

# Crimes Against Nature: The Colonial Roots of Homophobia in Sub-Saharan Africa\*

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## Abstract

Anti-gay prejudice in Sub-Saharan Africa is often justified as being deeply rooted in the region's societies, but anthropologists contend that homophobia largely emerged during the colonial period. We test the hypothesis that Portuguese rule generated less anti-gay prejudice by limiting missionaries' influence over education (culture) and by not fully criminalizing same-sex sexual activity until the eve of decolonization (institutions). Using georeferenced Afrobarometer data and ethnic homeland fixed effects in a regression discontinuity design along national borders, we find substantially less negative attitudes toward homosexuals—but not other outgroups—just inside former Portuguese colonies. The most important mechanism appears to be historical differences in missionary activity. We highlight the global costs of this colonial legacy of prejudice by showing that greater shares of UK asylum claims from nationals of more homophobic African countries are based in part on sexual orientation, including 45% of all applications by Ugandans.

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## 1. Introduction

Anti-gay prejudice in Sub-Saharan Africa is frequently portrayed as a longstanding cultural tradition, thus justifying why most survey respondents report strong antipathy toward homosexuals and some countries even impose the death penalty for consensual same-sex sexual activity ([Afrobarometer, 2025](#); [ILGA World, 2025](#)). Yet historians and anthropologists dispute this narrative by pointing to evidence of diverse forms of same-sex relationships and gender nonconformity prior to colonial rule and arguing that anti-gay attitudes and laws stem primarily from Victorian-era sodomy statutes and Christian missionary education that redefined sexual diversity as deviance ([Epprecht, 2008](#); [Mehra, Lemieux and Stophel, 2019](#)). The importance of this debate is clear: the effectiveness of policies to combat homophobia in the region depends on whether it is deeply rooted, and if not, it provides an opportunity to examine how colonial rule continues to structure beliefs and the boundaries of social inclusion decades after independence ([Acemoglu, Johnson and Robinson, 2001](#); [Nunn and Wantchekon, 2011](#); [Alesina and Giuliano, 2015](#)).

In this paper, we test the colonial origins of Sub-Saharan African homophobia by exploiting differences in European powers' attempts to regulate their subjects' private lives through laws and religion. In particular, [Gomes da Costa Santos and Waites \(2019\)](#) note that Portugal was an outlier in both when it criminalized same-sex sexual activity in its colonies (far later than in British ones) and in its missionaries' main focus ("civilizing" through labor rather than education). As such, their hypothesis is that places Portugal once ruled should have systematically less negative attitudes toward homosexuals today.

We first compile cross-country data on laws and attitudes in Sub-Saharan Africa. In a number of ways, we find that former Portuguese colonies are indeed less homophobic. With respect to legal regimes, data from the ILGA World Database show that all five of them have decriminalized same-sex sexual activity and four of them have banned discrimination in employment based on sexual orientation. In contrast, this form of sexual activity is illegal in the majority of former British and French colonies—punishable in nine cases by sentences of life in prison or the death penalty—and only a few have comparable employment non-discrimination statutes. Using Afrobarometer survey data, we also find that countries once ruled by Portugal have among the least negative views of homosexuals but not of any other outgroup, implying a homophobia-specific effect.

We then turn to microdata from georeferenced Afrobarometer surveys ([Afrobarometer, 2025](#)), which we use in a regression discontinuity (RD) design along the national borders of former Portuguese colonies that compares respondents within an ethnic group homeland ([Murdock, 1959](#); [Michalopoulos and Papaioannou, 2014](#)). Our RD results mir-

ror the cross-country ones: attitudes toward homosexuals are substantially less negative just inside Angola and Mozambique.<sup>1</sup> The effect is large in magnitude and precisely estimated, and it again does not generalize to prejudice against other outgroups.

In our investigation of proximate causes, we find that the share of Protestants decreases dramatically in former Portuguese colonies—but instead of having far more Catholics, these countries have much higher shares of respondents with no religion. Interestingly, subjective ratings of living conditions are better and rates of secondary schooling are lower on the former Portuguese side, suggesting that socioeconomic factors do not explain the discontinuity in anti-gay attitudes. With respect to historical channels, we also find decreases just inside Angola and Mozambique in measures of colonial state capacity (i.e., distance to the nearest colonial capital) and 1920s missionary presence (Hedde-von Westernhagen and Becker, 2022). A mediation analysis implies that colonial-era missions consistently account for the largest share of the homophobia discontinuity (10%), in line with cross-sectional evidence (Ananyev and Poyker, 2021).

Finally, we highlight the global costs of this colonial legacy: in the UK, nationals of more homophobic Sub-Saharan African countries are more likely to seek asylum based at least in part on sexual orientation, including in an astounding 45% of claims by Ugandans. Given the extremely high costs of housing and supporting asylum seekers in the UK (Mitchell and Hughes, 2024), which have contributed to large and violent anti-immigration protests (Mackintosh, 2025; Raji, 2025), these results illustrate how persecution risks in countries of origin can have real-world consequences abroad.

As such, this paper contributes to several literatures. First, it adds to work on the long-run effects of colonial rule (e.g., Acemoglu, Johnson and Robinson, 2001; Nunn, 2008; Dell, 2010; Michalopoulos and Papaioannou, 2014) by extending the scope of inquiry into social attitudes toward a stigmatized minority (Becker, 1957). We also build on studies of culture and institutions (e.g., Guiso, Sapienza and Zingales, 2006; Tabellini, 2010; Alesina and Giuliano, 2015). Whereas much of this work examines broad cultural traits such as trust, cooperation, or civic norms (e.g., Nunn and Wantchekon, 2011; Lowes et al., 2017), we study a targeted moral attitude with direct political salience (Glaeser, 2005) and provide evidence linking colonial-era religious infrastructure to contemporary beliefs. Third, we contribute to the emerging economics of sexual orientation and gender identity, in which the evidence is heavily skewed toward high-income countries (Badgett, Kreider and Meyer, 2021; Badgett et al., 2024). Our analysis expands this empirical base beyond these contexts and shows how colonial institutions and missionary environments can have lasting impacts on prejudice and exclusion.

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<sup>1</sup> Guinea-Bissau data are not available, and Cape Verde and Sao Tome and Principe are island nations.

## 2. Background

Murray and Roscoe (1998) and Mehra, Lemieux and Stophel (2019) provide overviews of the evidence that same-sex relationships were prevalent in a wide range of precolonial African societies. Beginning most notably with Evans-Pritchard (1970), these studies contradicted the narrative from previous centuries that if “Africans were the most primitive people in all humanity ... then they had to be the most heterosexual” because biological reproduction is the most primitive activity (Murray and Roscoe, 1998, p. xi).

### 2.1. Colonial Sodomy Laws and Missionary Education

Portuguese academics and officials largely subscribed to this view, believing that homosexuality was an urban and wealthy phenomenon, so there was little need to apply Portugal’s sodomy law to the colonies. Indeed, when it finally happened in 1954, it was done in the context of concerns over recent white settlers paying Africans for sex (Gomes da Costa Santos and Waites, 2019). This approach was essentially the midpoint between the French and British ones: the Napoleonic Code had decriminalized same-sex sexual activity in France (and Belgium), so it was never illegal in these colonies, whereas Britain’s sodomy law applied in its African territories from the late nineteenth century.

Portugal was more distinct in terms of its provision of education (or failure to do so): by 1909, there were only fifty-six primary schools in Mozambique and sixty-nine in Angola (Duffy, 1963). The schools that did exist were run primarily by Catholic missionaries, who were charged in a 1941 agreement with the Vatican with providing a “moral education [that] shall aim at curing laziness and preparing future rural workers and craftsmen to produce what they need to satisfy ... their social obligations” (as cited in Ferreira, 1974, p. 67). In contrast, the British relied heavily on Protestant missionaries to provide education—a 1953 Colonial Office report noted that “deep and sincere religious belief [should be] the basis of all education ... [as] religious and character training[] is of the greatest importance” (as cited in White, 1996, pp. 18-19)—while the French supported Catholic missionary activity but offered a secular education in the state-run system (Daughton, 2006). As such, Gomes da Costa Santos and Waites (2019) contend that the transmission of missionary values was much stronger in British colonies than in Portuguese ones, and we view the French colonies as falling somewhere in between.

### 2.2. (De)criminalization of Same-Sex Sexual Activity After Independence

Upon independence, which generally occurred in the 1960s, many colonial-era criminal codes remained in place, so same-sex sexual activity was still illegal in former British

and Portuguese colonies and legal in former Belgian and French ones. Figure 1a shows the changes in these laws over the past 65 years using information from the ILGA World Database. The first shift was in 1966 when Senegal criminalized this conduct, the maximum punishment for which was five years in prison. As detailed in Appendix A1, five more countries once ruled by France did the same over the next two decades, culminating in 1983 with Mauritania making the maximum sentence for Muslim men the death penalty by public stoning. More recently, the former Belgian colony of Burundi and five other former French ones have passed laws imposing prison terms of up to ten years.

However, there has also been movement in the opposite direction by countries once ruled by Britain and Portugal, especially the latter. The first on the continent to decriminalize same-sex sexual activity was Guinea-Bissau in 1993—at the same time as Ireland—and by 2021, the four other former Portuguese colonies had as well. Among countries that inherited British anti-sodomy laws, South Africa was the first to decriminalize same-sex sexual activity in 1998, and three of its five neighbors (Lesotho, Botswana, and Namibia) plus two island nations (Seychelles and Mauritius) repealed them by 2024.<sup>2</sup> But the situation is very different outside of the continent’s southern tip, as none of these former British colonies has repealed its laws.

### 2.2.1. *Maximum Sentences*

Figure 1b shows countries’ present-day maximum sentences for consensual same-sex sexual activity. For those once ruled by Britain and France, there are clear bimodal distributions: one peak is around non-criminalization but the other is around the most draconian punishments—life sentences (five countries) and death penalties (three)—in former British colonies and five-year prison sentences in former French ones. Conversely, it is not illegal in two of the three countries formerly ruled by Belgium, though Burundi imposes a sentence of up to two years in prison.

### 2.3. *Employment Non-Discrimination on Basis of Sexual Orientation*

Similar patterns in laws providing employment protections based on sexual orientation are visible in Figure 1c. South Africa was the first on the continent to pass such a law in 1996, but among the former British colonies, only Seychelles, Botswana, and Mauritius subsequently followed suit. As such, once again the countries that were formerly ruled by Portugal are the clear outliers, as four of the five banned discrimination in employment due to sexual orientation between 2007 and 2021.

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<sup>2</sup> To keep the categories simple, we group South Africa and Namibia with countries formerly ruled by Britain because it was the source of their laws making same-sex sexual activity illegal.

#### *2.4. Attitudes Toward Homosexuals and Other Outgroups*

Next, we examine whether former Portuguese colonies are exceptional in survey measures of homophobia as well. We use data from Afrobarometer, which regularly assesses public opinion on a range of topics in more than thirty countries on the continent. Our outcome of interest is a respondent’s Likert scale rating—would strongly dislike, somewhat dislike, not care, somewhat like, or strongly like—of the prospect of having a member of the following outgroups as a neighbor: homosexuals, people of a different ethnicity, immigrants and foreign workers, and people of a different religion. We code these responses as integers from -2 to 2, interpreting larger negative numbers as stronger prejudice toward the group and higher positive numbers as greater affinity for it.<sup>3</sup>

These questions were asked in Afrobarometer rounds 6 (2014-15), 7 (2016-18), 8 (2019-21), and 9 (2021-22), so we pool these datasets and calculate a country’s mean Likert scale rating of an outgroup after adjusting for fixed effects for a respondent’s age and sex, the survey round, and the region in which a country lies. Figure 1d shows these values ranked from lowest to highest for each of the four groups, and two facts are immediately apparent. First, effectively every country has a negative average rating of homosexuals (top left panel) but positive ratings of all other groups. Additionally, the only clear pattern is that the four former Portuguese colonies with available Afrobarometer data are among the seven countries with the least antipathy towards homosexuals—a phenomenon that is made even more striking by their below-median levels of affinity for all other outgroups. Perhaps not surprisingly, the other countries in the top quartile of attitudes toward homosexuals are formerly British colonies that are island nations (Mauritius and Seychelles) or South Africa and one of its neighbors (Namibia).

### **3. Main Result**

In this section, we use an RD design along national borders to test whether these historical narratives and cross-country patterns are reflected in quasi-experimental evidence.

#### *3.1. Data*

We combine georeferenced Afrobarometer round 8 data from two former Portuguese colonies in Southern Africa (Angola and Mozambique) and seven adjacent countries (Eswatini, Malawi, Namibia, South Africa, Tanzania, Zambia, and Zimbabwe). Figure

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<sup>3</sup> We prefer this approach over, e.g., an indicator for strongly disliking a member of a given outgroup because it exploits all the available information and, as we discuss below, it avoids floor effects in our placebo tests because very few respondents express such strong antipathy toward the other groups.

2a shows the locations of survey clusters within 250 km of a border between Angola or Mozambique and their neighbors. Given the discussion in the previous section, it is important to note that because we are limited to these national borders, two of our seven adjacent countries are arguably the least homophobic ones on the continent that were not ruled by Portugal. As such, our estimates when including them should be smaller than when the sample contains only more typical former colonies.

### 3.2. Empirical Strategy

We use the georeferenced data in an RD design that tests for discrete changes in attitudes toward homosexuals along the former Portuguese borders. The estimating equation is

$$y_{i,c} = \alpha + \tau \text{Portuguese}_c + f(\text{Distance}_c) + \Gamma_i + \delta_{e(c)} + \epsilon_{i,c} \quad \text{for } c \in B_{\text{MSE}}^*, \quad (1)$$

where  $y_{i,c}$  is the outcome of interest for individual  $i$  in survey cluster  $c$ ,  $\text{Portuguese}_c$  indicates whether  $c$  is in Angola or Mozambique,  $f(\text{Distance}_c)$  is the RD polynomial in  $c$ 's distance to the nearest border between one of these countries and a neighbor,  $\Gamma_i$  is a vector of fixed effects for  $i$ 's predetermined characteristics (age and sex),  $\delta_{e(c)}$  is a fixed effect for the [Murdock \(1959\)](#) ethnic group homeland containing  $c$  (as in [Michalopoulos and Papaioannou, 2014](#)), and  $\epsilon_{i,c}$  is the idiosyncratic error term.

The coefficient  $\tau$  captures the average change in the outcome when crossing a border partitioning an ethnic group homeland between a neighboring country and a former Portuguese colony, which holds many geographic and cultural traits fixed. For estimation, we use a local linear RD specification ([Gelman and Imbens, 2019](#)), a triangular kernel that gives the highest weights to the observations closest to the border ([Cattaneo, Idrobo and Titiunik, 2020](#)), and the bandwidth that optimizes mean-squared error (MSE) to select the observations included in the sample ([Calonico, Cattaneo and Titiunik, 2014](#)). For inference, we cluster standard errors by first-level administrative unit (i.e., province or region), the minimum number of which is thirty-nine in the MSE-optimal bandwidths.

### 3.3. Homophobia

Table 1 Panel A column (1) contains the RD result for homophobia. We estimate that the average rating of homosexuals increases 0.84 Likert scale points just inside the former Portuguese colonies. This effect is almost two-thirds of the mean and 80% of the standard deviation (SD) in the adjacent countries, and it is very precisely estimated (SE 0.24). The corresponding RD plot in the top left panel of Figure 2b shows this discontinuity visually. Interestingly, despite the large discrete change in attitudes toward homosexuals,

very few Angolans and Mozambicans living near national borders have positive views of homosexuals. Instead, the treatment effect moves them from between a strong dislike and a slight one to between a slight dislike and indifference.

### 3.4. *Placebo Tests: Attitudes Toward Other Outgroups*

We then examine whether the improvement in attitudes toward homosexuals is part of a general pattern of greater tolerance for outgroups. However, the estimates in columns (2)-(4) strongly cast doubt on this notion: none is distinguishable from zero at conventional levels of significance and they are one-seventh to one-third of the size of the homophobia effect. In addition, all of these estimates are negative, which if anything makes the discontinuity in attitudes toward homosexuals more striking because it is strongly in the opposite direction of these slightly greater prejudices. The corresponding RD plots in Figure 2b show the absence of discrete changes at the border.

### 3.5. *Robustness Tests*

We take several steps to test the robustness of these results. First, because MSE-optimal bandwidths can change across outcomes, a shifting sample composition might create differences in the respective RD estimates. To address this concern, in Appendix B1 we present the results estimating equation (1) using bandwidths ranging from 50 to 250 km in 25-km increments and the wild cluster bootstrap due to the low number of provinces and regions in the sample when bandwidths are small (Cameron, Gelbach and Miller, 2008). In all cases, the estimates are stable around the values in Table 1, and the wild cluster bootstrap  $p$ -values for Likert scale ratings of homosexuals are almost entirely below 0.10. We also do the same process after switching to a uniform weighting kernel (Appendix B2) and a quadratic RD polynomial (Appendix B3), and our conclusions once again do not change, though confidence intervals are wider for small bandwidths when using the quadratic specification.

Additionally, because Afrobarometer policies limit us to a single round of georeferenced data from multiple countries, the density of survey clusters near former Portuguese borders might be too low for reliable RD estimation. We deal with this concern in Appendix B4 by using the Cattaneo, Frandsen and Titiunik (2015) randomization inference procedure across windows ranging from one to twenty survey clusters on each side of former Portuguese borders.<sup>4</sup> The results are strikingly consistent with those in

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<sup>4</sup> When using the maximum number of survey clusters, the randomization inference window extends 2 km into adjacent countries and 35 km into former Portuguese colonies.

Table 1: the estimates for attitudes toward homosexuals are of relatively large magnitude (around 0.5) as long as there is more than one cluster on each side, and randomization inference  $p$ -values are below 0.10 in fourteen of the twenty windows. In contrast, the estimates for the other outgroups when windows contain two or more clusters are smaller, almost uniformly negative, and none is statistically significant.

We also transform the outcome into an indicator for strongly disliking the prospect of having a member of an outgroup as a neighbor. The estimates in Appendix B5 are exactly in line with the main results above: the share that would strongly dislike a homosexual neighbor drops 41 percentage points (p.p.), or nearly two-thirds of the adjacent country mean, just inside Angola and Mozambique, while the estimates for the other outgroups are small, positive, and not distinguishable from zero. As anticipated, the RD plots in Appendix B6 show that floor effects may be a concern, though the mean being so high for homosexuals but so close to zero for other groups is informative on its own.

### 3.6. *Excluding South Africa and Namibia*

We view the evidence from these robustness tests as strongly supporting the internal validity of our main results. But because our data are limited to Southern Africa, the adjacent country sample includes South Africa and Namibia, which are outliers among former non-Portuguese colonies in their decriminalization of same-sex sexual activity and attitudes toward homosexuals. To understand what the effect sizes would be when comparing the former Portuguese colonies to more typical Sub-Saharan African countries, we exclude the observations nearest to the Angola-Namibia and Mozambique-South Africa borders and reestimate equation (1). In line with our prediction, the RD estimate for homosexuals in Appendix B7—a very precisely estimated 1.20—is 0.36 Likert scale points (43%) larger than the estimate in Table 1, whereas the other estimates are essentially unaffected. The RD plots in Appendix B8 show that this change arises almost entirely from lower ratings just inside the remaining adjacent countries.

## 4. Mechanisms

We then study the characteristics of respondents that give rise to this reduction in homophobia—but not any other prejudice—along former Portuguese borders.

### 4.1. *Proximate Cause: Religion*

Given the discussion in Section 2 of historical differences in missionary activity and their hypothesized effects on attitudes toward homosexuals, our first test of this channel is to

examine present-day religious affiliations. We do so by defining the outcome as an indicator for belonging to one of four major groups (Protestants, no religion, Catholics, or all others) and estimating equation (1). Table 1 Panel B presents these results. In column (1), there is a 42-p.p. decrease in the share of Protestants just inside the former Portuguese colonies, which is 58% of the adjacent country mean. Interestingly, the border effects in columns (2)-(4) reflect that Angolans and Mozambicans are primarily more likely to have no religion (23 p.p., or 46%), though more of them are also Catholic (10 p.p., or 71%) or have any other faith (11 p.p., or 138%). Each of these effects is precisely estimated, and the top panels of Figure 3a show the discrete changes in being Protestant and having no religion just inside the former Portuguese colonies.

We probe the robustness of these results in the same manner as above. Specifically, in Appendices C1-C3 we show the estimates and wild cluster bootstrap confidence intervals over a range of bandwidths when using our baseline specification, a uniform kernel, and a quadratic RD polynomial. In all three cases, the effects remain large and statistically significant for Protestantism and no religion but not Catholicism or all others. A similar pattern is also apparent when using randomization inference in Appendix C4, so we only use the two groups with robust results in the mediation analysis below.

#### *4.2. Proximate Causes: Assessment of Living Conditions and Secondary Schooling*

Next, we study whether outcomes related to economic development change discontinuously along former Portuguese borders. Our first measure in this domain is whether respondents rate their living conditions as fairly good or very good, as the perceived economic threat of an outgroup is an important determinant of attitudes toward it (Glaeser, 2005; Manstead, 2018).<sup>5</sup> Consistent with this notion, Table 1 Panel C column (1) shows a precisely estimated 22-p.p. increase in the likelihood of living conditions being assessed as good just inside the former Portuguese colonies, which is 110% of the adjacent country mean. This discontinuity is clearly visible in the bottom left panel of Figure 3a.

Because of links between Protestantism and education (Becker and Woessmann, 2009; Cagé and Rueda, 2016), the religion results above suggest that schooling levels might also differ along former Portuguese borders. If so, recent evidence from Europe suggests that the side with more schooling should have lower levels of prejudice (Cavaille and Marshall, 2019; Yang, 2022). However, we find the opposite in this context: in column (2) and the bottom right panel of Figure 3a, the share of respondents that have attended

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<sup>5</sup> For this reason, we view this variable's subjectiveness as a strength instead of a weakness. In addition, it captures the fact that country-specific frames of reference (e.g., recency of civil war or hyperinflation) can lead to different levels of satisfaction with the same objectively measured level of development.

secondary school decreases a precisely estimated 0.19 p.p. (34%) just inside Angola and Mozambique. One way to understand this finding is that the difference in education suppresses the difference in attitudes toward homosexuals; another possibility is that lower secondary schooling rates imply fewer Protestant schools that transmit anti-gay attitudes to their students. We test the first proposition in the mediation analysis below and further examine the link—or lack thereof—between schooling and homophobia in Sub-Saharan Africa in a companion paper ([Denton-Schneider and Garg, 2025](#)).

For both outcomes, the results are very much robust to the choice of bandwidth as well as using a uniform kernel or a quadratic RD polynomial (Appendices [C5-C7](#)), and the same is true when using randomization inference (Appendix [C8](#)). Thus, we include both of them in the mediation analysis.

#### *4.3. Historical Channels: Colonial State Capacity and Mission Presence*

We then look to the colonial period to understand the historical factors that may be at work in this context. Because they are measured at the survey cluster level, we collapse the data and estimate a version of equation (1) with only ethnic homeland fixed effects as controls. The first outcome is distance to the (closest) colonial capital, which we interpret as a proxy for a colony’s ability to impose its laws in territory it ostensibly governed ([Herbst, 2000](#); [Michalopoulos and Papaioannou, 2014](#)).<sup>6</sup> After performing a 90-percent winsorization to reduce the influence of outliers, Table 1 Panel C column (3) and the left panel of Figure 3b show that survey clusters just inside Angola and Mozambique are a precisely estimated 342 km (147%, or 1.6 SD) farther away from a colonial capital than those in adjacent countries. This finding suggests that the ability to enforce laws could have played a role in generating the homophobia effect.

The second historical factor we study is a survey cluster’s distance to the nearest 1920s-era mission, which we view as a measure of Christian missionaries’ ability to transmit the European values of that era to the African population. We use the digitized map from [Hedde-von Westernhagen and Becker \(2022\)](#), which contains more mission stations than other sources, a fact that can substantively affect empirical findings ([Jedwab, Meier zu Selhausen and Moradi, 2022](#)), and winsorize these values at 90 percent as well. The estimate in column (4) is of a 26-km (93%, or 0.8 SD) increase in this distance just on the Portuguese side of a former border, and it is statistically distinguishable from

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<sup>6</sup> We use two cities for Eswatini (present-day Manzini and Mbabane) and Mozambique (present-day Maputo and Mozambique Island) because administrators moved the capitals but the original sites retained important roles in the colonial state. See, e.g., the discussion in [Denton-Schneider \(2024\)](#) of how the locations of both Mozambican capitals determined which regions the Portuguese granted as concessions.

zero. The right panel of Figure 3b shows this clear discontinuity.

As with the previous outcomes, we examine whether these results change when varying the RD bandwidth, kernel, and polynomial order (Appendices C9-C11) and when using randomization inference (Appendix C12). While the mission distance variable loses statistical significance in some of these tests, the effect sizes are stable across bandwidths and the results for the colonial capital distance are very robust. We take this evidence to broadly support the existence of colonial-era differences in state capacity and missionary presence, and thus include both variables in the mediation analysis.

#### 4.4. *Placebo Test: Former French Borders*

Lastly, we perform an additional set of placebo tests to determine whether there are discrete changes in attitudes toward outgroups along borders between former colonies ruled by different European countries. With the Afrobarometer data, it is possible to do so for twelve countries in West and Central Africa that were once colonies of France (Benin, Burkina Faso, Cameroon, Côte d’Ivoire, Guinea, Niger, Senegal, and Togo) or Britain (Gambia, Ghana, Nigeria, and Sierra Leone). Appendix C13 contains a map of these countries and survey clusters within 100 km of a former French-British border. We view this exercise as helping to rule out competing explanations for our main results, such as the official religion imposed on African subjects having been Catholicism or using former British colonies as the comparison group.

Table 1 Panel D presents the results when estimating equation (1) after replacing Portuguese<sub>c</sub> with an indicator for being in a former French colony. The estimates are small (0-10 p.p.) and not distinguishable from zero, especially for homophobia in column (1). The implication is that simply having countries once ruled by Britain as controls is not sufficient to generate differences in attitudes toward any outgroup. In Appendix C14, we test for discrete changes in religious affiliations (as in Panel B) and find that there are significantly fewer Protestants (5 p.p.) and more Catholics (7 p.p.) just inside former French colonies. We interpret this result as evidence that simple Protestant-Catholic differences are also not sufficient for different levels of anti-gay prejudice. Instead, the implication is that the key faith-related difference for homophobia might be in the share with no religion. We examine this notion in the mediation analysis below.

#### 4.5. *Mediation Analysis*

To quantify each mechanism’s contribution to the difference in anti-gay attitudes, we perform a mediation analysis. Specifically, we first modify equation (1) to be

$$m_{i,c} = \alpha + \tau_1 \text{Portuguese}_c + f(\text{Distance}_c) + \Gamma_i + \delta_{e(c)} + \epsilon_{i,c} \text{ for } c \in B, \quad (2)$$

where  $m_{i,c}$  is the mediating variable,  $B$  is the set of clusters within the chosen RD bandwidth, and all else is as before. We then estimate a second equation,

$$y_{i,c} = \alpha + \tau_2 \text{Portuguese}_c + \mu m_{i,c} + f(\text{Distance}_c) + \Gamma_i + \delta_{e(c)} + \epsilon_{i,c} \text{ for } c \in B. \quad (3)$$

Substituting equation (2) into (3) yields the total effect of the being just inside a former Portuguese colony as  $\tau_2 + \mu\tau_1$ , or its direct effect on the outcome ( $\tau_2$ ) plus its effect via the mediator ( $\mu\tau_1$ ). Our object of interest is this second term as a share of the sum.

Because the MSE-optimal bandwidths for attitudes toward homosexuals and for each mediating variable are different, in Figure 3c we present the results over a series in 25-km increments from 50 to 250 km. The variable that most consistently mediates the largest fraction of the homophobia border effect is a cluster’s distance to a 1920s mission: its shares remain within a narrow range around 10%, which is around twice as much as the next most important one when the bandwidth is 150 km or greater. Similarly, the shares mediated by having no religious affiliation, distance to a colonial capital, and being Protestant settle around 5%. Interestingly, the shares for respondents’ assessments of their living conditions and whether they attended secondary school are typically the closest to 0%. It suggests that factors determined in the colonial era outweigh more modern and socioeconomic ones in shaping anti-gay sentiment in Sub-Saharan Africa.

## 5. UK Asylum Claims and Grants with Basis of Sexual Orientation

To understand whether these survey measures of homophobia in Sub-Saharan Africa have real-world impacts, we examine the costs associated with them for a country that promotes LGBT+ rights internationally to quantify how much it should be willing to spend to achieve a given reduction in these attitudes.<sup>7</sup> Specifically, we focus on the burdens that homophobia places on the UK asylum system using data by nationality from the [UK Home Office \(2025\)](#) on the number of asylum claims made and granted, and in how many sexual orientation was part of a claim’s basis.<sup>8</sup>

According to these data, in the 2015-23 fiscal years there were just over 475,000 UK

<sup>7</sup> We look outside of the region because it is unlikely that its policymakers would devote resources to changing attitudes they may share, or at least exploit for political advantage ([Schäfer and Range, 2014](#)).

<sup>8</sup> We could not find such data for other European countries. But the UK is perhaps the ideal country to study given large protests in part over the cost of hotels for asylum seekers ([Mackintosh, 2025](#); [Raji, 2025](#)).

asylum claims, 15% of which were made by nationals of Sub-Saharan African countries. In over 6% of them, sexual orientation formed part of the claim's basis, which was more than twice the share for all other regions. With an average cost per UK asylum seeker of \$25,600 (Mitchell and Hughes, 2024), it implies the country spent around \$115 million in this period as a result of Sub-Saharan African nationals' claims based in part on sexual orientation. As such, in the most basic marginal value of public funds (MVPF) analysis (Hendren and Sprung-Keyser, 2020), to achieve a value of infinity the UK should spend up to that average cost to avert a homophobia-related asylum claim.

But this simple calculation is uninformative as to how much anti-gay sentiment must be reduced in a country to avert one of these claims, not to mention where these resources should be targeted to achieve this result most cost-effectively. To shed light on these questions, we combine the UK Home Office data with the Afrobarometer data from rounds 6-9 and regress the share of a country's nationals' asylum claims in which sexual orientation formed part of the basis on its mean Likert scale rating of homosexuals (net of fixed effects for age, sex, round, and region).

The left side of Figure 4a plots these data for all thirty-two countries in the sample and shows that on average, a 0.1-Likert scale point improvement in attitudes toward homosexuals reduces the share of homophobia-related asylum claims by a precisely estimated 1.5 p.p. (12% of the mean); the standardized beta coefficient implies that a 1-SD increase in the explanatory variable leads to a 0.48-SD decrease in the outcome. Notably, the right side of the figure shows that there is no relationship with other forms prejudice: when pooling the Likert scale ratings of all other outgroups, it has an insignificantly positive association with the share of homophobia-related claims.

However, it is clear from the plot that the size of the effect is distorted by Ugandans' claims, an astonishing 45% of which are based in part on sexual orientation. When excluding this nationality and Mauritians (who are outliers in terms of their antipathy toward all other outgroups) in Figure 4b, a 0.1-Likert scale point increase results in a precisely estimated 1.0-p.p. decrease (8% of the mean) and the standardized effect is -0.37 SD, though the placebo now test yields a marginally significant positive estimate.

We view these claims as the most cost-relevant metric because UK asylum seekers have the right to stay in the country and receive support and accommodation until a decision has been reached in their case. Nonetheless, to verify that they are in fact related to credible fears of persecution, in Figure 4c we change the outcome to be the share of asylum grants that were made based in part on sexual orientation. Once again, the estimate is negative—a 0.1-point increase leads to a decrease of 0.6 p.p., or 15% of the mean—as well as precise and large in standardized terms (-0.50 SD), while the placebo

test now yields a negative and insignificant effect.<sup>9</sup>

Taken together, these results have important implications for interventions to reduce homophobia in Sub-Saharan Africa. Interpreting the estimate in Figure 4b literally, the UK would achieve seven times greater savings from a 0.1-Likert scale point reduction in anti-gay attitudes in Nigeria (implying 136 fewer homophobia-related claims) than in Uganda (just 17 fewer) despite the latter’s very high levels of prejudice and homophobia-based claims. Similarly, although Namibia decriminalized same-sex sexual activity and has one of the least negative ratings of homosexuals (see Section 2), a 0.1-point reduction there would imply 32 fewer claims, almost twice the savings it would yield in Uganda.

## 6. Conclusion

This paper studies whether colonial legacies help explain contemporary hostility toward sexual minorities in Sub-Saharan Africa. Using georeferenced Afrobarometer data in an RD design along the borders of Angola and Mozambique, we find substantially less negative attitudes toward homosexuals—but not other outgroups—just inside the former Portuguese colonies. We also document discrete changes in present-day religious affiliation and historical missionary environments near these borders, which appear to be the most important mediating factors, and show that our survey measure of homophobia is closely linked to real-world costs for the UK asylum system.

The central implication is that anti-gay prejudice in the region should not be interpreted as a culturally primordial trait. Instead, the evidence suggests that colonial rule shaped both the legal regulation of same-sex sexual activity and the ability of missionaries to transmit norms and values. What is often defended as long-standing tradition may thus reflect changes under colonial rule. However, our findings also suggest that legal reforms alone may not be sufficient to reduce prejudice when sources of stigmatizing beliefs remain influential.

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<sup>9</sup> We continue to exclude Uganda (33%) and Mauritius, which reduces both effect sizes by around 50%.

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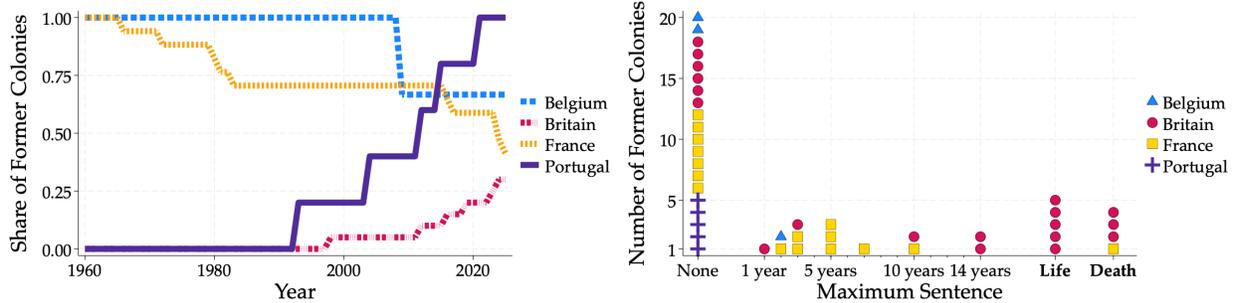
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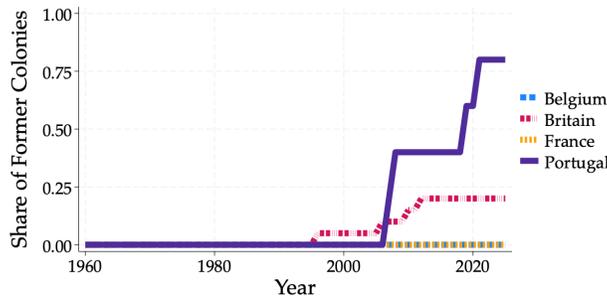
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# Figures and Tables

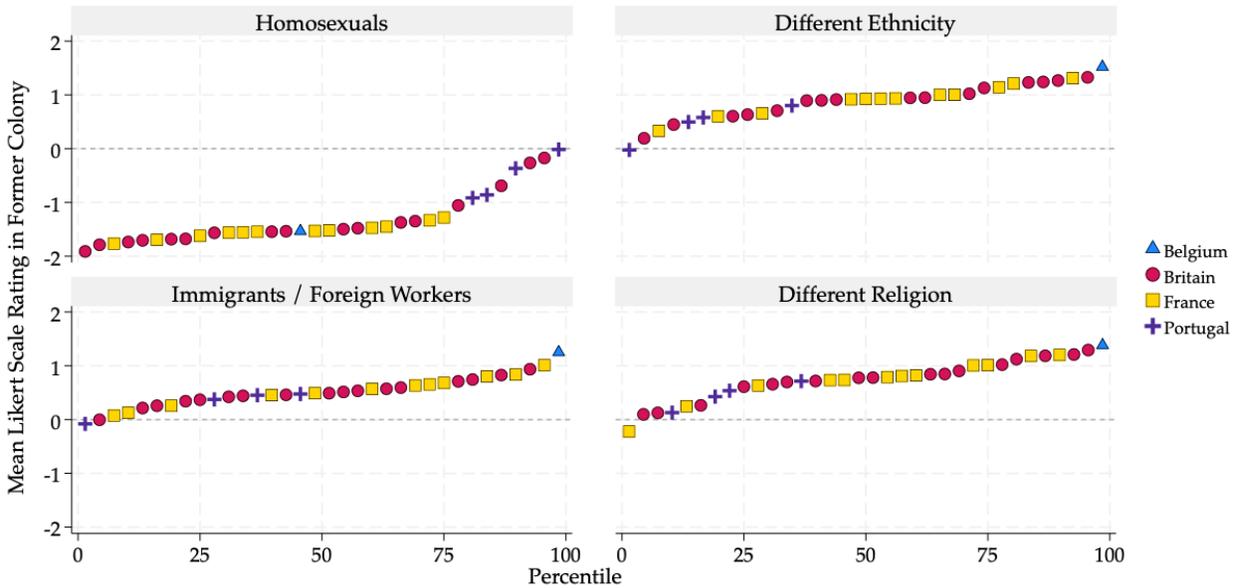
**Figure 1:** Laws and Attitudes in Former Colonies in Sub-Saharan Africa [3, 4, 5]



(a) Same-Sex Sexual Activity Legal, 1960-2025 (b) Sentence for Same-Sex Sexual Activity, 2025



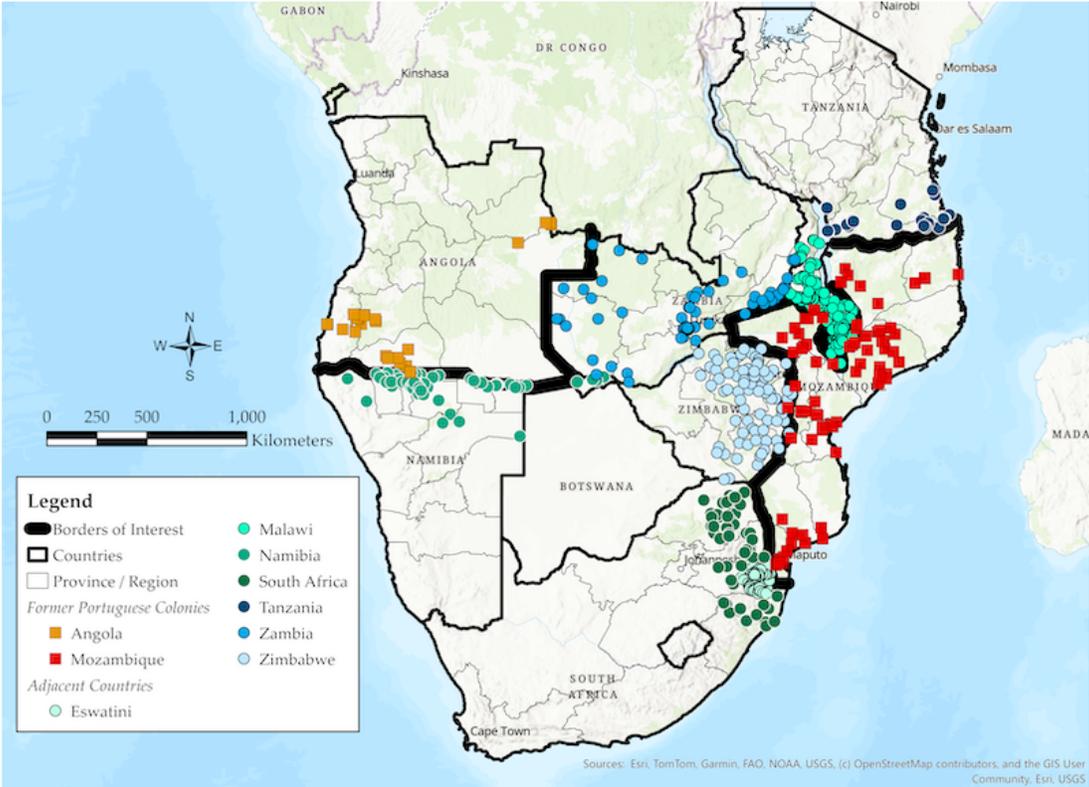
(c) Employment Non-Discrimination on Basis of Sexual Orientation, 1960-2025



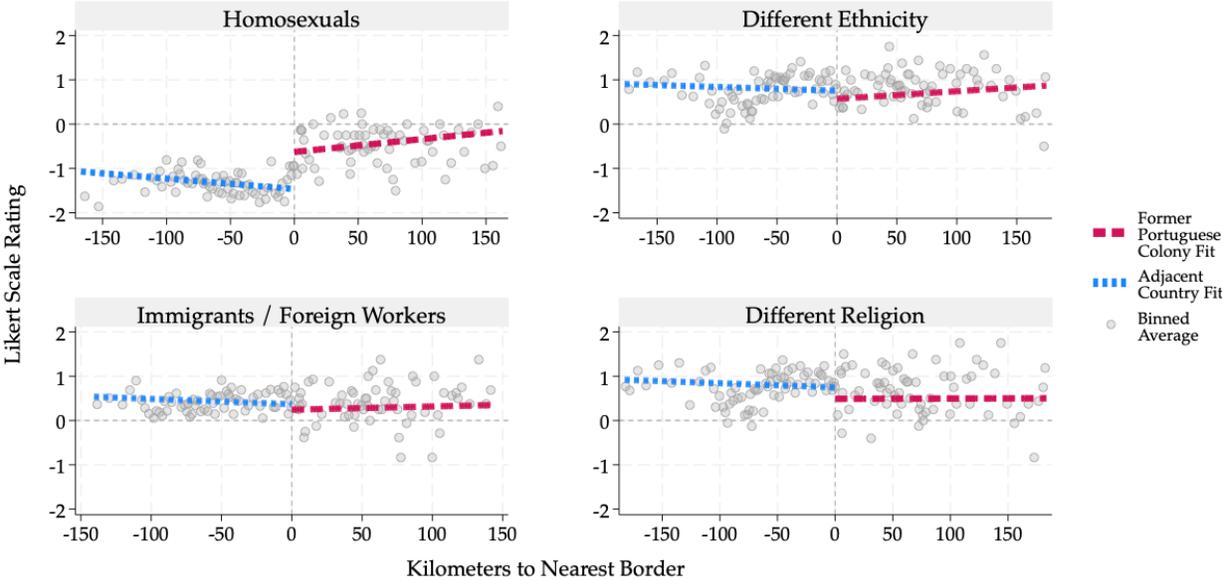
(d) Attitudes Toward Outgroups in Afrobarometer Surveys, 2014-22

Notes: Data are from ILGA World Database and Afrobarometer rounds 6 through 9. Mean Likert scale ratings are net of fixed effects for age, sex, round, and region. Regressions use around 162,000 observations.

**Figure 2:** Map of Survey Clusters and RD Plots for Main Result and Placebo Tests [5, 6]



(a) Afrobarometer Survey Clusters Within 250 km of Former Portuguese Borders



(b) Main Result and Placebo Tests: Attitudes Toward Outgroups

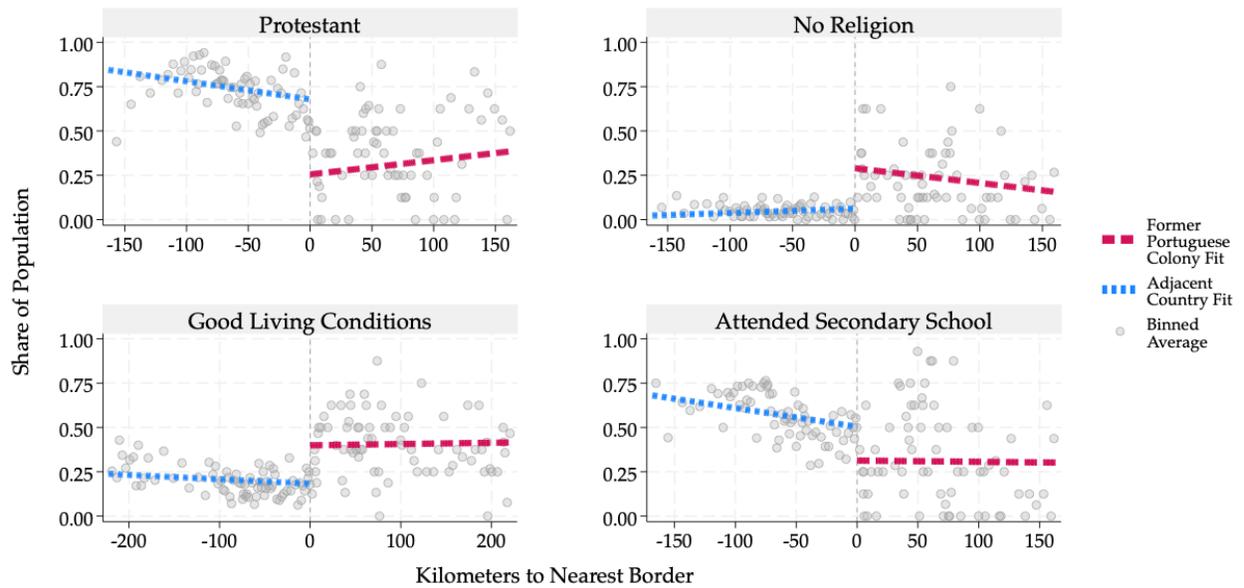
Notes: Map shows Afrobarometer round 8 survey clusters within 250 km of former Portuguese colonies’ borders. RD plots show means (net of fixed effects for age, sex, and ethnic group homeland) in quantile-spaced variance-mimicking bins within MSE-optimal bandwidths, with local linear fits estimated using a triangular kernel. Corresponding RD estimates and standard errors are shown in Table 1 Panel A.

**Table 1:** RD Estimates for Main Result, Mechanisms, and Placebo Tests [6, 8, 9, 10, 11]

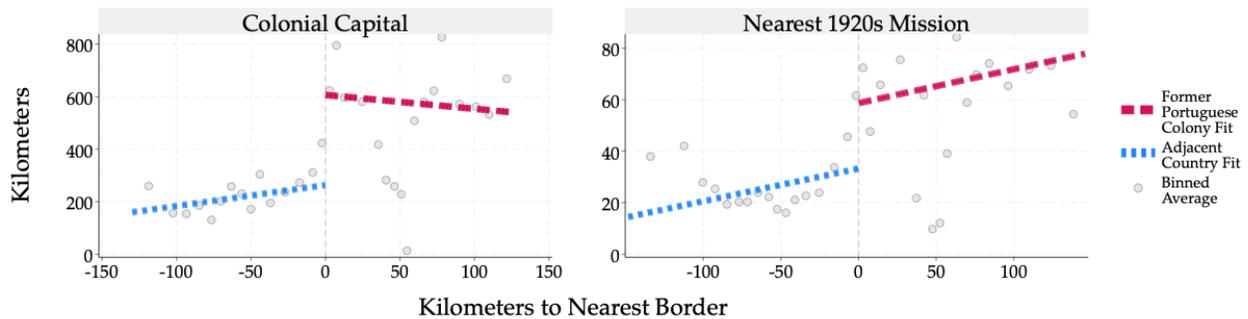
	(1)	(2)	(3)	(4)
<i>Panel A. Main Result and Placebo Tests: Likert Scale Rating</i>				
	Homosexuals	Different Ethnicity	Immigrants / Foreign Workers	Different Religion
Former Portuguese Colony	0.84 (0.24)	-0.18 (0.14)	-0.12 (0.14)	-0.26 (0.18)
Observations	4,479	4,604	4,294	4,721
Provinces / Regions	42	43	39	44
Bandwidth	167	178	142	184
Adjacent Country Mean	-1.32	0.77	0.42	0.76
Adjacent Country SD	1.09	1.17	1.23	1.21
<i>Panel B. Mechanisms: Religion</i>				
	Protestant	No Religion	Catholic	All Others
Former Portuguese Colony	-0.42 (0.04)	0.23 (0.04)	0.10 (0.04)	0.11 (0.05)
Observations	4,467	4,451	4,451	4,656
Provinces / Regions	42	42	42	44
Bandwidth	166	162	162	181
Adjacent Country Mean	0.72	0.05	0.14	0.08
<i>Panel C. Mechanisms: Development Outcomes and Distances to Colonial Capitals and Missions</i>				
	Good Living Conditions	Secondary Schooling	Km to Colonial Capital	Km to 1920s Mission
Former Portuguese Colony	0.22 (0.04)	-0.19 (0.04)	342 (55)	26 (11)
Observations	5,513	4,534	541	566
Provinces / Regions	49	43	39	41
Bandwidth	223	168	130	150
Adjacent Country Mean	0.20	0.56	232	28
Adjacent Country SD			214	32
<i>Panel D. Placebo Tests: Likert Scale Rating Along Former French Borders</i>				
	Homosexuals	Different Ethnicity	Immigrants / Foreign Workers	Different Religion
Former French Colony	-0.00 (0.07)	-0.07 (0.07)	0.04 (0.07)	-0.10 (0.09)
Observations	4,859	5,372	4,848	6,911
Provinces / Regions	71	75	71	83
Bandwidth	57	63	57	84
Adjacent Country Mean	-1.75	1.37	0.98	1.12
Adjacent Country SD	0.79	0.96	1.19	1.17

*Notes:* Data are from Afrobarometer round 8. Observations are survey clusters in Panel C columns (3)-(4) and individuals elsewhere. Standard errors clustered by provinces / regions in parentheses. Bandwidths in kilometers are MSE-optimal and local linear fits are estimated using a triangular kernel. Regressions include fixed effects for age and sex (for individuals) and ethnic homeland (for individuals and clusters).

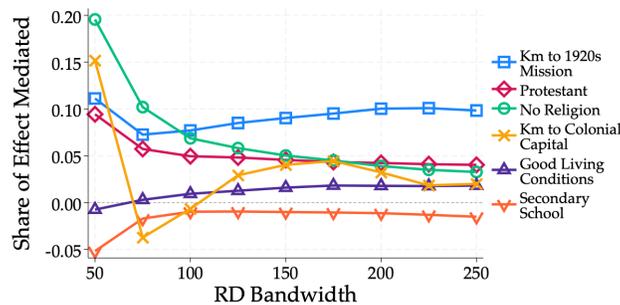
**Figure 3:** RD Plots for Mechanisms and Plot of Mediation Analyses [8, 9, 10, 11]



**(a) Proximate Causes: Religion and Development Outcomes**



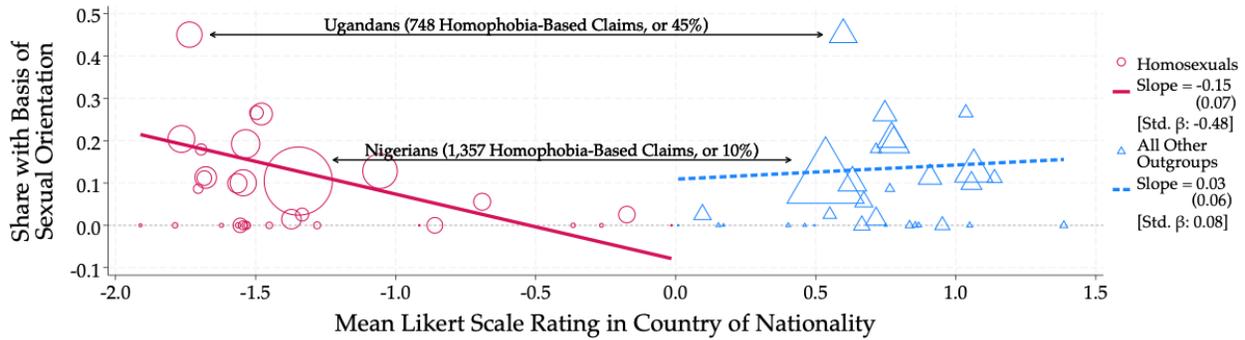
**(b) Historical Channels: Distances to Colonial Capitals and 1920s Missions**



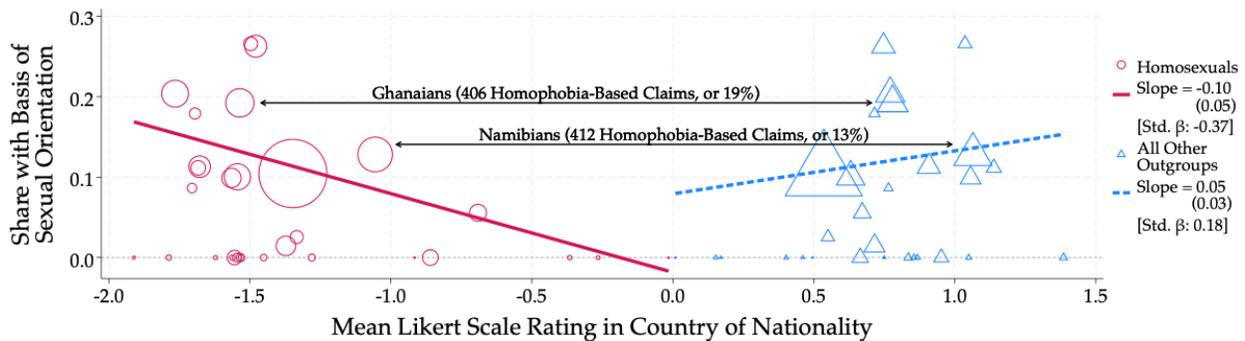
**(c) Mediation Analysis of Effect on Likert Scale Rating of Homosexuals Across RD Bandwidths**

*Notes:* RD plots show means (net of fixed effects for age, sex, and ethnic group homeland in Panel A and ethnic group homeland in Panel B) in quantile-spaced variance-mimicking bins within MSE-optimal bandwidths, with local linear fits estimated using a triangular kernel. Corresponding RD estimates and standard errors are shown in Table 1 Panels B and C. Mediation analysis plot shows shares of the RD estimate for Likert scale ratings of homosexuals mediated by a variable when using a given bandwidth.

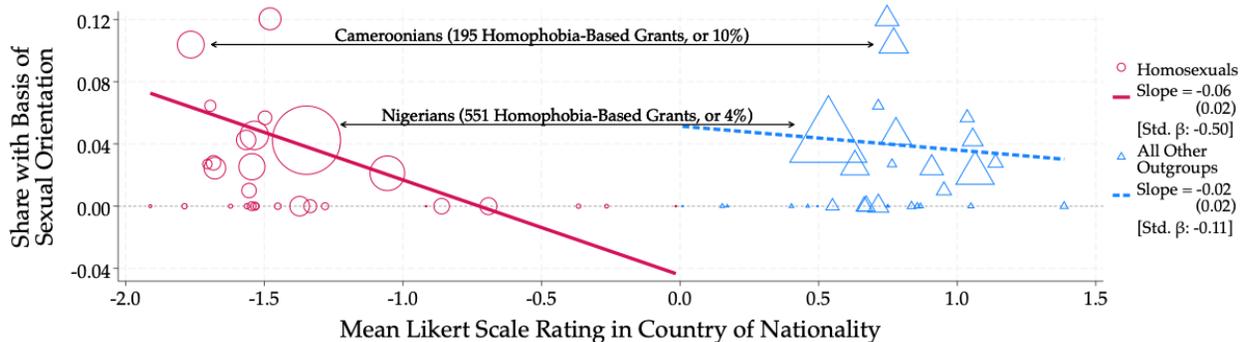
**Figure 4:** Attitudes Toward Outgroups in Sub-Saharan Africa and UK Asylum Claims and Grants with Basis of Sexual Orientation, 2015-23 [12]



**(a)** Asylum Claims: Nationals of Sub-Saharan African Countries



**(b)** Asylum Claims: Nationals of Sub-Saharan African Countries Excluding Uganda and Mauritius



**(c)** Asylum Grants: Nationals of Sub-Saharan African Countries Excluding Uganda and Mauritius

*Notes:* Data are from the UK Home Office and Afrobarometer rounds 6 through 9. Estimated slopes and robust standard errors in parentheses are from regressions in which the outcome is the share of all UK asylum claims by nationals of a Sub-Saharan African country that were made (top and middle panels) or granted (bottom panel) at least in part on the basis of sexual orientation, and the explanatory variable is the mean Likert scale rating (net of fixed effects for age, sex, round, and region) of homosexuals or all other outgroups in the home country. Observations are weighted by the number of asylum claims made by a country's nationals. Sample sizes are 32 (top panel) and 30 countries (middle and bottom panels).

**Online Appendix for:**

**Crimes against Nature: The Colonial Roots of  
Homophobia in Sub-Saharan Africa**

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Teevrat Garg

*UC San Diego*

December 30, 2025

# Contents

<b>A</b>	<b>Additional Tables: Background</b>	<b>26</b>
A1	Laws Regarding Homosexuality in Former Colonies in Sub-Saharan Africa	26
<b>B</b>	<b>Additional Figures and Tables: Main Results</b>	<b>27</b>
B1	Main Linear RD Results Using Different Bandwidths . . . . .	27
B2	Main Uniform Kernel RD Results Using Different Bandwidths . . . . .	28
B3	Main Quadratic RD Results Using Different Bandwidths . . . . .	29
B4	Main Randomization Inference Results Using Different Windows . . . . .	30
B5	RD Estimates Using Strongly Dislike as Outcome . . . . .	30
B6	RD Plots Using Strongly Dislike as Outcome . . . . .	31
B7	RD Estimates Excluding South Africa and Namibia . . . . .	32
B8	RD Plots Excluding South Africa and Namibia . . . . .	33
<b>C</b>	<b>Additional Figures and Tables: Mechanisms</b>	<b>34</b>
C1	Religion Linear RD Results Using Different Bandwidths . . . . .	34
C2	Religion Uniform Kernel RD Results Using Different Bandwidths . . . . .	35
C3	Religion Quadratic RD Results Using Different Bandwidths . . . . .	36
C4	Religion Randomization Inference Results Using Different Windows . . . . .	37
C5	Development Linear RD Results Using Different Bandwidths . . . . .	37
C6	Development Uniform Kernel RD Results Using Different Bandwidths . . . . .	38
C7	Development Quadratic RD Results Using Different Bandwidths . . . . .	38
C8	Development Randomization Inference Results Using Different Windows . . . . .	39
C9	Historical Linear RD Results Using Different Bandwidths . . . . .	39
C10	Historical Uniform Kernel RD Results Using Different Bandwidths . . . . .	40
C11	Historical Quadratic RD Results Using Different Bandwidths . . . . .	40
C12	Historical Randomization Inference Results Using Different Windows . . . . .	41
C13	Survey Clusters along Former French Borders in West Africa . . . . .	41
C14	Former French Border Religion RD Estimates . . . . .	42

## Appendix A. Additional Tables: Background

### A1. Laws Regarding Homosexuality in Former Colonies in Sub-Saharan Africa

**Table A1:** Laws Regarding Homosexuality in Former Colonies in Sub-Saharan Africa [3]

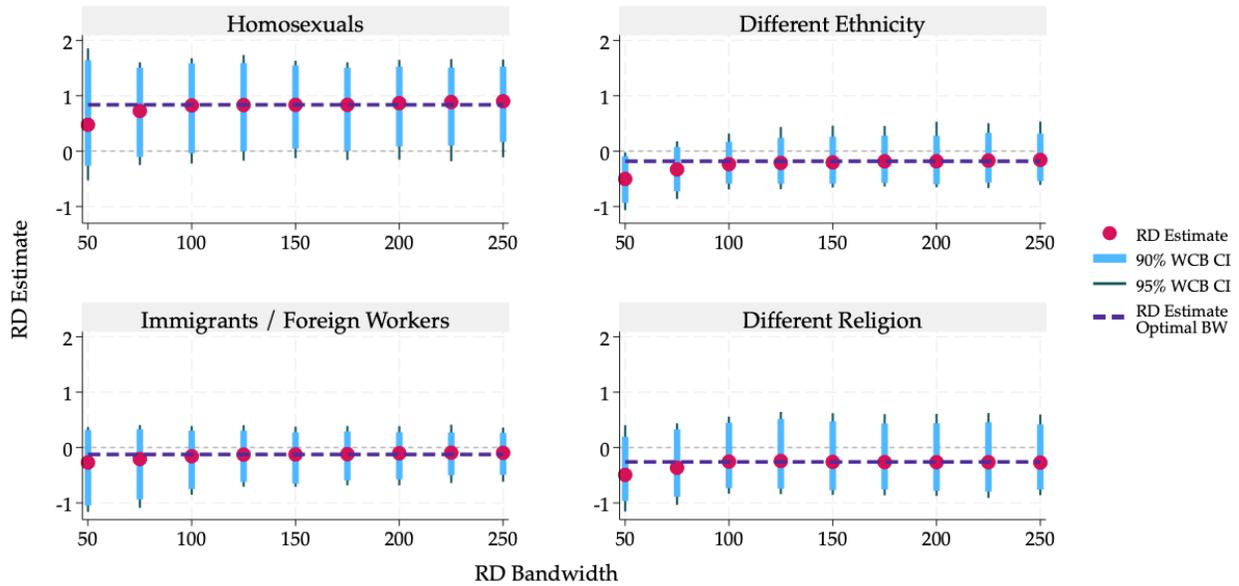
Country	Colonial Ruler	Consensual Same-Sex Sexual Activity		Sexual Orientation	
		Criminalized	Decriminalized	Maximum Sentence	Employment Protections
<i>Guinea-Bissau</i>	<i>Portugal</i>	<i>Colonial period</i>	1993		
South Africa	Britain	Colonial period	1998		1996
<i>Cape Verde</i>	<i>Portugal</i>	<i>Colonial period</i>	2004		2008
Lesotho	Britain	Colonial period	2012		
<i>Sao Tome and Principe</i>	<i>Portugal</i>	<i>Colonial period</i>	2012		2019
<i>Mozambique</i>	<i>Portugal</i>	<i>Colonial period</i>	2015		2007
Seychelles	Britain	Colonial period	2016		2006
Botswana	Britain	Colonial period	2019		2010
<i>Angola</i>	<i>Portugal</i>	<i>Colonial period</i>	2021		2021
Mauritius	Britain	Colonial period	2023		2012
Namibia	Britain	Colonial period	2024		
Eswatini	Britain	Colonial period		Unclear	
<b>Gambia</b>	<b>Britain</b>	<b>Colonial period</b>		<b>Life</b>	
Ghana	Britain	Colonial period		3 years	
Kenya	Britain	Colonial period		14 years	
Malawi	Britain	Colonial period		14 years	
<b>Nigeria</b>	<b>Britain</b>	<b>Colonial period</b>		<b>Death</b>	
<b>Sierra Leone</b>	<b>Britain</b>	<b>Colonial period</b>		<b>Life</b>	
<b>Somalia</b>	<b>Britain</b>	<b>Colonial period</b>		<b>Death</b>	
South Sudan	Britain	Colonial period		10 years	
<b>Sudan</b>	<b>Britain</b>	<b>Colonial period</b>		<b>Life</b>	
<b>Tanzania</b>	<b>Britain</b>	<b>Colonial period</b>		<b>Life</b>	
<b>Uganda</b>	<b>Britain</b>	<b>Colonial period</b>		<b>Death</b>	
<b>Zambia</b>	<b>Britain</b>	<b>Colonial period</b>		<b>Life</b>	
Zimbabwe	Britain	Colonial period		1 year	
Senegal	France	1966		5 years	
Cameroon	France	1972		5 years	
Togo	France	1980		3 years	
Comoros	France	1981		5 years	
<b>Mauritania</b>	<b>France</b>	<b>1983</b>		<b>Death</b>	
Burundi	Belgium	2009		2 years	
Guinea	France	2016		3 years	
Chad	France	2017		2 years	
Burkina Faso	France	2024		10 years	
Mali	France	2024		7 years	
Niger	France	2025		Unclear	
Benin	France	Never, but proposed			
Congo, Dem. Rep.	Belgium	Never, but proposed			
Gabon	France	Never, but proposed			
Rwanda	Belgium	Never, but proposed			
Central African Rep.	France	Never			
Congo, Rep.	France	Never			
Cote d'Ivoire	France	Never			
Djibouti	France	Never			
Madagascar	France	Never			

Notes: Data are from the ILGA World Database. Former Portuguese colonies are in italics and countries with maximum sentences of life imprisonment or death are in bold.

## Appendix B. Additional Figures and Tables: Main Results

### B1. Main Linear RD Results Using Different Bandwidths

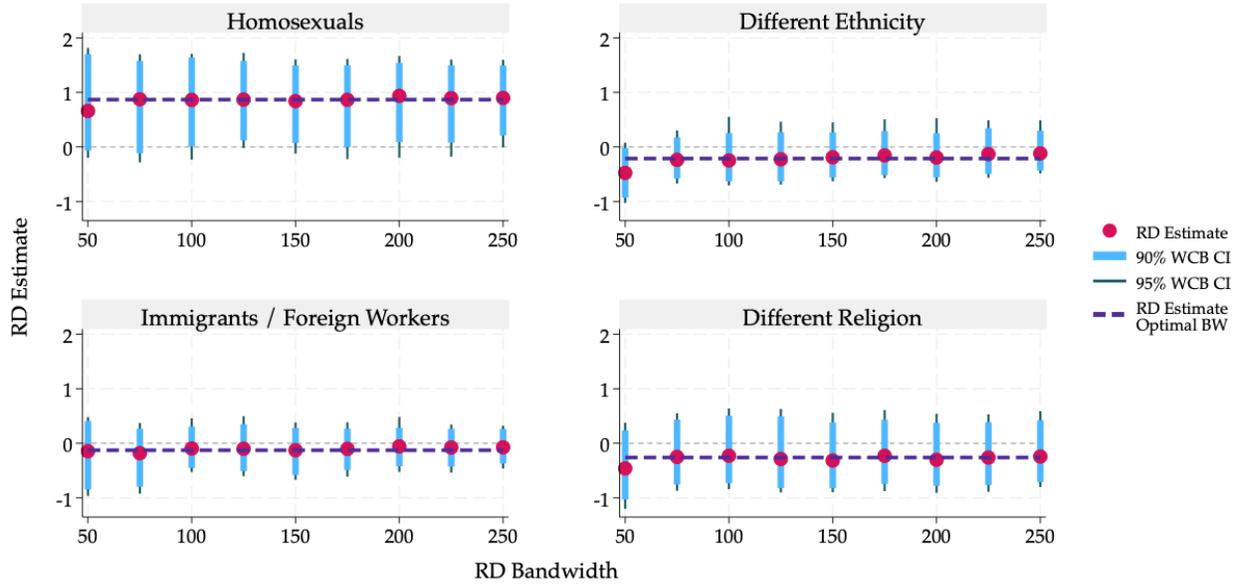
Figure B1: Main Linear RD Results Using Different Bandwidths [7]



Notes: RD plots show estimates and standard errors clustered by province using bandwidths between 50 and 250 km in 25-km increments.

## B2. Main Uniform Kernel RD Results Using Different Bandwidths

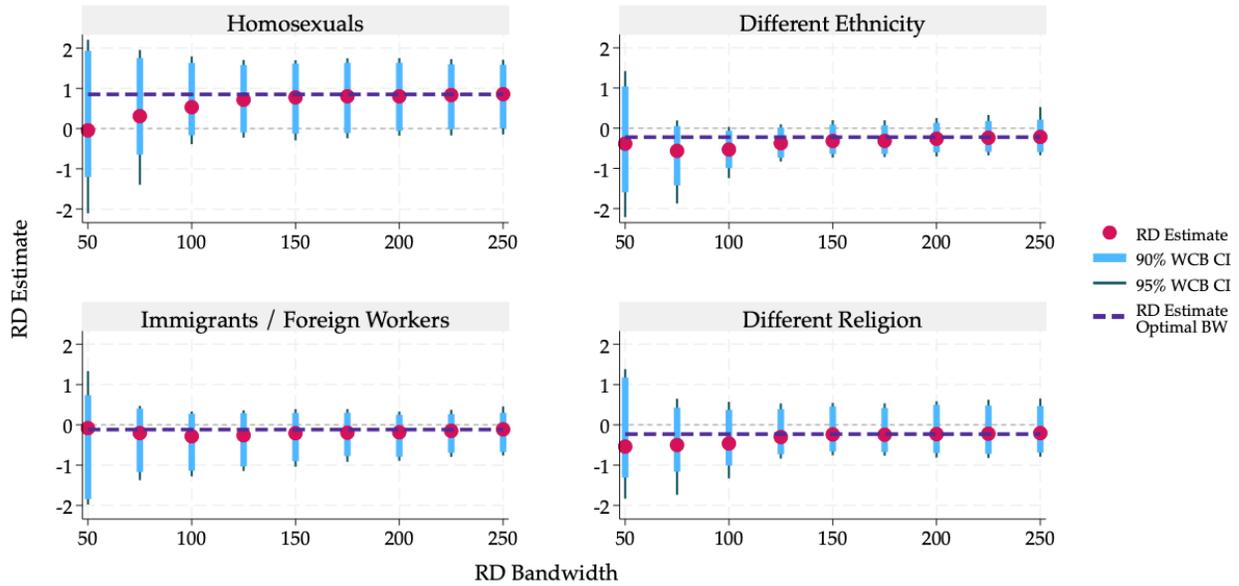
Figure B2: Main Uniform Kernel RD Results Using Different Bandwidths [7]



Notes: RD plots show estimates and standard errors clustered by province using uniform kernels and bandwidths between 50 and 250 km in 25-km increments.

### B3. Main Quadratic RD Results Using Different Bandwidths

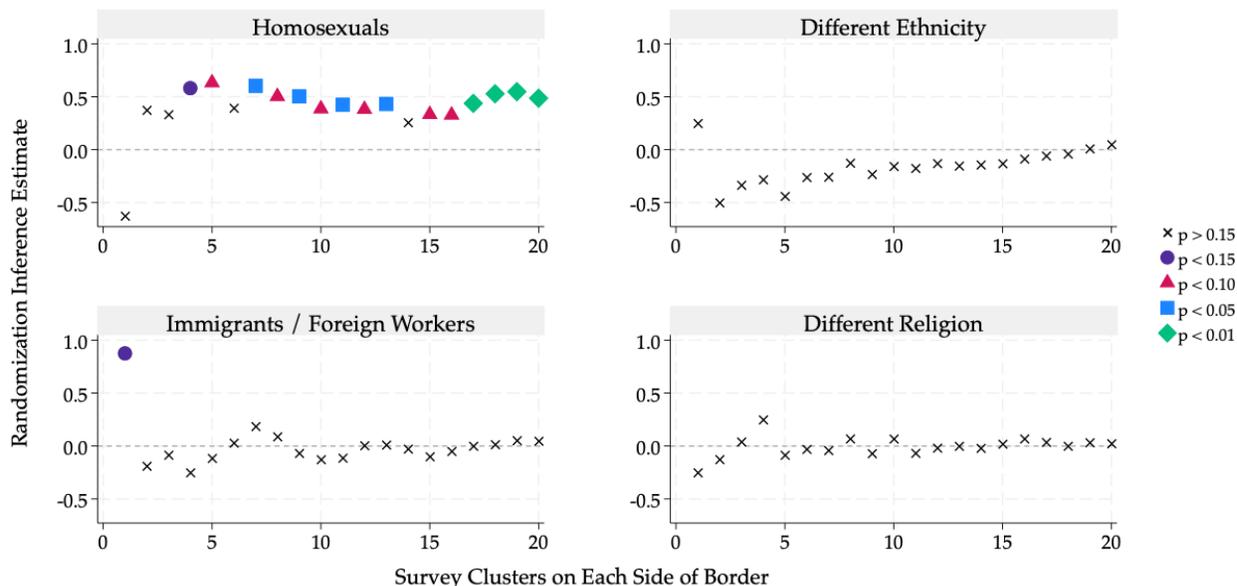
Figure B3: Main Quadratic RD Results Using Different Bandwidths [7]



Notes: RD plots show estimates and standard errors clustered by province using quadratic RD polynomials and bandwidths between 50 and 250 km in 25-km increments.

#### B4. Main Randomization Inference Results Using Different Windows

Figure B4: Main Randomization Inference Results Using Different Windows [7]



Notes: Plots show estimates and randomization inference  $p$ -values using windows from 1 to 20 survey clusters of each side of the former Portuguese borders.

#### B5. RD Estimates Using Strongly Dislike as Outcome

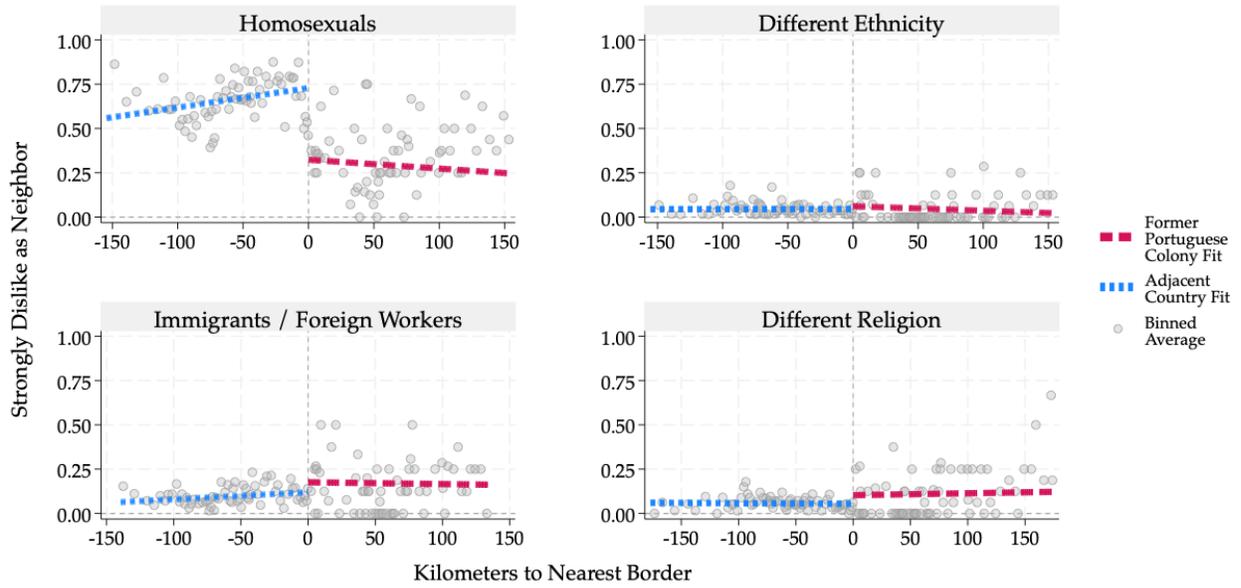
Table B1: RD Estimates Using Strongly Dislike as Outcome [7]

	(1)	(2)	(3)	(4)
<i>Panel A. Main Result and Placebo Tests: Strongly Dislike as Neighbor</i>				
	Homosexuals	Different Ethnicity	Immigrants / Foreign Workers	Different Religion
Former Portuguese Colony	-0.41 (0.08)	0.01 (0.02)	0.06 (0.04)	0.05 (0.04)
Observations	4,383	4,410	4,270	4,609
Provinces / Regions	41	41	39	43
Bandwidth	155	156	140	177
Adjacent Country Mean	0.66	0.05	0.10	0.06

Notes: Data are from Afrobarometer round 8. Standard errors clustered by provinces / regions in parentheses. Bandwidths in kilometers are MSE-optimal and local linear fits are estimated using a triangular kernel. Regressions include fixed effects for age, sex, and ethnic homeland.

B6. RD Plots Using Strongly Dislike as Outcome

Figure B5: RD Plots Using Strongly Dislike as Outcome [7]



Notes: RD plots show means (net of fixed effects for age, sex, and ethnic group homeland) in quantile-spaced variance-mimicking bins within MSE-optimal bandwidths, with local linear fits estimated using a triangular kernel. Corresponding RD estimates and standard errors are shown in Appendix B5.

*B7. RD Estimates Excluding South Africa and Namibia*

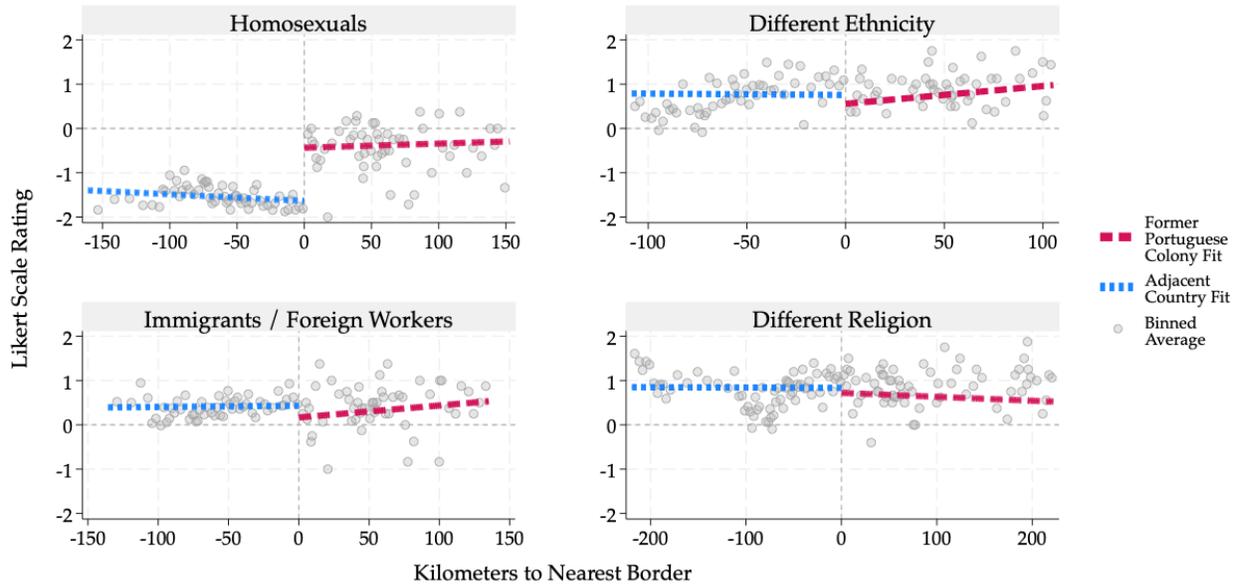
**Table B3:** RD Estimates Excluding South Africa and Namibia [8]

	(1)	(2)	(3)	(4)
<i>Panel A. Main Result and Placebo Tests: Likert Scale Rating</i>				
	Homosexuals	Different Ethnicity	Immigrants / Foreign Workers	Different Religion
Former Portuguese Colony	1.20 (0.15)	-0.19 (0.13)	-0.26 (0.16)	-0.11 (0.16)
Observations	3,611	3,242	3,450	4,536
Provinces / Regions	28	25	26	33
Bandwidth	162	109	136	222
Adjacent Country Mean	-1.53	0.73	0.40	0.79
Adjacent Country SD	0.91	1.20	1.24	1.22

*Notes:* Data are from Afrobarometer round 8. Standard errors clustered by first-level administrative units in parentheses. Bandwidths in kilometers are MSE-optimal and local linear RD polynomials are estimated using a triangular weighting kernel. Regressions include fixed effects for age, sex, and ethnic homeland.

## B8. RD Plots Excluding South Africa and Namibia

Figure B6: RD Plots Excluding South Africa and Namibia [8]

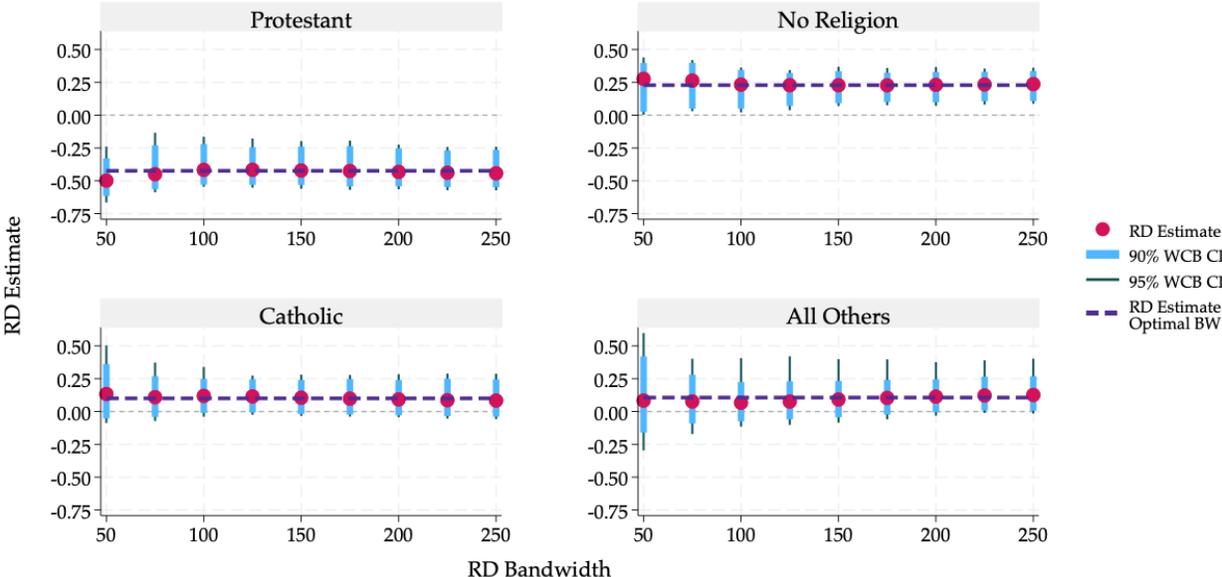


Notes: RD plots show means (net of fixed effects for age, sex, and ethnic group homeland) in quantile-spaced variance-mimicking bins within MSE-optimal bandwidths, with local linear fits estimated using a triangular kernel. Corresponding RD estimates and standard errors are shown in Appendix B7.

# Appendix C. Additional Figures and Tables: Mechanisms

## C1. Religion Linear RD Results Using Different Bandwidths

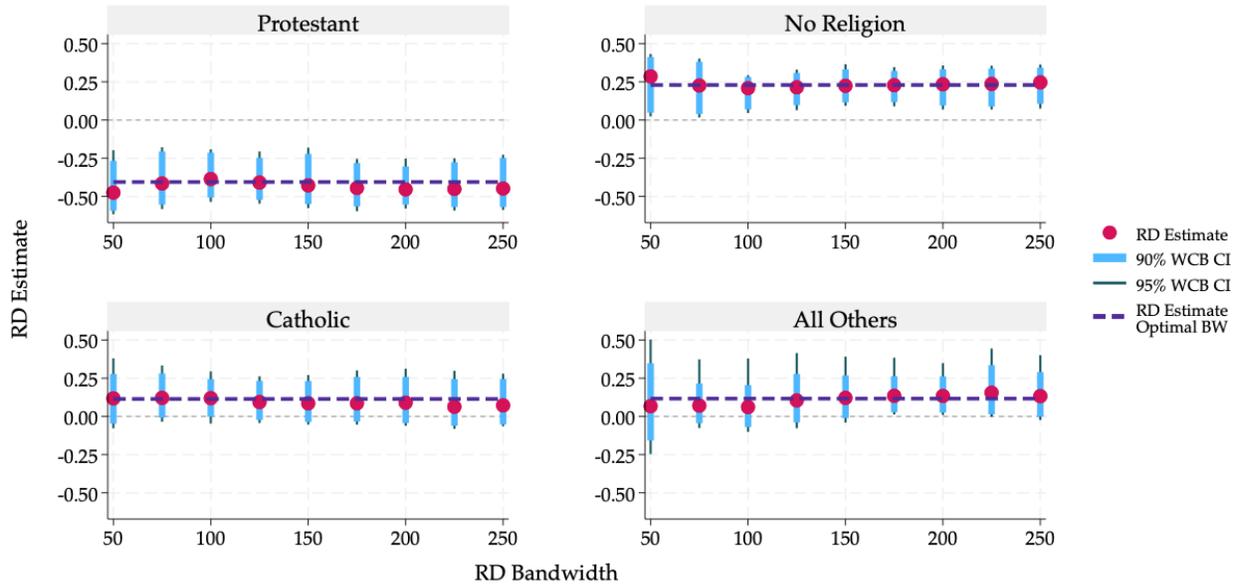
Figure C1: Religion Linear RD Results Using Different Bandwidths [8]



Notes: RD plots show estimates and standard errors clustered by province using bandwidths between 50 and 250 km in 25-km increments.

## C2. Religion Uniform Kernel RD Results Using Different Bandwidths

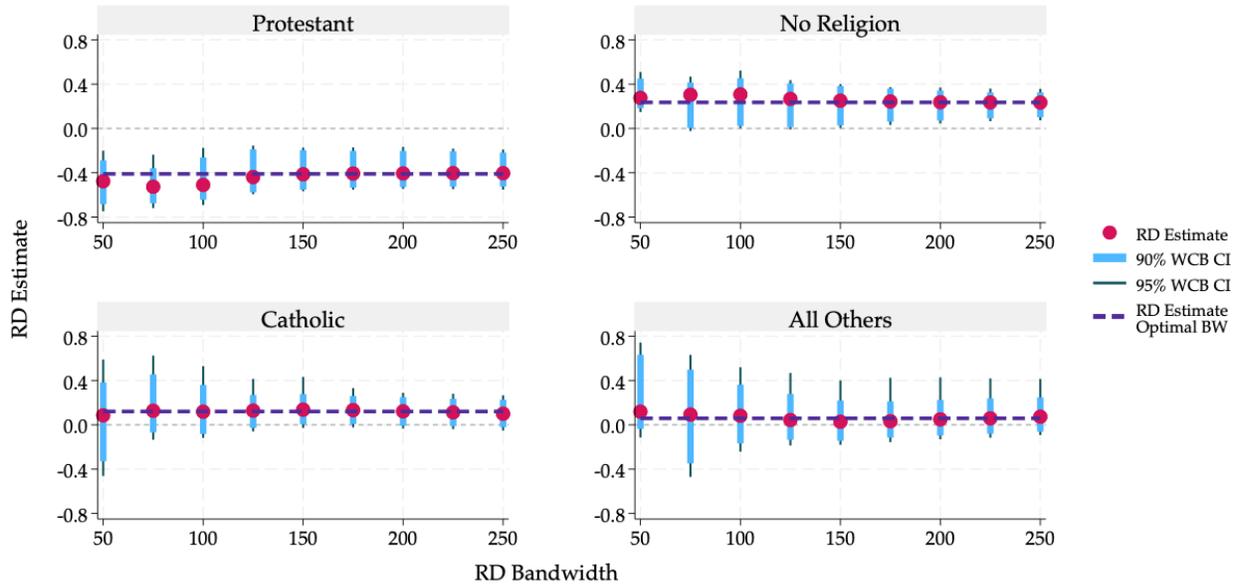
Figure C2: Religion Uniform Kernel RD Results Using Different Bandwidths [8]



Notes: RD plots show estimates and standard errors clustered by province using uniform kernels and bandwidths between 50 and 250 km in 25-km increments.

### C3. Religion Quadratic RD Results Using Different Bandwidths

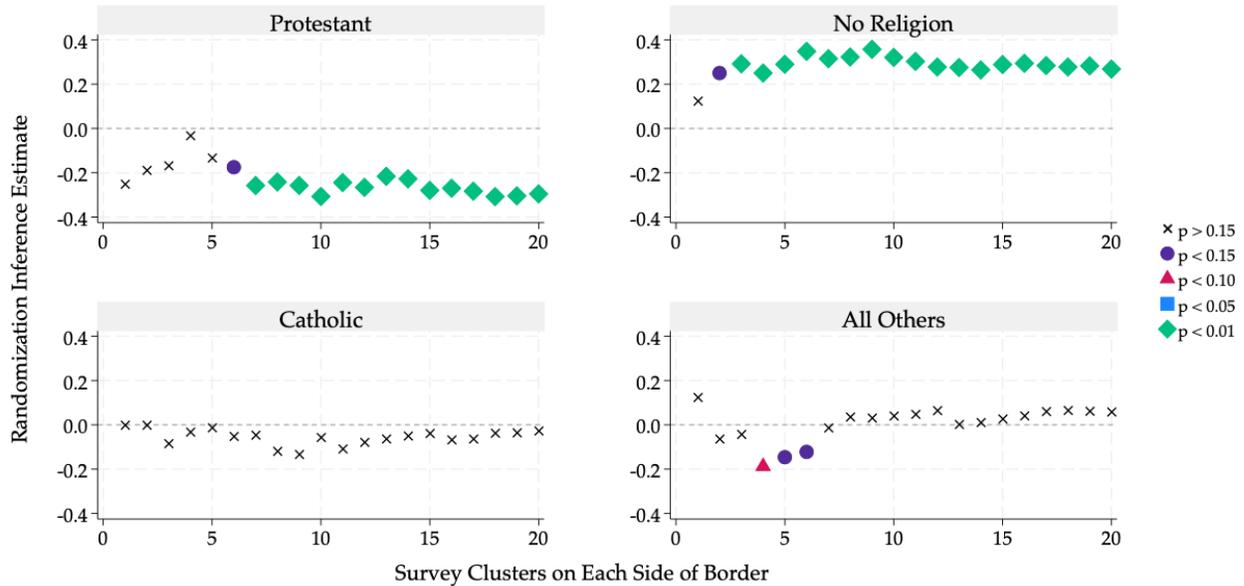
Figure C3: Religion Quadratic RD Results Using Different Bandwidths [8]



Notes: RD plots show estimates and standard errors clustered by province using quadratic RD polynomials and bandwidths between 50 and 250 km in 25-km increments.

#### C4. Religion Randomization Inference Results Using Different Windows

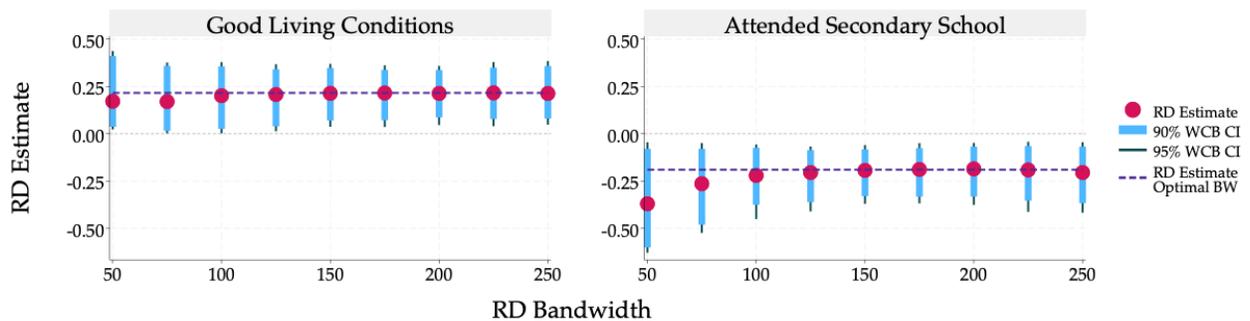
Figure C4: Religion Randomization Inference Results Using Different Windows [8]



Notes: Plots show estimates and randomization inference  $p$ -values using windows from 1 to 20 survey clusters of each side of the former Portuguese borders.

#### C5. Development Linear RD Results Using Different Bandwidths

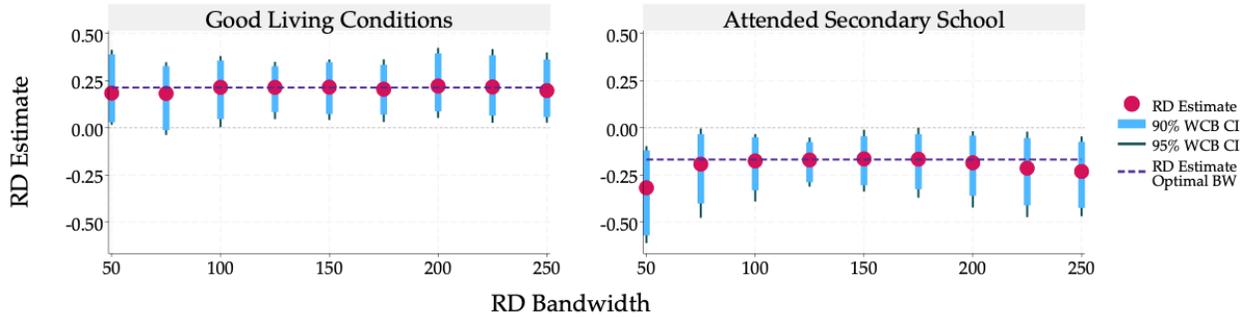
Figure C5: Development Linear RD Results Using Different Bandwidths [9]



Notes: RD plots show estimates and standard errors clustered by province using bandwidths between 50 and 250 km in 25-km increments.

### C6. Development Uniform Kernel RD Results Using Different Bandwidths

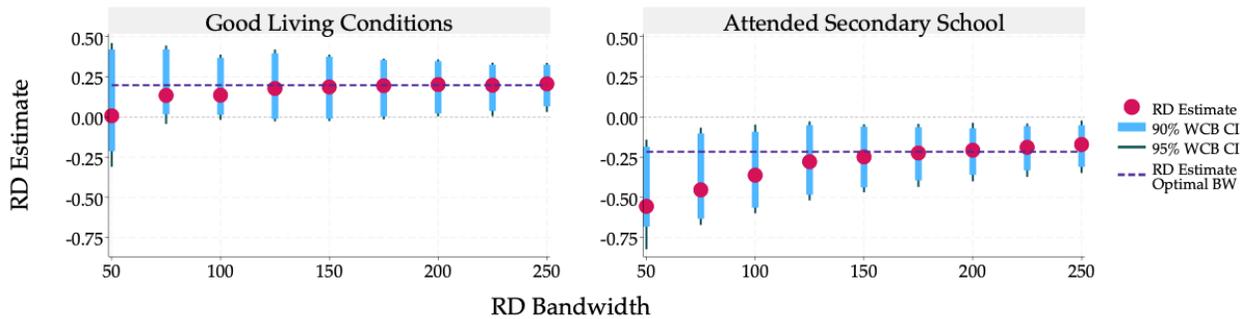
**Figure C6:** Development Uniform Kernel RD Results Using Different Bandwidths [9]



Notes: RD plots show estimates and standard errors clustered by province using uniform kernels and bandwidths between 50 and 250 km in 25-km increments.

### C7. Development Quadratic RD Results Using Different Bandwidths

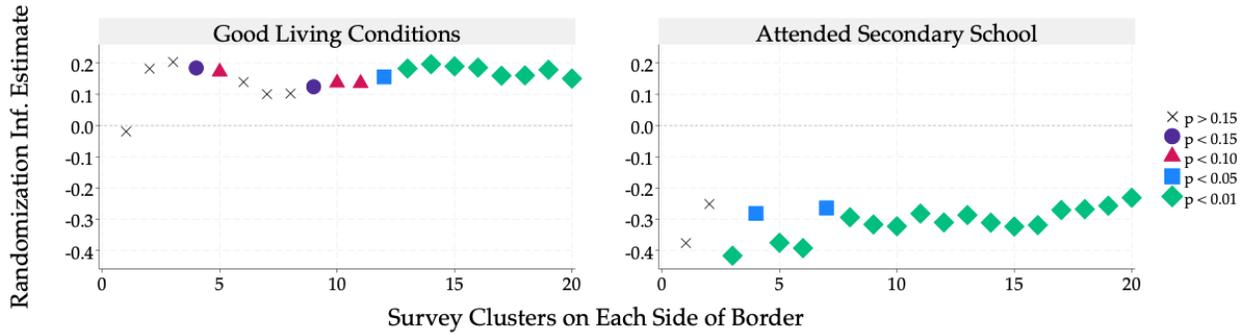
**Figure C7:** Development Quadratic RD Results Using Different Bandwidths [9]



Notes: RD plots show estimates and standard errors clustered by province using quadratic RD polynomials and bandwidths between 50 and 250 km in 25-km increments.

### C8. Development Randomization Inference Results Using Different Windows

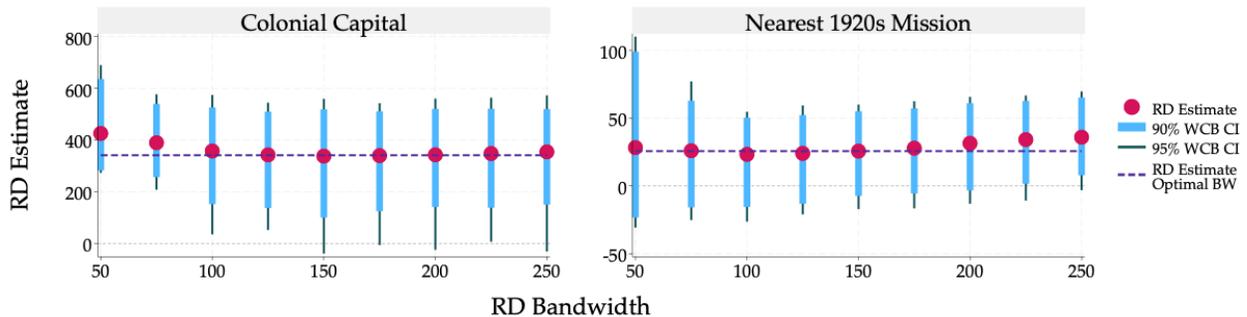
**Figure C8:** Development Randomization Inference Results Using Different Windows [9]



Notes: Plots show estimates and randomization inference  $p$ -values using windows from 1 to 20 survey clusters of each side of the former Portuguese borders.

### C9. Historical Linear RD Results Using Different Bandwidths

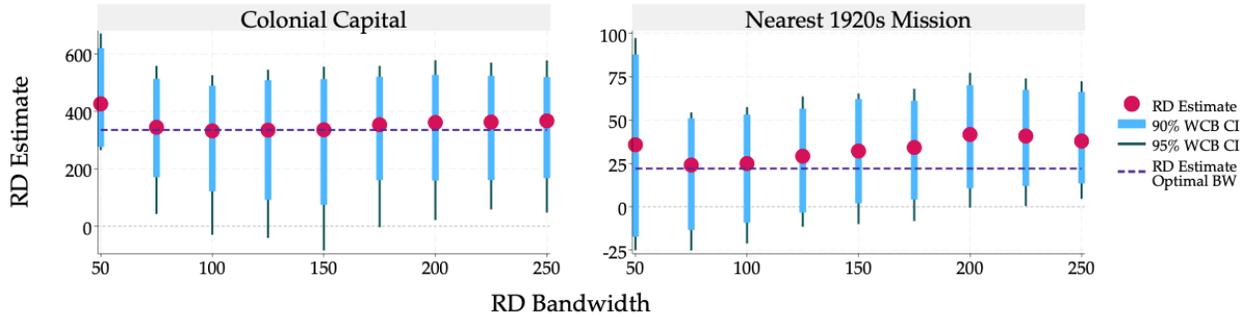
**Figure C9:** Historical Linear RD Results Using Different Bandwidths [10]



Notes: RD plots show estimates and standard errors clustered by province using bandwidths between 50 and 250 km in 25-km increments.

**C10. Historical Uniform Kernel RD Results Using Different Bandwidths**

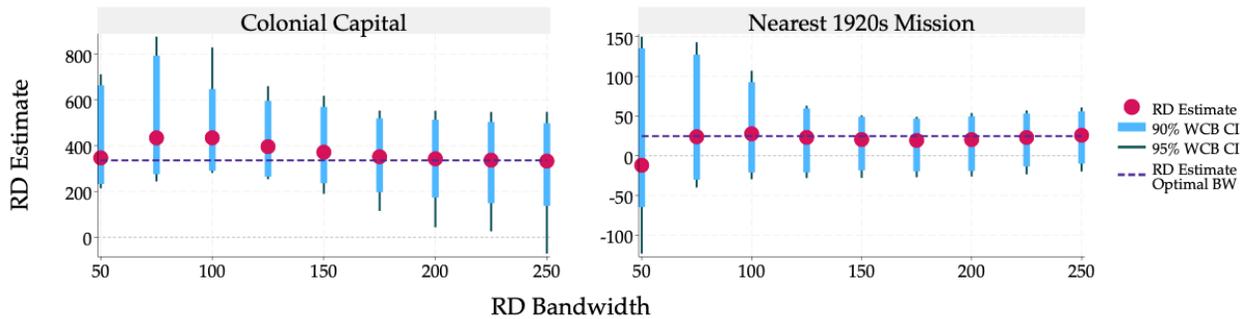
**Figure C10:** Historical Uniform Kernel RD Results Using Different Bandwidths [10]



Notes: RD plots show estimates and standard errors clustered by province using uniform kernels and bandwidths between 50 and 250 km in 25-km increments.

**C11. Historical Quadratic RD Results Using Different Bandwidths**

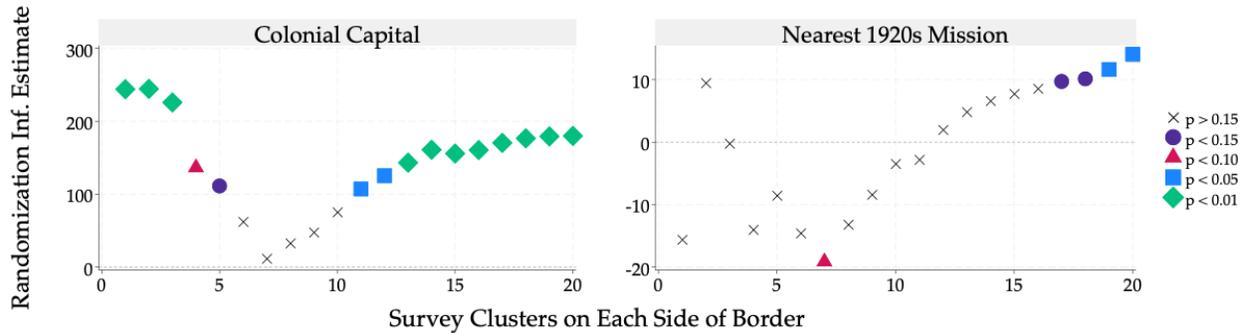
**Figure C11:** Historical Quadratic RD Results Using Different Bandwidths [10]



Notes: RD plots show estimates and standard errors clustered by province using quadratic RD polynomials and bandwidths between 50 and 250 km in 25-km increments.

### C12. Historical Randomization Inference Results Using Different Windows

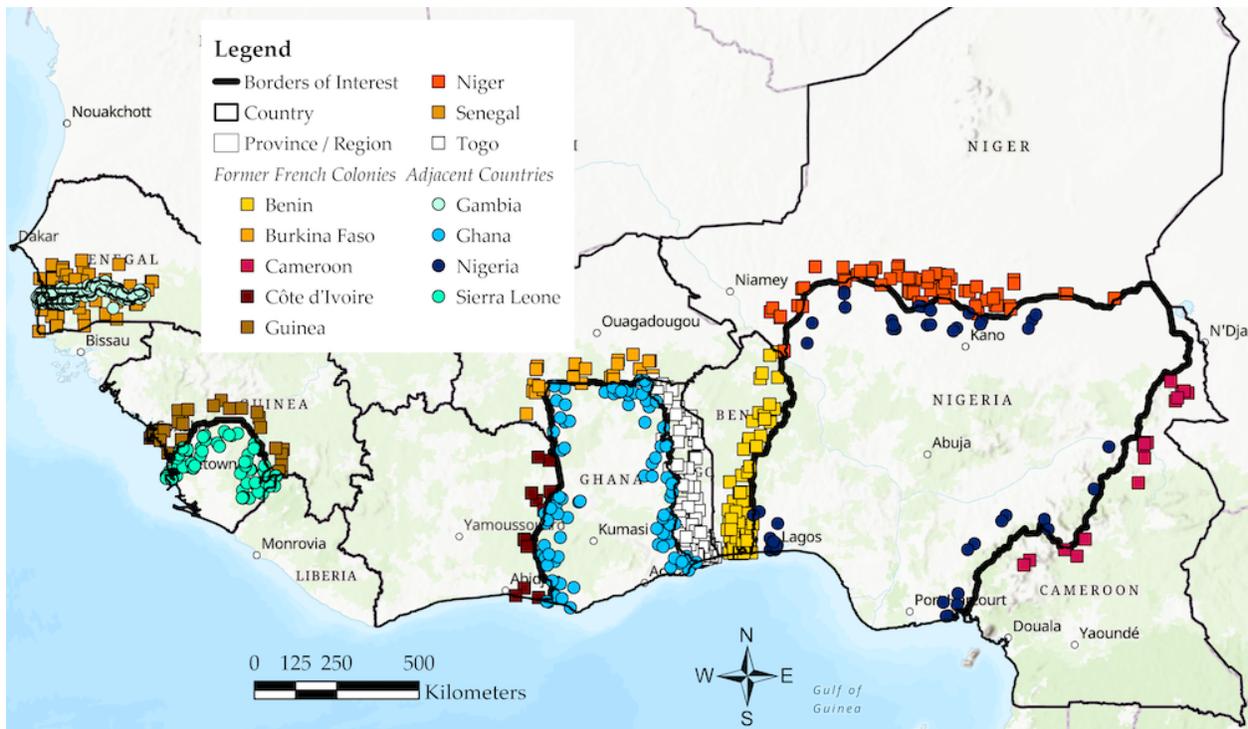
Figure C12: Historical Randomization Inference Results Using Different Windows [10]



Notes: Plots show estimates and randomization inference  $p$ -values using windows from 1 to 20 survey clusters of each side of the former Portuguese borders.

### C13. Survey Clusters along Former French Borders in West Africa

Figure C13: Survey Clusters along Former French Borders in West Africa [11]



Notes: Map shows locations of Afrobarometer round 8 survey clusters within 100 km of borders between 8 former French colonies and 4 adjacent former British colonies in West Africa.

**C14. Former French Border Religion RD Estimates**

**Table C1:** Former French Border Religion RD Estimates [11]

	(1)	(2)	(3)	(4)
<i>Panel B. Mechanisms: Religion</i>				
	Protestant	No Religion	Catholic	Muslim
Former French Colony	-0.05 (0.02)	0.01 (0.01)	0.07 (0.01)	-0.01 (0.02)
Observations	5,067	7,610	5,217	4,931
Provinces / Regions	73	91	75	72
Bandwidth	60	99	62	57
Adjacent Country Mean	0.21	0.01	0.05	0.70

*Notes:* Data are from Afrobarometer round 8. Standard errors clustered by provinces / regions in parentheses. Bandwidths in kilometers are MSE-optimal and local linear RD polynomials are estimated using a triangular weighting kernel. Regressions include fixed effects for age, sex, and ethnic homeland.