The Emergency

British detention camps and the origins of distrust in Kenya

Gerda Asmus* Richard Bluhm† Tobias Korn‡

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Abstract

This study examines the long-run effects of British detention camps in colonial Kenya on contemporary economic well-being and trust. During the dawn of colonial rule in Kenya, the British Empire was confronted with a violent uprising to which it responded with far-reaching measures, in effect suspecting anyone sharing the ethnicity of the so-called *Mau Mau* tribes, and incarcerating a significant share of the native population between 1954 and 1959. Exploiting geographic and individual characteristics to identify the affected individuals and households, we show that individuals exposed to detention camps have worse development outcomes today. We use rich contemporary survey data to document that affected individuals tend to be less trusting, accumulate less wealth, and are less literate, even though their ethnic kin belong to the ruling class of contemporary Kenya. We are currently geocoding historical census data to control for pre-camp location characteristics and assess well-being from the 1960s onwards.

Keywords: detention camps, conflict, discrimination, trust, development, colonialism
JEL Classification: O15, J15, N47, F54, D74

*Heidelberg University, Hebrew University of Jerusalem, e-mail: *gerda.asmus@awi.uni-heidelberg.de*
†Leibniz University Hannover, Maastricht University, UNU-MERIT, e-mail: *bluhm@mak.uni-hannover.de*
‡Leibniz University Hannover, e-mail: *korn@mak.uni-hannover.de*

1 Introduction

Towards the end of British colonial rule in East Africa, a violent land dispute erupted in Kenya. From their arrival, British settlers had claimed some of the colony's most fertile land, while natives where confined to native reserves with limited space and restrictions on the crops they could produce, or squatting as laborers on white farms (Mosley, 1982, Moradi, 2009, Fazan, 2014). When capacity cuts after WW II and technological progress led to large numbers of squatters being evicted (Anderson and Anderson, 2005), disgruntled farmers, former soldiers and radical politicians started attacking natives who supported the colonial government and white settlers. This group, which British officials and newspapers later coined the "Mau Mau,"[1] became a major challenge to the fading empire. The influential settler population—vastly outnumbered by native Africans—pressured the colonial state to respond forcefully and proclaim a state of emergency.[2] In the following years, Britain set up a large number of detention camps in Kenya and interned anyone they believed to be associated with the uprising. As a consequence, the vast majority of three specific Kenyan tribes (the Kikuyu, Embu and Meru) were interrogated and many of them subsequently sent to detention camps between 1954 and 1959 (see e.g. Elkins, 2005).

Estimates suggest that somewhere between 50,000 and (at most) 300,000 people died while being held in a camp or shortly thereafter, while survivors suffer from physical and psychological abuse to this day (Elkins, 2005, Blacker, 2007). Testimonials and court cases reveal that detention often involved hard labor, beatings, torture, castration and rape (Elkins, 2005, Anderson, 2011). Interviews with survivors further suggest that when a household member was incarcerated, their children were dropping out of school, infant mortality spiked, and families were expropriated of their possessions (Elkins, 2005). A clinical study among 180 former Mau Mau detainees shows that they experience PTSD at higher intensities than American prisoners of war in Japan during WW I (Atwoli et al., 2006). Although much has been written about the Mau Mau movement and its role in Kenyan history, we are not aware of any comprehensive empirical study of this event. Systematic destruction of the archival records has turned any quantitative assessment of the direct effects of detention into a challenge (Anderson, 2011).

This study uses microeconometric methods and a rich body of original data to analyze the short and long run effects, these internment camps had on the Kenyan people. The rich historical record on the Mau Mau uprising suggests that *i)* the British screened for alleged insurgents solely on an ethnic basis—anyone from the Kikuyu, Embu, or Meru tribe was automatically considered a suspect, *ii)* a significant share of the 1.5 million

[1] The origin of the term *Mau Mau* somewhat vague. Kariuki (1964) suggests that the it is an anagram of "uma, uma" (to ache) in Swahili, as anagrams and repetitions are often shouted by Kikuyu children. It was then used by a Christian leader and early opponent of the movement as a derogatory term.

[2] The state of emergency was declared in October 1952 and remained in place until December 1959.

Kikuyu, Embu, and Meru were in one of the camps during the period of operation from 1952 to 1959, although no precise estimate is available, and *iii)* Africans from other ethnic groups and Kikuyu loyalists[3] played a large role in fighting the Mau Mau, identifying suspects, and overseeing the camps (Anderson, 2017). In the absence of direct information identifying individuals or households affected by the detention, we consequently construct a proxy along three dimensions: proximity to the location of a former camp, belonging to the Kikuyu, Embu or Meru Tribe, and being born not later than 1959—the end of the Emergency.[4] Preliminary results suggest negative effects on contemporary socioeconomic outcomes. We find that exposure to British camps led to large decreases in literacy, wealth and trust which persist until today. These findings are in stark contrast to Lowes and Montero (2017) and Abel (2016), who document positive effects of forced labor and resettlement on social cohesion. We also find that the negative effects of internment are passed on to children but dissipate over two generations. In future iterations of this study, we will examine likely channels of persistence.

This study contributes to our understanding of the effects of British detention camps in Kenya by empirically studying the direct and indirect effects of the Emergency. We leverage a combination of geospatial data on the location of camp sites, geocoded historical census data from 1948 until 1989 and contemporary DHS surveys to study the immediate and longer term effects of the detention camps on contemporary living standards. Our identification strategy exploits the indiscriminate nature of the British counterinsurgency campaign to identify the effects of labor camps on the affected population.

Our work speaks to a nascent literature on forced labor, re-education or resettlement camps and their impact on social cohesion (see Lupu and Peisakhin, 2017, Dippel, 2014, Lowes and Montero, 2017, Abel, 2016). The literature typically finds increased levels of trust among the affected population, lasting until long after the event in question. While the camp population could have certainly developed an in-group bias in the Kenyan case, the British deliberately attempted to break ethnic bonds by using Kikuyu loyalists and other Africans as informants, overseers and guards (Anderson, 2017). Using individual data from the Afrobarometer, we study this negative shock to social cohesion and its diffusion over space and time.

Finally, the study more broadly contributes to the broader literature on state building and the legacy of European colonization. Kenya's rural uprising is an interesting case in this respect, since it was led by the country's largest ethnic group (the Kikuyu) who would come to dominate post-independence politics. Kenyan politics today are ethnically

[3]The term loyalist refers to individuals who were part of the three Central Province tribes and supportive of the colonial government. It is also often used more specifically to refer to supporters who served in the so-called Home Guard militias or the colonial military, i.e. the King's African Rifles.

[4]We draw on the work of Elkins (2005) and others, to geocode the locations of British labor camps in Kenya.

charged and the 2008 post-election violence has been linked by observers to constant in-group favoritism at the expense of others (Anderson and Lochery, 2008, Wrong, 2010). While Kenya's experience seems to *prima facie* confirm the conjecture that rural uprisings gave rise to a culture of exclusion and continued violence (Garcia-Ponce and Wantchekon, 2018), our study suggests that the specific response of the colonial state to the rural uprising has exacerbated ethnic tensions in Kenya.

The remainder is organized as follows. Section 2 provides an overview of the historical context. Section 3 discusses the empirical specification, and Section 4 tests whether the British internment camps impact long-run social and economic outcomes. Section 5 examines robustness of the presented results. Section 6 concludes.

2 A brief history of the Emergency

Kenya was one of the few settler colonies in Sub-Saharan Africa and the white settler minority claimed large parts of the fertile land (the 'white highlands', an area in the central province of Kenya). Since the settler community only numbered a few thousand, much of the labor was carried out by Africans who were cohabiting on the farm. The remaining native population was assigned land inside the native reserves. Increasing mechanization after World War I meant that African labor squatting on the farm became redundant, so that the native reserves were becoming increasingly crowded. Former district commissioner S.H. Fazan, estimates that a family of five in Fort Hall had access to as little as 9 acres of land around the late 1930s and similar conditions existed in many other districts (Fazan, 2014). Consequently, the origins of the Mau Mau uprising can be linked to historic grievances over land and increasing population pressures on the native reserves established by the British government (e.g. Kariuki, 1964, Elkins, 2005, Anderson and Anderson, 2005, Fazan, 2014).

The colonial government did little to address this problem. Amid heightened grievances, the Kikuyu and related tribes started to form political groups demanding change and opposing (parts or all of) the colonial state. In 1920 the Kikuyu Central Association (KCA) was formed, was banned in 1940, and then reemerged as the Kenya African Union (KAU) in 1944. Both groups challenged the colonial law via petitions and constitutional redresses. The 1932 established Kenya Land Commission made several recommendations (Carter, 1934) which did not reach very far or were not adopted by the government.

Growing resentment led to more violent means adopted by a group of several thousand Kikuyu, who were released from the sharecropping contracts after World War II.[5] This group re-activated old Kikuyu war-time traditions to organize resistance, e.g. oathing.

[5]Britain reserved fertile parts of the country for the white settler population, hence the name White Highlands. Kikuyu and other tribes were squatting on white farm and cultivating the land.

A key part of oathing was to swear allegiance to one's tribe in several official ceremonies. Oath takers were considered to be bound by a moral contract to assist the fight against the colonial power. Many of those who ignored the loyalty promise feared to be killed, either by their ancient gods or their tribal brothers and sisters. This band of frustrated farmers, returned soldiers and radicalized politicians was later called the Mau Mau.

While a large share of the Kikuyu population took part in the oathing in the late 1940s and early 1950s, only a minor part engaged in violent activities. The first openly violent act took place on October 9 1952, when a small group of Mau Mau fighters presumably shot Senior Chief Waruhiu in the backseat of his car. Numerous attacks followed, often aimed at loyalist Kikuyus, but rarely involving white settlers. The violence of these attacks combined with the mysterious oathing ceremonies stoked widespread fear among the settler community, which pressured the colonial government to react forcefully to the violence. Evelyn Baring—the governor general of Kenya colony—announced a state of emergency immediately after the Waruhiu killing. Jomo Kenyatta, at that time heading the KAU, was arrested together with around 150 other suspected Mau Mau leaders. When these attempts failed to stem the violence, several counter-terrorism laws were announced by the government between January and April 1953. These new laws permitted unhindered information collection about the native population, gave control over any native property to the state, and allowed for detention without trial. The British government instructed their police and military to systematically investigate anyone suspected of loyalty to the Mau Mau and sentenced these suspects to incarceration. Lacking actionable intelligence about the Mau Mau, the officials started to engage in a large scale interrogation process termed 'screening.'

The main purpose of this screening was to identify those who were loyal to the Mau Mau fighters, either by supporting them directly or by providing shelter and food. British police and military relied heavily on loyal natives who helped to identify whether or not an individual could be attributed to the Kikuyu, Embu, or Meru tribe. Once a suspect was identified, the interrogators often resorted to torture and other brutal examination techniques to determine how loyal a suspect was and if the person was willing to squeal on other potential Mau Mau fighters. The rules restricting the British forces—the King's African Rifles and the Kikuyu Home Guard militia—in their interrogation techniques declined steadily over time. The resulting atrocities are still being litigated in British courts today.[6]

The internment camps were organized in a network called 'the Pipeline,' in which each

[6] Anderson (2011) describes the allegations brought by Ndiku Mutwiwa Mutua and others. Suspected of giving Mau Mau fighters food, Mutua was dragged out of his hut one morning and violently beaten. After almost losing consciousness, he was driven to a prison where the beating continued. In the camp, Mutua was humiliated, beaten and castrated by European and African officers. Left in his cell to rot, he was accidentally rescued by one of the few Mau Mau attacks on a camp. Many of the other camp experiences were similar, often involving hard labor, beatings, torture, castration and rape (Elkins, 2005).

inmate was to be assigned to a particular location (Elkins, 2005). Inmates were divided into white, grey or black according to the assessment following the interrogation. Those marked as "white" were considered almost free of the spirit of the Mau Mau and were transferred to camps near the reserve, with the prospect of being released after additional interrogations and education sessions. In the eyes of the British administrators, people labelled as grey had taken enough oaths to constitute a threat, but could still be cleansed from the "Mau Mau spell". Those individuals were deported to a mid-level work camp for hard labor, re-education and counter-propaganda. Inmates in a grey camp were forced to work in stone pits or similar facilities, and famously built the foundation of what is now the Jomo Kenyatta International Airport in Embasaki. People would only leave a grey camp once they were either considered cleansed (i.e. white) or incurable (i.e. black). People who the inspectors thought as being too aligned with the Mau Mau were marked as black and deported into an exile camp where they should not be freed before the end of the Emergency in 1959.

The number of casualties in the British internment camps is still being debated. Elkins (2005) offers an estimate of up to 300,000 Kikuyu, embu and Meru who are unaccounted for during this period—much more than the 90,000 Mau Mau who were killed according to official numbers (Branch, 2007). Blacker (2007) instead suggests that there were at most 75,000 excess deaths during this period in total. Official sources suggest that about 80,000 people were held in the camps at the end of the Emergency in 1959 (Elkins, 2000). Many more will have spent at least a year or more in the camps during their period of operation from 1952 to 1959.

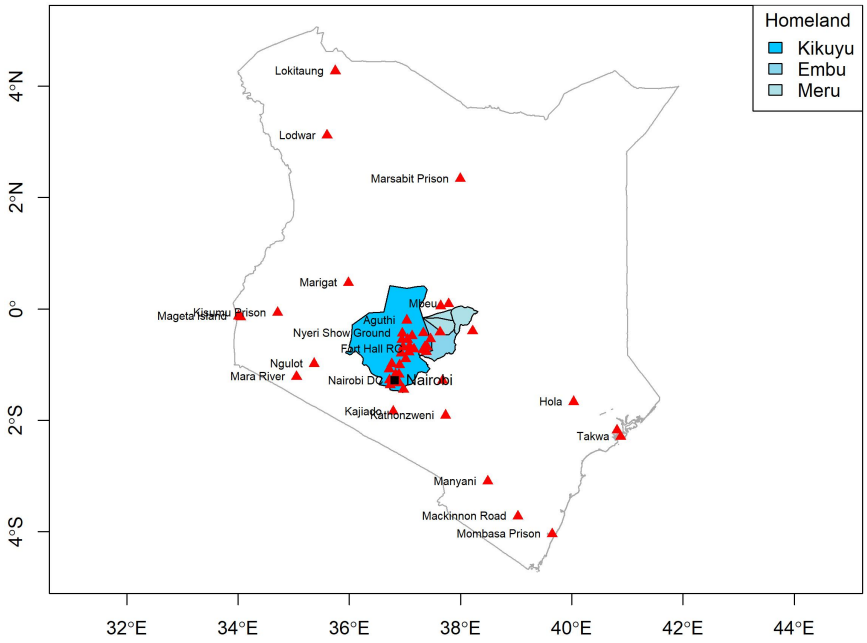
3 Data and Empirical Strategy

Geocoding internment camps. We rely on several sources to gather data on the type and the location of the detention camps. While official resources must have existed on the British side, much of the official record was destroyed before independence or hidden in archives that only recently became known and accessible (Anderson, 2011). We manly use archival evidence gathered in Elkins (2005), as well as digitized notes from official proceedings in the British parliament of that time.

Based on these sources, we find a total of 52 detention camps in Kenya. For 38 of these camps, we were able to identify the exact location tat the town level, as most of these camps were named after the town or township where they were located. Others are named after prisons that operate until the present day. For a further 13 camps, we were able to assign one of Kenya's 70 districts, leaving only one camp ("Sayusi Island") for which we were not able to assign a more fine grained location than the island itself.

As can be seen in Figure 1, the camps obviously cluster in Kenya's Central Province, around Nairobi. This is relatively unsurprising as *i)* in reaction to operation Anvil, a lot of

Figure 1 – Locations of detention camps in Kenya



Notes: Red triangles illustrate detention camp sites in Kenya. Homelands of the three Mau Mau related ethnic groups are added in shades of blue.

people had to be detained close to Nairobi, and *ii)* the historical homelands of the affected tribes of Kikuyu, Meru and Embu are located in this area. However, some of the British detention camps ended up farther away from the Central Province, mainly towards the East African coast or close to the border region with Uganda and today's South Sudan. While those camps within the Central Province, e.g. the Nairobi Dispersal Center or the Fort Hall Reception Center, served the main purpose of holding prisoners for only a limited amount of time to conduct interrogations. Afterwards, people who were assessed to be less engaged with the Mau Mau revolt were transferred into a prison nearby, e.g. to Mbeu, Aguthi, or Kajiado. Those individuals who where thought to be more aligned with Mau Mau—hence deemed impossible to re-educate—were deported into one of the far away detention camps like Lokitaung, Lodwar, Mageta Island, Marsabit, Manyani or Mackinnon Road.

DHS data. In order to link the exposure to forced labor and detention camps on health, wealth, and education outcomes today, we use data from different rounds of the Demographic and Health Surveys (DHS). Specifically, we use data from the survey rounds IV (2003), V (2008/2009), and VII (2014). The DHS surveys have the advantage that the enumeration areas were geocoded on site, which allows us to locate a given individual or household within a range of less than 5 kilometers in Kenya (2 kilometers for urban households). Further more, the inter-temporal comparability as well as the

large amount of questions asked in course of these surveys allows us to investigate the effect of internment camps in several dimensions.

From the three survey rounds, we acquired individual data on 62,584 people that are geographically divided all over Kenya. These individuals are split among 399 clusters in the 2003 survey, 397 clusters in the 2008/09 survey, and 1585 clusters in the 2014 survey, where each cluster contains on average between five and ten households. Next to several control variables at the individual level (age, gender, years living at the current place) or at the household level (wealth, household size, urban vs. rural area, age and gender of the household head), we extracted several dependent variables of interest. At the individual level this is literacy, coded as 1 if an individual can easily read a whole sentence. Further, we use an individual's self-identified ethnic affiliation as part of our identification strategy. Concerning outcomes at the household level, we estimate the camps' long term effect on household wealth.

As a measure of household wealth, we rely on the wealth index provided by DHS. While the DHS surveys do not ask for income or expenditures directly, they record a couple of variables that can be linked to a household's economic status. These are, among others, the access to electricity, the type of roof and floor, or whether the household owns a toilet, a TV, a bike, motorbike, or a car. Relying on principal component analysis to identify those items with the highest predictive power for a household's income within a certain country, DHS calculates a wealth index and divides households into wealth quintiles (Rutstein et al., 2004). Ergo, while we do not observe direct monetary incomes, the DHS data allow us to distinguish households between the poorest 20 percent in Kenya in a given survey year, the richest 20 percent, and so on. We also must note that we are aware of inter-comparability problems of the DHS wealth index across countries. Cultural differences across countries can influence e.g. what kind of roof or floor can be attributed to wealthier as opposed to poorer households. However, as we are only comparing households *within* Kenya, relying on the work done in e.g. Bruederle and Hodler (2018) we assume the DHS wealth index to be a valid income proxy for use in our research framework.

Afrobarometer data. Our measures of social cohesion are taken from the Afrobarometer—a random sample of individuals of voting age. It contains data on a citizen's problems, the perceived performance of local and national institutions, access to information, levels of civic and political participation, and levels of trust. All six rounds of the survey, conducted between between 1999 and 2015, have been geocoded (BenYishay et al., 2017). Kenya was part of rounds 2–6 which took place during the years 2003, 2005, 2008, 2011, and 2014. With 1,104 respondents in the smallest round, and 2,398 respondents in the largest, this amounts to a total of 9,576 observations. Contrary to the DHS data, the geocoding of households in the Afrobarometer was done ex post. This leads

to considerable variation in the quality of geographic exactness. The data set therefore contains a categorical precision code that assesses the quality of the provided coordinates, where 1 indicates that the coordinate pair corresponds to an exact location and 6 indicates that a location can only be attributed to an independent political entity. For the purposes of this study, the exact location of a respondent is crucial to our identification approach. Consequently, we restrict the data to the two highest possible accuracy levels (1 = exact and 2 = "near" or adjacent). The resulting sample includes 4809 respondents in total.

Nunn and Wantchekon (2011) use the Afrobarometer data to test for the long term effects of the African slave trades on today's levels of trust in African society.

We focus on two trust variables—trust in most people and trust in neighbors—to investigate how the British labor camps affected trust levels of citizens related to the Mau Mau uprising, compared to others.[7] The questions for trust are posed in the form: "How much do you trust each of the following...". The response options are categorical and are coded as integer values between 0 and 3, where 0 indicates "not at all", 1 indicates "just a little", 2 indicates "somewhat" and 3 indicates "a lot".[8] The exception is trust in most and in other people, which allows for binary responses only. The following variables are chosen as individual level control: age, sex, education, religion, urban.

Geographic controls. Geographic factors indirectly affect history which can translate into differential effects on economic development until today (e.g. Nunn and Puga, 2012, Sokoloff and Engerman, 2000). Both the Afrobarometer as well as the DHS survey data are geocoded allowing for spatial intersections with geographic characteristics at the household level. As baseline geographic controls we use elevation (SRTM, 2018), slope (SRTM, 2018), ruggedness (Nunn and Puga, 2012), and wheat suitability (GAEZ/FAO, 2018). To generate the relevant data, we partition Kenya into grid cells at a $0.1\,\text{deg} \times 0.1\,\text{deg}$ resolution (approx. 11km × 11km). We then extract the relevant information at this level and intersect the grid cells with the survey data.

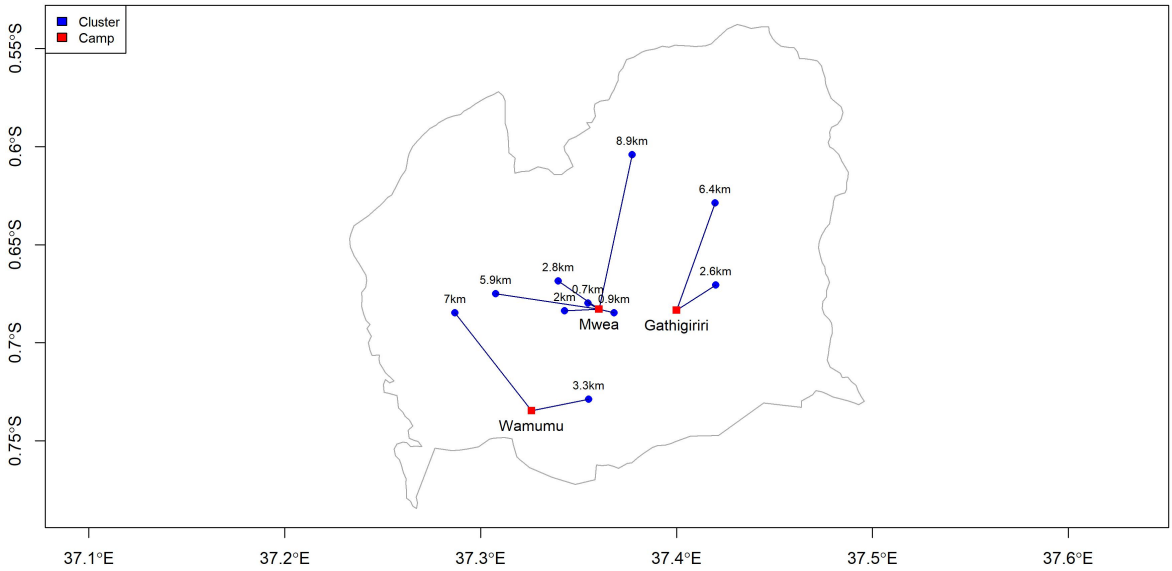
In addition, we compute various distances relevant to our identification strategy. First, we compute the great circle distance between a household and the closest labor camp. We then generate various buffers as cutoffs to identify different levels of proximity as binary treatment indicators for our regressions. For our baseline specification we will use a cutoff of 50km around the camp locations. A household is hence coded as treated if it resides within 50km distance to a former camp location. In our extensions, we will re-estimate our main specifications stretching the cutoff in both directions (20–70km).

Further, we construct the distance to Nairobi and the province capital to control for economic and political dependencies. We further include the distances to Mount Kenya as

[7] We replicate results with two closely related trust variables (trust in other people, trust in relatives) and find similar results.

[8] We follow Nunn and Wantchekon (2011) in following Afrobarometer's assigned numeric values rather than re-coding all as binary variables.

Figure 2 – Closest camps in Mwea county



Notes: Red dots illustrate detention camp sites in Mwea county. Households are indicated with blue dots and their distance to the nearest camp is given in km.

well as the forests of the Aberdare Range. Several sources emphasize that both locations used to be places of retreat for the Mau Mau rebels. Throughout the period of the detention camps, proximity to these two locations meant that households were likely to suffer from raids organized by British officials to capture the Mau Mau fighters hiding in these very places. It has also been passed on by several contemporary witnesses that the Mau Mau relied on households residing close to their retreat to equip them with food and other supplies. Households which refused to help or were found to cooperate with British officials often suffered violence from the Mau Mau fighters. Controlling for these distances therefore allows us to eliminate confounders related to force used by either Mau Mau or British officials, and consequently helps further isolating the effects inflicted by the internment camps.

Identification. Our primary aim is to identify the effect of labor, interrogation, and re-education camps on survivors which were affect by these camps, in the sense that they or an immediate family member were considered to be a Mau Mau suspect and likely to be detained. We are also interested whether there is a long-run persistence of these effects via intergenerational transmission on those who were not directly affected (or not even alive) during the Mau Mau uprising.

We define "treatment" along three dimensions. First, we use geocoded household surveys to calculate the proximity of each individual or household to the nearest location of a former detention camp. Many of the camps in our sample were so-called holding centers where individuals were detained before they were assigned to a particular part

of the "pipeline". Another large part of the sample are release camps for those that were about to "graduate" out of the pipeline and free to return home. Both types are concentrated in the Kikuyu homeland. Only a few camps for those classified as hard-core Mau Mau detainees were located in remote regions of Kenya. We essentially assume that the probability of experiencing a raid is strongly correlated with the proximity of one of the holding or release camps. We work with a baseline proximity of 50 km to a camp (similar to Isaksson and Kotsadam (2018) and Abel (2016)), because an incarnated individual is likely to have lived close to but not necessarily in the direct immediate vicinity of the camp. Moreover, subsequent migration, geocoding errors of the camp sites, and inaccuracies in the coordinates of the surveys suggest a larger sphere of influence than a few kilometers.

Second, we consider only the Kikuyu, Embu, or Meru as potential Mau Mau tribes. This matches the historical record on British raids. During *Operation Anvil* in April 1954, British forces in Nairobi rounded up virtually all Africans they could find. Indigenous aides then were asked to declare which person was part of any of three Kenyan tribes. Of those, about 20,000 suspects were interned in Langata camp and another 30,000 were deported to the native reserves. The historical sources differ on the totals over the entire duration of the Emergency, but an estimated 70,000 people were kept in British prisons and detention camps in 1955 during the height of the Mau Mau uprising (Anderson and Weis, 2018). Recall that the entire Kikuyu, Embu and Meru population was only about 1.5 million people according to the 1948 census, so that a large share of the adult population faced a non-trivial probability of internment.

Third, we define an indicator variable for whether an individual was already alive during the time. Obviously, individuals born after 1959, the last year the camps were in operation, cannot have witnessed the British detention camps. We do consider children born during this period, as many were born inside the detention camps which hosted female detainees. We would like to examine earlier cohorts as well, but are currently constrained in how far we can go back by the use of contemporary survey data.

Putting these three components together, we then estimate the following equation

$$y_{ilt} = \beta_1 P_l + \beta_2 (P_l \times M_i) + \beta_3 (P_l \times M_i \times C_i) + \mathbf{x}_{il}'\boldsymbol{\gamma} + \mathbf{d}_l'\boldsymbol{\delta} + \mathbf{z}_l'\boldsymbol{\psi} + \lambda_t + \epsilon_{ilt} \qquad (1)$$

where y_{ilt} is the outcome of interest for an individual or household i in location l during survey round t, P_l is a dummy for whether the location is close to a camp site (e.g. within 50 km), M_i indicates whether the respondent identifies as a Mau Mau tribe (Kikuyu, Embu, or Meru), C_i is an indicator for individuals born before 1959 (the potential camp cohort), $\mathbf{x}_{il}$ is a vector of individual level controls (age, age^2, gender, religion, etc.) which always contains the base levels of our interactions of interest, $\mathbf{d}_l$ is a vector of other distances (to Mount Kenya, the Aberdare Range, province capitals, and Nairobi), and $\mathbf{z}_l$

are geographic characteristics of the location or enumeration area (e.g. urban, elevation, wheat suitability).

In all specifications we limit the sample to households within 150km distance to former camp sites. We use two types of standard errors throughout all tables: Conley errors with a 150 km distance cutoff to allow for spatial correlation in the responses (Conley, 1999), and errors clustered on the latitude-longitude pair identifying each location. Both account for the spatial clustering of households or individuals in the same enumeration area, but the former also allow for spatial autocorrelation among different enumeration areas.

Controlling for several other distances is crucial for our identification strategy. The distances to Nairobi, Mount Kenya, and the Aberdare Range account for Mau Mau hot spots. Nairobi is located in the Kikuyu homeland and was the site of Operation Anvil. Mount Kenya and the Aberdare Range are the two forest areas where Mau Mau fighters were based and organized their attacks from. This was well known to British officials, who tried to deprive these areas of food supplies and carried out intense raids near the forest boundaries (Anderson, 2012). Finally, we also include the distance to each province capital, as these urban centers may host a camp site but differ on many other characteristics which could be correlated with our outcomes of interest.

Our effect of interest, β_3, can thus be interpreted as a triple difference-in-difference estimate which compares the effect of being located near a camp site for potential Mau Mau suspects, in terms of their ethnicity and age, to Mau Mau suspects farther away from the camps. Mistakenly classifying individuals to be affected by the camp should pollute the treatment and control groups by making them more similar and bias our estimates downwards, provided that this misclassification is not systematically correlated with another factor related to well-being and trust. We are also interested in β_2 in regressions without a triple interaction, since it summarizes the persistent effect of the Mau Mau camps on the affected ethnic groups (i.e., the children of potential Mau Mau suspects and loyalists). We have no expectation that proximity to a camp, as estimated by β_1, directly affects well-being or trust for non-Mau Mau tribes. Our regression approach therefore has some superficial similarities with a discontinuity design, even though the exact boundary is not known and the influence of the camp sites is likely to decrease with distance and might also decrease over time. We test both of these possibilities below.

While we are relatively confident that the triple interaction of ethnic affiliation, being born before 1959, and proximity to a camp site identifies the effects of the Mau Mau camps on individuals who were likely to be incarcerated or indirectly suffered from the incarceration of a household member, there are some remaining concerns. Although it is unlikely that individuals self-selected into incarceration—especially due to the indiscriminate fashion with which the British and African forces conducted their screenings—upward biases cannot be fully ruled out. If members of the Mau Mau tribes who were initially less well-off and less trusting happen to live closer to locations with

internment camps, then our results would not be causal. We are currently collecting and geocoding census data from the 1940s and 1960s to rule out such selection effects.

4 Results

This section examines the impacts of British internment and labor camps on economic prosperity and trust of the Kenyan society.

We expect the labor camps to have negative impacts on wealth and educational outcomes for those people who are directly affected by the labor camps. Further, we expect to find negative effects on general trust levels.

In the following, we will present the findings of a multitude of regressions with similar specifications, but different outcomes in order to examine the different dimensions via which the British labor camps affected today's Kenyan society.

4.1 Evidence on Wealth and Early Education Outcomes

We use the data collected in the demographic and health surveys (DHS), which were conducted in Kenya during the years 2003, 2008-08, and 2014. Whereas there are further survey rounds we could exploit, for now we focus on those rounds where exact geo-information was recorded for all respondents. These data allow us to look at different aspects of people's overall well-being and chances of participation in society, while we can at the same time look for spatial heterogeneity in the people's responses.

First, we investigated the effect of the era of British labor camps on a person's early educational outcomes. More detailed, we ran regressions with a person's ability to read as the main outcome variable of interest. We coded a person to be literate if he or she was able to easily read a whole sentence during the interview. For one important reason we focus on early education, i.e. the ability to read and write, as opposed to other potential measurements of education, e.g. the years of schooling. This is, we have reason to expect that the outcomes for overall education may be tainted by the Kikuyu, Meru, and Embu's high social status in post-independence Kenya (as constituting the ruling class, they very likely have easier access to higher education). From this, we must assume their overall higher access to schooling leaves not much room to find an effect in such straightforward measures of education. In contrast, we expect strong effects on a person's literacy status. As the ability to read and write is usually acquired in early years, i.e. during primary school age, we expect that lost years of education *in young age* have a persistent effect. Hence, for a person who spent her early lifetime in an internment camp instead of a school, the damage must have been very difficult to repair.

Columns 1–3 in Table 1 show the results of the literacy regressions. We rely on the triple-interaction of a person's ethnicity, age, and place of residence to identify the

Table 1 – Baseline results using DHS surveys

	Dependent variable:					
	Literacy			Wealth		
	(1)	(2)	(3)	(4)	(5)	(6)
P	0.039	0.043	0.043	0.110	0.109	0.113
	[0.021]	[0.022]*	[0.022]*	[0.091]	[0.094]	[0.095]
	(0.011)	(0.011)***	(0.011)***	(0.051)**	(0.051)**	(0.051)**
P × M		-0.025	-0.022		0.003	0.011
		[0.029]	[0.029]		[0.162]	[0.161]
		(0.021)	(0.022)		(0.098)	(0.093)
P × C			0.051			-0.122
			[0.044]			[0.170]
			(0.048)			(0.130)
P × C × M			-0.162			-0.336
			[0.081]**			[0.195]*
			(0.092)*			(0.319)
Individual Controls	Yes	Yes	Yes	No	No	No
Geographic Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	51,498	51,498	51,498	32,141	32,141	32,141
Adjusted R^2	0.149	0.149	0.149	0.456	0.456	0.457

Notes: The table reports unweighted OLS estimates. The unit of analysis is the individual. All regressions control for the base levels of the interaction terms (if present). At the individual and household level we control for age, age squared, gender, gender and age of household head, and household size. The geographic controls include an indicator for rural or urban regions, elevation, slope, ruggedness, wheat suitability, and the distances to Nairobi, the Aberdare Range, Mount Kenya and the province capital. We also include fixed effects for the survey year. Conley and clustered standard errors are reported below the coefficients in brackets and parentheses respectively. Significant at: $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

long term effect of incarceration on literacy. This triple-interaction hence consists of three dummy variables, indicating whether a person *i)* lives within 50 kilometers to the location of a former work camp, *ii)* whether a person identified herself with the Kikuyu, Embu, or Meru ethnicity and *iii)* whether a person was born in the year 1959 or before. We find that an individual of Kikuyu, Embu, or Meru affiliation is on average more than three percentage points *more* likely to know how to read and write than an individual from another tribe (not shown). This depicts well our assumption that people from any of these three tribes benefited from the tribes' high social status after Kenya's independence. However, as soon as the triple interaction is introduced in column 3, we find a large negative and statistically significant effect on a person's literacy status. This effect also is economically significant. People with incarceration history who we identify with our triple interaction are 16 percentage points less likely to read and write than a person for whom any of our identifying variables is not true—the effect size corresponds to one fifth of the mean probability to be literate in our sample. We hence can assume

that even though people from the influential tribes generally enjoyed easier access to early childhood education, there is still a persistent effect from the incarceration visible today.

Next, we look at the effect the labor camps had on household wealth. Heterogeneity in wealth accumulation is of interest for at least three reasons. First, a lot of people spent around six years in custody if we take the total duration of the emergency (1952–1959) as the maximum upper bound (see e.g. Kariuki, 1964, who was interned in 14 different camps over this period). Hence, these people lost time which they could have spent on earning income or increasing their labor market value through additional education. Second, reports of the time suggest that most people were expropriated to a large degree. Hence, next to having spent years without income or schooling, people lost the assets they acquired up to the point of incarceration. Third and most importantly, we believe that the time in the camp had significant effects on physical and mental health. These negative effects on (mental) health status very likely translated into income losses due to the inability to commence or start working.

In columns 4–6 of Table 1 we present our regression results for wealth as the outcome variable. Note that we collapsed our sample to the household level instead of the individual level since wealth is only recorded at the household level. Further, since we are not looking at individual outcomes anymore, we adjusted our cohort dummy variable to indicate whether the oldest person living in the household was born during or prior to the emergency. We again find evidence for the advantageous position of Kikuyu, Meru and Embu people in the society of today's Kenya. A household scores almost half a wealth category higher than a comparable household once it belongs to any of these three tribes (not shown). In column 6, we again introduce the triple interaction of tribal affiliation together with proximity to a former labor camp and having a household member who was alive during the emergency. This coefficient is again negative and statistically as well as economically significant. When comparing two households of e.g. the same tribal affiliation and similar proximity to a work camp, once they differ in having a household member who has been alive during the emergency one household scores almost 0.6 wealth categories lower than the other one.

4.2 Evidence on Trust

We now turn to a formal test of the long-term effects on trust levels. Estimates take the form of equation (1) and are reported in Table 2. Columns 1–3 report estimates evaluating trust in most people, while columns 4–6 report coefficients for the effect on trust in neighbors. Trust in most people is coded into a binary indicator with 1 indicating that "Most people can be trusted" and 0 "You must be very careful." Trust in neighbors is based on 4 categories from "Not at all" to "A lot." Conley and clustered standard

errors are reported below the coefficients in brackets and parentheses respectively.[9]

Table 2 – Baseline results using Afrobarometer surveys

	Dependent variable:					
	Trust most people			Trust neighbors		
	(1)	(2)	(3)	(4)	(5)	(6)
P	-0.002	0.004	0.001	-0.106	-0.152	-0.226
	[0.024]	[0.024]	[0.024]	[0.073]	[0.074]**	[0.077]***
	(0.023)	(0.022)	(0.022)	(0.096)	(0.099)	(0.108)**
P × M		-0.057	-0.028		0.408	0.478
		[0.065]	[0.063]		[0.184]**	[0.184]***
		(0.061)	(0.068)		(0.148)***	(0.159)***
P × C			0.006			0.287
			[0.056]			[0.162]*
			(0.053)			(0.174)*
P × C × M			-0.913			-1.790
			[0.085]***			[0.265]***
			(0.103)***			(0.328)***
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Geographic controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,401	1,401	1,401	1,416	1,416	1,416

Notes: The table reports unweighted OLS estimates. The unit of analysis is the individual. All regressions control for the base levels of the interaction terms (if present). At the individual level we control for age, age squared, gender, and religion. The geographic controls include an indicator for rural or urban regions, elevation, slope, ruggedness, wheat suitability, and the distances to Nairobi, the Aberdare Range, Mount Kenya and the province capital. Conley and clustered standard errors are reported below the coefficients in brackets and parentheses respectively. Significant at: $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

Column 1 examines the direct effect of a household's proximity to a former camp location on trust in most people. We find no evidence that an individual within a distance of 50km to a camp has a different level of trust. The same holds for column 2 in which we interact proximity with Mau Mau to identify potential differential effects for those individuals with ethnic groups close to former Mau Mau. Column 3 reports a triple interaction, adding a camp cohort dummy to isolate the group of respondents that was most likely historically affected by the rebellion. Respondents that were born no later than 1959, are of Mau Mau related ethnicity and live in close proximity to camps today are more than 90% less likely to trust in most people.[10]

Similarly to column 1, column 4 shows no evidence that proximity to camps matters

[9]We use Conley standard errors to account for spatial auto-correlation among geographic units that fall within a 150km distance of each other. We also report robust standard errors clustered at the coordinate level for reference. There are no qualitative differences.

[10]This variable is coded into binary. It is likely that gradiations of lower trust levels are lumped at 0. We therefore re-estimate this general trust variable with the similar "trust in other people" and find similar results (see Table A-2 in the Appendix).

in relation to trust in neighbors. When interacting proximity with Mau Mau (column 5) we observe a positive effect on trust (a quarter unit increase) at the 5% level. This is not surprising, as the camps were mostly established within the Kikuyu, Embu or Meru homelands and thus the coefficient represents general in-group trust. For those respondents that were born before the end of the detention camps, however, the coefficient suggests that respondents are less likely to trust their neighbors (1.251 unit decrease) at the 1% level. This implies that respondents that have closely experienced the period of Mau Mau repression regarding proximity, ethnic background as well as cohort, are less likely to trust their neighbors.[11]

4.3 Extensions

Our results presented above aim at identifying the direct effect on Mau Mau experienced respondents. It is not clear from the outset whether our results are specific to the camp cohort and selected proximity to the former camp location, or whether we can observe a trans-generational and spatial transmission of the effects.

Proximity. We first re-examine our results by focusing on the triple interacted identification of the treatment, while modifying the proximity and cohort variables.

Table 3 – Results on trust with varying camp proximity

	Dependent variable:					
	Trust most people					
	20km	30km	40km	50km	60km	70km
	(1)	(2)	(3)	(4)	(5)	(6)
P × C × M	-0.373	-0.954	-0.935	-0.913	-0.951	-0.933
	[0.220]*	[0.094]***	[0.090]***	[0.103]***	[0.106]***	[0.115]***
	(0.256)***	(0.082)***	(0.079)***	(0.085)***	(0.089)***	(0.099)***
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Geo controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,401	1,401	1,401	1,401	1,401	1,401

Notes: The table reports unweighted OLS estimates. The unit of analysis is the individual. All regressions control for the base levels of the interaction terms. At the individual level we control for age, age squared, gender, and religion. The geographic controls include an indicator for rural or urban regions, elevation, slope, ruggedness, wheat suitability, and the distances to Nairobi, the Aberdare Range, Mount Kenya and the province capital. Conley and clustered standard errors are reported below the coefficients in brackets and parentheses respectively. Significant at: $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

[11] Alternatively, we use "trust in relatives" and find similar but somewhat lower effect sizes (see Table A-3 in the Appendix).

Table 4 – Results on wealth with varying camp proximity

	Dependent variable:					
	Wealth					
	20km	30km	40km	50km	60km	70km
	(1)	(2)	(3)	(4)	(5)	(6)
P × C × M	-0.610	-0.736	-0.523	-0.336	-0.332	0.155
	[0.137]	[0.190]***	[0.202]***	[0.195]*	[0.258]	[0.297]
	(0.238)***	(0.252)***	(0.299)*	(0.319)	(0.333)	(0.289)
Household Controls	Yes	Yes	Yes	Yes	Yes	Yes
Geo Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	32,141	32,141	32,141	32,141	32,141	32,141
Adjusted R^2	0.458	0.458	0.456	0.457	0.456	0.456

Notes: The table reports unweighted OLS estimates. The unit of analysis is the individual. All regressions control for the base levels of the interaction terms (if present). At the individual and household level we control for age, age squared, gender, gender and age of household head, and household size. The geographic controls include an indicator for rural or urban regions, elevation, slope, ruggedness, wheat suitability, and the distances to Nairobi, the Aberdare Range, Mount Kenya and the province capital. We also include fixed effects for the survey year. Conley and clustered standard errors are reported below the coefficients in brackets and parentheses respectively. Significant at: $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

Table 3 and Table 4 reproduce specification 3 of the previous tables and repeat the exercise above for a camp proximity from 20km to 70km (in steps of 10km). The results on trust in most people and in neighbors remain negative throughout the entire range of distances and are positive or not significant for the simple interaction and proximity only (not reported).[12] The pattern is similar for the regressions with wealth as the dependent variable using DHS data. For any of the six buffer specifications, the coefficient remains negative and highly significant. Further, the coefficient decreases in size each time the buffer size is increased, with the only exception being the largest specification.

Cohorts. Next, we include up to 3 additional cohorts following the cohort born before 1959. Table 5 proceed analogously to the previous exercise. However, this time the proximity is held constant again at 50km of distance to the nearest camp location, but the cohort explanatory variable is modified as follows: being born before 1959 (camp cohort, column 1), before 1969 (column 2), before 1979 (column 3), and before 1989 (column 4).

We find that only the cohort directly linked to the detention period (born before 1959) shows negative effects on trust significant at the 1% level. The two subsequent cohorts show no evidence of an effect on trust, while the latest cohort (born before 1989) shows a positive effect at the 10% level. These results imply that there is no

[12] We only report the coefficients for the triple interactions to reduce clutter.

Table 5 – Results on trust with varying cohorts

	People born before ...			
	1959	1969	1979	1989
	Panel (a) Dependent variable: Trust most people			
P × C × M	-0.913	-0.049	0.015	0.065
	[0.103]***	[0.046]	[0.034]	[0.037]*
	(0.085)***	(0.044)	(0.041)	(0.037)*
	Panel (b) Dependent variable: Trust neighbors			
P × C × M	-1.790	-0.216	-0.093	-0.027
	[0.328]***	[0.168]	[0.129]	[0.194]
	(0.265)***	(0.165)	(0.133)	(0.298)
Individual controls	Yes	Yes	Yes	Yes
Geographic controls	Yes	Yes	Yes	Yes
Observations (a)	1,401	1,401	1,401	1,401
Observations (b)	1,416	1,416	1,416	1,416

Notes: The table reports unweighted OLS estimates. The unit of analysis is the individual. All regressions control for the base levels of the interaction terms. At the individual level we control for age, age squared, gender, and religion. The geographic controls include an indicator for rural or urban regions, elevation, slope, ruggedness, wheat suitability, and the distances to Nairobi, the Aberdare Range, Mount Kenya and the province capital. Conley and clustered standard errors are reported below the coefficients in brackets and parentheses respectively. Significant at: $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

intergenerational transmission of lower levels of trust related to the close experience of the detention period. The corresponding results for the DHS outcomes are relegated to Table A-5 in the Appendix.

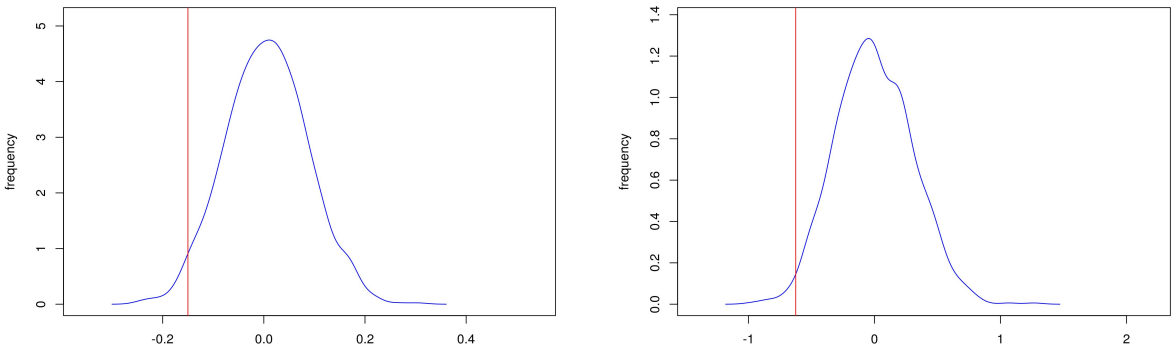
5 Potential confounders

Camp locations. One essential part of our identification relies on the predictive power of the camp locations in our sample. Due to the scarce official information concerning the location of former internment camps in Kenya, the sensitivity of such coded camp locations must be explored. We conduct a placebo test to ascertain the robustness of the coded camp locations. In case we do not identify the locations at a precise enough level, our findings may have resulted from spurious correlations between random distances within Kenya and our dependent variables. Therefore, we randomly displace the camp locations as a placebo test. There should be no evidence of a treatment effect in this exercise to confirm our results. We repeat this exercise in 1,000 repetitions, we find that on average the coefficients are statistically not different from zero.

For illustration, we present the distribution of coefficients from running the outcomes

Figure 3 – Distribution of coefficients effects after random camp displacement

(a) Literacy **(b)** Wealth



Notes: Illustration of the estimated coefficients on the triple interaction after random displacement of the camp coordinates. Our estimates with the correct coordinates are indicated by red lines.

literacy (a) and wealth (b) on our preferred specification (triple interaction) in Figure 3. We substitute our proximity dummy by a similar dummy constructed from the randomly displaced locations. The coefficients of our 1,000 repetitions gather are centered on zero.

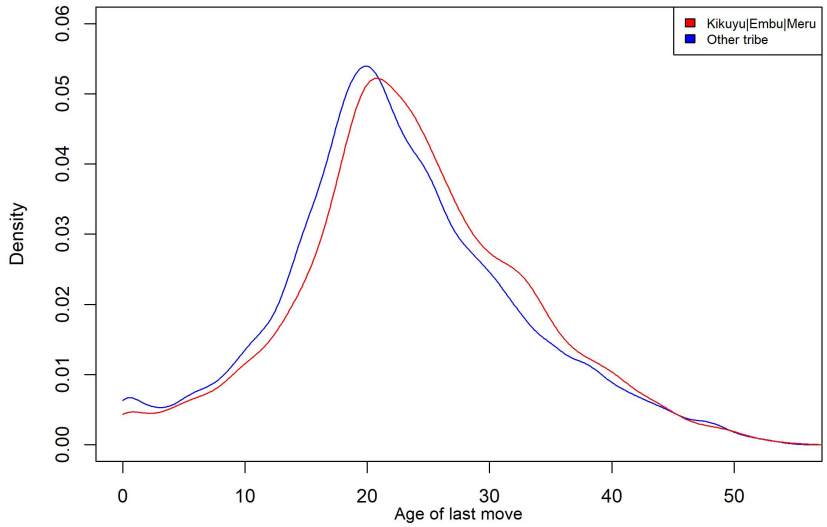
Internal migration. The three ethnic groups associated with the Mau Mau may differ from individuals of other ethnic groups in their migration behavior. E.g., trauma experienced during detention may have led to disproportionate out-migration, while the unaffected population may have stayed. If people from the Kikuyu, Embu, and Meru ethnicity indeed follow different migration patterns, our results might suffer from unobserved factors that also covary with one of our outcome variables. Consequently, we need to make sure that potential selection due to migration is not confounding our results.

Using the DHS surveys we test whether the groups behave differently in their life-time decisions of migration. The surveys incorporate information on the number of years an individual has already lived at the place he or she was interviewed. We subtract this variable from an individual's current age in order to calculate her or his age of the last move to another town or village. Note that a value of zero indicates that an individual never changes the place of living during a life time. We then compare the distribution of the life time migration decision across individuals from either the Kikuyu, Embu, or Meru tribe to individuals associated with any other Kenyan tribe. The results are presented in Figure 5.

The two density distributions look reassuringly similar, suggesting that there is no obvious difference in an individual's decision when to migrate between ethnic groups. We conducted a Kolmogorov-Smirnov test to assess whether the two density distributions are sufficiently similar not to compromise our identification. The p-value of 0.064 suggests

Figure 4 – Kernel densities of moving behavior

Figure 5



Notes: Equivalence of distributions cannot be rejected (p-value = 0.064 according to Kolmogorov-Smirnov test). Note that Age = 0 indicates that the individual never moved.

that we have to assume at least small differences in moving behavior, as the null-hypothesis of equal distributions can be rejected at the ten percent level. Apparently, other tribes than the Kikuyu, Meru, and Embu appear more likely to have never moved (there is more mass around 0 years of age for other tribes), while the Mau Mau associated ethnic groups seem to be more likely to relocate in an older age. Recall, however, that the Embu, Meru and especially the Kikuyu constitute the most influential tribes of the Kenyan society from independence until the present day. In future iterations of our study, we will explore conditioning socioeconomic factors (e.g. wealth and educational levels) that may cause such differences, in more detail.

In a second test, we explore how the two groups differ in their long-term settlement behavior. To do so, we combine the geocoded DHS data with the settlement polygons of the ethnologue data. Ethnologue defines the areas where specific languages or dialects are located.[13] We overlay the polygons from ethnologue with the geocoded DHS cluster areas to examine whether the ethnic affiliation of a household matches with the (historical) language of the location where the household is located. Assuming that the language areas depict the settlements of pre-independence Kenya, we calculate the proportions of households that stayed within their tribal settlements compared to those who emigrated.

Our results indicate that the ethnic geography of Kenya is very persistent. 72 percent of Kikuyu, Embu, or Meru people reside within their historical homelands. This is only marginally higher than for all other tribes, of whom approximately 68 percent reside

[13]In the case of Africa, these are usually connected to specific indigenous tribes.

within their historical homeland. Note that this figure includes semi-nomadic peoples such as the Maasai or the Turkana. Although cross-homeland migration seems to be limited, we cannot (yet) rule out that households have moved a lot within their homeland and that such migration decisions are associated with individual or household characteristics.

6 Concluding remarks

Exploiting geospatial information to identify the population most exposed to the British counter-terrorism act in response to the Mau Mau revolt, this study documents that affected Kenyan citizens have worse socioeconomic outcomes today than those less affected. While this result confirms the literature that shows that collective shocks in history may have persistent negative outcomes today, the result is surprising in that ethnic groups related to the uprising belong to the ruling class since Kenya's independence.

Affected individuals and households are 16 percentage points less likely to read and write and score almost 0.6 wealth categories lower than unaffected respondents. In addition, those who have directly been exposed to the emergency are 90% less likely to trust most people. The results hold for an array of sensitivity and placebo tests presented above. In future versions we plan to investigate the mechanisms through which the lasting effects can be explained. We will rely on a rich set of official census data (geocoded by the authors) from 1948 until 2015 to trace inter-generational transmission channels.

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A Appendix

A.1 Descriptive statistics

Table A-1 – Summary statistics

DHS data	N	Mean	Median	St. Dev.	Min	Max
Proximity at 50km (P)	58,290	0.586	1	0.492	0	1
Mau Mau Tribe (M)	58,290	0.253	0	0.435	0	1
Camp Cohort (C)	58,290	0.024	0	0.152	0	1
Wealth	58,290	3.084	3	1.424	1	5
Literacy	58,290	0.779	1	0.415	0	1
Sex	58,290	0.372	0	0.483	0	1
Age	58,290	29.250	28	10.010	15	54
Distance to nearest camp	58,290	45.384	40.142	35.388	0.200	149.446
Distance to Nairobi	58,290	224.770	234.517	128.489	0.105	664.429
Distance to Mount Kenya	58,290	235.382	243.515	127.451	25.558	561.068
Distance to Aberdarerange	58,290	213.038	196.216	130.165	13.754	567.866
Distance to province capital	58,290	90.090	70.824	80.084	0.105	560.013
Afrobarometer data	N	Mean	Median	St. Dev.	Min	Max
Proximity at 50km (P)	4,601	0.620	1	0.485	0	1
Mau Mau Tribe (M)	3,349	0.244	0	0.430	0	1
Camp Cohort (C)	4,566	0.158	0	0.365	0	1
Trust most people	1,527	0.089	0	0.285	0	1
Trust neighbors	1,544	3.647	4	0.887	1	5
Sex	4,601	0.501	1	0.500	0	1
Urban	4,601	0.422	0	0.494	0	1
Age	4,566	35.514	32.000	13.520	18.000	100.000
Catholic	4,601	0.262	0	0.440	0	1
Protestant	4,601	0.343	0	0.475	0	1
Muslim	4,601	0.093	0	0.290	0	1
Distance to nearest camp	4,601	41.044	35.322	37.361	0.188	149.713
Distance to Nairobi	4,601	196.152	199.925	147.127	0.065	608.692
Distance to Mount Kenya	4,601	234.954	226.789	124.297	30.813	534.735
Distance to Aberdarerange	4,601	204.721	186.148	133.777	14.217	543.697
Distance to province capital	4,601	75.142	56.127	78.862	0.065	482.637
Geographic data	N	Mean	Median	St. Dev.	Min	Max
Elevation	4,900	794.951	603.574	629.038	1.000	3,921.923
Slope	4,884	2.015	1.005	2.533	0.000	18.920
Ruggedness	4,968	66.371	36.410	94.545	0.000	1,135.225
Wheat suitability	4,962	741.324	0.000	1,579.290	0.000	5,838.500

A.2 Alternative trust variables

Table A-2 – Results on trust with alternative outcomes

	Dependent variable:					
	Trust other people			Trust relatives		
	(1)	(2)	(3)	(4)	(5)	(6)
P	-0.162	-0.153	-0.099	-0.140	-0.167	-0.160
	[0.074]**	[0.079]*	[0.080]	[0.062]**	[0.064]***	[0.067]**
	(0.090)*	(0.103)	(0.111)	(0.083)*	(0.089)*	(0.089)*
P × M		-0.054	-0.040		0.191	0.197
		[0.153]	[0.157]		[0.148]	[0.154]
		(0.245)	(0.226)		(0.174)	(0.171)
P × C			0.169			0.012
			[0.181]			[0.140]
			(0.189)			(0.154)
P × C × M			-0.922			-0.628
			[0.392]**			[0.222]***
			(0.400)**			(0.240)***
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Geographic controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,220	1,220	1,220	1,763	1,763	1,763

Notes: The table reports unweighted OLS estimates. The unit of analysis is the individual. All regressions control for the base levels of the interaction terms. At the individual level we control for age, age squared, gender, and religion. The geographic controls include an indicator for rural or urban regions, elevation, slope, ruggedness, wheat suitability, and the distances to Nairobi, the Aberdare Range, Mount Kenya and the province capital. Conley and clustered standard errors are reported below the coefficients in brackets and parentheses respectively. Significant at: $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

A.3 Alternative distance specifications

Table A-3 – Results on trust with varying camp proximity

	Dependent variable:					
	Trust neighbors					
	20km	30km	40km	50km	60km	70km
	(1)	(2)	(3)	(4)	(5)	(6)
P	-0.034	-0.051	-0.141	-0.226	-0.104	-0.135
	(0.107)	(0.095)	(0.113)	(0.108)**	(0.106)	(0.147)
	(0.083)	(0.074)	(0.078)*	(0.077)***	(0.078)	(0.093)
P × M	0.225	0.262	0.335	0.478	0.389	0.391
	(0.145)	(0.149)*	(0.150)**	(0.159)***	(0.162)**	(0.165)**
	(0.149)*	(0.157)*	(0.159)**	(0.184)***	(0.187)**	(0.192)**
P × C	0.206	0.346	0.416	0.287	0.217	0.249
	(0.178)	(0.183)*	(0.171)**	(0.174)*	(0.186)	(0.217)
	(0.174)	(0.165)**	(0.161)***	(0.162)*	(0.171)	(0.194)
P × C × M	-0.982	-1.749	-1.838	-1.790	-1.723	-1.750
	[0.422]**	[0.326]***	[0.324]***	[0.328]***	[0.333]***	[0.354]***
	(0.322)***	(0.258)***	(0.255)***	(0.265)***	(0.275)***	(0.292)***
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
Geo controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,416	1,416	1,416	1,416	1,416	1,416

Notes: The table reports unweighted OLS estimates. The unit of analysis is the individual. All regressions control for the base levels of the interaction terms. At the individual level we control for age, age squared, gender, and religion. The geographic controls include an indicator for rural or urban regions, elevation, slope, ruggedness, wheat suitability, and the distances to Nairobi, the Aberdare Range, Mount Kenya and the province capital. Conley and clustered standard errors are reported below the coefficients in brackets and parentheses respectively. Significant at: $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

Table A-4 – Results on literacy with varying buffers

	Dependent variable:					
	20km	30km	40km	50km	60km	70km
	(1)	(2)	(3)	(4)	(5)	(6)
P	-0.012	0.007	0.026	0.043	0.048	0.039
	[0.026]	[0.020]	[0.020]	[0.022]*	[0.024]**	[0.028]
	(0.013)	(0.010)	(0.010)***	(0.011)***	(0.012)***	(0.013)***
M	0.032	0.038	0.045	0.053	0.056	0.069
	[0.036]	[0.033]	[0.033]	[0.037]	[0.039]	[0.040]*
	(0.014)**	(0.016)**	(0.018)**	(0.021)**	(0.024)**	(0.022)***
C	-0.166	-0.175	-0.165	-0.174	-0.177	-0.201
	[0.032]***	[0.034]***	[0.039]***	[0.035]***	[0.035]***	[0.040]***
	(0.028)***	(0.031)***	(0.032)***	(0.036)***	(0.042)***	(0.056)***
P × M	0.016	-0.001	-0.015	-0.022	-0.024	-0.038
	[0.026]	[0.022]	[0.026]	[0.029]	[0.030]	[0.034]
	(0.017)***	(0.018)	(0.020)	(0.022)	(0.025)	(0.023)*
P × C	0.118	0.109	0.053	0.051	0.050	0.073
	[0.032]**	[0.034]***	[0.046]	[0.044]	[0.047]	[0.049]
	(0.054)***	(0.048)**	(0.048)	(0.048)	(0.051)	(0.062)
M × C	0.086	0.221	0.208	0.216	0.226	0.219
	[0.054]*	[0.052]***	[0.055]***	[0.061]***	[0.064]***	[0.056]***
	(0.072)	(0.060)***	(0.072)***	(0.079)***	(0.088)**	(0.142)
P × C × M	-0.071	-0.239	-0.168	-0.162	-0.166	-0.145
	[0.046]	[0.081]***	[0.071]**	[0.081]**	[0.082]**	[0.070]**
	(0.094)	(0.080)***	(0.088)*	(0.092)*	(0.099)*	(0.149)
Indiv. Controls	Yes	Yes	Yes	Yes	Yes	Yes
HH Controls	Yes	Yes	Yes	Yes	Yes	Yes
Geo Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	51,498	51,498	51,498	51,498	51,498	51,498
Adjusted R^2	0.148	0.148	0.148	0.149	0.150	0.149

Note: *p<0.1; **p<0.05; ***p<0.01

A.4 Alternative Cohort Codings

Table A-5 – Results on literary with varying cohorts

	Dependent variable:			
	Literacy – Born before:			
	1959	1969	1979	1989
	(1)	(2)	(3)	(4)
P	0.043	0.038	0.026	0.009
	[0.022]	[0.022]*	[0.021]	[0.022]
	(0.011)	(0.011)***	(0.011)**	(0.012)
M	0.053	0.049	0.048	0.022
	[0.037]	[0.035]	[0.033]	[0.030]
	(0.021)***	(0.021)**	(0.017)***	(0.019)
P × M	-0.174	-0.103	0.007	-0.046
	[0.035]***	[0.011]***	[0.016]	[0.022]**
	(0.036)***	(0.017)***	(0.012)	(0.011)***
C	-0.022	-0.027	-0.029	-0.009
	[0.029]	[0.029]	[0.026]	[0.026]
	(0.022)***	(0.022)	(0.018)	(0.021)
M × C	0.051	0.046	0.050	0.051
	[0.044]	[0.017]***	[0.014]***	[0.017]***
	(0.048)**	(0.020)**	(0.013)***	(0.012)***
P × C	0.216	0.072	0.029	0.052
	[0.061]***	[0.027]***	[0.030]	[0.028]*
	(0.079)***	(0.035)**	(0.030)	(0.029)*
P × C × M	-0.162	0.002	0.001	-0.028
	[0.081]	[0.031]	[0.030]	[0.029]
	(0.092)**	(0.039)	(0.032)	(0.031)
Indiv. Controls	Yes	Yes	Yes	Yes
Other Distances	Yes	Yes	Yes	Yes
Geo Controls	Yes	Yes	Yes	Yes
Observations	51,498	51,498	51,498	51,498
Note:	*p<0.1; **p<0.05; ***p<0.01			