

Shocking Racial Attitudes: Black G.I.s in Europe

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Can attitudes towards minorities, an important cultural trait, be changed? We show that the presence of African American soldiers in the UK during World War II reduced anti-minority prejudice, a result of the positive interactions which took place between soldiers and the local population. The change has been persistent: in locations in which more African American soldiers were posted there are fewer members of and voters for the UK's leading far-right party, less implicit bias against blacks and fewer individuals professing racial prejudice, all measured around 2010. Our results point towards intergenerational transmission from parents to children as the most likely explanation.

Key words: Culture, Persistence, Implicit attitudes, Racism, World War II, African American Soldiers.

JEL Codes: J15, N34, N94, Z13.

1. INTRODUCTION

Are prejudicial attitudes towards minority groups a constant of the human condition? They are certainly widespread, and a recent empirical literature has shown that anti-minority prejudice persists over the very long run, a consequence of intergenerational transmission of preferences (Voigtländer and Voth, 2012; Acharya *et al.*, 2016). Less is known about what it takes to change such attitudes, and whether any such changes in attitudes might themselves persist. This is important to understanding whether the consequences of prejudice—which include social conflict, hate crime, labour, and goods market discrimination—are permanent or temporary features of society.

In this paper, we show that the temporary presence of African American G.I.s¹ in the UK during World War II persistently reduced anti-minority prejudice amongst the British population. As the base of the US military's European operation, the UK played host to over one and a half

1. Originally standing for "Government Issue", "G.I." came to refer to military personnel in the early 1940s.

million US troops during World War II. Around 150,000 of these troops were black, serving in segregated units with non-combat support duties such as transport and supply.² Both black and white G.I.s came into contact with the local population whilst off base: troops of all types were frequently to be found in pubs, dance halls, and restaurants (Millgate, 2010), and the phrase “got any gum chum?”, used by children to beg soldiers for rations, entered the popular lexicon. Many Britons thereby saw and interacted with non-whites for the very first time. Despite pervasive racist attitudes before the war, we show evidence from surveys that these interactions were positive experiences for both the local population and for black G.I.s.

We test whether these interactions caused persistent changes in attitudes using a newly constructed data set of US military bases in the UK, enabling us to measure the racial composition of troops at around 2,000 bases. Combining our new data set with present-day measures of anti-minority preferences, we show that individuals in areas of the UK where more black troops were posted are more tolerant towards minorities 60 years after the last troops left. First, we show that such areas contain fewer members of the British National Party (BNP), a far-right political party with racist policy positions. Next, we demonstrate that voters in affected areas were less likely to vote Conservative in local elections during times when far-right parties were not widely fielding candidates (until the early 2000s). This effect disappears as the BNP emerged as the strongest far-right party and BNP candidates subsequently received fewer votes in locations where black G.I.s were posted. Finally, we show that there is less implicit anti-black bias in these areas, as measured by Implicit Association Test (IAT) scores, and that those living in locations where black G.I.s were posted report warmer feelings towards black people.

We show that persistence has occurred primarily in rural areas and areas which had not seen prior non-white and Irish migration. Results separated into birth cohorts further suggest that local persistence reflects intergenerational transmission combined with a lack of geographic mobility.

We address two potential challenges to our identification strategy. First, an alternative explanation for our findings is that black troops were posted in areas that were already more tolerant towards non-whites, and that this tolerance has persisted until today. In fact, US military policy was to place troops on the basis of military needs (Rash, 1942), and there is no evidence of any exercise to ascertain local attitudes before allocating troops. Consistent with this we demonstrate that the racial composition of troops is orthogonal to a raft of pre-existing economic, social, political, and geographic controls. Second, one could also be concerned that black units were actively reallocated away from areas where they were subject to racial abuse. In fact, those race-based conflicts which did occur were between black and white G.I.s, not between black G.I.s and the local population (Smith, 1987, Chapter 6). Additionally, we find that black units are no more likely to be moved between bases than white units. The evidence is that the racial composition of troops at bases is orthogonal to pre-existing conditions, and that the relationship between presence of black G.I.s and tolerance is causal.

Our results contribute to a large social science literature on the contact hypothesis (Allport, 1954). This posits that contact with minorities can reduce prejudice by causing the majority group to understand the “essential similarity” of individuals belonging to minority groups.³ Consistent with this hypothesis, Boisjoly *et al.* (2006), Carell *et al.* (2019), and Burns *et al.* (2016) find that

2. The US Army remained racially segregated until 1948. Until this point, only a very small number of black units had combat roles, most famously the aerial units which trained at Tuskegee, and the 761st Tank Battalion, the “Black Panthers”.

3. This hypothesis has been a major object of study in social psychology. See Pettigrew and Tropp (2006) and Paluck *et al.* (2019) for a review of articles, most of which either are small-scale field or laboratory experiments or show correlations between contact and attitudes without demonstrating a causal relationship.

randomly assigning non-white roommates to white students at higher education establishments has positive effects on white students' attitudes and behaviour towards non-whites. We add to these studies by providing evidence that contact can have economically meaningful effects on racial attitudes in a much broader cross-section of the population, and show that changes in attitudes resulting from the treatment can persist over long time periods.

Our findings also add to a large literature on the persistence of cultural norms, within which individual preferences are seen as endogenous to social and family environments. In the model of preference formation provided by [Bisin and Verdier \(2001\)](#), parents take costly investments in their children's preferences, resulting in "vertical" transmission of values, but children are also socialized by the wider society in which they grow up, resulting in "horizontal" transmission. Several recent empirical papers have now documented very long-run persistence in preferences, including attitudes towards minorities. [Voigtländer and Voth \(2012\)](#) show that variation in antisemitic attitudes in German towns and cities persisted over a time span of almost 600 years: individuals in locations which saw persecution of Jews during the middle ages were more likely to engage in antisemitic behaviour immediately prior to and during World War II. [Acharya et al. \(2016\)](#) show that whites living in US counties with a history of slavery harbour colder feelings towards African Americans, amongst other outcomes. This is a result of institutions and norms preserved by whites in order to entrench control over African Americans after the Civil War. In contrast, our setting suggests contact as an important potential source for triggering persistent changes in attitudes and thus change otherwise persistent cultural norms. Our findings therefore complement [Fouka \(2020\)](#), who investigates the effects of a forced assimilation policy, as an example of causes of cultural change.

By considering effects of the presence of black troops on support for the BNP, we also contribute to a growing literature on historical determinants of support for far-right parties. [Vlachos \(2017\)](#) shows that conscription of former-French citizens into the *Wehrmacht* during World War II permanently increased support for radical far-right parties, a result of political alienation. [Ochsner and Roesel \(2020\)](#) examine the effects of an inflow of Nazi supporters into areas of Upper Austria, showing persistent effects on support for far-right parties. [Cantoni et al. \(2019\)](#) demonstrate that right-wing ideology has been persistent in Germany by showing that areas supporting the Nazi party in 1933 are have more support for the far-right "Alternative for Germany" party today. These and our findings are consistent with evidence from [Avdeenko and Siedler \(2017\)](#), who show a high level of intergenerational correlation in attitudes towards migration and support for far-right parties.

Finally, we show effects of a historical event on implicit attitudes as measured by a computerized IAT. Implicit attitudes are described as "traces of past experience [that] affect some performance, even though the influential earlier experience is not remembered in the usual sense—that is, it is unavailable to self-report or introspection" ([Greenwald and Banaji, 1995](#), p. 4f.). Implicit attitudes against minority groups are increasingly used in the economics literature to measure bias (e.g. [Lowes et al., 2015](#)) and have been shown to be predictive of behaviour in a number of domains, including in hiring decisions (see [Uhlmann et al., 2009](#), for a review). We add to a small literature, including [Lowes and Montero \(2016\)](#) and [Lowes et al. \(2017\)](#) which show that historic events can shape implicit attitudes, suggesting that they are subject to the same kinds of forces of transmission as stated and revealed preferences.

The paper proceeds as follows: Section 2 provides further historical background, Section 3 provides evidence on the contact which occurred between black troops and the local population. Section 4 describes the data, identification strategy, and other necessary preliminaries for the data analysis. Section 5 documents the effect of historical inter-group contact on support for the BNP,

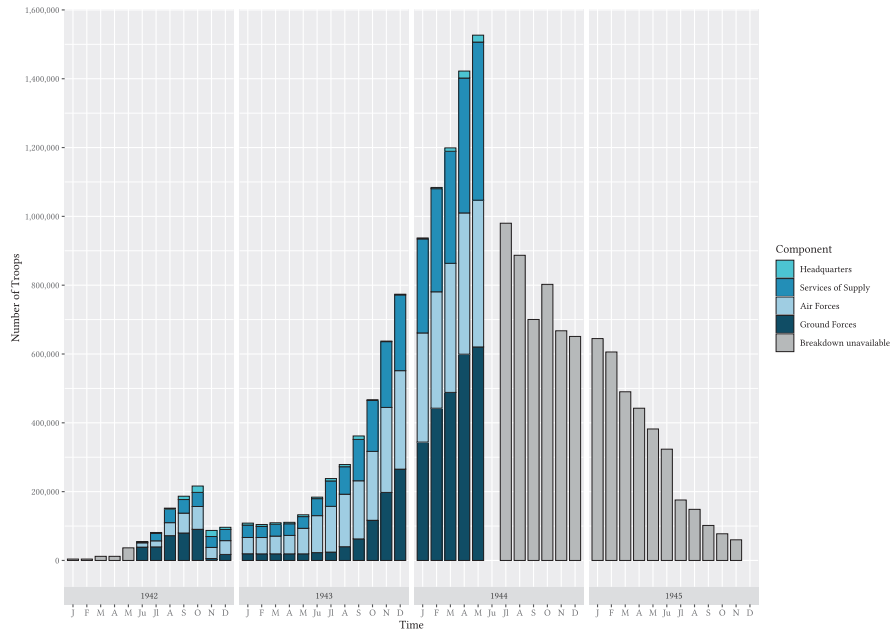


FIGURE 1

Build-up of US Army strength in the UK from January 1942 to November 1945 and, where available, a breakdown according to type. Data for June 1944 are unavailable. Sources: (Ruppenthal, 1978, p. 232) and (Pogue, 1954, p. 541).

Section 6 provides evidence from other outcome measures, and Section 7 presents some evidence on the underlying mechanism. Section 8 concludes.

2. HISTORICAL OVERVIEW

The US entered World War II in December 1941. Headquarters for the US military's European operation were established in London the next month and the first combat troops soon arrived via ports in Northern Ireland. The first aerial bombardments of Germany were carried out in June out of bases in Norfolk, part of the Eastern Base Section.⁴

In addition to hosting the European headquarters and providing a base for aerial operations, the UK also functioned as a staging and training post for the ground troops who would later liberate France and eventually Germany. These troops began arriving in the UK in May 1942 in preparation for a mid-1943 land offensive. This planned operation, codenamed “Bolero”, was later cancelled and troop numbers declined from a peak of 230,000 to around 100,000 as troops were reallocated to North Africa or the Pacific. The build-up of troops began again in May 1943 once plans for a 1944 offensive were settled. By November, around 160,000 troops were arriving per month. Troop numbers reached their peak in June 1944 with one and a half million G.I.s stationed in the UK. Figure 1 shows the numbers of troops in the UK for each month between 1942 and 1945.

Troops were stationed throughout the country, in rural and urban areas alike. The influx of troops into a small country put huge strain on available accommodation; troops were stationed

4. The Eastern Base Section, one of four areas created in order to decentralize operations, was predominantly used by the Army Air Force (Waddell, 2010, p. 142). See Supplementary Figure A2 for a map of base sections.

wherever space could be found.⁵ Troops were mainly accommodated in newly constructed camps or ex-Royal Air Force (RAF) or British Army quarters. After 1943, the supply of such accommodation was exhausted and some troops were billeted in private homes. To the best of our knowledge black troops were never accommodated this way.

Most American ground troops left England in the course of “Operation Overlord”, the airborne and amphibious assault of occupied Europe beginning on 6 June 1944. On the first day of the operation alone 150,000 troops landed in Northern France via beaches in Normandy. By the time the operation ended in August 1944, just 700,000 G.I.s were left in Britain, down from the June peak of one and a half million. Units continued to cross to Europe, but troop numbers in the UK did not decrease much further until the end of the war: the UK continued to serve as the headquarters of operations in Europe, as a base for Army Air Force units, as the point of entry for American troops bound for continental Europe and as the main location of military hospitals in Europe. However, by November 1945, almost all American units and their personnel had left the UK.⁶

2.1. *Black G.I.s*

Over 900,000 African Americans served in the US military during World War II, more than half of them outside of the US (Moore, 2013). As in previous wars, black soldiers served in racially segregated units, normally under command of white officers. With few exceptions, black troops were limited to non-combat “labour” or “service” roles, most often supply and quartermaster services, transport, food preparation, and sanitation.⁷

US Army Enlistment Records, which provide a record of all individuals who served in the Army during World War II, reveal that the black G.I.s were diverse with regards to their demographics (National Archives, 2002). [Supplementary Figure A3](#) shows that around 50% of African Americans serving in the Army had no high school education, a relatively moderate positive selection with respect to the young black male population as a whole, where around 70% of 18- to 30-year olds had no high school education.⁸ Black G.I.s were drawn from both northern and southern states: [Supplementary Figure A4](#) shows a map of the states of birth of African Americans who served in the military during World War II.

Many black G.I.s served abroad; around 10% of G.I.s who served in the UK were African American.⁹ The British government initially requested that the US military refrain from sending

5. Scotland was deemed unsuitable for military facilities, presumably because of its distance from mainland Europe: only very few troops were ever stationed there (Lee, 1966, p. 623).

6. A total of 40,000 “war brides” emigrated to the US, benefiting from free passage to the US for themselves and children. A small number of children born to black G.I. fathers and British mothers were raised in the UK. A report carried out for the League of Coloured Peoples uncovered 135 such cases, of an estimated 1,700 children born to black G.I.s in the UK (Lee, 2011; McNeill, 1946). Whilst we are not able to test the hypothesis, the low numbers make us think it is unlikely that interactions with G.I. children, rather than the G.I.s themselves, explain the effects we find.

7. Racism was institutionalized in the military. General Patton’s views expressed in a letter to his wife, “A coloured soldier cannot think fast enough to fight in armour” (Sasser, 2014, p. 104), seem to be representative of military leaders’ attitudes at the time.

8. Data on the population of black males are provided by the 1940 Census. The slight positive selection on education reflects actions of local draft boards and army requirements on literacy/education. Until 1941, draft boards had discretion to decide whether a potential recruit had the mental capacity to serve; in this period, “mental deficiency” was the most frequent cause for a pre-inductee to be rejected for service by a draft board. In 1941, a fourth-grade level literacy requirement was introduced, followed by the Army General Classification Test, introduced in 1943. Although the later test purportedly measured generalized intelligence, it has been argued that it in reality measured educational attainment, which was on average lower amongst the black population (Murray, 1971).

9. These appear to have been slightly positively selected in terms of education compared to the universe of black G.I.s, see again [Supplementary Figure A3](#).

black troops to Britain. Ostensibly this was to avoid causing conflict between white G.I.s and British citizens, who might show “more effusiveness to the coloured people than the Americans would readily understand”¹⁰, but a desire to minimize the non-white presence in the UK and concerns about sexual activity no doubt also played a role. The matter was taken up by the Foreign Secretary Anthony Eden, who claimed that the British climate was “badly suited to Negroes”, and likely also by Churchill himself (Reynolds, 2006). Nonetheless, the request was refused, both for practical reasons—black troops made up a considerable share of the support units which were of military necessity—and out of US political concerns. Suggestions were made to limit black troops to port areas, where the UK’s small existing black population was concentrated, but these were rejected. The policy instead was to “place them [black troops] where needed” (Rash, 1942).¹¹

The US Army’s colour bar was maintained; interaction between black and white soldiers was minimized, with accommodation, dining and training facilities all segregated. A “pass system” was introduced in order to keep black and white troops apart during their leisure time, with black and white units allowed off base on different days of the week or assigned different venues to visit (Reynolds, 2006, p. 310).

The UK government was at pains to take no overt actions to enforce segregation, refusing for example to instruct police officers to recommend segregation to local bar and restaurant owners. There are, however, a few isolated examples of local authorities attempting to limit contact between black G.I.s and British women (Reynolds, 2006, p. 123). Nonetheless, evidence suggests that frequent contact between soldiers and local populations took place: troops visited local bars, restaurants and dance halls during their leisure time. There are also frequent reports of younger British women visiting black troops on base (Smith, 1987, p. 187 ff).

3. EVIDENCE ON CONTACT

In most areas of the UK where black G.I.s were stationed, locals would have been seeing and interacting with black people for the first time.¹² Despite evidence of wide-spread racial prejudice before the war,¹³ the evidence suggests that the British responded positively to black G.I.s, whilst

10. E. Bridges to J. Martin, 21 July 1942, in Franklin D. Roosevelt Library, Hyde Park, New York, US, Harry Hopkins papers, box 136.

11. Units arriving in Britain were first assigned to one of several armies by the European Theater Headquarters and would then be assigned to a base by their army’s headquarters.

12. There is no administrative information on the size of the black population in the UK before the introduction of an ethnicity question in the 1991 census. General Eisenhower wrote to General Lee in 1942: “There is practically no coloured population in the British Isles” (September 5 1942, ETOUSA AG 291.2-B, available online at https://archive.org/stream/IndoctrinationOfPersonnelArrivingInTheUK/IndoctrinationOfPersonnelArrivingInTheUK_djvu.txt). The permanent Asian and black population of the British Isles was estimated in 1939 at around 7,000 individuals (Cabinet Office “Report of the Working Party on Coloured People Seeking Employment in the United Kingdom”, 17/12/1953 in CAB124/1191, via Little (1998)). Existing evidence suggests that this population was concentrated around port cities such as London, Liverpool, South Shields, and Cardiff (Spencer, 1997). In a later section, we use names and places of birth from the full count 1911 census to estimate the geographic distribution of non-white migrants in the UK.

13. The best source on racial attitudes in Britain before World War II is Little (1998), who provides a narrative of changes in attitudes to non-whites from the 17th century onwards. In a unique study, Lapiere (1928) surreptitiously questioned 315 individuals in London, Birmingham, North Wales, and Liverpool, asking each of them a variant of the question “Would you let children associate with those of good coloured people?”. Based on their responses, respondents were classified as being “without prejudice” (4%), “doubtful cases” (15%) or “with prejudice” (81%), without much variation according to social class. In addition, 20 hotels were contacted and asked “Does the management permit either African or Indian guests?”. Only four hotels responded affirmatively, although the author points out that at one such London hotel, admission was limited to Indian nobility. Lapiere’s results from England compare unfavourably to a similar study he carried out in France, where the majority of individuals questioned reported no colour prejudice.

attitudes towards white soldiers were more mixed. Writing in a biweekly newspaper, George Orwell remarked that “the general consensus of opinion seems to be that the only American soldiers with decent manners are the Negroes” (Orwell, 1943). This attitude is also on display in words attributed to an unknown Englishman in 1943, “I don’t mind the Yanks, but I don’t care much for the white fellows they’ve brought with them” (Olson, 2010, p. 287) and in a British woman writing to a friend “Everybody here adores the Negro troops, all the girls go to their dances, but nobody likes the white Americans. They swagger about as if they were the only people fighting this war” (Reynolds, 1995, p. 303).

Below, we add to this anecdotal evidence using surveys of US troops stationed in the UK and qualitative responses to a questionnaire of UK citizens carried out in 1944.

3.1. *US Military surveys*

Two surveys carried out by a research branch of the US War Department provide evidence on troops’ contact with and attitudes towards the British. These surveys are amongst over 100 carried out during the war in order to provide army command with information about the attitudes of soldiers (Stouffer *et al.*, 1949). Sampling for each survey took place in two stages; in the first stage, army units were selected from data on troop locations. Sampling in this stage is described as “not strictly random”, since the War Department could reduce costs by sampling multiple units at the same base. However, the aim was for the sample to be representative of the population of units in terms of branch and type of unit. In the second stage of sampling, men were sampled from their units by random selection from a duty roster.

The surveys useful for our purposes are “Attitudes Towards The British” (S-122) and “Attitudes Toward Army Life” (S-92) (Stouffer, 1944). The first of these, carried out in December 1943, surveyed 3,261 individuals with the aim of understanding soldiers’ attitudes towards the British, and provides evidence on the amount and mode of contact between troops and the British population.¹⁴ The survey asks how many local people of each of a number of categories—families, men in the armed forces, girls in the armed forces, civilian girls, civilians (older men and women)—the respondent has got to know “fairly well”, in each case being asked to select between none, one or two, several, or a very large number. In total, 86% of troops reply that they know at least some families or civilians fairly well. The most common way of meeting English people is described as “a chance meeting” (67%), with lower numbers being introduced through a friend (18%) or through a service organization or some other way (14%). The most common meeting places were eating places or pubs (33%), around town (33%) and at dances (17%). The number of civilians known to soldiers increases with time in the UK (see [Supplementary Figure A5](#)), consistent with interactions between troops and civilians taking place on an impromptu basis.

In Survey S-92, carried out in November 1943, troops stationed in Britain were asked “How has your opinion of the English people changed from what it was before you came to England?” and “How do you think the English people’s opinion of Americans has been changed by having American soldiers in England?”. Unlike the December survey, this survey reports whether respondents are black (422) or white (2,257). We visualize the responses to these questions separately for black and white troops in Figures 2 and 3. The median white G.I. reduced his opinion of the English whilst being stationed and believes that the English have lower opinions of Americans as a result of the presence of G.I.s. Strikingly, the pattern for black G.I.s is very different: the majority of black G.I.s positively updated their view of the English whilst being stationed and simultaneously believe that the English have positively updated their opinion of

14. Although the survey provides some demographic data (education level and marital status), race was not recorded.

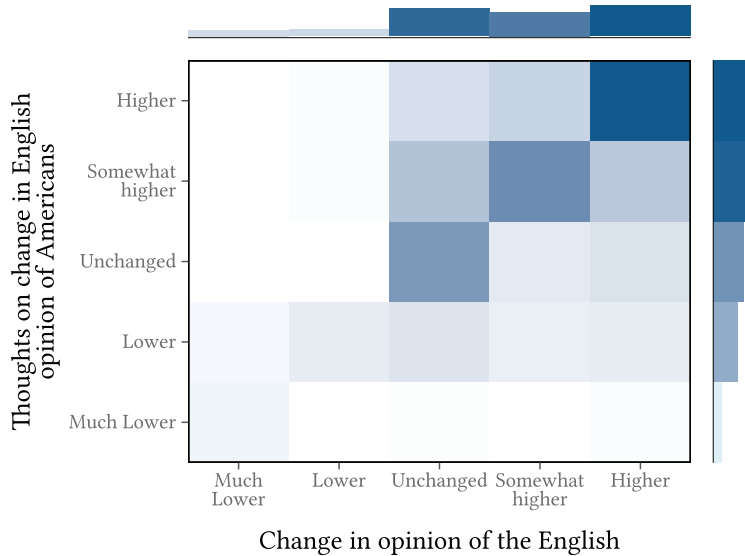


FIGURE 2

Density plot of individual black G.I.s' responses to the questions "Has your opinion of the English people changed from what it was before you came to England?" (horizontal axis) and "Do you think English people's opinion of Americans has been changed by having American soldiers in England?" (vertical axis). Darker cells indicate more mass. The sample is 442 black G.I.s posted in Britain in November 1943.

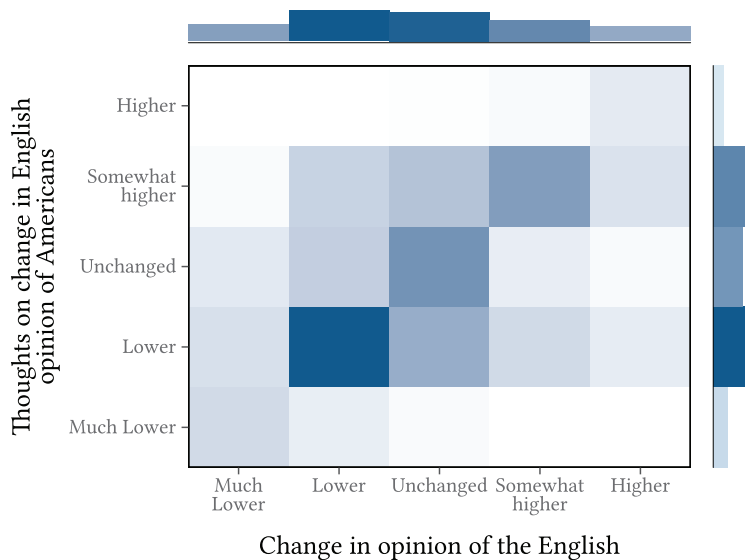


FIGURE 3

Density plot of individual white G.I.s' responses to the questions "Has your opinion of the English people changed from what it was before you came to England?" (horizontal axis) and "Do you think English people's opinion of Americans has been changed by having American soldiers in England?" (vertical axis). Darker cells indicate more mass. The sample is 2,257 white G.I.s posted in Britain in November 1943.

the Americans.¹⁵ We interpret this as evidence of “high-quality” interactions between black G.I.s and the local population, leading both black G.I.s and the local population to update their beliefs about each other.¹⁶

3.2. *Mass observation*

We provide more qualitative evidence on British attitudes to black troops, and the changes caused by contact with them, using data from Mass Observation. Mass Observation was a UK-based survey organization founded in 1937 aiming to create an “anthropology of ourselves” by regularly collecting written testimony from a panel of volunteer respondents around the country (Madge and Harrison, 1937). This panel was not designed to be representative of the population, and the occupational listing of participants shows that the panel consists largely of middle- and upper-class professionals. The panellists were asked to keep personal diaries which they sent to Mass Observation on a monthly basis. In addition, they responded to monthly “directives” from Mass Observation which aimed to collect information on opinions about a wide variety of topics. In June 1943, the panel was asked “What is your personal attitude towards coloured people, and is there any difference in your attitude towards members of different coloured races? Have wartime events or experiences had any effect on your attitudes in this respect?”. We collected and digitized all responses to the question, of which 33 (out of 199, or roughly 17%) make explicit mention of African American soldiers. These 33 responses are reproduced in full in [Supplementary Appendix D](#).

We manually classify these responses along two dimensions—sentiment towards black troops (positive or negative) and whether the respondent has interacted with black troops. Eight responses (24%) mention or imply contact with African American soldiers, of which six (75%) show positive sentiment towards them, whilst a narrow majority (52%) of respondents who make no mention of contact show negative sentiment. This might be a result of selection into contact rather than changes in attitudes caused by such contact—however, six responses explicitly report positive updating of attitudes or beliefs based on the presence of black troops, with only two implying negative updating. Examples of positive updating are “My little contact with the American Negroes made me more sympathetic to them. They liked being over here, because they were treated better here by us than by the white Americans in their own country” and “Have wartime events and experiences had any effect on my attitude[?] The answer is yes. The presence of many more American negroes in this country may make me take less interest [in] them through accepting them as normal and familiar”. These kinds of responses seem to reflect exactly the kinds of changes in attitudes through contact that Allport’s contact hypothesis postulates.

4. ESTIMATION FRAMEWORK

Having provided suggestive evidence of changes in contemporary attitudes caused by the presence of black G.I.s, we now test for persistent effects of their presence. Concretely, we use three independent data sets with high geographical resolution to test whether proximity to black G.I.s persistently affected local racial attitudes. The first of these provides data on membership of the BNP, a far-right xenophobic party, across all of England and Wales’ 180,000 census output areas

15. Regressions reported in [Supplementary Table A3](#) show that the difference in responses given by white and black troops is statistically significant and robust to controlling for the base at which individuals are stationed, their branch of the army, state of birth, rank, and education levels.

16. In doing so, we assume some reflection; that is, when a soldier is asked how he thinks that English opinions of Americans have changed, his response reflects how English opinions of individuals like him have changed.

(“neighbourhoods”), the lowest level geography on which the national statistics agency collects data. Next, we use voting outcomes from local elections, which for the years 1973–2012 provide vote shares across electoral wards. Finally, we use data generated by “Project Implicit”, a website on which individuals can carry out a test for their implicit racial attitudes. As well as carrying out the test, individuals are prompted to provide self-reported racial attitudes and demographic information including their postcode.

We describe the data sets in more detail later, but first describe the shared estimation strategy that we apply to all outcome measures.

4.1. *Troop Data*

Our empirical exercise exploits a new data set of US army units in the UK ([National Archives, 1953](#)).¹⁷ The data set is based on the station lists produced by the US Army Adjutant Generals Office (AGO) on a monthly basis throughout the war.

Most station lists for the period June 1943–53 survive and are housed at the US National Archives in Washington D.C. We were kindly provided with digitisations of 16 station lists by Captain Philip Grinton and we digitized a further 11 ourselves, resulting in 27 digitized station lists. These lists cover months from June 1943 to December 1945 and are listed in [Supplementary Table A4](#). [Supplementary Figure A6](#) shows an extract from one of these lists.

Each line in a station list represents a unit, which is identified with an abbreviation of its name (e.g. 1944 QM TRK CO for the 1944th Quartermaster Truck Company), and is listed along with the coordinates of the base at which the unit was posted, the nearest town or village, and a symbol to indicate if the unit is a segregated unit with African American troops. There are various types of units, with the most frequent entry being “company”, which contained around 150 men.¹⁸

Using these lists, we created a data set of the units posted at 1,937 military bases/camps (unique according to their coordinates) at 27 points in time. These bases were located widely across England and Wales, with the notable exception of the South East of England. This was a consequence of the plan for the invasion of occupied France: US ships departed from the west of England, the British Navy from the east, and vessels landed on French beaches in the same formation. [Supplementary Figure A7](#) shows a map of all bases/camps in the data set.

4.2. *Identification*

Our aim is to estimate the effects of the local presence of black units on racial attitudes through inter-racial contact. Whilst we have no way of observing contact between the local population and black G.I.s, the evidence in [Section 3](#) on the types of interactions that took place suggests that the probability of locals coming into contact with troops would have increased in both the number of troops stationed nearby and the length of time they were stationed for. We therefore exploit variation across space in both the time black troops were posted for and their numbers.

Recall that the vast majority of black units were “support units”, providing services such as transport and sanitation. In our preferred specification, we control for the presence of support units, both black and white. Again, we do so taking into account both the number of units posted

17. Full descriptions and sources for all data sets used in the paper are given in [Supplementary Appendix B](#).

18. According to personal conversations with staff at the National Archives in College Park, MD, information on the number of soldiers in each particular unit was destroyed at the end of the war. Most listed units are companies, which contained between 100 and 250 men, although some larger units such as battalions are also included. When presenting our results, we will also present a robustness check that uses unit type as a proxy for the number of troops in each unit.

and the time they were present for. This means that our estimates exploit variation in the racial composition of support units across bases through time and space.¹⁹

We begin by identifying support units based on their names; the list of unit names indicating support status is shown in [Supplementary Table A5](#). This list covers 91% of units described by the station lists as being a segregated black unit.²⁰ Then we count the number of black support units posted at each base in each month we have data for, $BlackSupportUnits_{b,m}$ where b is a base and m a month in which we observe the allocation of troops. Next, we sum across all such months to produce a base-level measure, $BlackUnitMonths_b$:

$$BlackUnitMonths_b = \sum_m BlackSupportUnits_{b,m}.$$

We create an analogous measure for the presence of support troops:

$$SupportUnitMonths_b = \sum_m SupportUnits_{b,m}.$$

Our identifying assumption is that the presence of black troops at a base (measured by $BlackUnitMonths_b$) is exogenous to pre-existing racial attitudes in the population around that base, controlling for the overall presence of support troops (measured by $SupportUnitMonths_b$).

Our estimation results would be biased if, when deciding which support units to allocate to which military base, black units were strategically stationed in areas with particular racial attitudes. There is no evidence for any general policy to allocate troops according to local sensitivities, and doing so would have violated the US Army European Theater of Operations's non-differentiation policy.²¹ There is evidence to suggest that there were frequent hold-ups both in available accommodation and of available service troops ([Ruppenthal, 1978](#), p. 231). Under these circumstances, it would seem highly unlikely for race to have played a role in allocation decisions.²²

In addition, we now show that, after controlling for the degree of presence of support units, the degree of presence of black units at a base is uncorrelated with a large number of pre-existing economic, political, and geographic characteristics around that base. For each of these characteristics, we estimate the following regression equation:

$$X_b = \alpha + \beta \cdot BlackUnitMonths_b + \gamma \cdot SupportUnitMonths_b + e_b,$$

where b is a military base, X_b is the variable of interest, and e_b the error term. Results are shown in [Table 1](#), where each line corresponds to a regression of a separate pre-existing characteristic; full

19. In an alternative specification in [Supplementary Table A9](#) we instead exploit variation in the intensity of presence of black units given the intensity of presence of *all* military units, without any substantive changes to results. However, given that the vast majority of black units were carrying out support roles, we want to make sure that our results are not being driven by differences in the types of locations that support and combat troops were posted to.

20. Units described in the records as being black but not classified as support units include “Detachment of Patients” (*i.e.* those receiving care at a military hospital), “Detachment of Prisoners”, and the few combat black units which served in the UK: the 320th Anti-Aircraft Barrage Balloon, the 333rd Field Artillery Battalion, the 969th Artillery Battalion, the 452nd Anti-Aircraft Artillery Battalion, the 578th Field Artillery Battalion, the 614th Tank Destroyer Battalion, and the 999th Field Artillery Battalion. We ignore these units in our analysis.

21. The “Uniform policy governing racial inter-relations of Soldiers, and of Soldiers and Civilians” contained the following item “No differentiation, distinction, or discrimination will be made between soldiers of difference races, by practice or inference. Unnecessary discrimination of race will be avoided in official orders, announcements and official or quasi-official communications”, Record Group 498, National Archives, Subject File 218, accessed at <http://www.fold3.com/image/287187922>.

22. Further supporting this evidence, [Supplementary Table A6](#) shows that, conditional on the type of unit, black units were not moved between locations any more frequently than white.

TABLE 1
Effect of covariates on the presence of black troops

	$\hat{\beta}$	p-value $H_0: \beta = 0$
<i>Economic:</i>		
Population density in parish, 1931	-0.009	0.84
Rate of population growth in parish 1921-1931	2.278	0.25
Agricultural employment in local government district, 1931	-0.003	0.51
Professional employment in local government district, 1931	-0.005	0.17
Unemployment rate in local government district, 1931	0.005	0.12
Urban local government district, 1931	0.022	0.08
Total area of local government district, 1931	-3.331	0.39
Number of rooms per house in local government district, 1931	-0.004	0.65
<i>Social and political:</i>		
Non-white migrants in parish, 1911	0.001	1.00
Conservative vote share in constituency, 1922	0.004	0.61
Conservative vote share in constituency, 1923	0.004	0.49
Conservative vote share in constituency, 1924	0.005	0.45
Conservative vote share in constituency, 1929	0.003	0.58
Conservative vote share in constituency, 1931	-0.008	0.35
Conservative vote share in constituency, 1935	-0.002	0.35
British Union of Facists branch in constituency, 1934	-0.004	0.85
Irish migrants in parish, 1911	-0.000	0.99
<i>Geographic:</i>		
Distance to coast	-0.914	0.24
Distance to nearest city, 1939	0.129	0.86
Distance to nearest large city, 1939	-0.681	0.62
Distance to nearest urban district, 1931	-0.079	0.80
Distance to railway station, 1939	0.085	0.32
Distance to major road, 1939	-0.028	0.85
Distance to port city, 1936-8	-1.362	0.25
Distance to nearest base section headquarters	1.262	0.43

Notes: Each row reports beta coefficients from a regression of the form $X_i = \alpha + \beta \cdot \text{BlackUnitMonths}_b + \gamma \cdot \text{SupportUnitMonths}_b + e_b$, where X_b is a control variable and e_b is an error term. The sample is all bases hosting at least one support unit at one point in time.

descriptions of the variables are provided in [Supplementary Appendix C](#). Depending on the data source, the characteristics vary either at the parish level, the local government district level, the constituency level or, for some geographical measures, are directly measured at the coordinates of the base.

The first group of variables shown in Table 1 measure economic conditions around the base; they include the parish-level population density as measured in the 1931 census, the parish-level rate of population growth between 1921 and 1931, sectoral composition of employment at the local government district level, unemployment rate at the local government district level, a binary indicator as to whether the base was inside an urban area, the total area of the local government district, and the average number of rooms in a house at the local government district level ([GIS, 2017a,b](#)).

The second group of variables measures political and societal features. First, we use the full count of the 1911 England and Wales census to estimate the number of non-white migrants in each parish as per 1911,²³ as well as the share of Irish migrants ([Census, nd](#)). Our most direct

23. The construction of this variable, which uses place of births and names to infer non-white migrant status, is outlined in [Supplementary Appendix C](#). A map of its distribution is shown in [Supplementary Figure A8](#). There is no administrative information on the size or distribution of the non-white population before the introduction of an ethnicity question in the 1991 census. 1911 is the last year for which full-count census data has been released.

measure for pre-existing racial attitudes is constituency level data on the presence of a branch of the British Union of Fascists (BUF). The BUF was formed in 1932 by Oswald Mosley, a British politician who had served as a Member of Parliament for both the Conservative and Labour parties. Xenophobia was “a mainstay of the rhetoric of the BUF” (Redvaldsen, 2016).²⁴ Internal Labour Party research in 1934 aimed to ascertain whether a branch had been formed in each of England and Wales’ constituencies, data which we collect and code (Labour party, 1934).²⁵ We also collect data on the share of the electorate voting for the Conservative Party in the last six pre-war elections of 1922, 1923, 1924, 1929, 1931, and 1935 (Field, 2007).

The third and final group of variables are various measures of geographic isolation. We calculate the distance from each base to the coast, the nearest local government district with urban status in 1931, to the nearest town/city with a 1939 population over 100,000 (of which there are 55), and to the nearest city with a 1939 population over 300,000 (of which there are 8) (Southall *et al.*, 2004). We collect data on the location of railway stations in 1939 in order to calculate the distance from the base to the nearest railway station (Network Rail, 2016), and digitize a 1946 road map in order to calculate the distance from each base to the nearest major road (National Library of Scotland, 1946). Furthermore, we calculate the distance to the nearest port city of the 1936–8 period and to the nearest Army base section headquarters.

Apart from one variable, the indicator for being inside an urban local government district (significant at the 10% level), we find no statistically significant correlations between pre-existing characteristics around bases and the presence of black troops there. Furthermore, a low F-statistic of $F(25,524)=1.06$ from a regression of *BlackUnitMonths* on the full set of covariates shows that we cannot reject the hypothesis that all of the covariates are unrelated to deployment patterns (p -value = 0.3903). This pattern is consistent with the idea that troop placements were made on the basis of *military* requirements, orthogonal to local conditions, and as such any correlation between the presence of black troops and contemporary anti-minority attitudes reflects a causal effect.

4.3. Treatment definition

Our hypothesis is that, in areas around military bases with black troops, interactions led to changes in local attitudes, and that these attitudes have since persisted, possibly a result of intergenerational transmission. The question remains of how to match contemporary populations to historic bases. In our main specifications, we consider a contemporary location to be “treated” by a given military base if the location and the military base share a common postcode district.²⁶ That is, we consider any base in the same postcode district as a contemporary location to have contributed to historical

24. The focus was clearly antisemitic, although there is evidence of more general racism; a party speech by William Joyce in 1934 talked about removing foreigners “be they Hebrew or any other form of alien”, whilst a party pamphlet contained the text “Under Fascism, no alien shall enter this country to take the jobs of Britons, and aliens who are already here who have abused the hospitality of this nation will be sent back whence they came”, (“Fascism explained: Ten points of fascist policy”, accessed as LP/FA3/34/542 at the Peoples History Museum Archive, University of Central Lancashire).

25. Data are held and were accessed as LP/FAS/34 at the Peoples History Museum/University of Central Lancashire.

26. Postcode districts cover very small areas in cities but larger areas in more rural areas (65% of the variance in log-area is explained by log-population density), with a median area of 27 square kilometres. We use postcode districts, with their varying sizes, to define our treatment since this captures the logic that contact between troops and individuals a fixed distance apart was more likely in less densely populated areas. Our results are not sensitive to this choice: Supplementary Table A10 shows regressions at the census output area level where treatment is instead defined at the local government district level.

contact. Our treatment is defined on the postcode district level as follows:

$$BlackUnitMonths_j = \sum_b \sum_m \mathbb{1}[b \in j] \cdot BlackUnits_{b,m},$$

where j indexes postcode districts, $\mathbb{1}[b \in j]$ is an indicator function for whether base b is inside postcode j and $BlackUnits_{b,m}$ is the number of black support units posted at base b in month m . We create an analogous measure for the presence of support troops:

$$SupportUnitMonths_j = \sum_b \sum_m \mathbb{1}[b \in j] \cdot SupportUnits_{b,m}.$$

These measures capture the intensity of presence of black and support troops around a given contemporary location. Because we want to exploit variation in the number of support units around a given location which were black, our population of interest consists of individuals living in postcode districts where at least some support units were located. To illustrate the variation that we exploit, Figure 4 shows how the ratio of $BlackUnitMonths_j$ to $SupportUnitMonths_j$ varies across postcode districts.²⁷

5. LONG-TERM EFFECTS ON BNP MEMBERSHIP

We now estimate the effects of proximity to black troops on contemporary attitudes towards minorities. We begin by measuring local attitudes using data on local membership of the BNP, a far-right political party with extreme positions on race.²⁸

The BNP was founded in 1982 as a splinter group from the National Front, an openly racist organization with links to European neo-Nazis. The party's founder was jailed for conspiracy to incite racial hatred in 1986, and a senior official described the party as "100 percent racist" in 1995 (BBC, 2001). Police officers and prison officials were banned by their employers from joining the party, and in 2009 a government minister attempted to introduce a similar ban for teachers, citing a desire to "keep racism ... out of our schools" (The Guardian, 2009).

Attempting to increase its electoral relevance, the party began to outwardly reject claims of racism in 1999, but its ideology is still widely considered to be just that (see e.g. The Spectator, 2009). Most tellingly, non-white members were banned from the party until this was deemed illegal by a court in 2010. Even whilst espousing a "modernization" agenda, Nick Griffin, the party's leader from 1999 to 2014 continued to call for the "repatriation" of non-white Britons, who a party manual referred to as "racial foreigners". Further evidence of the party's racist ideology is provided by the BNP's website, extracts from which from 2008 are displayed in Supplementary Appendix A.

In addition, we provide suggestive evidence of the opinions of BNP members using a survey carried out by YouGov on behalf of Goodwin and Evans (2012), who kindly shared

27. Supplementary Figures A9 and A10 show maps of the two variables separately. Supplementary Figure A13 shows that the ratio between black and white units remained relatively constant throughout time. Supplementary Figures A11 and A12 show the evolution of $BlackUnitMonths$ across postcode districts through time.

28. This variable measures preferences at the tail of the distribution, but the evidence suggests that this correlated with preferences more generally. Biggs and Knauss (2011) show that, on the constituency level, BNP membership is related to the share of the population voting for the BNP in the 2005 national election, a less extreme measure. Supplementary Table A11 shows, again at the constituency level, that BNP membership is correlated with unease about the cultural effects of migration, even once controlling for the unemployment rate and non-white population share in the constituency.

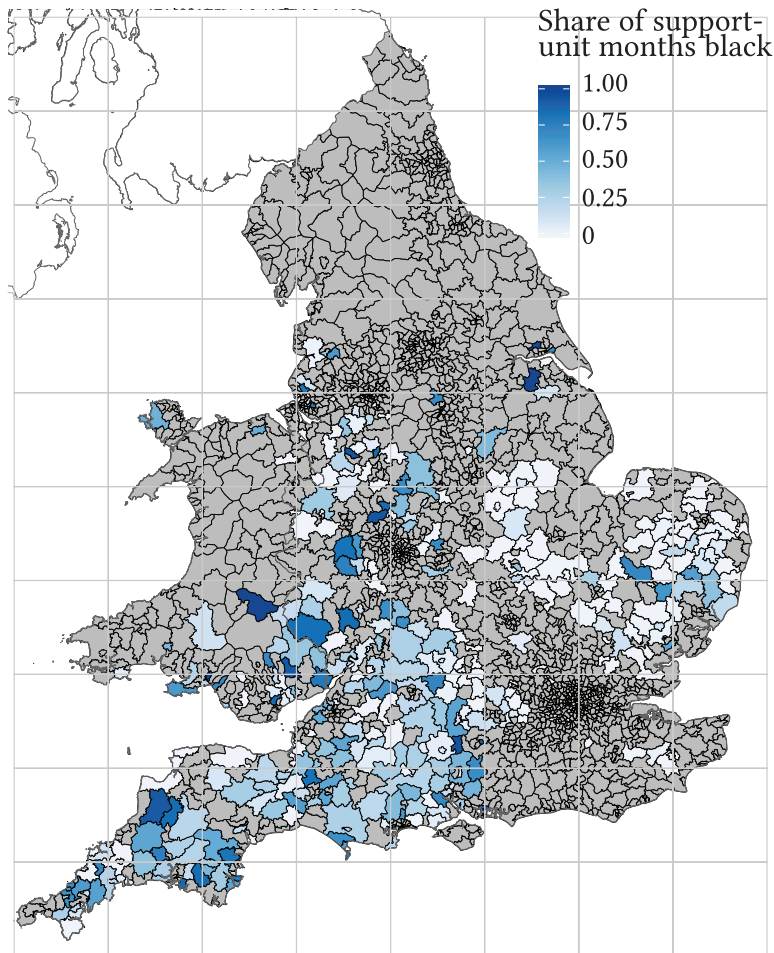


FIGURE 4

Figure shows variation across English and Welsh postcode districts in the share of support-unit months which are due to black units. Grey districts are not part of the analysis, as they never hosted support units. Also shown are grid-cells used to generate grid-cell fixed effects.

their data. YouGov contacted 2,951 members of its national panel who, according to their data, had indicated being supporters of the BNP, the United Kingdom Independence Party, or the English Defence League. The response rate was 73%, including 54 members and 58 former members of the BNP. The opinions of these individuals on race/migration are reported in Figure 5. A large majority believes that immigrants are the main cause of crime and of disease, and 47% believe in innate differences in intelligence between black and white Britons. Majorities also believe in the unconditional repatriation of foreigners and reject the concept of non-white Britishness. Although we cannot guarantee that the respondents to the survey are a representative sample of BNP members, the evidence suggests that members have extreme views on race.

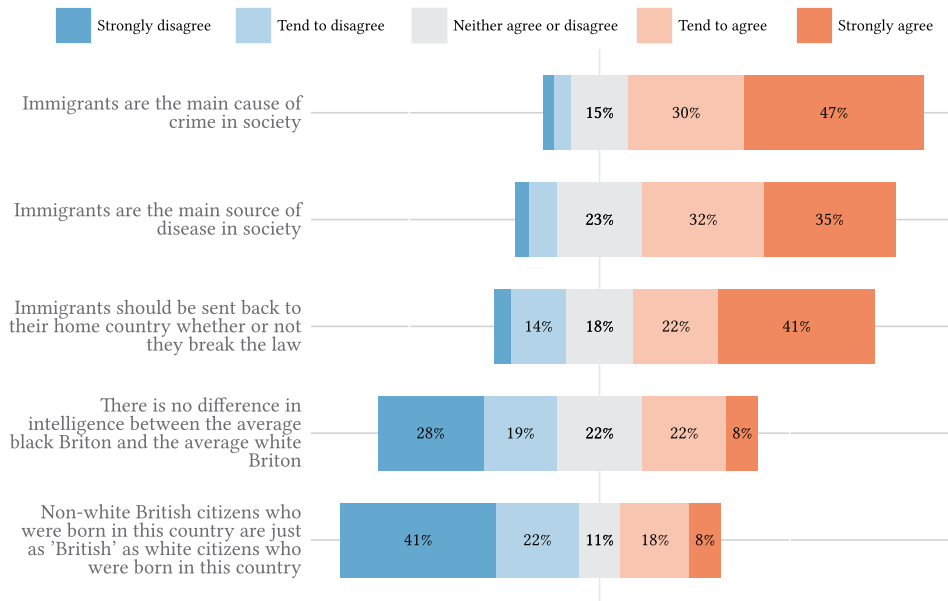


FIGURE 5

Opinions of 112 members and former members of the BNP. *Source:* Goodwin and Evans (2012).

Our regressions make use of data from Biggs and Knauss (2011), who geolocate members of the party using a membership list published online in 2008.²⁹ The list was confirmed by the party to be genuine and is understood to provide a complete listing of members of the party in November/December 2007, although the BNP has claimed that the list contains a number of ex- and prospective members too. Membership of the BNP was not contingent on the presence of a local branch; at the time the membership list was published, individuals were able to join the party by completing a paper or online form. Since joining the party entailed some cost,³⁰ membership data provide a revealed preference measure of racial attitudes.

The membership list comprises information on 13,009 individuals, including a home address with a valid UK postcode in 97% of cases.³¹ Biggs and Knauss (2011) aggregate the data to the 2001 “output area” level (the lowest level geography on which the Office of National Statistics aggregates demographic and social data) and report the number of members within each area. The authors kindly shared their data set with us. We match the data to the most recent neighbourhood definitions, resulting in data on the universe of the census output areas across England and Wales, which we refer to as neighbourhoods. Of the 184,109 neighbourhoods in England and Wales (median population: 303), 12,513 (6.7%) include at least one BNP member. The maximum number of members per neighbourhood is 11, a neighbourhood in Barnsley, in the north of England. The neighbourhoods containing BNP members are displayed in Supplementary Figure A14, which

29. Due to legal constraints in Germany, where most of the analysis was carried out, we were not able to process this information directly from the original, leaked membership list.

30. Membership for pensioners, students and the unemployed cost £15 a year, a standard membership cost £30 a year and a “gold” membership £60.

31. There are over 1 million unique postcodes throughout the UK, with each postcode covering on average 15 households.

also shows the UK geographies with active BNP branches in 2008.³² The figure reveals that membership of the BNP was geographically diverse, and members live in areas both with and without local branches.

5.1. Estimation and results

Our dependent variable is the number of BNP members per 100,000 white residents in a neighbourhood.³³ We limit our sample to neighbourhoods inside England and Wales since negligible numbers of troops were posted in Scotland and because Northern Ireland contained only negligible numbers of BNP members. In constructing our dependent variable, we divide by the number of white residents in the neighbourhood to avoid a mechanical correlation between the outcome measure and the size of non-white population. Further, as described in Section 4, we limit our sample to neighbourhoods in postcode districts where support units were posted, so as to exploit variation in the racial makeup of support troops posted around any given location in our estimation. Summary statistics of the dependent and independent variables in our sample are reported in [Supplementary Table A2](#).

We thus estimate regression equations of the form:

$$\begin{aligned} \text{BNP members per 100,000 whites}_i = & \alpha + \beta_1 \text{BlackUnitMonths}_j \\ & + \beta_2 \text{SupportUnitMonths}_j + \mathbf{X}_i + u_i, \end{aligned} \quad (1)$$

where i is a neighbourhood, j stands for that neighbourhood's postcode district, BlackUnitMonths_j and $\text{SupportUnitMonths}_j$ are constructed as per Section 4, \mathbf{X}_i is a vector of controls, and u_i is the error term. In order to account for correlation in the error term between observations, we cluster standard errors at the modern local authority level, which divides England and Wales into 348 administrative regions. Our key parameter of interest is β_1 , the estimated effect of the presence of black troops, conditional on the presence of support troops, on BNP membership.

Results of estimating Equation 1 are displayed in Table 2, with each column representing a separate regression with a different set of control variables. To ease the interpretation of coefficients, both the explanatory and dependent variables are standardized to have zero mean and a standard deviation of 1. The regression shown in Column 1 includes no additional controls. We introduce further controls in a piecewise fashion, starting with Column 2. First, we include grid-cell fixed effects, generated by imposing an arbitrary 8 by 10 grid on the map of England and Wales and matching neighbourhood to these cells (the cells are shown in Figure 4). Estimation in this and subsequent columns exploits *within grid-cell variation* in the presence of black troops, comparing neighbourhoods which are relatively close to one another but which vary in terms of the number of black units posted.

For the remaining columns, we match contemporary neighbourhoods to their historic geographies: 1931 parishes, 1931 local government districts, and 1918–45 constituencies, using

32. Data on the existence of BNP branches come from the BNP newspaper, the “Voice of Freedom”, Issue 100. Last accessed August 2017 at <https://www.scribd.com/document/25905300/Voice-of-Freedom-101>.

33. As described above, the data on BNP membership are provided at the neighbourhood level. We run our main regression at the neighbourhood level too, without further aggregation, since this allows us to accurately match each unit to larger historical geographies. This simplifies the generation of control variables, since neighbourhoods almost always fit completely inside historic boundaries, something which would not be the case for larger geographic units. [Supplementary Table A12](#) reports results from regressions at the postcode district level, albeit without a full set of controls. These are in-line with our main specification. In addition, [Supplementary Table A7](#) reports estimation results from alternate model specifications.

TABLE 2
Effect on BNP membership

	BNP members per 100,000 whites (std.)				
	(1)	(2)	(3)	(4)	(5)
Black unit-months (std.)	-0.022*** (0.008)	-0.023*** (0.008)	-0.022*** (0.008)	-0.023*** (0.009)	-0.029* (0.01)
Support unit-months	✓	✓	✓	✓	✓
Grid-cell fixed effects		✓	✓	✓	✓
Economic controls			✓	✓	✓
Geographic controls				✓	✓
Socio-political controls					✓
Clusters	234	234	234	234	172
Observations	48,732	48,732	48,665	48,665	26,498

Notes: Each column reports coefficients and standard errors (in brackets) from an Ordinary Least Squares (OLS) regression where both the dependent variable and main independent variable have been standardized to have mean zero and standard deviation one. The unit of observation is the neighbourhood (2011 census output area). The outcome variable is BNP members per 100,000 white inhabitants. Black unit-months, the reported independent variable, is our measure of the presence of black troops in the neighbourhood's postcode district. Support-unit months is the measure of presence of support troops in the neighbourhood's postcode district. Economic controls are: population density (in the 1931 parish), change in population (in the parish between 1921 and 1931), the share of employment due to the agricultural sector (in the 1931 local government district), the share of employment due to the professional sector (in the 1931 local government district), the unemployment rate (in the 1931 local government district), and a dummy variable for urban status (1931 local government district). Geographic controls are distances to the coast, the nearest large city, the nearest city, the nearest urban district, the nearest railway station, and the nearest major road. Social-political controls are the share of the votes in the 1935 constituency going to the Conservative Party, and a binary indicator for the presence of a British Union of Fascist branch in the constituency, measured in 1934. Standard errors are clustered at the local authority district level and reported in brackets. One, two, and three stars indicate significance at the 10%, 5%, and 1% levels, respectively.

boundary data provided by the Vision of Britain Project. In most cases, neighbourhoods are completely contained within these geographies; if not, they are matched to the geography which contains the neighbourhood's population-weighted centroid. Based on these historic geographies, we add controls for pre-existing economic conditions in Column 3, for geography in Column 4, and for socio-political variables in Column 5. These are drawn from the same set of controls we used to demonstrate exogeneity of the treatment measure in Section 4.2.

In the baseline specification, Column 1, a 1-standard deviation increase in the presence of black troops, as measured by *BlackUnitMonths_{*i*}*, reduces the number of BNP members as a share of white citizens by 0.02 of a standard deviation. Comparing coefficients across the columns shows that adding grid-cell fixed effects, economic controls, or geographic controls makes only a marginal difference to the estimated coefficient (this follows from the exogeneity of the treatment established in Section 4.2). The estimate shown in Column 5, which includes socio-political controls, is estimated with less precision because we do not have data on the existence or otherwise of a British Union of Fascist or the share of Conservative Party votes for all constituencies. However, the coefficient is still statistically significant at the 10% level and is in fact larger than that of the previous columns.³⁴

To further assuage concerns that these results may be due to selection on unobservables, we follow the approach by Oster (2019), who emphasizes the importance of movements in R^2 next to coefficient stability. Using her suggested bounding value of increasing R^2 by a factor

34. An alternative explanation for the results reported in Table 2 is that the presence of black troops caused individuals with anti-minority preferences to migrate away. However, the evidence is that the disruption to the housing market during war time made such moves unlikely. Supplementary Figure A15 shows that the building of new houses all but ceased during the war period, and Supplementary Figure A16 uses an online archive of local newspaper adverts to show that the supply of non-new properties also collapsed.

TABLE 3
Effect on BNP membership, alternate models, and subsamples

	(1) Logit model	(2) Negative binomial model	(3) Dep. var. IHS transformed	(4) Dep. var. IHS & Logit	(5) Inland	(6) Not London	(7) No BNP Branch
Black unit-months	-0.0036*** (0.001)	-0.0038*** (0.001)	-0.012* (0.007)	-0.046** (0.02)	-0.034*** (0.009)	-0.021** (0.009)	-0.022*** (0.008)
Support unit-months	✓	✓	✓	✓	✓	✓	✓
Grid-cell fixed effects	✓	✓	✓	✓	✓	✓	✓
Economic controls	✓	✓	✓	✓	✓	✓	✓
Location controls	✓	✓	✓	✓	✓	✓	✓
Clusters	234	234	234	234	179	226	220
Observations	48,664	48,665	48,665	48,664	27,048	47,937	46,092

Notes: Coefficients from several regressions. Outcome is BNP members per 100,000 white inhabitants, except for Column 1 where it is a dummy whether the neighbourhood contains any BNP members. Column 5 includes all neighbourhoods at least 20 km away from the coast. Column 6 excludes neighbourhoods inside Greater London. Column 7 excludes neighbourhoods in districts where a local branch of the BNP is active. Independent variables and clustering as per Table 2. Standard errors in brackets. One, two, and three stars indicate significance at the 10%, 5%, and 1% levels, respectively.

of 1.3, above which she argues results can be considered as robust, for Column 4 of Table 2, we require a relative degree of selection on observed and unobserved variables of $\delta = 34.51$ to explain away our finding. This is substantially above equal selection ($\delta = 1$), which has been suggested as an appropriate upper bound in empirical studies and effectively shows that selection on unobservables would have to be excessively large in order to be responsible for our results.

5.2. Robustness

In this section, we examine the extent to which the results presented in Table 2 are robust to changes in specification or the sample.

In the first four columns of Table 3, we show that our results are robust to changes in the specification of the model. In Column 1, we run a logistic regression on a dependent variable that indicates whether there is at least one BNP member in a given neighbourhood. Multiple BNP members within a given household or spillover effects between neighbours might increase BNP membership within a given neighbourhood, without necessarily indicating stronger racial prejudice. In Column 2, we estimate a negative binomial model, which explicitly accounts for the fact that BNP members per neighbourhood is a count variable. When estimating the negative binomial regression, we constrain $\ln(\text{Whites}_i)$ to take the value 1 to account for the fact that BNP membership in any neighbourhood is constrained by the number of whites living there. In Column 3, we transform our dependent variable by taking its inverse hyperbolic sine (Burbidge *et al.*, 1988). The distribution of BNP members across neighbourhoods is highly skewed, and the inverse hyperbolic sine (IHS) transformation makes the distribution more normal, reducing the influence of outliers. In Column 4, we both transform the independent variable and estimate a logit model. The coefficients are not comparable across specifications, but coefficients on *BlackUnitMonths* are negative and statistically significant in all regressions. This suggests that the results found in our main specification are not driven simply by model selection.

Columns 5 through 7 of Table 3 report results on selected samples. In Column 5, we drop from the sample any neighbourhoods within 20 km of the coast. This excludes all locations in which the small pre-war black population of England and Wales was concentrated. We exclude London from the sample in Column 6, and in Column 7 exclude all areas with an active BNP

branch in 2007. Across all our specifications, the coefficient on *BlackUnitMonths* remains highly significant.

Further robustness checks are reported in the [Supplementary Appendix](#). [Supplementary Appendix E](#) explores what level of proximity is required between a base at which black troops were posted and a contemporary location in order for the presence of troops to have had a persistent effect on attitudes. In [Supplementary Table A7](#) we examine robustness to alternative treatment indicators, and in [Supplementary Table A8](#) to an alternative main control variable. In [Supplementary Table A13](#), we show that our results are robust to weighting neighbourhoods by the size of the population. In [Supplementary Figure A17](#) we report results of regressions where we leave counties out of the sample one at a time, and show that the results are not driven by any particular county in the UK. In [Supplementary Table A14](#) we show that results are robust to choice of the geographical fixed effect, and in [Supplementary Table A15](#) we vary the geographical cluster level. In [Supplementary Table A16](#) we use listed unit types (*e.g.* company, battalion) to estimate the number of soldiers in each unit, allowing us to generate an alternate measure of treatment intensity that takes into account variation in size between units. Finally, in order to assuage concerns that spatial correlation might cause biased estimates of standard errors, [Supplementary Figure A18](#) reports the results of randomization inference. We randomly reassign the share of support unit-months due to black units between bases in order to create a simulated assignment of *BlackUnitMonths_b*. We then estimate Equation 1 using the simulated *BlackUnitMonths_b* and the real *SupportUnitMonths_b*. We repeat the exercise 8,000 times, generating a distribution of estimates of β_1 , which is centred around zero. The estimate of β_1 with the real *BlackUnitMonths_b* is larger in magnitude than all but 0.1% of the counterfactual estimates.

5.3. Heterogeneity analysis

We examine heterogeneous effects of the BNP results along two dimensions in Table 4. According to data from the UK household longitudinal study “Understanding Society” ([University of Essex. Institute for Social and Economic Research, 2016](#)), rural areas of the UK see only low levels of internal migration. Within rural areas, 25% of individuals were living within two miles (3.2 km) and 47% within 5 miles (8 km) of the place they were grown up. Urban areas are, however, magnets for migration, both international and domestic. As such, those in rural areas are more likely to have ancestors who lived close to their current address. Given this, a model of vertical transmission of attitudes from parents to children would predict more persistence in rural compared to urban areas.

We therefore begin by splitting the sample by the 2011 rural–urban status of the neighbourhood using data from the Office of National Statistics ([ONS, 2011](#)).³⁵ Column 1 reports the results of regressions of the form of estimating Equation 1 with controls as per Column 4 of Table 2, but with the sample limited to rural neighbourhoods. Column 2 does the same for urban areas. The results reveal that the effect of black troops on BNP membership is about twice as large in rural areas as in urban areas. In fact, the effect in urban areas is not statistically significant at any conventional level, despite a larger sample size.

In Columns 3 and 4, we investigate heterogeneity according to the share of the non-white population in 2011. In areas with larger non-white populations, individuals have more opportunities to update their beliefs about non-whites, and we would therefore expect less

35. The Office of National Statistics classifies neighbourhoods as belonging to one of four urban categories or six rural categories based on the typical settlement of the households in the neighbourhood. Urban categories are major conurbation, minor conurbation, city and town, city and town in sparse setting. Rural categories are town and fringe, town and fringe in sparse settings, village, village in sparse setting, hamlets and isolated dwelling.

TABLE 4
Effect on BNP membership, heterogeneity

	Dependent variable:			
	BNP members per 100,00 whites (std.)			
	(1) Rural	(2) Urban	Non-white share	
(3) Bottom quartile			(4) Top quartile	
Black unit-months (std.)	-0.031*** (0.008)	-0.015 (0.01)	-0.037** (0.02)	-0.022 (0.03)
Support unit-months	✓	✓	✓	✓
Economic controls	✓	✓	✓	✓
Geographic controls	✓	✓	✓	✓
Clusters	196	204	63	61
Observations	15,659	33,006	13,233	10,415

Notes: Each column reports coefficients and standard errors from an Ordinary Least Squares (OLS) regression. Outcome is BNP members per 100,000 white inhabitants. Column 1 includes only neighbourhoods in rural areas, Column 2 only neighbourhoods in urban areas, and Column 3 (4) only neighbourhoods in local authority districts with a bottom (top) quartile non-white share. Independent variables and clustering as per Table 2. One, two, and three stars indicate significance at the 10%, 5%, and 1% levels, respectively.

persistence compared to areas which are still predominantly white. To test this hypothesis, the regression reported in Column 3 includes only neighbourhoods which are part of a local authority area with a bottom-quartile share of non-whites, in Column 4 we only include those with a top-quartile share of non-whites. We indeed find that the effect of black G.I.s is almost twice as large in areas which are predominantly white.

Our results align with the findings in Voigtländer and Voth (2012), who demonstrate that the persistence of anti-Semitism in Germany across a period of 600 years “fails” in cities which are open to trade and migration.

5.4. Assessing the effect size

The regression results reported in this section so far have displayed a consistent pattern: a 1-standard deviation increase in black unit-months led to a 0.02- to 0.03-standard deviation decrease in BNP membership. Using the summary statistics reported in [Supplementary Table A2](#), this effect implies that increasing all bases in a postcode district by in total 31 *BlackUnitMonths_j* (e.g. one base hosting an additional two black units for a little more than a year) decreases BNP membership by around 10%. Importantly, these small effect sizes are the result of an intention-to-treat approach (ITT), since not every British person in the vicinity of a US Army base would have interacted with American troops, especially since the presence of American troops in the UK was of limited duration. Furthermore, the effect might have worn off over time due to intergenerational decay.

To convert our ITT estimates to a sensible average treatment effect on the treated (ATOT), we proceed in three steps. First, in the spirit of [Perez-Truglia and Cruces \(2017\)](#), we scale the ITT estimates by the share of the population directly exposed to the treatment. Second, we then incorporate the effects of decay among the treated population, and third, we analyse how spillover effects on the non-treated population could have influenced the ATOT estimate. Since many of these scaling decisions involve assumptions, we will present our preferred scaled effect alongside a more conservative estimate.

In the absence of reliable information on the share of the population having contact with black G.I.s, we utilize US Army survey “Attitudes Towards The British” (S-122). In the survey, soldiers answered how many English families, English men in the armed forces, English girls in the armed forces, English civilian girls, as well as older English civilian men and women they had gotten to know. The answering scale went from (a) none, (b) one or two, (c) several to (d) a fairly large number. To convert this scale to numbers, we enlisted 100 US residents through surveymonkey.com and asked them to provide us with a sensible estimate for (c) and (d). After eliminating 12 responses where the number provided for (c) was larger than for (d), we obtain a median answer of 7 for (c) and of 20 for (d). For (b), we choose the midpoint of 1.5.

Based on these numbers, we estimate that each American soldier knew an average of 23.54 British people. With approximately 130,000 black G.I.s serving in the UK, up to 3.06 million British people would thus have had at least some interactions with black soldiers, out of a total population (according to the 1931 census) of 16,774,835 residing in treated areas, or about 18.24%. This likely constitutes a considerable overestimation, as many soldiers may have met locals from the same set of people. We therefore regard it as a conservative estimate of the treated population, and thus of the ATOT estimate. A more realistic approach, and our preferred estimate, would be to assume that only 50% of all G.I.-local interactions were unique, such that 9.12% of the overall population had been treated. Scaling our ITT estimate in column 4 of Table 2 of 0.023 by a treated population of 9.12% yields an ATOT estimate of 0.252 of a standard deviation, already a quite sizeable effect on both, the contemporaneous and the historical population. Under the more conservative assumption of 18.24% of the population being treated, we would still observe an ATOT estimate of 0.126 of a standard deviation.

Such an ATOT estimate, however, neglects the intergenerational decay that may have taken place and thus obfuscate the magnitude of the estimated effect at the time of treatment. Psychologists have found parent–child transmission rates of between 0.2 and 0.4 for racism in other countries (see *e.g.* Duriez and Soenens, 2009; Dhont and Van Hiel, 2012). We use 0.3 as our preferred transmission rate, and regard 0.4 as a more conservative approach. Assuming that the effect always transmits with 0.3 to the next generation, and dividing the 2010 population of England and Wales into four generations since World War II, we can derive that intergenerational decay may have reduced the treatment to 0.2306 of its original strength.³⁶ Using the more conservative rate of 0.4 implies a reduction of the effect through intergenerational transmission to 0.3046. Scaling the previous ATOT estimate by our preferred transmission rate thus implies an updated ATOT estimate of 1.093 of a standard deviation (on the historical population). The more conservative transmission rate instead would still have yielded an effect of 0.414 of a standard deviation.

A counteracting factor, however, would be spillover effects from the treated on the indirectly treated (historical) population, effectively reducing the ATOT estimate at the time of treatment and contemporaneously. Political scientists and economists have estimated spillover effects in various contexts to be typically on the order of 50% of the original effect (see *e.g.* Duflo and Saez, 2003; Nickerson, 2008; Angelucci and De Giorgi, 2009), although our context may have been less conducive to spillovers given the size (and thus likelihood of interaction) of treated and untreated populations. Using 25% as our preferred estimate, we obtain an ATOT estimate of 0.875 standard deviations for the historical, and 0.202 standard deviations for the contemporary population. Taking 50% as the more conservative spillover rate, the ATOT estimate would instead

36. To divide the 2010 population of England and Wales into generations we proceed as follows. Those born before 1940 we categorize as the first generation (6.6% of the 2010 population), between 1940 and 1969 as the second generation (41.91%), between 1970 and 1999 as the third generation (39.58%), and since 2000 as the fourth generation (11.85%). Cutoffs are based on the fact that the average mother’s age at first birth in the UK is (and has been historically) approximately 30. The first generation is fully treated, the second generation only with 0.3, the third generation with 0.3², and the fourth generation with 0.3³.

amount to 0.084 standard deviations for the contemporary and 0.276 standard deviations for the historical population.

Our preferred estimate as well as the significantly more conservative estimate imply reasonably large effects both at the time of treatment and in the present. It is important to note that our estimates are effects that arise on top of any nation-wide effects of the presence of black G.I.s such as through national (news) media coverage.

6. ADDITIONAL OUTCOME MEASURES

In this section, we investigate the effect of black troops on three further measures of anti-minority prejudice. The outcome measure used so far, membership of the BNP, is appealing on account of being a “revealed” preference measure and being measurable for the entire population of the UK. However, it is also, as we have shown, a measure of *extreme* racial attitudes. Whilst extreme prejudicial attitudes probably have the most impact on minority individuals’ welfare (leading, *e.g.* to hate crime and overt discrimination), it is also of interest whether the presence of black G.I.s led to changes in attitudes more widely construed. We make progress on this question by presenting evidence that exposure to black troops also influenced electoral outcomes, on measured implicit anti-black bias and on reported attitudes. The findings in Section 5.3 showed that persistent effects of contact are primarily found in rural areas. We therefore restrict all analysis in this section to rural areas.

6.1. Local election results

First, we investigate whether exposure to black troops also affected election outcomes. This is a natural variable of interest and has the advantage of allowing us to document effects closer to the end of the war. General election results are not suitable for such an endeavour as data only exist at the rather large Westminster constituency level, whereas we expect any treatment to occur on a finer level.³⁷ Instead, we turn to local government elections, which take place between every 2 and 4 years and result in the election of local councillors. Data for each council in England and Wales are available at the electoral ward level from 1973 to 2012 through *The Elections Centre (Elections Centre, 2020)*.³⁸

Column 1 of Table 5 shows the result of regressions following the same basic empirical strategy as in Section 5, where the dependent variable now measures the share of votes for the BNP at the ward level in local elections between 2006 and 2012.³⁹ The dependent and independent variables are standardized as before. As stated before, we restrict the sample to electoral wards in rural areas.⁴⁰ The results show a statistically significant decrease in the BNP vote share in areas where more black GIs were stationed. Interestingly, the coefficient in Column 1 is very similar to the effect on BNP *membership* presented in Column 1 of Table 4, which is closest in terms of specification.

Columns 2 through 5 compare the BNP results with the Conservative vote share in rural areas between 1973 and 1985, 1986 and 1995, 1996 and 2005, and 2006 and 2012. This allows us

37. In [Supplementary Appendix G](#), we nonetheless present suggestive voting patterns from general elections. These are in line with the findings presented here for local elections.

38. These data are further described in [Supplementary Appendix G](#).

39. The BNP did not field candidates widely before the mid-2000s. Including all elections since the parties’ founding in 1982 does not significantly alter the findings.

40. The BNP vote share is highly skewed, [Supplementary Table A19](#) therefore explores robustness to transformations of the dependent variable. [Supplementary Table A17](#) shows the BNP results including urban wards, and [Supplementary Table A18](#) does the same for Conservative voting.

TABLE 5
Effect on voting in local elections in rural areas

	BNP		Conservative		
	(1) 2006–12	(2) 1973–85	(3) 1986–95	(4) 1996–2005	(5) 2006–12
Black unit-months (std.)	−0.036** (0.01)	−0.052** (0.03)	−0.070** (0.03)	−0.056 (0.04)	−0.00033 (0.04)
Support unit-months	✓	✓	✓	✓	✓
Year fixed effects	✓	✓	✓	✓	✓
Grid-cell fixed effects	✓	✓	✓	✓	✓
Economic controls	✓	✓	✓	✓	✓
Geographic controls	✓	✓	✓	✓	✓
Clusters	165	145	151	162	166
Observations	2,812	5,153	4,348	3,249	2,819

Notes: Each column reports coefficients and standard errors (in brackets). The unit of observation is the electoral ward, restricted to wards in rural output areas. The dependent variable is either the standardized vote share for the BNP or the Conservative Party. All independent variables and clustering as per Table 2. All regressions feature year fixed effects. One, two, and three stars indicate significance at the 10%, 5%, and 1% levels, respectively.

to capture outcomes closer to the time of treatment. During much of the 1970s, 1980s, 1990s and possibly the early 2000s (not significantly for 1996–2005, although the coefficient size is suggestive of a similar effect to the previous two columns) exposure to black troops depressed Conservative voting. With the widespread fielding of BNP candidates in the mid-2000s, this effect disappears (Column 5).

These results make sense, as large numbers of candidates from far-right parties only began to stand for election in the early 2000s.⁴¹ However, racist ideologies were on view within parts of the Conservative Party during the mid-1960s.⁴² These ideologies were particularly appealing to the more disillusioned sections of the electorate, which felt strongly about immigration (Rich, 1986, p. 54).

Of course, this is not to say that racial attitudes were ever the primary motivation for voting Conservative for the majority of their supporters. Therefore, we would like to interpret the Conservative voting results presented in Table 5 only jointly with the results for the BNP. They suggest that exposure to black troops depressed the Conservative vote at a time where at least some of the Party's representatives espoused racist views, but that the effect attenuated after the BNP established itself as a credible political force.

6.2. Implicit attitudes

Next, we show that presence of black troops has had persistent effects on *implicit* anti-black attitudes. Implicit attitudes have been shown to be predictive for outcomes in a variety of domains when measured by a computerized test.⁴³

41. The National Front (NF), the predecessor of the BNP, was relatively successful in some council elections during the mid-1970s but never fielded candidates widely.

42. For example, during the 1964 general election, Conservative candidate Peter Griffiths did not distance himself from supporters reportedly using the slogan “if you want a nigger for a neighbour, vote Labour” and publicly supported actions attempting to enforce racial segregation in housing. Perhaps the most well-known example of racist policy positions within the Conservative party can be found in MP Enoch Powell's “Rivers of Blood” speech in 1968, which was widely perceived to amplify racial hatred. In 1970, 63% of supporters of Powell self-identified as Conservatives, while only 16% of those not rating him highly did (Rich, 1986, p. 54).

43. Amongst these, Agerström and Rooth (2011) find that hiring managers' discrimination against obese job applicants is predicted by a test that measures implicit attitudes towards the overweight. In an incentivized experiment,

We use data from Project Implicit (Xu *et al.*, 2014), an American non-profit organization which hosts several country-specific websites allowing users to test their implicit attitudes using various “IATs”. IATs are widely used in psychology (see Greenwald *et al.*, 1998, for a review), and increasingly in economics, as a way of measuring implicit attitudes (*e.g.* Lowes *et al.*, 2015). The test can be applied to measure implicit associations on any topic, but the most common application has been to race. A consistent finding (at least in the US) is of a strong automatic preference towards white people, although there is considerable variation in race IAT scores between individuals. A full description of the test is given in [Supplementary Appendix F](#).

Project Implicit hosts IATs on a range of subjects (*e.g.* gender, sexuality, weight), but by far the most popular test is that for race. After completing the race IAT, subjects are asked to answer several questions regarding their attitudes towards religion, minorities, politics and supply their postcode and general demographics. About half of UK residents taking the IAT do so on Project Implicit’s US rather than UK website. Following an IRB exemption, we received a data set containing all data collected by the UK and US IAT websites between 2004 and 2013.⁴⁴ The data set from the UK website contains around 240,000 started sessions, 90,000 of which were seen through to completion. Of these, valid postcode data are provided in 25,826 sessions. We make no claims about the representativeness of the sample: the median age of participants is 29 years, compared to 40 for the population, and roughly two-thirds of the participants are male. Subjects are also better educated than the population as a whole. Nonetheless, the sample contains individuals from throughout the UK (all 348 of England and Wales’ local government districts are represented) and of a wide range of ages (13–89).⁴⁵

In order to test whether contact with black G.I.s has had persistent impact on IAT scores, we follow the same basic empirical strategy as in Section 5, but now run individual-level regressions on the “D” score, the summary metric produced by the test, which is also standardized to have mean zero and a standard deviation of one. Higher scores indicate a stronger automatic association of positive words with white faces, with a score over zero indicating implicit racial bias towards whites (Greenwald *et al.*, 1998). As before, we restrict our results to rural districts.⁴⁶ Results are presented in Columns 1–3 of Table 6 and show that the presence of black troops significantly decreases implicit bias against blacks.

6.3. *Thermology*

Using the same data set as above, we now examine the effect of the presence of black troops on stated attitudes. After completing the IAT, participants are asked a range of survey questions, including a number of “thermology” questions of the form “Please rate how warm or cold you feel towards the following groups (0 = coldest feelings, 5 = neutral, 10 = warmest feelings)”. We take as our dependent variable the thermology score measuring warmth of feelings towards black people and we control for the thermology score towards white people. Results are displayed in Columns

Stanley *et al.* (2011) show that white subjects’ implicit racial attitudes predict their judgement about the trustworthiness of randomly matched black partners, even conditional on their reported racial attitudes.

44. A public version of the US data set, without zip codes, is available via the Open Science Framework at <https://osf.io/y9hiq/>

45. Curiosity seems to be the main driver for participation in the test. The most common stated reasons for coming to the website are the recommendation of a friend and mention in news articles. Around 20% of tests in the data set were conducted in the days after the BBC publicized the test on its news website in April 2005 under the headline “Are you racist? The test that claims to know” (BBC, 2005).

46. [Supplementary Table A20](#) shows the results including urban areas.

TABLE 6
Effect on implicit anti-black bias and warmth of feelings towards blacks

	Implicit attitudes			Thermology		
	Degree of bias favouring Whites			Warmth of feelings towards Blacks		
	(1)	(2)	(3)	(4)	(5)	(6)
Black unit-months (std.)	-0.0653*** (0.0224)	-0.0682*** (0.0229)	-0.0719*** (0.0246)	0.0486** (0.0239)	0.0609** (0.0288)	0.0678** (0.0281)
Support unit-months	✓	✓	✓	✓	✓	✓
Demographic controls		✓	✓		✓	✓
Grid fixed effects		✓	✓		✓	✓
Economic controls			✓			✓
Location controls			✓			✓
Clusters	157	157	157	157	157	157
Observations	1,434	1,426	1,424	1,392	1,385	1,383

Notes: Each column reports coefficients and standard errors (in brackets). The unit of observation is the individual, and the sample is restricted to rural districts. The dependent variable is the standardized measure of implicit anti-black attitudes from the IAT (Columns 1–3) and the reported thermology score, indicating how warmly individuals feel on a scale from 0 to 10 towards black people (Columns 4–6). In the latter, all regressions control for thermology scores towards white people. Demographic controls are age, age squared, and gender. Economic controls are: population density (in the 1931 parish), the share of employment due to the agricultural sector, the professional sector, the staple sector, the light sector, and other sectors (in the 1931 local government district), and a dummy variable for urban status (1931 local government district). Geographic controls are distances to the coast, the nearest large city, the nearest city, and the nearest urban district. All other independent variables and clustering as per Table 2. One, two, and three stars indicate significance at the 10%, 5%, and 1% levels, respectively.

4–6 of Table 6. Because of how the question is phrased, a positive coefficient indicates warmer feelings towards black people (the opposite of our implicit bias measure reported in Columns 1–3). We indeed find a positive and statistically significant relationship between warmth of feelings to black people and the historic presence of black troops.

7. MECHANISM

In order to make some progress around understanding channels of persistence, in particular the role of horizontal versus vertical transmission, as well as strengthening the contact hypothesis interpretation of the observed effect, we proceed in two steps. First, we show that pre-World War II Irish and non-white migration substantially dampens our estimated treatment effect. Areas to which these groups migrated may have already had more tolerant attitudes, either because pre-World War II migrants selected into more tolerant areas or through contact. If contact has diminishing marginal impacts, this would result in lower treatment effects in such areas. Second, we provide some descriptive evidence of vertical transmission by splitting the IAT results by birth cohorts and showing that the effect is more prevalent in cohorts which are likely to be descendants of those coming into contact with troops during World War II, consistent with vertical transmission of attitudes.

7.1. *Irish and non-White migration*

As the results in Table 1 show, neither existing Irish nor non-white migration to the UK by 1911 can predict where black units were stationed. Areas to which these groups migrated, however, may have had more tolerant attitudes directly prior to World War II, both because migrants may have self-selected into a more open environment, or because contact between them and the local

TABLE 7
Effect on BNP membership split by quartiles of migration

	Bottom Quartile		2nd Quartile		3rd Quartile		Top Quartile	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Irish migration								
Black unit-months (std.)	-0.0289** (0.0120)	-0.0311** (0.0129)	-0.0181 (0.0195)	-0.0282 (0.0215)	-0.0298 (0.0301)	-0.0504* (0.0294)	-0.0146 (0.0109)	-0.0164 (0.0113)
Clusters	194	194	178	178	174	174	184	184
Observations	12,524	12,515	13,377	13,377	9,972	9,972	12,859	12,801
Panel B: Non-white migration								
Black unit-months (std.)	-0.0308** (0.0117)	-0.0319** (0.0141)	-0.00541 (0.0155)	-0.0199 (0.0129)	0.00334 (0.0198)	-0.0186 (0.0218)	-0.109 (0.0986)	0.0107 (0.109)
Support unit-months	✓	✓	✓	✓	✓	✓	✓	✓
Grid-cell fixed effects		✓		✓		✓		✓
Economic controls		✓		✓		✓		✓
Location controls		✓		✓		✓		✓
Clusters	89	89	67	67	54	54	24	24
Observations	19,791	19,763	15,930	15,925	9,481	9,466	3,530	3,511

Notes: Each Column reports coefficients and standard errors from an Ordinary Least Squares (OLS) regression. The dependent, all independent variables, and clustering as per Table 2. Columns vary according to the share of the Irish (panel A) or non-white (panel B) population in the 1911 census. Columns 1 and 2 show the lowest quartile, 3 and 4 the second quartile, 5 and 6 the third quartile, and 7 and 8 the top quartile. One, two, and three stars indicate significance at the 10%, 5%, and 1% levels, respectively.

population may have mitigated pre-existing racial prejudice, thereby reducing potential for further effects of contact.⁴⁷

Panel A of Table 7 shows the results for BNP membership when we split the sample into quartiles using the 1911 share of Irish migrants in a parish. Columns 1 and 2 show the quartile with the lowest share of Irish migrants, the next four columns show the second and third quartile, respectively, and Columns 7 and 8 show the effect for the quartile with the highest share of Irish migrants. The results indicate that those areas that saw the fewest Irish migrants before 1911 drive most of the observed effect and the estimates for the top quartile are hardly distinguishable from zero. Panel B repeats this exercise by splitting the sample in quartiles using the 1911 share of non-white migrants in a parish with similar results.

7.2. IAT Splits

In order to better understand whether our interpretation of the rural/urban splits in the BNP data is really about vertical, rather than horizontal transmission, we now present some descriptive evidence from the IAT data that lends further support to such a mechanism. The IAT data contain information on the age of participants, allowing us to divide participants into birth cohorts. We group participants based on their year of birth: those born before 1940, between 1940 and 1949, 1950 and 1959, 1960 and 1969, 1970 and 1979, 1980 and 1989, and 1990 and 2000.

We would expect those born between 1925 and 1940 (children and young adolescents during the war) to be directly affected. Under a model of vertical transmission, these treated individuals

47. These two groups of migrants seemed to have moved to different areas, as their presence within locations is not correlated ($\rho = -0.0055$, p -value = 0.5561). Note that while Irish migration is not significantly correlated with rural/urban status of a local government district ($\rho = 0.0289$, p -value = 0.2266), non-white migration is ($\rho = 0.3421$, p -value = 0.0000). As pointed out earlier, non-white migration focused particularly on few larger cities.

TABLE 8
Implicit attitudes and thermology: age splits

	All	1940–59	1960–69	1970–79	1980–9	1990–2000
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Implicit attitudes						
Black unit-months (std.)	−0.0719*** (0.0246)	0.00282 (0.106)	−0.141 (0.0907)	−0.0333 (0.0800)	−0.0790 (0.0544)	−0.0376 (0.0782)
Clusters	157	94	112	111	123	75
Observations	1,424	211	296	285	453	167
Panel B: Thermology						
Black unit-months (std.)	0.0678** (0.0281)	0.0431 (0.0619)	0.0961* (0.0563)	0.0148 (0.0563)	0.0978* (0.0582)	0.102** (0.0433)
Support unit-months	✓	✓	✓	✓	✓	✓
Demographic controls	✓	✓	✓	✓	✓	✓
Grid fixed effects	✓	✓	✓	✓	✓	✓
Economic controls	✓	✓	✓	✓	✓	✓
Location controls	✓	✓	✓	✓	✓	✓
Clusters	157	89	110	111	123	75
Observations	1,383	196	287	282	445	166

Notes: Each column reports coefficients and standard errors (in brackets). The unit of observation is the individual. The dependent variable is the standardized measure of implicit anti-black attitudes from the IAT (panel A) and the reported thermology score, indicating how warmly individuals feel on a scale from 0 to 10 towards black people (panel B). In panel B, all regressions control for thermology scores towards white people. All independent variables and clustering as per Table 6. One, two, and three stars indicate significance at the 10%, 5%, and 1% levels, respectively.

would pass the effect on to their children. The average age of a mother at first birth in the UK is, and historically has been, around 30 years, such that a model of vertical transmission would predict that the effect is next observed in the cohort born between 1960 and 1969. Horizontal transmission, instead, does not prescribe such generational jumps, as the effect persists through geography. Instead, we would expect the effect to be particularly strong shortly after the initial treatment, that is the late 1940s and 1950s.

We present separate regressions for each of the previously defined age categories, in panel A of Table 8 for implicit attitudes and in panel B for the thermology question. Column 1 in both panels restates the overall effect as in Columns 3 and 6 of Table 6. When analysing birth cohorts, we omit those born before 1940 due to the low number of observations (12 for the IAT, 7 for the thermology question). For the same reason, we pool the 1940–9 and 1950–9 birth cohorts. Even having done so, the number of observations is quite low for each cohort. We therefore do not wish the reader to draw strong conclusions from the findings, but rather regard the results as indicative and in line with the proposed mechanism.

Vertical transmission seems to be the more likely mechanism for persistence, as panels A and B of Table 8 show no effect in Column 2 similar to the one in Column 1.⁴⁸ In both panels, the 1960–9 cohort displays an effect similar to the overall effect, although for the implicit attitudes the results barely miss conventional significance levels.

For the cohorts 1970–9, 1980–9, and 1990–2000, the effects seem to diffuse, as the coefficients all go in the same direction as the overall effect, albeit not significantly in the case of implicit attitudes, and only starting 1980 for the thermology question. This squares again well with vertical transmission, as the variation in parents' age at birth should water down a strong cohort effect

48. We obtain similar results when not pooling the 1940–9 and 1950–9 cohorts.

the further one moves in time. Clearly, these results speak against horizontal transmission, in which one would expect strong effects for early cohorts (possibly with some decay over time), but clearly no “generational jumps”.

Importantly, these regressions are based on a small number of observations, such that we cannot rule out that the non-existence of results is due to a lack of power. With such large standard errors, different signs and magnitudes of the coefficient are not very unlikely. But even then, the additional gain in power from moving from 1940–59 to 1960–9 is not so large that we would expect it to explain the difference in findings. Therefore, we prefer to interpret them as suggestive of vertical, rather than horizontal, transmission of racial attitudes.

8. CONCLUSION

We have investigated the effect of the presence of black American troops in the UK during World War II on anti-minority prejudice. Large numbers of black G.I.s were posted in the UK at a time where the population was almost exclusively white. Documentary evidence suggests that the allocation of black troops to military bases in the UK took place without consideration of local racial attitudes, and we show that the allocation is orthogonal to a large set of economic, political, and social variables. As such, variation across bases as to the number of black units posted allows us to identify causal effects of the local presence of troops.

We found that areas of the UK in which black soldiers were posted during World War II contained fewer members of the BNP, a far-right party with racist policy positions, in 2009. The effect is particularly strong in rural areas—that is, areas where population movements are lower and which remain predominantly white. In addition, individuals in such areas exhibit less implicit anti-black bias, as measured by a computerized IAT, are more likely to report warmer feelings towards black people and cast fewer votes for the BNP in local elections. Taken as a whole, our results provide support for the “contact hypothesis” (Allport, 1954), which postulates that contact between groups can reduce animosity towards the minority group, and show that such effects can persist in geographies across time.

It is interesting to note that the contact which we describe meets many of the conditions that Allport postulated were necessary for intergroup contact to lead to improved relations: equal status, common goals, intergroup cooperation, and personal interaction. Black G.I.s were in the UK for a relatively short period of time, to support the war effort, and did not compete for jobs or public goods with the local population. Furthermore, black troops in the UK were relatively well educated. This may have been a facilitating factor in creating the positive nature of interaction between soldiers and the local population. With these particular circumstances in mind, we would like to stress that we do not claim our findings to be generalisable to every possible setting, no matter how different the mode of contact is. Rather, our work demonstrates one instance in which contact can work (*i.e.* when Allport’s conditions are fulfilled) and can have persistent effects. As the anecdotal evidence in this paper described, updating towards white soldiers may have evolved differently, emphasizing the importance of interaction quality. More work is required to understand how the *mode* and *circumstances* of interaction between groups affect any changes in attitudes that contact might produce (Lowe, 2018).

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Supplementary Data

Supplementary Appendix are available at *Review of Economic Studies* online.

Data Availability Statement

The data and code underlying this article are available on Zenodo, at <https://doi.org/10.5281/zenodo.3923957>. Some of the data were provided by a third party and require IRB approval, as explained in the replication package.

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