochieng, 2020). Provinces were not autonomous governments but subordinate units of the central state: the president appointed provincial commissioners, who were part of the central executive hierarchy. Moreover, provinces were the constitutionally relevant territorial layer for presidential elections.[10] Districts formed the next administrative layer, but operated within the same centralized hierarchy.[11] Hence, provinces are the relevant pre-reform baseline within a centralized administrative system in which, as a World Bank (2008, p. 8) report summarizes, "power rests with the executive branch and the most powerful force in local government is the provincial administration."

Fiscal transfers before 2010 were small and directed to numerous smaller units: elected local authorities, which had limited fiscal autonomy, and parliamentary constituencies, which had no fiscal autonomy. The two pre-reform transfer programs—the Local Authorities Transfer Fund (LATF) and the Constituency Development Fund (CDF)—were created in 1998 and 2003. The LATF received 5% of national income tax revenue, typically less than 2% of total national revenue, and was dissolved by the 2010 constitution. The CDF still disburses at least 2.5% of all ordinary national revenue to Kenya's constituencies.

Prior reform attempts and the 2007 crisis: Devolution had been on the agenda well before the 2007 crisis. Earlier reform proposals differed on the number of units, the powers of the regional governments, and the powers of the presidency. The *Bomas draft* constitution, which emerged from a long and inclusive process leading up to the National Constitutional Conference in 2004, proposed 14 regions, 70 districts, strong devolution, equitable revenue sharing, a bicameral legislature with a senate, and a substantially weakened presidency. Mwai Kibaki (a Kikuyu), elected president in 2002, opposed the constraints on executive power envisioned in the Bomas draft and pushed to alter the document legislatively (Kramon and Posner, 2011). The resulting *Wako draft* instead proposed a single devolved layer of 70 districts with limited powers, a unicameral system, and a strong presidency. Wako's revenue-sharing provisions mirrored those of the Bomas

[10] Presidential candidates had to win at least 25% of the vote in at least five of Kenya's eight provinces.

[11] District boundaries were an instrument of incumbents' electoral strategy, with both Daniel arap Moi and Mwai Kibaki proliferating districts to court unaligned groups (Hassan, 2016).

draft, although neither specified how much revenue should be shared. Parliament adopted the Wako draft, but 58% of voters rejected it in a 2005 referendum. The Bomas draft was never voted on but remained a salient alternative in constitutional debates.[12] We present counterfactual predictions for the maps of these competing proposals in Section 7.

The campaign against the Wako draft gave rise to the Orange Democratic Movement (ODM), led by Raila Odinga (a Luo), which challenged Kibaki in the next election. The 2007 presidential election triggered the most significant recent outbreak of ethnically motivated violence, killing more than 1,000 people and displacing hundreds of thousands, with violence concentrated in the Rift Valley Province and in ethnically mixed Nairobi (Anderson and Lochery, 2008). As the crisis pushed Kenya to the brink of civil war, external actors exerted significant pressure for constitutional change. In 2008, the African Union brokered a power-sharing deal between Kibaki and Odinga and committed them to a constitutional reform process.

The 2010 constitution: The 2010 constitution created the territorial and fiscal changes we exploit in the empirical analysis. An important part of the 2008 power-sharing agreement was creating a committee of experts to harmonize the earlier drafts into a new constitution that would balance a powerful presidency with strong regions. The final draft proposed to create 47 counties, nested within former provinces, and a bicameral legislature with a national assembly and a senate (Kramon and Posner, 2011; D'Arcy, 2020). Counties elect governors with their own cabinets and county assemblies with legislative and oversight powers (D'Arcy, 2020). The constitution also mandated a formula-based county share of at least 15% of national revenue to fund public goods and services, including agriculture, health care, pre-primary education, water and sanitation, and county roads. Transfers usually exceed this floor. In 2013/14, actual transfers amounted to around 21% of ordinary national revenue.

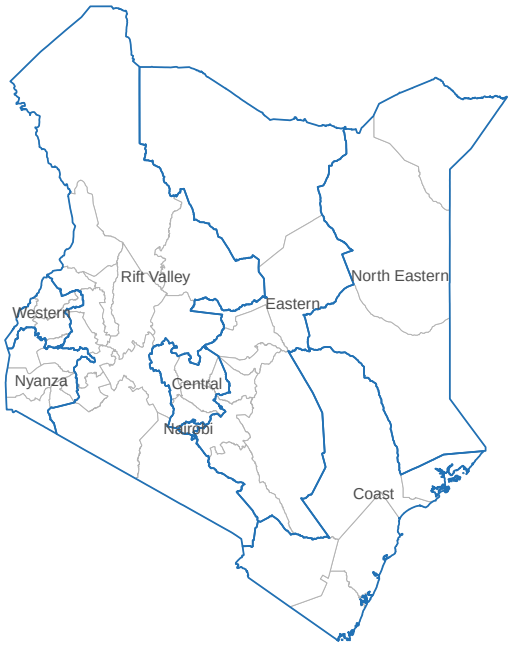
County borders were based on Kenya's pre-1992 districts and represented a compromise between size, homogeneity, and legal constraints (D'Arcy, 2020). In late 2009, the High Court of Kenya declared all districts created after 1992 illegal, leaving only the 47 units below the provincial level that resemble the late-colonial districts. The Committee of Experts tasked with constitutional review initially proposed a two-tier system retaining eight provinces and adding 74 counties, but shifted to a single tier with 47 counties after public review. The parliamentary subcommittee tasked with review failed to reach consensus and, under a tight timeline, agreed on "the least controversial position [...] 47 county governments" (Kramon and Posner, 2011, p. 94). The final design of the 2010 constitution was therefore difficult to anticipate. It differed from both earlier drafts, and the county map was settled late in the process. While county borders in

[12] Odinga still called for the 14 regions of the Bomas draft in 2020 (see https://nation.africa/kenya/news/politics/raila-steps-up-call-for-14-regional-governments-1927152).

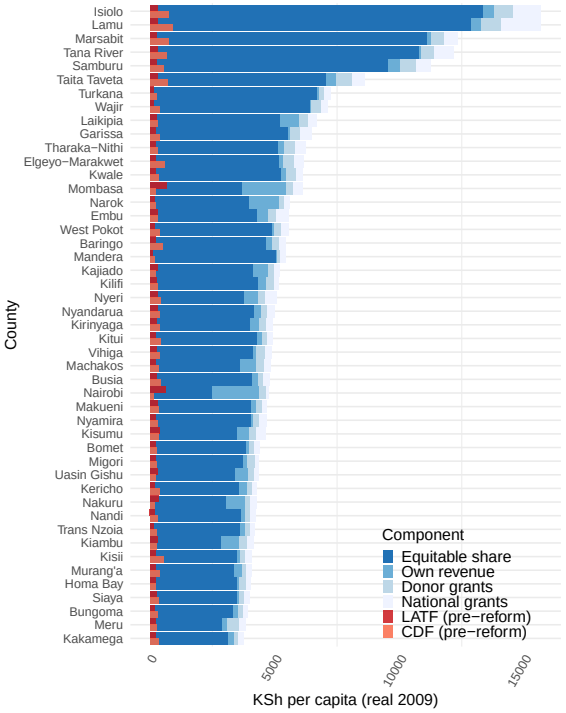
part reflect historical ethnic divisions, they follow the pre-1992 districts and were not drawn with contemporary political motives in mind. We discuss other concurrent border changes in Section 5.3.

FIGURE III
Kenya: Border reforms, fiscal decentralization, and timeline

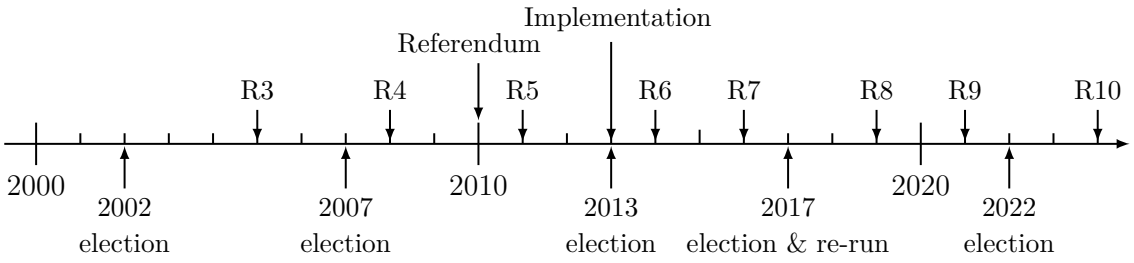
(A) Pre- and post-reform units



(B) Fiscal decentralization (p.c. averages)



(C) Timeline (study period)



Notes: The figure illustrates Kenya's 2010 constitutional reform. Panel A shows pre-reform province borders (thick blue lines) and post-reform county borders (thin gray lines). Province names are superimposed on the map. Panel B shows county-level average per-capita revenues and their composition for the fiscal years 2013/14 to 2020/21, using County Fact Sheets from the Commission on Revenue Allocation (CRA), and compares them to pre-reform LATF and CDF transfers in the fiscal year 2010/11 aggregated to post-reform counties. All values are deflated to real 2009 Kenyan shillings (KES) and converted to per-capita terms using the 2009 census population. Panel C provides a timeline of (i) election years, (ii) the constitutional referendum and the implementation (i.e., the establishment of county governments), and (iii) Afrobarometer survey rounds 3–10.

In 2010, parliament approved the draft, and 68% of voters endorsed it in a national referendum. The new devolved government structure came into effect with the March

2013 elections, which also elected the first governors and county assemblies. Although implementation was planned over a three-year transition period, the new county governors successfully lobbied for a near-immediate transfer of power (D'Arcy, 2020).

The new counties fundamentally changed how Kenya's political regions align with its ethnic geography and how much national revenue they receive. Panel A of Figure III overlays the pre-reform provinces with the post-reform counties. While most provinces were large and ethnically mixed, counties are considerably more homogeneous: the population share of the largest group is 74% in the average county (58% in the average province), 39 counties have a majority group, and 17 counties even have a group with a population share above 90% (see Figure A.5).

Panel B of Figure III shows county-level per-capita revenues (in real 2009 Kenyan shillings, KES) averaged over the fiscal years 2013/14 to 2020/21. Equitable-share transfers dominate county budgets, accounting for 82% of per-capita funds, while own-source revenues, national grants, and donor grants are relatively small for most counties.[13] Average per-capita revenues over these fiscal years range from USD 50 in Kakamega to USD 203 in Isiolo (in 2009 USD). Equitable-share transfers accounted for approximately 3.1% of nominal GDP in the fiscal year 2019/20. Panel B also shows that pre-reform LATF and CDF funds (aggregated to post-reform counties) were substantially smaller, averaging roughly 6% and 8% of post-reform per-capita equitable-share transfers.

Panel C of Figure III illustrates the timing of the reform, election years, and Afrobarometer survey rounds. Rounds 3 and 4 precede the referendum, round 5 falls between the referendum and the first county-level elections in 2013, and rounds 6–10 follow implementation.

4. Data and empirical strategy

In this section, we first describe how we compute reform-induced changes in regional fractionalization and ethnic fragmentation for all locations and ethnic groups. Second, we explain our measure of fiscal decentralization. Third, we discuss how we measure ethnic voting at the individual level. Finally, we present our empirical strategy.

4.1. Changes in regional fractionalization and ethnic fragmentation

Our main source of population data is microdata for every 20th household from the 1989 Kenya Population and Housing Census (Kenya National Bureau of Statistics, 1989). Although later censuses are available, the 1989 census is the last census in Kenya that disclosed ethnic identities in the microdata. These data cover slightly more than a million

[13] There are exceptions. Notably, own-source revenues are substantial in Nairobi and Mombasa.

people in 3,600 sublocations, which we assign to pre-reform provinces and post-reform counties.[14]

We use these data to compute the reform-induced changes in the regional fractionalization and the ethnic fragmentation to which an individual is exposed, given their location and ethnic affiliation. In particular, ΔRF_c is the difference between the post-reform county-level RF_c and the pre-reform province-level $RF_{p(c)}$ of the province p that encloses the future county c, and ΔEF_e 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 to compute ΔRF_c and ΔEF_e ensures that these measures capture only changes resulting from the border reform.

The reform decreased average (population-weighted) regional fractionalization from 0.53 to 0.32 and increased average (population-weighted) ethnic fragmentation from 0.32 to 0.76. Hence, it created many relatively homogeneous units and was provincial in nature. However, these averages mask considerable variation across individuals residing in different places and identifying with different ethnicities.

Figure IV illustrates the changes in regional fractionalization and ethnic fragmentation across county-ethnicity combinations that individuals are exposed to (with the size of the circle being proportional to the population of the corresponding combination). ΔRF_c, shown on the horizontal axis, ranges from -0.61 (in Turkana County in the former Rift Valley Province) to 0.28 (in Busia County in the former Western Province). ΔEF_e, shown on the vertical axis, ranges from 0.02 (for the Rendille) to 0.79 (for the Kalenjin). All ethnic groups became more fragmented because the reform split every province (except Nairobi) into multiple counties.

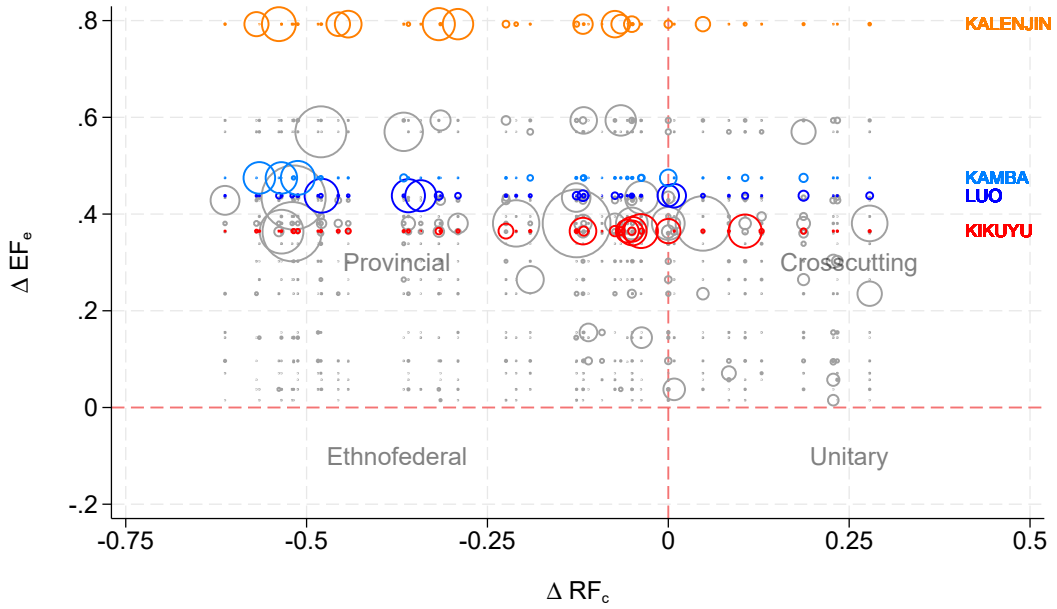
There is substantial variation in the sign and degree of ΔRF_c among members of the same ethnic group. Similarly, there is substantial variation in ΔEF_e among residents of the same county. For example, some Kalenjin live in counties with $\Delta RF_c < -0.5$ and others in counties with $\Delta RF_c > 0$, while the Kalenjin as a group become considerably more fragmented than the Kikuyu at any level of regional fractionalization. Our empirical strategy exploits this variation within counties and groups.

4.2. Fiscal decentralization

Our main measure of fiscal decentralization is the formula-based fiscal transfers to county governments implemented with the 2013 election. The 2010 constitution mandates that counties receive an equitable share of national revenue of at least 15% and establishes the Commission on Revenue Allocation (CRA) to recommend the county-level allocation of

[14]Sublocations are the smallest units above enumeration areas. We use the matching of (unnamed) sublocations in the micro data to official census tabulations by Asmus et al. (2019). With about a million sampled individuals aggregated to counties and ethnic groups, sampling error in ΔRF_c and ΔEF_e is negligible.

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



Notes: The figure shows the changes in regional fractionalization (ΔRF_c) and the changes in ethnic fragmentation (ΔEF_e) for each county-ethnicity combination (see main text for details). The size of the circles is proportional to the population of the corresponding combination. Major ethnic groups are highlighted in different colors.

these transfers, which must then be approved through the legislative budget process. The advantage of relying on these transfers is that they provide credibly exogenous variation in fiscal stakes. The transfer shares are set by a constitutional rule and implemented through the CRA process. Hence, cross-county variation in predicted per-capita transfers reflects predetermined characteristics rather than contemporaneous county politics or alignment between county governors and the national president. The per-capita transfers differ across counties because more than 50% of the allocation is based on components other than population, such as land area, poverty gap, and an equal-share component.[15]

More specifically, we use as a county-specific measure of fiscal decentralization, FD_c, the *predicted* per-capita equitable-share transfer implied by the 2013 CRA formula, evaluated using the pool of national revenue reserved for county governments in the fiscal year 2013/14 (in real 2009 KES).[16] As with the one-shot border reform, we take 2013 as the reference point for the aggregate pool of funds and do not update FD_c for subsequent

[15]The 2013 CRA formula assigns weights of 45% to population, 25% to an equal-share component (pooled revenues divided equally across all 47 counties), 20% to the poverty gap, 8% to land area, and 2% to fiscal responsibility.

[16]We drop the (endogenous) fiscal responsibility component and implement the remaining 98% of the formula. We obtain all county-level revenue data from the Commission on Revenue Allocation (2013, 2016, 2022). We deflate nominal values to real 2009 KES and convert to per-capita terms using 2009 county populations. Panel A of Figure A.6 shows that the predicted allocations closely track realized equitable-share transfers (which include the fiscal responsibility component).

changes in the size of the central government budget or the allocation formula. Table B.1 shows that the two border treatments are not significantly correlated with the equitable share or with total county revenues over the post-reform period. Because pre-reform fiscal LATF transfers were small, we interpret FD_c as the change in fiscal stakes relative to the pre-reform baseline and denote it by ΔFD_c.[17] We later report robustness checks that use actual (rather than predicted) transfers and that subtract pre-reform LATF transfers when constructing ΔFD_c.

4.3. Measuring ethnic voting

We use Afrobarometer survey rounds 3–10 to construct individual-level measures of ethnic voting. These surveys ask about voting intentions in a consistent format across all rounds: "If presidential elections were held tomorrow, which party's candidate would you vote for?" In our setting, these voting intentions, which are usually polled in off-election years, closely track election-day voting behavior.[18] The Afrobarometer also provides information on the location where respondents reside, the ethnic group they identify with, and a host of political, economic, and social questions.

Our goal is to measure whether individuals vote for the party that most of their co-ethnics support. In the terminology of Huber (2012), we combine a group-based perspective that emphasizes voting cohesion among group members with a party-based perspective that takes ethnic parties as those representing specific groups rather than broad cross-sections of society. Conceptually, we require that an "ethnic party" should satisfy two conditions. First, it should serve as a coordination point and attract the largest share of co-ethnic support in that round (*plurality*). Second, it should draw disproportionately from that ethnic group relative to the national electorate (*overrepresentation*). Intuitively, plurality ensures that the ethnic party is the option most co-ethnics support, while the overrepresentation criterion prevents a popular national party from being labeled an ethnic party when the group does not disproportionately support it.[19]

An important feature of Kenyan politics is that parties form coalitions to win elections.

[17] Panel B of Figure III shows that pre-reform LATF transfers aggregated at the county level are an order of magnitude smaller and are not correlated with predicted equitable-share transfers. The CDF, by contrast, was not replaced by the 2010 constitution and runs in parallel before and after 2013, so it is differenced out of ΔFD_c regardless of its level or its (mechanical) positive correlation with predicted transfers.

[18] We validate this by comparing voting intentions from Afrobarometer survey round 6 (conducted in 2014) with exit poll data from the 2013 election by Ferree et al. (2014). Figure A.7 shows that group-level voting patterns for coalitions (presidential tickets) are very similar across the two sources.

[19] The two recent survey-based definitions closest to ours each rely on a single criterion. Some use only within-group coordination (Müller-Crepon and Bormann, 2026), which can label a nationally popular party as a group's ethnic party even if this group is underrepresented among the party's voters. Others use overrepresentation alone (Amodio et al., 2024), which can select a marginal party that is unpopular across all groups as a group's ethnic party. Our definition is designed to avoid both these cases.

We therefore construct our measure of ethnic voting twice: once using parties and once using coalitions. Formally, let $\mathcal{A}_t$ denote the set of electoral alternatives, i.e., parties or coalitions, observed in survey round t. Further, let $s_{et}(a)$ be the share of respondents of group e who support alternative $a \in \mathcal{A}_t$ in t and $s_t(a)$ be the national support share of alternative a in t. The plurality choice of group e is

$$a^\star_{et} = \arg\max_{a \in \mathcal{A}_t} s_{et}(a).$$

We classify this plurality choice $a^\star_{et}$ as group e's ethnic party or coalition, EP_{et}, if respondents from group e are overrepresented among the supporters of that alternative. That is, $EP_{et} = a^\star_{et}$ if

$$s_{et}(a^\star_{et}) > s_t(a^\star_{et}),$$

and we treat EP_{et} as missing otherwise. Finally, for each individual i of group e observed in round t, an ethnic vote is

$$EV_{iet} = \mathbf{1}\{V_{iet} = EP_{et}\},$$

where V_{iet} is the alternative that the individual intends to vote for in the next election. This measure equals one when the respondent chooses group e's ethnic party in round t, equals zero when the respondent chooses another valid alternative, and is missing when no ethnic party or coalition is defined for that group-round (as there is no "ethnic option" a voter could defect from).[20]

In principle, ethnic parties could also be defined by the ethnic identities of their leaders, e.g., their (vice-)presidential candidates, or by platforms that explicitly target specific groups. In Kenya, neither approach is ideal. Parties are fluid and personalized, leaders frequently switch affiliations, and party platforms are often unavailable for smaller parties or do not explicitly target ethnic groups. A leader-based definition would also leave most groups without an ethnic party, since presidential and vice-presidential candidates typically come from only a few large groups. We therefore prefer to define ethnic parties based on observed voting patterns. We also provide checks in which we define ethnic parties based solely on plurality or overrepresentation.

Figure V highlights the two key elements of our definition of ethnic parties and coalitions. Panel A shows the vote shares of the first and second most popular parties and coalitions, averaged across survey rounds, for the seven largest ethnic groups.[21] The gap

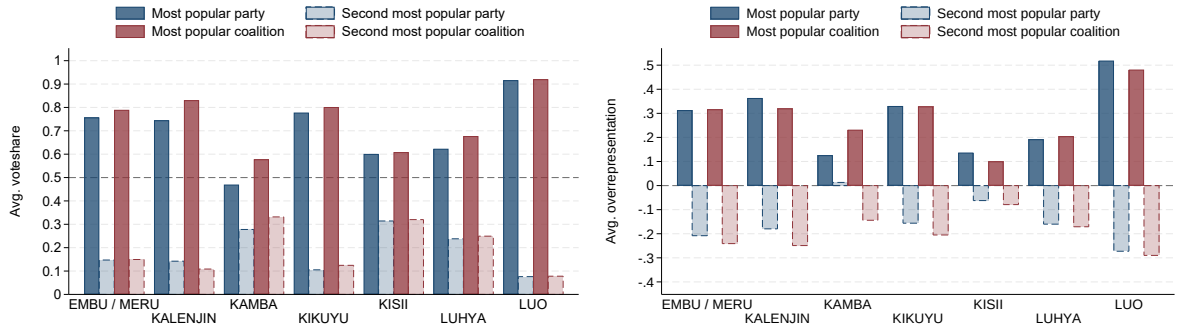
[20] Determining the modal alternative and the individual voting indicator from the same sample mechanically leads to a self-inclusion bias of order $1/N_{et}$, where N_{et} is the size of the ethnic group in that survey year. Moreover, the mode may switch in near-tie situations purely due to sampling noise. To make the measure less sensitive to noise and leave-one-out robust, we require a minimum gap of two votes between the plurality choice and the runner-up within each group-round.

[21] Table A.2 shows the most popular parties and runner-ups, including their group-level and national vote shares (overrepresentation is simply the difference between the two), for all ethnic groups and

FIGURE V
Ethnic parties across groups and survey rounds

(A) Most popular parties and coalitions by ethnic group

(B) overrepresentation of groups in their most popular parties and coalitions



Notes: Panel A plots the vote shares of the first and second most popular parties (in dark blue and light blue) and the first and second most popular coalitions (in dark red and light red), averaged across Afrobarometer survey rounds, for each of the seven ethnic groups with a population share of more than 5%. Panel B illustrates overrepresentation, i.e., the average group-specific vote share $s_{et}(p)$ minus the national vote share $s_t(p)$ for the groups' two most popular parties and coalitions, again averaged across survey rounds.

between the first and second most popular parties is large, and typically even larger at the coalition level (ranging from 22.7 percentage points for the Kamba to 84.5 percentage points for the Luo). Panel B illustrates overrepresentation as the average difference between the ethnic groups' vote shares for their two most popular parties/coalitions and the national vote share for these parties/coalitions. We see that ethnic groups are typically overrepresented among the voters of their most popular party or coalition (but not among the voters of their second most popular party or coalition). This is true for groups that often have a co-ethnic candidate in the race, such as the Kikuyu and Luo, as well as for groups that do not, such as the Embu/Meru and Luhya. This supports the notion that these are ethnic parties in either case. There exist some pairs of survey rounds and groups where a group's most popular party or, less often, coalition does not satisfy the overrepresentation criterion, such that there is no clear ethnic party for this group in the given survey round.[22]

survey rounds. Figure A.8 shows the number of parties in each survey round and aggregate party- and coalition-level ethnic voting.

[22]Only 11 of 99 group-rounds have no ethnic party (6 for coalitions). For example, the Kamba have no ethnic party in survey rounds 6 to 9 because their most popular party fails the overrepresentation criterion. This is not a flaw of our approach, since a missing value is not the same as not voting ethnically. Just before round 6 in 2013, Musyoka (a Kamba) formed a coalition with Odinga (a Luo) as his vice-presidential running mate, even though they had been fierce competitors in 2007. Our data show that this effectively split the Kamba vote (see also Ferree et al., 2014). The plurality-only and overrepresentation-only measures can retain all of these group-rounds and result in quantitatively and qualitatively similar estimates (see Figure B.1).

4.4. 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.[23] We use the Afrobarometer surveys for information on voting intentions, ethnic identification and individual controls.[24] Across all eight survey rounds, the complete information is available for 7,989 respondents from 1,412 different sampling clusters and 20 different ethnic groups (8,506 respondents and 1,487 clusters for coalition-based ethnic voting).

We estimate the following generalized difference-in-differences specification with continuous treatments:

$$EV_{iet} = \beta_1 (\Delta FD_c \times D_t) + \beta_2 (\Delta RF_c \times D_t) + \beta_3 (\Delta EF_e \times D_t) + \mathbf{Z}'_{it}\boldsymbol{\xi} + \theta_c + \mu_e + \lambda_t + \epsilon_{iet}, \quad (3)$$

where ΔFD_c is the change in the formula-based equitable-share transfers to county c, ΔRF_c is the change in regional fractionalization from province $p(c)$ to county c, ΔEF_e is the change in ethnic group e's fragmentation, and D_t is an indicator for the post-reform period (i.e., Afrobarometer survey rounds 6 to 10). The vector $\mathbf{Z}_{it}$ includes individual controls: age, gender, education, various assets, and urban versus rural location, which are common characteristics that may predict voting behavior or account for differences in sample composition. θ_c, μ_e, and λ_t are county, ethnicity, and time (survey-round) fixed effects. To account for the clustered nature of the treatment, we use two-way clustered standard errors at the level of counties and ethnic groups, but also report (wild) bootstrap confidence intervals in robustness checks.

Our baseline coefficients of interest are β_1, β_2, and β_3. Because ΔFD_c, ΔRF_c, and ΔEF_e are time-invariant by construction, they enter only when interacted with D_t. The identifying variation therefore comes from differential changes in ethnic voting at the time of the reform, driven by differences in treatment intensity across counties and groups. Our specification is a generalized difference-in-differences specification, since it relates the pre-post change in average ethnic voting within a county-ethnicity cell to differences in treatment intensities.[25]

[23] Online Appendix A.2 shows the spatial distribution and size of the Afrobarometer survey clusters for rounds 3–10. Locations are based on the coordinates provided by BenYishay et al. (2017) for rounds 3–6 and the GPS coordinates provided by Afrobarometer for rounds 7–10. We exclude rounds 1 and 2, as they do not report ethnicity. We drop observations from respondents identifying with ethnic groups with fewer than five respondents in a given survey round to reduce noise in all measures.

[24] See Online Appendix A.3.1 for details on these control variables and Online Appendix A.4 for summary statistics.

[25] A convenient way to see this interpretation is to collapse to county-ethnicity-round cells. Since the treatments vary only at the county or ethnicity level, estimating equation 3 on individual data is numerically equivalent to a weighted pseudo-panel regression on cell means (after partialling out controls). Let $g = (c, e)$ and $\overline{EV}_{gt}$ denote the cell mean of residualized ethnic voting in round t. Then

$$\overline{EV}_{gt} = \theta_c + \mu_e + \lambda_t + \beta_1(\Delta FD_c \times D_t) + \beta_2(\Delta RF_c \times D_t) + \beta_3(\Delta EF_e \times D_t) + \bar{\epsilon}_{gt}.$$

The fixed effects play an important role. The county fixed effects net out potential time-invariant differences between locations that are common to all groups, and the ethnicity fixed effects net out differences between groups that are common to all locations. For example, voters in Mombasa could vote differently from voters elsewhere, and members of different groups likely have different ethnic parties. The time fixed effects absorb the overall trend of ethnic voting across elections and survey rounds (including any level effect captured by D_t). Hence, they absorb any aggregate shifts in political competition induced by the reform that are common to all counties and groups. They also absorb potentially non-linear trends in ethnic voting (Figure A.8), which cannot be attributed to the differential effects of the reform.

The key identification assumption is that respondents exposed to smaller reform-induced changes in fiscal decentralization and border design provide a valid counterfactual for those exposed to larger changes. In other words, absent the reform, ethnic voting would have evolved similarly across the different intensities of ΔFD_c, ΔRF_c, and ΔEF_e. All counties receive transfers, all borders but Nairobi's are reformed, and all groups become (at least weakly) more fragmented. Hence, we compare different treatment intensities rather than treated and untreated units. Interpreting these comparisons as causal requires a strong parallel trends assumption for continuous treatments, which also rules out selection on treatment effects.[26] Under this assumption, two-way fixed-effects estimation identifies a weighted average of causal responses, that is, of the marginal effects of treatment intensity, in the spirit of Callaway et al. (2024). Concerns about negative weights due to staggered-adoption designs with treatment-effect heterogeneity (e.g., Callaway and Sant'Anna, 2021; Sun and Abraham, 2021) do not arise in our setting, since the treatment is simultaneous. However, estimating all three treatments jointly implies that the coefficient on each treatment may be contaminated by the effects of the other two if these effects are heterogeneous (Goldsmith-Pinkham et al., 2024). In robustness checks, we present interacted fixed-effects specifications that eliminate this bias from county-level heterogeneity in the effects of ΔFD_c and ΔRF_c on the estimate for ΔEF_e, and from group-level heterogeneity in the effect of ΔEF_e on the estimates for

Averaging within the pre- and post-reform periods and differencing yields

$$\Delta\overline{EV}_g = \kappa + \beta_1 \Delta FD_c + \beta_2 \Delta RF_c + \beta_3 \Delta EF_e + \Delta\bar{\epsilon}_g,$$

where κ collects the change in average time effects. Differencing does not imply numerical equivalence, since it drops cells observed in only one period. Identification thus comes from differences in treatment intensities explaining differences in pre-post changes in ethnic voting across cells. We prefer the individual-level specification as it easily accommodates individual controls and rich fixed effects.

[26] In a continuous-treatment difference-in-differences design, the strong parallel trends assumption rules out unobserved time-varying shocks that are differentially correlated with treatment intensity. As the Afrobarometer data are repeated cross-sections rather than a proper panel, the assumption also rules out differential compositional changes correlated with treatment intensity, for example, due to selective migration into counties receiving more fiscal transfers or experiencing larger border-induced changes. We probe all of these parts in Section 5.3.

ΔFD_c and ΔRF_c.

Another concern is that the two border-design treatments are mechanically related to pre-reform ethnic geography, as counties in highly fractionalized provinces have more scope for a reduction in regional fractionalization (than those in more homogeneous provinces) and groups that were hardly split by province borders have more scope for an increase in ethnic fragmentation (than those that were more dispersed across provinces). We address this by also running recentered specifications, which remove the component of treatment intensity that is predictable from baseline geography.[27] Similarly, by construction, ΔFD_c is a fixed function of 2009 population, poverty and land area. The parallel trends assumption therefore requires that ethnic voting would have evolved similarly across counties whose combinations of these characteristics imply different transfers.

5. Results

In this section, we assess the validity of our empirical strategy, present our main results, and summarize robustness checks.

5.1. Design validity and treatment dynamics

We begin with an event-study design that interacts fiscal decentralization and the two border-design treatments with survey-round indicators, using round 4 in 2008 as the reference period. Figure VI shows no evidence of differential pre-trends in ethnic voting with respect to any of our three treatments. There are two caveats: First, there are only two pre-treatment survey rounds that contain information on ethnicity. Second, the early rounds have fewer respondents, leading to wider confidence intervals, in particular for fiscal decentralization and ethnic fragmentation.[28]

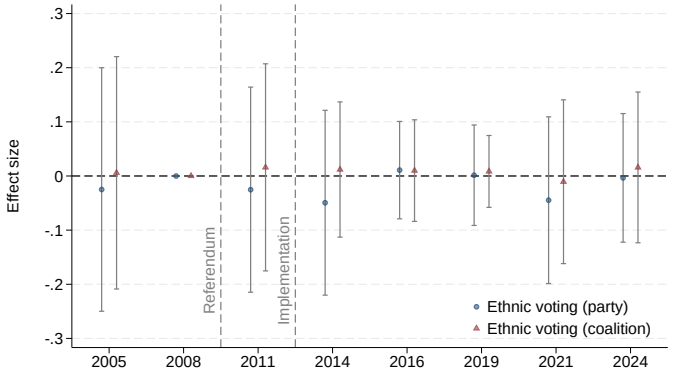
Figure VI reveals distinct treatment dynamics. Panel A shows no detectable effect of fiscal decentralization on ethnic voting in any period. Panel B shows that changes in regional fractionalization have an effect that is already visible in 2011 and remains similar in magnitude thereafter, apart from a smaller estimate in 2024. This pattern is consistent with the ethnic composition of the new counties, which would soon hold elections, becoming politically salient as soon as the new map was known. By contrast, Panel C shows that the effect of changes in ethnic fragmentation is close to zero in 2011

[27] While there is a moderate correlation between baseline ethnic geography and the border-design treatments, our main results barely change with recentering. We thus defer this issue to Section 5.3.

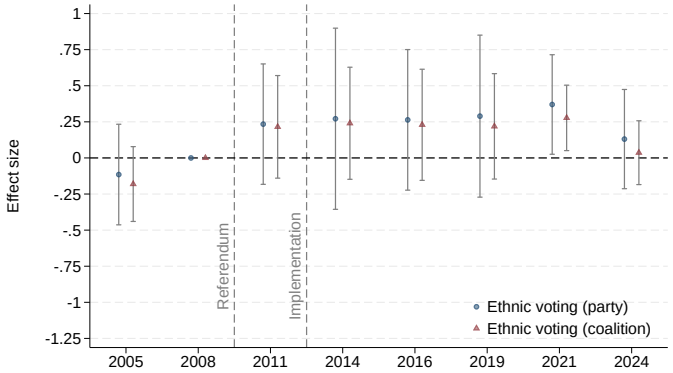
[28] The pre-trend point estimate for ethnic fragmentation is negative, which is driven by the Kalenjin. They have the largest reform-induced increase in fragmentation (see Figure IV). In 2005, Kalenjin vote intentions were split between KANU and NARC-Kenya. In 2008, they intended to vote almost unanimously for ODM (see Table A.2). Without the Kalenjin, the 2005 event-study estimate is positive and equally imprecise. Section 5.3 reports our main results without the Kalenjin.

Figure VI
Event study estimates

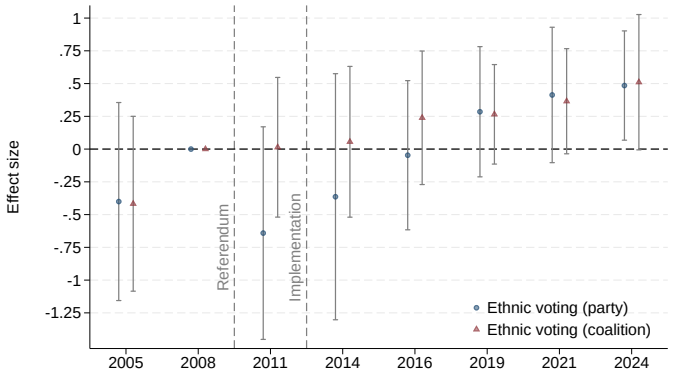
(A) Time-varying effects of ΔFD_c



(B) Time-varying effects of ΔRF_c



(C) Time-varying effects of ΔEF_e



Notes: The figure shows event-study coefficients for the effects of reform-induced changes in fiscal decentralization (ΔFD_c), regional fractionalization (ΔRF_c), and ethnic fragmentation (ΔEF_e) on our measures of ethnic voting. Blue circles (red triangles) report estimates using party-based (coalition-based) ethnic voting as the outcome. Specifically, we estimate $EV_{it} = \sum_{\tau \neq 2008} \beta_{1,\tau}\big(\Delta FD_c \times \mathbf{1}\{t=\tau\}\big) + \sum_{\tau \neq 2008} \beta_{2,\tau}\big(\Delta RF_c \times \mathbf{1}\{t=\tau\}\big) + \sum_{\tau \neq 2008} \beta_{3,\tau}\big(\Delta EF_e \times \mathbf{1}\{t=\tau\}\big) + \mathbf{Z}'_{it}\boldsymbol{\xi} + \theta_c + \mu_e + \lambda_t + \epsilon_{it}$, where τ indexes survey years and 2008 is the omitted reference category. Panel A reports the $\beta_{1,\tau}$'s, Panel B the $\beta_{2,\tau}$'s, and Panel C the $\beta_{3,\tau}$'s. ΔFD_c is z-standardized at the post-reform county level. Standard errors are two-way clustered at the county and ethnicity level. Gray bars indicate 95% confidence intervals.

for coalition-based ethnic voting, but then rises throughout the post-treatment period. It is positive for both party-based and coalition-based ethnic voting from 2019 onward, consistent with the political implications of splitting ethnic groups across counties taking a full electoral cycle (2013 to 2017) to materialize.[29] In additional event studies, we also find no response in turnout intentions or the willingness to reveal party preferences to any treatment (see Figure B.2).

Taken together, these results lend support to our identifying assumptions. For the remainder, we collapse the event study to our preferred difference-in-differences design (see equation 3) and omit survey round 5 (2011), which falls after the referendum but before implementation and is therefore neither cleanly pre-treatment nor cleanly post-treatment (resulting in 765 fewer observations).[30]

5.2. Main results

Table I shows that fiscal decentralization has no detectable average effect on ethnic voting, while the reform-induced changes in the border design have sizable and statistically significant effects. These results hold whether we focus on party-based ethnic voting (odd columns) or coalition-based ethnic voting (even columns) and whether we enter fiscal decentralization and our two border-design indices separately, as in columns (1)–(4), or jointly, as in columns (5) and (6).

The implied magnitudes of the changes in the border design are substantial. A 20 percentage point reduction in regional fractionalization, about the average change induced by the reform, reduces ethnic voting by around 5.8 percentage points, regardless of whether we use the party- or coalition-based measure. A 20-point increase in ethnic fragmentation raises ethnic voting by 8.8 percentage points when using the party-based measure and by 10.9 percentage points when using the coalition-based measure. By contrast, the average effect of fiscal decentralization is only 0.3–0.6 percentage points and statistically insignificant.

The two outcomes capture somewhat different voting patterns. A deviation from party-based ethnic voting simply implies that a respondent is not voting for their group's ethnic party, but could just represent a switch to a coalition partner. In contrast, a deviation from coalition-based ethnic voting implies that a respondent truly crosses over the ethnic line. While the estimates for regional fractionalization are very close across the two measures, the estimate for ethnic fragmentation is larger for coalition-based ethnic voting, implying that fragmented groups tend to vote more cohesively for the coalition and, hence, the presidential ticket, than their own party. Overall, the reform moved

[29]The negative party-based estimate in 2014 is entirely caused by the Jubilee Alliance running as separate parties (TNA and URP) in 2013 (they merged later in 2016). Merging them earlier moves the 2014 party estimate from -0.36 to -0.04.

[30]Results are very similar when adding survey round 5 to the post-treatment period.

TABLE I
Main results: Difference-in-differences

	Dependent variable: Ethnic voting							
	Party	*Coalition*	*Party*	*Coalition*	*Party*	*Coalition*	*Party*	*Coalition*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\Delta FD_c \times D_t$	-0.022	-0.022			0.003	0.006	0.011	0.015
	(0.039)	(0.036)			(0.030)	(0.031)	(0.012)	(0.017)
$\Delta RF_c \times D_t$			0.288**	0.283***	0.289*	0.286**	0.380***	0.367***
			(0.137)	(0.097)	(0.143)	(0.100)	(0.124)	(0.095)
$\Delta EF_e \times D_t$			0.437***	0.542***	0.438***	0.545***	0.442***	0.548***
			(0.090)	(0.091)	(0.091)	(0.086)	(0.094)	(0.098)
$\Delta FD_c \times \Delta RF_c \times D_t$							0.279**	0.243**
							(0.125)	(0.097)
Observations	7224	7741	7224	7741	7224	7741	7224	7741
Individual controls	✓	✓	✓	✓	✓	✓	✓	✓
Time FE	✓	✓	✓	✓	✓	✓	✓	✓
County FE	✓	✓	✓	✓	✓	✓	✓	✓
Ethnicity FE	✓	✓	✓	✓	✓	✓	✓	✓

Notes: The table reports the results of regressing our measures of ethnic voting (party-based ethnic voting in odd columns and coalition-based ethnic voting in even columns) on interaction terms between the post-treatment indicator D_t and changes in fiscal decentralization (ΔFD_c), regional fractionalization (ΔRF_c), or ethnic fragmentation (ΔEF_e). Columns (7) and (8) add the triple interaction $\beta_4(\Delta FD_c \times \Delta RF_c \times D_t)$ to equation 3. ΔFD_c is z-standardized at the post-reform county level. All specifications include county, ethnicity, and time fixed effects. Individual controls include the respondent's age, indicators of whether the respondent lives in an urban survey cluster, is female, owns a TV, radio, or motorized vehicle, and has completed primary, secondary, or post-secondary education. Standard errors are two-way clustered at the county and ethnicity levels. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

voters between coalitions, rather than just splintering a group's vote within the same coalition.

The small average effect of fiscal decentralization might appear counterintuitive to those who expect transfers alone to lower the stakes of national elections. In Kenya, equitable-share transfers follow a fixed formula of predetermined county characteristics. These non-discretionary transfers do not directly reward or punish ethnic coordination at the ballot box. Instead, we suggest that the same level of transfers may weaken ethnic voting under one map and strengthen it under another. Columns (7) and (8) test this by adding $\beta_4(\Delta FD_c \times \Delta RF_c \times D_t)$ to equation 3, which interacts fiscal transfers with the other county-level treatment, the change in regional fractionalization.[31] The coefficient on the interaction is positive, sizable, and statistically significant. The estimated effect of fiscal transfers changes sign with the map. A one-standard-deviation increase in transfers lowers ethnic voting by 3 to 5 percentage points when regional fractionalization decreases by 20 percentage points.[32] Conversely, it raises ethnic voting by 6 to 7 percentage points in counties that become equally more fractionalized, such as Mombasa or Marsabit.

Returning to the border-design framework in Section 2, our estimates imply that moving to an ethnofederal design, which reduces both regional fractionalization and ethnic fragmentation, *lowers* ethnic voting, while moving to a crosscutting design, which increases both, *raises* it. Reforms that move the two border design measures in opposite directions create a trade-off, which depends on how much a reform devolves. When a reform raises transfers to regional governments substantially, reducing regional fractionalization matters relatively more. When it raises them by little, limiting ethnic fragmentation matters more. Section 6 examines regional control as an explanation for this pattern, and Section 7 asks whether, when, and how alternative maps could have reduced ethnic voting.

5.3. Sensitivity

In this section, we discuss the sensitivity of our results to a variety of concerns, including our measurement of ethnic voting, fiscal decentralization, border changes, confounding of our treatments, the level of group aggregation, and the potential for selective migration. Figure VII provides an overview of the many tests we conduct, which we discuss separately below. Overall, our main results are qualitatively the same across perturbations and

[31] We also interact changes in group-level ethnic fragmentation with changes in county-level fiscal decentralization in Table B.2 and find that this interaction is always insignificant. This null effect is not surprising, since it is conceptually not obvious why the effect of changes in county-level fiscal decentralization should vary with changes in group-level fragmentation. Ethnic fragmentation is a property of the ethnic group (across all counties), which changes the incentives of the ethnic group as a whole in national politics.

[32] Given the standardization of ΔFD_c to county means, the coefficient on ΔRF_c in these specifications is evaluated at the average level of fiscal transfers.

unlikely to be driven by selective migration.

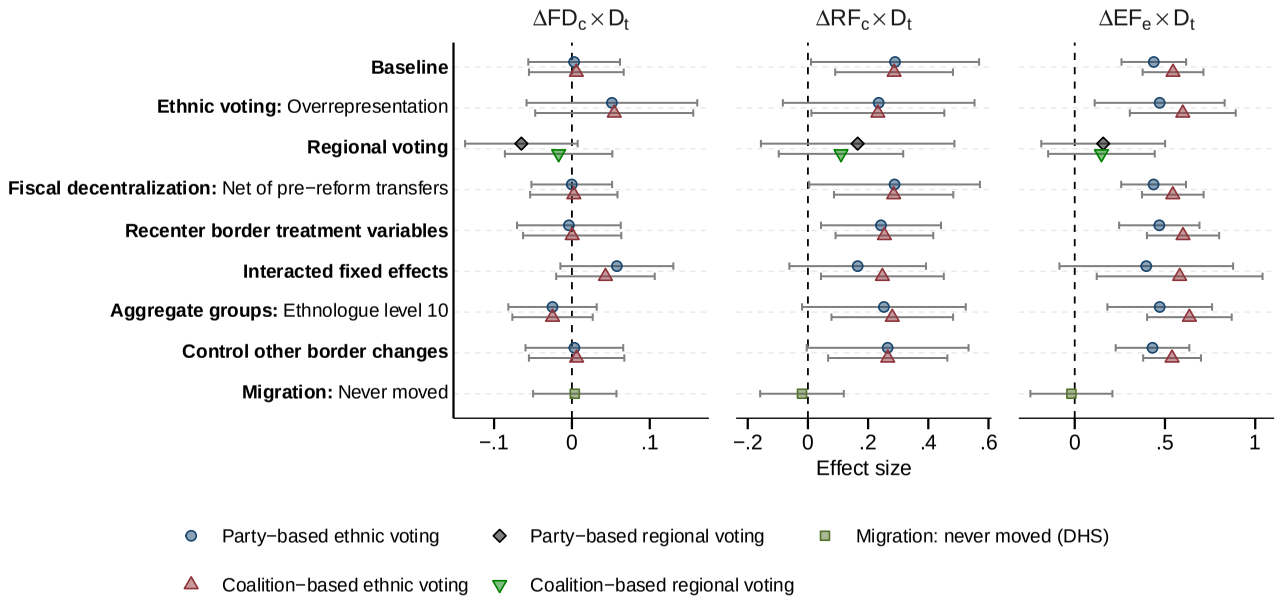
Ethnic voting: One of the innovations of our study is our definition of ethnic voting, which flexibly captures within-group coordination among parties or coalitions in a multi-party system where parties frequently change (see Section 4.3). To test whether our results are driven by the dual requirements of plurality and overrepresentation, we employ alternative voting measures. Row 2 of Figure VII shows that results remain similar when we define ethnic parties and coalitions only based on overrepresentation. Moreover, Figure B.1 shows that the general pattern holds for the vote shares of the party or coalition the respondent voted for, alternative coalition assignments, and when using the largest feasible sample for different definitions of ethnic voting, including plurality. Only the overrepresentation-only measure weakens in the largest sample, because it classifies as ethnic some parties and coalitions that only few co-ethnics support.

Regional voting: One concern for our interpretation is that our results may reflect a shift towards regional rather than ethnic voting. Decentralization may increase incentives to vote for one's regional party (e.g., Brancati, 2006). To test this, we define the regional equivalent of our ethnic voting, using the plurality and overrepresentation criteria to identify the strongest party and coalition in a county. We then use indicators for whether a respondent would vote for this party or coalition in a presidential election as alternative dependent variables. Row 3 of Figure VII shows that changes in regional fractionalization and ethnic fragmentation do not lead to any significant changes in such regional voting.

Fiscal decentralization: Recall that we measure fiscal decentralization, ΔFD_c, by the predicted formula-based equitable shares, to focus explicitly on the reform-driven changes in local public finances. However, if those systematically correlate with prior transfers, our results could be biased. To test for this, we subtract the best proxy for pre-reform transfers—LATF transfers to local authorities in the fiscal year 2010/11, aggregated at the county level—from the predicted equitable shares. Row 4 of Figure VII shows that, again, our results are essentially unchanged. Moreover, the interactions with the alternative measure of ΔFD_c also remain stable. This is also the case if we subtract the prior transfers from the actual, but potentially endogenous, equitable-share transfers per capita (see Table B.3).

Recentering border treatments: Our baseline specification requires that, absent the reform, untreated changes in ethnic voting would be unrelated to the raw treatment intensities, conditional on fixed effects and controls. A concern is that the feasible ranges of ΔRF_c and ΔEF_e are mechanically restricted by pre-reform levels of $RF_{p(c)}$ and EF_e, so that raw treatment intensity may partly reflect nonrandom baseline exposure. We

Figure VII
Overview: Sensitivity tests



Notes: The figure reports the coefficients on $\Delta FD_c \times D_t$, $\Delta RF_c \times D_t$, and $\Delta EF_e \times D_t$ on party-based ethnic voting (using blue dots) and coalition-based ethnic voting (using red triangles) for different perturbations of our main specifications (equation 3). Row 1 (baseline) depicts the baseline estimates from columns (5) and (6) of Table I). Row 2 drops the plurality criterion and classifies each group's most overrepresented party/coalition as its ethnic party/coalition (following Amodio et al., 2024). Row 3 relies on the plurality and overrepresentation criteria to construct indicators of voting for the strongest party (black diamonds) or the strongest coalition (green inverted triangles) in a county, which we use as alternative dependent variables. Row 4 calculates the change in fiscal decentralization across different transfer regimes. Specifically, we subtract the best available data for pre-reform transfers (LATF transfers to local authorities in the fiscal year 2010/11, aggregated at the county level) from the predicted formula-based post-reform transfers to compute ΔFD_c. Row 5 uses linearly recentered border-design treatments, replacing ΔRF_c and ΔEF_e with residuals from cross-sectional projections on $RF^{pre}_{p(c)}$ and EF^{pre}_{e}, respectively. Row 6 reports the effects of each treatment under interacted fixed effects. Specifically, $\Delta EF_e \times D_t$ from a specification with county-by-time and ethnicity fixed effects, and $\Delta FD_c \times D_t$ and $\Delta RF_c \times D_t$ from one with ethnicity-by-time and county fixed effects. Row 7 presents results for our treatment variables, outcome variables, and group fixed effects aggregated into broader ethnic groups based on the Ethnologue's language grouping at language branch level 10. Row 8 controls for $\Delta RF_c^{\text{Local authority}} \times D_t$ and $\Delta EF_e^{\text{Local authority}} \times D_t$ computed based on border changes from pre-reform local authorities to post-reform counties. The last row tests for selective migration using DHS data. The outcome is an indicator of never having moved, which equals 1 for respondents whose answer to the length-of-residence question indicates that they have always lived in their current location (Table B.7 for details). 95% confidence intervals across all specifications are based on two-way clustered standard errors at the county and ethnicity levels.

address this concern by subtracting the component of treatment intensity predicted by baseline geography. This weakens our core identification assumption, since the recentered specifications compare counties and groups that experienced larger or smaller border-design changes than expected given their pre-reform geography. Row 5 of Figure VII reports results from using a linear model for the recentering, and Table B.4 further uses a more flexible recentering procedure. Results remain very similar for both recentering procedures.

Interacted fixed effects: Our strong parallel trends assumption rules out time-varying shocks that are correlated with treatment intensity, and estimating the three treatments jointly can lead to contamination bias (Goldsmith-Pinkham et al., 2024). Given that our treatments vary at two levels, we can separately eliminate two types of shocks directly. First, county-by-time fixed effects absorb all county-level shocks, including the two county-level treatments. The regression then compares different groups within the same county and survey round to identify only the effect of ΔEF_e. Second, ethnicity-by-time fixed effects absorb all ethnicity-level shocks, including the group-level treatment. The regression then compares members of the same group across counties within a survey round to identify the effects of ΔFD_c and ΔRF_c.[33] Row 6 of Figure VII shows the resulting estimates. Most results remain similar, but party-based estimates are smaller and less precisely estimated. Moreover, the interaction between fiscal decentralization and regional fractionalization remains positive and of similar magnitude (Table B.5 reports the full results).

Aggregation level of ethnic groups: The correct classification of ethnic groups is important for both our ethnic voting measure and the border treatment variables. While we rely on Kenya's census classification, this is not the only way to classify ethnic groups in Kenya. Desmet et al. (2012) highlights that different levels of language-group aggregation are relevant to the association between diversity and different outcomes such as conflict or economic growth. To test whether our estimates depend on the census classification of ethnic groups, we follow Desmet et al. (2012) and compute our treatment variables for more aggregated language groups, specifically aggregates at the language branch levels 6, 10, and 15 in the Ethnologue (Lewis et al., 2013). We adjust our measures of ethnic voting, the treatment variables ΔRF_c and ΔEF_e, and the group fixed effects accordingly. Row 7 of Figure VII documents that the treatment effects based on level-10 language

[33]These fixed effects also absorb any county- or group-level heterogeneity in the effects of these treatments, removing the associated contamination as well (Goldsmith-Pinkham et al., 2024). The fixed effects cannot separate ΔFD_c from ΔRF_c, since both vary at the county level. One might worry that the effect of ΔFD_c varies with ΔRF_c itself, in which case the coefficient on ΔRF_c partly picks up this heterogeneity. In Table I, we model this heterogeneity directly through the interaction between ΔFD_c, ΔRF_c, and D_t. Evaluated at the sample mean of ΔFD_c, the implied effect of ΔRF_c in columns (7) and (8) is 0.27, close to the estimates in columns (5) and (6).

groups are similar to our main estimates, and Figure B.3 shows that the same holds for levels 6 and 15 as well.[34]

Control for other border changes: The 2010 constitutional reform was a bundle treatment that included political devolution, fiscal decentralization, and the replacement of eight provinces with 47 counties as the main subnational units. Moreover, it also abolished all 175 local authorities, with their functions subsumed into the new county governments, and increased the number of electoral constituencies from 210 to 290. Yet another administrative-territorial change occurred around the same time: 210 districts created by Moi and Kibaki were declared illegal by the High Court in September 2009 (BBC Monitoring Africa, 2009). In theory, our main treatments could be confounded by those other border changes, although this seems unlikely.[35] To test for this possibility, we construct alternative treatment variables based on these additional border changes and include them as controls in our main specification (see Online Appendix A.5 for details).[36] Row 8 of Figure VII documents that the coefficients of interest remain very similar when controlling for the shift from local authorities to counties. Table B.6 shows that the same holds when controlling for the other border changes.

Migration: In our main specifications, we keep the population distribution fixed at its 1989 values (as in Bazzi and Gudgeon, 2021). This could potentially lead to non-standard measurement error if changes in our treatments are correlated with population changes, e.g., those related to the displacement during the 2007/08 post-election violence. To address this concern, we use data from the Demographic and Health Surveys (DHS) conducted in 2003, 2008/09, 2014, and 2022 and regress a dummy variable indicating that a respondent never moved on our treatments. If selective migration were an issue, we would expect the likelihood of moving to be predicted by our treatments. The last row of Figure VII shows that this is not the case, and Table B.7 documents that a more continuous measure, the years a respondent has lived in the same location, also does not suggest selective migration with respect to our treatments.

Further tests: Table B.8 shows that the results are not driven by groups at the extremes of the variation in ethnic fragmentation. We drop the Kalenjin, who experienced the largest increase, and the Kikuyu, who experienced the smallest increase among

[34] Figure B.3 also shows that our results remain qualitatively similar when using weighted regressions with either census weights or Afrobarometer survey weights.

[35] These three other border changes are unlikely to affect ethnic voting in presidential elections. The change in electoral constituencies should be relevant for parliamentary (but not presidential) elections. The abolition of local authorities should, at most, affect local (but not presidential) elections. Lastly, the newly created, short-lived districts were used by the central government to distribute patronage but were not under local control.

[36] These variables are only weakly correlated with our treatments (see Table A.4).

the major groups. Although some party-based coefficients lose significance in these samples, the coalition-based results remain stable throughout. Table B.9 shows that the results on ethnic fragmentation are robust when controlling for the reform-induced changes in the isolation and the dissimilarity index (which we discussed in Section 2.1). Table B.10 controls for the reform-induced change in ethnic polarization (Montalvo and Reynal-Querol, 2005), which has been linked to increasing conflict at the local level (Bazzi and Gudgeon, 2021). The coefficients on regional fractionalization are qualitatively similar but are estimated less precisely, while the coefficients on polarization are close to zero. Figure B.4 shows that interviewer effects and province-level support for the 2010 constitution are unlikely to distort respondents' stated voting intentions. Finally, Figure B.5 shows that the coalition-based estimates for ΔRF_c and ΔEF_e remain statistically significant under all alternative ways of computing standard errors, while the party-based estimates are somewhat noisier.

6. Mechanisms

Our results show that border designs that create relatively homogeneous political units and keep ethnic groups concentrated in relatively few counties reduce ethnic voting. Moreover, fiscal decentralization amplifies the effect of regional fractionalization but not that of ethnic fragmentation. We investigate three potential mechanisms related to (i) regional power and control, (ii) national vs ethnic identification, and (iii) the way coalitions form and the platforms on which they run.

6.1. Regional control

Ethnicity can dominate in national elections if voters expect the central government to favor co-ethnics in how it spends its budget and whom it hires (Franck and Rainer, 2012; Burgess et al., 2015; Kramon and Posner, 2016; De Luca et al., 2018; Amodio et al., 2024). Political devolution changes this calculus in two ways. First, it creates a regional path to power, public goods, and public-sector jobs, making the national level less important. Second, when regions are funded by national revenue, voters from a group that controls a county government have a stronger incentive to vote for competent and honest, not merely co-ethnic, politicians at the national level.

Whether devolution can have a "tranquilizing effect" on national politics depends on the map (Horowitz, 1985). Low regional fractionalization makes control feasible. To the extent that county politics follow ethnic lines, the dominant group can expect to control the county government, including its spending and hiring decisions. To test this premise, we compile data on the ethnicity of governors, county executive boards, and newly appointed public employees. We code governors elected in 2013, 2017, and 2022

TABLE II
Regional control

	Population weights		*Equal county weights*	
	Baseline	*Province by wave FE*	*Baseline*	*Province by wave FE*
	(1)	(2)	(3)	(4)
Panel A: Co-ethnic governor				
RF_c	-0.539***	-0.304*	-0.464***	-0.360***
	(0.115)	(0.157)	(0.079)	(0.120)
$\ln Pop_{ec}$	0.195***	0.205***	0.185***	0.189***
	(0.015)	(0.015)	(0.012)	(0.013)
Observations	3897	3897	3897	3897
Panel B: Co-ethnic executive-board share				
RF_c	-0.678***	-0.577***	-0.616***	-0.562***
	(0.065)	(0.082)	(0.062)	(0.077)
$\ln Pop_{ec}$	0.166***	0.167***	0.149***	0.150***
	(0.012)	(0.013)	(0.013)	(0.012)
Observations	2573	2573	2573	2573
Panel C: Co-ethnic new-appointment share				
RF_c	-0.609***	-0.484***	-0.534***	-0.471***
	(0.067)	(0.076)	(0.072)	(0.076)
$\ln Pop_{ec}$	0.164***	0.162***	0.148***	0.146***
	(0.011)	(0.013)	(0.013)	(0.012)
Observations	2547	2547	2547	2547
Ethnicity FE	✓	✓	✓	✓
Wave FE	✓		✓	
Province-by-wave FE		✓		✓

Notes: The table reports the results of regressing different proxies of co-ethnic regional control on post-reform county-level regional fractionalization (RF_c) at the county-by-ethnic-group level. The dependent variable is a co-ethnic governor indicator in Panel A, the co-ethnic share of the County Executive Committee and County Public Service Board in Panel B, and the co-ethnic share of new public-service appointments in Panel C. Governors are observed in 2013, 2017, and 2022. Boards cover the 2013–2017 and 2022–2027 terms. Appointments cover 2013–2015 and 2016–2023. Garissa is missing from the second board audit. Garissa and Baringo are missing from the second appointment audit. All specifications include log 1989 county-by-group population and ethnicity fixed effects. Columns (1) and (3) include wave fixed effects, whereas columns (2) and (4) include province-by-wave fixed effects. Columns (1) and (2) use 1989 county-by-group population weights. Columns (3) and (4) give each observed county-wave equal total weight, while retaining group population-share weights within counties. We aggregate Somali clans so that census grouping and audits match. Standard errors are two-way clustered at the county and ethnicity levels. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

using D'Arcy (2020), our own coding of election results and press reports, and National Cohesion and Integration Commission (2023), respectively. Board and appointment data come from two county-public-service audits (National Cohesion and Integration Commission, 2016, 2023), and we match the reported ethnic groups to their 1989 census

categories.[37] Since these outcomes exist only after the reform, we use post-reform levels of RF_c and report partial correlations.

Table II studies how co-ethnic representation in county government and new co-ethnic public sector appointments vary with regional fractionalization. The main specification in column (1) includes ethnic group fixed effects, which absorb ethnic fragmentation and compare the experiences of the same group across different counties. Holding constant the group's absolute size in the county, a 10 percentage point decrease in regional fractionalization is associated with a 5.4 percentage point higher probability of a co-ethnic governor, a 6.8 percentage point higher co-ethnic share on the executive boards, and a 6.1 percentage point higher co-ethnic share among new staff appointments. Columns (2) and (4) add province-by-wave fixed effects, removing any unobserved variation that affects, say, the western and central parts of Kenya differently. Columns (3) and (4) give each county equal weight to highlight that this pattern is not driven by the most populous counties. These additional columns confirm that co-ethnic representation in county government and new co-ethnic public sector appointments are higher the less fractionalized a county is. The raw data also show that county elections follow ethnic lines with a winner-take-all premium. The largest group holds the governorship in 94% of county terms, although it makes up about 77% of the county population on average. Board seats and new appointments, by contrast, are roughly proportional to population shares, much like cabinet posts in African national governments (Francois et al., 2015). Overall, low fractionalization makes regional control feasible for the largest group, and this control can reduce the incentives for its members to vote along ethnic lines in national elections.

6.2. National identity

An alternative voter-side mechanism builds on the idea that maps can shape identities. In particular, ethnofederal maps could reduce ethnic voting if they strengthened the voters' national identity. Conversely, they could strengthen ethnic identities and, as a result, foster secessionist tendencies (e.g., Spolaore, 2010; Desmet et al., 2025).[38]

To examine this alternative mechanism and concern, we rely on the Afrobarometer survey question on the respondents' national versus ethnic identity. We (re)estimate the same specifications as in Table I, but use as the dependent variable a measure of national identity, which ranges from 0 to 1, with higher values indicating that a respondent

[37] For our analysis, we merge the two county executive boards, i.e., the County Executive Committee, which implements development projects and supervises service delivery, and the County Public Service Board, which establishes and fills public-service positions. These boards are both appointed by the governor with the approval of the County Assembly.

[38] The regional control mechanism does not depend on whether we see identity changes as an alternative mechanism or a downstream outcome. Devolution can change incentives to coordinate along ethnic lines without altering whether people identify more with their ethnic group or nation.

TABLE III
National identity: Difference-in-differences

	Dependent variable: National identity			
	(1)	(2)	(3)	(4)
$\Delta FD_c \times D_t$	-0.025		-0.028	-0.024
	(0.016)		(0.017)	(0.022)
$\Delta RF_c \times D_t$		-0.011	-0.025	-0.002
		(0.038)	(0.038)	(0.054)
$\Delta EF_e \times D_t$		-0.028	-0.036	-0.034
		(0.036)	(0.048)	(0.053)
$\Delta FD_c \times \Delta RF_c \times D_t$				0.067
				(0.091)
Observations	8195	8195	8195	8195
Individual controls	✓	✓	✓	✓
Time FE	✓	✓	✓	✓
County FE	✓	✓	✓	✓
Ethnicity FE	✓	✓	✓	✓

Notes: The table reports the results of regressing national identity on interaction terms between the post-treatment indicator D_t and changes in fiscal decentralization (ΔFD_c), regional fractionalization (ΔRF_c), or ethnic fragmentation (ΔEF_e). Column (4) adds the triple interaction between D_t, ΔFD_c, and ΔRF_c. National identity ranges from 0 to 1, with higher values indicating greater identification with the respondent's nation than with their ethnic group (as in Carlitz et al., 2025). All specifications include county, ethnicity, and time fixed effects. Individual controls include the respondent's age, indicators of whether the respondent lives in an urban survey cluster, is female, owns a TV, radio, or motorized vehicle, and has completed primary, secondary, or post-secondary education. Standard errors are two-way clustered at the county and ethnicity levels. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

identifies more strongly with the Kenyan nation than their ethnic group (as in Carlitz et al., 2025).

Table III shows that the estimated coefficients are small in absolute value and not statistically significant at conventional levels. Given the narrow confidence intervals, this null result is relatively precise and bounded at about a fifth of a standard deviation of the identity measure. Hence, we find no evidence for a mechanism focusing on national identity or the concern that ethnofederal reforms strengthen ethnic identities.[39] These estimates cannot rule out a nationwide shift in identities, which would be absorbed by the time fixed effects, or changes in national and ethnic identity in the same direction (as in Okunogbe, 2024), which could not be detected with the Afrobarometer data.

[39]The aggregate null could mask offsetting changes for regional majorities and minorities. We test this by interacting D_t with an indicator for whether the respondent belongs to the largest ethnic group in the county. The coefficient on this interaction term is negative in some specifications but not in others.

6.3. Coalitions, platforms, and voter sorting

Finally, we consider the possibility that maps affect ethnic voting by changing the supply (coalition) side of politics rather than the demand (voter) side. In many ways competition at the presidential level has been stable: the two main coalitions and candidates have consistently secured more than 90% of the vote both before and after the constitutional reform. However, this aggregate stability could hide that the reform changed which groups are valuable coalition partners, what coalitions campaign on, and how voters sort across them.

Coalition arithmetic: We first look at the value of each ethnic group as a coalition partner—an alternative supply-side explanation of why ethnic fragmentation matters. Both the 2010 constitution and its predecessor tie the coalition arithmetic explicitly to the map (see Section 3). Any presidential candidate needs to receive 25% of the vote in five of the eight provinces before 2010 and in 24 of the 47 counties after 2010. The switch from provinces to counties may therefore change the share of regions in which a group can deliver enough votes to satisfy the 25% threshold. If groups that become more fragmented also become more pivotal, then an increase in ethnic voting in these groups may no longer identify the effect of being divided. Instead, we may conflate the demand for ethnic representation with the supply of coalition options.

Table IV addresses this concern directly. Columns (1) to (3) introduce three closely related measures of the *change in pivotality* of an ethnic group. We define pivotality PIV_e by the number of regions in which group e's population share reaches a certain threshold, divided by the number of regions required to satisfy the presidential territorial win rule: five provinces before 2010 and 24 counties thereafter. We measure this share using the 1989 census population data under both maps to compute the reform-induced change in pivotality, ΔPIV_e. We mainly focus on a population threshold of 25%.[40] Alternatively, we define pivotality based on whether a group clears a population threshold of 20% or 30%. Lowering the threshold to 20% allows for some support from other groups, whereas raising it to 30% accounts for imperfect ethnic voting. Columns (1) to (3) show that pivotality is strongly associated with increases in ethnic voting. However, once we condition on ΔEF_e, as in columns (4) to (6), the coefficient on ΔEF_e remains qualitatively similar to and statistically indistinguishable from its baseline in all three regressions. The coefficient on the pivotality measures, by contrast, falls sharply and is imprecisely estimated throughout. This suggests that coalition arithmetic does not explain the effect of ethnic fragmentation on ethnic voting.

[40] The change in pivotality need not move in the same direction as the change in ethnic fragmentation. The Kamba, for example, could deliver the 25% threshold in one province, the Eastern province, before the reform, but in "only" three counties afterwards (hence $\Delta PIV_e < 0$ while $\Delta EF_e > 0$). The Kalenjin, on the other hand, went from being pivotal in one province, the Rift Valley, to being pivotal in eight counties (hence $\Delta PIV_e > 0$ and $\Delta EF_e > 0$).

TABLE IV
Pivotality: Difference-in-differences

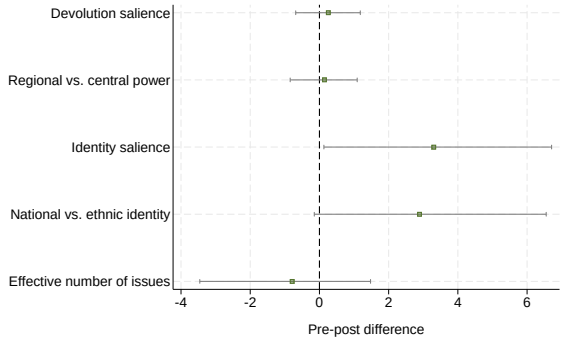
	Dependent variable: Coalition-based ethnic voting					
	ΔPIV *alone*			ΔPIV *vs.* ΔEF		
Pivotality threshold:	20%	25%	30%	20%	25%	30%
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta FD_c \times D_t$	-0.012	-0.017	-0.016	0.002	0.003	0.003
	(0.036)	(0.035)	(0.036)	(0.032)	(0.031)	(0.031)
$\Delta RF_c \times D_t$	0.132	0.146	0.148*	0.257**	0.276**	0.275**
	(0.077)	(0.085)	(0.085)	(0.100)	(0.102)	(0.102)
$\Delta EF_e \times D_t$				0.448***	0.503***	0.499***
				(0.138)	(0.135)	(0.135)
$\Delta PIV_e \times D_t$	0.807***	0.851**	0.865**	0.299	0.150	0.166
	(0.217)	(0.335)	(0.325)	(0.237)	(0.318)	(0.315)
Observations	7741	7741	7741	7741	7741	7741
Individual controls	✓	✓	✓	✓	✓	✓
Time FE	✓	✓	✓	✓	✓	✓
County FE	✓	✓	✓	✓	✓	✓
Ethnicity FE	✓	✓	✓	✓	✓	✓

Notes: The table reports the results of regressing coalition-based ethnic voting on interaction terms between the post-treatment indicator D_t and changes in fiscal decentralization (ΔFD_c), regional fractionalization (ΔRF_c), ethnic fragmentation (ΔEF_e), and pivotality (ΔPIV_e). Columns (1)–(3) include pivotality in place of ethnic fragmentation, while columns (4)–(6) include both. Under each map, pivotality is the number of regions in which the group's 1989 census population share reaches the indicated threshold, divided by the number of regions required to satisfy the presidential territorial win rule: five provinces before 2010 and 24 counties after 2010. ΔPIV_e is the difference between the post- and pre-reform measures. The 20%, 25%, and 30% thresholds allow for different combinations of co-ethnic and outside support. The 25% threshold corresponds directly to the constitutional rule, the 20% threshold permits some votes from other groups, and the 30% threshold accounts for imperfect ethnic voting within the group. All specifications include county, ethnicity, and time fixed effects. Individual controls include the respondent's age, indicators of whether the respondent lives in an urban survey cluster, is female, owns a TV, radio, or motorized vehicle, and has completed primary, secondary, or post-secondary education. Standard errors are two-way clustered at the county and ethnicity levels. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

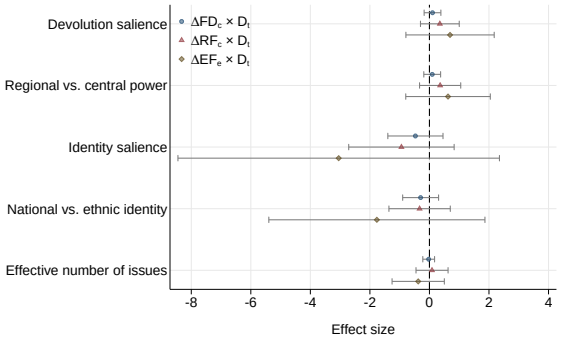
Coalition platforms and sorting across platforms: Even with stable coalitions, the reform could have changed what coalitions campaign on, or how voters sort across them. To examine both margins, we collect the manifestos of the two major coalitions in the five presidential elections from 2002 to 2022 and use the Manifesto Project's context model (Burst et al., 2024) to assign probabilities over 56 pre-defined manifesto topics to each sentence. We summarize these outputs as topic shares and construct five platform-level measures. The first four measures cover the two topic bundles most closely related to the reform: devolution and identity. For each topic bundle, we define *salience* as the share of manifesto content devoted to it and *slant* as the difference between the shares of its two opposing sides (i.e., regional versus central power, or national versus ethnic identity). We also add the effective number of issues as a summary measure of platform

FIGURE VIII
Changes in coalition platforms and voter sorting across platforms

(A) Changes in platforms, pre- and post-reform



(B) Voter sorting by treatment exposure



Notes: Panel A shows estimated mean differences for the five platform measures defined in the main text (see Online Appendix C for details). Salience measures are expressed in percent of manifesto content, whereas slant indices are differences between the topic shares of opposing positions. Horizontal bars denote 95% bootstrap percentile confidence intervals (stratified within the pre- and post-reform periods, 999 replications). Panel B shows coefficients and 95% confidence intervals from respondent-level regressions in which the dependent variable is the respective platform measure of the coalition the respondent intended to vote for, regressed on interactions between the post-treatment indicator D_t and changes in fiscal decentralization (ΔFD_c), regional fractionalization (ΔRF_c), and ethnic fragmentation (ΔEF_e). These regressions include individual controls as well as county, ethnicity, and time fixed effects, and cluster standard errors by county and ethnicity.

diversity.[41]

On the platform margin, we find that the reform led to only modest changes in what the coalitions campaign on. Panel A of Figure VIII compares the five platform measures before and after the constitutional reform. Most measures show no significant differences, including the salience and slant of devolution and federalism. Identity salience, however, rises from 5.7% to 9.0% of manifesto content. The slant toward national identity also rises somewhat, from 4.4 to 7.3 percentage points.

On the sorting margin, we find that treatment exposure does not predict how voters sort across coalition platforms. We assign to each Afrobarometer respondent the five platform measures of the coalition they intend to vote for in the presidential election, and then use these as dependent variables in our baseline difference-in-differences specification. The coefficients capture whether treatment exposure is associated with support for coalitions that emphasize particular topics. Panel B of Figure VIII shows no indication that fiscal decentralization or border changes shift voters towards coalitions with differential salience or slant on topics related to devolution or identity.

To conclude, we find evidence consistent with the regional control mechanism, but only limited evidence that changes in national identity, coalition arithmetic, platforms, or voter sorting could explain our main results.

[41] Online Appendix C describes the manifesto sources, variable definitions, and raw data.

7. Evaluating the actual reform and alternative maps

In this section, we first evaluate the 2010 constitutional reform and then compare it to different counterfactual designs: the maps of the Bomas and Wako draft constitutions and the border design that would minimize predicted ethnic voting.

7.1. Evaluation of the 2010 constitutional reform

The 2010 constitutional reform reduced regional fractionalization in most regions, which tends to reduce ethnic voting, but increased ethnic fragmentation for all ethnic groups, which tends to increase ethnic voting (see Figure IV and Table I). Hence, the reform's net impact on ethnic voting is *a priori* unclear. Recall that our design identifies effects running through differential exposure across groups and counties, whereas any common component is absorbed by the time fixed effects. Table V reports the predicted changes in ethnic voting for each group relative to the old provinces, based on these differential exposures. We compute these estimates by combining the group-specific population-weighted averages of changes in fiscal decentralization, regional fractionalization, and ethnic fragmentation with the results from column (6) of Table I.

TABLE V
Predicted differential effects of reform on ethnic voting

Ethnic group	Predicted change in ethnic voting due to				Population share
	ΔEF	ΔRF	ΔFD	all 3 changes	
Kikuyu	0.199	-0.011	-0.003	0.184	0.208
Luhya	0.207	-0.018	-0.003	0.186	0.148
Luo	0.239	-0.078	-0.003	0.157	0.124
Kamba	0.259	-0.129	-0.002	0.127	0.114
Kalenjin	0.432	-0.092	-0.002	0.338	0.113
Embu / Meru	0.236	-0.102	-0.003	0.131	0.062
Kisii	0.198	-0.135	-0.003	0.060	0.062
Mijikenda	0.310	-0.101	0.001	0.210	0.046
Maasai / Samburu	0.323	-0.036	0.000	0.287	0.023
Turkana	0.233	-0.124	0.003	0.113	0.013
All groups	0.242	-0.063	-0.002	0.177	1.000

Notes: The table uses the estimates for coalition-based ethnic voting in column (6) of Table I to calculate the predicted differential effect of the reform for the ten largest ethnic groups. For group e, the contribution of ethnic fragmentation is $\hat{\beta}_3 \Delta EF_e$, the contribution of regional fractionalization is $\hat{\beta}_2 \sum_c s_c^e \Delta RF_c$, and the contribution of fiscal decentralization is $\hat{\beta}_1 \sum_c s_c^e \Delta FD_c$, where s_c^e is the share of group e's 1989 population living in county c. ΔFD_c is evaluated using the standardized formula-predicted equitable-share transfer for each county. The first three columns report the three contributions separately, and the fourth column reports their sum. The final column reports s^e, the share of group e in Kenya's 1989 population. The last row reports the population-weighted predicted differential change in ethnic voting for the country as a whole.

Across the ten largest groups, the ethnic-voting-increasing effect of higher ethnic fragmentation dominates the ethnic-voting-reducing effect of lower regional fractionalization. The average effect of differences in fiscal transfers on ethnic voting is economically negligible (in line with the small and insignificant estimate in column (6) of Table I). Quantitatively, we predict that differential exposure to the reform increased ethnic voting by 17.7 percentage points on average. There is, however, substantial variation across groups. For example, our decomposition suggests ethnic voting increased by 33.8 percentage points among the Kalenjin but by only 12.7 percentage points among the Kamba.[42] Still, the increase in ethnic voting from greater ethnic fragmentation outweighs the reduction from lower regional fractionalization for all ethnic groups. We conclude that Kenya's 2010 constitutional reform failed to strike the right balance between the two (at the chosen level of fiscal decentralization).

7.2. Evaluation of counterfactual border designs

We now ask how the 2010 map compares to alternatives and whether these alternatives could have struck a better balance between regional fractionalization and ethnic fragmentation. We also ask how fiscal decentralization affects this trade-off and, as a result, the optimal number of regions. To answer these questions, we first compare the 2010 reform to the maps implied by the Bomas and Wako constitutional proposals and then to a range of counterfactual maps that would have minimized ethnic voting at *different* levels of fiscal decentralization. Just as with the 2010 reform, we compare each map to the pre-reform province baseline. All estimates presented here are partial-equilibrium policy counterfactuals evaluated in terms of their effects on ethnic voting.[43]

The 2004 Bomas draft envisioned 14 regions as the primary devolved layer, while the 2005 Wako draft would have made the existing 70 districts the single devolved layer. Panels A and B of Figure IX show these two maps. Relative to the pre-reform provinces, Bomas would have decreased average (population-weighted) regional fractionalization by 0.14 and increased average ethnic fragmentation by 0.12. Wako would have decreased average regional fractionalization by 0.24 but increased average ethnic fragmentation by 0.51.[44] Wako is therefore a more extreme version of the actual reform, while Bomas achieves more than half of the actual reform's reduction in regional fractionalization with far less ethnic fragmentation. Since neither draft specified how much revenue should be

[42]The overall effect is virtually unchanged (17.8 percentage points) if we evaluate the reform using column (8) of Table I. However, results for individual groups differ because groups are distributed differently across counties with higher or lower fiscal transfers (see Table B.11).

[43]This assumes that treatment effects remain stable across these counterfactual reforms and that any reform effect common to all voters (absorbed by the time fixed effects) does not depend on the map. We abstract from other relevant aspects, such as endogenous changes in ethnic identity or coalition formation or how the transfer formula depends on the map.

[44]For comparison, the corresponding changes of the actual 2010 reform are -0.22 and 0.44, respectively.

shared, we evaluate all maps at the same levels of fiscal decentralization.

We propose a new benchmark to assess the maps of the actual and proposed constitutional reforms. Specifically, we consider a policymaker who seeks to minimize ethnic voting in national elections by choosing a border design (i.e., the optimal map) at a given level of fiscal decentralization for a single devolved layer. The policymaker observes the estimated treatment effects and the ethnic population distribution across districts, but faces three realistic constraints: the new regions must not subdivide the 70 districts in existence in 2004/05, they must be nested within the eight pre-reform provinces, and they must be contiguous. The actual 2010 map satisfies all three constraints and is thus itself a candidate map.[45] The constraints leave about 10^{25} candidate maps, which is far too many for an exhaustive search. However, the province-nesting constraint implies that we only need to enumerate and evaluate 30.4 million province-level partitions, whose combinations span all candidate maps. Additive separability of our measures implies that combining the province-level optima results in the globally optimal map.[46]

To find the global optimum among these candidate maps, the policymaker must trade off regional fractionalization (RF_c) against ethnic fragmentation (EF_e). The challenge is that increasing the number of political regions tends to push these two margins in opposite directions, lowering average regional fractionalization while raising average ethnic fragmentation. The policymaker chooses the feasible map $\mathcal{D}$ that minimizes a weighted sum of average regional fractionalization and average ethnic fragmentation:

$$\mathcal{D}^* = \arg\min_{\mathcal{D}\in\mathbb{F}} \left[\omega \overline{RF}(\mathcal{D}) + (1-\omega)\overline{EF}(\mathcal{D})\right]$$

where $\mathbb{F}$ denotes the set of contiguous partitions of the 70 districts into $K \in \{8, \ldots, 70\}$ political regions nested within the eight former provinces, and $\overline{RF}(\mathcal{D})$ and $\overline{EF}(\mathcal{D})$ are the population-weighted averages of regional fractionalization and ethnic fragmentation under map $\mathcal{D}$. We compute the weight ω using our reduced-form estimates in column (8) of Table I. This specification implies that the weight depends on the level of fiscal decentralization, which we assume to be identical across regions under each map. That is, $\Delta FD_c = \Delta FD$ for all regions c, so that

$$\omega(\Delta FD) = \frac{\beta_2 + \beta_4 \Delta FD}{\beta_2 + \beta_3 + \beta_4 \Delta FD},$$

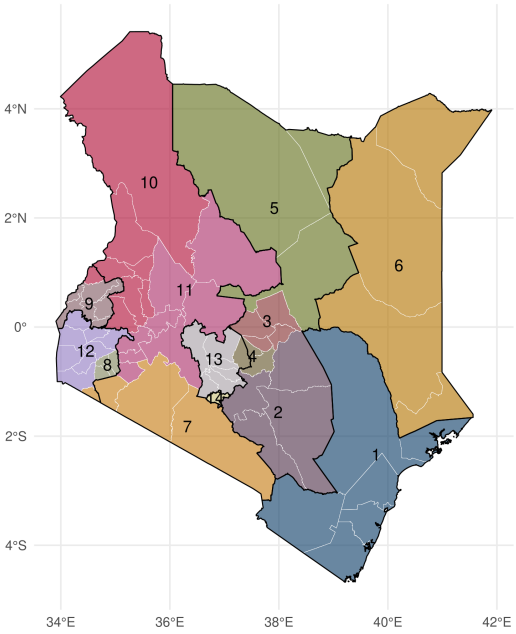
where β_4 is the coefficient on the interaction between fiscal decentralization and regional fractionalization ($\Delta FD_c \times \Delta RF_c \times D_t$). We compute $\omega(\Delta FD)$ for four levels of fiscal

[45] The draft constitutions satisfy these constraints, except for a small deviation in the Bomas draft, which has three regions that are not completely nested within a former province (see regions 4, 7, and 10 in Panel A of Figure IX). Nairobi, which is simultaneously a province, county, and a single district, always remains its own region.

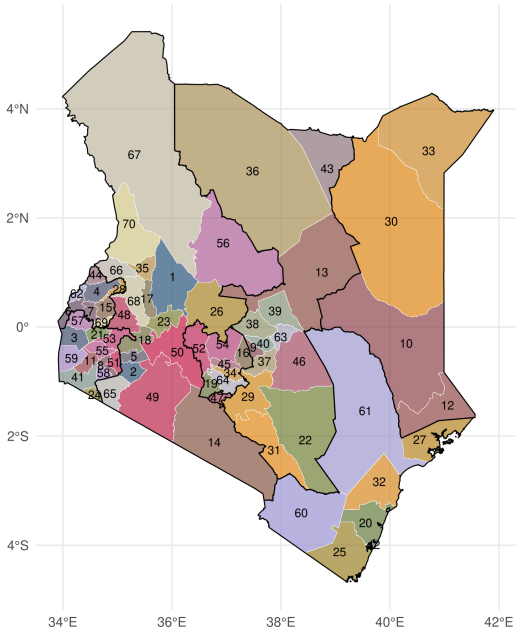
[46] With the province nesting constraint, both average regional fractionalization and average ethnic fragmentation are sums of province-level terms, so we can optimize each province separately.

FIGURE IX
Counterfactual divisions

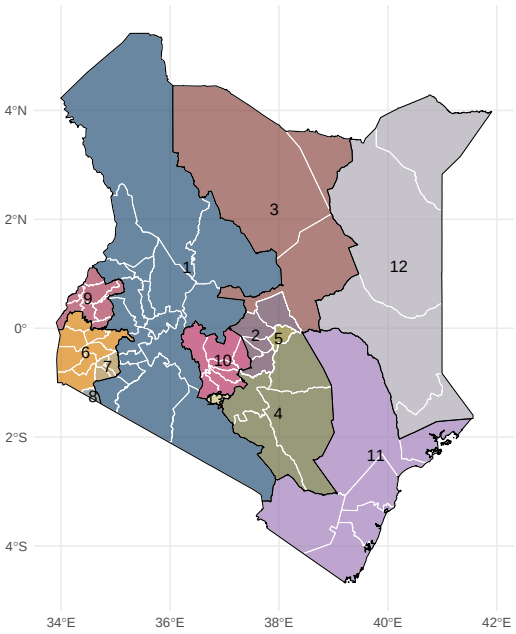
(A) Bomas draft (14 regions)



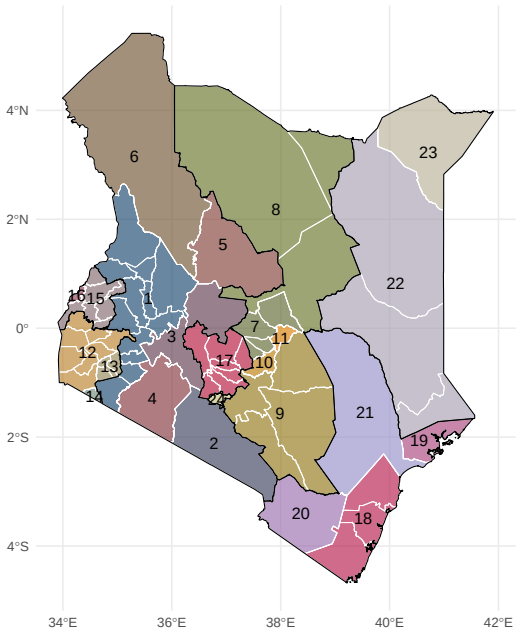
(B) Wako draft (70 regions)



(C) Optimal map for $\Delta FD = 0$, implying $\omega = 0.40$ (13 regions)



(D) Optimal map for $\Delta FD = 3$, implying $\omega = 0.67$ (24 regions)



Notes: Panels A and B show the regions proposed in the Bomas and Wako drafts. Panels C and D show the ethnic-voting-minimizing maps under the constraints described in the text. The weights are implied by column (8) of Table I at $\Delta FD = 0$ and $\Delta FD = 3$, respectively. Numbers and colors denote the resulting regions. Black lines show pre-reform province borders and white lines show the 2004/05 district borders.

decentralization: the actual fiscal transfers received by an average county after the 2010 reform ($\Delta FD = 0$), and levels one, two, and three standard deviations above this average ($\Delta FD = 1$, 2, and 3). These levels correspond to fiscal transfers equal to around 21%, 34%, 47%, and 60% of ordinary national revenue in 2013/14. They imply weights $\omega(\Delta FD)$ of 0.40, 0.53, 0.61, and 0.67.

Panel C of Figure IX shows the 13 regions of the optimal map when assuming a uniform level of fiscal decentralization equal to the average level experienced by Kenyan counties after the 2010 reform ($\Delta FD = 0$). This map would have decreased average regional fractionalization by 0.14 and kept ethnic fragmentation essentially unchanged (increasing it by only 0.01). This ethnic-voting-minimizing map is reminiscent of the Bomas draft, which proposed 14 regions. The two maps share several features, including a Kikuyu-dominated region corresponding to the former Central Province and a Kamba-dominated region in the south of the former Eastern Province. They differ in that the optimal map does not split the Rift Valley Province.

Panel D shows the optimal 24-region map when the level of fiscal transfers is raised by three standard deviations ($\Delta FD = 3$), i.e., from around 21% of national revenue to around 60%. This map splits the former Rift Valley Province into six regions. This second optimal map has more regions because low regional fractionalization becomes relatively more important as fiscal decentralization increases. Indeed, it would have decreased average regional fractionalization by 0.22 but increased average ethnic fragmentation by 0.07 compared to the pre-reform provinces.

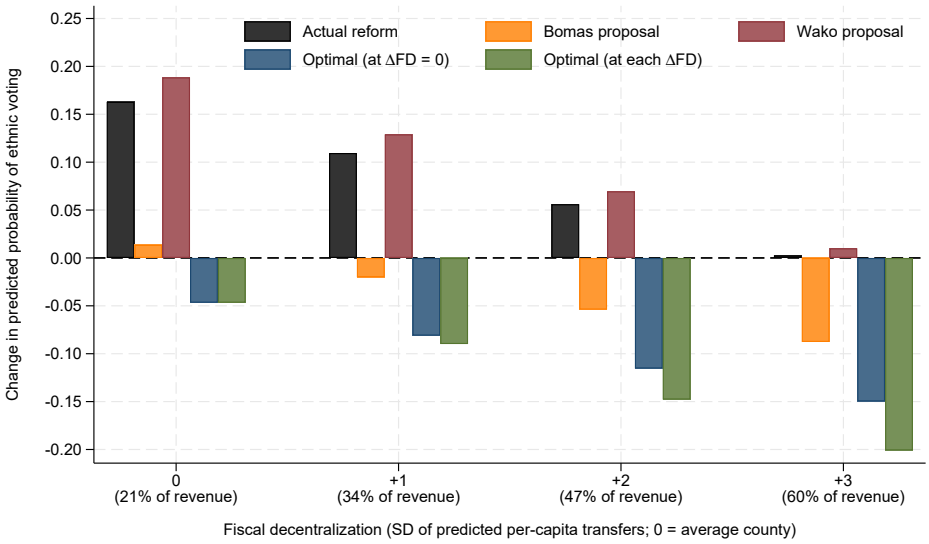
Figure X reports the predicted effects on ethnic voting for each map (combining the counterfactual changes implied by each map with the estimates in column (8) of Table I). Three points stand out. First, at the average post-reform level of fiscal decentralization ($\Delta FD = 0$), many alternatives to the 2010 map would have performed better. In this scenario, the actual map is predicted to increase ethnic voting by 16.3 percentage points,[47] while the optimal map would have reduced ethnic voting by 4.7 percentage points relative to the pre-reform provinces. The gap in ethnic voting between these two maps is a staggering 21 percentage points.[48] The Bomas draft would have left ethnic voting more or less unchanged, with a predicted increase of 1.4 percentage points. Wako's map would have performed even worse than the actual 2010 map (increasing ethnic voting by 18.9 percentage points). The poor performance of the actual and Wako maps is the consequence of their extensive fragmentation of ethnic groups.

Second, greater fiscal decentralization makes larger reductions in ethnic voting possible

[47] Table V evaluates the reform using the actual county-specific fiscal transfers and produces a population-weighted effect of 17.7 percentage points under column (6) or 17.8 under column (8) of Table I. Figure X instead considers different scenarios in which each county receives the same transfers.

[48] The 95% delta-method confidence interval, which treats both maps as fixed, ranges from 12.8 to 29.1 percentage points. At every level of fiscal transfers reported in Figure X, the gap in the predictions stays at about 20 points with a similar confidence interval.

FIGURE X
Predicted effects of counterfactual reforms on ethnic voting



Notes: The figure reports the predicted population-weighted change in ethnic voting under each map relative to the pre-reform provinces, using the estimates in column (8) of Table I. Within each group of bars, all maps are evaluated at the same uniform level of fiscal decentralization, ranging from the post-reform county average ($\Delta FD = 0$) up to three standard deviations above this average. All but one series hold the map fixed and only allow its predicted effect to vary through the interaction between fiscal decentralization and regional fractionalization. The direct effect of fiscal decentralization, which is small, statistically insignificant, and would shift all maps equally, is set to zero. The final (green) series also re-optimizes the map at each level of fiscal decentralization. Parentheses below the horizontal axis show the implied total equitable-share pool as a percentage of ordinary national revenue in fiscal year 2013/14.

and supports maps with more regions. Figure X shows that each of the maps considered becomes more favorable in terms of smaller increases or larger reductions in ethnic voting as fiscal decentralization increases. By construction, re-optimizing the map leads to steeper declines in ethnic voting than holding the 13-region map fixed. The gap in ethnic voting between them measures the gain from adjusting the map to higher fiscal decentralization. The ranking of the maps is stable and the 2010 map never overtakes Bomas or an optimized map. The optimal number of regions rises from 13 at $\Delta FD = 0$ to 17, 23, and 24 regions at one, two, and three standard deviations above the average.

Third, no realistic degree of fiscal decentralization makes a map with 47 regions optimal. In fact, the actual 47-county map is never optimal at any level of fiscal decentralization. When we optimize over all feasible maps, the optimal design features as many as 47 regions only when fiscal transfers are more than 17.5 standard deviations above the post-2010 average. Reaching 47 regions would require additional transfers of about eleven times the entire equitable-share pool in the fiscal year 2013/14 or more than half of Kenya's 2009 GDP. This far exceeds observed levels of fiscal decentralization in other countries.[49]

[49]Total subnational expenditures, which include own-source revenues as well as fiscal transfers, as a

8. Conclusion

In his influential book, Horowitz (1985, p. 602) asks: "How many units should there be, and should they be ethnically homogeneous or heterogeneous?" We argue that these two dimensions of federal design cannot be considered separately. Ethnic voting in national elections falls when regions become more homogeneous and rises when ethnic groups are more divided across regions. As creating more regions tends to do both, border reforms typically involve a trade-off. Fiscal transfers have little effect on average, but alter this trade-off: the higher they are, the more regional homogeneity matters. Our evidence points to regional control as a key mechanism behind these results. The largest group in a homogeneous region can expect to control the regional government, providing an alternative route to public goods and jobs. Larger transfers, in turn, make regional control more valuable and regional homogeneity more important.

For Kenya's 2010 constitutional reform, the cost of dividing groups outweighed the benefit of more homogeneous counties. We predict that replacing its eight provinces with 47 counties raised ethnic voting by 17.7 percentage points. Many feasible reforms would have performed better. The best feasible map, given the actual average level of fiscal decentralization, would have reduced ethnic voting by 4.7 percentage points.

Our findings have two implications for countries that turn to federalism to manage identity politics. First, federalism is not a uniform institutional treatment. Its effect on electoral incentives depends on how subnational borders and fiscal decentralization are combined, so the two need to be designed together. Second, demands for new regions should be judged not only by their local benefits but also by their national consequences. New regions come with concentrated benefits for groups that can expect to control them, and these benefits grow with the size of fiscal transfers. The costs of dividing groups across regions, by contrast, are diffuse and show up as intensified identity politics in national elections. This asymmetry gives proponents of new regions a stronger voice and may bias reforms toward too many regions. It may also help to explain why so many diverse countries, such as Kenya, Uganda, and Indonesia, have substantially increased the number of subnational units.

More generally, our paper demonstrates that the federal map can be a policy tool in its own right. It can change the electoral consequences of identity without first changing the underlying identities. Of course, other national and local outcomes may also depend on the federal map. We hope that our measures of individual exposure to border changes will facilitate more research on them.

share of GDP are considerably lower in all federal countries: For example, around 30% in Belgium and Canada, and around 20% in Australia, Germany, Switzerland, and the United States (OECD, 2026).

References

Agrawal, D. R., J. K. Brueckner, and M. Brülhart (2024). Fiscal federalism in the twenty-first century. *Annual Review of Economics 16*, 429–454.

Alesina, A., R. Baqir, and W. Easterly (1999). Public goods and ethnic divisions. *Quarterly Journal of Economics 114*(4), 1243–1284.

Alesina, A., R. Baqir, and C. Hoxby (2004). Political jurisdictions in heterogeneous communities. *Journal of Political Economy 112*(2), 348–396.

Alesina, A., W. Easterly, and J. Matuszeski (2011). Artificial states. *Journal of the European Economic Association 9*(2), 246–277.

Alesina, A. and E. Spolaore (1997). On the number and size of nations. *Quarterly Journal of Economics 112*(4), 1027–1056.

Alesina, A. and E. Zhuravskaya (2011). Segregation and the quality of government in a cross section of countries. *American Economic Review 101*(5), 1872–1911.

Ali, S. N., M. Mihm, and L. Siga (2025). The political economy of zero-sum thinking. *Econometrica 93*(1), 41–70.

Amodio, F., G. Chiovelli, and S. Hohmann (2024). The employment effects of ethnic politics. *American Economic Journal: Applied Economics 16*(2), 456–491.

Anderson, D. and E. Lochery (2008). Violence and exodus in Kenya's Rift Valley, 2008: Predictable and preventable? *Journal of Eastern African Studies 2*(2), 328–343.

Asmus, G., R. Bluhm, and T. Korn (2019). The emergency: The long-term effects of British labor camps in Kenya. Mimeo, Heidelberg University.

Bandiera, O., M. Mohnen, I. Rasul, and M. Viarengo (2019). Nation-building through compulsory schooling during the age of mass migration. *Economic Journal 129*(617), 62–109.

Bardhan, P. and D. Mookherjee (2000). Capture and governance at local and national levels. *American Economic Review 90*(2), 135–139.

Bazzi, S., A. Gaduh, A. D. Rothenberg, and M. Wong (2019). Unity in diversity? How intergroup contact can foster nation building. *American Economic Review 109*(11), 3978–4025.

Bazzi, S. and M. Gudgeon (2021). The political boundaries of ethnic divisions. *American Economic Journal: Applied Economics 13*(1), 235–266.

BBC Monitoring Africa (2009, September). Kenyan court reduces administrative districts to 46. BBC Monitoring Africa – Political, supplied by BBC Worldwide Monitoring. September 5, 2009. Accessed March 3, 2024, via Nexis Uni: advance.lexis.com/api/document?collection=news&id=urn:contentItem:7WJC-57R0-Y9M2-Y364-00000-00&context=1516831.

BenYishay, A., R. Rotberg, J. Wells, Z. Lv, S. Goodman, L. Kovacevic, and D. Runfola (2017). Geocoding Afrobarometer rounds 1–6: Methodology & data quality. Technical report, AidData at William & Mary, Williamsburg, VA. Available at http://geo.aiddata.org (accessed December 20, 2020).

Blouin, A. and S. W. Mukand (2019). Erasing ethnicity? Propaganda, nation building, and identity in Rwanda. *Journal of Political Economy 127*(3), 1008–1062.

Bluhm, R., C. Lessmann, and P. Schaudt (2026). The political geography of cities. *American Economic Journal: Applied Economics 18*(3), 1–42.

Boffa, F., A. Piolatto, and G. A. M. Ponzetto (2016). Political centralization and government accountability. *Quarterly Journal of Economics 131*(1), 381–422.

Brancati, D. (2006). Decentralization: Fueling the fire or dampening the flames of ethnic conflict and secessionism? *International Organization 60*(3), 651–685.

Burgess, R., M. Hansen, B. A. Olken, P. Potapov, and S. Sieber (2012). The political economy of deforestation in the tropics. *Quarterly Journal of Economics 127*(4), 1707–1754.

Burgess, R., R. Jedwab, E. Miguel, A. Morjaria, and G. Padró i Miquel (2015). The value of democracy: Evidence from road building in Kenya. *American Economic Review 105*(6), 1817–1851.

Burst, T., P. Lehmann, S. Franzmann, D. Al-Gaddooa, C. Ivanusch, S. Regel, F. Riethmüller, B. Weßels, and L. Zehnter (2024). manifestoberta. version 56topics.context.2024.1.1.

Cáceres-Delpiano, J., A.-I. De Moragas, G. Facchini, and I. González (2021). Intergroup contact and nation building: Evidence from military service in Spain. *Journal of Public Economics 201*, 104477.

Callaway, B., A. Goodman-Bacon, and P. H. C. Sant'Anna (2024, February). Difference-in-differences with a continuous treatment. Working Paper 32117, National Bureau of Economic Research, Cambridge, MA.

Callaway, B. and P. H. C. Sant'Anna (2021). Difference-in-differences with multiple time periods. *Journal of Econometrics 225*(2), 200–230.

Cantoni, D., Y. Chen, D. Y. Yang, N. Yuchtman, and Y. J. Zhang (2017). Curriculum and ideology. *Journal of Political Economy 125*(2), 338–392.

Carlitz, R., A. Morjaria, J. Mueller, and P. Osafo-Kwaako (2025). State building in a diverse society. *Review of Economic Studies 92*(6), 3704–3740.

Carreri, M. and L. R. Martinez (2026). Fiscal rules, austerity in public administration, and political accountability: Evidence from a natural experiment in Colombia. *Journal of the European Economic Association 24*(3), 1104–1149.

Chinoy, S., N. Nunn, S. Sequeira, and S. Stantcheva (2026). Zero-sum thinking and the roots of US political differences. *American Economic Review 116*(3), 1052–1096.

Clots-Figueras, I. and P. Masella (2013). Education, language and identity. *Economic Journal 123*(570), F332–F357.

Commission on Revenue Allocation (2013, June). Kenya: County Fact Sheets. Technical report, Commission on Revenue Allocation, Nairobi, Kenya. Second edition.

Commission on Revenue Allocation (2016, March). Recommendation on the Criteria for Sharing Revenue among Counties for Financial Years 2016/2017, 2017/2018, 2018/19. Technical report, Commission on Revenue Allocation, Nairobi, Kenya.

Commission on Revenue Allocation (2022, June). Kenya County Fact Sheets. Technical report, Commission on Revenue Allocation, Nairobi, Kenya. Third edition.

Dahis, R. and C. Szerman (2026). Decentralizing development: The economic impacts of government splits. *American Economic Journal: Applied Economics 18*(3), 220–253.

Dahl, R. A. (1956). *A Preface to Democratic Theory*. Chicago: University of Chicago Press.

D'Arcy, M. (2020). Devolution and county government. In N. Cheeseman, K. Kanyinga, and G. Lynch (Eds.), *The Oxford Handbook of Kenyan Politics*, pp. 251–268. Oxford: Oxford University Press.

De Luca, G., R. Hodler, P. A. Raschky, and M. Valsecchi (2018). Ethnic favoritism: An axiom of politics? *Journal of Development Economics 132*, 115–129.

Depetris-Chauvin, E., R. Durante, and F. Campante (2020). Building nations

through shared experiences: Evidence from African football. *American Economic Review 110*(5), 1572–1602.

Desmet, K., J. F. Gomes, and I. Ortuño-Ortín (2020). The geography of linguistic diversity and the provision of public goods. *Journal of Development Economics 143*, 102384.

Desmet, K., I. Ortuño-Ortín, and Ö. Özak (2025). Is secessionism mostly about income or identity? A global analysis of 3,153 subnational regions. *Economic Journal 135*(668), 1261–1299.

Desmet, K., I. Ortuño-Ortín, and R. Wacziarg (2012). The political economy of linguistic cleavages. *Journal of Development Economics 97*(2), 322–338.

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

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

Esposito, E., T. Rotesi, A. Saia, and M. Thoenig (2023). Reconciliation narratives: The birth of a nation after the US civil war. *American Economic Review 113*(6), 1461–1504.

Esteban, J., L. Mayoral, and D. Ray (2012). Ethnicity and conflict: An empirical study. *American Economic Review 102*(4), 1310–1342.

Ferree, K. E., C. C. Gibson, and J. D. Long (2014). Voting behavior and electoral irregularities in Kenya's 2013 election. *Journal of Eastern African Studies 8*(1), 153–172.

Franck, R. and I. Rainer (2012). Does the leader's ethnicity matter? Ethnic favoritism, education, and health in Sub-Saharan Africa. *American Political Science Review 106*(2), 294–325.

Francois, P., I. Rainer, and F. Trebbi (2015). How is power shared in Africa? *Econometrica 83*(2), 465–503.

Gadenne, L. (2017). Tax me, but spend wisely? Sources of public finance and government accountability. *American Economic Journal: Applied Economics 9*(1), 274–314.

Gibson, C. C. and J. D. Long (2009). The presidential and parliamentary elections in Kenya, December 2007. *Electoral Studies 28*(3), 497–502.

Goldsmith-Pinkham, P., P. Hull, and M. Kolesár (2024, December). Contamination bias in linear regressions. *American Economic Review 114*(12), 4015–51.

Grossman, G. and J. I. Lewis (2014). Administrative unit proliferation. *American Political Science Review 108*(1), 196–217.

Hassan, M. (2016). A state of change: District creation in Kenya after the beginning of multi-party elections. *Political Research Quarterly 69*(3), 510–521.

Hassan, M. (2020). The local politics of resource distribution. In N. Cheeseman, K. Kanyinga, and G. Lynch (Eds.), *The Oxford Handbook of Kenyan Politics*, pp. 482–496. Oxford: Oxford University Press.

Hodler, R., M. Valsecchi, and A. Vesperoni (2021). Ethnic geography: Measurement and evidence. *Journal of Public Economics 200*, 104446.

Horowitz, D. L. (1985). *Ethnic Groups in Conflict*. Berkeley, CA: University of California Press.

Horowitz, J. (2019). Ethnicity and the swing vote in Africa's emerging democracies: Evidence from Kenya. *British Journal of Political Science 49*(3), 901–921.

Huber, J. D. (2012). Measuring ethnic voting: Do proportional electoral laws politicize ethnicity? *American Journal of Political Science 56*(4), 986–1001.

Ichino, N. and N. L. Nathan (2013). Crossing the line: Local ethnic geography and voting in Ghana. *American Political Science Review 107*(2), 344–361.

Kenya National Bureau of Statistics (1989). Kenya Population and Housing Census 1989 (KPHC 1989), Version 1 [dataset]. Kenya National Bureau of Statistics [distributor]. https://statistics.knbs.or.ke/nada/index.php/catalog/74 (accessed January 30, 2018).

Kramon, E., J. Hamory, S. Baird, and E. Miguel (2022). Deepening or diminishing ethnic divides? The impact of urban migration in Kenya. *American Journal of Political Science 66*(2), 365–384.

Kramon, E. and D. N. Posner (2011). Kenya's new constitution. *Journal of Democracy 22*(2), 89–103.

Kramon, E. and D. N. Posner (2016). Ethnic favoritism in education in Kenya. *Quarterly Journal of Political Science 11*(1), 1–58.

Lewis, M. P., G. F. Simons, and C. D. Fennig (Eds.) (2013). *Ethnologue: Languages of the World* (Seventeenth ed.). Dallas, TX: SIL International.

Lijphart, A. (1977). *Democracy in Plural Societies: A Comparative Exploration*. New Haven, CT: Yale University Press.

Lipset, S. M. and S. Rokkan (1967). Cleavage structures, party systems, and voter alignments: An introduction. In S. M. Lipset and S. Rokkan (Eds.), *Party Systems and Voter Alignments: Cross-National Perspectives*, pp. 1–64. New York: Free Press.

Long, J. D. and C. C. Gibson (2015). Evaluating the roles of ethnicity and performance in African elections: Evidence from an exit poll in Kenya. *Political Research Quarterly 68*(4), 830–842.

Marx, B., V. Pons, and T. Suri (2021). Voter mobilisation and trust in electoral institutions: Evidence from Kenya. *Economic Journal 131*(638), 2585–2612.

Michalopoulos, S. and E. Papaioannou (2016). The long-run effects of the scramble for Africa. *American Economic Review 106*(7), 1802–1848.

Miguel, E. (2004). Tribe or nation? Nation building and public goods in Kenya versus Tanzania. *World Politics 56*(3), 327–362.

Montalvo, J. G. and M. Reynal-Querol (2005). Ethnic polarization, potential conflict, and civil wars. *American Economic Review 95*(3), 796–816.

Mueller, S. D. (2020). High-stakes ethnic politics. In N. Cheeseman, K. Kanyinga, and G. Lynch (Eds.), *The Oxford Handbook of Kenyan Politics*, pp. 343–355. Oxford: Oxford University Press.

Müller-Crepon, C. and N.-C. Bormann (2026). Coethnics covote in Africa: Studying electoral cleavages with a covoting regression model. *American Political Science Review*. FirstView, published online April 6, 2026.

Musgrave, R. A. (1959). *The Theory of Public Finance: A Study in Public Economy*. New York: McGraw-Hill.

Narasimhan, V. and J. Weaver (2024). Polity size and local government performance: Evidence from India. *American Economic Review 114*(11), 3385–3426.

National Cohesion and Integration Commission (2016). *Ethnic and Diversity Audit of the County Public Service*. Nairobi, Kenya: National Cohesion and Integration Commission. https://cohesion.go.ke/images/docs/Ethnic-and-Diversity-Audit-of-the-County-Public-Service-2016.pdf.

National Cohesion and Integration Commission (2023). *Ethnic and Diversity Audit of the County Public Service*. Nairobi, Kenya: National Cohesion and Integration Commission. Counties Vol. II, NCIC Publication No. 1/2023. https://cohesion.go.ke/

images/docs/Ethnic-and-Diversity-Audit-of-the-County-Public-Service-2023.pdf.

Oates, W. E. (1972). *Fiscal Federalism*. New York: Harcourt Brace Jovanovich.

OECD (2026). Subnational government structure and finance in OECD countries: Key data. Technical report, OECD, Paris.

Okunogbe, O. (2024). Does exposure to other ethnic regions promote national integration? Evidence from Nigeria. *American Economic Journal: Applied Economics 16*(1), 157–192.

Oloo, A. (2020). The weaknesses of political parties. In N. Cheeseman, K. Kanyinga, and G. Lynch (Eds.), *The Oxford Handbook of Kenyan Politics*, pp. 356–368. Oxford: Oxford University Press.

Oyugi, W. O. and J. O. Ochieng (2020). The politics of the provincial administration. In N. Cheeseman, K. Kanyinga, and G. Lynch (Eds.), *The Oxford Handbook of Kenyan Politics*, pp. 221–234. Oxford: Oxford University Press.

Padró i Miquel, G. (2007). The control of politicians in divided societies: The politics of fear. *Review of Economic Studies 74*(4), 1259–1274.

Posner, D. N. (2005). *Institutions and Ethnic Politics in Africa*. Cambridge: Cambridge University Press.

Reardon, S. F. and D. O'Sullivan (2004). Measures of spatial segregation. *Sociological Methodology 34*(1), 121–162.

Roeder, P. G. (1991). Soviet federalism and ethnic mobilization. *World Politics 43*(2), 196–232.

Rohner, D. and E. Zhuravskaya (2025). The economics of nation-building: Methodological tool kit and policy lessons. *Annual Review of Economics 17*, 453–478.

Selway, J. S. (2011). The measurement of cross-cutting cleavages and other multidimensional cleavage structures. *Political Analysis 19*(1), 48–65.

Spolaore, E. (2010). Federalism, regional redistribution and country stability. In N. Bosch, M. Espasa, and A. Solé Ollé (Eds.), *The Political Economy of Inter-Regional Fiscal Flows: Measurement, Determinants and Effects on Country Stability*. Cheltenham and Northampton, MA: Edward Elgar.

Sun, L. and S. Abraham (2021). Estimating dynamic treatment effects in event studies with heterogeneous treatment effects. *Journal of Econometrics 225*(2), 175–199.

Taylor, M. and D. Rae (1969). An analysis of crosscutting between political cleavages. *Comparative Politics 1*(4), 534–547.

Tiebout, C. M. (1956). A pure theory of local expenditures. *Journal of Political Economy 64*(5), 416–424.

Treisman, D. (2007). *The Architecture of Government: Rethinking Political Decentralization*. Cambridge: Cambridge University Press.

Weingast, B. R. (1995). The economic role of political institutions: Market-preserving federalism and economic development. *Journal of Law, Economics, & Organization 11*(1), 1–31.

World Bank (2008). Cities of hope? Governance, economic, and human challenges of Kenya's five largest cities. Report 46988, World Bank, Washington, DC.

Wrong, M. (2009). *It's Our Turn to Eat: The Story of a Kenyan Whistleblower*. London: Fourth Estate.

Online Appendix

Content:

A. Additional information on data

A.1. Data and computation for measuring subnational border reforms across the globe

A.2. Spatial coverage of survey data

A.3. Definition of variables

A.4. Summary statistics

A.5. Additional border changes in Kenya

A.6. Further descriptive statistics

B. Additional results

B.1. Additional figures

B.2. Additional tables

C. Party supply and platforms

C.1. Manifesto sources and text processing

C.2. Platform measures

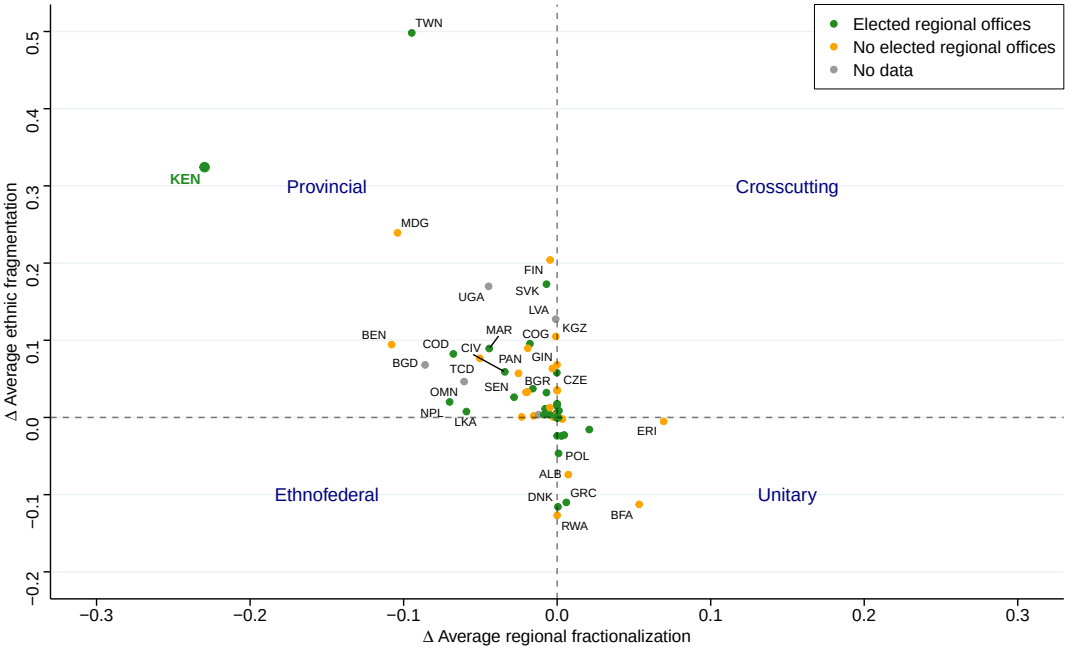
C.3. Linking platforms to vote intentions

A. Additional information on data

A.1. Data and computation for measuring subnational border reforms across the globe

Figure A.1 shows the changes in subnational border alignment between 1995 and 2015 in a large sample of countries. Producing this figure requires global data on the spatial distribution of ethnic or linguistic groups, global data on subnational boundaries, and aggregate versions of the two border alignment measures used throughout the paper. We describe each component below.

FIGURE A.1
Cross-country comparisons of border reforms (1995–2015)



Notes: The figure plots the changes in the population-weighted average regional fractionalization and the population-weighted average ethnic fragmentation across countries between 1995 and 2015. The population data are from the Global Human Settlement Layer (GHSL) (Schiavina et al., 2019); the political borders of the first-order subnational units in 1995 and 2015 are from Bluhm et al. (2026); and the distribution of ethnic (language) groups is from Ethnologue (Lewis et al., 2013). The colors of the dots indicate whether a regional executive or assembly was elected in 2015, according to V-Dem (Coppedge et al., 2025).

Global data on linguistic diversity: We follow Desmet et al. (2020) in creating a global 5 km by 5 km grid of the population belonging to a particular language group. We use two data sources for this purpose: *i)* the World Language Mapping System (WLMS), the digitized version of the Ethnologue project (17th edition), and *ii)* a global population raster for the year 1990 from the Global Human Settlement Layer (Florczyk et al., 2019).

The WLMS provides language polygons, a list of widespread languages, point locations for languages without a polygon, and the number of speakers of each language in each country; we exclude sign languages.

In preparing the data, we turn the WLMS polygons into a multi-layer raster, including the following adjustments. For widespread languages, we create a polygon for the entire country. For point languages that have no polygon representation of their geographic spread, we create a polygon via a buffer that is proportional to the number of people speaking the point language.[1] Populated cells that no language polygon covers are assigned to the language whose polygon is nearest.

We then use Iterative Proportional Fitting (IPF)—a statistical method for adjusting the counts in a contingency table so that the row and column sums match known marginal totals—to estimate the distribution of linguistic populations over geographic cells, given known language totals for each country and population counts for each grid cell. Like Desmet et al. (2020), we start with three primary data matrices: $\mathcal{P}$: a $K \times 1$ matrix representing the population in each grid cell ℓ; $\mathcal{S}$: a $1 \times M$ matrix giving the total number of speakers of each language i across the country, rescaled so that the speakers of all languages sum to the country's population in the GHSL raster; and $\mathcal{X}$: a $K \times M$ matrix indicating whether language i is spoken in grid cell ℓ.[2]

The goal is to adjust the matrix $\mathcal{X}$ such that the total population in each grid cell and the total number of speakers for each language are preserved. IPF achieves this through the following iterative steps:

1. Set the initial matrix $\mathcal{V}^{(0)} = \mathcal{X}$.

2. Adjust the row sums so that the total population in each grid cell matches the actual population:

$$\mathcal{V}^{(2n-1)}(\ell, i) = \frac{\mathcal{V}^{(2n-2)}(\ell, i)}{\sum_j \mathcal{V}^{(2n-2)}(\ell, j)} \cdot \mathcal{P}(\ell, 1)$$

   This ensures that the sum of populations across languages in each grid cell equals the total population in that cell.

3. Adjust the column sums so that the total number of speakers of each language matches the known totals:

$$\mathcal{V}^{(2n)}(\ell, i) = \frac{\mathcal{V}^{(2n-1)}(\ell, i)}{\sum_k \mathcal{V}^{(2n-1)}(k, i)} \cdot \mathcal{S}(1, i)$$

[1] We first define the equivalent radius of a country assuming its area is a circle and then multiply this radius by the population share represented by the point language. We omit point languages accounting for a population share of less than 0.5% of the country's population. Estimates of the population shares of each language are from WLMS.

[2] We assign a value of 0.00000004 to every element of $\mathcal{X}$ that is not unity to account for migration not picked up in the WLMS data.

This ensures that the total number of speakers of each language across all grid cells equals the actual number of speakers.

4. Repeat steps 2 and 3 until the matrix $\mathcal{V}$ converges, i.e., until successive iterates $\mathcal{V}^{(2n)}$ and $\mathcal{V}^{(2n-2)}$ differ by less than a small tolerance for all ℓ and i.

Once the algorithm converges, the resulting matrix $\mathcal{V}$ estimates the number of speakers of each language in every grid cell, satisfying both the population and language constraints. This method is flexible and estimates the spatial distribution of language populations even in the absence of census or survey data (see Desmet et al., 2020, for cross-validation of this approach).

Global data on subnational borders: The political boundaries in 1995 and 2015 are the first-order administrative units documented by Bluhm et al. (2026). The boundaries are constructed by first identifying suitable vector data for each country and then creating a cohesive panel of boundaries and capital city locations from 1987 to 2018. Bluhm et al. (2026) use various sources such as GAUL, GADM, and AidData's GeoBoundaries project. Gaps in these sources are filled with georeferenced maps and atlases.

Cross-country averages of RF and EF: Using the language population grid and vector data for subnational boundaries over time, we then compute the following two indices (or differences in these indices) for each country in 1995 and 2015:

$$\overline{RF} = \sum_{r=1}^{m} s^r \left(1 - \sum_{e=1}^{n} (s_e^r)^2\right) = 1 - \sum_{r=1}^{m} s^r \sum_{e=1}^{n} (s_e^r)^2 \tag{A.1}$$

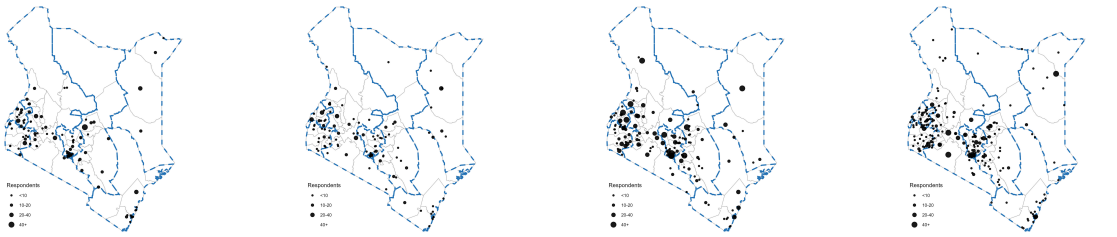
$$\overline{EF} = \sum_{e=1}^{n} s^e \left(1 - \sum_{r=1}^{m} (s_r^e)^2\right) = 1 - \sum_{e=1}^{n} s^e \sum_{r=1}^{m} (s_r^e)^2 \tag{A.2}$$

where r is a political region, e an ethnic group, m is the number of political regions, n the number of ethnic groups, s^r is the population share of region r, s^e is the population share of group e, s_e^r the population share of group e in region r, and s_r^e the population share of residents in political region r among members of ethnic group e.

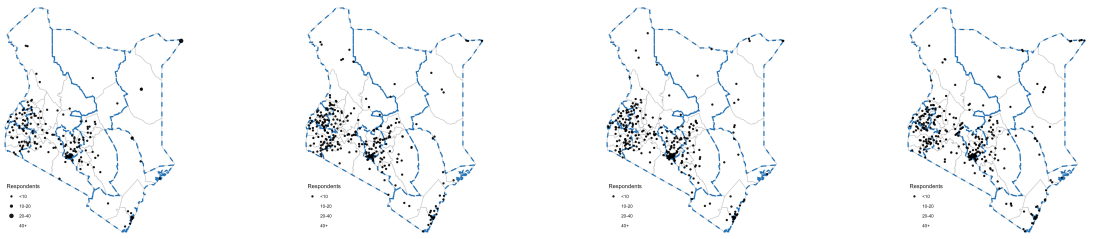
A.2. Spatial coverage of survey data

FIGURE A.2
Afrobarometer coverage

(A) Round 3 (2005) (B) Round 4 (2008) (C) Round 5 (2011) (D) Round 6 (2014)



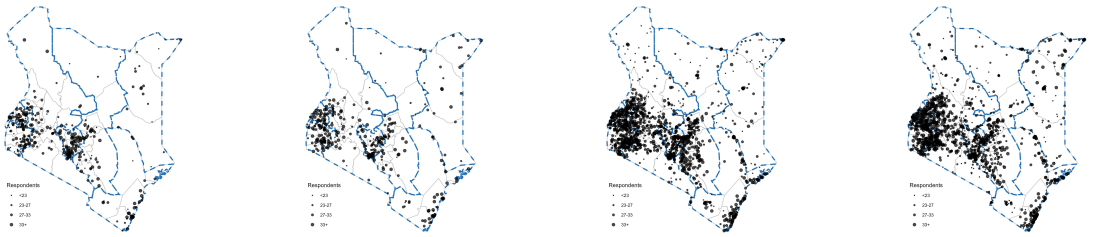
(E) Round 7 (2016) (F) Round 8 (2019) (G) Round 9 (2021) (H) Round 10 (2024)



Notes: Panels A–H 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 gray.

FIGURE A.3
DHS coverage

(A) 2003 (B) 2008–09 (C) 2014 (D) 2022



Notes: Panels A–D show the location of DHS 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 gray.

A.3. Definition of variables

A.3.1. Variables used in the main paper (Tables I–V)

Ethnic voting (party-based) is an indicator equal to one if respondent i intends to vote for the electoral alternative classified as group e's ethnic party in survey round t, following the plurality-plus-overrepresentation rule described in Section 4.3. The variable equals zero if the respondent chooses another valid party and is missing if no ethnic party is defined for the respondent's group-round, if the respondent does not report a valid voting intention, or if the plurality choice is not separated from the runner-up by at least two votes. We restrict the construction to group-rounds with at least five respondents and to parties receiving at least two votes in that round. *(Source: Q99 in Afrobarometer rounds 3 and 5–8, Q97 in round 4, Q96 in round 9, and Q98 in round 10.)*

Ethnic voting (coalition-based) is constructed analogously after mapping parties to presidential coalitions using Table A.3. The same plurality-plus-overrepresentation rule, two-vote-gap rule, and missingness rule apply at the coalition level. *(Source: same Afrobarometer questions as above; coalition assignments from Table A.3.)*

Co-ethnic governor is an indicator equal to one if the governor of post-reform county c identifies with ethnic group e, observed for the 2013, 2017, and 2022 elections. *(Source: D'Arcy (2020), own coding, and National Cohesion and Integration Commission (2023).)*

Co-ethnic executive-board share is the share of members of the county executive boards (CEC + CPSB in both audits) in county c who identify with group e. *(Source: National Cohesion and Integration Commission (2016, 2023).)*

Co-ethnic new-appointment share is the share of new (post-2013 for the 2016 audit, respectively post-2016 for the 2023 audit) county public-employee hires in county c who identify with the same ethnic group as respondent i residing in county c. *(Source: National Cohesion and Integration Commission (2016, 2023).)*

National identity is a continuous variable measuring the extent to which respondents identify more with their nation than with their ethnic group. We rescale the ordinal variable so that it ranges from 0 to 1 (as in Carlitz et al., 2025). *(Source: Afrobarometer questions Q82 in round 3, Q83 in round 4, Q85b in round 5, Q88b in round 6, Q85b in round 7, Q82b in round 8, Q84c in round 9, and Q83c in round 10.)*

Voter–coalition platform alignment is the platform score of the coalition that respondent i would vote for, attached to the voting-intention question in their Afrobarometer round. Used as a left-hand-side variable in Panel B of Figure VIII. *(Source: Q99 in Afrobarometer rounds 3 and 5–8, Q97 in round 4, Q96 in round 9, and Q98 in round 10)*

Change in regional fractionalization ΔRF_c is the difference between post-reform county-level ethnic fractionalization and pre-reform province-level ethnic fractionalization at the location where respondent i resides, $\Delta RF_c = RF_c - RF_{p(c)}$. The pre- and post-reform fractionalization measures use 1989 population shares. *(Source: Own computation based on micro data from Kenya National Bureau of Statistics (1989).)*

Change in ethnic fragmentation ΔEF_e is the difference between the post-reform across-counties fragmentation of group e and its pre-reform across-provinces fragmentation, $\Delta EF_e = EF_e^{\text{counties}} - EF_e^{\text{provinces}}$, computed at 1989 population shares. *(Source: Own computation based on micro data from Kenya National Bureau of Statistics (1989).)*

Change in fiscal decentralization ΔFD_c is the post-reform predicted per-capita transfer that county c receives under the constitutional equitable-share revenue-allocation formula (function of 2009 population, county poverty gap, and land area), standardized across the 47 post-reform counties so the cross-sectional mean is zero and a unit increase corresponds to a one standard-deviation increase in predicted fiscal decentralization. *(Source: Own computation based on the equitable-share formula in the Kenyan Constitution 2010 and CRA county fact sheets; population from the Kenya National Bureau of Statistics (2010)).*

Post-reform regional fractionalization RF_c is the ethnic fractionalization $1 - \sum_e s_{ec}^2$ of post-reform county c, where s_{ec} is the population share of group e in c, computed at 1989 population shares. Right-hand-side variable in Table II. *(Source: Own computation based on micro data from Kenya National Bureau of Statistics (1989).)*

Change in pivotality ΔPIV_e is the reform-induced change in group e's pivotality PIV_e: the number of regions in which the group's 1989 population share reaches a threshold of 20%, 25%, or 30%, divided by the number of regions required by the presidential territorial win rule, five provinces before 2010 and 24 counties after 2010. ΔPIV_e is the post-reform measure minus the pre-reform measure. Right-hand-side variable in Table IV. *(Source: Own computation based on micro data from Kenya National Bureau of Statistics (1989).)*

Age is the age in years of respondent i. *(Source: Q1 in Afrobarometer rounds 3–10.)*

Urban is an indicator variable equal to one if respondent i resides in an Afrobarometer survey cluster designated as urban. *(Source: "urbrur" in Afrobarometer rounds 3–10).*

Female is an indicator variable equal to one if respondent i identifies as female. *(Source: "currint" in Afrobarometer round 3, "thisint" in rounds 4–9, and Q101 in round 10).*

Radio is an indicator variable equal to one if 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, Q90a in round 9, and Q90a in round 10).

TV is an indicator variable equal to one if 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, Q90b in round 9, and Q90b in round 10).*

Motorized vehicle is an indicator variable equal to one if 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, Q90c in round 9, and Q90c in round 10).*

Completed primary schooling is an indicator variable equal to one if respondent i has completed primary schooling but not any higher schooling and zero otherwise. *(Source: Q90 in Afrobarometer round 3, Q89 in round 4, Q97 in rounds 5–8, Q94 in round 9, and Q96 in round 10).*

Completed secondary schooling is an indicator variable equal to one if respondent i has completed secondary schooling but not any higher schooling and zero otherwise. *(Source: Q90 in Afrobarometer round 3, Q89 in round 4, Q97 in rounds 5–8, Q94 in round 9, and Q96 in round 10).*

Completed post-secondary schooling is an indicator variable equal to one if respondent i has completed post-secondary schooling and zero otherwise. *(Source: Q90 in Afrobarometer round 3, Q89 in round 4, Q97 in rounds 5–8, Q94 in round 9, and Q96 in round 10).*

Group-county population (1989) Pop_{ec} is the 1989 census-based population of ethnic group e residing in post-reform county c. *(Source: Own computation based on micro data from Kenya National Bureau of Statistics (1989).)*

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

Ethnic voting (party-based, overrepresentation only) is our party-based ethnic voting measure without the plurality criterion. EP_{et} is the party $a \in \mathcal{A}_t$ for which group-e overrepresentation, $s_{et}(a) - s_t(a)$, is maximized, regardless of whether that party is the plurality choice within group e (following Amodio et al., 2024). As in our main measure, overrepresentation must be positive. The variable is missing if dropping one respondent from the top party would tie or reverse its ranking with the runner-up, which mirrors our two-vote-gap rule. Row 2 of Figure VII uses the group-rounds in which our main measure identifies an ethnic party. Figure B.1 also reports estimates for all group-rounds. *(Source: Q99 in Afrobarometer rounds 3 and 5–8, Q97 in round 4, Q96 in round 9, and Q98 in round 10.)*

Ethnic voting (coalition-based, overrepresentation only) is the analogous coalition-level variant. Parties are first mapped to coalitions, and EP_{et} is then the coalition $a \in \mathcal{A}_t$ for which group-e overrepresentation, $s_{et}(a) - s_t(a)$, is maximized, regardless of whether that coalition is the plurality choice within group e. The same rules on positive overrepresentation, close rankings, and group-rounds apply. *(Source: Q99 in Afrobarometer rounds 3 and 5–8, Q97 in round 4, Q96 in round 9, and Q98 in round 10; coalition assignments from Table A.3.)*

Ethnic voting (party-based, vote share) is the continuous within-group support share for the respondent's chosen party in round t. We define it as the leave-one-out share $s_{et}^{-i}(V_{iet})$, where V_{iet} is respondent i's reported party choice and $s_{et}^{-i}(\cdot)$ is computed among other respondents from group e in round t. *(Source: Q99 in Afrobarometer rounds 3 and 5–8, Q97 in round 4, Q96 in round 9, and Q98 in round 10.)*

Ethnic voting (coalition-based, vote share) is the corresponding within-group support share at the coalition level. Let $\kappa(\cdot)$ map parties to coalitions via Table A.3. We define the measure as the leave-one-out share $s_{et}^{-i}(\kappa(V_{iet}))$, where V_{iet} is respondent i's reported party choice and $s_{et}^{-i}(\cdot)$ is computed over coalition-level alternatives among other respondents from group e in round t. *(Source: Q99 in Afrobarometer rounds 3 and 5–8, Q97 in round 4, Q96 in round 9, and Q98 in round 10; coalition assignments from Table A.3.)*

Ethnic voting (party-based, plurality only) is the variant of party-based ethnic voting that uses the plurality criterion alone, setting $EP_{et} = a_{et}^{\star}$ without the overrepresentation check. The two-vote-gap rule is retained. This variant follows the working-paper version of our definition and is used to gauge how much of our main results depends on the overrepresentation requirement. *(Source: Q99 in Afrobarometer rounds 3 and 5–8, Q97 in round 4, Q96 in round 9, and Q98 in round 10.)*

Ethnic voting (coalition-based, plurality only) is the analogous coalition-level variant. Parties are first mapped to coalitions, and $EP_{et} = a_{et}^{\star}$ is then defined as the plurality coalition within group e in round t, without the overrepresentation check. The two-vote-gap rule is retained. *(Source: same as above; coalition assignments from Table A.3.)*

Ethnic voting (coalition-based, coalitions at last election) is the presidential coalition to which the party belonged at the election *before* the survey, see Table A.3 for details.

Ethnic voting (coalition-based, coalitions at next election) is the presidential coalition to which the party belonged at the election *after* the survey, see Table A.3 for details.

Regional voting (party-based) is the regional equivalent of ethnic voting (party-based). It applies the plurality and overrepresentation criteria to the respondents of post-reform county c in survey round t instead of ethnic group e, and equals one if respondent i intends to vote for the resulting party. Outcome in Figure VII. *(Source: same Afrobarometer questions as ethnic voting (party-based).)*

Regional voting (coalition-based) is constructed analogously after mapping parties to presidential coalitions using Table A.3. *(Source: same Afrobarometer questions as above; coalition assignments from Table A.3.)*

Intention to vote is an indicator equal to zero if respondent i states that they would not vote or gives no answer to the vote-intention question, and one otherwise. Outcome in Figure B.2. *(Source: same Afrobarometer questions as ethnic voting (party-based).)*

Willingness to reveal party preference is an indicator equal to zero if respondent i refuses to answer the vote-intention question or gives no answer, and one otherwise. Outcome in Figure B.2. *(Source: same Afrobarometer questions as ethnic voting (party-based).)*

ΔRF_c **(Constituencies)** measures the change in regional fractionalization resulting from the reform-induced splits in the electoral constituencies experienced at the location where respondent i resides. *(Source: Own computation based on micro data from Kenya National Bureau of Statistics (1989).)*

ΔEF_e **(Constituencies)** measures the change in ethnic fragmentation resulting from the reform-induced splits in the electoral constituencies. *(Source: Own computation based on micro data from Kenya National Bureau of Statistics (1989).)*

ΔRF_c **(Districts)** measures the change in regional fractionalization resulting from the change from pre-reform districts to post-reform counties experienced at the location where respondent i resides. *(Source: Own computation based on micro data from Kenya National Bureau of Statistics (1989).)*

ΔEF_e **(Districts)** measures the change in ethnic fragmentation resulting from the change from pre-reform districts to post-reform counties. *(Source: Own computation based on micro data from Kenya National Bureau of Statistics (1989).)*

ΔRF_c **(Local authorities)** measures the change in regional fractionalization resulting from the change from pre-reform local authorities, which were abolished by the 2010 reform, to post-reform counties experienced at the location where respondent i resides. The pre-reform geometry is the 175 city / municipal / county / town councils in effect 1963–2010 (Mboga, 2009); the post-reform geometry is the 47 counties. *(Source: Own computation based on micro data from Kenya National Bureau of Statistics (1989).)*

ΔEF_e **(Local authorities)** measures the change in ethnic fragmentation resulting from the change from pre-reform local authorities to post-reform counties. Same pre- and post-

reform geometries as for ΔRF_c (Local authorities). *(Source: Own computation based on micro data from Kenya National Bureau of Statistics (1989).)*

ΔRF_c (Ethnologue level ℓ), ΔEF_e (Ethnologue level ℓ) are the analogues of ΔRF_c and ΔEF_e computed at WLMS language-aggregation level $\ell \in \{6, 10, 15\}$ rather than at the 1989 census ethnic classification. Levels 6, 10, and 15 correspond to progressively coarser aggregations from full language varieties (15) towards branches of the language family (6). The corresponding group fixed effects μ_e in the regressions are adjusted to the same WLMS level. Used in Figure B.3. *(Source: WLMS 17th edition; own computation on Kenya National Bureau of Statistics (1989).)*

Control variables.

Change in isolation ΔIS_e measures the reform-induced change in group-level isolation for the group e with which respondent i identifies, based on the isolation index $IS_e = \sum_r s_r^e s_e^r$, computed at 1989 population shares under the eight-province and 47-county maps (county-map minus province-map values). Used in Table B.9. *(Source: Own computation based on micro data from Kenya National Bureau of Statistics (1989).)*

Change in dissimilarity ΔDI_e measures the reform-induced change in group-level dissimilarity for the group e with which respondent i identifies, based on the dissimilarity index $DI_e = [2(1 - s^e)]^{-1} \sum_r |s_r^e - s^r|$, computed at 1989 population shares under the eight-province and 47-county maps (county-map minus province-map values). Used in Table B.9. *(Source: Own computation based on micro data from Kenya National Bureau of Statistics (1989).)*

Change in polarization ΔPOL_c measures the reform-induced change in county-level ethnic polarization at the location where respondent i resides, $\Delta POL_c = POL_c - POL_{p(c)}$, where $POL_r = 4 \sum_e (s_e^r)^2 (1 - s_e^r)$ is the polarization index of Montalvo and Reynal-Querol (2005), computed at 1989 population shares under the eight-province and 47-county maps. Used in Table B.10. *(Source: Own computation based on micro data from Kenya National Bureau of Statistics (1989).)*

Ethnic match (respondent–interviewer) is an indicator variable equal to one if the home language of the respondent and the interviewer match and zero otherwise. *(Sources: interviewer home language = Q114 in Afrobarometer round 3, Q117 in round 4, Q116 in rounds 5–9, Q112 in round 10; respondent home language as cited in the corresponding main-paper entry.)*

Reform support is the respondent's pre-reform province-level referendum vote share. *(Source: African election database.)*

Predicted equitable share − LATF per capita is the formula-predicted per-capita equitable-share transfer minus pre-reform (FY2010/11) LATF transfers per capita,

aggregated to the post-reform county, in real 2009 KES. Used as the alternative ΔFD_c in columns 1–2 of Table B.3. *(Source: Own computation; CRA county fact sheets.)*

Actual equitable share − LATF per capita is the actual per-capita equitable-share transfer (averaged over post-reform fiscal years) minus pre-reform LATF transfers per capita, in real 2009 KES. Used as the alternative ΔFD_c in columns 3–4 of Table B.3. *(Source: CRA Annual County Revenue Reports; CRA county fact sheets.)*

Total revenues per capita (R_{ct}^{tot}) are realized total county revenues per capita, in real 2009 KES. Outcome in Table B.1. *(Source: CRA Annual County Revenue Reports.)*

Equitable share per capita (R_{ct}^{ES}) is the realized equitable-share transfers per capita, in real 2009 KES. Outcome in Table B.1. *(Source: CRA Annual County Revenue Reports.)*

Own-source revenue per capita is the per-capita revenue collected directly by county c in year t (taxes, fees, charges), in real 2009 KES. *(Source: CRA Annual County Revenue Reports.)*

Donor grants per capita are per-capita grants from international donors flowing through the county budget, in real 2009 KES. *(Source: CRA Annual County Revenue Reports; Kenya Public Expenditure Reviews.)*

Conditional grants per capita are per-capita transfers from the national government other than the equitable share (conditional grants), in real 2009 KES. *(Source: CRA Annual County Revenue Reports.)*

A.3.3. Variables used in the DHS analysis

All variables in this section are constructed from the geocoded Kenya Demographic and Health Surveys (DHS) of 2003, 2008–09, 2014, and 2022. Each survey cluster is assigned to a post-reform county by spatially joining its (displaced) GPS coordinates to the 2013 county boundaries; respondents are assigned to ethnic groups based on the DHS ethnicity question, harmonized to the 1989-census group classification. The reform treatments (ΔRF_c, ΔEF_e, ΔFD_c, and the post-reform indicator D_t) are the same objects as in Online Appendix A.3.1, merged onto DHS respondents by county and ethnic group.

Completed primary schooling is an indicator equal to one if the respondent reached secondary school or higher, or completed eight years of primary schooling (Kenya's 8–4–4 system), and zero otherwise. *(Source: DHS Kenya recodes; highest education level* `v106` *and highest year within level* `v107`*).*

Completed secondary schooling is an indicator equal to one if the respondent reached post-secondary education or completed four years (Form 4) of secondary schooling, and

zero otherwise. *(Source: DHS Kenya recodes; highest education level* `v106` *and highest year within level* `v107`*).*

Never moved is an indicator equal to one if the respondent reports having always lived in their current place of residence, and zero otherwise. *(Source: DHS Kenya recodes; years lived in place of residence* `v104`*, code 95 = "always").*

Years at current place is the number of years the respondent has lived in their current place of residence; for respondents who report having always lived there, it is set equal to their age. *(Source: DHS Kenya recodes; years lived in place of residence* `v104` *and age* `v012`*).*

Change in regional fractionalization ΔRF_c measures the change in regional fractionalization resulting from the administrative-territorial reform at the (GPS-geocoded) county where respondent i resides. It is identical to the measure in Online Appendix A.3.1, here merged to DHS respondents by county. *(Source: Own computation based on micro data from the 1989 census; Kenya National Bureau of Statistics).*

Change in ethnic fragmentation ΔEF_e measures the change in ethnic fragmentation resulting from the reform for the ethnic group e with which respondent i identifies. It is identical to the measure in Online Appendix A.3.1, here merged to DHS respondents by ethnic group. *(Source: Own computation based on micro data from the 1989 census; Kenya National Bureau of Statistics).*

Change in fiscal decentralization ΔFD_c is the predicted per-capita equitable-share transfer to the county where respondent i resides, standardized across counties; its interaction with D_t is zero in the pre-reform period. It is the same object as in Online Appendix A.3.1. *(Source: Own computation; Commission on Revenue Allocation transfer formula).*

Post-reform indicator D_t equals one for the post-reform period and zero otherwise. It is defined by the survey year (one from 2013 on). *(Source: DHS Kenya recodes; year of birth* `b2` *and survey year* `v007`*).*

Age is the age in years of respondent i. *(Source: DHS Kenya recodes;* `v012`*).*

Female is an indicator equal to one if respondent i is female (respondents from the women's recode), and zero for respondents from the men's recode. *(Source: DHS Kenya recodes).*

Urban is an indicator equal to one if the respondent resides in a survey cluster classified as urban. *(Source: DHS Kenya recodes; type of place of residence* `v025`*).*

A.4. Summary statistics

TABLE A.1
Summary statistics

Variable	Mean	SD	Min	Max	N
Panel A: Main analysis — Afrobarometer respondents					
EV_{iet} (Ethnic voting, party-based)	0.73	0.44	0.00	1.00	7,224
EV_{iet} (Ethnic voting, coalition-based)	0.76	0.43	0.00	1.00	7,741
National identity	0.64	0.28	0.00	1.00	8,195
ΔFD_c (Change in fiscal decentralization)	-0.40	0.64	-0.99	3.06	8,224
ΔRF_c (Change in regional fractionalization)	-0.20	0.24	-0.61	0.28	8,224
ΔEF_e (Change in ethnic fragmentation)	0.45	0.17	0.02	0.79	8,224
$\Delta FD_c \times D_t$ (Change in fiscal decentralization)	-0.34	0.62	-0.99	3.06	8,224
$\Delta RF_c \times D_t$ (Change in regional fractionalization)	-0.17	0.23	-0.61	0.28	8,224
$\Delta EF_e \times D_t$ (Change in ethnic fragmentation)	0.39	0.22	0.00	0.79	8,224
$\Delta FD_c \times \Delta RF_c \times D_t$ (Triple interaction)	0.06	0.16	-0.47	0.72	8,224
$\Delta PIV_e \times D_t$ (Change in pivotality, 20% threshold)	0.01	0.08	-0.16	0.17	8,224
$\Delta PIV_e \times D_t$ (Change in pivotality, 25% threshold)	-0.01	0.07	-0.12	0.13	8,224
$\Delta PIV_e \times D_t$ (Change in pivotality, 30% threshold)	-0.01	0.07	-0.12	0.13	8,224
Age	36.16	13.99	18.00	96.00	8,224
Female	0.47	0.50	0.00	1.00	8,224
Urban	0.37	0.48	0.00	1.00	8,224
Radio	0.88	0.33	0.00	1.00	8,224
TV	0.56	0.50	0.00	1.00	8,224
Motorized vehicle	0.29	0.46	0.00	1.00	8,224
Completed primary schooling	0.33	0.47	0.00	1.00	8,224
Completed secondary schooling	0.35	0.48	0.00	1.00	8,224
Completed post-secondary schooling	0.14	0.34	0.00	1.00	8,224
Panel B: Sensitivity analyses — Afrobarometer respondents					
Alternative definitions of ethnic voting, main sample (Figure VII and Figure B.1)					
Ethnic voting (party-based, overrepresentation only)	0.73	0.44	0.00	1.00	6,968
Ethnic voting (coalition-based, overrepresentation only)	0.76	0.43	0.00	1.00	7,431
Ethnic voting (party-based, vote share)	0.62	0.30	0.00	1.00	7,224
Ethnic voting (coalition-based, vote share)	0.66	0.27	0.00	1.00	7,741
Ethnic voting (coalition-based, coalitions at last election)	0.76	0.43	0.00	1.00	7,741
Ethnic voting (coalition-based, coalitions at next election)	0.81	0.39	0.00	1.00	7,285
Alternative definitions of ethnic voting, extended sample (Figure B.1)					
Ethnic voting (party-based, overrepresentation only)	0.68	0.47	0.00	1.00	7,850
Ethnic voting (coalition-based, overrepresentation only)	0.74	0.44	0.00	1.00	7,826
Ethnic voting (party-based, plurality only)	0.70	0.46	0.00	1.00	8,156
Ethnic voting (coalition-based, plurality only)	0.75	0.43	0.00	1.00	8,123
Ethnic voting (party-based, vote share)	0.58	0.30	0.00	1.00	8,196
Ethnic voting (coalition-based, vote share)	0.64	0.27	0.00	1.00	8,196
Regional voting (Figure VII)					
Regional voting (party-based)	0.71	0.45	0.00	1.00	6,872
Regional voting (coalition-based)	0.74	0.44	0.00	1.00	7,086
Ethnologue language groups (Figure VII and Figure B.3)					
Ethnic voting (party-based, Ethnologue level 6)	0.56	0.50	0.00	1.00	5,517
Ethnic voting (coalition-based, Ethnologue level 6)	0.64	0.48	0.00	1.00	4,467
Ethnic voting (party-based, Ethnologue level 10)	0.73	0.44	0.00	1.00	7,224
Ethnic voting (coalition-based, Ethnologue level 10)	0.76	0.43	0.00	1.00	7,741

Continued on next page

Table A.1 – *Continued from previous page*

Variable	Mean	SD	Min	Max	N
Ethnic voting (party-based, Ethnologue level 15)	0.73	0.44	0.00	1.00	7,224
Ethnic voting (coalition-based, Ethnologue level 15)	0.76	0.43	0.00	1.00	7,741
$\Delta RF_c \times D_t$ (Ethnologue level 6)	-0.06	0.16	-0.53	0.68	8,224
$\Delta EF_e \times D_t$ (Ethnologue level 6)	0.22	0.24	0.00	0.79	8,224
$\Delta RF_c \times D_t$ (Ethnologue level 10)	-0.17	0.23	-0.61	0.28	8,224
$\Delta EF_e \times D_t$ (Ethnologue level 10)	0.41	0.21	0.00	0.79	8,224
$\Delta RF_c \times D_t$ (Ethnologue level 15)	-0.17	0.23	-0.61	0.28	8,224
$\Delta EF_e \times D_t$ (Ethnologue level 15)	0.41	0.21	0.00	0.79	8,224
Interviewer match and reform support (Figure B.4)					
Ethnic match (respondent–interviewer)	0.76	0.43	0.00	1.00	8,224
Reform support $\times D_t$	0.60	0.30	0.00	0.96	8,224
Alternative proxies for fiscal decentralization (Figure VII and Table B.3)					
$\Delta FD_c \times D_t$ (Predicted equitable share − LATF per capita)	-0.35	0.64	-1.15	3.03	8,224
$\Delta FD_c \times \Delta RF_c \times D_t$ (Triple interaction, predicted proxy)	0.06	0.16	-0.47	0.71	8,224
$\Delta FD_c \times D_t$ (Actual equitable share − LATF per capita)	-0.35	0.61	-1.11	3.30	8,224
$\Delta FD_c \times \Delta RF_c \times D_t$ (Triple interaction, actual proxy)	0.06	0.16	-0.57	0.77	8,224
Recentered treatments (Figure VII and Table B.4)					
$\widetilde{\Delta RF_c}^{lin} \times D_t$ (Change in regional fractionalization)	0.01	0.22	-0.35	0.45	8,224
$\widetilde{\Delta EF_e}^{lin} \times D_t$ (Change in ethnic fragmentation)	0.12	0.14	-0.34	0.42	8,220
$\Delta FD_c \times \widetilde{\Delta RF_c}^{lin} \times D_t$ (Triple interaction)	-0.00	0.21	-0.30	1.37	8,224
$\widetilde{\Delta RF_c}^{flex} \times D_t$ (Change in regional fractionalization)	-0.01	0.18	-0.37	0.46	8,224
$\widetilde{\Delta EF_e}^{flex} \times D_t$ (Change in ethnic fragmentation)	0.09	0.14	-0.36	0.37	8,220
$\Delta FD_c \times \widetilde{\Delta RF_c}^{flex} \times D_t$ (Triple interaction)	0.01	0.17	-0.19	1.42	8,224
Other border changes (Figure VII and Table B.6)					
$\Delta RF_c^{\text{Constituency}} \times D_t$ (Change in regional fractionalization)	-0.00	0.08	-0.46	0.49	8,042
$\Delta EF_e^{\text{Constituency}} \times D_t$ (Change in ethnic fragmentation)	0.01	0.02	0.00	0.35	8,042
$\Delta RF_c^{\text{Local authority}} \times D_t$ (Change in regional fractionalization)	0.01	0.12	-0.44	0.51	8,187
$\Delta EF_e^{\text{Local authority}} \times D_t$ (Change in ethnic fragmentation)	-0.09	0.07	-0.26	0.02	8,187
$\Delta RF_c^{\text{District}} \times D_t$ (Change in regional fractionalization)	0.02	0.13	-0.68	0.66	8,195
$\Delta EF_e^{\text{District}} \times D_t$ (Change in ethnic fragmentation)	-0.12	0.09	-0.42	0.01	8,195
Segregation and polarization (Table B.9 and Table B.10)					
$\Delta IS_e \times D_t$ (Change in isolation)	0.19	0.17	0.00	0.56	8,224
$\Delta DI_e \times D_t$ (Change in dissimilarity)	0.07	0.05	0.00	0.20	8,224
$\Delta POL_c \times D_t$ (Change in polarization)	-0.17	0.29	-0.81	0.40	8,224
$\Delta FD_c \times \Delta POL_c \times D_t$ (Triple interaction)	0.06	0.19	-1.09	0.53	8,224
Fiscal decentralization and ethnic fragmentation (Table B.2)					
$\Delta FD_c \times \Delta EF_e \times D_t$ (Triple interaction)	-0.17	0.26	-0.78	2.04	8,224
$\Delta FD_c \times \Delta EF_e$ (Level term)	-0.19	0.26	-0.78	2.04	8,224
Intention to vote and party disclosure, all survey rounds (Figure B.2)					
Intention to vote	0.91	0.29	0.00	1.00	12,909
Willingness to reveal party preference	0.92	0.28	0.00	1.00	12,909
Panel C: Regional control — county-by-group panel					
Co-ethnic governor	0.04	0.19	0.00	1.00	3,897
Co-ethnic executive-board share	0.04	0.16	0.00	1.00	2,573
Co-ethnic new-appointment share	0.04	0.15	0.00	1.00	2,547
RF_c (Post-reform regional fractionalization)	0.38	0.27	0.02	0.85	3,897
$\ln Pop_{ec}$ (Log group-county population, 1989)	5.80	2.40	3.00	13.76	3,897
Panel D: Coalition platforms — Afrobarometer respondents					

Continued on next page

Table A.1 – *Continued from previous page*

Variable	Mean	SD	Min	Max	N
Devolution salience	2.85	1.06	1.06	3.92	6,215
Regional vs. central power	2.52	1.09	0.73	3.66	6,215
Identity salience	8.53	3.69	3.45	17.51	6,215
National vs. ethnic identity	6.85	3.60	2.78	15.49	6,215
Effective number of issues	19.55	2.74	13.14	22.34	6,215
Panel E: County revenues — county-by-fiscal-year panel					
$\ln R_{ct}^{\mathrm{ES}}$ (Log equitable share per capita)	8.41	0.40	7.67	9.80	376
Log conditional grants per capita	5.71	0.56	3.44	7.73	305
Log donor grants per capita	5.20	1.32	1.12	7.41	376
Log own-source revenue per capita	5.58	0.85	3.43	7.79	376
$\ln R_{ct}^{\mathrm{tot}}$ (Log total revenues per capita)	8.61	0.36	8.02	10.01	376
ΔRF_c (Change in regional fractionalization)	-0.00	0.99	-1.61	1.91	376
$\Delta\overline{EF}_c$ (Exposure to the change in ethnic fragmentation)	0.00	0.99	-1.83	2.25	376
Panel F: DHS selective-migration analysis					
Never moved	0.47	0.50	0.00	1.00	87,892
Years at current place	17.69	13.32	0.00	54.00	87,892
$\Delta FD_c \times D_t$ (Change in fiscal decentralization)	-0.15	0.69	-0.99	3.06	87,892
$\Delta RF_c \times D_t$ (Change in regional fractionalization)	-0.17	0.23	-0.61	0.28	87,892
$\Delta EF_e \times D_t$ (Change in ethnic fragmentation)	0.35	0.25	0.00	0.79	87,892
$\Delta FD_c \times \Delta RF_c \times D_t$ (Triple interaction)	0.06	0.15	-0.47	0.72	87,892
Age	29.25	10.05	15.00	54.00	87,892
Female	0.64	0.48	0.00	1.00	87,892
Urban	0.36	0.48	0.00	1.00	87,892
Completed primary schooling	0.65	0.48	0.00	1.00	87,892
Completed secondary schooling	0.29	0.46	0.00	1.00	87,892

Notes: The table reports summary statistics for the outcome, treatment, and control variables in the regressions of the main paper and the Online Appendix, each on the estimation sample of these regressions. Each row gives the notation of the regression tables, where available, followed by the variable name used in Online Appendix A or, for the platform measures in Panel D, in Table C.1. Rows with $\times D_t$ report the interaction with the post-treatment indicator D_t that enters the regressions, and triple interactions are the products of the variables in their notation. Panels A and B are at the Afrobarometer respondent level and use the main estimation sample of Table I: respondents with a valid party choice who would vote and disclose their party, from group–rounds with at least five respondents and with non-missing individual controls, excluding survey round 5. In Panel B, the extended sample of Figure B.1 includes all respondents for whom the respective measure is defined, and intention to vote and willingness to reveal party preference use all respondents from group–rounds with at least five respondents in all survey rounds. Panel C is the county-by-group-by-period panel of Table II. Panel D uses the respondents in Panel B of Figure VIII. Panel E is the county-by-fiscal-year panel of Table B.1 (FY2013/14–2020/21), with both treatments standardized across the 47 counties. Panel F uses the adult DHS respondents of Table B.7.

A.5. Additional border changes in Kenya

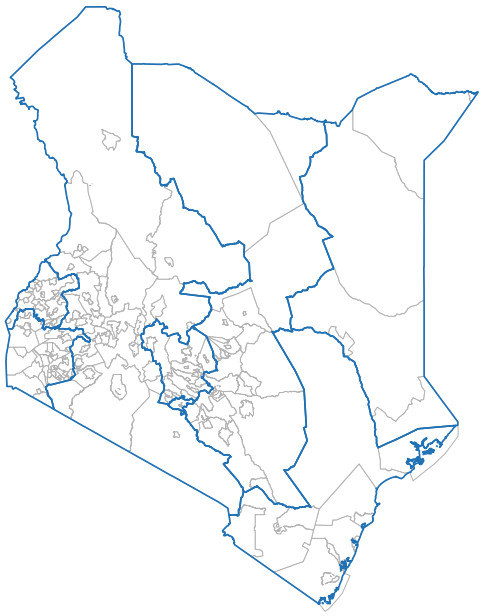
In addition to the change from eight provinces to 47 counties as the new first-level subnational units, there were three other border changes at the same time. First, the 2010 constitutional reform also abolished all 175 local authorities and subsumed their functions into the new county governments. Second, it also increased the number of electoral constituencies from 210 to 290. Third, in September 2009, the High Court declared 210 districts created by Daniel Arap Moi and Mwai Kibaki illegal.

We collect data on these additional border changes and identify the appropriate counterfactual. In two cases, this is straightforward. First, for 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). Second, 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. However, we could not identify geometries for all 257 districts that existed by early September 2009. This is because the Kibaki government was still creating new districts in March 2009.[3] The High Court decision interrupted this process so that many of those districts were never established or only existed for a few months (and only on paper). Instead, we use the 158 districts that were used as the basis for the 2009 census. The post-reform borders are those of the 47 counties. Figure A.4 shows our maps for all these additional units.

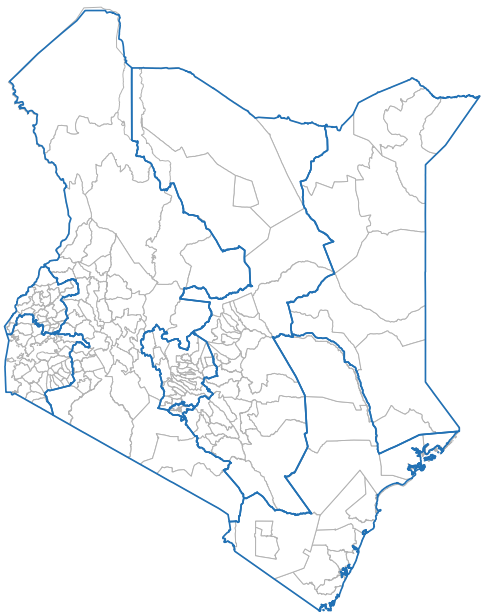
[3] All Constituencies Now Turned Into Districts, Daily Nation, July 13, 2009; see https://nation.africa/kenya/news/all-constituencies-now-turned-into-districts-598168.

FIGURE A.4
Other political borders

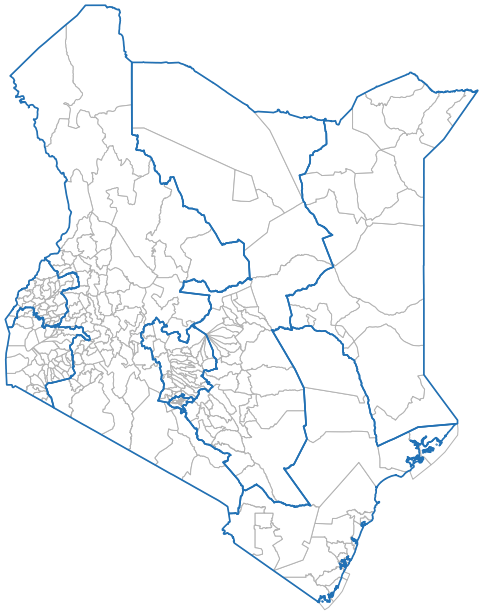
(A) Local Authorities (pre-reform)



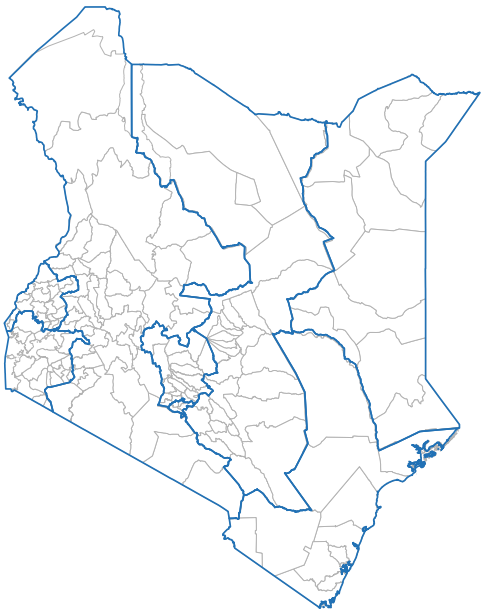
(B) Electoral constituencies (pre-reform)



(C) Electoral constituencies (post-reform)



(D) Districts (2009 census)

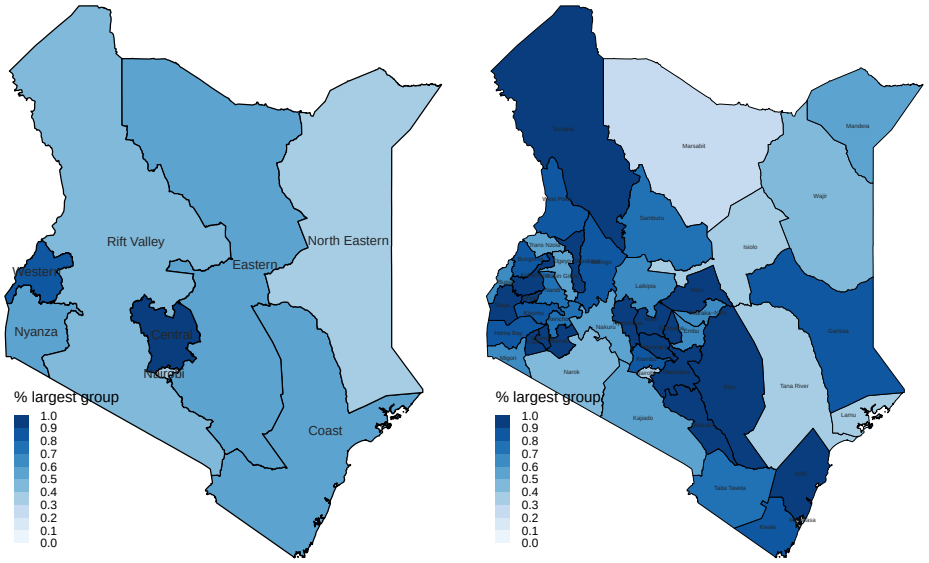


Notes: Panel A shows the local authorities before the reform, Panel B the pre-reform electoral constituencies, and Panel C the post-reform electoral constituencies. Panel D shows the 158 districts used for the 2009 census. The pre-reform province borders are superimposed in blue.

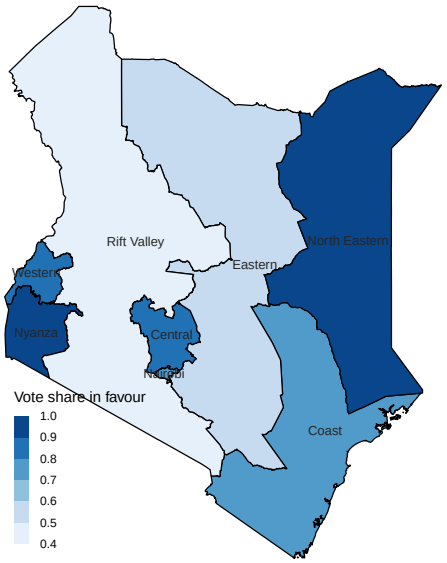
A.6. Further descriptive statistics

FIGURE A.5
Kenya: Border reforms and largest group within regions, and reform support

(A) Pre-reform provinces (B) Post-reform counties



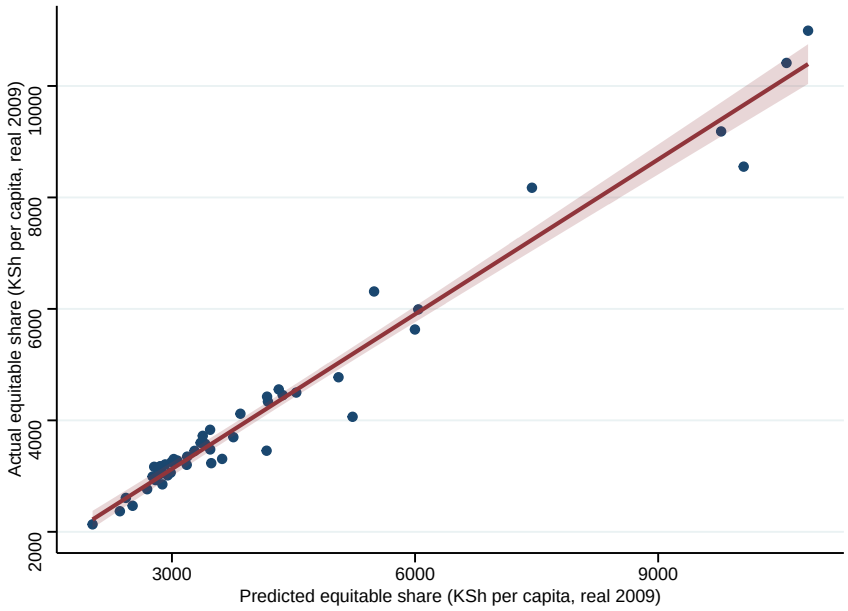
(C) Reform support across provinces



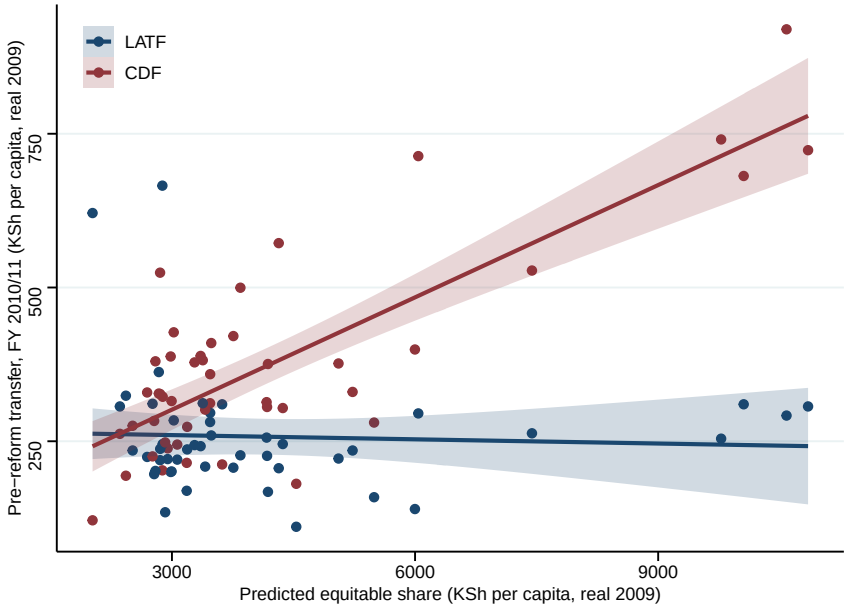
Notes: The figure illustrates the 2010 constitutional reform in Kenya. Panel A shows the population share of the largest group in each pre-reform province, and Panel B the population share of the largest group in each post-reform county. Panel C illustrates the support for the 2010 constitutional reform across provinces.

FIGURE A.6
Predicted and actual equitable shares and other transfers

(A) Predicted vs. actual equitable-share transfers in FY2013/14

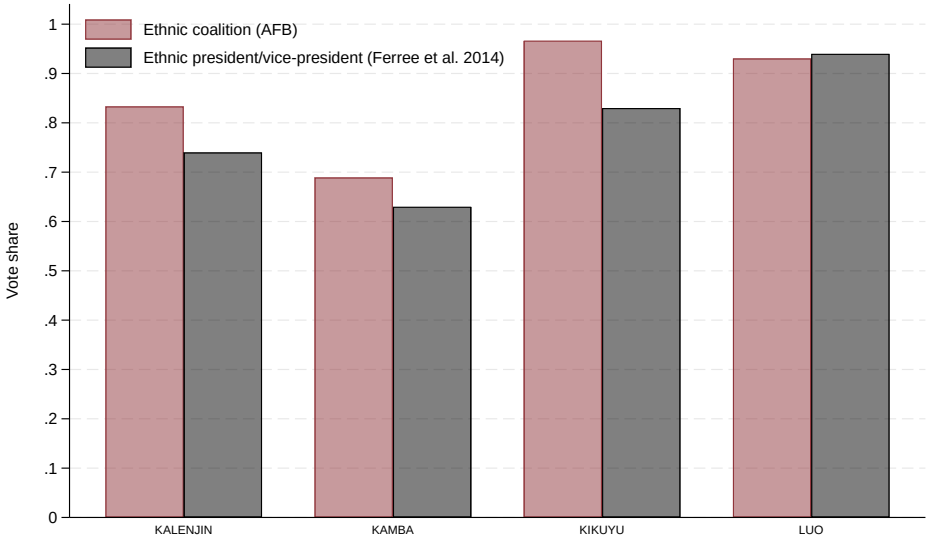


(B) Predicted equitable-share transfers (post-reform) vs. LATF and CDF funds (pre-reform)



Notes: Panel A plots the predicted equitable-share per-capita transfers against the actual equitable-share per-capita transfers across counties. Predicted shares are computed by applying the CRA allocation formula to county characteristics (2009 population, poverty gap, and land area) and scaling by the FY2013/14 equitable-share transfer pool. Actual equitable-share revenues are taken from CRA county revenue data for FY2013/14. Panel B plots the predicted equitable-share per-capita transfers against per-capita pre-reform transfers in FY2010/11 by the LATF and CDF, taken from the CRA county fact sheets and aggregated to post-reform counties, across counties. All values are expressed in real 2009 KES per capita using 2009 population values. Fitted lines are least-squares fits with 95% confidence intervals.

Figure A.7
Similarity of ethnic coalition voting in Afrobarometer survey and exit polls

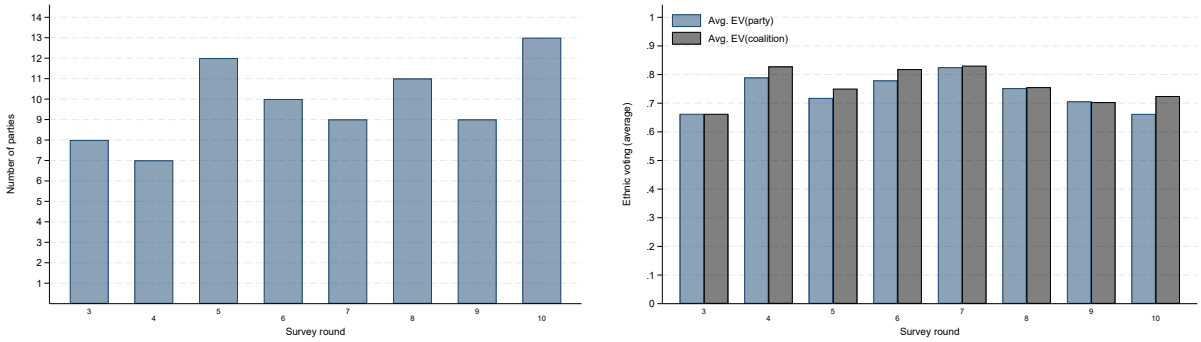


Notes: The figure shows the share of Kalenjin, Kamba, Kikuyu, and Luo respondents who intended to vote for their group's ethnic coalition, based on Afrobarometer survey data (maroon), alongside the share of actual voters from these groups who supported a presidential ticket with a co-ethnic candidate, according to exit polls by Ferree et al. (2014) (gray). These four groups had a candidate on one of the two main tickets in 2013, and in survey round 6 each group's ethnic coalition is the coalition with its co-ethnic candidate. We focus on coalitions rather than individual parties, as they more accurately reflect the presidential/vice-presidential tickets used in the exit polls. The Afrobarometer vote share is derived from survey round 6 (2014), the survey round closest to the 2013 exit polls.

Figure A.8
Number of parties and average ethnic voting

(A) No. of parties

(B) Avg. ethnic voting



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

TABLE A.2
Most popular parties by survey round for the ten largest groups

Ethnic group	Survey round	Obs.	Most popular party	Vote share 1st party	Nat. vote share 1st party	2nd most popular party	Vote share 2nd party	Nat. vote share 2nd party
EMBU / MERU	3	30	NARC-K	.85	.5	KANU	.07	.21
EMBU / MERU	4	37	PNU	.46	.24	ODM	.29	.61
EMBU / MERU	5	60	PNU	.57	.27	ODM	.29	.52
EMBU / MERU	6	111	TNA	.9	.46	ODM	.04	.38
EMBU / MERU	7	109	JAP	.93	.59	TNA	.05	.03
EMBU / MERU	8	145	JAP	.84	.58	ODM	.12	.33
EMBU / MERU	9	151	UDA	.7	.47	ODM	.17	.38
EMBU / MERU	10	137	UDA	.8	.46	ODM	.15	.4
KALENJIN	3	119	KANU	.51	.21	NARC-K	.28	.5
KALENJIN	4	41	ODM	.97	.61	PNU	.03	.24
KALENJIN	5	105	UDM	.44	.04	ODM	.29	.52
KALENJIN	6	183	URP	.58	.09	TNA	.25	.46
KALENJIN	7	167	JAP	.81	.59	URP	.09	.01
KALENJIN	8	355	JAP	.88	.58	ODM	.06	.33
KALENJIN	9	294	UDA	.84	.47	JAP	.09	.11
KALENJIN	10	268	UDA	.93	.46	ODM	.04	.4
KAMBA	3	109	NARC-K	.66	.5	LDP	.22	.23
KAMBA	4	65	ODM-K	.58	.09	PNU	.22	.24
KAMBA	5	150	ODM-K	.43	.08	ODM	.3	.52
KAMBA	6	202	ODM	.36	.38	WDM-K	.33	.04
KAMBA	7	176	JAP	.45	.59	ODM	.32	.33
KAMBA	8	239	JAP	.43	.58	ODM	.26	.33
KAMBA	9	254	UDA	.39	.47	WDM-K	.28	.02
KAMBA	10	238	WDM-K	.46	.06	ODM	.29	.4
KIKUYU	3	153	NARC-K	.7	.5	KANU	.17	.21
KIKUYU	4	141	PNU	.65	.24	ODM	.14	.61
KIKUYU	5	249	PNU	.74	.27	KANU	.09	.03
KIKUYU	6	343	TNA	.96	.46	ODM	.02	.38
KIKUYU	7	281	JAP	.93	.59	TNA	.05	.03
KIKUYU	8	411	JAP	.93	.58	ODM	.04	.33
KIKUYU	9	444	UDA	.7	.47	JAP	.15	.11
KIKUYU	10	411	UDA	.61	.46	ODM	.18	.4
KISII	3	88	NARC-K	.49	.5	KANU	.19	.21
KISII	4	38	ODM	.86	.61	PNU	.14	.24
KISII	5	68	ODM	.67	.52	PNU	.28	.27
KISII	6	121	ODM	.58	.38	TNA	.36	.46
KISII	7	96	JAP	.56	.59	ODM	.42	.33
KISII	8	160	ODM	.53	.33	JAP	.44	.58
KISII	9	141	ODM	.59	.38	UDA	.29	.47
KISII	10	135	ODM	.54	.4	UDA	.4	.46
LUHYA	3	111	NARC-K	.5	.5	LDP	.24	.23
LUHYA	4	62	ODM	.91	.61	multiple	.04	
LUHYA	5	192	ODM	.79	.52	PNU	.1	.27
LUHYA	6	256	ODM	.65	.38	TNA	.22	.46
LUHYA	7	218	ODM	.56	.33	JAP	.37	.59
LUHYA	8	349	ODM	.43	.33	JAP	.37	.58
LUHYA	9	387	ODM	.55	.38	UDA	.26	.47
LUHYA	10	369	ODM	.59	.4	UDA	.3	.46
LUO	3	118	LDP	.81	.23	NARC-K	.15	.5

Continued on next page

Table A.2 – *Continued from previous page*

Ethnic group	Survey round	Obs.	Most popular party	Vote share 1st party	Nat. vote share 1st party	2nd most popular party	Vote share 2nd party	Nat. vote share 2nd party
LUO	4	97	ODM	1	.61		0	
LUO	5	207	ODM	.96	.52	NARC-K	.02	.04
LUO	6	210	ODM	.93	.38	TNA	.07	.46
LUO	7	182	ODM	.93	.33	JAP	.05	.59
LUO	8	283	ODM	.88	.33	JAP	.1	.58
LUO	9	249	ODM	.92	.38	UDA	.06	.47
LUO	10	257	ODM	.9	.4	UDA	.08	.46
MAASAI / SAMBURU	3	15	NARC-K	.46	.5	KANU	.38	.21
MAASAI / SAMBURU	4	9	ODM	.57	.61	PNU	.29	.24
MAASAI / SAMBURU	5	28	ODM	.82	.52	multiple	.05	
MAASAI / SAMBURU	6	26	TNA	.6	.46	ODM	.25	.38
MAASAI / SAMBURU	7	43	JAP	.61	.59	ODM	.22	.33
MAASAI / SAMBURU	8	72	JAP	.54	.58	ODM	.44	.33
MAASAI / SAMBURU	9	50	ODM	.48	.38	UDA	.39	.47
MAASAI / SAMBURU	10	99	ODM	.51	.4	UDA	.4	.46
MIJIKENDA	3	72	NARC-K	.51	.5	KANU	.21	.21
MIJIKENDA	4	17	ODM	.67	.61	multiple	.17	
MIJIKENDA	5	78	ODM	.51	.52	PNU	.29	.27
MIJIKENDA	6	88	ODM	.76	.38	TNA	.18	.46
MIJIKENDA	7	45	ODM	.6	.33	JAP	.33	.59
MIJIKENDA	8	107	ODM	.59	.33	JAP	.41	.58
MIJIKENDA	9	129	ODM	.62	.38	UDA	.24	.47
MIJIKENDA	10	145	ODM	.58	.4	UDA	.31	.46
SOMALI	3	12	KANU	.5	.21	NARC-K	.3	.5
SOMALI	4	51	ODM	.82	.61	PNU	.15	.24
SOMALI	5	90	ODM	.51	.52	PNU	.29	.27
SOMALI	6	100	TNA	.57	.46	ODM	.27	.38
SOMALI	7	85	JAP	.57	.59	ODM	.38	.33
SOMALI	8	82	JAP	.71	.58	ODM	.2	.33
SOMALI	9	91	UDA	.4	.47	ODM	.32	.38
SOMALI	10	120	UDA	.54	.46	ODM	.33	.4

Notes: The table reports the names and vote share (of the group and national) of each ethnic group's most popular party and second most popular party for each of the 10 largest ethnic groups in Afrobarometer survey round. Where several parties tie as the second most popular party, the table reports "multiple" and omits their national vote shares.

TABLE A.3
Match of parties to coalitions for each Afrobarometer survey round

Survey round	Party	Coalition	Coalition past election	Coalition next election	Respondents
3	DP	NARC	NARC	PNU	12
3	FORD-K	NARC	NARC	PNU	19
3	KANU	KANU	KANU	PNU	135
3	LDP	ODM	NARC	ODM	152
3	NARC-K	NARC-K	NARC-K	PNU	327
3	NPK	NARC	NARC	.	4
3	SDK	.	.	PNU	4
3	SDP	SDP	SDP	SDP	1
4	FORD-K	PNU	PNU	CORD	1
4	KADDU-ASIL	KADDU-ASIL	KADDU-ASIL	.	2
4	KANU	PNU	PNU	Amani	8
4	NARC-K	PNU	PNU	NARC-K	14
4	ODM	ODM	ODM	CORD	270
4	ODM-K	ODM-K	ODM-K	CORD	41
4	PNU	PNU	PNU	Jubilee (JAP)	107
5	DP	DP	PNU	.	2
5	FORD-K	FORD-K	PNU	CORD	2
5	G7	.	.	.	3
5	KADDU-ASIL	KADDU-ASIL	KADDU-ASIL	.	1
5	KANU	KANU	PNU	Amani	29
5	NARC-K	NARC-K	PNU	NARC-K	37
5	NFK	NFK	NFK	Amani	3
5	ODM	ODM	ODM	CORD	477
5	ODM-K	ODM-K	ODM-K	CORD	72
5	PNU	PNU	PNU	Jubilee (JAP)	245
5	SAFINA	.	.	SAFINA	1
5	UDM	ODM	ODM	CORD	41
6	FORD-K	CORD	CORD	NASA	9
6	KSC	CORD	CORD	.	3
6	NARC-K	NARC-K	NARC-K	NARC-K	10
6	ODM	CORD	CORD	NASA	504
6	RBK	RBK	RBK	.	2
6	SAFINA	SAFINA	SAFINA	.	2
6	TNA	Jubilee (JAP)	Jubilee (JAP)	Jubilee (JAP)	607
6	UDF	Amani	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)	649
7	NARC-K	NARC-K	NARC-K	.	3
7	ODM	CORD	CORD	NASA	359
7	RBK	RBK	RBK	.	2
7	SAFINA	SAFINA	SAFINA	.	1
7	TNA	Jubilee (JAP)	Jubilee (JAP)	Jubilee (JAP)	33
7	UDF	Jubilee (JAP)	Amani	Jubilee (JAP)	4
7	URP	Jubilee (JAP)	Jubilee (JAP)	Jubilee (JAP)	13
7	WDM-K	CORD	CORD	NASA	27
8	ANC	NASA	NASA	KK	28
8	FORD-K	NASA	NASA	KK	15
8	JAP	Jubilee (JAP)	Jubilee (JAP)	Azimio	957
8	KANU	KANU	KANU	Azimio	13
8	KSC	.	.	.	1
8	MCCP	Jubilee (JAP)	Jubilee (JAP)	KK	9

Continued on next page

Table A.3 – *Continued from previous page*

Survey round	Party	Coalition	Coalition past election	Coalition next election	Respondents
8	NARC-K	.	.	.	16
8	ODM	NASA	NASA	Azimio	549
8	TAKE	Thirdway Alliance	Thirdway Alliance	Thirdway Alliance	14
8	UDF	Jubilee (JAP)	Jubilee (JAP)	Jubilee (JAP)	2
8	WDM-K	NASA	NASA	Azimio	41
9	ANC	NASA	NASA	KK	27
9	JAP	Jubilee (JAP)	Jubilee (JAP)	Azimio	161
9	KANU	KANU	KANU	Azimio	6
9	KSC	.	.	.	1
9	MCCP	Jubilee (JAP)	Jubilee (JAP)	KK	2
9	NARC-K	.	.	.	4
9	ODM	NASA	NASA	Azimio	563
9	UDA	UDA	UDA	KK	695
9	WDM-K	NASA	NASA	Azimio	34
10	AGANO	.	.	.	1
10	ANC	KK	KK	KK	8
10	JAP	Azimio	Azimio	Azimio	65
10	KANU	Azimio	Azimio	Azimio	15
10	KSC				1
10	MCCP	.	Azimio	Azimio	3
10	NARC	Azimio	Azimio	Azimio	2
10	NARC-K	Azimio	Azimio	Azimio	10
10	ODM	Azimio	Azimio	Azimio	641
10	RBK	.	.	.	1
10	RPK	.	.	.	18
10	UDA	KK	KK	KK	747
10	WDM-K	Azimio	Azimio	Azimio	101

Notes: The table reports the matching of parties to coalitions for each Afrobarometer survey round. "Coalition past election" classifies parties based on their coalition membership in the last election, and "coalition next election" based on their coalition membership in the following election. "Coalition," which is our main measure, corresponds to "coalition next election" if the party has already communicated its coalition membership for the following election, and to "coalition past election" otherwise. Parties that had left their past-election coalition by the survey date without joining a new one are listed as standalone parties (DP, FORD-K, and KANU in round 5). In round 10, the next election has not yet taken place, and "coalition next election" carries forward the coalition at the survey date. A dot marks parties that did not contest the election, had dissolved, or for which no information is available.

TABLE A.4
Correlation of treatments with other border changes

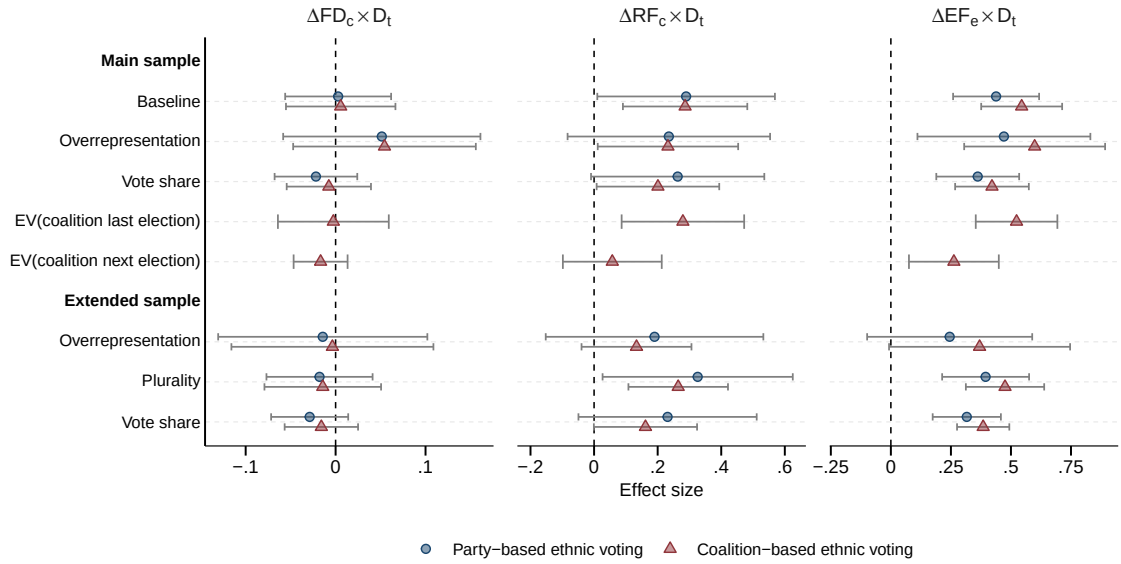
Panel A: Regional fractionalization				
			ΔRF_c	
	(main)	(Districts)	(L. authorities)	(Constituencies)
ΔRF_c	1			
ΔRF_c (Districts)	0.147	1		
ΔRF_c (Local authorities)	0.0957	0.619	1	
ΔRF_c (Constituencies)	-0.0297	-0.0135	-0.0677	1
Panel B: Ethnic fragmentation				
			ΔEF_e	
	(main)	(Districts)	(L. authorities)	(Constituencies)
ΔEF_e	1			
ΔEF_e (Districts)	0.119	1		
ΔEF_e (Local authorities)	0.0380	0.831	1	
ΔEF_e (Constituencies)	-0.108	-0.449	-0.104	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 discussed in Online Appendix A.5. Specifically, the ΔRF and ΔEF constructed from the districts to counties (the December 2008 district boundaries used for the 2009 census), the local authorities to counties, and the 210 pre-reform to the 290 post-reform electoral constituencies.

B. Additional results

B.1. Additional figures

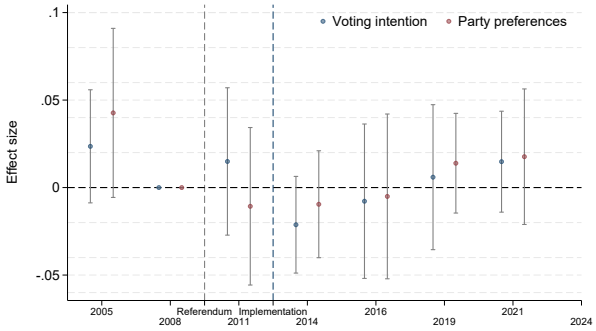
FIGURE B.1
Alternative definitions of ethnic voting



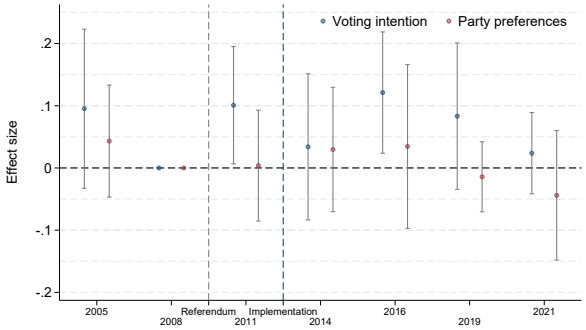
Notes: The figure tests the robustness of our main results when using alternative definitions of ethnic parties/coalitions and thus ethnic voting, with blue dots for party-based ethnic voting and red triangles for coalition-based ethnic voting. Baseline shows the main results from columns (5) and (6) of Table I. Overrepresentation indicates that each group's ethnic party/coalition is its most overrepresented party/coalition, regardless of plurality (following Amodio et al., 2024). Plurality indicates the use of the plurality criteria only to define each group's ethnic party/coalition. On the main sample, this measure coincides with our main measure, so we report it only for the extended sample. Vote share indicates the use of the share of other co-ethnics who would vote for the same party as the respondent. Estimates under Main sample use the respondents for whom our main measure is defined. Estimates under Extended sample use all respondents for whom the alternative measure is defined, which adds the group-rounds in which our main measure defines no ethnic party/coalition. EV(coalition last election) and EV(coalition next election) indicate the use of our main coalition-based indicator for ethnic voting, but based on the coalitions in the past or the next election (rather than the coalitions known at the survey date). 95% confidence intervals based on two-way clustered standard errors at the ethnicity and county level are plotted as gray error bars.

Figure B.2
Intention to vote and willingness to reveal party preferences

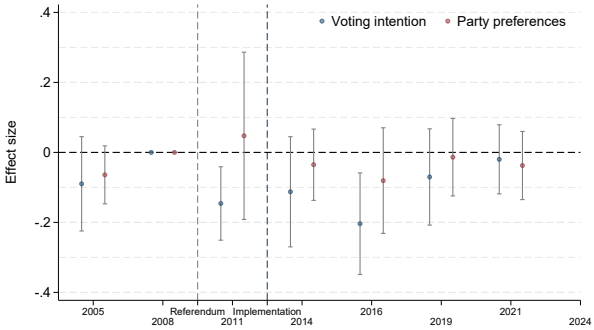
(A) Effects of changes in fiscal decentralization



(B) Effects of changes in regional fractionalization

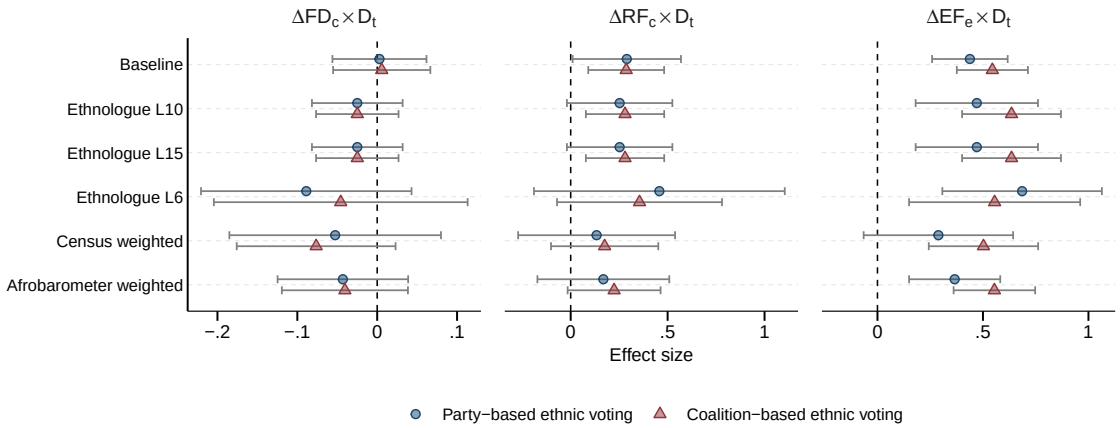


(C) Effects of changes in ethnic fragmentation



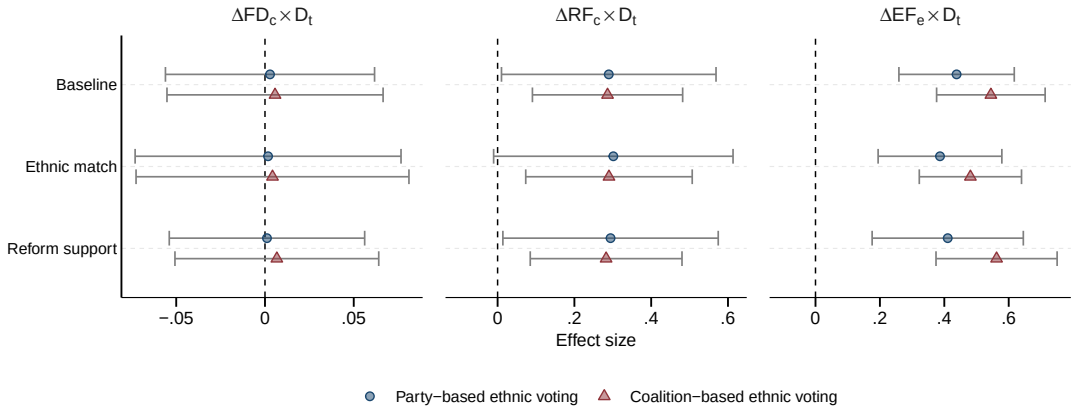
Notes: The figure shows event-study coefficients of reform-induced changes in fiscal decentralization, change in regional fractionalization, and ethnic fragmentation on whether a respondent indicates an intention to vote (circles) and whether they are willing to reveal the party's candidate they intend to vote for (triangles). The event-study specifications include county, 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, and having completed primary, secondary, or post-secondary schooling. 95% confidence intervals based on standard errors clustered at the ethnicity and county level are plotted as gray error bars.

Figure B.3
Accounting for alternative ethnic groupings and sampling



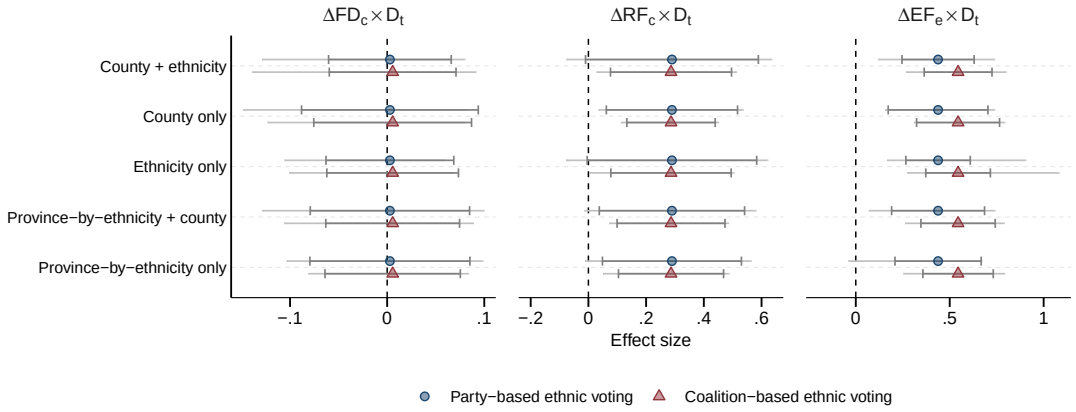
Notes: The figure tests the robustness of our main results to different definitions of ethnic groups and alternative sampling weights, with blue dots for party-based ethnic voting and red triangles for coalition-based ethnic voting. Baseline replicates the estimates from the original specification columns (5) and (6) of Table I. Ethnologue 15, Ethnologue 10, and Ethnologue 6 define ethnic groups by the language groups to which they belong, using aggregation levels 15, 10, and 6 of the World Language Mapping System: level 15 is the finest (full language varieties) and level 6 the coarsest (branches of the language family). Census weights indicate that each Afrobarometer respondent is weighted in proportion to the census population (e.g., if five members of a group are sampled in a county where 10,000 people from their group live, each receives a weight of 2000). Afrobarometer weights indicate the use of the Afrobarometer survey weights. 95% confidence intervals based on two-way clustered standard errors at the ethnicity and county level are plotted as gray error bars.

Figure B.4
Accounting for ethnolinguistic alignment and reform support



Notes: The figure tests the robustness of our main results to accounting for alignment, interviewer effects, and reform support, with blue dots for party-based ethnic voting and red triangles for coalition-based ethnic voting. Baseline replicates the estimates from the original specification columns (5) and (6) of Table I. 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. Reform support controls for the yes-vote share in each province during the referendum interacted with the post-treatment indicator. 95% confidence intervals based on two-way clustered standard errors at the ethnicity and county level are plotted as gray error bars.

FIGURE B.5
Alternative clustering and wild-bootstrap inference



Notes: The figure tests the robustness of our main results to alternative clustering and wild-bootstrap inference, with blue dots for party-based ethnic voting and red triangles for coalition-based ethnic voting. Baseline replicates the estimates from the original specification columns (5) and (6) of Table I. For each clustering design, dark gray capped whiskers show 95% confidence intervals from cluster-robust variance estimations, while light gray uncapped whiskers show 95% confidence intervals from a wild cluster bootstrap-t with Webb weights and 9,999 replications. Under two-way clustering, the bootstrap draws weights for the intersections of the two clustering dimensions.

B.2. Additional tables

TABLE B.1
Devolved revenues and the border margins

	Dependent variable: Log real … per capita				
	Equitable share	*Conditional grants*	*Donor grants*	*Own revenue*	*Total revenue*
	(1)	(2)	(3)	(4)	(5)
ΔRF_c	0.043	0.077	0.010	0.456***	0.081
	(0.069)	(0.077)	(0.082)	(0.109)	(0.061)
$\Delta\overline{EF}_c$	-0.082	-0.116*	-0.086	0.310**	-0.063
	(0.051)	(0.060)	(0.075)	(0.123)	(0.045)
Observations	376	305	376	376	376
Counties	47	47	47	47	47
Fiscal-year FE	✓	✓	✓	✓	✓

Notes: The table reports the results of regressing the log of each county revenue component on the change in the county's regional fractionalization (ΔRF_c) and its population-weighted exposure to the change in ethnic fragmentation ($\Delta\overline{EF}_c$). The sample pools the eight post-reform fiscal years from 2013/14 to 2020/21. Revenues are deflated to real 2009 KES and expressed in per-capita terms. Both treatments are standardized to have a mean of zero and a standard deviation of one across the 47 counties. Conditional grants are not reported for most counties in the first two fiscal years, which accounts for the smaller sample in column (2). All specifications include fiscal-year fixed effects. Standard errors are clustered at the county level. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

TABLE B.2
Heterogeneous effects by fiscal decentralization

	Dependent variable: Ethnic voting					
	Party	*Coalition*	*Party*	*Coalition*	*Party*	*Coalition*
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta FD_c \times D_t$	0.011	0.015	0.035	0.077	0.001	0.052
	(0.012)	(0.017)	(0.062)	(0.047)	(0.067)	(0.057)
$\Delta RF_c \times D_t$	0.380***	0.367***	0.285*	0.279**	0.381***	0.355***
	(0.124)	(0.095)	(0.147)	(0.108)	(0.126)	(0.110)
$\Delta EF_e \times D_t$	0.442***	0.548***	0.414***	0.497***	0.446***	0.522***
	(0.094)	(0.098)	(0.086)	(0.090)	(0.094)	(0.109)
$\Delta FD_c \times \Delta RF_c \times D_t$	0.279**	0.243**			0.281*	0.218
	(0.125)	(0.097)			(0.135)	(0.128)
$\Delta FD_c \times \Delta EF_e \times D_t$			-0.091	-0.198	0.028	-0.106
			(0.154)	(0.131)	(0.185)	(0.167)
Observations	7224	7741	7224	7741	7224	7741
$\Delta FD_c \times \Delta EF_e$			✓	✓	✓	✓
Individual controls	✓	✓	✓	✓	✓	✓
Time FE	✓	✓	✓	✓	✓	✓
County FE	✓	✓	✓	✓	✓	✓
Ethnicity FE	✓	✓	✓	✓	✓	✓

Notes: The table reports the results of regressing our measures of ethnic voting (party-based ethnic voting in odd columns and coalition-based ethnic voting in even columns) on interaction terms between the post-treatment indicator D_t and changes in fiscal decentralization (ΔFD_c), regional fractionalization (ΔRF_c), or ethnic fragmentation (ΔEF_e), and interactions of ΔFD_c with ΔRF_c and ΔEF_e. Columns (1) and (2) replicate columns (7) and (8) in Table I. Columns (3) and (4) instead interact ΔFD_c with ΔEF_e and D_t, and columns (5) and (6) use both interactions at once. In columns (3) to (6), we also control for $\Delta FD_c \times \Delta EF_e$, since the fixed effects do not absorb this level term. ΔFD_c is z-standardized at the post-reform county level. All specifications include county, ethnicity, and time fixed effects. Individual controls include the respondent's age, indicators of whether the respondent lives in an urban survey cluster, is female, owns a TV, radio, or motorized vehicle, and has completed primary, secondary, or post-secondary education. Standard errors are two-way clustered at the county and ethnicity levels. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

TABLE B.3
Alternative proxies for fiscal decentralization

	Dependent variable: Ethnic voting			
	Party	*Coalition*	*Party*	*Coalition*
	Decentralization proxy:			
	Predicted equitable share − LATF per capita		Actual equitable share − LATF per capita	
	(1)	(2)	(3)	(4)
$\Delta FD_c \times D_t$	0.008	0.012	0.002	0.006
	(0.009)	(0.014)	(0.012)	(0.020)
$\Delta RF_c \times D_t$	0.379***	0.366***	0.402***	0.384***
	(0.128)	(0.096)	(0.134)	(0.103)
$\Delta EF_e \times D_t$	0.443***	0.549***	0.451***	0.555***
	(0.095)	(0.100)	(0.093)	(0.103)
$\Delta FD_c \times \Delta RF_c \times D_t$	0.278**	0.239**	0.337**	0.287**
	(0.119)	(0.094)	(0.126)	(0.104)
Observations	7224	7741	7224	7741
Individual controls	✓	✓	✓	✓
Time FE	✓	✓	✓	✓
County FE	✓	✓	✓	✓
Ethnicity FE	✓	✓	✓	✓

Notes: The table reports the results of regressing our measures of ethnic voting (party-based ethnic voting in odd columns and coalition-based ethnic voting in even columns) on interaction terms between the post-treatment indicator D_t and the changes in regional fractionalization (ΔRF_c) and ethnic fragmentation (ΔEF_e). Each pair of columns uses a different proxy for ΔFD_c and includes the triple interaction between D_t, ΔFD_c, and ΔRF_c. Columns (1) and (2) subtract per-capita LATF transfers in FY2010/11, aggregated to post-reform counties, from the predicted equitable share. Columns (3) and (4) subtract the same LATF transfers from the actual equitable share, averaged over the post-reform fiscal years. All specifications include county, ethnicity, and time fixed effects. Individual controls include the age of a respondent, indicators if the respondent lives in an urban survey cluster, is female, owns a TV, radio, or motorized vehicle, has completed primary, secondary, or post-secondary education. Standard errors are two-way clustered at the county and ethnicity levels. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

TABLE B.4
Recentered treatments

	Dependent variable: Ethnic voting							
	Party	*Coalition*	*Party*	*Coalition*	*Party*	*Coalition*	*Party*	*Coalition*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\Delta FD_c \times D_t$	-0.003	0.001	-0.069	-0.053	-0.011	-0.007	-0.048	-0.039
	(0.034)	(0.032)	(0.040)	(0.033)	(0.038)	(0.040)	(0.036)	(0.034)
$\Delta RF_c \times D_t$	0.239**	0.249***	0.363***	0.358***	0.264**	0.239**	0.305***	0.279***
	(0.101)	(0.081)	(0.087)	(0.077)	(0.110)	(0.091)	(0.089)	(0.077)
$\Delta EF_e \times D_t$	0.492***	0.628***	0.519***	0.651***	0.467***	0.590***	0.484***	0.606***
	(0.124)	(0.112)	(0.117)	(0.114)	(0.113)	(0.107)	(0.099)	(0.106)
$\Delta FD_c \times \Delta RF_c \times D_t$			0.330***	0.285***			0.280***	0.251***
			(0.107)	(0.085)			(0.086)	(0.059)
Observations	7224	7741	7224	7741	7224	7741	7224	7741
Individual controls	✓	✓	✓	✓	✓	✓	✓	✓
Time FE	✓	✓	✓	✓	✓	✓	✓	✓
County FE	✓	✓	✓	✓	✓	✓	✓	✓
Ethnicity FE	✓	✓	✓	✓	✓	✓	✓	✓
Recentered treatment	Linear	Linear	Linear	Linear	Bins	Bins	Bins	Bins

Notes: The table reports robustness checks for the difference-in-differences estimates using recentered border-design treatments. Odd columns use party-based ethnic voting as the dependent variable, and even columns use coalition-based ethnic voting. The dependent variable is regressed on interaction terms between the post-treatment indicator D_t and changes in fiscal decentralization (ΔFD_c), regional fractionalization (ΔRF_c), and ethnic fragmentation (ΔEF_e). Columns (1)–(4) use linearly recentered border-design treatments: we define $\widetilde{\Delta RF}_c^{lin} \equiv \Delta RF_c - \mathbb{E}[\Delta RF_c \mid RF_{p(c)}^{pre}]$ and $\widetilde{\Delta EF}_e^{lin} \equiv \Delta EF_e - \mathbb{E}[\Delta EF_e \mid EF_e^{pre}]$, where $\mathbb{E}[\cdot]$ denotes the fitted value from an unweighted linear projection in the county or ethnic-group cross-section. Columns (5)–(8) use a more flexible recentering procedure: let B_c^P denote the former province containing county c, and let B_e^E denote quartiles of pre-reform ethnic fragmentation across the groups in the sample (four or five groups each). In the more flexible version, we define $\widetilde{\Delta RF}_c^{flex} \equiv \Delta RF_c - \mathbb{E}[\Delta RF_c \mid B_c^P]$ and $\widetilde{\Delta EF}_e^{flex} \equiv \Delta EF_e - \mathbb{E}[\Delta EF_e \mid B_e^E]$. Columns (3)–(4) and (7)–(8) additionally include a triple interaction between D_t, ΔFD_c, and ΔRF_c. The fiscal-transfer treatment, $\Delta FD_c \times D_t$, is unchanged and standardized at the post-reform county level, so that the average county has mean zero and a unit increase corresponds to a one-standard-deviation increase in fiscal decentralization. All specifications include county, ethnicity, and time fixed effects. Individual controls include the respondent's age, indicators of whether the respondent lives in an urban survey cluster, is female, owns a TV, radio, or motorized vehicle, and has completed primary, secondary, or post-secondary education. Standard errors are two-way clustered at the county and ethnicity levels. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

TABLE B.5
Difference-in-differences with interacted fixed effects

	Dependent variable: Ethnic voting					
	Party	*Coalition*	*Party*	*Coalition*	*Party*	*Coalition*
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta FD_c \times D_t$			0.058	0.043	0.058**	0.046**
			(0.037)	(0.032)	(0.022)	(0.017)
$\Delta RF_c \times D_t$			0.165	0.247**	0.283**	0.350***
			(0.116)	(0.104)	(0.114)	(0.111)
$\Delta EF_e \times D_t$	0.396	0.581**				
	(0.245)	(0.234)				
$\Delta FD_c \times \Delta RF_c \times D_t$					0.349**	0.295*
					(0.159)	(0.149)
Observations	7224	7741	7224	7741	7224	7741
Individual controls	✓	✓	✓	✓	✓	✓
Time FE	–	–	–	–	–	–
County FE	–	–	✓	✓	✓	✓
Ethnicity FE	✓	✓	–	–	–	–
County-by-time FE	✓	✓	–	–	–	–
Ethnicity-by-time FE	–	–	✓	✓	✓	✓

Notes: The table reports estimates for party-based ethnic voting in odd-numbered columns and coalition-based ethnic voting in even-numbered columns. Columns (1)–(4) report the component effects of changes in fiscal decentralization (ΔFD_c), regional fractionalization (ΔRF_c), and ethnic fragmentation (ΔEF_e), each interacted with the post-reform indicator D_t. Columns (5)–(6) add the triple interaction between D_t, ΔFD_c, and ΔRF_c, which county-by-time fixed effects would absorb. ΔFD_c is z-standardized at the post-reform county level. Columns (1) and (2) include county-by-time and ethnicity fixed effects. Columns (3) to (6) include ethnicity-by-time and county fixed effects. Individual controls include the respondent's age, indicators of whether the respondent lives in an urban survey cluster, is female, owns a TV, radio, or motorized vehicle, and has completed primary, secondary, or post-secondary education. Standard errors are two-way clustered at the county and ethnicity levels. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

TABLE B.6
Accounting for other border changes

	Dependent variable: Ethnic voting					
	Party	*Coalition*	*Party*	*Coalition*	*Party*	*Coalition*
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta FD_c \times D_t$	0.004	0.006	0.003	0.006	0.000	0.001
	(0.036)	(0.036)	(0.032)	(0.031)	(0.035)	(0.036)
$\Delta RF_c \times D_t$	0.295*	0.293**	0.265*	0.265**	0.276*	0.277**
	(0.153)	(0.109)	(0.137)	(0.101)	(0.141)	(0.103)
$\Delta EF_e \times D_t$	0.465***	0.598***	0.431***	0.539***	0.430***	0.547***
	(0.098)	(0.079)	(0.104)	(0.082)	(0.112)	(0.090)
$\Delta RF_c^{\text{Constituency}} \times D_t$	0.089	0.088				
	(0.088)	(0.061)				
$\Delta EF_e^{\text{Constituency}} \times D_t$	0.453	0.581*				
	(0.385)	(0.324)				
$\Delta RF_c^{\text{Local authority}} \times D_t$			0.008	-0.031		
			(0.032)	(0.025)		
$\Delta EF_e^{\text{Local authority}} \times D_t$			0.255	0.298		
			(0.576)	(0.411)		
$\Delta RF_c^{\text{District}} \times D_t$					0.035	0.039
					(0.041)	(0.040)
$\Delta EF_e^{\text{District}} \times D_t$					0.109	0.099
					(0.422)	(0.291)
Observations	7077	7577	7189	7706	7199	7717
Individual controls	✓	✓	✓	✓	✓	✓
Time FE	✓	✓	✓	✓	✓	✓
County FE	✓	✓	✓	✓	✓	✓
Ethnicity FE	✓	✓	✓	✓	✓	✓

Notes: The table reports the results of regressing our measures of ethnic voting (party-based ethnic voting in odd columns and coalition-based ethnic voting in even columns) on the post-treatment indicator times the changes in fiscal decentralization ($\Delta FD_c \times D_t$), regional fractionalization ($\Delta RF_c \times D_t$), and ethnic fragmentation ($\Delta EF_e \times D_t$). In addition, we control for the border-design treatment variables generated based on changes in electoral constituencies in columns (1) and (2), based on border changes from local authorities to counties in columns (3) and (4), and based on border changes from districts to counties in columns (5) and (6). All specifications include county, ethnicity, and time fixed effects. Individual controls include the age of a respondent, indicators of whether the respondent lives in an urban survey cluster, is female, owns a TV, radio, or motorized vehicle, and has completed primary, secondary, or post-secondary education. Standard errors are two-way clustered at the county and ethnicity levels. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

TABLE B.7
Selective migration

	Dependent variable: Migration			
	Never moved		*Years at place*	
	(1)	(2)	(3)	(4)
$\Delta FD_c \times D_t$	0.004	0.001	-0.008	-0.068
	(0.027)	(0.025)	(0.638)	(0.559)
$\Delta RF_c \times D_t$	-0.020	-0.048	-0.421	-1.206
	(0.071)	(0.065)	(1.200)	(1.346)
$\Delta EF_e \times D_t$	-0.018	-0.017	-0.124	-0.097
	(0.116)	(0.110)	(2.328)	(2.161)
$\Delta FD_c \times \Delta RF_c \times D_t$		-0.104		-2.852
		(0.079)		(2.095)
Observations	87892	87892	87892	87892
Individual controls	✓	✓	✓	✓
Time FE	✓	✓	✓	✓
County FE	✓	✓	✓	✓
Ethnicity FE	✓	✓	✓	✓

Notes: The table reports the results of regressing two proxies of migration behavior on the post-reform indicator D_t interacted with the changes in fiscal decentralization (ΔFD_c), regional fractionalization (ΔRF_c), and ethnic fragmentation (ΔEF_e), as in Table I. Columns (2) and (4) add the triple interaction between D_t, ΔFD_c, and ΔRF_c. The outcomes are an indicator for never having moved (equal to one for respondents who have always lived in their current location, columns (1) and (2)) and the number of years the respondent has lived in their current location (set to the respondent's age for those who have always lived there, columns (3) and (4)), both derived from the DHS length-of-residence question. D_t switches on for respondents surveyed in 2013 or later. All specifications include county, ethnicity, and time (survey round) fixed effects and control for the respondent's age, sex, an urban indicator, and indicators for completed primary and secondary schooling. All variables are based on DHS surveys (2003, 2008-9, 2014, and 2022). Standard errors are two-way clustered at the county and ethnicity levels. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

TABLE B.8
Robustness to excluding the Kalenjin and Kikuyu

Panel A: Party-based ethnic voting						
	Exclude Kalenjin		*Exclude Kikuyu*		*Exclude both*	
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta FD_c \times D_t$	0.006	0.012	0.021	0.034	0.024	0.033
	(0.031)	(0.019)	(0.042)	(0.026)	(0.042)	(0.027)
$\Delta RF_c \times D_t$	0.349**	0.446***	0.147	0.253**	0.205*	0.314***
	(0.130)	(0.102)	(0.129)	(0.119)	(0.117)	(0.098)
$\Delta EF_e \times D_t$	0.382*	0.372*	0.499***	0.507***	0.426*	0.412
	(0.201)	(0.209)	(0.118)	(0.139)	(0.207)	(0.266)
$\Delta FD_c \times \Delta RF_c \times D_t$		0.295**		0.374***		0.378***
		(0.131)		(0.098)		(0.102)
Observations	6067	6067	5639	5639	4482	4482
Individual controls	✓	✓	✓	✓	✓	✓
Time FE	✓	✓	✓	✓	✓	✓
County FE	✓	✓	✓	✓	✓	✓
Ethnicity FE	✓	✓	✓	✓	✓	✓
Panel B: Coalition-based ethnic voting						
	Exclude Kalenjin		*Exclude Kikuyu*		*Exclude both*	
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta FD_c \times D_t$	0.005	0.013	0.012	0.025	0.014	0.024
	(0.031)	(0.019)	(0.036)	(0.022)	(0.034)	(0.020)
$\Delta RF_c \times D_t$	0.318***	0.401***	0.218**	0.305***	0.251**	0.338***
	(0.098)	(0.088)	(0.102)	(0.104)	(0.103)	(0.102)
$\Delta EF_e \times D_t$	0.403**	0.398*	0.584***	0.591***	0.484**	0.478*
	(0.168)	(0.193)	(0.107)	(0.127)	(0.205)	(0.249)
$\Delta FD_c \times \Delta RF_c \times D_t$		0.246**		0.297***		0.287***
		(0.095)		(0.095)		(0.088)
Observations	6584	6584	6156	6156	4999	4999
Individual controls	✓	✓	✓	✓	✓	✓
Time FE	✓	✓	✓	✓	✓	✓
County FE	✓	✓	✓	✓	✓	✓
Ethnicity FE	✓	✓	✓	✓	✓	✓

Notes: The table reports robustness tests that exclude respondents who identify as Kalenjin or Kikuyu, separately and jointly. Panel A uses party-based ethnic voting as the dependent variable, and Panel B uses coalition-based ethnic voting. Columns (1)–(2) exclude Kalenjin respondents; columns (3)–(4) exclude Kikuyu respondents; and columns (5)–(6) exclude both groups. Within each pair, the first column includes the three treatment effects jointly, as in columns (5) and (6) of Table I; the second also interacts fiscal decentralization with the change in regional fractionalization, as in columns (7) and (8) of Table I. All other sample restrictions are as in Table I. All specifications include county, ethnicity, and time fixed effects. Individual controls include the respondent's age, indicators of whether the respondent lives in an urban survey cluster, is female, owns a TV, radio, or motorized vehicle, and has completed primary, secondary, or post-secondary education. Standard errors are two-way clustered at the county and ethnicity levels. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

TABLE B.9
Robustness to group-level measures of ethnic segregation

	Dependent variable: Ethnic voting							
	Party				*Coalition*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\Delta FD_c \times D_t$	0.003	0.013	0.005	0.012	0.006	0.017	0.007	0.016
	(0.029)	(0.010)	(0.039)	(0.028)	(0.029)	(0.012)	(0.035)	(0.024)
$\Delta RF_c \times D_t$	0.242*	0.332**	0.248*	0.332**	0.248**	0.329***	0.260**	0.338***
	(0.126)	(0.116)	(0.130)	(0.116)	(0.097)	(0.096)	(0.096)	(0.094)
$\Delta EF_e \times D_t$	0.463***	0.475***	0.849***	0.840***	0.563***	0.574***	0.805***	0.799***
	(0.101)	(0.096)	(0.222)	(0.227)	(0.079)	(0.084)	(0.134)	(0.139)
$\Delta IS_e \times D_t$	-0.199	-0.262			-0.156	-0.206		
	(0.310)	(0.292)			(0.200)	(0.194)		
$\Delta DI_e \times D_t$			2.159*	2.094*			1.371**	1.319*
			(1.084)	(1.163)			(0.611)	(0.675)
$\Delta FD_c \times \Delta RF_c \times D_t$		0.323***		0.258*		0.277***		0.231*
		(0.105)		(0.140)		(0.087)		(0.111)
Observations	7224	7224	7224	7224	7741	7741	7741	7741
Individual controls	✓	✓	✓	✓	✓	✓	✓	✓
Time FE	✓	✓	✓	✓	✓	✓	✓	✓
County FE	✓	✓	✓	✓	✓	✓	✓	✓
Ethnicity FE	✓	✓	✓	✓	✓	✓	✓	✓

Notes: The table reports results from controlling for changes in group-level measures of segregation. Columns (1)–(4) use party-based ethnic voting and columns (5)–(8) coalition-based ethnic voting. Columns (1), (2), (5), and (6) add the reform-induced change in isolation; columns (3), (4), (7), and (8) instead add the change in dissimilarity. Even-numbered columns add the triple interaction between D_t, ΔFD_c, and ΔRF_c. Using the notation introduced in Section 2.1 and Online Appendix A.1, the isolation index is $IS_e = \sum_r s_r^e s_e^r$, and the dissimilarity index is $DI_e = [2(1-s^e)]^{-1} \sum_r |s_r^e - s^r|$. The indices are computed from the 1989 census under the eight-province and 47-county maps. Changes are defined as county-map minus province-map values. All specifications include individual controls and county, ethnicity, and time fixed effects. Standard errors are two-way clustered at the county and ethnicity levels. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

TABLE B.10
Robustness to county-level ethnic polarization

	Dependent variable: Ethnic voting			
	Party		*Coalition*	
	(1)	(2)	(3)	(4)
$\Delta FD_c \times D_t$	0.005	-0.038	0.009	-0.026
	(0.031)	(0.046)	(0.029)	(0.042)
$\Delta RF_c \times D_t$	0.338	0.178	0.364**	0.240
	(0.217)	(0.250)	(0.155)	(0.211)
$\Delta EF_e \times D_t$	0.454***	0.350**	0.571***	0.488***
	(0.098)	(0.128)	(0.087)	(0.120)
$\Delta POL_c \times D_t$	-0.046	0.058	-0.071	-0.006
	(0.158)	(0.178)	(0.110)	(0.139)
$\Delta FD_c \times \Delta RF_c \times D_t$		0.379**		0.294*
		(0.178)		(0.140)
$\Delta FD_c \times \Delta POL_c \times D_t$		-0.272		-0.239
		(0.219)		(0.189)
Observations	7224	7224	7741	7741
Individual controls	✓	✓	✓	✓
Time FE	✓	✓	✓	✓
County FE	✓	✓	✓	✓
Ethnicity FE	✓	✓	✓	✓

Notes: The table reports results from controlling for the reform-induced change in county-level ethnic polarization. Columns (1)–(2) use party-based ethnic voting and columns (3)–(4) coalition-based ethnic voting. Columns (2) and (4) add the interactions of fiscal decentralization with regional fractionalization and with polarization. Polarization is $POL_r = 4\sum_e (s_e^r)^2(1 - s_e^r)$ (Montalvo and Reynal-Querol, 2005), computed from the 1989 census under the eight-province and 47-county maps. ΔPOL_c is the county-map minus the province-map value. All specifications include individual controls and county, ethnicity, and time fixed effects. Standard errors are two-way clustered at the county and ethnicity levels. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

TABLE B.11
Predicted differential effects of reform on ethnic voting, interacted model

Ethnic group	Predicted change in ethnic voting due to				Predicted change in Table V	Population share
	ΔEF	ΔRF	ΔFD	all 3 changes	(column (6))	
Kikuyu	0.200	-0.011	-0.009	0.179	0.184	0.208
Luhya	0.209	-0.014	-0.009	0.185	0.186	0.148
Luo	0.240	-0.062	-0.009	0.169	0.157	0.124
Kamba	0.260	-0.125	-0.006	0.129	0.127	0.114
Kalenjin	0.435	-0.093	-0.006	0.335	0.338	0.113
Embu / Meru	0.238	-0.069	-0.009	0.161	0.131	0.062
Kisii	0.199	-0.114	-0.008	0.077	0.060	0.062
Mijikenda	0.313	-0.146	0.001	0.168	0.210	0.046
Maasai / Samburu	0.325	-0.056	0.000	0.269	0.287	0.023
Turkana	0.235	-0.210	0.008	0.033	0.113	0.013
All groups	0.244	-0.060	-0.006	0.178	0.177	1.000

Notes: The table re-evaluates the predicted group-level effects in Table V using the coefficients from column (8) of Table I, which interact the change in regional fractionalization with fiscal decentralization. For members of ethnic group e living in county c, the predicted differential effect is $\widehat{\Delta EV}_{ce} = \hat{\beta}_1 \Delta FD_c + (\hat{\beta}_2 + \hat{\beta}_4 \Delta FD_c)\Delta RF_c + \hat{\beta}_3 \Delta EF_e$, where $\hat{\beta}_1$, $\hat{\beta}_2$, and $\hat{\beta}_3$ are the coefficients on fiscal decentralization, regional fractionalization, and ethnic fragmentation, and $\hat{\beta}_4$ is the coefficient on the interaction of regional fractionalization with fiscal decentralization. ΔFD_c is evaluated using the standardized formula-predicted equitable-share transfer for each county. We calculate the three contributions separately for every ethnic-group–county cell and then average across counties using s_c^e, the share of group e's 1989 population living in county c. The first three columns report the three contributions separately, and the fourth column reports their sum. The fifth column repeats the corresponding total from Table V, calculated using the non-interacted specification in column (6) of Table I. The final column reports s^e, the share of group e in Kenya's 1989 population. The last row reports the population-weighted predicted differential change in ethnic voting for the country as a whole.

C. Party supply and platforms

C.1. Manifesto sources and text processing

We collect the manifestos of the two major coalitions in each of the five presidential elections from 2002 to 2022 (KANU, 2002; NARC, 2002; ODM, 2007; PNU, 2007; CORD, 2013; Jubilee Coalition, 2013; Jubilee Party, 2017; NASA, 2017; Azimio la Umoja, 2022; Kenya Kwanza, 2022).[4] We convert each document to plain text and remove headings, tables of contents, and other boilerplate in line with the Manifesto Project guidelines. We then split the cleaned text into sentences. The corpus contains 7,622 sentences, ranging from 151 (CORD, 2013) to 1,236 (KANU, 2002) per manifesto (see Table C.2).

We classify each sentence with *ManifestoBERTa*, the Manifesto Project's multilingual sentence classifier (Burst et al., 2024). The model assigns each sentence probabilities over the 56 policy categories of the Manifesto Project coding scheme (MP v4). We aggregate these outputs in two ways. For the salience and slant measures, we average the predicted category probabilities over all sentences of a manifesto. The resulting shares P_k are expressed in percent of manifesto content. For the effective number of issues, we instead assign each sentence to its most likely category and use the resulting category shares, as in the Manifesto Project's own salience variables.

C.2. Platform measures

Table C.1 defines the five platform measures used in the main text and maps them to the underlying categories. Table C.2 reports their raw values for each coalition manifesto.

C.3. Linking platforms to vote intentions

For Panel B of Figure VIII, we assign to each Afrobarometer respondent the platform measures of the coalition they intend to vote for. We first map each survey round to the most recent presidential election. Wave 3 (2005) is matched to the 2002 election, waves 4 and 5 (2008, 2011) to 2007, waves 6 and 7 (2014, 2016) to 2013, waves 8 and 9 (2019, 2021) to 2017, and wave 10 (2024) to 2022. We then harmonize the reported coalition labels within each election. Respondents who name a party outside the two major coalitions of the most recent election receive no platform values. In wave 9, this excludes supporters of the newly formed UDA.

[4]Most documents are publicly available online. The manifestos of KANU (2002), NARC (2002), and PNU (2007) are no longer online. We obtained and scanned hardcopies. The 2007 ODM manifesto comes from an archived copy of `kenyavotes.org`.

TABLE C.1
Definitions of the platform measures

Measure	Definition	Details
Devolution salience	Share of manifesto content devoted to the devolution bundle.	$P_{301} + P_{302}$. MP v4 labels: 301 Federalism; 302 Centralisation.
Regional vs. central power	Slant of the devolution bundle: relative emphasis on regional versus central power.	$P_{301} - P_{302}$. MP v4 labels: 301 Federalism; 302 Centralisation.
Identity salience	Share of manifesto content devoted to the identity bundle.	$P_{601} + P_{605} + P_{606} + P_{608} + P_{602} + P_{607}$. MP v4 labels: 601 National Way of Life: Positive; 605 Law and Order: Positive; 606 Civic Mindedness: Positive; 608 Multiculturalism: Negative; 602 National Way of Life: Negative; 607 Multiculturalism: Positive.
National vs. ethnic identity	Slant of the identity bundle: relative emphasis on national integration versus pluralist identity recognition.	$(P_{601} + P_{605} + P_{606} + P_{608}) - (P_{602} + P_{607})$. MP v4 labels as for the identity salience.
Effective number of issues	Issue-attention diversity of the manifesto.	Exponential of the Shannon entropy of the top-1 category shares (Greene, 2016), computed with `manifestoR` (Lewandowski et al., 2020). Higher values indicate a broader issue spread.

Notes: P_X denotes the probability-based share of MP v4 category X: the predicted category probability averaged over all sentences of a manifesto, expressed in percent of manifesto content. Top-1 shares instead assign each sentence to its most likely category and measure the share of sentences per category, as in the Manifesto Project's salience variables. MP v4 category labels follow https://manifesto-project.wzb.eu/coding_schemes/mp_v4.

TABLE C.2
Manifesto platform measures by coalition and election year

Coalition	Election	Coded sentences	Devolution salience	Regional vs. central power	Identity salience	National vs. ethnic identity	Effective no. of issues
KANU	2002	1,236	1.86	1.65	5.09	3.19	19.46
NARC	2002	587	2.68	2.43	5.91	5.47	19.32
ODM	2007	1,204	2.46	2.25	7.05	5.80	20.47
PNU	2007	906	2.73	2.44	4.63	3.10	21.00
CORD	2013	151	1.06	0.73	17.51	15.49	13.14
Jubilee	2013	676	3.92	3.58	8.73	7.93	19.61
Jubilee	2017	670	3.83	3.66	7.03	5.40	17.92
NASA	2017	787	3.57	3.14	8.52	4.45	22.34
Azimio	2022	604	2.02	1.79	8.60	7.66	21.82
Kenya Kwanza	2022	801	1.72	1.13	3.45	2.78	20.81

Notes: The table reports the five platform measures defined in Table C.1 for each coalition manifesto. Salience measures are expressed in percent of manifesto content, whereas slant indices are differences between the topic shares of opposing positions. Coded sentences is the number of sentences classified by the model.

Additional references

Amodio, F., G. Chiovelli, and S. Hohmann (2024). The employment effects of ethnic politics. *American Economic Journal: Applied Economics 16*(2), 456–491.

Azimio la Umoja (2022). Inawezekana Agenda, 2022–2027. Azimio la Umoja One Kenya Alliance, Nairobi.

Bluhm, R., C. Lessmann, and P. Schaudt (2026). The political geography of cities. *American Economic Journal: Applied Economics 18*(3), 1–42.

Burst, T., P. Lehmann, S. Franzmann, D. Al-Gaddooa, C. Ivanusch, S. Regel, F. Riethmüller, B. Weßels, and L. Zehnter (2024). manifestoberta. version 56topics.context.2024.1.1.

Carlitz, R., A. Morjaria, J. Mueller, and P. Osafo-Kwaako (2025). State building in a diverse society. *Review of Economic Studies 92*(6), 3704–3740.

Coppedge, M., J. Gerring, C. H. Knutsen, S. I. Lindberg, J. Teorell, D. Altman, F. Angiolillo, M. Bernhard, A. Cornell, M. S. Fish, L. Fox, L. Gastaldi, H. Gjerløw, A. Glynn, A. Good God, S. Grahn, A. Hicken, K. Kinzelbach, J. Krusell, K. L. Marquardt, K. McMann, V. Mechkova, J. Medzihorsky, N. Natsika, A. Neundorf, P. Paxton, D. Pemstein, J. von Römer, B. Seim, R. Sigman, S.-E. Skaaning, J. Staton, A. Sundström, M. Tannenberg, E. Tzelgov, Y.-t. Wang, F. Wiebrecht, T. Wig, S. Wilson, and D. Ziblatt (2025). Varieties of Democracy (V-Dem) dataset v15. Available at https://www.v-dem.net.

CORD (2013). CORD Manifesto 2013: Unleashing Kenya's Potential. Coalition for Reforms and Democracy, Nairobi.

D'Arcy, M. (2020). Devolution and county government. In N. Cheeseman, K. Kanyinga, and G. Lynch (Eds.), *The Oxford Handbook of Kenyan Politics*, pp. 251–268. Oxford: Oxford University Press.

Desmet, K., J. F. Gomes, and I. Ortuño-Ortín (2020). The geography of linguistic diversity and the provision of public goods. *Journal of Development Economics 143*, 102384.

Ferree, K. E., C. C. Gibson, and J. D. Long (2014). Voting behavior and electoral irregularities in Kenya's 2013 election. *Journal of Eastern African Studies 8*(1), 153–172.

Florczyk, A. J., C. Corbane, D. Ehrlich, S. Freire, T. Kemper, L. Maffenini, M. Melchiorri, M. Pesaresi, P. Politis, M. Schiavina, F. Sabo, and L. Zanchetta (2019). GHSL data package 2019. JRC Technical Report EUR 29788 EN, JRC117104, Publications Office of the European Union, Luxembourg. Available at https://doi.org/10.2760/290498.

Greene, Z. (2016). Competing on the issues: How experience in government and economic conditions influence the scope of parties' policy messages. *Party Politics 22*(6), 809–822.

Jubilee Coalition (2013). Transforming Kenya: Securing Kenya's Prosperity, 2013–2017. Shared manifesto of TNA, URP, NARC, and RC, Nairobi.

Jubilee Party (2017). Continuing Kenya's Transformation, Together: Jubilee Manifesto 2017. Jubilee Party, Nairobi.

KANU (2002). KANU Manifesto 2002: Laying a Solid Foundation for Kenya. Kenya African National Union, Nairobi.

Kenya Kwanza (2022). The Plan: The Bottom-Up Economic Transformation Agenda, 2022–2027. Kenya Kwanza Alliance, Nairobi.

Kenya National Bureau of Statistics (1989). Kenya Population and Housing Census 1989 (KPHC 1989), Version 1 [dataset]. Kenya National Bureau of Statistics [distributor]. https://statistics.knbs.or.ke/nada/index.php/catalog/74 (accessed January 30, 2018).

Kenya National Bureau of Statistics (2010). *The 2009 Kenya Population and Housing Census, Volume I: Population Distribution by Administrative Units*. Nairobi, Kenya: Kenya National Bureau of Statistics.

Lewandowski, J., N. Merz, S. Regel, and P. Lehmann (2020). manifestoR: Access and process data and documents of the manifesto project. R package.

Lewis, M. P., G. F. Simons, and C. D. Fennig (Eds.) (2013). *Ethnologue: Languages of the World* (Seventeenth ed.). Dallas, TX: SIL International.

Mboga, H. (2009). *Understanding the Local Government System in Kenya: A Citizen's Handbook*. Nairobi: Institute of Economic Affairs (IEA).

Montalvo, J. G. and M. Reynal-Querol (2005). Ethnic polarization, potential conflict, and civil wars. *American Economic Review 95*(3), 796–816.

NARC (2002). Democracy and Empowerment: Manifesto for the National Rainbow Coalition. National Rainbow Coalition, Nairobi.

NASA (2017). A Strong Nation: National Super Alliance Coalition Manifesto 2017. National Super Alliance, Nairobi.

National Cohesion and Integration Commission (2016). *Ethnic and Diversity Audit of the County Public Service*. Nairobi, Kenya: National Cohesion and Integration Commission. https://cohesion.go.ke/images/docs/Ethnic-and-Diversity-Audit-of-the-County-Public-Service-2016.pdf.

National Cohesion and Integration Commission (2023). *Ethnic and Diversity Audit of the County Public Service*. Nairobi, Kenya: National Cohesion and Integration Commission. Counties Vol. II, NCIC Publication No. 1/2023. https://cohesion.go.ke/images/docs/Ethnic-and-Diversity-Audit-of-the-County-Public-Service-2023.pdf.

ODM (2007). ODM Manifesto 2007. Orange Democratic Movement, Nairobi. Archived at https://web.archive.org/web/20080427184251/http://www.kenyavotes.org/node/107.

PNU (2007). Manifesto 2007: A Prosperous, Secure and Equitable Future for All Kenyans. Party of National Unity, Nairobi.

Schiavina, M., S. Freire, and K. MacManus (2019). GHS-POP R2019A - GHS Population Grid Multitemporal (1975, 1990, 2000, 2015) [dataset]. European Commission, Joint Research Centre (JRC) [distributor]. https://doi.org/10.2905/0C6B9751-A71F-4062-830B-43C9F432370F.