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Resettlement, Demography, and Trust: Evidence from Kenya's Settlement Schemes

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Abstract

Resettlement is a canonical tool of state-building. I study how resettlement relates to demography and social ties in Kenya's settlement schemes, a land transfer program that has resettled hundreds of thousands of Kenyans since 1962. Linking location-level censuses from 1962 and 1989 with georeferenced schemes, I find patterns consistent with both favoritism and re-sorting: the group co-ethnic with Kenya's first President gained population in more resettled locations within districts, while ethnic concentration increased across districts. I then compare contemporary survey outcomes with simulated equivalents from 1,000 counterfactual placements drawn from a historically feasible risk set. I find an association between resettlement and institutional trust that is more negative than 99.7 percent of feasible alternatives and is concentrated in distrust of central institutions rather than of other residents. Because resettlement moves recipients rather than resources, it can confer favor and re-sort at once, and may have lasting attitudinal consequences.

JEL codes: D72, H11, N47, O15, Q15, R23
Keywords: land, ethnic politics, resettlement, state-building, Kenya

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1 Introduction

> *"For a colonized people the most essential value, because the most concrete, is first and foremost the land: the land which will bring them bread and, above all, dignity."*
>
> – Frantz Fanon, *The Wretched of the Earth* (1963, p. 44)

Deciding how and where to settle one's people is a central state-building question. Most distributive instruments, such as roads, schools, jobs and municipal funding, allocate resources across an existing population, typically through place- or group-based policies. Land allocation has the additional quality of moving the recipients themselves: resettlement rebuilds the demography of locations on which any future place-based policy operates, and influences the social ties it breaks and creates. This matters in divided societies, where places may be heterogeneous in ethnicity, language, political orientation, or religion, and when the state may wish to apply differential taxes and transfers to different groups.

This paper asks two linked questions: how does state-directed resettlement reshape local demography, and what happens to social ties in the communities it affects? These questions are especially salient in Africa, where the end of colonial rule and pressure to return land to indigenous hands elevated resettlement as a political priority. New governments inherited agrarian economies, limited fiscal capacity, and institutional orders that left authority uneven across ethnically fragmented territory (Herbst, 2000). In such settings, rural development policy was not a technocratic domain separate from politics: control over agricultural prices, land access, and producer incentives was central to state consolidation (Bates, 1989). Across the continent, postcolonial governments treated resettlement as an instrument for rural development, inherited-inequality adjustment, territorial administration, and coalition management.[1]

Kenya provides an empirical setting with a particularly well documented history of state-directed resettlement. Under British colonial rule (1895–1963), more than three million hectares of fertile land were alienated for exclusively European settlement (Morgan, 1963). The best-known concentration was the 'White Highlands' in Central Kenya and the Rift Valley, but alienated land stretched as far as Kenya's Coast. How to redistribute colonial land holdings was a central question in Kenya's independence negotiations with Britain (Hornsby,

[1] Precedent cases of resettlement are wide-ranging in their intention and scale (Chambers, 1969). Many were more modest in scale and framed as rural development interventions, as in Ghana (Lawson, 1968), Uganda (Hutton, 1968) and Zambia (von Oppen, 2006). Some had a stated aim of returning land formerly held by colonial settlers to the landless poor, notably in Zimbabwe (Kinsey, 1999) and in Kenya, the setting of this study (Leo, 1978). 'Villagization' and large-scale resettlement programs transformed several states and often carried political overtones, including Tanzania's *ujamaa* (Lal, 2010), Derg-era resettlement in Ethiopia (Woube, 1995) and *imidugudu* in post-genocide Rwanda (Hilhorst & van Leeuwen, 2000).

2012). One of the main channels agreed to do so was via *settlement schemes*: tracts of land acquired from European settlers by the Government of Kenya that were divided into parcels and sold on to Kenyans via low-interest loans. Formal rhetoric for the schemes emphasized restitution and relief from landlessness; in practice, access was politically mediated and favored certain groups (Boone, 2012; Hornsby, 2012; Kanyinga, 2009). Subsequent administrations extended the program far beyond its original ambit, settling almost 300,000 families since 1962 (Boone, Lukalo, & Joireman, 2021).

This paper examines Kenya's settlement schemes as an example of resettlement as a state-building tool. The empirical strategy progressively narrows the range of alternative explanations, moving from broad geographic and historical differences to comparisons among nearby feasible sites and tests of the settlement relationship. To trace migration and demographic change, I digitize archival census volumes and link them to census microdata, which when analyzed against the inventory and mapping of settlement schemes in Boone, Lukalo, and Joireman (2021) and Lukalo, Boone, and Joireman (2019), allows me to measure exposure to resettlement at the location level. To study social ties, I draw four hypotheses from studies of resettlement in Kenya, and test these using multiple rounds of finely geocoded Afrobarometer data. To compare the observed associations with social ties against those that feasible placements of the settlement schemes would produce, I draw on the simulated placement design in the style of Dell and Olken (2020), comparing observed resettlement intensity against 1,000 simulated counterfactual alternatives drawn from a historically feasible risk set: land alienated or recorded as suitable for alienation by the British colonial state. The risk set follows siting decisions documented in government records from the period. Finally, I use large language models (LLMs) to assemble a historical scheme-level corpus on how recipients were selected, which provides bottom-up support to the location-level analyses.

The first result is that exposure to resettlement is associated with a disproportionately large increase in the population share of the Kikuyu, the population group co-ethnic with Kenya's first President, under whom resettlement was most intensive. Within districts, each hectare of scheme land per 1962 resident is associated with about 9 more Kikuyu residents per 100 and a 3.5 percentage point larger rise in the Kikuyu share. Of ten named ethnic groups, only the Kikuyu gain is significant at ten percent. Resettlement is also associated with re-sorting: scheme land is associated with rising ethnic concentration across districts, though not within them, and the recipient record shows several other groups consolidated around their own schemes. Comparable land 5 to 20 km from the schemes also gained Kikuyu, so the gain extends across the wider area the schemes sat in, whether through spillovers from the schemes or broader change on the former European land.

The second result is that exposure to resettlement is associated specifically with lower

reported trust in institutions, rather than a broad deterioration in social ties. Each hectare of scheme land per 1962 resident is associated with an institutional trust index about 0.08 standard deviations lower, and the observed coefficient lies below 99.7 percent of those from 1,000 feasible placements of the program. Nearby feasible placements also yield negative trust associations, so the two results differ in degree: the Kikuyu gain extends across the land around the schemes, while the trust deficit is deepest at the sites the program used. Indicators of interpersonal trust, civic participation and ethnic attachment show no clear association with resettlement, and the evidence on differences in material conditions is mixed. The components point to lower trust in central political institutions (the president, parliament and the courts), while trust in the local council shows no association. The deficit holds with and without respondent ethnicity fixed effects and is of similar size on land recorded for respondents' own and other groups. It is consistent with the relationship the central state created with settlers, who took land on loan, held it on conditions the state enforced at its discretion, and lost much of the state's support within a few years.

I examine several alternative explanations for these results, none of which fully account for the observed demographic and trust results. These include where the colonial state happened to alienate land, ordinary migration toward newly available land, the return of Kikuyu displaced during colonial rule, trends that predate the schemes, and for institutional trust, analysis of the observed association before and after Kenya's 2007–08 post-election violence. Both results also hold under robustness tests including alternative counterfactual placement distances and most changes to measurement and inference.

This paper highlights a distinctive feature of resettlement as a state-building tool: by moving recipients rather than resources, the state can favor a group and re-sort the population at once. The process of doing so shapes the demographic map, and I suggest that the manner in which resettlement was implemented may explain the negative associations with attitudes toward the state itself by those exposed to it.

This paper makes three contributions, the first being to studies of the political economy of state-directed resettlement, both voluntary and mandated. One strand examines strategic resettlement, including the movement of clients or opponents to or from contested frontiers (Carter, Wright, & Ying, 2025; McNamee, 2018; McNamee & Zhang, 2019) and population movements following negotiated border changes (Becker et al., 2020; Charnysh, 2019). A second examines cultural integration, political identity, and the durability of social relations (Bazzi et al., 2019; Carlitz et al., 2025; Kok et al., 2025). A third studies material development and patronage (Albertus et al., 2016; Bazzi et al., 2016). I connect the politically mediated allocation of land to its demographic and social consequences, showing that one program is associated with both politically selective demographic gains and ethnic concen-

tration, and that its lasting social association is with trust in the central state rather than with relations among residents.

Second, the paper speaks to resettlement as part of the distributive politics of public goods allocation. Clientelist political allocation often manifests as ethnic or regional favoritism (Burgess et al., 2015; Dickens, 2018; Franck & Rainer, 2012; Hassan, Larreguy, & Russell, 2024).[2] Ethnic diversity can constrain public goods provision through both political allocation and local collective action. Politicians can efficiently target coethnics with local public goods only where groups are sufficiently segregated (Ejdemyr, Kramon, & Robinson, 2018), while diversity is found to weaken the social sanctions that sustain collective contributions (Miguel & Gugerty, 2005). Colonial institutions can reinforce these divisions by linking ethnic identity to resource access (Ali et al., 2019), while nation-building can mitigate the adverse effects of diversity on collective provision (Miguel, 2004). I formalize resettlement as a political technology using a simple framework and use the census to document the demographic change that accompanied it.

Third, the paper contributes to the understanding of land as shaping the political economy of development in Kenya. Existing work describes post-independence resettlement in Kenya as politically structured (Boone, 2011, 2012; Hornsby, 2012; Kanyinga, 2009), rooted in divisive colonial policies (Oucho, 2010), and linked to patronage in land registration and formalization (Dyzenhaus, 2021; Hassan & Klaus, 2023). Demography is a particularly salient driver of sociopolitical dynamics in Kenya, with ethnic geography linked to differential taxation (Bates, 1989) and interethnic tolerance (Kasara, 2013). In this paper, I analyze census data to measure the extent to which the schemes are associated with demographic change, compile a novel record of scheme recipients' ethnicity, and examine this with reference to contemporary survey data on social ties.

The remainder of the paper proceeds as follows. Section 2 presents a conceptual framework for resettlement, historical background, and hypotheses related to social ties. Section 3 describes the data. Section 4 sets out the empirical strategy, including the counterfactual placement design. Section 5 reports the two main results. Section 6 discusses mechanism evidence that relates the main results to the conceptual framework and social ties hypotheses. Section 7 probes alternative explanations and robustness checks. Section 8 summarizes the argument and contribution of this paper.

[2]The findings of Burgess et al. (2015) are particularly relevant for this paper. Their analysis uses the persistence of district ethnic majorities to connect spending on places to benefits for groups. I examine a complementary margin: land redistribution that changes ethnic composition within districts, altering whom subsequent place-based policies reach. In a sense then, the resettlement decision is upstream of or complementary to the targeting of road investment that they study.

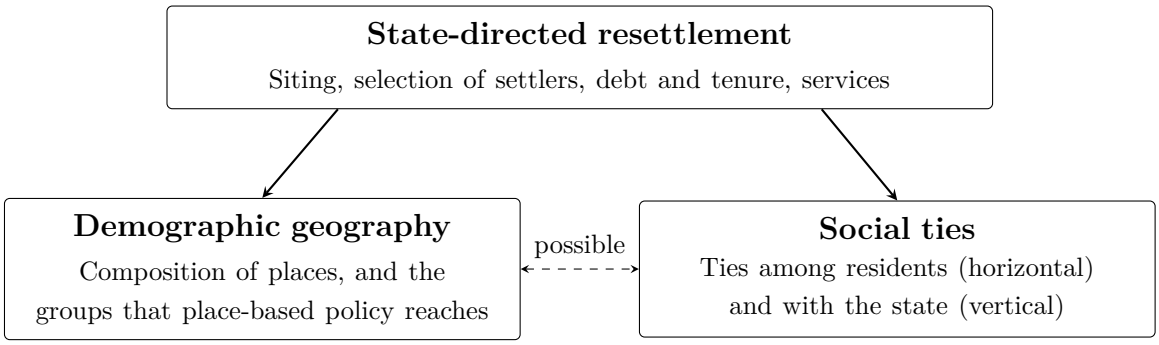
2 Conceptual Framework and Institutional Context

This section presents a conceptual framework for resettlement in a divided society with heterogeneous land, then describes how Kenya's settlement schemes were introduced and administered and the hypotheses about social formation that this history motivates.[3]

2.1 Conceptual Framework

I distinguish two consequences of resettlement: it changes where groups live, and it creates a relationship between settlers and the state that allocated, financed and administered their land (Figure 1). The first changes the composition of places, and with it the groups that any later place-based policy reaches, which the model below formalizes. The second runs through the terms of settlement, from the selection of settlers to their debts, tenure and services. The two can be linked in either direction, since a change in who lives alongside whom may reshape social ties, and the terms of settlement may in turn shape who stays and who arrives.

Figure 1: Consequences of resettlement.



Consider a state composed of two populations, a politically salient group and everyone else, and two locations, one with more productive land than the other. The state has a single ruler whose probability of staying in office increases with the welfare of the politically salient group, which I take as given.[4] The ruler wishes to consume the fruits of the land, which they

[3] This extends the fundamental logic of several empirical studies of differential treatment of ethnic groups in Africa, notably Ejdemyr, Kramon, and Robinson (2018) and Kasara (2007). The framework is formalized as a simple model and derived in Appendix A.

[4] The politically salient group can be read as the ruler's core supporters, whether bound to the ruler by ideology, religion or ethnicity. Making survival depend on core supporters and letting taxation differ across groups builds on other models of political control in divided societies, most notably Acemoglu, Robinson, and Verdier (2004), Burgess et al. (2015), and Padró i Miquel (2007).

may do through place-based taxation.[5] The ruler also has access to a costly resettlement technology: they can forgo contemporaneous consumption to permanently re-sort people between the locations. I assume for simplicity that the land is fully used, so a location's output depends on its land rather than on how many people farm it, and that each group's total claim on the land is fixed, so that a gain for one group in one location is a loss for it in the other. Resettlement then changes each group's share of the land in each location rather than the number of people living there.

Resettlement serves the ruler through two channels. The first is favoritism: moving members of the salient group onto the more productive land increases their welfare and thus the ruler's chance of staying in office. The second is fiscal and does not depend on land productivity: when the ruler depends sufficiently on the salient group, re-sorting lets them tax the other group at a high rate while protecting their supporters. A more sorted, or *legible* population therefore lets place-based policy approximate group-specific policy more closely.[6]

The two channels pull against each other, because favoring the salient group with the better land gives up the high tax receipts that land would yield. Before relocation costs, the ruler weakly prefers the fully sorted arrangement with the salient group on the better land. Where moving the salient group onto the better land is too costly, the ruler may instead consolidate others there in order to tax them, and where any move costs more than it returns, the ruler leaves the population where it is. It is thus ex ante ambiguous whether resettlement moves the politically salient group onto the better land, consolidates others there, or does not occur.[7]

2.2 European Land Alienation and the White Highlands

As Kenya approached independence, much of its most productive agricultural land remained reserved for European settlement. British colonial intervention accelerated with construction of the East African Railway in the 1890s (Harbeson, 1971) and huge tracts of high productivity land were alienated for exclusively European settlement (Coldham, 1979). This included much of Kenya's Rift Valley and Central Highlands, with indigenous Kenyans evicted from an area of approximately 2.9 million hectares to create a settlement zone colloquially known as the "White Highlands" (Coldham, 1979). The advantages enjoyed by European farmers

[5]For simplicity I model this as a binary tax rate which may be high or low, and can differ by location. In practice this may be considered the net fiscal extraction from a particular area, so taxes levied net of public spending, which limited fiscal capacity keeps from turning negative.

[6]I borrow from Scott (1998) to frame legibility in this context as the precision with which groups can be targeted through place-based policies by the state. Section C.3 documents some applications of this in practice during the decades after independence in agrarian Kenya.

[7]When land on the more productive location opens to settlement, as former European farms did at independence, the ruler gives all of the opened land to the salient group (Section A.5).

extended beyond land ownership to privileged access to infrastructure, agricultural markets, and public services, all of which were developed to service high productivity locations (Bates, 1989; Jedwab, Kerby, & Moradi, 2017).

European land alienation meant both the loss of territory and growing pressure on the land that remained: many Kenyans were confined to gazetted "Native Reserves" (Coldham, 1979), areas of lower productivity land whose boundaries restricted expansion as populations grew (Harbeson, 1971). Rift Valley communities, including the Kalenjin and Maasai, lost particularly large portions of their former territories, while Kikuyu communities, Kenya's largest ethnic group, faced increasing land pressure (Belshaw, 1964). European farms nevertheless required labor, producing a large population of Kenyan 'squatters' living and working on alienated land with precarious tenure (Kanogo, 1987). From the mid-1940s, mechanization and settler restrictions on squatter access intensified land conflict (Leo, 1978). These pressures contributed to the Mau Mau "Emergency," rooted especially in Kikuyu communities (Branch, 2011), and prompted colonial land reforms that did little to alleviate landlessness (Barber, 1970). European reservation of the White Highlands ended in 1961 (Morgan, 1963), with independence following in 1963.

2.3 Allocation and the Settlement Relationship

The 'Land Question' was a central political consideration in the run-up to Kenya's independence: much of Kenya's best land was in the hands of Europeans while vast numbers of Kenyans lived in overcrowded reserves shaped by colonial displacement. The Kenya African National Union (KANU), led by Kikuyu and Luo elites, favored a centralized state and market-mediated land transfer on a willing-buyer, willing-seller basis, against the *majimbo* federalism and homeland-based redistribution of the Kenya African Democratic Union (KADU) (Kanyinga, 2009). KANU's radical wing instead demanded the seizure of European land for the landless, and objected that the schemes required them to pay deposits and take loans for it (Kanyinga, 2000, p. 47). KANU prevailed, and the Lancaster House agreements (1960–1963) established the transfer arrangements: departing European settlers sold their farms to the Government of Kenya, financed by loans from the British government and the World Bank, and the state divided and redistributed a share of these holdings through the allocation of plots in developments known as settlement schemes (Morgan, 1963).

Access to land through the schemes depended on how households qualified and whether they were new settlers or existing occupants. Boone, Lukalo, and Joireman (2021) consider two broad types of scheme: *conventional schemes*, which dominated the program and allocated land to selected settlers who would move onto it, and *squatter schemes*, which reg-

ularized occupation by people already living on the land and did not imply relocation.[8] The five-year Million Acre Program, launched in 1962, illustrates the early selection arrangements. It operated with two 'arms': a high-density arm targeting landless and underemployed households, and a smaller low-density arm that screened for a wealthier class of farmers through a cash deposit and a test of agricultural background. High-density conventional schemes accommodated the large majority of the roughly 35,000 settler families (Leo, 1978).

For the settlers themselves, acquiring land also meant taking on debts and continuing obligations to the state. Under the Million Acre Program, settlers took their land as a settlement charge repayable over thirty years at six and a half percent, alongside a development loan repayable over ten years (Nottidge & Goldsack, 1966). Allocation did not confer ownership: settlers held letters of allotment (Colonial Office, 1964, p. 39) and could apply for title only once the state registered their scheme, a separate decision that often came years or decades later (Hassan & Klaus, 2023). Settlers also faced opaque loan accounts and uncertain entitlements, leaving continuing obligations alongside uncertainty about what support they were owed (Harmsworth, 1974). Schemes initially received agricultural services and assistance with production and marketing (Boone, Lukalo, & Joireman, 2021), but much support was quickly withdrawn as schemes were expected to become self-supporting after four years (Muhia, 1977).[9]

These arrangements gave public authorities considerable discretion over where schemes were established, who received land, whether settlers retained it, and how to apportion service delivery. The program's procedure divided this discretion: the government decided the site of each scheme and the ethnic group it would receive, and the Provincial Administration selected the settlers (Colonial Office, 1964, p. 61).[10] Placement followed available land but also recognized territorial claims: areas contiguous to former African reserves were planned around ethnic "spheres of influence" (Bates, 1989). Repayment and retention created further discretion because many settlers could not meet their loan terms and enforcement remained politically negotiable (Boone, 2012). Official schemes were one channel of transfer alongside purchases by individuals, cooperatives, and land-buying companies, which also depended on public credit and administrative approval (Kanyinga, 2009).

Kenya's government used agricultural marketing institutions to extract resources from some farming populations and protect the returns of others. Marketing boards and compul-

[8] Conventional schemes are more numerous and typically far larger: among mapped and located schemes allocated through 2002, conventional schemes account for 89 percent of hectares (Lukalo, Boone, & Joireman, 2019).

[9] For instance, in Ol Joro Orok, a cluster of settlement schemes in Nyandarua, the Department of Settlement withdrew in 1968–1970. Cooperatives continued maintaining services, although their subsequent deterioration is said to have undermined further development of the schemes (Gikenye, 1992, p. 68).

[10] Section C.1 documents the procedure.

sory cooperatives controlled access to buyers (Bates, 1981, 1989; Schluter, 1984), and on the schemes compulsory cooperatives purchased settlers' crops and deducted loan repayments from their receipts (Bates, 1989, pp. 74–75). These instruments operated through crops, markets, and administrative territories, so their incidence across ethnic groups depended on where those groups lived and farmed (Poulton & Kanyinga, 2014).[11]

The distributive politics of land remained a means of building political support across political transitions. Under Jomo Kenyatta (1963–1978), redistribution helped consolidate a governing coalition anchored in Kikuyu elites (Boone, 2012). Daniel arap Moi (1978–2002) initially emphasized continuity with Kenyatta through a policy of *Nyayo* (footsteps) before progressively reconstructing the governing coalition in favor of other groups (Branch & Cheeseman, 2009). Later scheme allocations accordingly favored Moi-aligned constituencies, while the return to multiparty competition increased the importance of land distribution in electoral strongholds and contested regions (Boone, Lukalo, & Joireman, 2021).

Settlement also became a focus of political contestation and conflict, as competing claims to land sustained societal divisions. Post-independence settlement carried forward disputes over the relative claims of migrant settlers and populations asserting historical rights to the same territory (Oucho, 2010). With the return of multiparty competition, these claims became instruments of electoral exclusion: violence in 1991–1992 targeted settlers on schemes and land-buying company farms in the Rift Valley (Boone, 2011). Disputes over post-independence transfers again figured prominently in the land conflicts preceding the 2007 election (Kanyinga, 2009).[12] Scheme allocation had thus transferred land without resolving the competing claims to belonging and political protection attached to it.

2.4 Settlement and Social Formation

The literature on Kenya's settlement schemes offers several accounts of how the formation and administration of the schemes could reshape social ties, the second consequence in Figure 1. Some run through who settled alongside whom, and others through settlers' experience of the state. These accounts motivate hypotheses about interpersonal trust, institutional trust, civic participation, and ethnic attachment and grievance, which the empirical analysis examines separately.

Settlement brought together households whose cooperation could no longer rest entirely

[11] Section C.3 traces the administrative controls and regional political interests through which these institutions redistributed agricultural resources.

[12] In 1991–92 the violence clustered on settlement schemes and land-buying company farms around areas such as Molo and Olenguruone, Burnt Forest in Uasin Gishu, and Kipkelion (Boone, 2011, pp. 1318, 1321). Before the 2007 election, the most protracted land conflicts concerned plot allocation on a settlement scheme in Mount Elgon and farms bought from departing settlers in Kuresoi (Kanyinga, 2009, p. 339).

on established kinship and neighborhood ties. The selection and relocation of households into conventional schemes could assemble communities of "strangers," whose members initially prioritized their farms and families over community formation (Harbeson, 1973, p. 306). Shared ethnicity did not necessarily provide familiarity or established obligations of mutual assistance. Settlers could draw on earlier acquaintances as well as build relationships with new neighbors (Gikenye, 1992). If rebuilding remained incomplete, scheme locations could therefore exhibit persistently lower interpersonal trust.

The settlement relationship could also weaken settlers' confidence in the state, through withdrawn support, conditional rights and the terms of purchase. Many found it infuriating that land they regarded as theirs had to be paid for (Hornsby, 2012), and the settlement bureaucracy was built to control a landless population, "some of them seething with resentment" (Leo, 1984, p. 104). A decade later, settlers still lacked confidence in settlement staff and feared to approach them with grievances (Harmsworth, 1974). Among survey respondents decades later, such distrust might persist through unresolved issues or transmission within communities. Scheme locations could therefore exhibit lower trust in the institutions that administered settlement.

The need to build relationships and provide collectively for local needs could encourage settlers to form new civic organizations. Alongside official cooperatives, settlers organized self-help groups, informal meetings, and rival cooperatives (Harbeson, 1973). Such associations could help sustain collective provision and replace inherited networks, as documented in Zimbabwean resettlement communities (Barr, 2004). Civic engagement could consequently increase even where interpersonal relationships remained unsettled or confidence in government was low.

Politically selective allocation could reinforce ethnic boundaries and grievances over who benefited from settlement. Within a system that linked ethnic claims to land allocation, favoritism could strengthen identification with the group through which land was obtained, while exclusion could deepen perceptions of unfair treatment. Yet proximity also creates opportunities for integration. In Kenya, residential segregation is associated with lower interethnic trust (Kasara, 2013), while studies from other contexts find that ethnic attachment can strengthen where a few large groups predominate (Bazzi et al., 2019). Ethnic attachment and grievance could therefore strengthen where allocation hardened group boundaries, or weaken where shared residence fostered integration.

These accounts need not be mutually exclusive: settlers could build new civic relationships while remaining distrustful of public authorities or aggrieved by unequal access to land. The empirical analysis tests their implications by examining whether scheme exposure is associated with distinct patterns across the four dimensions of social ties.

3 Data and Spatial Framework

I combine mapped settlement schemes, historical census records, and geocoded household surveys to measure settlement exposure, demographic change, and contemporary outcomes. Figure 2 shows the schemes and their allocation dates against the 1938 European land bank.

3.1 Data Sources and Construction

3.1.1 Census Records and Historical Locations

My primary data to measure demographic change are census data from the Kenya National Bureau of Statistics (KNBS). I first digitize census tables for 1962 from archival hard copies (Kenya, Directorate of Economic Planning, 1964–1965), allowing me to obtain baseline population by sex and ethnicity per location, a historical administrative unit below districts and above sub-locations. I then compile KNBS census microdata from the 1979 and 1989 censuses, which record demography in more detail (age, sex, ethnicity, education, birthplace, migration status) (Kenya National Bureau of Statistics, 1969–2009).[13]

To link census rounds, I assign all sources to 472 locations defined at the 1962 census using boundaries digitized by Jedwab, Kerby, and Moradi (2017), and correct these for displacement against key reference points.[14] I then match the 1962 ethnic tables to this frame and harmonize ethnic categories with those in the later censuses. I also obtain shapefiles for the 1979 location and 1989 sub-location boundaries and assign each later census sub-location whole to one 1962 location using geographic overlap and administrative identity, with manual adjudication of ambiguous assignments.[15] The result is that I can trace population, ethnic composition, and migration across the three census rounds.

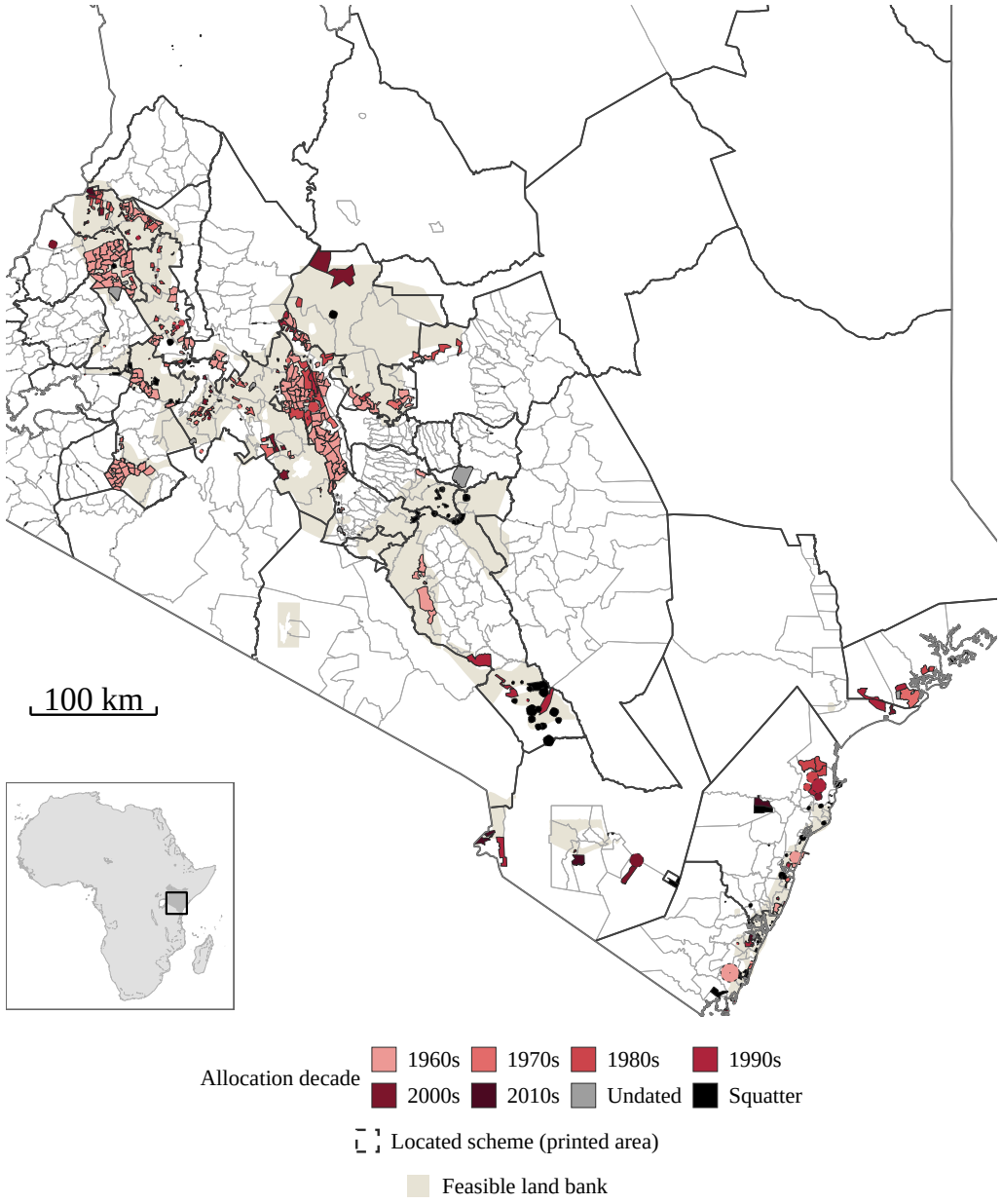
The main analysis window for demographic outcomes is 1962–1989, the first and last years that location-level ethnicity was reported in publicly available census data. The 1979 census provides an intermediate point near the end of the Kenyatta era, followed by a decade under Moi. My estimation frame contains 348 locations in the 24 (of 41) districts reached by mapped settlement schemes allocated through 1988. The main demographic outcomes

[13] Census microdata contain enumeration area, sub-location, and location codes, but not labels, requiring me to decode these manually. For 1989, I do so using a reference map produced by the World Resources Institute (WRI) (World Resources Institute [WRI], 2007). For 1979, I do so by additionally digitizing hard copy census tables (Kenya, Central Bureau of Statistics, 1981) and matching administrative units hierarchically on population, sex, and ethnicity.

[14] As digitized, these boundaries are displaced from the KNBS district outline, increasingly so toward the coast. I correct them using a second order polynomial transformation fitted to the international borders, the Lake Victoria shore and the coast. Section D.3 describes this process.

[15] I obtain digitized 1989 sub-location boundaries from the World Resources Institute (WRI, 2007) and digitized 1979 location boundaries from KNBS. Section D.1 describes the rules for matching and validating assignments across census rounds. Table D.1.1 summarizes the final multi-round coverage.

Figure 2: Settlement schemes, allocation timing, and feasible land.



Note Red shades mark allocation decades, gray marks undated schemes, and black marks squatter schemes, which lie outside the exposure measure. Dashed circles show the printed areas of the 107 located unmapped schemes, identified through 2002 and centered on their evidence points. They are not boundaries. Phases of a scheme recorded at the same place share one evidence point, so their circles overlap, and a circle can extend over an adjacent mapped scheme. The shaded mask combines land alienated by 1938 and land recorded as available for alienation, excluding the masks of Morgan (2000). Figure B.1.1 shows its decomposition, rainfall and topography. Bold boundaries mark historical districts and hairlines mark 1962 locations (Section D.3).

are measured on 339 locations with complete baseline controls and 1989 observations: eight locations lack baseline controls and one lacks a 1989 observation.[16]

3.1.2 Settlement Schemes and Exposure

To measure settlement exposure I use the settlement scheme inventory of Lukalo, Boone, and Joireman (2019) and the accompanying subset with georeferenced boundaries presented in Boone, Lukalo, and Joireman (2021). The inventory lists 521 schemes and is compiled at a scheme level, recording each scheme's name, allocation year, registration year, area in hectares, number of settlers, and whether it was a conventional or squatter scheme. As an independent validation check, I verify coverage against the Department of Settlement's 1965 roster (Nottidge & Goldsack, 1966).[17]

To use schemes as an exposure measure that can be linked to census and survey data, I need to know which 1962 location they are in, their size in hectares, and their initial allocation year. Of the 365 mapped polygons in Boone, Lukalo, and Joireman (2021), 326 have a printed area and allocation year in Lukalo, Boone, and Joireman (2019), so I exclude the remaining 39 from estimation. Restricting exposure to mapped schemes would keep only those whose maps survive, which are earlier, larger and more often conventional schemes, so I also attempt to locate unmapped schemes with known sizes and allocation years.[18] I am able to locate a further 107 with a known size and allocation year. Allocation years are those printed in the report.

Mapped and located conventional schemes form the main exposure measure. Squatter schemes, which regularized existing occupation and so did not principally involve the movement of populations, act as a placebo in the mechanism and robustness analyses.[19] I divide a location's conventional scheme land by its 1962 population. Scaling by the pre-existing population measures *resettlement intensity*: the same acreage is a large addition to a sparse location and a small one to a populous location. For demographic outcomes, chiefly measured as the 1962–1989 change, I use conventional schemes allocated through 1988, before the 1989 census. For contemporary outcomes I use schemes allocated through 2002, before

[16] These are mostly forests and bush. These locations are excluded from any comparisons which require baseline controls, which includes the main regressions. Including them with an indicator for the missing baseline changes none of the contemporary estimates beyond the third decimal. Section D.1 describes the census construction and missing observations in more detail.

[17] The 1965 roster is matched to the polygon layer by name. On exact name agreement alone, coverage is 89 percent of planned plots and acreage.

[18] Chiefly I do so using census units named after the scheme as well as scraping Kenya Gazette notices and court records using LLMs. Section D.2 describes the assignment process in greater detail.

[19] Locations with squatter land alone therefore count as unexposed in the main analyses, and locations with both types are exposed only to their conventional land.

the first Afrobarometer and DHS surveys in 2003.[20] Conventional schemes allocated by 1988 reach 112 of the 472 locations,[21] where 5.7 million people lived in 1989.

3.1.3 Colonial Land and Geographic Covariates

I measure the colonial land base with the 1938 *Map of the Colony & Protectorate of Kenya* (Waterlow & Sons), digitized by Jedwab, Kerby, and Moradi (2017). The map distinguishes land already allocated to European settlers (alienated land) from land classified as available and suitable for further alienation. I measure each location's share of alienated land and combine the two categories to define the historical European land bank.

I condition on baseline demography, agricultural geography and market access in all main regressions. The demographic controls come from my reconstruction of the 1962 census: Kikuyu and Kalenjin shares, ethnic diversity (one minus the Herfindahl index over resident Kenyan groups), log population and log population density. Agricultural covariates comprise crop suitability, median elevation, mean slope, mean monthly precipitation, and within-year precipitation and temperature variability, averaged over each location on a common 30-arc-second (about 1 km) grid. Crop suitability is the highest rain-fed, high-input suitability index in the FAO–IIASA Global Agro-Ecological Zones database, GAEZ v5 (FAO and IIASA, 2025), among the crops named in the 1965 scheme farm plans (Nottidge & Goldsack, 1966). Elevation and slope come from SRTM (Jarvis et al., 2008), and climate from WorldClim 2 (Fick & Hijmans, 2017).[22] Market access is log distance to the nearer of Nairobi and Mombasa, with standardized population-weighted market potential in 1962 and log distance to the nearest railway station in 1938 from the replication files of Jedwab, Kerby, and Moradi (2017).

Table 1 reports baseline balance across the full conditioning vector. Scheme locations differed at baseline: lower population density and lower ethnic concentration, higher elevation, less seasonal rainfall, closer rail access, higher Kikuyu and Kalenjin shares, and a share of land alienated under the 1938 regime more than four times that of the comparison group. This is expected and consistent with the historiography of the settlement schemes: they were predominantly carved out of land that had been alienated for European settlement during the colonial period precisely because it was the most agriculturally productive.

[20] Exposure through 1988 would omit schemes allocated before the surveys. The robustness analyses report it, and the main results hold.

[21] Of the 339 locations in the balance table and the 1962–1989 demographic regressions, 109 have conventional scheme land through 1988. Contemporary material outcomes use a common sample of 32,345 households in 318 baseline-complete locations.

[22] I omit mean temperature, which is nearly collinear with elevation.

Table 1: Baseline balance: 1962 characteristics by settlement scheme status

Characteristic	Scheme locations	Non-scheme locations	Difference	t
Baseline demography				
Log population (1962)	9.34	9.37	−0.03	−0.30
Log pop. density (1962)	3.58	4.07	−0.50	−2.92
Kikuyu share (1962)	0.31	0.24	+0.07	1.62
Kalenjin share (1962)	0.20	0.12	+0.07	2.05
Ethnic HHI (1962)	0.71	0.90	−0.19	−7.06
Agro-ecology and geography				
Crop suitability (maximum)	0.57	0.60	−0.03	−1.53
Elevation (m)	1670	1223	+447	4.98
Slope (degrees)	4.63	4.94	−0.31	−1.03
Precipitation, mean	92.81	94.89	−2.08	−0.70
Precipitation, s.d.	50.62	64.40	−13.78	−5.97
Temperature, s.d.	0.93	1.07	−0.14	−4.29
Log distance to Nairobi or Mombasa	4.85	4.72	+0.14	1.51
Market access and land supply				
Alienated share, 1938 land regime	0.50	0.10	+0.41	10.32
Market potential, 1962 (standardized)	0.31	0.02	+0.29	2.53
Log distance to 1938 railway station	2.86	3.35	−0.49	−3.87
Locations	109	230		

Note The table covers the 339 locations of Table 3, in the 24 historical districts with settlement schemes. Of these, 109 have conventional scheme land allocated by 1988. Means and differences are unadjusted, and t is the unclustered Welch statistic. Population and ethnicity come from the 1962 census, and HHI covers resident Kenyan ethnic groups.

3.1.4 Contemporary Outcomes

To examine social ties, I use geocoded Afrobarometer data, which for Kenya covers rounds 2–6, fielded in 2003, 2005, 2008, 2011 and 2014 (BenYishay et al., 2017). I locate each respondent by assigning their enumeration area whole to a 1962 location using recorded census codes, place names and administrative units in rounds 3–6, and the recorded division in round 2, which records nothing finer. I construct four outcome families: interpersonal trust, institutional trust, civic participation, and ethnic attachment and grievance. These outcome families capture relationships with other people and public institutions, participation in collective life, and ethnic identification and perceived treatment.[23]

To measure material conditions, I use household records from the Kenya Demographic and Health Surveys (DHS) of 2003, 2008–09 and 2014 (ICF, 2004–2015) (i.e. the same period for which I have Afrobarometer data, such that the findings are directly comparable) and harmonized night-time lights of Tang et al. (2025) matched to DHS location-years. Using

[23]I estimate the first principal component for each outcome family separately within round using the items fielded, requiring at least two answered items in each round. I then sign each round's component to correlate positively with the mean of the family's items and standardize the resulting score within round.

the DHS data, I construct principal component indices of housing quality, durable assets and education.[24] I assign DHS households to historical locations using the supplied geographic coordinates. The size of these locations reduces sensitivity to coordinate displacement, although assignments near boundaries can still change. For ethnicity fixed effects, I assign each household its head's reported ethnicity if the head was interviewed, otherwise the ethnicity all interviewed members report, and an unknown category otherwise. Section D.4 describes the survey items, index construction and geographic assignment.

3.1.5 Historical Evidence on Recipients

I compile historical evidence on recipients' ethnicity to document whom the program was intended to settle and who was recorded at subsequent stages of settlement. The catalogue contains the 521 schemes of Lukalo, Boone, and Joireman (2019), of which 357 are mapped and 164 unmapped. I recover ethnicity evidence for 197 schemes: 166 mapped and 31 unmapped. Ethnicity evidence, whether scheme specific or for a broader group of schemes, covers 42 of 97 in Central (43.3 percent), 64 of 178 in the Rift Valley (36.0 percent), and 87 of the 107 allocated between 1962 and 1966 (81.3 percent). I retain each statement's population stage: intended designations, early settlement snapshots and later resident counts describe different populations. Section C.5 reports the scheme-level evidence and its sources.

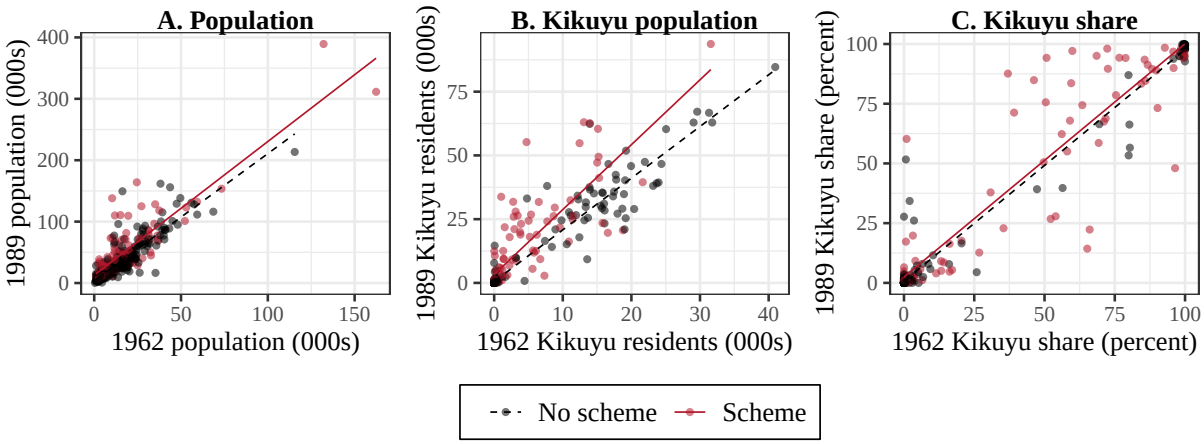
3.2 Demographic Change before Adjustment

Between 1962 and 1989, scheme locations grew faster than other locations, and most of their excess growth over non-scheme locations was Kikuyu. Per 100 residents of their mean 1962 and 1989 population, scheme locations gained about 98 residents against 73 elsewhere, held three times as many in-migrants by 1989, and gained 37 Kikuyu residents against 16 (Table 2, Panel A). Figure 3 shows the same contrast location by location.

Ethnic concentration held steady in scheme locations while it fell elsewhere, so the raw contrast in composition comes mainly from non-scheme locations diversifying. The Kikuyu share rose by about two percentage points in scheme locations and barely moved elsewhere. In Panel C of Figure 3, the fitted lines of 1989 on 1962 share nearly coincide. Over the same period the ethnic Herfindahl index fell by about 0.05 in non-scheme locations and held steady in scheme locations (Table 2, Panel B). Between 1962 and 1989, then, the comparison locations diversified modestly while scheme locations did not.

[24] Each index is the first principal component of its items, divided by the component's standard deviation across the DHS households on which it is estimated, so that coefficients are in standard deviations.

Figure 3: Demographic endpoints in scheme and non-scheme locations, 1962–1989.



Note The figure shows the 339 locations of Table 3, of which 109 have conventional scheme land allocated by 1988. Panels A and B plot 1989 against 1962 population and Kikuyu residents, in thousands. Panel C plots the Kikuyu share of resident Kenyan ethnic groups, in percent. Black dashed and red solid lines are unadjusted linear fits for non-scheme and scheme locations.

Table 2: Demographic change in scheme and non-scheme locations, 1962–1989

Outcome	Scheme locations	Non-scheme locations	Difference
Panel A. Per 100 residents			
Population change	98.1	73.4	+24.7
In-migrants, 1989	34.0	11.5	+22.5
Kikuyu change	36.7	16.0	+20.7
Panel B. Change in ethnic composition (0–1 scale)			
Kikuyu share	0.017	−0.000	+0.018
Ethnic HHI	0.000	−0.051	+0.051
Largest-group share	0.009	−0.034	+0.042
Locations	109	230	

Note Unadjusted means of the outcomes of Table 3 on its 339 locations, of which 109 have conventional scheme land allocated by 1988. Panel A outcomes are per 100 residents of mean 1962 and 1989 population, and in-migrants are 1989 residents born outside their district. Panel B covers resident Kenyan ethnic groups. Differences carry no inference.

4 Empirical Strategy

I estimate regressions of demographic change and contemporary outcomes on intensity of resettlement (measured in hectares of settlement scheme land allocated per 1962 resident). The principal empirical challenge is that scheme sites were selected twice: colonial alienation selected for agriculturally valuable and accessible land, and in the run-up to and after independence, Kenya's new government purchased much of this land and selected parts to redistribute as schemes, while the rest was allocated through other channels, such as large farms and plots sold to individuals, cooperatives and land-buying companies. I mitigate concerns around selection by establishing conditional correlations that narrow the scope of alternative explanations for the observed associations other than the effect of resettlement. Key to this approach are the use of granular controls and fixed effects to compare locations within the same administrative and land setting, and a simulated placement lottery that compares the observed distribution of settlement schemes with counterfactual placements on similar land.

4.1 Demographic Change

For location ℓ in historical district d and census interval τ, I estimate:

$$y^{\tau}_{\ell d} = \alpha + \beta \, \text{Schemes}_{\ell d} + \mathbf{x}'_{\ell d}\boldsymbol{\gamma} + \delta_d + \varepsilon_{\ell d}, \tag{1}$$

where $\text{Schemes}_{\ell d}$ is hectares of conventional scheme land per 1962 resident, combining mapped polygon area with the printed area of located unmapped schemes, allocated through 1988, before the 1989 outcome census.[25] The main outcomes are the 1962–1989 changes in population and Kikuyu residents, each per 100 residents of the location's average 1962 and 1989 population (Panel A of Table 3), and the changes in Kikuyu share and ethnic HHI on the resident Kenyan ethnic population (Panel B). The vector $\mathbf{x}_{\ell d}$ contains baseline Kikuyu and Kalenjin shares, ethnic diversity, log population, log population density, geographic and market access controls, and δ_d denotes district fixed effects.[26]

The specification compares changes in exposed and unexposed locations within the same historical district. Measuring change removes differences in initial outcome levels, but does not remove differences in subsequent trends. The outcomes are net changes: they combine settlers, later migrants, returnees and natural increase. Reading β as a consequence of the

[25] The period-matched Kenyatta and Moi comparisons use the 1962–1979 and 1979–1989 intervals (Table B.2.1).

[26] Supporting comparisons use the same exposure measure for the 1989 in-migrant stock and alternative population-share measures (Table B.2.2).

program requires that, conditional on baseline characteristics and district effects, scheme exposure is unrelated to the demographic change a location would otherwise have experienced.

4.2 Contemporary Outcomes

For respondent or household i in location ℓ, district d and survey round t, I estimate:

$$y_{i\ell dt} = \alpha + \beta \, \text{Schemes}_\ell + \mathbf{x}'_\ell \boldsymbol{\gamma} + \mathbf{w}'_i \boldsymbol{\psi} + \delta_d + \theta_t + \varepsilon_{i\ell dt}, \tag{2}$$

where $\mathbf{w}_i$ are individual covariates and θ_t are survey round fixed effects. The outcomes are the four Afrobarometer families and the DHS material indices. Exposure counts conventional schemes allocated through 2002, and the location controls are those of (1). For Afrobarometer, individual covariates include age, sex and education, with respondent ethnicity fixed effects in additional specifications.

For the linear specifications, I conduct inference using the restricted wild cluster bootstrap-t (Cameron, Gelbach, & Miller, 2008), clustered by historical district for the demographic outcomes and by 1962 location for the contemporary outcomes, with 999 Rademacher draws.[27] Night-time lights enter in levels through Poisson pseudo-maximum likelihood with the same exposure measure, location controls, and district and year fixed effects. The coefficient is a change in log mean radiance, so $e^\beta - 1$ is the proportional change, with location-clustered inference using $t(G-1)$ critical values.

4.3 Counterfactual Placement

Contemporary outcomes have no pre-program measures, so persistent local characteristics may explain both scheme placement and later differences even after conditioning on baseline controls and district fixed effects. The placement comparison asks a narrower question: is the observed association unusual among the programs the state could have built on the same land? Following Dell and Olken (2020), I move each scheme among historically feasible sites, keeping its acreage and allocation year, and re-estimate the observed regressions on every counterfactual program, with outcomes held fixed while exposure moves.

This comparison is informative only if the observed sites were not uniquely suited to the program and similar sites existed nearby. I document the assignment process from

[27] For the demographic outcomes, clustering by historical district is a conservative choice. I treat the district as the level at which schemes were planned and land was apportioned, and schemes also cross location boundaries: 53 percent of the conventional schemes allocated through 1988 place at least one percent of their area in each of two or more 1962 locations. For the contemporary outcomes, I cluster at the level at which exposure is assigned (Abadie et al., 2023), the 1962 location, which also contains whole survey sampling clusters. Table E.8.1 reports alternative inference.

the colonial government's report for 1962 and the Kenyan government's Economic Survey (Section C.1). The process started with purchase: Kenya's Settlement Board purchased land farm-by-farm, negotiating with each European owner at a valuation set by formula. Within its first year it was buying in most parts of the former European areas (Colonial Office, 1964, pp. 3, 61), and by 1966 it had bought about a fifth of the White Highlands (Boone, 2012, p. 79). Which farms came onto the market depended on their owners: owners of prime land were much less willing to sell than owners of marginal land (Leo, 1978, p. 621). The government then decided where schemes went and which group each would receive (Colonial Office, 1964, p. 61). Whereas other studies which use a similar methodology, notably Dell and Olken (2020) and Kok et al. (2025), argue that the choice among historically feasible sites was close to arbitrary (made on coarse information or under cost pressure), the Kenyan record shows that siting was an overtly political decision. The placement comparison therefore reproduces the documented constraints and varies the siting decision within them. A high or low percentile for the observed coefficient shows that an association is specific to the sites the government chose, but not why it chose them, and it describes the observed coefficient against feasible programs rather than sampling uncertainty.

The counterfactual placement lottery is structured based on rules derived from the historical record. First, alternative placements are restricted to sites the program could have bought and used: each lies in the 1938 European land bank after removing lakes and land recorded as 'negligibly populated' by Morgan (2000).[28] Second, because the government allocated schemes to groups within ethnic spheres of influence, each alternative's centroid stays in the scheme's dominant historical district. Third, because the program bought farms whole and laid them out as smallholdings, each alternative preserves the scheme's acreage, keeps its shares of alienated, available and other land within ten percentage points of the observed footprint and offers land suitable for farming.[29] The Kenyan record specifies neither distance nor spacing, so two rules take the conventions of Dell and Olken (2020): each alternative's centroid lies 5 to 20 km from its recorded site, about one to four scheme lengths at the median scheme size, and no more than a fifth of any footprint may lie under other schemes. Mapped schemes move as their actual polygons and located schemes as printed area circles. Schemes without admissible alternatives stay fixed in place.

[28]Morgan (2000) maps and describes the state of this land in 1962, the key period (at baseline) when purchasing decisions were made. Reasons given for negligible population at the time include the use (or intended use) of land to constitute national parks, and tracts of land regarded as uninhabitable bush.

[29]Specifically, a 30-arc-second cell is suitable if, relative to land within 20 km of the province's conventional schemes, its elevation and slope are no higher than the 90th percentile and its crop suitability, annual rainfall and mean temperature are no lower than the 10th percentile, thresholds that follow Dell and Olken (2020). A site qualifies if its suitable share reaches the 10th percentile among the province's actual conventional schemes. Section D.3 gives the complete rule.

A chronological lottery assembles each counterfactual program. Schemes enter in their recorded allocation years, in random order within each year, and each draws an admissible anchor and then a bearing uniformly, redrawing any placement that breaches the overlap limit. I retain the first 1,000 completed lotteries for each allocation window and scheme coverage measure (Figure 4).[30] For each program I rebuild land per 1962 resident and re-estimate the regression on the same outcomes, controls and sample. The lottery mean captures the association that placing the same schemes on similar land in the same district would produce, for instance because outcomes vary with proximity to former European land. Subtracting it gives the site-specific difference. I report the observed coefficient, the lottery mean, their difference and the observed coefficient's percentile in the lottery distribution.[31]

The lottery does not reproduce observed placement exactly. Observed placement is more densely populated, has a lower baseline Kalenjin share, a higher share of alienated land and greater temperature seasonality than the lottery typically produces. Through 2002, these four characteristics lie outside their 95 percent lottery ranges, although their mean differences are below 0.10 location standard deviations (Figure B.1.3). Within colonial farmland, the schemes occupied land no less suitable for crops than the rest, though higher, wetter and cooler, and within districts only the rainfall difference is distinguishable from zero (Table B.2.3). These differences reflect the two decisions behind each scheme: which land was purchased, and which parts of it the government allocated as settlement schemes rather than through other channels.

5 Results

Settlement exposure is associated with Kikuyu population gains, while its association with institutional trust is more negative than under virtually all feasible alternative placements of the program.

5.1 Demographic Re-sorting

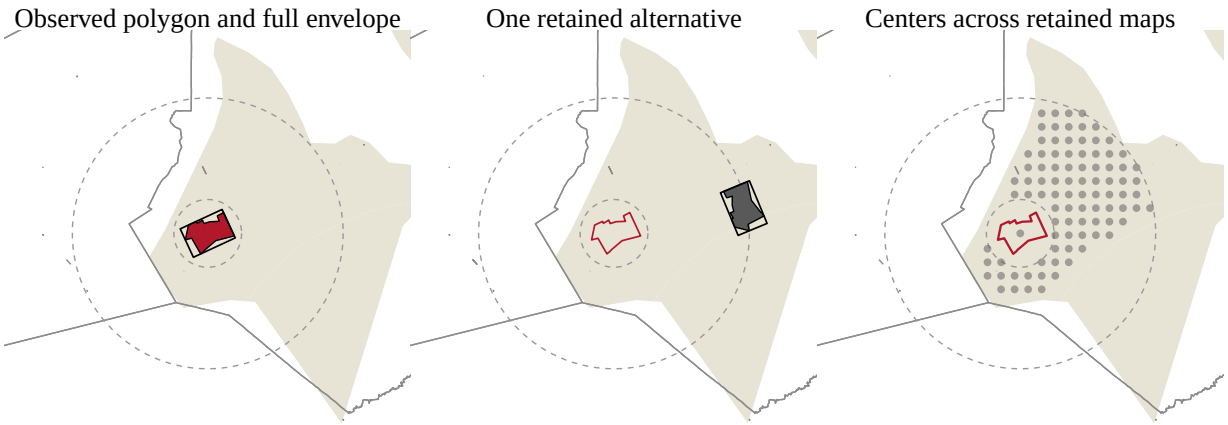
Within historical districts, greater scheme exposure is associated with population growth concentrated among Kikuyu residents. Exposure is skewed: of the 109 exposed locations, about half hold less than 0.1 hectares of scheme land per 1962 resident and about a quarter hold one hectare or more. Relative to locations in the same district, each hectare of scheme

[30] An attempt is discarded if a scheme has no feasible site left, so the distribution conditions on completion rather than sampling uniformly from all feasible programs.

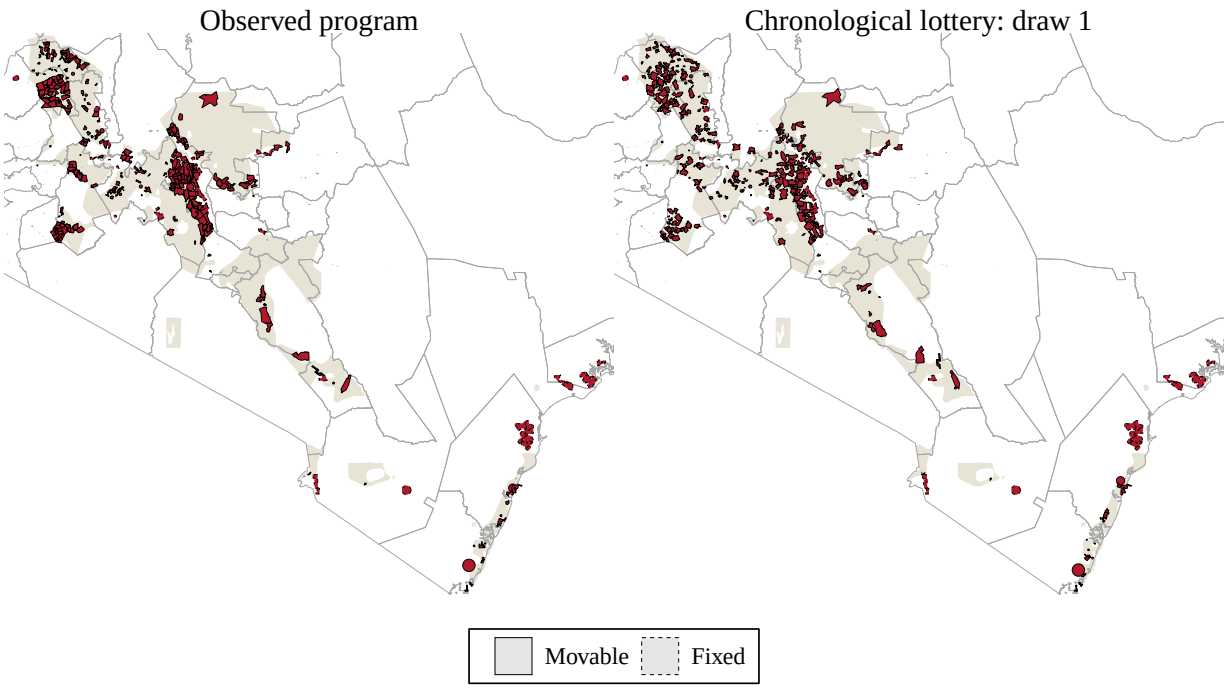
[31] The lottery programs reuse many of the same locations, and their exposure correlates 0.92 with observed exposure after controls and fixed effects, so much of each observed association carries into the lottery mean.

Figure 4: Construction and example of feasible program placements.

A. Local placement construction



B. Observed and counterfactual programs



Note Panel A shows Kineni, the movable mapped scheme with at least twenty alternatives nearest the median acreage. It plots the observed polygon in red with its enclosing rectangle, one simulated alternative, and the simulated scheme centers in dark gray. Dashed rings are 5 and 20 km, and beige is the masked land bank. Panel B compares the observed program through 2002 with the first completed simulated allocation. Red marks scheme exposure, with mapped polygons and located schemes drawn as printed area circles. Dashed borders mark fixed schemes.

land per resident is associated with about 12 more residents per 100 between 1962 and 1989 (wild cluster bootstrap $p = .012$), of whom about 9 were Kikuyu ($p = .006$; Table 3). These are the within-district counterparts of the raw gaps in Panel A of Table 2, which set any scheme land against none.

The counterfactual placement analysis adds nuance to this finding, and shows that the Kikuyu gain is not confined to the locations the schemes reached.[32] Practically, this means that the demographic change associated with scheme placement is part of a larger shift in areas adjacent to the schemes, which largely comprises other parts of the land alienated by colonial settlers on which no schemes were allocated.[33]

Greater scheme exposure is also associated with an increase in the Kikuyu population share at the location level. Each hectare of scheme land per resident is associated with a 3.5 percentage point larger increase in Kikuyu share between 1962 and 1989 ($p = .004$). The Herfindahl association is positive in both specifications but distinguishable from zero only across districts ($p = .035$ without district fixed effects and $p = .230$ with them; Panel B of Table 3), which matches the raw contrast in Panel B of Table 2, where non-scheme locations diversified and scheme locations did not. The count estimates are similar in both specifications, and the Kikuyu share estimate is the same size but imprecise without fixed effects ($p = .160$). Together, these estimates document a Kikuyu gain within and across districts, and ethnic concentration across districts.

5.2 Consequences of Resettlement

Settlement exposure is associated with lower institutional trust. I first report within-district regression associations, then compare them with the distributions generated by feasible placements of the same program.

5.2.1 OLS

Of the four families of social ties, only institutional trust is associated with scheme exposure. Within historical districts, each hectare of scheme land per 1962 resident is associated with an institutional trust index 0.08 standard deviations lower (wild cluster bootstrap $p = .014$), while interpersonal trust, civic participation and ethnic attachment are not significant at ten percent. A difference of one standard deviation in exposure across respondents, 0.85

[32] The observed coefficient lies in the lower tail of a lottery distribution centered on a larger positive association: placing the same schemes on feasible sites 5 to 20 km from their recorded ones yields a larger Kikuyu change in 99 percent of programs (Figure B.1.2).

[33] As shown in Figure 2. Spillovers from the schemes, Kikuyu settlement through other channels of land transfer and geographically correlated demographic trends could each contribute. Section 6.2 uses scheme-level ethnicity evidence to link the gain to the program's own allocations.

Table 3: Settlement, population change and ethnic composition at 1962 locations, 1962–1989

Dependent variable	Per 100 residents of average 1962 and 1989 population			
Outcome	Population change		Kikuyu change	
	(1)	(2)	(3)	(4)
Panel A. Population change				
Scheme land per resident (ha)	9.20	12.06	9.55	9.30
	[.007]	[.012]	[.040]	[.006]
	[3.22,14.99]	[4.94,17.47]	[0.37,17.42]	[1.45,16.61]
Observations (exposed)	339 (109)	339 (109)	339 (109)	339 (109)
Mean of dependent variable	81.4	81.4	22.7	22.7
Dependent variable	Change, 1962–1989, zero-to-one scale			
Indicator	Kikuyu share		Ethnic HHI	
	(5)	(6)	(7)	(8)
Panel B. Ethnic composition				
Scheme land per resident (ha)	0.035	0.035	0.046	0.017
	[.160]	[.004]	[.035]	[.230]
	[−0.013,0.086]	[0.006,0.085]	[0.003,0.109]	[−0.015,0.057]
Observations (exposed)	339 (109)	339 (109)	339 (109)	339 (109)
Mean of dependent variable	0.005	0.005	−0.035	−0.035
Controls	✓	✓	✓	✓
District FE		✓		✓

Note Each coefficient is from a separate regression on 339 locations in 24 historical districts, with the controls of Equation (1). Odd-numbered columns omit the district fixed effects and even-numbered columns include them. Exposure is conventional scheme land allocated by 1988 per 1962 resident (Section 3). Panel A outcomes are 1962–1989 changes per 100 residents of average 1962 and 1989 population. Panel B outcomes are changes on a zero-to-one scale over the resident Kenyan ethnic population. Square brackets give restricted wild cluster bootstrap-t p-values and 95 percent intervals (999 draws, clustered by historical district).

hectares per 1962 resident, corresponds to an index about 0.06 standard deviations lower.[34] Among the components, trust in parliament and in the courts decline most, each significant at five percent, trust in the president declines by a similar amount but is not significant at ten percent, and trust in the local council is close to zero,[35] so the deficit concerns central state institutions, while trust in local government and in other residents shows no association. With respondent ethnicity fixed effects, institutional trust, parliament and the courts remain significant at five percent, and trust in the president is significant at ten

[34]For comparison, a one standard deviation increase in historical slave exports is associated with trust about 0.10 to 0.16 standard deviations lower (Nunn & Wantchekon, 2011, p. 3233). Their measures concern relatives, neighbors, the local council and ethnic groups, while the deficit here lies in trust in central institutions, which they do not examine.

[35]Rounds 2–5 ask about trust in "your elected local government council", the county, municipal and town councils that administered local services. These were distinct from the central institutions and preceded devolution. Round 6 asks about the county assembly created by devolution in 2013.

percent (even-numbered columns of Table 4).

Table 4: Settlement exposure and Afrobarometer outcomes, allocations through 2002

Dependent variable	Afrobarometer index (standard deviations)							
Outcome	Interpersonal trust		Institutional trust		Civic participation		Ethnic attachment and grievance	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A. Afrobarometer PCA families								
Scheme land per resident (ha)	0.004	0.019	−0.076	−0.075	0.030	0.029	0.043	0.056
	[.930]	[.664]	[.014]	[.016]	[.278]	[.297]	[.746]	[.557]
	[−0.111,	[−0.089,	[−0.160,	[−0.157,	[−0.026,	[−0.028,	[−0.071,	[−0.057,
	0.088]	0.096]	-0.011]	-0.010]	0.084]	0.084]	0.199]	0.214]
	2,764	2,764	5,654	5,654	5,695	5,695	4,038	4,038
Observations (exposed)	(1,239)	(1,239)	(2,482)	(2,482)	(2,501)	(2,501)	(1,817)	(1,817)
Dependent variable	Afrobarometer index (standard deviations)							
Outcome	President		Parliament		Local council		Courts	
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Panel B. Institutional trust components								
Scheme land per resident (ha)	−0.060	−0.062	−0.093	−0.094	−0.011	−0.009	−0.062	−0.057
	[.109]	[.087]	[.013]	[.009]	[.690]	[.747]	[.026]	[.045]
	[−0.146,	[−0.147,	[−0.174,	[−0.174,	[−0.066,	[−0.063,	[−0.131,	[−0.127,
	0.011]	0.007]	-0.021]	-0.024]	0.044]	0.043]	-0.006]	-0.000]
	5,619	5,619	5,533	5,533	5,465	5,465	5,487	5,487
Observations (exposed)	(2,467)	(2,467)	(2,430)	(2,430)	(2,398)	(2,398)	(2,403)	(2,403)
Controls	✓	✓	✓	✓	✓	✓	✓	✓
Round FE	✓	✓	✓	✓	✓	✓	✓	✓
District FE	✓	✓	✓	✓	✓	✓	✓	✓
Respondent ethnicity FE		✓		✓		✓		✓

Note Respondent-level OLS on Afrobarometer rounds 2–6 (rounds 3–5 for interpersonal trust), with allocations through 2002, the controls of Equation (2), individual controls, and district and round fixed effects. Even-numbered columns add respondent ethnicity fixed effects for 12 groups and a residual category. Family scores are first principal components of the questions fielded in each round (Section D.4), and all outcomes are standardized within round. Square brackets give restricted wild cluster bootstrap-t p-values and 95 percent intervals (999 draws, clustered by 1962 location).

Night-time luminosity declines with scheme land, while the education association is positive. Each hectare of scheme land per resident is associated with night-time lights about 25 percent lower ($p = .016$) and with education 0.05 standard deviations higher ($p = .031$). Housing quality and durable assets are close to zero (Table 5). With equal item weights, durable assets are positive and significant at one percent (Table E.7.3), so the asset result depends on how items are weighted. With household ethnicity fixed effects, each association keeps its sign and education remains significant at five percent. The material outcomes give no consistent sign of the development the program was financed to deliver.

5.2.2 Actual versus Feasible Placement

Against feasible placements of the same program, observed institutional trust and housing quality both lie low. The observed institutional trust coefficient of about −0.08 compares

Table 5: Settlement exposure and material outcomes, allocations through 2002

Dependent variable	Material outcome (PCA in standard deviations, lights in levels)						
Outcome	Housing quality		Durable assets		Education		Night-time lights (PPML)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Scheme land per resident (ha)	−0.010	−0.017	0.018	0.012	0.053	0.039	−0.285
	[.757]	[.620]	[.275]	[.506]	[.031]	[.037]	[.016]
	[−0.076,	[−0.079,	[−0.015,	[−0.019,	[0.005,	[0.003,	[−0.517,
	0.076]	0.072]	0.063]	0.060]	0.088]	0.075]	-0.053]
	32,345	32,345	32,345	32,345	32,345	32,345	32,345
Observations (exposed)	(14,858)	(14,858)	(14,858)	(14,858)	(14,858)	(14,858)	(14,858)
Controls	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓
District FE	✓	✓	✓	✓	✓	✓	✓
Household ethnicity FE		✓		✓		✓	

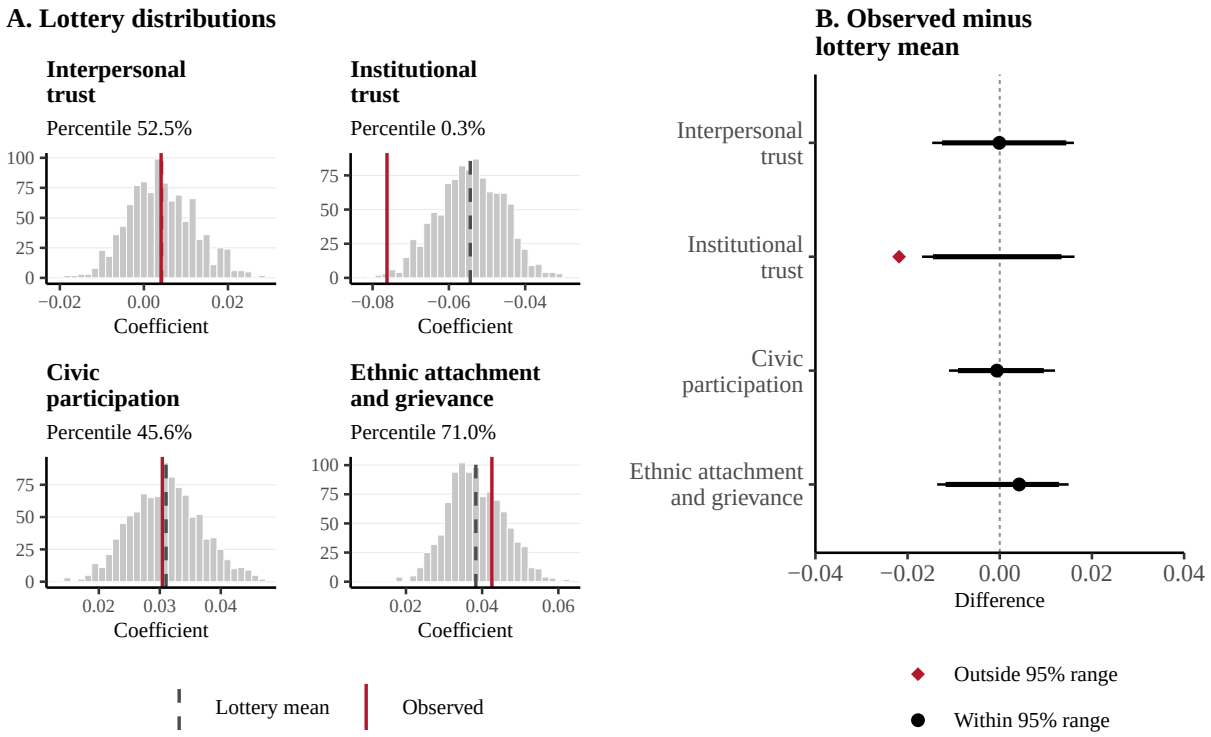
Note Columns (1)–(6) are household-level OLS on the DHS of 2003, 2008–09 and 2014, with allocations through 2002, the controls of Equation (2), and district and year fixed effects. Columns (2), (4) and (6) add household ethnicity fixed effects (Section 3). Column (7) estimates location-year night-time lights (Tang et al., 2025) by Poisson pseudo-maximum likelihood, so its coefficient is a change in log mean radiance and $e^{\beta} - 1$ is the proportional change for one additional hectare of scheme land per 1962 resident. Its brackets give location-clustered p-values and intervals from the t distribution with $G - 1$ degrees of freedom. Square brackets in columns (1)–(6) give restricted wild cluster bootstrap-t p-values and 95 percent intervals (999 draws, clustered by 1962 location).

with a lottery mean of about −0.05, so nearby feasible placements also yield negative trust associations, and the observed coefficient lies about 0.02 standard deviations per hectare of scheme land per 1962 resident below the mean and below 99.7 percent of the 1,000 lottery coefficients (Figure 5). Among the components, trust in the president and in the courts lie outside the 95 percent reference range, trust in parliament lies outside the 90 percent range, and trust in the local council lies within the 90 percent reference range (Figure 6). Other outcome families lie within their 95 percent reference ranges.[36]

Housing quality lies at the 0.9th percentile of the lottery: feasible placements typically associate scheme land with slightly better housing, while the observed coefficient is close to zero, a gap of 0.012 standard deviations. Durable assets and education lie within the central reference ranges. Night-time lights lie below the 90 percent range but within the 95 percent range, and feasible placements reproduce most of their association (Figure B.1.4).

[36] A siting choice could account for the deficit if, among feasible sites a few kilometers apart, the government chose those whose unobserved characteristics predict lower subsequent trust in central institutions after controls and fixed effects. Such an explanation would also need to accommodate the pattern across institutions and other social ties, the persistence of the association within respondent ethnic groups, and its concentration in conventional schemes (Tables B.2.4 and 4). When the deficit arises from the terms on which settlers received and held their land, that relationship is itself part of what the paper examines.

Figure 5: Social ties under observed and feasible program placement.

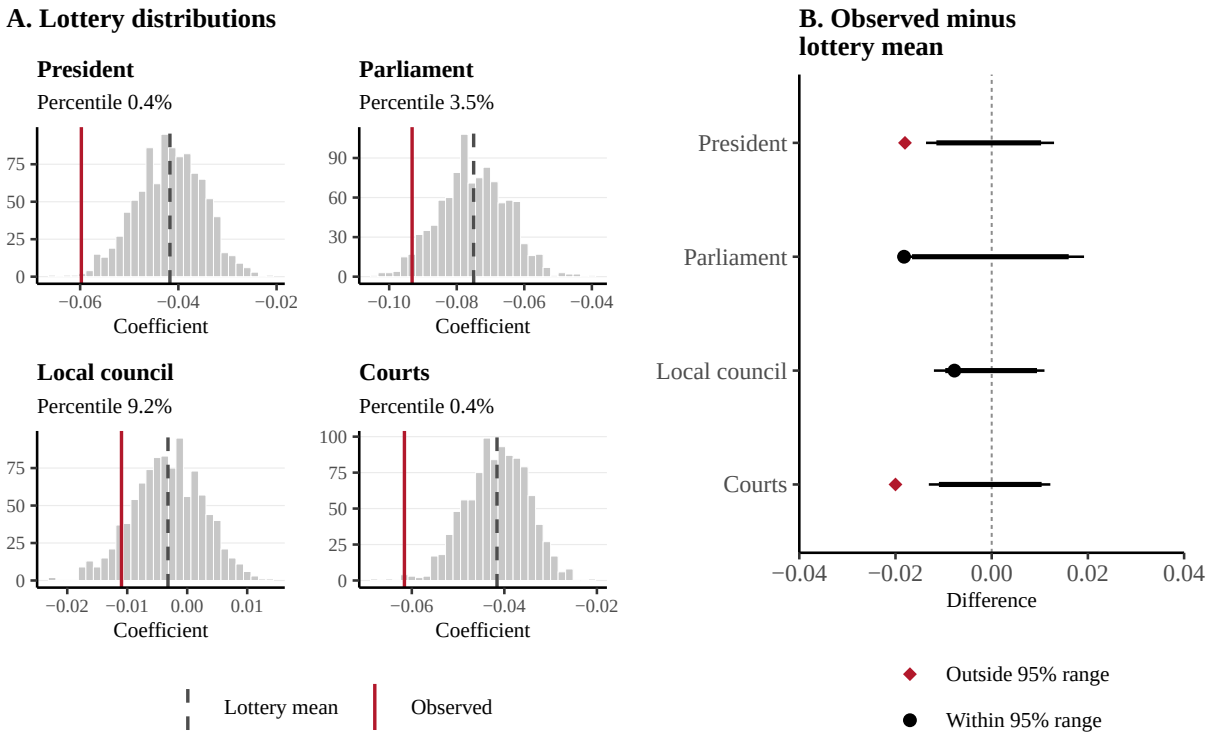


Note Conventional scheme allocations run through 2002, with the samples, controls and fixed effects of the columns without ethnicity fixed effects in Table 4. Panel A shows the coefficients from 1,000 completed chronological lotteries, with the observed coefficient in solid red and the lottery mean in dashed gray. Histogram axes are outcome specific. Panel B shows the observed coefficient minus the lottery mean against the centered lottery distribution. Thick and thin bars cover its central 90 and 95 percent, and red diamonds lie outside the 95 percent range and black circles within it. Percentiles and ranges describe feasible placements. Coefficients are in standard deviations per hectare of scheme land per 1962 resident. Institutional-trust components appear in Figure 6 and material outcomes in Figure B.1.4.

6 Interpretation and Mechanisms

In this section, I revisit the model and ask what Kenya's settlement schemes demonstrate empirically about favoritism and re-sorting. To do so, I examine the distributional outcomes of scheme allocation through heterogeneity analyses of the results, read alongside historical sources on how the schemes were allocated and implemented, and who benefited. I additionally return to the hypotheses around social ties and discuss the extent to which the results speak to them.

Figure 6: Institutional-trust components against feasible program placements.



Note Conventional scheme allocations run through 2002. Panel A shows coefficients from 1,000 completed chronological lotteries, with the observed coefficient in solid red and the lottery mean in dashed gray. Panel B shows the observed coefficient minus the lottery mean against the centered lottery distribution. Thick and thin bars cover its central 90 and 95 percent. Red diamonds lie outside the 95 percent range and black circles within it. Histogram axes are outcome specific. Samples, specifications and exact values are in Table B.2.5.

6.1 The Framework and the Demographic Evidence

The conceptual framework separates two things resettlement can do: move the salient group onto better land, which is favoritism, and concentrate groups in different places, which is sorting and lets place-based policy distinguish them. I ask what the census results show about each, and what they imply about the political value of the map the program left.

The Kikuyu gains in more intensively settled locations are consistent with the framework's favoritism. Scheme land plays the role of the better location, so if the gains came from Kikuyu entering the land bank from outside it, they place the group most closely tied to Kenyatta's government on better land. That the gain does not vary with crop suitability among scheme locations is therefore expected: for these settlers, entry to the land bank was

itself the improvement.[37]

The census also shows sorting, though only at the scale of districts. In the model, sorting separates the salient group from everyone else, and consolidation among the other groups lies outside it. Across districts, scheme land is associated with a rising ethnic Herfindahl index, though not within them (Table 3).[38] The census results are therefore consistent with both favoritism and re-sorting.

A more sorted map raises the political value of place-based policy, whichever objective produced it. In the model, favoritism alone moves the salient group onto the better land and sorts the population in doing so, so the census cannot reveal whether the government also valued the map for taxation. The map nonetheless shaped what later policy could do. Marketing boards, compulsory cooperatives, buying centers and road spending reached rural groups through where they lived and farmed (Section C.3), so a population sorted by settlement brought these instruments closer to group-specific policy. Attributing the census results to the program requires two things the census cannot show: that the program's own entry added to the Kikuyu gain, and that other groups were consolidated around their own schemes. Section 6.2 examines both, using heterogeneity in the estimates and scheme-level allocation evidence, and Section 6.3 asks whether either shaped social ties.

6.2 Selective Migration

This subsection asks whether the program's own allocations contributed to the Kikuyu gain and consolidated other groups around their schemes. The census estimates do not separate the program's own migration from Kikuyu settlement of the same land through channels outside the schemes, such as private purchases of former European farms, and the placement comparison cannot apportion the gain among them. I therefore compare the migrant stream entering scheme locations with that entering other locations, and read the census alongside the recipient record of the groups each scheme was meant for.

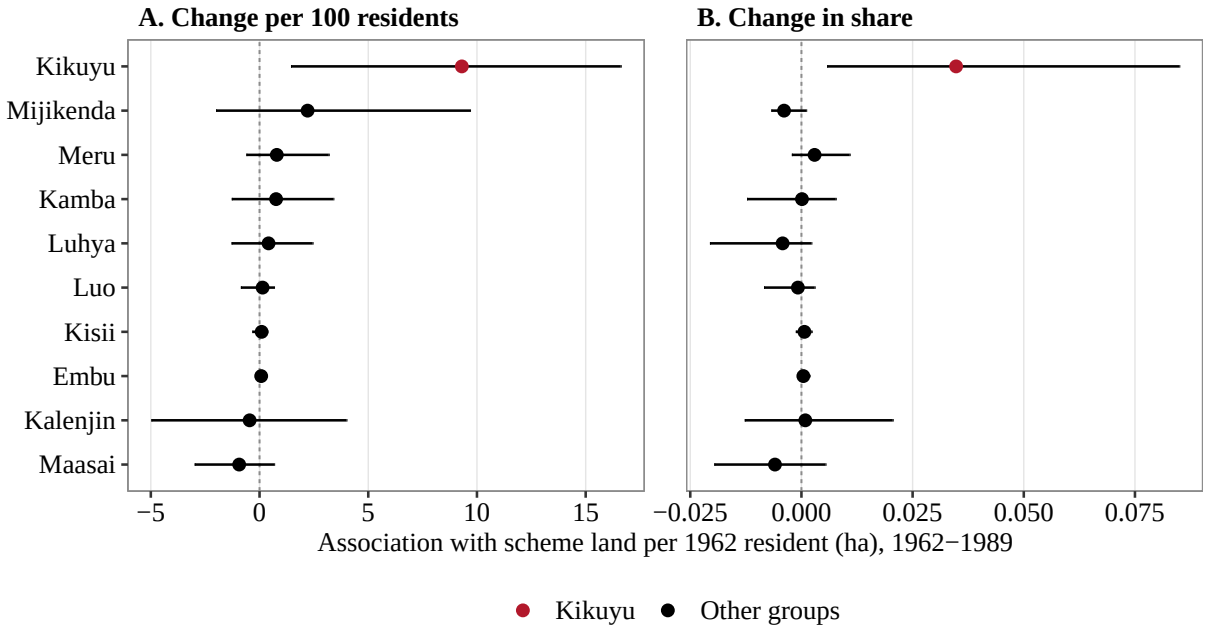
Migrants into scheme locations were disproportionately Kikuyu and came from Central Province and the Rift Valley. In the individual 1989 census records, inter-district movers into scheme locations were 34 percent Kikuyu, against 19 percent among movers into non-scheme locations, and 56 percent were born in Central Province or the Rift Valley, against 29 percent. Within the Rift Valley, the Kikuyu share of these movers was 31 percent in scheme locations and 26 percent elsewhere. Within historical districts, the gain is also specific to the Kikuyu: measuring the change per 100 residents for each of the ten named groups, only

[37] Table B.2.6 reports the crop-suitability interactions. The count gain is largest where Kikuyu already held a majority in 1962, and locations where Kikuyu were almost absent gained no less than mixed ones.

[38] Nyandarua's Herfindahl index rose from 0.60 in 1962 to 0.90 in 1989 (Table B.2.7).

the Kikuyu gain is positive and significant at ten percent, at about 9 per 100, and it exceeds the gains of eight of the other nine groups at ten percent (Figure 7).[39] Measured as shares of the resident Kenyan ethnic population, the Kikuyu share rises with scheme land and no other group's share changes significantly at ten percent.

Figure 7: Ethnic specificity of the Kikuyu change.



Note Each point is from a separate regression of a group's 1962–1989 change on scheme land per 1962 resident, with the sample, controls and fixed effects of Table 3 and the group's own 1962 share. Panel A measures change per 100 residents and Panel B the group's share of the resident Kenyan ethnic population. Red circles (Kikuyu) reproduce columns 4 and 6 of Table 3. Shares sum to one, so Panel B's coefficients are not independent. Bars are 95 percent restricted wild cluster bootstrap intervals (999 draws, clustered by historical district).

The recipient record links the Kikuyu gain to land recorded for Kikuyu. The gain is about 19 per 100 residents on that land, significant at five percent, and close to zero, though imprecise, on land recorded for other groups (Table 6). No group is recorded for 124 of the 256 schemes, and that land carries a gain of about 9 per 100, so recipient evidence is weakest on the land carrying the average gain.

The same record suggests ethnic blocs consolidating around the schemes. Of 142 comparable statements naming a group, its share rose by 1989 in 100 cases, and it was already the largest group in 86. For the 96 of these with unexposed locations in the same district, its

[39] The exception is Mijikenda, whose gain is about a third of the Kikuyu gain and not distinguishable from it. Table B.2.8 reports the pairwise group comparisons.

share rose by 6 points on average, against a fall of under one point in those locations.[40] The Kikuyu share rose around 31 of 33 schemes in Central Province. In the Rift Valley, Kikuyu were already the largest group around 13 of 15 schemes, and their share rose around 7. Former squatters had preference, but the Provincial Administration selected settlers (Colonial Office, 1964, p. 61), and the surviving sources cannot distinguish regularization from new entry. Settlement consolidated a demographic balance already contested in 1962, following colonial settlement of Kikuyu squatters on land lost by Kalenjin and Maasai communities.

Table 6: Kikuyu gains by the group recorded for each scheme, 1962–1989

	Change in Kikuyu population, 1962–1989			
Scheme land per resident (ha)	Per 100 residents of average population (1)	Share (0–1) (2)	Schemes	Exposed locations
Recorded for Kikuyu	19.45	0.089	43	34
	[.047]	[.045]		
	[9.73,130.22]	[0.014,1.308]		
Recorded for other groups	−1.35	0.004	76	54
	[.687]	[.665]		
	[−21.62,26.32]	[−0.042,0.081]		
Recorded for Kikuyu and other groups	23.28	0.022	13	19
	[.311]	[.160]		
	[−19.07,163.80]	[−0.017,0.058]		
No recorded group	9.09	0.011	124	66
	[.074]	[.415]		
	[−0.78,19.54]	[−0.031,0.098]		
Observations	339	339		
Controls	✓	✓		
District FE	✓	✓		

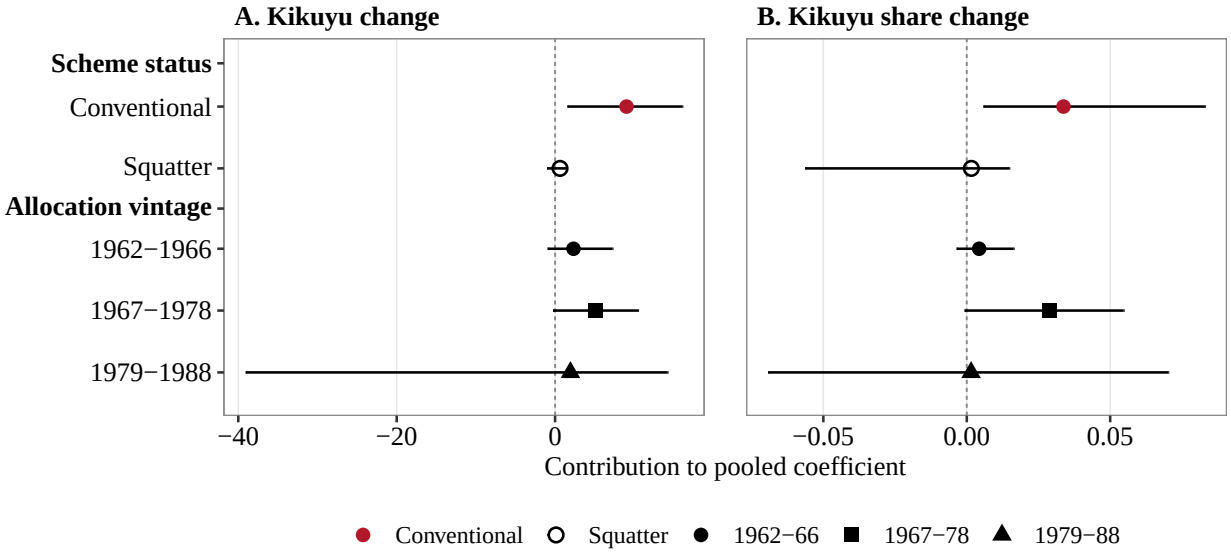
Note The sample, outcomes, controls and fixed effects are those of Table 3. Each column is one regression. The four regressors divide that table's exposure, conventional scheme land per 1962 resident allocated through 1988, by the groups the recipient record names for each scheme (Section C.5), and sum to it. A scheme with no statement naming a census group has no recorded group. Schemes and exposed locations count the schemes in each part and the locations with land from them. Square brackets give restricted wild cluster bootstrap-t p-values and 95 percent intervals (999 draws, clustered by historical district).

Several other groups were consolidated around their own schemes. Kalenjin were the largest group around 11 of 34 Kalenjin schemes, yet their share rose around 33, by 17 points on average, consistent with settlement on claimed spheres. Some schemes, though not most, settled several groups together: twelve scheme-level statements record two or more groups on the same scheme, and at Lugari about 900 incumbent Kikuyu families were removed to make room for Baluhya settlement (Leo, 1984, p. 111). Consolidation was concentrated where the 1962 balance was contested: Kalenjin and Kisii gained around nearly all of their schemes,

[40] The statements cover 142 schemes, and 64 share at least one scheme with another statement. Evidence is concentrated in the early program.

while Luhya and Mijikenda, already the largest group around every one of theirs, gained around roughly half or fewer, and Luo around none of seven. Because other groups gained only around their own schemes, consolidation raises ethnic concentration without producing an average gain for any group other than the Kikuyu, whose share rose in settlement locations more broadly (Figure 7).[41]

Figure 8: Contributions to demographic associations.



Note Allocations run through 1988, with the sample, controls and fixed effects of Table 3. Panel A shows the Kikuyu change per 100 residents and Panel B the Kikuyu share change. Each block splits a coefficient into group contributions $x_g' M_Z y/(x' M_Z x)$ that sum to it, where M_Z removes the controls and fixed effects. The scheme status block splits the coefficient on all scheme land, conventional and squatter (9.64 and 0.035). The scheme status block uses red circles for conventional schemes and hollow black circles for squatter schemes. The allocation-vintage block splits the coefficient of Table 3 by scheme allocation date, over 1962–66, 1967–78 and 1979–88. Bars are as in Figure 7. Contributions and support are in Table B.2.9.

Comparing conventional and squatter schemes helps distinguish the allocation of land rights from the organized resettlement of people. Conventional schemes allocated land to selected beneficiaries, while squatter schemes chiefly regularized occupation by people already living on the land. Conventional schemes account for almost all of the estimated association with Kikuyu gains. Squatter schemes contribute little, partly because they hold little land, so the comparison is suggestive.

[41] A natural question on this topic relates to the use of redistricting: if indeed the political logic of resettlement was to balance favoritism with re-sorting, then redistricting may be either a substitute or complement for resettlement. The Kinangop and Ol Kalou settlement schemes provide anecdotal evidence in support of the latter. They lay in the Kalenjin-plurality Rift Valley Province at the 1962 census and, while being settled by Kikuyu, were rezoned and administered as Nyandarua District of the Kikuyu-majority Central Province by April 1963 (Section C.3).

Schemes allocated during the Kenyatta years account for most of the estimated Kikuyu gain (Figure 8). The 1979 census provides a separate comparison across presidencies. Schemes allocated by 1978 are associated with a Kikuyu gain over 1962–79 similar in size to the full-window estimate, though imprecise, while schemes allocated in 1979–88 are associated with none over 1979–89.[42] Early conventional schemes included South Kinangop and Muruaki in Nyandarua, which allocated new plots to selected beneficiaries. These are the schemes and years for which historical scholarship documents ethnic favoritism in access to settlement land and political discretion in the enforcement of eviction (Boone, 2012; Kanyinga, 2009; Leo, 1984).

6.3 Social Ties and the Settlement Relationship

I return to the second consequence of resettlement in Figure 1, the relationship among residents and between residents and the state, and ask which of the four accounts the evidence supports. Assembling strangers predicts lower interpersonal trust, collective organization predicts greater civic participation, selective allocation predicts stronger ethnic attachment and grievance, and the settlement relationship predicts lower institutional trust.

The three accounts that concern relations among residents find little support: interpersonal trust, civic participation and ethnic attachment and grievance show no association with scheme land. None of the three indices is significant at ten percent, with or without respondent ethnicity fixed effects (Table 4). A cross-section cannot rule out early disruption of social ties that later recovered, though by the time of the surveys the association with scheme land is limited to institutional trust.

Measured changes in ethnic composition do not account for the institutional trust association. After conditioning on the controls and fixed effects, scheme land per resident and Kikuyu-share change have a correlation of about .29, and adding the 1962–1989 changes in ethnic HHI and Kikuyu share, separately or together, leaves the coefficient between -0.074 and -0.077 and significant at five percent, while the compositional terms are close to zero (Table 7). These specifications condition on measured composition and do not test mediation, so they leave room for demographic channels the census does not measure, though they give no sign that the trust deficit runs through re-sorting.

The deficit is vertical: it falls on central state institutions and not on the local council. The respondents, surveyed between 2003 and 2014, include settlers, their descendants and

[42]The 1979 census was taken a year after Kenyatta's death and is linked to the same 1962 locations. Grouping locations by their first allocation provides another view of timing. Places first reached in 1962–66 account for about three fifths of the gain, significant at ten percent. Tables B.2.1 and B.2.9 report these supplementary comparisons.

Table 7: Institutional trust: program exposure against ethnic composition

Outcome / term	(1) Baseline	(2) + HHI	(3) + Kikuyu	(4) + Both	(5) Composition only
Panel A. Institutional trust (PCA)					
Scheme land per resident (ha)	−0.075	−0.074	−0.077	−0.077	
	[.016]	[.023]	[.026]	[.025]	
	[−0.157,−0.010]	[−0.158,−0.010]	[−0.165,−0.008]	[−0.164,−0.008]	
Ethnic HHI change, 1962–89		−0.039		−0.064	−0.036
		[.834]		[.804]	[.886]
		[−0.484,0.406]		[−0.578,0.446]	[−0.544,0.466]
Kikuyu share change (per 10 pp)			0.006	0.010	−0.013
			[.857]	[.784]	[.677]
			[−0.057,0.071]	[−0.060,0.080]	[−0.075,0.052]
Panel B. Trust in the president					
Scheme land per resident (ha)	−0.062	−0.062	−0.070	−0.070	
	[.087]	[.082]	[.057]	[.058]	
	[−0.147,0.007]	[−0.145,0.006]	[−0.158,0.002]	[−0.156,0.002]	
Ethnic HHI change, 1962–89		−0.042		−0.119	−0.095
		[.841]		[.630]	[.701]
		[−0.475,0.390]		[−0.671,0.449]	[−0.648,0.456]
Kikuyu share change (per 10 pp)			0.024	0.030	0.009
			[.460]	[.430]	[.800]
			[−0.035,0.088]	[−0.047,0.107]	[−0.063,0.081]
Controls	✓	✓	✓	✓	✓
District FE	✓	✓	✓	✓	✓
Round FE	✓	✓	✓	✓	✓
Respondent ethnicity FE	✓	✓	✓	✓	✓
Observations (exposed), Panel A	5,654 (2,482)	5,654 (2,482)	5,654 (2,482)	5,654 (2,482)	5,654 (2,482)
Observations (exposed), Panel B	5,619 (2,467)	5,619 (2,467)	5,619 (2,467)	5,619 (2,467)	5,619 (2,467)

Note Respondent-level OLS on Afrobarometer rounds 2–6, with one common sample per panel: 5,654 respondents in Panel A and 5,619 in Panel B, in 228 locations and 24 historical districts. Every column has the specification of the even-numbered columns of Table 4. Columns (2)–(5) add the 1962–1989 changes in ethnic HHI and Kikuyu share from Panel B of Table 3, the latter per 10 percentage points. Column (5) omits scheme land. Brackets give the restricted wild cluster bootstrap p-value (999 draws, clustered by 1962 location).

later arrivals, so the pattern describes attitudes in the places settlement reached rather than those of the original allottees. All three reasons for distrust, withdrawn support, conditional rights and the terms of purchase, predict this vertical pattern among later residents if the relationship persisted or was passed on, as would contested claims to scheme land.[43]

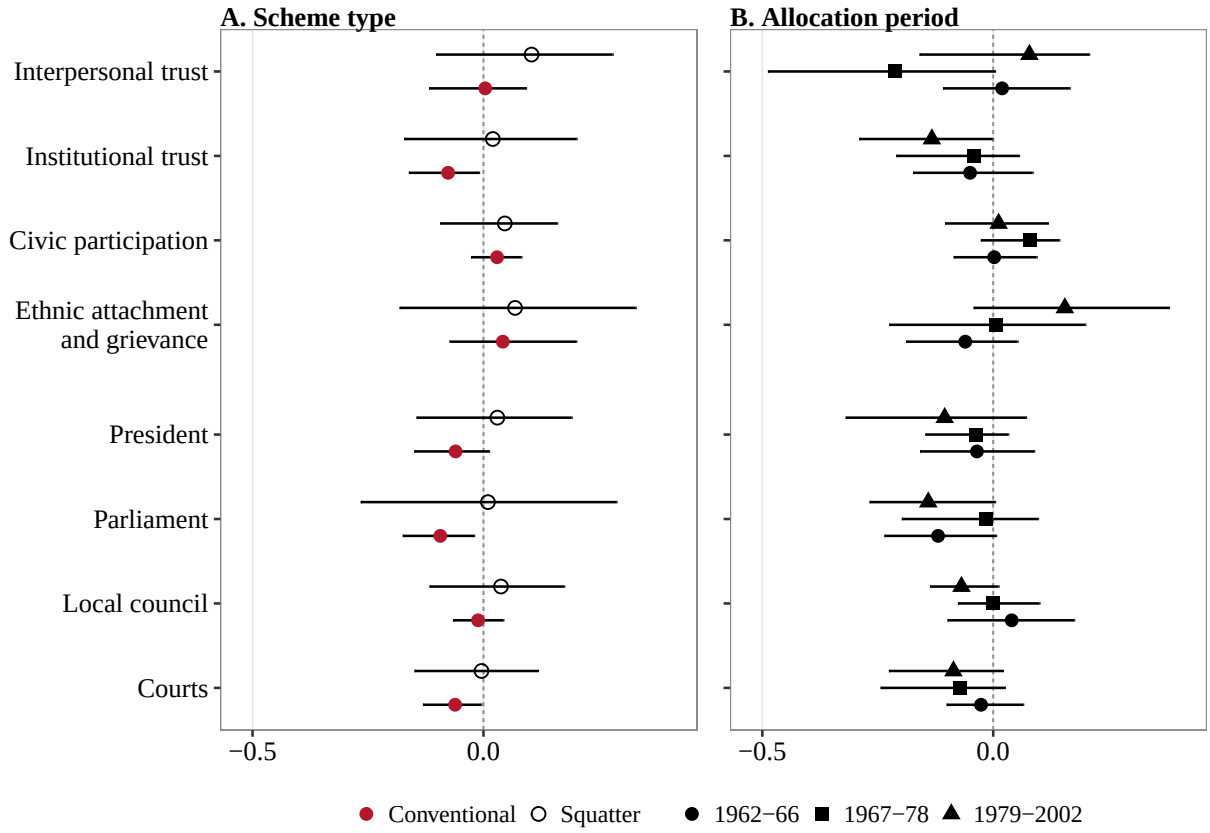
The trust deficit is most apparent around conventional schemes, where the state selected and relocated households (Figure 9). These schemes contribute almost all of the institutional trust association. Per hectare, conventional land is associated with lower institutional trust and squatter land is not, although the difference between the two types is imprecise. Institutional distrust also appears around later allocations, extending beyond the early wave that carried most of the Kikuyu gains.

The deficit is clearest among non-Kikuyu respondents. The association is −0.10 among these respondents, significant at one percent, and close to zero among Kikuyu respondents,

[43]From 2002, for instance, a government caveat over the 1990s Mau Forest schemes left their residents in legal limbo, and plot sales from allottees to later arrivals set communities against each other (Section C.4).

although the difference between the two groups is not significant at ten percent. Exclusion from favored allocation may contribute, though the evidence cannot separate it from distrust shared by all residents. Controlling for ethnicity-by-round or party-by-round fixed effects leaves the association negative and significant at five percent.[44]

Figure 9: Heterogeneity in social ties.



Note Allocations run through 2002, with the samples, controls and fixed effects of the odd-numbered columns of Table 4. Each point is a coefficient per hectare of scheme land per 1962 resident, in outcome standard deviations. Panel A includes conventional and squatter exposure jointly. Panel B includes conventional exposure allocated in 1962–66, 1967–78 and 1979–2002 jointly. Bars are 95 percent restricted wild cluster bootstrap intervals (999 draws, clustered by 1962 location). Institutional-trust components follow the four principal-component indices.

Two comparisons designed to separate the conditional-rights and purchase-terms accounts show no gradient. Settlers could apply for title only once their scheme was registered, often decades after allocation: schemes allocated in 1962–66 were registered a median of 16 years

[44]The recipient record also permits a comparison between exposure to schemes designated for the respondent's own group and schemes designated for other groups. The trust estimates are similar and imprecise in both cases. Tables B.2.4 and B.2.10 report the contribution accounting, respondent-group comparisons and political-alignment checks.

later.[45] Registration reduced the dependence that insecure tenure created (Hassan & Klaus, 2023), so the deficit should be smaller around registered schemes if conditional rights drove it, yet the per-hectare association is about the same around land registered before the survey and land still unregistered, and the difference is not significant at ten percent.[46] High-density schemes settled landless households whose charges officials judged too large for the land's productive capacity, while low-density schemes took wealthier farmers who paid a cash deposit, so the deficit should be larger around denser schemes if the terms of purchase drove it.[47] Splitting conventional land into thirds by hectares per settler shows no such gradient, and the sparsest and densest thirds do not differ at ten percent. Both comparisons are imprecise, and neither rules out its account. The deficit appears around registered and unregistered land, and around dense and sparse schemes alike.

The historical record documents settlers' dependence on central officials, discretionary administration of their accounts and tenure, and distrust of the officers who ran them. Settlers depended on the Provincial Administration for placement and on government departments for surveys, water, roads, stock and credit, and that support was withdrawn within a few years while their obligations remained, which officials enforced selectively (Section C.4). Heavy debt also burdened Kenyans buying intact farms in the same former European areas (Republic of Kenya, 1966, pp. 29–30). Harbeson records continuing distrust of settlement officers and cooperative societies after thefts of settlers' funds were heard in resident magistrates' courts (Harbeson, 1973, pp. 312–313).[48]

The two placement comparisons differ in how closely each result tracks the sites the program used. The Kikuyu gain extends across the land around the schemes: the observed coefficient lies in the lower tail of a lottery distribution centered on a larger association. The institutional trust association is more negative than under almost all nearby placements, though those placements also yield negative associations. With the composition checks of Table 7, the wider demographic transformation of the former European land and the deficit in trust toward the central state read as complementary parts of the settlement history,

[45] My calculation from the registration dates in Lukalo, Boone, and Joireman (2019).

[46] Registration opened the door to titling without guaranteeing it: officials estimated in 2019 that titling was complete on about 40 percent of registered schemes (Boone, Lukalo, & Joireman, 2021, p. 10). In Kwale County, Klaus (2020) finds that residents who had received title deeds trusted state institutions more than those who had not. Klaus compares individuals shortly after titling, while the comparison here is between locations, years or decades after registration.

[47] Hectares per settler divides each scheme's area by the number of families settled on it (Lukalo, Boone, & Joireman, 2019), and correlates at 0.67 with the planned plot sizes in the Department of Settlement's 1965 roster for 80 of these schemes (Nottidge & Goldsack, 1966). Figure B.1.5 gives the registration and density estimates.

[48] Many settlers never saw their development loans, which the Settlement Department credited to repayment or spent on their behalf, and delays in acknowledging repayments aroused suspicion of theft (Harbeson, 1973, pp. 312–313).

which the evidence does not show to be parts of one mechanism. The recipient record links settlement to ethnic allocation, and the settlement relationship is associated with distrust of the central state among residents of the locations it settled.

7 Robustness

The two main results hold under a broad range of tests and sample adjustments, and the trust association weakens under a few of them. Six alternative explanations for the results are each tested: where schemes could feasibly be placed, the colonial distribution of European land, ordinary migration onto newly available land, Kikuyu return after the Emergency, a Kikuyu change that predates or outlasts allocation, and, for trust, the 2007–08 post-election violence. A final paragraph reports checks on measurement, inference, scheme coverage and the exposure window, and Appendix E carries the estimates.

Placement. The placement comparison moves each scheme to alternative sites 5 to 20 km from its recorded site, following Dell and Olken (2020). I repeat it with a narrower ring of 4 to 16 km and a wider ring of 5 to 25 km. Through 2002, the institutional trust coefficient lies at the 4th percentile of the lottery under the narrower ring and at the 0.5th under the wider ring, against the 0.3rd under the main ring. Housing quality lies at or below the 2nd percentile through 2002 under all three rings, and balance is similar under all three (Section E.1). Controlling for each location's expected exposure across the lotteries (Borusyak & Hull, 2023) makes the institutional trust association larger and significant at five percent, and turns the Kikuyu change negative, because comparable land the program did not use also gained Kikuyu (Section E.1).[49]

Colonial land supply. Most schemes were carved from land the colonial state had alienated to European farmers. The demographic results could therefore reflect where settler land happened to lie rather than the program that later redistributed it. Restricting the sample to locations in White Highlands districts preserves the Kikuyu change's sign, magnitude and five percent precision (Table E.2.1).

Ordinary migration. Independence opened large areas of former European land to settlement, and migrants would have moved onto that land whichever program allocated it. The Kikuyu change could therefore reflect ordinary migration toward newly available land, drawing on a sending population that was not representative of the country as a whole.

[49] Expected exposure absorbs most of the variation in land per resident, and the adjustment identifies an effect only if the lottery describes how sites were assigned, which the government's choice among feasible sites rules out.

Conditioning on gross in-migration leaves the Kikuyu change nearly unchanged. Conditioning on population growth shrinks the count below significance at ten percent but leaves the share change unchanged, so Kikuyu made up a larger part of whatever growth occurred (Table E.3.1). Proximity nevertheless matters: a gravity model reproduces about four fifths of the Kikuyu coefficient, but none of its 999 draws reaches it, suggesting that this is not the sole determinant of the observed demographic association (Table E.3.2).

Return after the Emergency. By 1948, Nakuru and Laikipia held substantial Kikuyu populations far from the Central reserves (East African Statistical Department, 1960), many of them squatters on European farms, and these populations were sharply reduced during the Mau Mau Emergency (Kanogo, 1987, p. 138). The re-sorting could therefore reflect their return to familiar areas after independence rather than favored allocation.[50] Using district-level 1948 census data,[51] I find larger scheme-associated Kikuyu gains where the 1948 Kikuyu share was higher, significant at ten percent for the Kikuyu change. Interactions with Emergency-era displacement are not significant at ten percent, and conditioning on census-based return migration signatures leaves the Kikuyu estimates essentially unchanged (Section E.4).

Timing. The demographic outcomes compare the 1962 and 1989 censuses, a window that spans the whole allocation period. If the Kikuyu change had begun before the schemes took settlers, or continued long after allocation stopped, attributing it to the program would be wrong. Eleven conventional schemes record a settlement start in March or June 1962, before census night on 15/16 August (Morgan, 2000; Nottidge & Goldsack, 1966), and the program settled 2,347 families in all of 1962 (Section C.1). Dropping the 19 locations those schemes touch leaves the Kikuyu changes positive and significant at five percent and the trust associations of similar size (Table E.5.1). After 1989, scheme land predicts no detectable further population or composition change, so I find no sign that the 1962–1989 change continued (Section E.5).

Post-election violence. The Afrobarometer rounds span 2003 to 2014 and so straddle the violence that followed the disputed 2007 election, which struck several scheme districts. Lower trust in scheme locations could therefore reflect that violence rather than how scheme communities were formed. Interacting exposure with the rounds fielded after the violence shows a similar association before and after it: the coefficient is -0.077 in the 2003 and 2005

[50] Return began before independence: settlers sought Kikuyu labor again from 1954, and many former squatters came back once the squatter contract was reintroduced in 1956 (Kanogo, 1987, pp. 152–153). Those back by August 1962 are already in the 1962 baseline, so the alternative concerns return after the census.

[51] The 1948 census was published only by district, and no microdata survive.

rounds ($p = .070$), and the interaction is close to zero ($p = .985$; Table E.6.1).

Specification. The remaining checks vary how outcomes and exposure are measured and how uncertainty is estimated. Six leave the headline estimates significant at five percent: dropping the 49 locations whose 1989 microdata populations depart from printed totals (Table E.7.1), dropping any one location (Table E.8.2), replacing each index with the equal-weight mean of its items (Table E.7.3), adding scheme land in adjacent locations (Table E.9.1), restricting contemporary exposure to allocations through 1988 (Section E.9), and Conley standard errors at 25 and 50 km (Table E.8.1). Three checks make the institutional trust result marginal at ten percent significance: clustering by historical district ($p = .070$) (Table E.8.1), dropping coarsely geocoded Afrobarometer locations ($p = .057$) (Table E.7.2), and counting only mapped scheme land, which treats the land of schemes that I locate manually as unsettled ($p = .106$) and so understates exposure (Table E.9.2). Measured in raw hectares or as a share of location area, the ethnic estimates are smaller and imprecise, but these measures ignore the location's population, by which every demographic outcome is scaled (Table E.7.4).

8 Conclusion

Most instruments of distributive politics move resources to people. Resettlement moves the people themselves, remaking the distribution of groups across places on which later policy is implemented. It can therefore alter the precision with which place-based taxes, transfers, and public goods reach politically relevant groups, while bearing on social ties. This paper documents how that distribution changed around one such program, Kenya's settlement schemes, and what followed for the communities it created.

Resettlement in Kenya is associated with two outcomes in the places it reached. Each hectare of conventional scheme land per 1962 resident is associated with about 9 more Kikuyu residents per 100 by 1989 and with lower trust in central state institutions. The Kikuyu gain is concentrated in schemes allocated under Kenyatta, the years of documented ethnic favoritism, and extends to comparable land around the schemes, while the trust deficit is deeper at the scheme sites than under almost all feasible placements nearby. The evidence on material conditions is mixed, with night-time lights, durable assets, education and housing pointing in different directions. Precedent studies of resettlement find that the intergroup contact it created fostered national identity and interethnic trust (Bazzi et al., 2019; Kok et al., 2025). I find that resettlement in Kenya is associated with a demography that would facilitate less intergroup contact across districts rather than more, and is concurrently asso-

ciated with lower trust in central state institutions, which I suggest relates to the manner in which resettlement was implemented by the state.

I acknowledge several limitations to this analysis. First, the placement comparison shows that the trust association is more negative at the sites the government chose than at nearby feasible sites, but not why it chose them. Second, simulated and observed placements are not balanced on every baseline characteristic. Observed schemes lie on more densely populated land with more alienated land and a lower Kalenjin share than the simulated ones. Because the simulated sites lie only a few kilometers away, I read these differences as reflecting both which farms were offered for sale and the program's choices among them. Third, my discussion of the mechanisms behind the trust association is interpretative rather than causal: I test and weigh the evidence against different explanations rather than directly identifying one. This is a limitation that I intend to address through planned primary data collection with communities in locations that did and did not receive settlement schemes.

In sum, state-directed resettlement can be read as a tool of distributive politics that changes both demography and the relationship between the state and the communities it settles. Based on evidence from Kenya's settlement schemes, resettlement may shape trust less through whom it brings together than through how the state distributes land and administers the communities it creates.

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Appendices

Online Appendix R, a separate document, sets out the data construction in full: the construction rules, individual decisions and diagnostics behind Appendices C and D.

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A Model

This appendix formalizes the model described in Section 2.1. A ruler draws rents from place-based taxation, depends on the welfare of a politically salient group to survive, and can permanently re-sort the population at a cost. When taxation is delivered through places and those places are not homogeneous in composition, the group-specific incidence of tax also depends on who lives alongside whom, and when places are heterogeneous in productivity, resettlement may also be a channel for favoritism.

The model is deliberately stylized. It sets out one logic of resettlement as a tool of state-building rather than reconstructing the decisions of Kenya's post-independence rulers. Nevertheless, it permits an interpretive application to the Kenyan context.

A.1 Setup

Suppose there are two locations, one more productive than the other, and two groups with equal claims on the land. The locations H and L each hold a unit of land, which is fully used, with output per unit of land $y_H > y_L > 0$, and gap $= y_H - y_L$ is the productivity advantage of H. The two groups are a politically salient group S and the remaining population O, each with a claim on one unit of land. The map $s \in [0, 1]$ is S's share of H's land, so S holds s of H and $1 - s$ of L, while O holds $1 - s$ of H and s of L. Write $n_H = s$ and $n_L = 1 - s$ for S's share of each location's land. In words, $s = 1$ gives all of the better land to S, $s = 0$ gives all of it to O, and $s = \frac{1}{2}$ divides each location equally.

The ruler taxes each location's output at a high or a low rate, so any policy that treats the two groups differently has to work through where they live. In every period the ruler sets a proportional tax on output in each location, $t_j \in \{\tau_L, \tau_H\}$, with $0 \leq \tau_L < \tau_H \leq 1$, and I write $\delta = \tau_H - \tau_L$. Taxes are non-negative, so no location receives a net transfer: a new state's fiscal capacity cannot sustain group-targeted transfer schedules.

The ruler wants rents, and cares about the salient group's income because the group's support keeps the ruler in office. Rents are $\sum_j t_j y_j$ in each period in office. The after-tax income of S,

$$W_S = \sum_{j \in \{H,L\}} n_j (1 - t_j) y_j,$$

does not enter that payoff, but it determines whether the ruler keeps office. The ruler is retained each period with probability $\sigma_0 + \varepsilon W_S$ and values remaining in office at a continuation value $\bar{V}$. The per-period objective is therefore rents plus $\beta(\sigma_0 + \varepsilon W_S)\bar{V}$, which up to

a constant is

$$U = \sum_{j \in \{H,L\}} t_j y_j + \phi W_S, \qquad \phi = \beta \varepsilon \bar{V} > 0. \tag{3}$$

The weight ϕ on S's income rises with the sensitivity of retention to that income and with the value of office. Treating $\bar{V}$ as given is a first-order approximation, since the value of office itself depends on future rents and retention. The approximation keeps the objective linear in the map. I take the ruler to maximize the discounted sum of U over periods, a reduced form that retention motivates rather than derives.

This sets up the tension at the heart of the model: the better land is both a potential favoritism good for the salient group and the best tax base for rents. Once the ruler depends on S enough to tax the two locations differently, settling S on H raises S's income and with it the ruler's hold on office, but puts the low rate on the larger tax base. Settling O on H puts the high rate on that base instead, at the cost of denying S the better land. How the ruler resolves this depends on how much they need S, which ϕ measures, and on what it costs to move people.

The ruler can redraw the map by resettling people. Moving the map from s to z is permanent and costs the ruler $\lambda|z - s|$ once, out of rents, with $\lambda > 0$. With discount factor $\beta \in (0, 1)$, $\kappa = \lambda(1 - \beta)/\beta$ is the annualized cost of a permanent change. Each period, the ruler sets the two tax rates and collects rents, and is then retained or replaced. A move to a new map is paid for at once and takes effect from the next period.

A.2 Optimal Taxes on a Given Map

Proposition 1 (optimal taxes). In every period, location j is taxed at τ_H if $\phi n_j < 1$ and at τ_L if $\phi n_j > 1$. Both rates are optimal at equality, where I take the ruler to set τ_H.

Proof. Location j contributes $y_j[t_j(1 - \phi n_j) + \phi n_j]$ to (3), which is linear in t_j with slope $y_j(1 - \phi n_j)$. □

Taxation differs between locations only if the ruler depends on S and the map is sorted. If $\phi \leq 1$, both locations are taxed at τ_H. If $\phi > 1$, the ruler taxes the two locations differently only when S's share lies below $1/\phi$ in one location and above it in the other, and at parity both locations receive the same rate. Sorting therefore makes the population legible to place-based taxation: it lets the ruler tax O at the high rate without taxing S at it.

Substituting the tax rule gives the per-period value of a map,

$$U(s) = y_H f(s) + y_L f(1 - s), \qquad f(n) = \tau_L + \phi n(1 - \tau_L) + \delta \max\{0, 1 - \phi n\}. \tag{4}$$

The function f is piecewise linear and convex, with a kink at $n = 1/\phi$ where its slope rises

by $\phi\delta$, so U is convex in s. If $\phi \leq 1$, $f(n) = \tau_H + \phi n(1 - \tau_H)$ is linear, and U rises linearly in s with slope $\text{gap} \cdot \phi(1 - \tau_H)$. This is the pure favoritism benchmark.

A.3 Moving the Population

The next question is whether the ruler moves the population gradually or all at once.

Proposition 2 (moving at most once). There is an optimal policy that moves at most once, immediately, to $s = 0$, to $s = 1$, or not at all, and then stays.

Proof. The ruler maximizes $\sum_t \beta^t[U(s_t) - \lambda|s_{t+1} - s_t|]$. Let $\rho = \beta/(1 - \beta)$, so that $\kappa = \lambda/\rho$, and define $\Phi(z; s) = U(z) - \kappa|z - s|$ and $M(s) = \max_z \Phi(z; s)$, attained on the compact map space. If z^* maximizes $\Phi(\cdot; s)$, the triangle inequality gives, for every y, $\Phi(y; z^*) \leq \Phi(y; s) + \kappa|z^* - s| \leq \Phi(z^*; s) + \kappa|z^* - s| = U(z^*)$, so $M(z^*) = U(z^*)$ and the ruler has no reason to move again. The candidate value $V(s) = U(s) + \rho M(s)$ satisfies the Bellman equation $\rho M(s) = \max_z\{-\lambda|z - s| + \beta[U(z) + \rho M(z)]\}$: choosing $z = z^*$ attains it because $\beta + \beta\rho = \rho$ and $\rho\kappa = \lambda$, and for any z, with y maximizing $\Phi(\cdot; z)$, the right-hand side is at most $\rho U(y) - \lambda(|z - s| + |y - z|) \leq \rho U(y) - \lambda|y - s| \leq \rho M(s)$. The Bellman operator is a β-contraction on bounded functions, so the candidate is the value function. Finally, $\Phi(\cdot; s)$ is convex on $[0, s]$ and on $[s, 1]$, because U is convex and the cost is linear on each side, so a maximum is attained at 0, s or 1. □

Because a map's value is convex in s and the cost of moving is linear, any move worth making is worth making in full and at once, so the ruler either stays or goes directly to a fully sorted map.

A.4 Which Group the Ruler Places on the Better Land

Since any move ends at a sorted map, it remains to ask which of the two sorted maps the ruler prefers, and when moving pays at all.

Proposition 3 (the two sorted maps). The map with S on the better land is worth at least as much to the ruler as the map with O on it:

$$U(1) - U(0) = \text{gap}\left[f(1) - f(0)\right] \geq \text{gap}\,(1 - \tau_H)\min\{1, \phi\} \geq 0,$$

strictly when $\tau_H < 1$.

Proof. By (4), $U(1) - U(0) = y_H[f(1) - f(0)] + y_L[f(0) - f(1)] = \text{gap}\,[f(1) - f(0)]$, and $f(0) = \tau_H$. If $\phi \geq 1$, $f(1) - f(0) = \phi(1 - \tau_L) - \delta \geq (1 - \tau_L) - \delta = 1 - \tau_H$. If $\phi < 1$, $f(1) - f(0) = \phi(1 - \tau_H)$. □

Favoritism costs the ruler rents but still prevails at the corners. When $\phi > 1$, settling S on the better land moves the low rate onto the larger tax base, so rents at $s = 1$ fall short of rents at $s = 0$ by $\delta \cdot \text{gap}$. A ruler who taxes the two locations differently values S's income on the better land by more than the rents forgone.

Proposition 4 (moving the population toward the other group). From a map s:

(a) If $s \geq \frac{1}{2}$, the ruler never moves the map toward O's corner.

(b) If $s < \frac{1}{2}$, the ruler strictly prefers moving to $s = 0$ to staying and to moving to $s = 1$ if and only if $\kappa(1 - 2s) > U(1) - U(0)$ and $U(0) - U(s) > \kappa s$.

(c) An optimal move to $s = 0$ makes S strictly worse off if and only if H was taxed at τ_L at the starting map, that is, $\phi s > 1$.

Proof. By Proposition 2 the targets are 0, s and 1, with annualized values $U(0) - \kappa s$, $U(s)$ and $U(1) - \kappa(1 - s)$. The ruler prefers 0 to 1 if and only if $U(1) - U(0) < \kappa(1 - 2s)$. For $s \geq \frac{1}{2}$ the right-hand side is non-positive and the left-hand side is non-negative by Proposition 3, which gives (a), and adding the comparison with staying gives (b). For (c), a move to 0 requires $U(0) > U(s)$, and it never occurs if $\phi \leq 1$, when U is increasing. If $\phi s > 1$ with $s < \frac{1}{2}$, then $\phi > 2$ and $\phi(1 - s) > 1$, so both locations are taxed at τ_L at s, and $W_S(s) = (1 - \tau_L)[sy_H + (1 - s)y_L] > (1 - \tau_L)y_L = W_S(0)$. If $\phi s \leq 1$, location H is taxed at τ_H both at s and at 0, while L is taxed at τ_L at 0, so rents at 0 are no higher than at s. Then $U(0) > U(s)$ requires $\phi[W_S(0) - W_S(s)] > 0$. □

Consolidating O on the better land therefore occurs only from maps on which S is a minority on H and the distance to S's corner costs more than favoritism is worth. The ruler then sorts the population toward O's corner in order to tax O at the high rate. When S's share of H was large enough to protect it from the high rate, the move costs S the better land and leaves it worse off. When S's members on H were already taxed at the high rate, they gain by moving to the low-taxed location.

A.5 Relation to the Settlement Schemes

The core of the model is that favoritism and extraction compete for the same land. A ruler who barely depends on the salient group taxes both locations at the high rate and moves the group onto the better land whenever the move is worth its cost, which is favoritism alone. Once the ruler depends on the group enough to tax the locations differently, settling it on the better land moves the low rate onto the larger tax base, so the fully favored map yields fewer rents than its mirror image (Proposition 3). Favoritism still prevails when the ruler compares the two sorted maps. From a map on which the salient group is a minority on the better land, however, reaching the favored map means moving most of the population,

and where moving is costly the ruler instead consolidates the other group on the better land in order to tax it (Proposition 4). That move hurts the salient group whenever its share had protected it from the high rate. Resettlement can therefore favor the salient group, consolidate others on the better land, or not happen at all, three possible outcomes that depend on the starting map and the cost of moving.

The negotiated departure of colonial settlers from the White Highlands offers a motivating empirical case for a particular application of this framework: land on H that opens to settlement.[52] Suppose then that half of H's land is settled at the start, and that S and O each hold half of it and half of L. The ruler can open the other half once, at a cost λ paid at once with effect from the next period, and choose S's share s of the opened land. Settlers keep their existing claims, so the composition and output of L are unchanged. Once open, H is fully used and holds as much land as L, and S holds a share $n_H = \frac{1}{4} + \frac{1}{2}s$ of it. Before opening, the settled half of H yields $\frac{1}{2}y_H$, and afterward the per-period value is $U(s) = y_H f(\frac{1}{4} + \frac{1}{2}s) + y_L f(\frac{1}{2})$.

Corollary (opening land). (a) If the ruler opens H, it gives all of the opened land to S, uniquely if $\tau_H < 1$, so S's share of H rises to $\frac{3}{4}$. (b) Compared with giving the opened land to O, it thereby forgoes rents of δy_H in every period if $\frac{4}{3} < \phi \leq 4$, and none otherwise. (c) The ruler opens H if and only if $y_H f(\frac{3}{4}) - \frac{1}{2}y_H f(\frac{1}{2}) > \kappa$.

Proof. (a) The slope of f is $\phi(1-\tau_H)$ below its kink and $\phi(1-\tau_L)$ above it, both non-negative and positive if $\tau_H < 1$, n_H rises with s, and the term in L does not depend on s. (b) H is taxed at τ_H where $\phi n_H \leq 1$. At $s = 1$, $n_H = \frac{3}{4}$, so H is taxed at τ_L if $\phi > \frac{4}{3}$. At $s = 0$, $n_H = \frac{1}{4}$, so H is taxed at τ_H if $\phi \leq 4$. The rates differ only when both hold. (c) Opening raises the value of H from $\frac{1}{2}y_H f(\frac{1}{2})$ to $y_H f(\frac{3}{4})$ in every later period, worth $\beta/(1-\beta)$ times the difference, against the cost λ. □

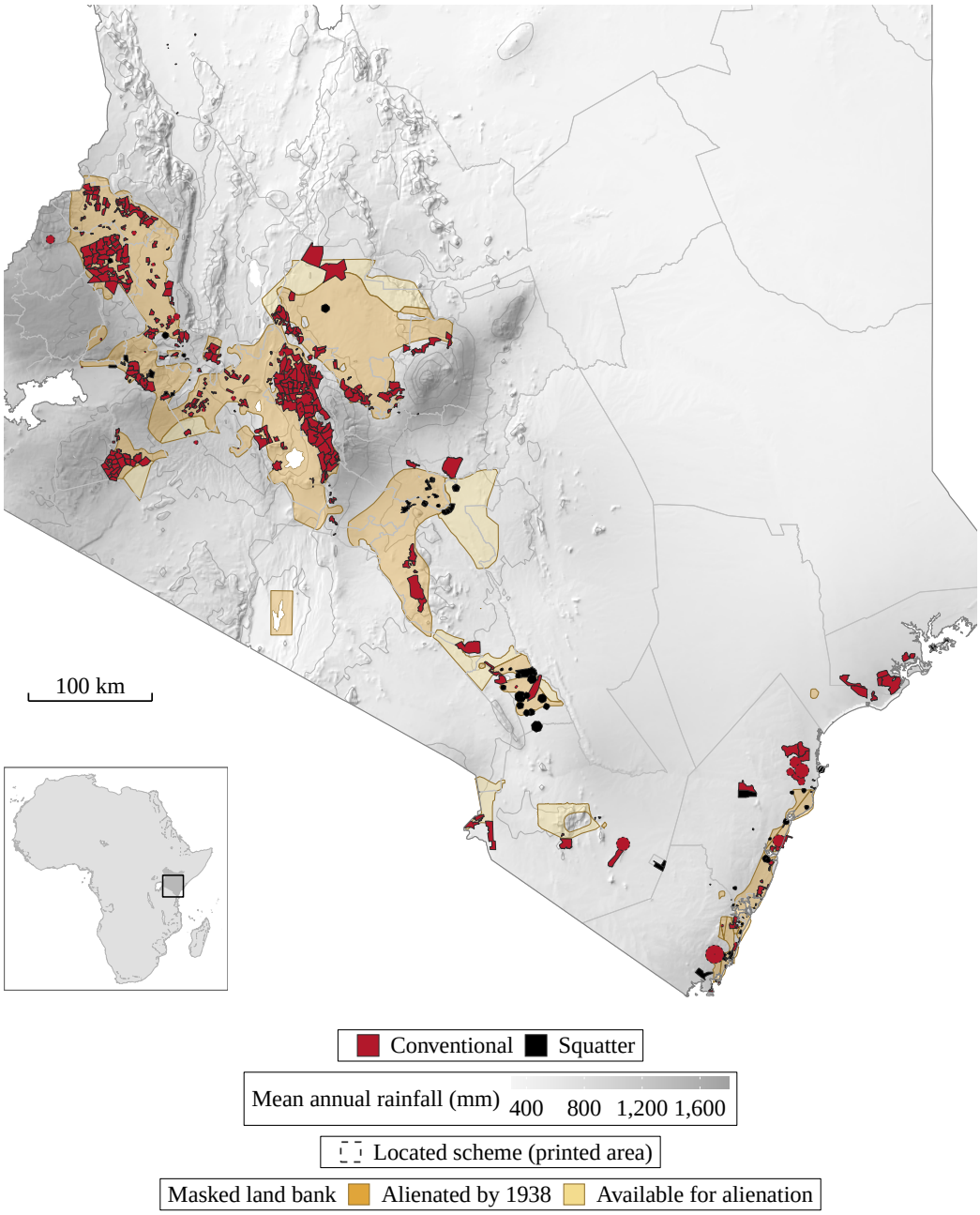
Opening land therefore selects favoritism. The opened land goes to S, so S's share rises where land opens and no other group's share does, while the composition of L is unchanged and H gains people. Favoritism costs rents only when the ruler depends on S enough that S's larger share protects H from the high tax, but not so much that a minority share would protect it too. The land swap of the general model plays no role here. The result does not depend on the settled share being half: the opened part still goes wholly to S, and only the band in (b) and the condition in (c) change.

[52] The 1962 census shows that these areas were inhabited by various groups, some of whom had arrived as squatters and others who may have lived there for centuries, but land was vacated around the farms of departing settlers.

B Additional Figures and Tables

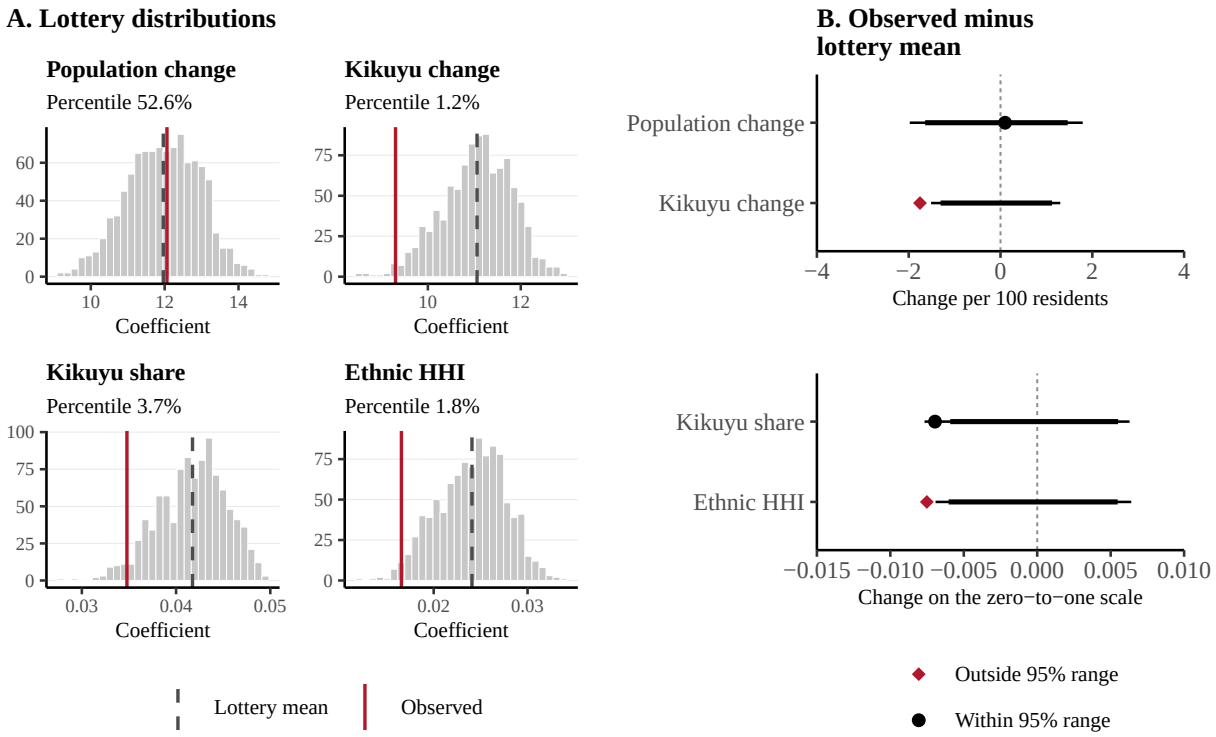
B.1 Figures

Figure B.1.1: Settlement schemes, rainfall, and topography.



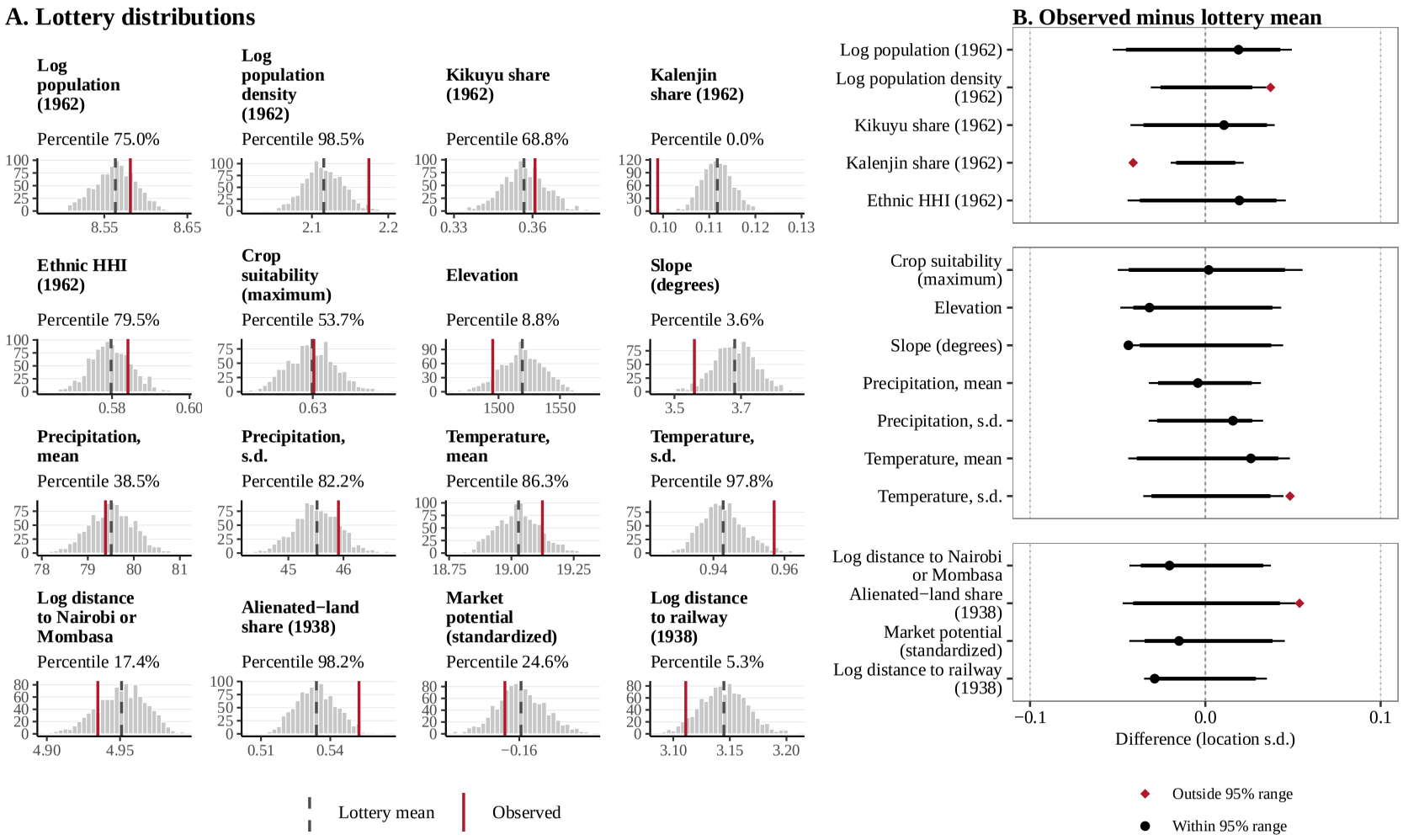
Note Red marks conventional schemes and black marks squatter schemes, and dashed circles are as in Figure 2. Orange marks land alienated by 1938 and yellow land recorded as available for alienation, less the masks of Morgan (2000). The background is mean annual rainfall (WorldClim, 1970–2000) over SRTM relief, with contours every 500 meters.

Figure B.1.2: Demographic outcomes against feasible program placements.



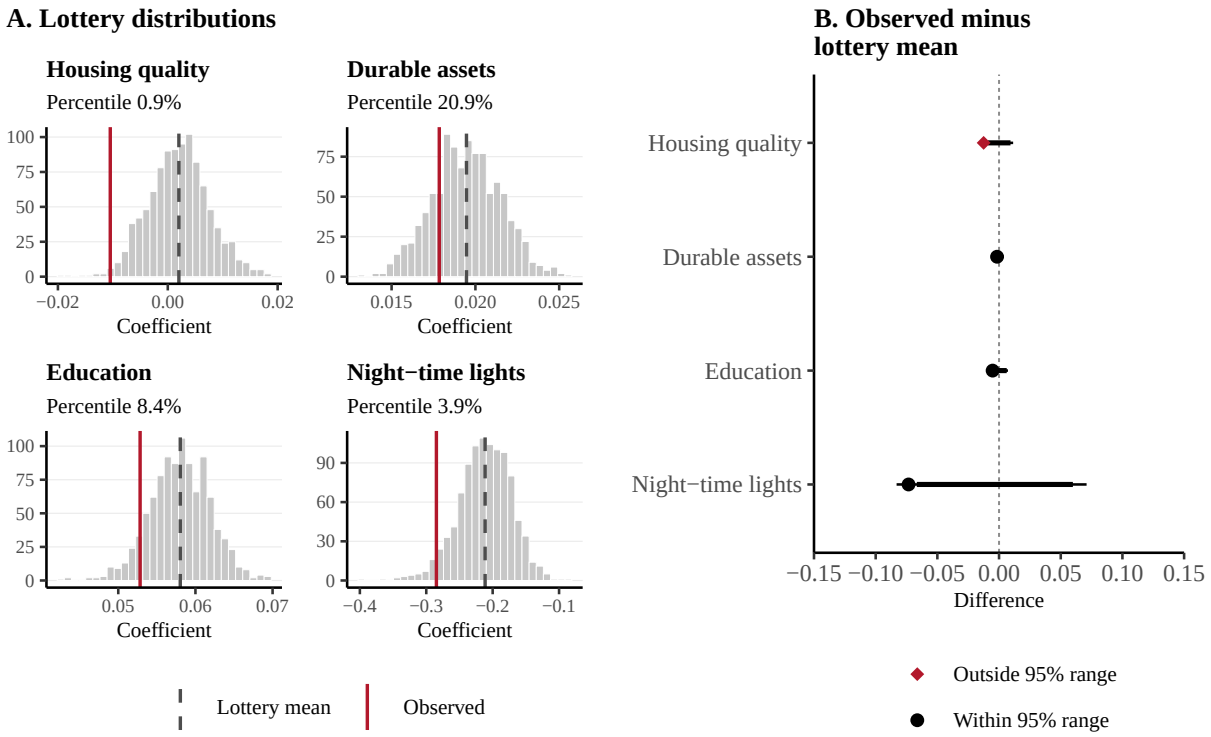
Note Conventional allocations run through 1988, with the sample, controls and fixed effects of Table 3. Panels, markers and ranges are as in Figure 5. Population and Kikuyu change are per 100 residents, and Kikuyu share and ethnic HHI are on the zero-to-one scale.

Figure B.1.3: Predetermined characteristics under observed and feasible placement.



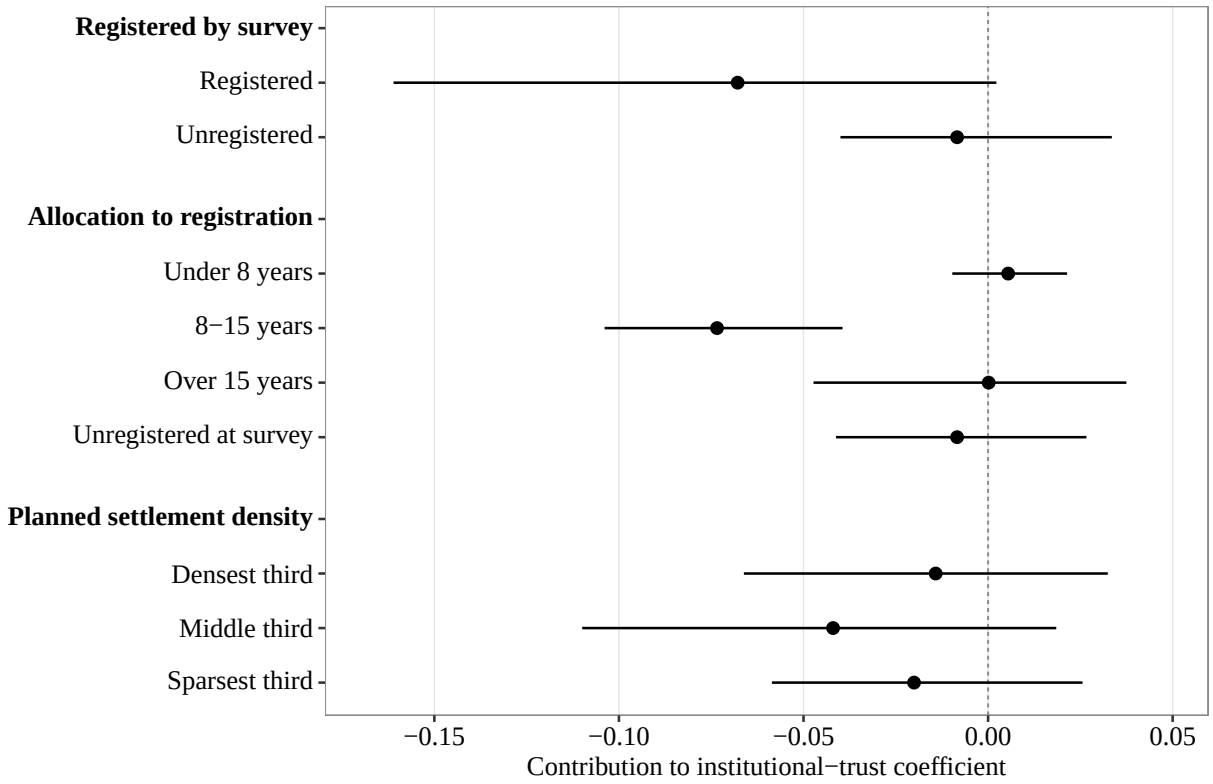
Note Conventional allocations run through 2002, on the 340 locations with complete baseline data. Panel A shows exposure-weighted means in original units, with observed means in red and lottery means dashed. Panel B shows observed minus lottery means in location standard deviations, with markers and ranges as in Figure 5, and dotted lines mark ±0.10.

Figure B.1.4: Material outcomes against feasible program placements.



Note Material outcomes against 1,000 feasible placements of conventional schemes allocated through 2002. Panels and markers are as in Figure 5. Table B.2.5 reports samples, specifications and values.

Figure B.1.5: Institutional trust by registration and planned settlement density.



Note Contributions to the institutional trust coefficient, with allocations through 2002 and the sample, controls, fixed effects and inference of the odd-numbered columns of Table 4. Exposure is divided by registration at the survey, by years from allocation to registration, and into thirds of hectares per settler (cutoffs of 5.3 and 12.0), from Lukalo, Boone, & Joireman (2019). Contributions depend on the amount of land in each group as well as on its per-hectare association. Bars are 95 percent intervals.

B.2 Tables

Table B.2.1: Settlement and demographic change within ruler periods

Dependent variable	Change over the panel's window					
Outcome	Population change	In-migrants, endpoint	Kikuyu change	Kikuyu share	Ethnic HHI	Largest group
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A. Kenyatta: schemes allocated by 1978, change 1962–1979						
Scheme land per resident (ha)	14.62	6.08	11.42	0.050	0.025	0.019
	[.010]	[.262]	[.176]	[.338]	[.362]	[.507]
	[5.41,26.67]	[−4.95, 12.80]	[−3.31, 21.40]	[−0.022, 0.115]	[−0.050, 0.082]	[−0.053, 0.064]
Observations (exposed)	329 (96)	329 (96)	329 (96)	329 (96)	329 (96)	329 (96)
Panel B. Moi: schemes allocated 1979–1988, change 1979–1989						
Scheme land per resident (ha)	8.96	0.01	−0.29	0.016	−0.023	−0.015
	[.771]	[.989]	[.906]	[.101]	[.566]	[.553]
	[−32.47, 19.17]	[−11.10, 15.58]	[−20.58, 36.98]	[−0.313, 0.080]	[−0.050, 0.042]	[−0.032, 0.026]
Observations (exposed)	329 (38)	329 (38)	329 (38)	329 (38)	329 (38)	329 (38)
Controls	✓	✓	✓	✓	✓	✓
District FE	✓	✓	✓	✓	✓	✓

Note Each panel relates schemes allocated within a ruler's period to demographic change over the same period, ending the year before its endpoint census, and a location can enter both panels. Columns (1)–(3) are per 100 residents of average start and end population, with the in-migrant count an endpoint stock, and columns (4)–(6) are on the zero-to-one scale over the resident Kenyan ethnic population. Controls, fixed effects and inference are those of Table 3.

Table B.2.2: Settlement and demographic change at 1962 locations, 1962–1989: population shares

Dependent variable	Change, 1962–1989 (in-migrant share: 1989 level)				
Outcome	In-migrant share, 1989 (1)	Log population (2)	Kikuyu share (3)	Kalenjin share (4)	Ethnic HHI (5)
Scheme land per resident (ha)	−0.31 [.811] [−3.81,1.95]	0.195 [.008] [0.096,0.271]	3.21 [.011] [0.36,8.29]	0.07 [.956] [−1.29,2.10]	0.017 [.230] [−0.015, 0.057]
Observations (exposed)	339 (109)	339 (109)	339 (109)	339 (109)	339 (109)
Controls	✓	✓	✓	✓	✓

Note Sample, exposure, controls, fixed effects and inference are those of Table 3. The in-migrant share is the 1989 share of residents born outside their district. Kikuyu and Kalenjin share changes are in percentage points of total population, and log population and ethnic HHI are 1962–1989 changes.

Table B.2.3: Scheme land within European farmland

	Mean		Scheme minus other (SD) [p]	
	Scheme	Other	Pooled	Within districts
Crop suitability index	0.63	0.59	0.13 [.369]	0.10 [.508]
Elevation	1,987	1,735	0.44 [.002]	0.12 [.139]
Slope	3.8	3.8	0.00 [.982]	−0.07 [.671]
Annual rainfall	1,085	945	0.50 [<.001]	0.16 [.041]
Mean temperature	16.9	18.3	−0.48 [.009]	−0.12 [.148]
Distance to Nairobi–Mombasa line	181	155	0.28 [.123]	−0.05 [.166]
Cells	6,558	35,106		

Note Each observation is a 30-arc-second cell of land alienated to European settlers by 1938, after the mask of Section 4.3, and scheme cells lie under conventional schemes allocated through 2002. Differences are in standard deviations across alienated cells, pooled over 29 historical districts or within them, with p-values clustered by 1962 location. Elevation is in meters, slope in degrees, rainfall in millimeters, temperature in degrees Celsius and distance in kilometers, and crop suitability runs from 0 to 1.

Table B.2.4: Trust by scheme status and allocation period

Category	Contribution	95% interval	p	Locations / districts
Panel A. Institutional trust				
Scheme status				
Conventional	−0.063	[−0.132,−0.009]	.015	85 / 21
Squatter	0.002	[−0.026,0.027]	.862	31 / 11
Scheme allocation date				
1962–1966	−0.016	[−0.052,0.021]	.360	49 / 16
1967–1978	−0.013	[−0.060,0.014]	.417	56 / 16
1979–2002	−0.047	[−0.102,0.001]	.052	46 / 16
Location first allocation				
1962–1966	−0.035	[−0.085,0.012]	.131	49 / 16
1967–1978	−0.011	[−0.089,0.012]	.499	27 / 13
1979–2002	−0.030	[−0.083,0.022]	.215	9 / 6
Panel B. Trust in the president				
Scheme status				
Conventional	−0.049	[−0.121,0.009]	.109	85 / 21
Squatter	0.003	[−0.021,0.026]	.724	31 / 11
Scheme allocation date				
1962–1966	−0.012	[−0.049,0.024]	.475	49 / 16
1967–1978	−0.012	[−0.044,0.009]	.305	56 / 16
1979–2002	−0.036	[−0.110,0.025]	.261	46 / 16
Location first allocation				
1962–1966	−0.024	[−0.077,0.024]	.286	49 / 16
1967–1978	−0.006	[−0.049,0.014]	.558	27 / 13
1979–2002	−0.030	[−0.091,0.030]	.509	9 / 6

Note Contributions with allocations through 2002 and the samples, controls, fixed effects and inference of Figure 9. The scheme status block splits the coefficient on all scheme land, conventional and squatter (−0.061 and −0.046), and first entry assigns each location's exposure to its earliest allocation year. The conventional–squatter differences have p-values of .295 in Panel A and .326 in Panel B.

Table B.2.5: Contemporary outcomes against chronological lottery placement

	Through 2002			
Outcome	Obs.	Lottery	Diff.	Pctl.
A. Afrobarometer PCA families				
Interpersonal trust	0.004	0.004	−0.000	52.5%
Institutional trust	−0.076	−0.054	−0.022	0.3%
Civic participation	0.030	0.031	−0.001	45.6%
Ethnic attachment / grievance	0.043	0.038	0.004	71.0%
B. Institutional trust components				
Trust in the president	−0.060	−0.042	−0.018	0.4%
Trust in parliament	−0.093	−0.075	−0.018	3.5%
Trust in the local council	−0.011	−0.003	−0.008	9.2%
Trust in the courts	−0.062	−0.042	−0.020	0.4%
C. Material outcomes				
Housing quality	−0.010	0.002	−0.012	0.9%
Durable assets	0.018	0.019	−0.002	20.9%
Education	0.053	0.058	−0.005	8.4%
Nightlights (PPML)	−0.285	−0.211	−0.073	3.9%

Note Observed coefficients, in the specifications without ethnicity fixed effects of Tables 4 and 5, against 1,000 completed lotteries. Lottery is the mean lottery coefficient, Diff. the observed coefficient minus Lottery, and Pctl. the observed coefficient's percentile, with ties split equally.

Table B.2.6: Kikuyu gains by 1962 Kikuyu share and land quality, 1962–1989

Dependent variable	Change in Kikuyu population, 1962–1989	
Measure	Share (percentage points) (1)	Per 100 residents of average population (2)
Panel A. Scheme land per resident, by 1962 Kikuyu share		
Below 5 percent	4.30	6.84
	[.101]	[.504]
	[−0.43,10.33]	[−6.94,17.43]
5 to 50 percent	4.05	7.52
	[.430]	[.679]
	[−2.39,12.60]	[−8.83,26.98]
50 percent or more	1.47	14.69
	[.498]	[.011]
	[−1.99,11.11]	[5.24,46.97]
Difference: below 5 minus 5 to 50 percent	0.25	−0.68
	[.965]	[.962]
	[−11.62,11.90]	[−25.43,21.10]
Observations (exposed)	339 (109)	339 (109)
Panel B. Land quality		
Scheme land per resident (ha)	2.61	9.02
	[.162]	[.030]
	[−1.71,6.04]	[0.66,17.06]
Land per resident × crop suitability (per 0.1)	0.90	0.30
	[.689]	[.882]
	[−1.86,3.40]	[−7.06,4.53]
Observations (exposed)	339 (109)	339 (109)
Controls	✓	✓
District FE	✓	✓

Note Sample, exposure, controls, fixed effects and inference are those of Table 3. Column (1) is the Kikuyu share change in percentage points and column (2) the Kikuyu change per 100 residents. Panel A interacts scheme land per resident with three bins of the 1962 Kikuyu share, with bin main effects (53, 18 and 38 exposed locations). Panel B interacts it with centered GAEZ crop suitability over the 1965 roster crops, per 0.1.

Table B.2.7: District ethnic concentration and Kikuyu/Kalenjin shares, 1948–1989

	1948	1962		1969		1979		1989	
District	Kik.	HHI	Kik/ Kal	HHI	Kik/ Kal	HHI	Kik/ Kal	HHI	Kik/ Kal
Uasin Gishu	0.18	0.26	0.34/ 0.32	0.26	0.23/ 0.25	0.39	0.19/ 0.56	0.34	0.17/ 0.53
Trans Nzoia	0.06	0.22	0.14/ 0.10	0.37	0.17/ 0.06	0.35	0.12/ 0.28	0.30	0.10/ 0.25
Nakuru	0.65	0.35	0.56/ 0.12	0.40	0.54/ 0.06	0.46	0.65/ 0.15	0.40	0.60/ 0.16
Laikipia	0.77	0.36	0.59/ 0.11	0.51	0.60/ 0.05	0.62	0.78/ 0.07	0.56	0.75/ 0.06
Nyandarua	0.65	0.60	0.77/ 0.09	0.75	0.83/ 0.03	0.92	0.96/ 0.01	0.90	0.95/ 0.01
Nyeri	0.99	0.96	0.98/ 0.00	0.85	0.88/ 0.01	0.96	0.98/ 0.00	0.95	0.97/ 0.00
Kiambu	0.98	0.86	0.93/ 0.00	0.80	0.84/ 0.00	0.85	0.92/ 0.00	0.75	0.87/ 0.00
Baringo	0.00	0.84	0.06/ 0.92	0.73	0.10/ 0.80	0.89	0.03/ 0.94	0.87	0.02/ 0.93

Note HHI and Kikuyu and Kalenjin shares over the ten named groups, aggregated from the 472-location panel to the 41 historical districts for 1962, 1969, 1979 and 1989, with the 1948 Kikuyu share of the African population. The top block lists former White Highlands and settlement-frontier districts, and the bottom block ethnic heartlands that received no schemes. The 1962, 1979 and 1989 cells are population-weighted from the panel. The 1969 shares use the enumerated population of the microdata, so they can differ slightly from the archive rounds. The 1948 shares are parent-district values on 1948 boundaries, with Nakuru–Nyandarua and Laikipia–Nanyuki reporting their merged parents. Trans Nzoia's dominant group throughout is Luhya, not shown.

Table B.2.8: Each group's change against the Kikuyu change

Group	Change per 100	Group minus Kikuyu [p]
Kikuyu	9.30	
Kalenjin	−0.46	−9.76 [.051]
Luhya	0.41	−8.89 [.016]
Luo	0.14	−9.16 [.009]
Kamba	0.76	−8.54 [.044]
Kisii	0.10	−9.21 [.010]
Maasai	−0.94	−10.24 [.009]
Meru	0.79	−8.51 [.038]
Embu	0.08	−9.23 [.009]
Mijikenda	2.21	−7.09 [.255]

Note Column (1) reproduces Panel A of Figure 7. Column (2) is each group's coefficient minus the Kikuyu coefficient, from stacking the two regressions with every control and fixed effect interacted with the stack. Sample, controls, fixed effects and inference are those of Table 3, with each group's own 1962 share.

Table B.2.9: Demographic heterogeneity: Kikuyu change and Kikuyu share change

Category	Contribution	95% interval	p	Locations / districts
Panel A. Kikuyu change per 100 residents				
Scheme status				
Conventional	9.02	[1.57,16.07]	.006	109 / 24
Squatter	0.62	[−1.02,1.48]	.202	14 / 7
Scheme allocation date				
1962–1966	2.32	[−0.94,7.25]	.152	68 / 19
1967–1978	5.04	[−0.27,10.48]	.082	69 / 20
1979–1988	1.94	[−39.06,14.20]	.091	40 / 13
Location first allocation				
1962–1966	5.53	[−0.25,10.01]	.061	68 / 19
1967–1978	3.83	[−1.90,86.97]	.356	33 / 14
1979–1988	−0.06	[−10.98,16.89]	.798	8 / 6
Panel B. Kikuyu share change				
Scheme status				
Conventional	0.034	[0.006,0.083]	.003	109 / 24
Squatter	0.002	[−0.056,0.015]	.615	14 / 7
Scheme allocation date				
1962–1966	0.004	[−0.004,0.016]	.277	68 / 19
1967–1978	0.029	[−0.001,0.055]	.059	69 / 20
1979–1988	0.002	[−0.069,0.070]	.830	40 / 13
Location first allocation				
1962–1966	0.010	[−0.004,0.021]	.148	68 / 19
1967–1978	0.024	[−0.001,0.060]	.113	33 / 14
1979–1988	−0.000	[−0.052,0.046]	.962	8 / 6

Note Contributions with allocations through 1988 and the sample, controls, fixed effects and inference of Figure 8. The scheme status block splits the coefficient on all scheme land, conventional and squatter (9.64 and 0.035), and first entry assigns each location's exposure to its earliest allocation year. The conventional–squatter differences have p-values of .467 in Panel A and .703 in Panel B.

Table B.2.10: Institutional trust by respondent group and political alignment

Dependent variable	Institutional trust index (standard deviations)				
Respondents	Other	Kikuyu	Kikuyu minus other	Other, rounds 2–5	Other, round 6
	(1)	(2)	(3)	(4)	(5)
Panel A. Respondent groups					
Scheme land per resident (ha)	−0.100	−0.022	0.077	−0.105	−0.062
	[.009]	[.709]	[.365]	[.014]	[.357]
	[−0.214, −0.023]	[−0.163, 0.098]	[−0.077, 0.223]	[−0.198, −0.026]	[−0.203, 0.107]
Observations	5,654	5,654	5,654	3,252	1,091
Fixed effects	Ethnicity × round	Party × round	Both		
	(6)	(7)	(8)		
Panel B. Alignment with the government, all respondents					
Scheme land per resident (ha)	−0.061	−0.068	−0.056		
	[.030]	[.011]	[.036]		
	[−0.126, −0.006]	[−0.138, −0.012]	[−0.120, −0.003]		
Observations	5,654	5,654	5,654		
Schemes recorded for	Respondent's group	Other groups	No group		
	(9)	(10)	(11)		
Panel C. Group recorded for the schemes					
Scheme land per resident (ha)	−0.072	−0.088	−0.067		
	[.270]	[.186]	[.401]		
	[−0.225, 0.053]	[−0.237, 0.038]	[−0.194, 0.157]		
Observations	5,654	5,654	5,654		

Note Respondent-level OLS with the controls, fixed effects and inference of the even-numbered columns of Table 4. Columns (1)–(3) interact scheme land per resident with Kikuyu respondent status, and columns (4)–(5) restrict other respondents to rounds 2–5 and round 6. Panel B replaces the ethnicity and round fixed effects with ethnicity-by-round, party-by-round or both. Columns (9)–(11) divide scheme land by the group the recipient record names for each scheme (Section C.5).

C Historical Mechanism Evidence

This appendix lists historical evidence for each part of Figure 1, beginning with broader claims and then turning to specific instances.

C.1 State-Directed Resettlement

The government chose the sites of schemes and the groups they would receive, and the Department of Settlement carried them out. The colonial government's report for 1962 sets out how the program worked in its first year (Colonial Office, 1964, pp. 59–61). From April 1962 Kenya was governed by a coalition of KANU and KADU, in which Kenyatta was Minister of State for Economic Planning (Colonial Office, 1964, pp. 130, 194). A new Ministry of Land Settlement and Water Development took over the Land Development and Settlement Board, and a Department of Settlement devised and implemented schemes, relying on other departments, the Provincial Administration and the Road Authority for most of the work. The Department chose neither the settlers nor the sites: "priorities for schemes, the siting of them, and the tribal allocations to schemes were decided by the Government."

Each scheme passed through a fixed sequence of purchase and subdivision. The report lists the steps of purchase and settlement.

The acquisition of each farm involved:

(i) valuing the land and permanent improvements by the Board's valuers, on a formula agreed with the World Bank;
(ii) negotiating the valuation with the European owner;
(iii) obtaining the Divisional Land Board's approval of the sale;
(iv) surrendering the title to the Crown.

The settlement of the purchased land by the Department of Settlement involved:

(i) grouping the farms into manageable units;
(ii) subdividing the units into economic-sized holdings by soil and crops;
(iii) assessing a settlement charge on each holding;
(iv) arranging drainage, fencing, water supplies and access roads;
(v) issuing development loans to settlers for houses and stock;
(vi) supervising incoming settlers, whom the Provincial Administration selected with the local agricultural officers.

Settlement proceeded in haste. In 1962 the program bought about 234,000 acres and settled 2,347 families, under a tenth of the 23,917 settled by June 1965 (Nottidge & Goldsack,

1966). In Kinangop, about 3,000 families were placed in 21 days before independence (Muhia, 1977, p. 16). The government's Economic Survey records how the schemes had fared by 1964/65 (Republic of Kenya, 1966, p. 40). Output per acre exceeded its pre-settlement level on all ten low-density schemes surveyed but on only two of eleven high-density schemes, some "prepared and settled in great haste in the second half of 1963."

Not all purchased land was subdivided. The 118,808-acre Ol Kalou Salient, "fairly poor land which is unsuitable for subdivisional settlement," was farmed as one unit pending co-operatives owned by those already living there (Republic of Kenya, 1966, p. 40).

C.2 Cost and Financing

Settlement under the Million Acre Program, 126 schemes on 1.1 million acres in 1962–1966, was costly relative to settler incomes and public resources. The Department of Settlement reports the charging rule, development loan schedules, model farm budgets, and a scheme roster of acreage, plots and average charges as at June 1965 (Nottidge & Goldsack, 1966). Jones (1965, pp. 200–201) reports the program accounts and all-in cost per settler. Moving one family cost £614 at the published all-in rate for a high-density settler, fifteen to twenty-five times the £25 to £40 annual net income projected for those households. The low-density figure of £970 was about ten times its £100 target.[53] The program cost 11.6 percent of Kenya's 1959 gross domestic product, or about 2.3 percent in each of its five years (East African Statistical Department, 1960, Table 131(a)). Resettlement on this scale was a first-order claim on public resources.

Settlers bought their land on loan. The Department's charging rule fixes the relationship between what the state paid for a scheme and what the settler owed on it. The purchase price was reduced by a third, that share treated as a grant covering "permanent improvements which are of no direct economic benefit to the settler", and the remainder raised by a tenth against expected default (Nottidge & Goldsack, 1966).

Repayment failed, and the state absorbed more of the cost than planned. Development loans allowed a moratorium of up to three years where late entry, flood or drought was no fault of the settler (Nottidge & Goldsack, 1966, p. 35). The repayment problem was concentrated in the high-density arm that carried most settlers: in 1963 the acting director of agriculture warned that its charges were too large for the land's productive capacity,

[53] Income targets are recorded scheme by scheme in the 1965 roster (Nottidge & Goldsack, 1966): of the 86 settled schemes, 42 carry a target at or below £40, a further 16 carry ranges topping out at £70, 27 carry £100, and one carries £250. The £614 and £970 all-in figures are the high- and low-density columns of Jones (1965, pp. 200–201), so each is compared with the income target of the class it prices.

while judging two low-density schemes he visited viable (Leo, 1984, p. 140). In 1967 the President declared a two-year moratorium, which required the loans to be rescheduled. By 1974 repayment averaged about half, less on the high-density schemes and as little as 18 percent on some. Nearly all settlers were in arrears, and most were unlikely ever to repay (Harmsworth, 1974, pp. 3–4). The government attempted to charge beneficiaries for resettlement but ultimately absorbed more of its cost than planned.

C.3 Demographic Geography and Policy

An instrument written in the language of a crop, sector, or place reaches a group when groups are spatially concentrated, with precision determined by how clearly group maps into territory (Ejdemyr, Kramon, & Robinson, 2018). The cases below document how crops, projects and local organizations differentiated policy across rural populations.

Agricultural institutions reached groups through crops and places. Kenya's government influenced agricultural incomes through institutions that controlled purchasing, processing, credit, and payments to producers. For instance, smallholder coffee farmers could sell only through their registered cooperative, which deducted charges and loan repayments before distributing receipts, while the Kenya Tea Development Authority organized smallholders' inputs, leaf collection, processing, and payments (Schluter, 1984, pp. 36, 39). These arrangements gave public authorities influence over the prices farmers received, the deductions they bore, and their access to services. Regional specialization let formally national rules reach defined populations: the Central bloc produced 70 percent of national arabica coffee and the Western bloc 74 percent of sugarcane (Boone, Crespin-Boucaud, & Kim, 2025, Table 1). Governments also chose which commodity institutions to fund and sustain: under Moi, maize-support institutions expanded while cotton-support institutions in the Luo areas of western Kenya were allowed to lapse (Poulton & Kanyinga, 2014, pp. S155–S157). Production geography thus gave successive governments a means of distributing benefits and burdens across rural populations. In Kenya, as elsewhere in Africa, cooperatives were also local bases of the governing party (Bates, 1981, p. 116).

In food crises the central administration directed the maize trade in settlement districts. Take the case of maize in western Kenya, where Bungoma and Kakamega contained settlement areas including Tongaren and Lugari (Ludeki, 1990, pp. 66–67). Settlement schemes supplied a substantial share of the Maize Board's intake in these districts. During the food shortages of 1979–80 and 1984–85, the central administration controlled interregional shipments, capped local depot sales by telegram, and transferred grain from producing regions to urban centers. District food committees in Kakamega and Bungoma

also prohibited sales to private traders, directing producers toward the board and cooperative societies (Bates, 1989, pp. 123–127). The government expanded cooperative credit and buying centers, allowing farmers near those centers to receive the official depot price without bearing the transport cost to distant depots, and politicians shaped where they went.[54] When maize-purchase lending generated losses, the government required wealthy coffee and dairy cooperatives, concentrated in Central Province, to transfer their members' savings from commercial banks to the Cooperative Bank (Bates, 1989, p. 137). This episode illustrates how the government used geographically organized agricultural institutions to support one constituency and draw resources from another.

Place-sited spending followed political geography. Harris and Posner (2019) show that local spending rewards a political bloc only where supporters and opponents are spatially separated, not where a constituency is merely more diverse.[55] Kenya's road program shows the same logic at a larger scale. Kenyatta's Central and Eastern base saw its share of new-road expenditure fall from 44 to 16 percent between 1979–80 and 1986–87, while Moi's Rift Valley and Western base rose from 32 to 67 percent (Barkan & Chege, 1989, Table 1, pp. 449–450). Across the post-independence panel, coethnic districts received close to three times their population share of road spending under autocracy, a bias that flipped between Kikuyu and Kalenjin presidents and disappeared under multiparty competition (Burgess et al., 2015). Across Kenya's local authorities between 2004 and 2013, a group's share of public employment turned on whether it held the local council majority, measured against 1989 composition (Hassan, Larreguy, & Russell, 2024).

Settlement status became an administrative category. Bungoma's district development committee funded no project in Tongaren, a settlement division, in five of the seven budget years from 1971/72 to 1977/78, because officials felt its schemes had already received a great deal (Ludeki, 1990, pp. 124–125). Conversely, when the grain board proposed closing uneconomic buying centers after the early-1980s crises, it planned to spare those serving settlement schemes (Bates, 1989, p. 135). The same classification could therefore justify withholding additional projects or preserving local infrastructure.

Administrative boundaries moved with the settled population. At the 1962 census the Kinangop and Ol Kalou settled areas lay in Rift Valley Province. By April 1963, while the first Million Acre schemes were being laid out, the same block was administered as

[54] Nandi politicians secured repeated orders for additional centers, while Baringo's district commissioner invoked a presidential instruction to request facilities at Maji Mazuri and Subukia (Bates, 1989, pp. 124, 126, 132–135).

[55] They geocode 32,699 Constituencies Development Fund projects across 196 constituencies and link them to political support at more than 14,000 polling stations.

Nyandarua District of Central Province.[56] Settlement and boundary adjustment therefore proceeded together.

The same correspondence that let a ruler favor a population also let the ruler tax or coerce it more effectively (Kasara, 2007). Group-differentiated policy therefore ran through crops, projects, organizations, and administrative units whose reach depended on who lived where.

C.4 The Settlement Relationship

Settlers took land on debt and conditional title. A typical Kinangop allottee carried KSh 4,000–5,400 of land purchase debt and KSh 1,600–2,500 of development debt at 6.5 percent, with instalments beginning within six months. Allotment certificates barred subdivision, leasing, or sale without ministerial permission and Land Control Board consent, and non-compliance exposed the plot and movable property to attachment (Muhia, 1977, pp. 16–18, 25–33). Harbeson's cross-scheme interviews recover the same liabilities from the settlers' side. A very substantial number said that they had not understood their conditional tenure and debt obligations when they entered and learned their terms only later (Harbeson, 1973, pp. 281–283).

Settlers avoided repayment where they could. In Kinangop, repayment ran at about half of what was billed between 1967 and 1972. Settlers sold outside the cooperatives that would have deducted instalments at sale, leased land to better-capitalized farmers while retaining formal liability, subdivided among relatives, and sold informally (Muhia, 1977, pp. 25–33). Settlers then made partial payments to signal good faith while relying on safety in numbers, and marketed produce outside the cooperatives to avoid deductions (Harbeson, 1973, pp. 300–302).

Enforcement was selective. A 1966 committee evicted ten settlers, warned a further thousand, and left hundreds under continuing threat, while the political cost of mass eviction made the contractual sanction non-credible (Harbeson, 1973, pp. 299–301). Insecure tenure outlived the early program: from 2002 a caveat over the 1990s Mau Forest schemes left their residents in legal limbo, and plot sales from original allottees to later arrivals became a source of dispute between communities (Müller-Koné & Mkutu, 2026, p. 9). These terms bound settlers to the state through debt, compulsory marketing, insecure claims and selective enforcement, while the administrative support that came with them was withdrawn within

[56] *Kenya Gazette*, Vol. LXV, No. 29, 18 June 1963, recording the appointment of a District Officer for Nyandarua District, Central Province, with effect from 11 April 1963. The 1962 assignments are read from the census tribe-by-location tables transcribed for this paper (Appendix D).

a few years (Section 2.3).

Distrust fell on central settlement officials and cooperatives. Harbeson's interviews and records show that the resulting distrust fell on cooperatives and on settlement officers, who were staff of the central Department of Settlement and stood outside the provincial administration (Harbeson, 1973, pp. 234–235). Harbeson (1973, pp. 312–313) records that delayed accounting aroused suspicions of theft and that magistrate records confirmed thefts by settlement personnel and cooperative officers. Official meetings transmitted government demands, while grievances and leadership contests moved to informal barazas, rival cooperatives and self-help groups (Harbeson, 1973, pp. 319–320).

C.5 Recipient Identities and Demographic Change

Settlement was planned around claimed ethnic spheres, so which group a scheme was meant for is part of how it changed the inherited population balance. I record every statement at the population stage its source describes (intended designation, allocation return, early settlement or later residence) and keep the stages apart.

Table C.5.1 shows how far that record reaches among the 303 schemes that enter the exposure measure. For 159 of them I found evidence: 128 name a single group and 31 several, and Kikuyu and Kalenjin are named most often, for 59 and 41 schemes. LLM agents (Claude Code and Codex) searched online sources and the collected settlement literature for each scheme, and a second LLM pass checked every coded statement against its source page. I then adjudicated the contested cases by hand against the source passages: statements that named different groups for the same scheme, described an area's residents rather than a scheme's recipients, covered a block of schemes, or rested on a name match alone. I keep later accounts of residence, since land changed hands slowly, and keep disagreements between sources at different stages, each with its stage. Coverage is thickest in Central Province and among early allocations, so the traceable cases over-represent the schemes the sources wrote most about. Online Appendix R.1 accounts for all 166 mapped schemes with evidence, and 13 located ones, in a ledger that groups shared statements in one row and lists each scheme by name, identifier and allocation year, with its sources.

Setting each statement beside the census shares around its scheme shows both reinforcement and movement toward parity. The census comparison covers 146 schemes, while 28 with later allocation evidence are listed separately. Each scheme's shares are averages over the 1962 locations it overlaps, weighted by the scheme's land in each, on the same boundaries in both years. At Elgeyo Border, the Kalenjin share rises from 51.6 to 82.4 percent. At Sabatia, it rises from 14.0 to 52.3 percent and ends closer to parity. At Lietego, the Kisii

Table C.5.1: Ethnicity evidence for the schemes in the exposure measure

	Schemes			
	Mapped	Located	All	Hectares
Panel A. Evidence				
No ethnicity evidence	119	25	144	274,521
Evidence names one group	122	6	128	463,706
Evidence names several groups	26	5	31	91,504
Memo: evidence specific to the scheme	107	11	118	445,170
All schemes	267	36	303	829,732
Panel B. Group named				
Kikuyu	57	2	59	226,914
Kalenjin	40	1	41	108,759
Mijikenda	12	8	20	85,036
Luhya	18	0	18	69,957
Kisii	16	0	16	30,294
Kamba	6	1	7	54,468
Luo	6	0	6	21,101
Other	11	1	12	46,898

Note The schemes are the conventional schemes in the exposure measure, mapped or located, allocated by 2002. Hectares are polygon hectares for mapped schemes and printed hectares for located schemes. Evidence is any recovered statement naming the groups meant to receive a scheme or living on it, for the scheme itself or for an area or block of schemes containing it, and a scheme is counted under several groups when one statement names more than one census group or describes its settlers as mixed, or when its statements name different groups. Labels that match no census group are counted as one group. In Panel B a scheme counts under every group its evidence names, so the rows sum to more than the schemes with evidence, and groups named for fewer than five schemes are pooled as Other (Bajun, Embu, Maasai, Meru, Mixed or residual label, Ndorobo, Sengwer, Swahili).

share rises from 16.3 to 23.2 percent while remaining a minority. Twelve scheme-level statements name more than one group on the same scheme, counting subgroups such as Elgeyo and Tugen as one group (Kalenjin), and seven of them describe realized settlement rather than intent. Gelegele, Koyet and Lietego are recorded as Kipsigis and Kisii, and Naro Moru and Waraza as Kikuyu and Embu. Section 6.2 uses these rows.

D Data: Construction and Documentation

This appendix describes each data source, how I map it onto the 472 locations of 1962, and how much of each source the mapping reaches: the census records, the settlement schemes, the colonial land map with the placement support, and the contemporary surveys. Online Appendix R documents the construction rules, individual decisions and diagnostics.

Table D.1 gives the overview, one panel per source, at each source's own unit of observation. Table 1 reports the control vector and its exposed–unexposed contrast.

Table D.1: Summary statistics by data source

Variable	*N*	Mean	S.D.	Min	Max
Panel A. Settlement exposure (location)					
Any scheme land by 1988	339	0.322	0.468	0.000	1.000
Scheme land per 1962 resident (ha)	339	0.242	0.782	0.000	5.794
Panel B. Demographic change 1962–1989 (location)					
Population change (per 100)	339	81.36	40.76	−140.44	185.32
Kikuyu change (per 100)	339	22.70	38.26	−139.37	157.75
Δ Kikuyu share	339	0.01	0.10	−0.51	0.59
Δ Ethnic HHI	339	−0.03	0.15	−0.64	0.52
Panel C. Contemporary attitudes (Afrobarometer respondent)					
Interpersonal trust (PCA)	4,578	0.003	0.999	−2.823	1.918
Institutional trust (PCA)	9,212	−0.002	1.000	−2.766	2.531
Civic participation (PCA)	9,315	−0.006	0.999	−1.868	1.370
Ethnic attachment and grievance (PCA)	6,658	0.003	1.001	−2.741	3.007
Panel D. Material conditions (DHS household, luminosity)					
Housing quality (PCA)	32,345	−0.037	0.906	−1.489	2.617
Durable assets (PCA)	32,345	−0.016	0.884	−0.784	5.562
Education (PCA)	32,345	0.061	0.928	−1.408	9.501
Log night-time luminosity	32,345	0.736	0.879	0.000	3.635

Note Each panel reports one source at its own unit of observation. Panels A and B cover the 339 locations of Table 3, with its exposure measure and outcomes. Panel C covers Afrobarometer respondents matched to a 1962 location, with family scores built as in Table 4. Panel D covers the DHS households of Table 5, with night-time lights on the same frame. The mean of any scheme land is the exposed share. Table 1 reports the baseline controls.

D.1 Census Records and the 1962 Locations

I transcribe the printed census volumes and carry each later census onto the 1962 locations by assigning every later unit whole to one location. Vision-based transcription with an LLM (Claude) converts each page's tables into rows that keep their printed totals and administrative parents, and I checked every row by eye against its page image. Crosswalks record a decision for every unit that needs one: most units go to the 1962 location they overlap most,

and individual decisions place towns, coastal units and units whose names and boundaries disagree. For ambiguous correspondences, LLMs compile and compare the source evidence for candidate locations, usually in pairs or triples, and I adjudicate under the construction rules, with adversarial LLM checks on selected adjudications. Online Appendix R.2 sets out the rules, the 1989 map correction, every individual decision and the reconciliation against printed totals.

Table D.1.1: Coverage of the whole-unit census bridges

Census	Placed (%)	Locations	Checks
1979	99.874	452	Printed archive totals: 10 of 437 matched locations differ beyond sampling error.
1989	99.999	470	Printed totals, digitized by WRI: 70 locations differ beyond sampling error.
1999	99.960	468	Printed totals, digitized by WRI: 0 locations differ beyond sampling error.
2009	100.000	469	Code and geographic assignment checks.

Note Each later-census sub-location is assigned whole to one of 472 historical locations, after merging Nairobi Ward 13 into Nairobi CC Townships. Population placed is the share of the weighted census sample assigned, and location coverage is distinct from regression sample size. Population, ethnic counts and migration stocks use the same assignments. Printed totals are checks, and discrepancies are retained. The 1979 printed comparison allocates each parent total by its microdata destinations, so it checks population agreement but not geography. The 1962 baseline covers 461 locations, and the other 11 keep missing values. The 1969 location bridge is not used.

Outcomes use denominators suited to each measure. Population and Kikuyu changes are per 100 residents of average 1962 and 1989 population. Kikuyu share and the ethnic HHI use the harmonized resident-Kenyan ethnic universe, which excludes foreign national categories and nests subgroups under their census parent groups, while the supporting group shares in Table B.2.2 use total population. The in-migrant stock is the share of residents born outside their district of residence, among those with recorded birthplace, and follows the same whole-unit assignments.

The bridges place almost every resident and record the remaining gaps (Table D.1.1). The reconstructed 1962 census (Kenya, Directorate of Economic Planning, 1964–1965) supplies baseline demographics for 461 of the 472 locations, on the boundaries digitized by Jedwab, Kerby, and Moradi (2017) with Nairobi Ward 13 merged into Nairobi City Council Townships, and takes only those boundaries from that source. The eleven other polygons, principally forest, park and ranch areas, keep missing baseline values and are excluded only from comparisons that require them. In 1979, nine of 3,159 sub-location codes remain unplaced, and the bridge places about 99.9 percent of weighted population in 452 locations. In 1989 the bridge reaches 470 locations, and seventy of them differ from the printed sub-location totals by more than sampling error allows, which Section E.7 uses as a robustness check.

Two further censuses enter at the district scale. The 1969 census appears only in the

1969 columns of Table B.2.7, because its ethnicity data survive only in microdata that carry no location names below the district (Online Appendix R.2.6). The 1948 census, transcribed from the 1960 Statistical Abstract (East African Statistical Department, 1960) and validated against printed district totals, supplies the pre-Emergency baseline for Section E.4 and the 1948 column of Table B.2.7. Kikuyu counts are available only for the Central and Rift Valley province blocks, and the Embu–Kirinyaga parent is excluded from displacement measures.[57]

D.2 Settlement Schemes and Exposure

Settlement exposure combines dated scheme polygons with documentary locations for schemes whose boundaries are unmapped. The map of Boone, Lukalo, and Joireman (2021) contains 365 polygons, and the inventory of Lukalo, Boone, and Joireman (2019) lists 164 further schemes without mapped boundaries. The mapped polygons range from small squatter settlements to large ranching schemes. Figure D.2.1 shows their distribution within the historical districts used for comparison.

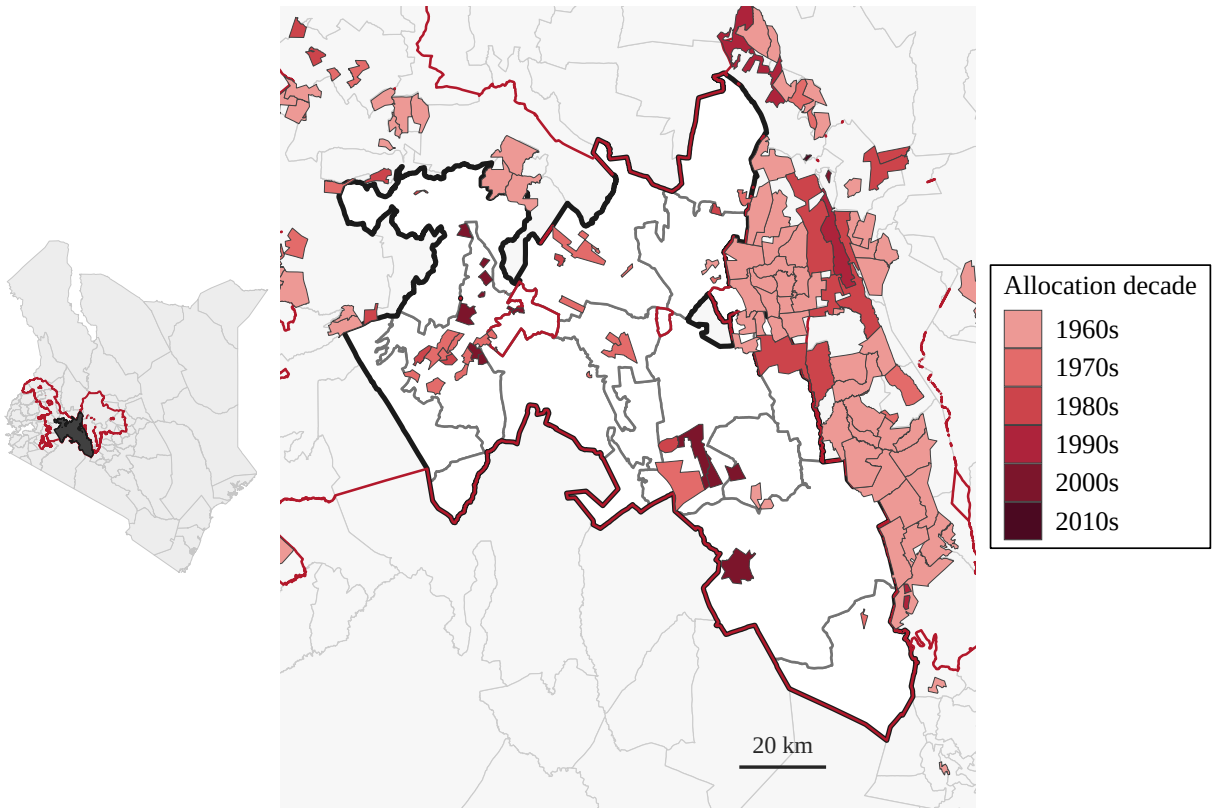
Undated polygons account for a material share of mapped land, although their allocation timing remains unknown. The 37 undated polygons contain about 5.6 percent of the raw polygon hectares, with the largest areas at Mwea, Ndemi Salient and Kipkarren. They stay outside the exposure measure, which needs an allocation year. Pate, whose printed area is zero, and Timboroa, which lacks a qualifying printed record in Lukalo, Boone, and Joireman (2019), are also excluded (Table D.2.1).

Mapping coverage varies across regions and allocation periods. It is higher in the Rift Valley and Central regions and lower at the Coast and in Eastern, while the dated polygons are concentrated in the early program (Table D.2.1). The regional coverage ratios divide mapped counts by published regional shares of the national scheme total, so they describe approximate coverage rather than a scheme-by-scheme reconciliation. The located schemes extend exposure beyond the mapped schemes, including coastal allocations.

The exposure measure uses printed allocation years, polygon hectares for mapped schemes and printed hectares spread over a printed area circle for located schemes. Through 1988 it contains 235 mapped and 21 located conventional schemes, beside 14 mapped and 17 located squatter schemes. Through 2002 the counts are 267 and 36 conventional, and 21 and 71 squatter. Printed years govern the stock even where the mapped metadata differ: Mackinnon Road Phases I and II carry printed dates of 2011 and 2012 and therefore fall outside both allocation windows. For schemes without boundaries, census unit names, Gazette notices,

[57] Most residents of Ndia and Gichugu were enumerated as Embu in 1948 and as Kikuyu in 1962, so changes involving the Embu–Kirinyaga parent can reflect classification rather than displacement (Morgan, 2000, p. 80).

Figure D.2.1: The within-district design.



Note Mapped settlement schemes, colored by allocation decade, on the 1962 location frame (faint gray) within historical districts (gray boundaries). Brick marks the former White Highlands boundary, and the inset locates the settlement zone within Kenya. My main exposure measure adds located unmapped schemes.

court records and gazetteers establish a single 1962 location where the evidence permits. LLM agents (Claude Code and Codex) searched Gazette notices and court records for each scheme, and I assigned each location from the evidence they compiled. I place 107 of the 116 unmapped schemes with a printed area and an allocation year by 2002. Five remain ambiguous between locations and four unresolved, so they stay out of the exposure measure. Online Appendix R.3 reports each assignment with its source and confidence.

D.3 Land Map, Registration and Placement Support

I align the census maps and the historical land map to the KNBS district outline, with a transformation suited to each source, and correct the land bank locally around Mount Elgon and along the southern coast (Online Appendix R.4). Because the KNBS outline

Table D.2.1: Settlement scheme mapping coverage by region and allocation period

Region	Universe share (%)	Mapped polygons	of which allocated			Coverage of universe (%)
			≤1988	≥1989	undated	
Rift Valley	36.2	164	118	28	18	87
Central	20.0	79	68	4	7	76
Coast	23.0	59	12	38	9	49
Eastern	11.9	22	15	5	2	35
Nyanza	4.2	20	17	3	0	91
Western	4.6	19	19	0	0	79
Unknown	—	2	1	0	1	—
Total	100.0	365	250	78	37	70

Note The table classifies the 365 mapped polygons of Boone, Lukalo, & Joireman (2021) by the allocation date the map records: 250 through 1988, 78 from 1989 and 37 undated. The principal exposure measure instead uses printed dates and the eligibility rules of Section D.2, and adds located unmapped schemes. The undated polygons hold 51,968 hectares, 5.6 percent of the raw area, and one records settlers. Region is the shapefile's province attribute, and universe shares are the regional shares of Lukalo, Boone, & Joireman (2019, p. 2). Approximate coverage divides mapped counts by those shares times the 521 schemes of the inventory. Nairobi has no mapped polygon and is omitted, and rounded shares need not sum to 100.

closely follows the 1999 district base map, the checks establish consistency between source geographies rather than survey accuracy.

The placement support, the land on which counterfactual schemes may sit, is the 1938 land bank without lakes and the areas Morgan (2000) maps as negligibly populated in 1962. A scheme is movable only if at least ten percent of its observed footprint lies on alienated or available land. The province-specific suitability screen described in Section 4.3 removes 9 to 12 percent of candidate placements, and a scheme keeps only its passing anchors and stays fixed if none pass, which affects one scheme through 2002.

The combined program contains 256 conventional schemes through 1988, of which 216 are movable, and 303 through 2002, of which 249 are movable. Through 2002, fixed schemes account for 21 percent of scheme hectares across the 472 historical locations and 34 percent of the observed land per resident weights in the 340 locations of the balance comparison. Of the lotteries started, 7.4 percent place every scheme through 1988 and 5.4 percent through 2002, compared with 21.1 and 15.5 percent for mapped schemes alone. About 70 percent of failed attempts stop at a Nyandarua scheme: the observed schemes cover about 85 percent of that district's alienated and available land, so late schemes there often find no free site. No outcome or balance criterion decides which completed maps I keep, and counterfactual programs are more dispersed than observed.

The Kalenjin imbalance in Figure B.1.3 arises because the lottery moves schemes from mixed census locations into more predominantly Kalenjin ones, as at Sabatia, Sotik East and Kipsonoi. Most of the discrepancy is already present in the individual schemes' admissible

menus, before joint placement. The shares describe the 1962 census locations intersected by scheme footprints, not the ethnicity of scheme recipients. The balance comparisons use the 340 locations with complete baseline data, one more than the 339 of the demographic regressions.

D.4 Contemporary Surveys and Respondent Locations

Contemporary outcomes combine survey-based attitude and material indices with night-time radiance (Section 3.1.4). Respondents are scored on the items they answered, and survey coordinates assign DHS households to the containing 1962 location. Harmonized luminosity (Tang et al., 2025) is matched to DHS location-years and enters PPML in radiance levels, while the summary table reports log luminosity descriptively and its Afrobarometer counts precede the restrictions of the estimation frame. Measurement checks support the trust indices more strongly than the ethnic attachment and grievance index: institutional trust is stable across rounds, civic participation has moderate internal consistency, interpersonal trust is a multi-item family only in rounds 3–5, and the ethnic family contains only identity and perceived unfair treatment in rounds 5–6 (Online Appendix R.6).

I relocate every Afrobarometer enumeration area from the survey's own records, because AidData places about half of Kenyan respondents at the centroid of a unit far larger than a 1962 location (BenYishay et al., 2017). In rounds 3–6, 50 percent of respondents sit at the centroid of a county, district, division or broad named area, and a respondent coded to a centroid takes the exposure of whichever location contains that point, wherever the interview took place. I match each area's recorded names to the sub-locations and locations of the 1989, 1999 and 2009 censuses, which the census bridges assign whole to 1962 locations, and otherwise to gazetteers, facility registers, OpenStreetMap and official records. Round 2 records only district and division, so I locate its areas at division level. LLM agents (Claude Code and Codex) compile and compare the evidence for candidate locations under a written protocol, I adjudicate ambiguous cases, and adversarial LLM checks test selected adjudications.

The review places 501 areas holding 4,187 respondents (97 percent), and the two geocodes put 40 percent of enumeration areas in the same 1962 location: 62 percent where AidData coded a named place and 26 percent where it coded an administrative centroid. Online Appendix R.5 sets out the evidence rules, the placement of unresolved areas and the comparison by round and feature type.

E Robustness

This appendix collects the robustness checks summarized in Section 7, in the order of that section. Each check changes one feature of the main specification and reports the results it concerns.

E.1 Placement

Rings and site menus

This subsection varies the placement comparison of Section 4.3, with allocations through 2002. Table E.1.1 reports it with alternative sites 4 to 16 km or 5 to 25 km from each scheme's recorded site, instead of 5 to 20 km, and under two earlier site menus. The narrower ring places institutional trust at a higher percentile, because nearby alternatives share more of the observed sites' surroundings and so reproduce more of the association. Under every ring and menu, institutional trust lies below the 5th percentile and three or four characteristics lie outside their 95 percent ranges.

Overlap with the observed program

The lottery moves each scheme 5 to 20 km within its district, so a lottery program re-uses many of the locations the observed program reached. After the regression controls and fixed effects, lottery exposure correlates 0.92 with observed exposure on average, and at least 0.81 in every program. Table E.1.2 splits each lottery mean into a part shared with observed exposure and a remainder calculated after removing that shared variation. For institutional trust, overlap accounts for -0.068 of the lottery mean, and the remainder is positive, 0.014, in 99 percent of programs. Subtracting the lottery mean therefore removes mostly the association shared with the observed program. For the Kikuyu change, overlap accounts for 8.5 per 100, and the remainder adds 2.6. This remainder is an association with exposure the observed program did not share, and it cannot distinguish settlement through other land-transfer channels, spillovers from the schemes and geographically correlated trends.

Expected exposure

The placement comparison of Section 4.3 asks whether the observed coefficient is unusual among feasible programs. Borusyak and Hull (2023) use the same counterfactual programs to adjust the regression itself. A location's expected exposure is its mean land per 1962 resident across the 1,000 lotteries. Controlling for it compares locations that received more scheme land than the lottery predicts with locations that received less. As in Kok et al.

(2025), the counterfactual sites need not include the recorded ones. The site-suitability rule removes the recorded site from the menus of 23 of the 249 movable schemes allocated through 2002.

The adjustment identifies a causal effect when the lottery describes how sites were actually assigned, so that, given expected exposure, the realized placement is as good as random (Borusyak & Hull, 2023). That condition fails here. The government chose among feasible sites (Section C.1), and the lottery reproduces the constraints on that choice without modeling the choice itself. Expected exposure is therefore a control for the land the lottery favors, not an assignment propensity, and with it each coefficient rests on the small part of exposure that the lottery does not predict.

Expected exposure tracks actual exposure closely. After the regression controls and district fixed effects, it accounts for 90 percent of the variation in land per resident through 1988 and 87 percent through 2002.

With expected exposure as a control, the institutional trust association is larger and significant at five percent (Table E.1.3). The Kikuyu change and Kikuyu share change turn negative and significant at five percent. Within each scheme's neighborhood, the Kikuyu gain is therefore smaller in the location the scheme occupied than at its feasible alternatives, which also gained Kikuyu (Table E.1.2). Much of the former European land that did not become schemes passed to individuals, cooperatives and land-buying companies (Section 2.3). Settlement through those channels, spillovers from the schemes and geographically correlated trends could each contribute to this pattern. Instrumenting land per resident with its deviation from expected exposure is uninformative, because that deviation predicts actual exposure weakly (the first-stage F-statistic, from regressing land per resident on that deviation, is 3.6 through 1988 and 1.0 through 2002).

E.2 Colonial Land Supply

This subsection restricts the main specifications to 1962 locations in historical districts intersecting the former White Highlands, using the boundary from Jedwab, Kerby, and Moradi (2017). Defining the sample by district preserves exposed and unexposed locations under district fixed effects. Controls and fixed effects are unchanged. Table E.2.1 reports the demographic estimates in the restricted sample, with restricted wild cluster bootstrap inference.

E.3 Ordinary Migration

Table E.3.1 conditions the Kikuyu change on population change and on 1989 in-migrants, to check that it does not simply reflect faster growth. Both controls are settlement outcomes,

Table E.1.1: Counterfactual placement under alternative rings and site menus

	(1)	(2)	(3)	(4)	(5)
A. Balance: characteristics outside the lottery range (of 16)					
Outside 95% range	4	3	3	4	4
Outside 90% range	5	5	6	6	4
B. Percentile of the observed coefficient in the lottery					
Interpersonal trust	52.5	37.9	56.7	47.5	49.8
Institutional trust	0.3	4.3	0.5	0.3	0.3
Civic participation	45.6	38.9	47.1	58.5	49.8
Ethnic attachment / grievance	71.0	51.8	63.3	66.8	63.3
Housing quality	0.9	2.0	1.1	0.9	2.2
Durable assets	20.9	13.9	26.3	36.2	28.4
Education	8.4	11.1	9.6	9.0	12.8
Nightlights (PPML)	3.9	3.6	2.5	5.7	4.1
C. Observed minus lottery mean					
Institutional trust	−0.022	−0.013	−0.024	−0.025	−0.025
Specification	Ring	Ring	Ring	Earlier site menus	Earlier site menus

Note Allocations run through 2002. Each column reports 1,000 completed chronological lotteries of mapped and located conventional schemes. Column 1 is the placement rule used throughout the paper. Columns 2 and 3 change only the distance band of each scheme's alternative sites. Columns 4 and 5 are earlier site menus, in which a scheme's alternatives lie 5 to 25 km from its recorded site, widening to 40 km where fewer than ten sites qualify, without and with rainfall and temperature floors in the site test. Panel A counts the 16 predetermined characteristics of Figure B.1.3 whose observed mean, weighted by scheme land per 1962 resident, lies outside the 95 or 90 percent lottery range. Panel B gives the observed land per resident coefficient's percentile among the lottery coefficients, with ties split equally, in the specification of Table B.2.5. It is not a p-value. The observed coefficient is the same in every column.

Table E.1.2: Overlap between lottery and observed exposure

			Parts of the lottery mean		
	Observed	Lottery mean	Overlap	Orthogonal	Correlation
	(1)	(2)	(3)	(4)	(5)
A. Demographic change, 1962–1989, allocations by 1988					
Population change	12.06	11.96	11.01	0.95	0.92
Kikuyu change	9.30	11.06	8.49	2.57	0.92
Kikuyu share	0.035	0.042	0.032	0.010	0.92
Ethnic HHI	0.017	0.024	0.015	0.009	0.92
B. Institutional trust, allocations through 2002					
Institutional trust	−0.076	−0.054	−0.068	0.014	0.91

Note Each row splits the mean of the 1,000 lottery coefficients of Figure B.1.2 (Panel A) and Figure 5 (Panel B) into two parts, after the controls and fixed effects of the regression are partialled out. The overlap part (column 3) is the coefficient each lottery program would produce if outcomes depended on exposure only through the observed sites: the observed coefficient scaled by the program's correlation with observed exposure and their relative variance. The orthogonal part (column 4) is carried by the part of each program's exposure uncorrelated with the observed program. Columns 3 and 4 sum to column 2. Column 5 is the mean correlation between lottery and observed exposure after partialling.

Table E.1.3: Controlling for expected exposure

Dependent variable	Change, 1962–1989 (per 100 residents; shares 0–1)		
Outcome	Population change	In-migrants	Kikuyu change
	(1)	(2)	(3)
Panel A. Demographic change, 1962–1989, allocations through 1988			
Land per resident (ha)	12.06	1.66	9.30
	[.012]	[.465]	[.006]
	[4.94,17.47]	[−3.80,5.97]	[1.45,16.61]
Land per resident, controlling for expected exposure	2.41	0.78	−17.17
	[.751]	[.854]	[.027]
	[−23.90,25.82]	[−26.86,13.10]	[−43.07,−3.53]
Observations (exposed)	339 (109)	339 (109)	339 (109)

Dependent variable	Change, 1962–1989 (per 100 residents; shares 0–1)		
Outcome	Kikuyu share	Ethnic HHI	Largest-group share
	(4)	(5)	(6)
Land per resident (ha)	0.035	0.017	0.012
	[.004]	[.230]	[.411]
	[0.006,0.085]	[−0.015,0.057]	[−0.026,0.043]
Land per resident, controlling for expected exposure	−0.068	−0.076	−0.084
	[.008]	[.228]	[.209]
	[−0.116,−0.017]	[−0.161,0.047]	[−0.159,0.032]
Observations (exposed)	339 (109)	339 (109)	339 (109)

Dependent variable	Afrobarometer index (standard deviations)
Outcome	Institutional trust
	(7)
Panel B. Institutional trust, allocations through 2002	
Land per resident (ha)	−0.076
	[.014]
	[−0.160,−0.011]
Land per resident, controlling for expected exposure	−0.180
	[.017]
	[−0.367,−0.054]
Observations (exposed)	5,654 (85)

Controls	✓	✓	✓
District FE	✓	✓	✓

Note Expected exposure is a location's mean land per 1962 resident across the 1,000 completed chronological lotteries of Section 4.3, in the same allocation window. Columns otherwise follow Table 3 (Panel A) or the columns without ethnicity fixed effects in Table 4 (Panel B). Square brackets give restricted wild cluster bootstrap-t p-values and 95 percent intervals (999 draws), clustered by historical district in Panel A and by 1962 location in Panel B.

Table E.2.1: Demographic change: White Highlands districts

Dependent variable	Change, 1962–1989					
Outcome	Population change	In-migrants, endpoint	Kikuyu change	Kikuyu share	Ethnic HHI	Largest group
	(1)	(2)	(3)	(4)	(5)	(6)
Scheme land per resident (ha)	12.04	−0.09	11.13	0.032	0.021	0.015
	[.038]	[.982]	[.012]	[.017]	[.412]	[.511]
	[0.86,23.37]	[−8.94,6.29]	[2.68,26.87]	[0.011, 0.072]	[−0.058, 0.089]	[−0.058, 0.078]
Observations (exposed)	202 (75)	202 (75)	202 (75)	202 (75)	202 (75)	202 (75)
Controls	✓	✓	✓	✓	✓	✓
District FE	✓	✓	✓	✓	✓	✓

Note The sample is the locations of Table 3 in historical districts that intersect the former White Highlands, kept whole. Columns (1)–(3) are changes per 100 residents of average start and end population over 1962–1989, with the in-migrant count an endpoint census stock. Columns (4)–(6) are changes on a zero-to-one scale over the resident Kenyan ethnic population. Exposure is conventional scheme land allocated by 1988 per 1962 resident, and controls and fixed effects are those of Table 3. Square brackets give restricted wild cluster bootstrap-t p-values and 95 percent intervals (999 draws, clustered by historical district).

so the estimates are bounds. The Kikuyu change shrinks and is not significant at ten percent once population change is held fixed, but holds with the in-migrant control, and the share change holds under both, significant at one percent.

Table E.3.2 asks how much of the Kikuyu change ordinary migration toward nearby land would produce. It keeps the number of movers into each scheme location and draws their origins from a gravity model fitted on movers into non-scheme locations. The benchmark reproduces about four fifths of the Kikuyu coefficient, but none of its 999 draws reaches it.

E.4 Return after the Emergency

The post-independence Kikuyu gain could reflect the return of squatters removed from the Rift Valley during the Emergency (Kanogo, 1987, p. 175). Using the district-level 1948 baseline described in Section D.1, Table E.4.1 interacts scheme exposure with the pre-Emergency Kikuyu share and subsequent displacement. Both interactions with the 1948 Kikuyu share are positive, and the one for the Kikuyu count is significant at ten percent. Neither displacement interaction is significant at ten percent, and both are imprecisely estimated.

The 1979 census provides individual-level return migration signatures from birthplace, previous residence, age and ethnicity. The strict definition identifies Kikuyu respondents born in a former White Highlands district by 1952 who previously lived in Central Province. The broad definition drops the previous-residence condition. Among Kikuyu residents of the

Table E.3.1: Kikuyu change and gross migration: over-control bounds

Dependent variable	Change, 1962–1989 (per 100 residents; shares 0–1)					
Outcome	Kikuyu change per 100			Kikuyu share change		
	(1)	(2)	(3)	(4)	(5)	(6)
Scheme land per resident (ha)	9.30	5.70	8.63	0.035	0.034	0.034
	[.006]	[.111]	[.017]	[.004]	[.004]	[.005]
	[1.45,16.61]	[−0.84, 12.05]	[1.10,15.47]	[0.006, 0.085]	[0.004, 0.086]	[0.005, 0.084]
Observations (exposed)	339 (109)	339 (109)	339 (109)	339 (109)	339 (109)	339 (109)
Population change control		✓			✓	
In-migrant control			✓			✓
Controls	✓	✓	✓	✓	✓	✓
District FE	✓	✓	✓	✓	✓	✓

Note Columns 1–3 repeat column 4 and columns 4–6 column 6 of Table 3, with its sample, exposure measure, controls and fixed effects, and columns 1 and 4 reproduce those estimates. Columns 2 and 5 add population change per 100 residents as a control, and columns 3 and 6 the 1989 in-migrant stock per 100. Both are settlement outcomes, so these columns are over-control bounds. Square brackets give restricted wild cluster bootstrap-t p-values and 95 percent intervals (999 draws, clustered by historical district).

seven former White Highlands districts, 2.8 percent meet the strict definition and 9.4 percent the broad definition. District-level birthplace and residence records cannot distinguish Central-born children of displaced families from first-time settlers.

Conditioning on these signatures leaves the scheme association with Kikuyu gains essentially unchanged (Table E.4.2). The signatures enter as shares of each location's 1979 population, alongside controls and district fixed effects. The Kikuyu-count estimate remains significant at five percent under both definitions, while neither returnee share is significantly associated with the Kikuyu change.

E.5 Timing

Settlement during 1962

Table E.5.1 repeats the main regressions without the locations touched by schemes whose recorded start of settlement precedes the 1962 census. Without them, the population, Kikuyu and Kikuyu share changes remain significant at five percent, and institutional trust remains negative and significant at ten percent.

Change after 1989

I test for further demographic change after 1989 using cumulative conventional scheme exposure through each outcome's endpoint (Table E.5.2). Population growth and post-1989

Table E.3.2: Gravity benchmark for the Kikuyu change

	Observed	Gravity benchmark	Gravity, area centroids
	(1)	(2)	(3)
Kikuyu change per 100 residents			
Scheme land per resident (ha)	9.304	7.914	8.091
	[.006]	(0.091)	(0.096)
	[1.446,16.615]		
Δ Kikuyu share			
Scheme land per resident (ha)	0.035	0.029	0.030
	[.004]	(0.001)	(0.001)
	[0.006,0.085]		
Benchmark diagnostics			
Draws at or above observed:			
Kikuyu count, land/resident	—	0 / 999	0 / 999
Draws at or above observed:			
Kikuyu share, land/resident	—	0 / 999	0 / 999
Origin-composition distance (TV)	—	0.413	0.416
Observations	339	339	339
Historical-district FE	✓	✓	✓
1962 controls	✓	✓	✓
Agricultural geography	✓	✓	✓
Market potential	✓	✓	✓

Note Column 1 repeats columns 4 and 6 of Table 3, with that table's inference. Columns 2–3 report the mean coefficient across 999 gravity draws, with the simulation standard deviation in parentheses. Each draw keeps the number of known-birthplace inter-district movers into each scheme location and assigns their origin districts from a gravity model fitted on movers into non-scheme locations, by Poisson regression with origin and destination fixed effects and log centroid distance. It then assigns ethnicity from comparable non-scheme movers from the drawn origin and rebuilds both outcomes with other residents held fixed. An origin-level weight bootstrap refits the gravity model within each draw. Column 2 uses population-weighted and column 3 area-weighted district centroids. Diagnostic rows give the draws at or above each observed coefficient and the mover-weighted total variation distance between observed and predicted origin shares. The 1989 census records lifetime migration, comparing birthplace with residence, so the benchmark covers inter-district moves without their timing and does not observe moves within a district.

in-migration come from the 2009 census, and composition change compares the 1989 census with the 2014 DHS. Controls and district fixed effects follow the main specification with restricted wild cluster bootstrap inference. Scheme exposure is not significantly associated with subsequent population growth, in-migration or changes in ethnic composition.

E.6 Outcomes before and after the 2007–08 Violence

Two of the five Afrobarometer rounds precede the 2007–08 post-election violence: round 2 was fielded in 2003 and round 3 in 2005, while rounds 4–6 were fielded in 2008, 2011 and 2014. Panel A of Table E.6.1 compares the institutional trust coefficient with the lottery separately on the pooled, pre-violence and post-violence samples. The samples differ in years,

Table E.4.1: Pre-Emergency geography and squatter return: 1948 interactions

Dependent variable	Change, 1962–1989 (per 100 residents; shares 0–1)	
Outcome	Kikuyu change per 100	Kikuyu share change
	(1)	(2)
Panel A. 1948 Kikuyu share (level)		
Land per resident (ha)	10.32	0.024
	[.028]	[.055]
	[3.49,26.60]	[−0.001,0.060]
Land per resident × Kikuyu share 1948	31.55	0.076
	[.090]	[.164]
	[−16.61,67.79]	[−0.064,0.179]
Panel B. Emergency-era displacement (1948 − 1962 share)		
Land per resident × displacement	130.52	0.097
	[.510]	[.807]
	[−111.08,509.91]	[−0.814,2.140]
Observations (exposed)	192 (69)	192 (69)
District clusters	13	13
Controls	✓	✓
District FE	✓	✓

Note The outcomes are columns 4 and 6 of Table 3, with its exposure measure, controls and fixed effects, and each interaction is a separate regression. The 1948 Kikuyu shares of the African population (East African Statistical Department, 1960, Table 17) are constant within 1948 parent districts, so only their interactions with exposure can be estimated. Measures are centered, so the land per resident row is the association at the mean 1948 share. The sample is the 192 locations in the 12 parent districts where the 1948 census enumerates Kikuyu, spanning 13 historical districts. The 1948 census does not enumerate Kericho's Kikuyu separately, 1948 Thika has no 1962 counterpart, and Samburu carries only an estimate. Embu–Kirinyaga, whose apparent displacement is a 1948 classification artifact, has no sampled location. Square brackets give restricted wild cluster bootstrap-t p-values and 95 percent intervals (999 draws, clustered by historical district).

enumeration areas and size, so each percentile describes its own sample and the columns are not comparable with one another. Panel B reports the OLS post-2007 interaction estimates. Their inference is the restricted wild cluster bootstrap, clustered by 1962 location, with no reference to the lotteries.

E.7 Measurement

1989 census

Table E.7.1 re-estimates the demographic regressions without the 49 sample locations, 15 of them exposed, whose 1989 microdata population differs from the printed sub-location totals by more than sampling error allows (Section D.1). Without them, the population, Kikuyu and Kikuyu share changes remain significant at five percent, and the ethnic HHI change becomes significant at ten percent.

Table E.4.2: Return migration signatures in the 1979 census

Dependent variable	Change, 1962–1989 (per 100 residents; shares 0–1)	
Outcome	Kikuyu change per 100	Kikuyu share change
	(1)	(2)
Panel A. Land per resident (ha), adding returnee controls		
No returnee control	9.09	0.033
	[.018]	[.007]
	[0.94,16.74]	[0.003,0.087]
+ Returnee share (strict)	10.03	0.036
	[.020]	[.011]
	[0.95,18.67]	[0.003,0.087]
+ Returnee share (broad)	9.13	0.033
	[.016]	[.002]
	[1.00,16.52]	[0.003,0.074]
Panel B. Coefficient on the returnee share		
Returnee share (strict)	−649.13	−2.252
	[.426]	[.183]
	[−8090.49,2133.18]	[−5.671,5.670]
Returnee share (broad)	203.08	3.521
	[.592]	[.133]
	[−1020.13,1213.85]	[−1.431,7.271]
Observations (exposed)	329 (104)	329 (104)
District clusters	24	24
Controls	✓	✓
District FE	✓	✓

Note Outcomes, exposure measure, controls and fixed effects are those of columns 4 and 6 of Table 3. Return migration signatures come from the 1979 census microdata, aggregated to the 1962 locations through the 1979 bridge, as shares of each location's 1979 population. *Strict* counts Kikuyu born in a former White Highlands district, previously resident in Central Province and born by 1952, when Emergency removals began. *Broad* drops the previous-residence condition. Birthplace and previous residence are recorded by district and do not establish squatter status. Square brackets give restricted wild cluster bootstrap-t p-values and 95 percent intervals (999 draws, clustered by historical district).

Afrobarometer respondent locations

Table E.7.2 drops the least precise locations: the round 2 respondents, located only by division, and those the geocode could not place below their recorded unit. The institutional trust coefficient is essentially unchanged and significant at ten percent. Panels C and D compare the two geocodes on the same respondents, those whose enumeration area AidData coded to a named place or an administrative-center town. Under AidData's locations, the interpersonal trust estimate in Panel D is large and negative. It comes from a few enumeration areas

Table E.5.1: Settlement during 1962

Dependent variable	Change, 1962–1989 (per 100 residents; shares 0–1)			
Outcome	Population change (1)	Kikuyu change (2)	Kikuyu share (3)	Ethnic HHI (4)
Panel A. Demographic change, 1962–1989, allocations by 1988				
All locations	12.06	9.30	0.035	0.017
	[.012]	[.006]	[.004]	[.230]
	[4.94,17.47]	[1.45,16.61]	[0.006,0.085]	[−0.015,0.057]
Excluding schemes started before August 1962	12.03	8.64	0.033	0.013
	[.016]	[.027]	[.037]	[.348]
	[4.11,17.54]	[0.56,16.32]	[0.001,0.085]	[−0.032,0.048]
Observations (exposed)	321 (91)	321 (91)	321 (91)	321 (91)
Dependent variable	Afrobarometer index (standard deviations)			
Outcome	Institutional trust (5)			
Panel B. Institutional trust, allocations through 2002				
All locations	−0.076			
	[.014]			
	[−0.160,−0.011]			
Excluding schemes started before August 1962	−0.070			
	[.057]			
	[−0.158,0.001]			
Observations (exposed)	5,289 (2,117)			
Controls	✓	✓	✓	✓
District FE	✓	✓	✓	✓

Note Each cell is one regression on conventional scheme land per 1962 resident, with the specification of Table 3 (Panel A) or of the columns without ethnicity fixed effects in Table 4 (Panel B). The second row of each panel drops the 19 locations touched by the 11 conventional schemes whose recorded settlement start in the roster of 30 June 1965 (Nottidge & Goldsack, 1966) is March or June 1962, before census night on 15/16 August 1962 (Morgan, 2000). The roster does not record whether settlers had arrived by census night. Observation counts are for the trimmed sample. Square brackets give restricted wild cluster bootstrap-t p-values and 95 percent intervals (999 draws), clustered by historical district in Panel A and by 1962 location in Panel B.

that AidData places in the wrong location.[58] In this subsample, a third of respondents, the institutional trust estimates are imprecise under both geocodes, with intervals that include

[58]Moving four of these areas to their reviewed locations returns the estimate to 0.04, close to Panel C. Gathigiriri North, recorded in Naivasha, is placed by AidData at Naivasha town, but Kenya Gazette parcel notices place the Gathigiriri landholding in Karunga, near Gilgil. Kapteldon/Kaplamai, recorded in Eldoret West, is placed at Eldoret town, but the survey's own enumeration-area code, the 2009 census and the school register place it in Turbo–Kipkarren. Kianjogu, recorded in Nyandarua, is placed at a place of that name near Nairobi, while the census sub-location of that name lies in Ndaragwa, Nyandarua. Dera A, recorded in Kilifi, is placed at Kilifi town, while its polling station, the only Dera in the county, lies in Tezo. Moving Gathigiriri North alone, eight respondents, raises the estimate from −0.78 to 0.06.

Table E.5.2: Settlement exposure and demographic change beyond 1988

Dependent variable	2009 census and 2014 DHS Change since 1989				
Outcome	Post-1989 in-migrant share (pp) (1)	Log population change (2)	Kikuyu share change (pp) (3)	Kalenjin share change (pp) (4)	Ethnic HHI change (5)
Scheme land per resident (ha)	−0.682	0.028	−0.014	0.201	−0.004
	[.541]	[.171]	[.975]	[.573]	[.816]
	[−3.829, 1.383]	[−0.020, 0.079]	[−1.672, 1.457]	[−0.526, 1.017]	[−0.045, 0.035]
Observations (exposed)	336 (120)	336 (120)	292 (110)	292 (110)	292 (110)
Controls	✓	✓	✓	✓	✓
District FE	✓	✓	✓	✓	✓

Note Each coefficient is from a separate regression with the controls and fixed effects of Table 3, on cumulative conventional scheme land per 1962 resident allocated by 2008 for the 2009 census columns and by 2013 for the 2014 DHS columns. The in-migrant share and population change come from the 2009 census, which carries no ethnicity. The post-1989 in-migrant share counts 2009 residents born outside their district who arrived after 1989. Composition change compares the 2014 DHS women's sample with the 1989 census, and samples differ across columns. Shares are in percentage points. Square brackets give restricted wild cluster bootstrap-t p-values and 95 percent intervals (999 draws, clustered by historical district).

Table E.6.1: Institutional trust before and after the 2007–08 post-election violence

Panel A. Observed minus lottery mean [percentile]	Rounds 2–6	2003, 2005	2008–2014
Institutional trust	−0.022 [0.3%]	−0.016 [17.1%]	−0.035 [0.3%]
Panel B. Conventional estimate, rounds 2–6 [p]			
Scheme land per resident (ha)	−0.077 [.070]		
× rounds 4–6	0.001 [.985]		

Note Allocations run through 2002. Panel A compares coefficients estimated separately on each period with 1,000 completed chronological lotteries, using the specification of the columns without ethnicity fixed effects in Table 4. Brackets give observed-coefficient percentiles, not p-values. Panel B reports the post-2007 interactions, with allocations through 2002 and restricted wild cluster bootstrap p-values clustered by 1962 location.

the main estimate.

Index construction

Table E.7.3 replaces each principal component index with the equal-weight mean of its items. Institutional trust remains negative and significant at five percent and below 99 percent of lottery placements, and the other Afrobarometer families are not significant at ten percent. Durable assets become positive and significant at one percent, the housing coefficient changes sign but stays far from significance, and education keeps its sign and significance.

Exposure scaling

Table E.7.4 checks that the results do not come from dividing by 1962 population, by adding flexible size controls and by measuring exposure as raw hectares or as a share of location area. With flexible size controls, the Kikuyu change and share change remain significant at five percent. Raw hectares retain the population growth association, while the ethnic estimates under raw hectares and area shares are smaller and imprecise.

Table E.7.1: Demographic change without locations flagged against 1989 printed totals

Dependent variable	Change, 1962–1989 (per 100 residents; shares 0–1)			
Outcome	Population change (1)	Kikuyu change (2)	Kikuyu share (3)	Ethnic HHI (4)
Demographic change, 1962–1989, allocations by 1988				
All locations	12.06	9.30	0.035	0.017
	[.012]	[.006]	[.004]	[.230]
	[4.94,17.47]	[1.45,16.61]	[0.006,0.085]	[−0.015,0.057]
Excluding locations flagged against 1989 printed totals	10.94	8.34	0.029	0.020
	[.027]	[.017]	[.030]	[.089]
	[2.55,17.88]	[0.93,14.94]	[0.002,0.077]	[−0.006,0.049]
Observations (exposed)	290 (94)	290 (94)	290 (94)	290 (94)
Controls	✓	✓	✓	✓
District FE	✓	✓	✓	✓

Note Each cell is one regression on conventional scheme land per 1962 resident, with the specification of Table 3. The 1989 populations come from the 5 percent census microdata sample. The second row drops the 49 sample locations, 15 of them exposed, whose 1989 population differs from the printed sub-location totals of WRI (2007) by more than four standard deviations of a 1-in-20 sample with a design effect of three (Table D.1.1). Observation counts are for the trimmed sample. Square brackets give restricted wild cluster bootstrap-t p-values and 95 percent intervals (999 draws, clustered by historical district).

E.8 Inference

Table E.8.1 allows for correlated errors in three ways: by 1962 location (the level at which exposure is assigned), by historical district (as in the demographic tables) and by distance (Conley standard errors at 25 and 50 km). With only 24 districts, I bootstrap the district-clustered p-values. Institutional trust remains negative and significant at ten percent under district clustering and at five percent under Conley errors.

Table E.8.2 omits one location at a time, to check that no single location drives the demographic and trust estimates. Every omission leaves the Kikuyu change and institutional trust with the same sign and a 95 percent interval that excludes zero.

Table E.7.2: Afrobarometer outcomes under geocode restrictions

Dependent variable	Afrobarometer index (standard deviations)			
Outcome	Interpersonal trust	Institutional trust	Civic participation	Ethnic attachment and grievance
	(1)	(2)	(3)	(4)
Panel A. All respondents (main specification)				
Scheme land per resident (ha)	0.004	−0.076	0.030	0.043
	[.930]	[.014]	[.278]	[.746]
	[−0.111,0.088]	[−0.160,-0.011]	[−0.026,0.084]	[−0.071,0.199]
Observations (exposed)	2,764 (1,239)	5,654 (2,482)	5,695 (2,501)	4,038 (1,817)
Panel B. Excluding least precise locations				
Scheme land per resident (ha)	0.017	−0.081	−0.002	0.050
	[.715]	[.057]	[.921]	[.672]
	[−0.100,0.098]	[−0.190,0.003]	[−0.057,0.056]	[−0.067,0.207]
Observations (exposed)	2,629 (1,175)	4,033 (1,814)	4,066 (1,827)	3,911 (1,758)
Panel C. AidData named places and towns, hand-reviewed locations				
Scheme land per resident (ha)	0.045	−0.032	−0.013	0.015
	[.653]	[.786]	[.795]	[.646]
	[−0.191,0.250]	[−0.217,0.187]	[−0.142,0.084]	[−0.057,0.084]
Observations (exposed)	972 (433)	1,786 (801)	1,801 (808)	1,748 (783)
Panel D. AidData named places and towns, AidData locations				
Scheme land per resident (ha)	−0.784	0.038	0.043	−0.033
	[.004]	[.790]	[.547]	[.709]
	[−1.450,-0.373]	[−0.366,0.324]	[−0.157,0.242]	[−0.250,0.153]
Observations (exposed)	972 (463)	1,786 (861)	1,801 (871)	1,748 (844)
Controls	✓	✓	✓	✓
Round FE	✓	✓	✓	✓
District FE	✓	✓	✓	✓

Note Panel A repeats the estimates of Table 4 (allocations through 2002). Panel B drops 1,645 respondents: all of round 2, whose locations rest on the recorded division, and those in enumeration areas in rounds 3–6 that the hand review left ambiguous or unresolved, which the main specification keeps at the location of their published coordinates or, in rounds 5 and 6, places within their recorded sub-county. Panels C and D keep the 1,829 respondents in rounds 3–6 whose enumeration area AidData coded to a named place or an administrative-center town, at the hand-reviewed location (Panel C) and at AidData's (Panel D); the two put 60 percent of these respondents in the same 1962 location. Within each outcome, Panels C and D use identical respondents with complete data under both assignments. Controls, fixed effects and inference are those of Table 4: square brackets give restricted wild cluster bootstrap-t p-values and 95 percent intervals from 999 Rademacher draws clustered by 1962 location.

Table E.7.3: Robustness: simple averages in place of principal components

Index	Without ethnicity FE		With ethnicity FE		Lottery percentile		
	PCA	Average	PCA	Average	PCA	Average	Correlation
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A. Afrobarometer families							
Interpersonal trust	0.004	−0.001	0.019	0.014	52.5	54.0	0.999
	[.930]	[.992]	[.664]	[.735]			
Institutional trust	−0.076	−0.073	−0.075	−0.071	0.3	0.4	0.998
	[.014]	[.017]	[.016]	[.023]			
Civic participation	0.030	0.029	0.029	0.028	45.6	43.6	0.997
	[.278]	[.290]	[.297]	[.312]			
Ethnic attachment and grievance	0.043	0.045	0.056	0.060	71.0	83.9	0.985
	[.746]	[.776]	[.557]	[.595]			
Panel B. Material outcomes (DHS)							
Housing quality	−0.010	0.008	−0.017	−0.001	0.9	0.3	0.987
	[.757]	[.754]	[.620]	[.972]			
Durable assets	0.018	0.045	0.012	0.038	20.9	23.8	0.947
	[.275]	[.002]	[.506]	[.001]			
Education	0.053	0.054	0.039	0.040	8.4	8.6	0.999
	[.031]	[.025]	[.037]	[.032]			

Note Each coefficient is from a separate regression of the index on conventional scheme land per 1962 resident, allocated through 2002, with the samples, controls and fixed effects of Tables 4 and 5, and columns (3)–(4) add respondent or household ethnicity fixed effects. PCA columns repeat those tables. Each average is the equal-weight mean of exactly the items of its principal component, with the same sign convention and the same rule that Afrobarometer respondents answer at least two items, standardized within survey round for Afrobarometer and over households for the DHS. Square brackets give restricted wild cluster bootstrap-t p-values (999 draws, clustered by 1962 location). Columns (5)–(6) give the percentile of the observed coefficient among the coefficients from 1,000 lottery placements of mapped and located conventional schemes, as in Figures B.1.4 and 5. Column (7) is the correlation between the principal component and the average in the estimation sample.

E.9 Exposure Definition

Adjacent locations

Table E.9.1 adds scheme land per resident in adjacent 1962 locations, to check whether schemes reached their neighbors, which would contaminate the comparison. The adjacent term is small and not significant at ten percent for any outcome, and the own coefficients are unchanged.

Mapped schemes only

Table E.9.2 repeats the headline estimates counting only mapped conventional scheme polygons, without the located unmapped conventional schemes (21 through 1988 and 36 through

Table E.7.4: Demographic estimates under alternative exposure scalings and size controls

Outcome	Population change per 100	Kikuyu change per 100	Kikuyu share change (0–1)	Ethnic HHI change (0–1)
Ha / resident: original controls	12.06 [.012] [4.94,17.47]	9.30 [.006] [1.45,16.61]	0.035 [.004] [0.006,0.085]	0.017 [.230] [−0.015,0.057]
Ha / resident: flexible size controls	9.67 [.088] [−3.43,16.79]	9.10 [.023] [0.89,16.93]	0.035 [.005] [0.005,0.087]	0.006 [.664] [−0.031,0.038]
1,000 ha: flexible size controls	0.73 [.041] [0.04,1.58]	0.13 [.621] [−0.35,0.80]	0.002 [.250] [−0.001,0.005]	0.000 [.911] [−0.004,0.004]
Scheme land / location area (10 pp)	1.89 [.579] [−4.75,9.61]	−0.71 [.776] [−4.01,4.31]	0.004 [.367] [−0.004,0.022]	−0.001 [.913] [−0.028,0.023]
Other controls and district FE	✓	✓	✓	✓
Observations (exposed)	339 (109)	339 (109)	339 (109)	339 (109)

Note Each cell is a separate regression on the sample of Table 3, with conventional scheme land allocated through 1988. Rows 1 and 4 keep the principal controls. Rows 2 and 3 replace log baseline population and density with a full cubic in centered log 1962 population and log location hectares, all nine terms through total degree three. Raw hectares are per 1,000 hectares, and the area share is per ten percentage points and not capped at one. The first two outcomes are per 100 residents and the others on a zero-to-one scale over the resident Kenyan ethnic population. Square brackets give restricted wild cluster bootstrap-t p-values and 95 percent intervals (999 draws, clustered by historical district).

Table E.8.1: Inference by clustering level and allowing for spatial dependence

Outcome	Coefficient	Main p	District bootstrap p [95% interval]	Conley standard error [p] 25 km	50 km
Panel A. Demographic change, 1962–1989, allocations through 1988 (main inference clustered by district)					
Kikuyu change per 100	9.30	.006	—	2.57 [<.001]	2.92 [.001]
Kikuyu-share change	0.035	.004	—	0.013 [.009]	0.015 [.020]
Panel B. Institutional trust, allocations through 2002					
Without ethnicity fixed effects	−0.076	.014	.070 [−0.160, 0.010]	0.033 [.021]	0.030 [.012]
With respondent ethnicity fixed effects	−0.075	.016	.072 [−0.152, 0.011]	0.033 [.022]	0.031 [.014]

Note Coefficients on scheme land per 1962 resident, in the specifications of Table 3 (Panel A) and Table 4 (Panel B). Main p is the restricted wild cluster bootstrap-t p-value of the table cited (999 draws), clustered by historical district in Panel A and by 1962 location in Panel B. District bootstrap repeats it clustered by historical district, with the 95 percent interval in brackets. Conley columns give standard errors with a uniform kernel at 25 and 50 km between location centroids, with normal p-values in brackets. Most full Conley covariance matrices are not positive semidefinite (up to 7 negative eigenvalues), although the variance of every reported coefficient is positive. With district fixed effects, wider cutoffs add negative cross-location products, so larger cutoffs are not reported.

Table E.8.2: Leave-one-out checks

Outcome	Full estimate	Omission range	Negative	95% intervals excluding zero
Kikuyu change	9.304	[7.20, 10.92]	0/339	339/339
Institutional trust	−0.076	[−0.09, −0.06]	228/228	228/228

Note All coefficients use scheme land per 1962 resident. Each row omits one location at a time and reports the full coefficient, the range across omissions, the number of negative estimates and the number of location-clustered $t(G-1)$ intervals that exclude zero. With the restricted wild cluster bootstrap instead, institutional trust has $p < .05$ in 228 of 228 omissions and $p < .10$ in 228.

2002). The demographic estimates are close to those of Table 3. The institutional trust coefficient is −0.064, against −0.076, and is not significant at ten percent with or without ethnicity fixed effects.

Allocation window

Counting conventional schemes allocated through 1978 or 1988 instead of 2002, the institutional trust association is −0.045 ($p = .149$) through 1978 and −0.092 ($p = .007$) through 1988, against −0.076 through 2002. The other three Afrobarometer families are not significant at ten percent under any cutoff.

Table E.9.1: Scheme land in adjacent locations

	Kikuyu change per 100	Kikuyu share change	Institutional trust	
	(1)	(2)	(3)	(4)
Scheme land per resident (ha)	9.29 [.007]	0.035 [.006]	−0.076 [.017]	−0.075 [.023]
Adjacent scheme land per resident (ha)	0.99 [.706]	−0.006 [.630]	−0.003 [.950]	0.000 [.991]
Own coefficient without adjacent term	9.30	0.035	−0.076	−0.075
Respondent ethnicity FE			No	Yes
Observations	339	339	5,654	5,654

Note Adjacent scheme land per resident is conventional scheme land in the 1962 locations that border each location, divided by their 1962 population. Columns 1 and 2 follow Table 3, with allocations through 1988 and restricted wild cluster bootstrap p-values clustered by historical district. Columns 3 and 4 follow Table 4, with allocations through 2002 and p-values clustered by 1962 location. Brackets give p-values (999 draws). The own coefficient without the adjacent term is estimated on the same sample, which is the full sample of each table.

Table E.9.2: Mapped schemes only

Dependent variable	Change, 1962–1989 (per 100 residents; shares 0–1)			
Outcome	Population change (1)	Kikuyu change (2)	Kikuyu share (3)	Ethnic HHI (4)
Panel A. Demographic change, 1962–1989, allocations by 1988				
Mapped scheme land per resident (ha)	13.11	10.20	0.038	0.024
	[.010]	[.008]	[.012]	[.113]
	[6.61,18.53]	[1.75,17.75]	[0.004,0.090]	[−0.012,0.068]
Observations (exposed)	339 (100)	339 (100)	339 (100)	339 (100)
Dependent variable	Afrobarometer index (standard deviations)			
Outcome	Without ethnicity FE (5)	With ethnicity FE (6)		
Panel B. Institutional trust, allocations through 2002				
Mapped scheme land per resident (ha)	−0.064	−0.062		
	[.106]	[.117]		
	[−0.176,0.012]	[−0.170,0.014]		
Observations (exposed)	5,654 (79)	5,654 (79)		
Controls	✓	✓	✓	✓
District FE	✓	✓	✓	✓

Note The table repeats the headline estimates counting only mapped conventional scheme polygons. Located unmapped conventional schemes are excluded. Panel A follows Table 3 and Panel B the institutional trust columns of Table 4, with the same samples, controls and fixed effects. Square brackets give restricted wild cluster bootstrap-t p-values and 95 percent intervals (999 draws), clustered by historical district in Panel A and by 1962 location in Panel B.