Roots of Prejudice or Seeds of Prejudice?

Evidence from Contemporary Africa

(Very Preliminary)

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Abstract

Why some people display high levels of prejudice against individuals with different life choices, while others are indifferent or even like them? We study the unusually high levels of prejudice towards homosexuals in the African continent to answer this question. We show descriptive evidence on the determinants of prejudice that is in line with the explanations proposed by social scientists and social psychologists. We propose empirical strategies to identify the causal determinants of prejudice.

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"The moral thing I should wish to say to them is very simple: I should say, love is wise, hatred is foolish. In this world which is getting more and more closely interconnected, we have to learn to tolerate each other, we have to learn to put up with the fact that some people say things that we don't like. We can only live together in that way, and, if we are to live together and not die together, we must learn a kind of charity and a kind of tolerance, which is absolutely vital to the continuation of human life on this planet[1] *(quote obtained from minute 07:38)."* (Bertrand Russel, British Philosopher and Mathematician)

Introduction

Why some people display high levels of prejudice against individuals with certain life choices, while others are indifferent or even like them? Can this type of prejudice be explained by socioeconomic conditions (e.g., poverty and illiteracy) or historical factors (e.g., missionary activity or colonial laws)? Is it fueled by specific interest groups pushing their own agenda (e.g., extremist missionary groups)? Economics literature is relatively silent about the determinants of prejudice and social intolerance, and, despite advances by other academic disciplines, such as political science and sociology, there is still not a clear understanding of them.[2][3] The objective of this paper is to provide novel descriptive and causal evidence to help fill this gap.

The interaction between individuals with different life-choices is becoming a common event in modern days. For example, millions of Syrian refugees are being allocated in Germany, a place where many normal choices are considered unacceptable or even illegal in Syria (e.g., homosexuality, aesthetic conventions). Prejudice is a necessary condition for actions that generate economic losses (e.g., intolerance and discrimination). Moreover, prejudice can generate welfare losses to targeted individuals even without actions of intolerance or discrimination.[4] More broadly, an environment of low prejudice is usually associated with desirable economic

[1] See the full video of the interview to Bertrand Russel here

[2] In their paper on social intolerance, Corneo and Jeanne (2009) state: "Economists are perhaps the only social scientists who have been silent about the nature of tolerance."

[3] In his recent survey about political scientists' research on intolerance, (Gibson, 2015) indicate: "No theory to date has propounded a differentiated explanation of the origins of social and political intolerance, and thus no unified theory of the etiology of intolerance exists."

[4] Contemporary research in social psychology suggests that targeted individuals respond strategically to prejudice (Major and Vick, 2005) and under-perform when stereotypes are salient (see Steele et al., 2002, for a review).

outcomes.[5] Therefore, providing evidence on why some individuals choose to dislike individuals with choices to which they disagree is of first order to learn how to reduce prejudice and increase welfare in a world of increasing interactions between heterogeneous individuals. For example, policy makers and non-governmental organizations can use this evidence to develop effective anti-prejudice propaganda.

We study the determinants of sexual prejudice in the context of contemporary Africa. More specifically, we want to understand which, if any, are the colonial and contemporary influences that shape the current within country distribution of prejudice towards homosexuals in Africa. We measure prejudice using a new question included of the Afrobarometer Wave 6 that asks how much respondents would dislike having homosexuals as neighbors.[6] Our favorite prejudice measure is a dummy variable that take value one if the respondent says he would *strongly dislike* or *somewhat dislike* having homosexuals as neighbors and value zero if he says he would *not care*, *somewhat like*, or *strongly like*.

We rely on the classic definition of *prejudice*: "An antipathy based on faulty and inflexible generalization. It may be felt or expressed. It may be directed toward a group or an individual of that group."(Allport, 1954, p.p. 9). The degree of sexual prejudice of a population can be interpreted as an indicator of *prejudice against diversity* under the assumption that, apart from moral constraints, individual sexual preferences do not directly affect third parts' utility.[7][8]

[5]Trends in social tolerance are strongly positively correlated with trends in measures of subjective well-being, happiness and life satisfaction (Inglehart et. al. , 2009).

[6]This question was meant to be a measure of tolerance: "This approach to studying tolerance most closely matches the "least-liked" approach." (Afrobarometer Dispatch No. 74, p.p. 3). However, a closer look at the *concept of intolerance* reveal one inconsistency. In philosophy, *intolerance* is defined as: "a conjunction of a *negative motive* ... and a *negative act*, wherein the latter may range from smirks to insults to discrimination to physical abuse to extermination" (Preston King, *Toleration*, p.p. XX). We believe this question captures the *negative motive* from the respondent but not necessarily a *negative act*. Therefore, we decided to interpret it as an intensity margin measure of *prejudice* against homosexuals instead of *intolerance* against homosexuals.

[7]In line with the general validity of this interpretation, Inglehart (2003, 2005) has said that openness toward to gay and lesbian population is the best indicator of the general tolerance of nations.

[8]We believe this is a reasonable assumption in the African context. First, the African continent is in a demographic boom. Then, a high reproduction rate is not more important for the well being of the communities, by the contrary. Second, the gay movement is insignificant or even forbidden in most of the continent. It is very implausible that gays have an agenda for club goods or impose any threat to political groups without such type of organization. Third, same-sex relations are not the main vector of transmission of HIV in the Africa.

We focus on sexual prejudice for three reasons. First, it is the most salient phenomenon in Africa: the percentage of respondents that would dislike having homosexual neighbors is much lower than the percentage that would dislike having a neighbor with different religion, different ethnicity, born in a different country, or with HIV.[9] Second, expressing dislike for these other four groups might be capturing factors other than prejudice like access to club goods, fear of competition for rival goods, or fear of contagion. Third, the measure of prejudice towards homosexual neighbors is almost uncorrelated with the measures of prejudice towards other four groups.[10]

We think Africa is the ideal laboratory to investigate both the historical and contemporaneous determinants of sexual prejudice for three reasons. First, Africans show a high level of prejudice against homosexuals in comparison to other continents.[11] Second, historical accounts indicate that same-sex relationships where not rare in several African tribes (Murray and Roscoe, 1998 and Epprecht, 2008). Third, on the methodological side, the African continent provides potential exogenous variation in institutions generated by the external intervention of other countries (e.g., borders, colonial laws, religious missions).

We provide novel descriptive evidence on the determinants of prejudice. Male individuals have higher average prejudice in our sample. Age is positively correlated with sexual prejudice. Individuals in better material conditions have lower sexual prejudice in our sample. Primary education is positively correlated with sexual prejudice while post-secondary education is negatively correlated. Muslim religious affiliation and a group with mainly new Protestant religious affiliations have higher average prejudice in our sample. Individuals with weaker religiosity (measured by church attendance) have lower prejudice in our sample. Historical exposure to Catholic missions have a negative but non-robust correlation with prejudice.

We propose feasible empirical specifications to identify the causal effect of determinants of prejudice. We propose *geographical regression discontinuity* and *differences-in-differences*

[9] 78.2% of the respondents mentioned they would "strongly dislike" or "somewhat dislike" having homosexuals as neighbors against 11.6% for individuals from a different religion, 8.6% for individuals from a different ethnicity, 18.8% for immigrants and foreigner workers, 28.8% and for people who have HIV.

[10] The highest correlation between our measure and any of the other four measures is .16 while the correlations between the other four measures range from .32 and .71.

[11] The World Value Survey has a question that asks (spontaneously) which type of individuals the respondent would not like to have as neighbors. The percentage of respondents who mentioned homosexuals is around 25% in the Latin American (and European) countries in the sample and 67% in the African countries in the sample.

strategies to identify the effects of British colonization on contemporaneous sexual prejudice. We also propose *instrumental variable* strategies to estimate the effects of education and religiosity on contemporaneous sexual prejudice.

This project is organized as follows. Section 1 describes different determinants of sexual prejudice highlighted by social scientists and relates the choice of disliking third party choices with some recent economic models. Section 2 describe the data sets used in the empirical analysis. Section 3 describe the novel descriptive evidence on the determinants of prejudice. Section 4 proposes empirical strategies to estimate the causal determinants of prejudice.

1 Related Literature and Potential Contributions

This research is related to two different strands of literature. First, it is related to the economic literature on social intolerance (Corneo and Jeanne, 2009; Berggren and Nilsson, 2010, 2014, 2015). The existing causal evidence rely on identification strategies based on fixed-effect models and instrumental variables with cross-country data, which are that are more prone endogeneity issues. We try to improve the causal evidence by proposing identification strategies that use natural experiments to instrument within-country variation on the determinants of sexual prejudice. The existing descriptive evidence is scarce. We improve the descriptive evidence by estimating correlations between individual level sexual prejudice and large set of potential determinants for a large continent.[12] We also differ from the literature by providing evidence in the context of developing countries, where sexual prejudice is more intense and legal protection to minorities is weaker.

Second, this study it communicates with the empirical literature that analyses the long-run effects of colonial institutions on economic variables (Nunn, 2010; Nunn and Wantchekon, 2011; Michaloupolos and Papaioannou, 2014; Fenske, 2015; Cagé and Rueda, 2016, 2017). First, contribute to this literature by testing if the location of Christian mission changed the distribution of sexual prejudice in contemporary Africa. Second, we contribute to this literature by testing the long debated hypothesis that the British colonization generate a legacy of sexual prejudice by imposing anti-homosexual laws to Commonwealth members.

[12] Our definition of *sexual prejudice* is closely related to the concept of *social intolerance* used by these papers.

2 Theory

The objective of this section is to describe the main determinants of *preference toward diversity* proposed by social scientists and social psychologists.

Material conditions. Inglehart and Welzel (2005) provide a recent interpretation of the so-called *modernization theory*:

> *"Socioeconomic modernization reduces the external constraints on human choice by increasing people's material, cognitive, and social resources. This brings growing mass emphasis on self-expression values, which in turn leads to growing public demands for civil and political liberties, gender equality, and responsive government, helping to establish and sustain the institutions best suited to maximize human choice - in a word, democracy."*

Hence, according to this, greater development leads to a praise of self-expression, which should favor the recognition of diversity and reduce prejudice towards different ways of living.

Education. Education should reduce prejudice through several different mechanisms. First, it increases life-time income, which, according to the *modernization theory*, favors the recognition of diversity. Second, it increases *cognitive ability*, which avoids literal and extremist readings of religious texts and allows readers to contextualize the messages. Third, it increases chances of *non-threatening contact* with individuals having different ways of living by increasing chances of working in market activities instead of subsistence activities, which, according to Gordon Allport's *contact hypothesis*, should reduce prejudice.

However, in certain contexts, higher educational attainment is associated with indoctrination from political or religious groups (e.g., missionary schools, military schools), which might promote prejudice. Therefore, the expected causal effect of education on sexual prejudice is ambiguous.

Religion and Religious practices. Allport (1954) predicts an ambiguous relation between religion and prejudice. On the one hand, religious messages teach tolerance, compassion, and altruism. On the other hand, religion is sometimes a central element on conflicts and wars. Social psychology evidence (Batson, Schoenrade, and Ventis, 1993; Hunsberger and Jackson,

2005; Hall, Matz, and Wood, 2010) shows that religiosity is associated with prejudice, and that this relation is heterogeneous (positive/negative) across studies.

The main proposed explanation for this ambiguous evidence is that religious orientations are *heterogeneous* on their motivations and practices. Allport and Ross (1967) conceptualize two types of religious orientations. An *intrinsic orientation* is mature and motivated by genuine faith. An *extrinsic orientation* is immature and motivated by self-centered reasons (e.g., social status, access to club goods) and use religion in an instrumental way. Allport and Ross (1967) also hypothesize that *extrinsic* religious orientations should be associated with prejudice and *intrinsic* with tolerance. Later research partially confirmed these hypothesis: extrinsic orientations are generally directly related to prejudice in the data but *intrinsic* orientations showed inconsistent results (see Batson et al., 1993, Batson and Stocks, 2005; Hunsberger and Jackson, 2005).

Relevant to our question, religions also differ in the presence of passages that could be interpreted as a condemn of homosexual relationships in their religious texts. For example, Christianity and Islam explicitly condemn homosexuality while Hinduism and African Candomblé do not. Thus, conversion from religions that do not condemn homosexuality to Christianity and Islam should increase sexual prejudice. Finally, sexual prejudice can also change within religious affiliation depending on the intensity of the religiosity across individuals.

3 Data

We use data from the Afrobarometer Wave 6, released in December 2016 which, for the first time, includes a measure of individual prejudice attitudes for more than 30 African countries. We geolocalize respondents using low-level geographical references obtained by request and internet gazetteers.

Our prejudice measure is based question 89C of the Afrobarometer Wave 6: *"For each of the following types of people, please tell me whether you would like having people from this group [homosexuals] as neighbors, dislike it, or not care"*.. The outcome is a dummy variable that takes value one if the respondent says he would *strongly dislike* or *somewhat dislike* having homosexuals as neighbors. We coded the outcome is this way because we want to distinguish between individuals with *negative feelings* toward diverse choices and individual *neutral or positive feelings* over the same choices.

Information about the location of religious missions is taken from Nunn (2010) and Cagé

and Rueda (2016). We merged respondents to mission treatment variables according on their coordinates and ethnic groups. Information from the pre-colonial cultural traits of ethnic groups is obtained in the Murdock's Ethnographic Atlas (1967). We manually merge self-declared Afrobarometer's information on ethnicity with the Murdock's classification. Most control variables were obtained from the replication packages of papers in the literature. When choosing controls, we tried to follow the more recent set of controls used in published papers.

We use a regression model to assess the partial correlations of prejudice against homosexuals with gender, age, living conditions, educational attainment, religion, and frequency of religious practice. We include Afrobarometer enumeration area fixed effects, and a set of additional controls obtained from Afrobarometer Wave 6: a dummy variable indicating if respondent resides in an urban setting; occupation dummies for the different categories coded in Afrobarometer; and village controls, such as access to electricity, piped water, or sewage system (which, in most countries, are absorbed by the enumeration area fixed effects).

4 Descriptive Evidence

We start the analysis by asking the data looking to the partial correlation between prejudice and individual-level controls. We estimate the regression model

$$prejudice_{i,d} = \alpha_d + \beta w_i + \gamma \mathbf{X}_i + \varepsilon_i$$

where $prejudice_{i,d}$ is dummy variable that is equal to 1 when the respondent i in enumeration area d *strongly dislike* and w_i is the determinant of prejudice being studied in a given table (e.g., gender, education category), α_d are district fixed-effects, and $\mathbf{X}_i$ is a vector of individual controls.

Gender. Table I shows that female individuals display lower levels of intolerance. Column 1 shows the specification with individual controls and district fixed-effects and indicates that female respondents have 0.7% smaller level of prejudice than male respondents. Columns 2, 3, 4, and 5 include, respectively, village controls, education fixed-effects, religion fixed-effects and religious practice fixed-effects in the specification of column 1. As can be seen, the coefficient patter is very similar, if not stronger, when additional controls are included. This evidence is in line with the predictions of Corneo and Jeanne (2009)'s endogenous tolerance model. Their argument is that that parents teach more tolerance to female children because the marginal return

of the tolerance investment is higher for female (e.g., tolerant female might have higher chance to find a tolerant husband, intolerant male individuals might have more professional success).

Age. Table also I shows that prejudice is positively correlated with age. Column 1 shows that individuals between 18-24 and 25-34 years have, respectively, 2% and 1.4% lower prejudice than individuals with 35-44 years. The table also shows that individuals between 45-54 and with more than 55 years have, respectively, 1.8% and 3.3% higher prejudice than individuals between 35-44 years. These estimates indicates that age is an important predictor of prejudice: the youngest in the sample (between 18-24 years) have 5.3% lower prejudice than the oldest (more than 55 years), which represents $\frac{5.3\%}{78.2\%} = 6.8\%$ of the sample average. As with the gender coefficients, the pattern of coefficients remains unchanged with the inclusion of the additional controls and fixed-effects.

Material conditions. Table II shows that prejudice is negatively correlated with respondents' living conditions. Column 1 shows the specification with individual controls and district fixed-effects and indicates that individuals living in *very bad* and *fairly bad* material conditions have, respectively, 1.8% and 1.2% higher prejudice than individuals in the reference-group (*neither good nor bad* material conditions). The same column shows that individual in *very good* material conditions have 2.1% lower prejudice than the reference group. As can be seen in columns 2 to 5, the pattern of coefficients is robust to the inclusion of village controls, education fixed-effects, religion fixed-effects and religious practice fixed-effects.

These estimates indicates that living conditions are important predictors of prejudice: improving the living conditions of an individual from *very bad* to *very good* would decrease her prejudice in 3.9%, which represents $\frac{3.9\%}{78.2\%} = 5\%$ of the sample average. These partial correlations are in line with the predictions from *modernization-theory*, which states that better living conditions lead to praise of self-expression and, consequently, recognition of diversity and reduce prejudice towards different ways of living.

Education. Table III shows that education has an heterogeneous relationship with prejudice. Column 1 shows the specification with individual controls and district fixed-effects and indicates that individuals with primary education have 1.2% higher prejudice than individuals

in the reference-group (no formal education), which represents $\frac{1.2\%}{78.2\%} = 1.5\%$ of the sample average. In contrast, the same column shows that individuals with post-secondary education have 4.4% lower prejudice than the reference group, which represents $\frac{4.4\%}{78.2\%} = 5.6\%$ of the sample average. As can be seen in columns 2 to 5, the pattern of coefficients remains unchanged once we include of village controls, education fixed-effects, religion fixed-effects and religious practice fixed-effects.

This heterogeneous relationship is in line with multiple mechanisms mediating the effect of education on prejudice. One the on hand, the large negative partial correlation between post-secondary education and prejudice is consistent with the effect of *modernization theory* and with increasing *non-threatening contact* with individuals having different ways of living. On the other hand, the positive partial correlation between primary education and prejudice is consistent with with indoctrination from political or religious groups (e.g., missionary schools, military schools) with a high level of prejudice.

Religion. Table IV shows that individuals with *Muslim* and *Other* (mainly constituted by many small new Protestant churches and Hindus) affiliations have higher levels of prejudice than individuals with *Catholic*, *Protestants*, *Ethnic or No* religion. Column 1 shows the specification with individual controls and district fixed-effects and indicates that *Muslim* religious group have 3.4% higher prejudice than individuals the reference-group (*Ethnic or No* religion), which represents $\frac{3.4\%}{78.2\%} = 4.3\%$ of the sample average, and that individuals with *Other* religious affiliations have 3.0% lower prejudice than the reference group, which represents $\frac{3.0\%}{78.2\%} = 3.8\%$ of the sample average. We cannot reject the hypothesis that individual with *Catholic* and *Protestant* affiliations have equal average levels of prejudice. These results are consistent the the hypothesis that the individuals with *Muslim* and *Other* religious affiliations have more extrinsic religious practices than individuals *Catholic*, *Protestants*, and *Ethnic or No* religious affiliation.

As can be seen in columns 2 to 4, the pattern of coefficients remains unchanged once we include of village controls, education fixed-effects, religion fixed-effects. However, once we include religious practice fixed-effects in column 5, the coefficients of *Muslim* and *Other* affiliations drop around 50% and become insignificant, suggesting that differences in prejudice are driven by individuals of the same religious affiliations but with different religious practices (measured by frequency of church attendance). These results are consistent the the hypothesis that, within

Muslim and *Other* religious affiliations, individuals with different levels of church attendance have different interpretations of the same religious messages and heterogeneous religious practices.

Religious practices. Table V shows that individuals with lower levels of church attendance have lower prejudice in average. Column 1 shows the specification with individual controls and district fixed-effects and indicates that individuals who *never* attend church and individuals who attend church *once per month or less* have, respectively, 1.9% and 2.4% lower prejudice than individuals who attend church *once per week*. There are no significant differences in prejudice levels of individuals who attend church *once per week*, *once per day*, and *more than once per day*.

As can be seen in columns 2 to 5, the pattern of coefficients remains unchanged once we include of village controls, education fixed-effects, religion fixed-effects and religious practice fixed-effects. These results are consistent the the hypothesis that individuals who *never* attend church or attend church *once per month or less* have more intrinsic (less extrinsic) religious practices and-or less extreme interpretations of the same religious message than individuals with other levels of religious attendance.

Exposure to missionary activity. Table VI shows that individuals living in villages closer to historic Catholic missions display higher levels of prejudice but that these partial correlation is not robust to the exclusion of individuals living more than 200 kilometers away from any mission. The same table shows that distance to protestant missions is uncorrelated with contemporary levels of prejudice.

5 Causal Evidence

The objective of this section is to describe feasible methodologies for estimating causal effects of important determinants of sexual prejudice in the African continent[13]. For each methodology, we provide the empirical specification to be used, the identification assumptions, and, when relevant, the data-sources .

[13]This is admittedly very preliminary work. The most important part of this project is the causal evidence that we plan to execute during this academic year.

Colonial origin. There exist a long debated hypothesis that the British colonization generate a legacy of sexual prejudice by imposing anti-homosexual laws to all Commonwealth members. According to Han and O'Mahoney (2014), the British Empire enforced laws that criminalized homosexuality on its colonies while and French Empires did not.[14] Based on this historical evidence, they conduct a systematic cross-country analysis and find that countries with a British legal origin are more likely to have a law criminalizing homosexual conduct today but do not systematically take longer to decriminalize if they do so.

Michalopoulos and Papaioannou (2014) provide evidence that some African ethnic groups were split according to an (apparently) exogenous criteria and estimate the causal effect of colonial origin by comparing outcomes of ethnic group divided by the colonial borders. Our first causal exercise exploits this natural experiment to test the long debated that British colonization produced a legacy of sexual prejudice in its Africa colonies. The basic specification model is given by

$$prejudice_{i,e,c} = \alpha_e + \beta british\_colony_c + f(distance\_to\_border_{i,e,c}) + \gamma \mathbf{X}_{i,e,c} + \varepsilon_{iec}$$

where $prejudice_{i,e,c}$ is dummy variable that is equal to 1 when the respondent i of ethnicity e in country c *strongly dislike* or *somewhat dislike* having homosexuals as neighbors and $british\_colony_c$ is a dummy equal to 1 country c is a former British colony. α_e is an ethnicity fixed-effect, $f(distance\_to\_border_{i,e,c})$ is a polynomial on the distance between respondent's i cluster and the border of country c that divides the ancestral land of ethnic group e, and $\mathbf{X}_{i,e,c}$ is a vector of characteristics of respondent i of ethnicity e in country c.

The coefficient of $british\_colony_c$ identify the causal effect of British colonization on contemporaneous sexual prejudice if the distribution if the distribution of sexual prejudice ethnic group e individuals *before* the colonial period is continuous in both sides of the border. This restriction

[14] This is clearly stated in the following passages:

"From 1860 onwards, the British Empire spread a specific set of legal codes throughout its colonies based on the colonial legal codes of India and Queensland, both of which specifically criminalized male-to-male sexual relations, though by long-term imprisonment rather than death".

"The other wide-ranging global empire, the French, did not spread laws against sodomy or homosexuality because the Revolutionary Constituent Assembly of 1789-1791 abrogated the previous law against sodomy in France when they adopted the French Penal Code of 1791 (Sibalis 1996, 80)."

that individuals did not sort along the across before the colonial period based on variables that were correlated with future sexual prejudice.

Unfortunately, we cannot estimate the effect of anti-homosexual laws on sexual prejudice using the colonial borders as instrumental variable for anti-homosexual laws because many other treatments vary along the colonial borders (e.g., colonial investments in health and education, type of missionary activity allowed). However, additional exercises can give a clearer notion if the effect of colonization on contemporary sexual prejudice is mediated by anti-homosexual laws or by other variables. First, we can restrict the exercise to ethnic groups exposed both to French and British colonization, where the historical accounts suggest contrasting colonial laws for homosexuality. Second, we can control for sub-national statistics for proxies of income level and income inequality to net out the effect of colonization prejudice that is mediated by socioeconomic conditions.

Michalopoulos and Papaioannou (2014) also provide evidence that the distance to the colonial capital moderates the effect of exposure to colonial institutions. We use this evidence to motivate the following *differences-in-differences* specification

$$prejudice_{i,e,c} = \alpha_e + \alpha_c + \beta british\_colony_c \cdot distance\_to\_capital_{i,e,c} +$$

$$+ f(distance\_to\_capital_{i,e,c}) + \gamma \mathbf{X}_{i,e,c} + \varepsilon_{iec}$$

where $prejudice_{i,e,c}$ is dummy variable that is equal to 1 when the respondent i of ethnicity e in country c *strongly dislike* or *somewhat dislike* having homosexuals as neighbors and $british\_colony_c$ is a dummy equal to 1 country c is a former British colony, and $distance\_to\_capital_{i,e,c}$ is is the distance between respondent's i cluster and the border of former colonial capital of country c. α_e and α_c are country and ethnicity fixed-effect, $f(distance\_to\_capital_{i,e,c})$ is a polynomial on $distance\_to\_capital_{i,e,c}$, and $\mathbf{X}_{i,e,c}$ is a vector of characteristics of respondent i of ethnicity e in country c.

The coefficient of $british\_colony_c \cdot distance\_to\_capital_{i,e,c}$ identify the causal effect of exposure to British colonial institutions under the *parallel trends assumption*. In this setting, this assumption means that the gradient of distance to colonial capital of the spatial distribution of prejudice *before* colonization is the same in countries British colonization and non-British colonization. This assumption implies that the spatial sorting around the colonial capital before the colonization was similar in countries with British and non-British colonization or that, when

different, it did not depend on variables that were correlated with sexual prejudice.

Education. We will leverage exogenous variation in education by combining *temporal variation* in the occurrence of educational reforms with *spatial variation* in predictors of the impact of the reforms. The regression model below summarizes this type of strategy

$$education_{i,a,r,c} = \alpha_a + \alpha_{r,c} + \beta post\_reform_{i,a} \cdot intensity_{r,c} + \gamma \mathbf{X}_{i,a,r,c} + \eta_{i,a,r,c}$$

where $education_{i,a,r,c}$ is the education category of respondent i in age-group a in region r of country c. α_a and $\alpha_{r,c}$ are age-group and sub-national region fixed-effects. $post\_reform_{i,a}$ is a dummy equal to 1 when individual i of age-group a was in primary school age after the free primary education reform, and $intensity_{r,c}$ is the average educational attainment of cohorts who completed school just before the free primary education reform in country c at the sub-national region r, and $\mathbf{X}_{i,a,r,c}$ is a vector of characteristics of respondent i in age-group a in region r of country c.

The corresponding second-stage is given by

$$prejudice_{i,a,r,c} = \alpha_a + \alpha_{r,c} + \beta education_{i,a,r,c} + \gamma \mathbf{X}_{i,a,r,c} + \epsilon_{i,a,r,c}$$

where $prejudice_{i,a,r,c}$ is dummy variable that is equal to 1 when the respondent i in age-group a in region r of country c *strongly dislike* or *somewhat dislike* having homosexuals as neighbors.

The coefficient of $education_{i,a,r,c}$ in the second-stage identify the causal effect of an increase of educational category on sexual prejudice of individuals if $post\_reform_{i,a} \cdot intensity_{r,c}$ satisfies *exogeneity assumption* and the *exclusion restriction*. In this setting, the *exogeneity assumption* has a similar interpretation to the *parallel trends assumption*, meaning that pre-reform levels of education have no effect on the dynamics of school attainment before the educational reform. The exclusion restriction implies that pre-reform levels of education have no direct effect on future levels of prejudice before the educational reform.

The variable $post\_reform_{i,a}$ will be constructed using information on Table A1 of Bhalotra, Harttgen and Klasen (2015), who summarize the year and the country of virtually all recent free primary education reforms. We have information about 16 free-primary edcation reforms in the countries in our sample. The variable $intensity_{r,c}$ will be constructed using the more recent census available IPUMS International or, when IPUMS International has no available data set, using the more recent Democratic and Health Surveys.

Religiosity. Bentzen (2017) exploits the incidence and occurrence of earthquakes at sub-national level to test the if individuals use religious beliefs to understand and deal with adverse life events, what is known as *religious copying hypothesis*. In line with this hypothesis, she finds that individuals increase their religiosity after being hit by an earthquake. Results are similar for other unpredictable extreme events such as volcanic eruptions and tsunamis.

Sub-Saharan Africa experienced 1,603 reported disasters between 1990 and 2014, about 18 percent of the global total (Regional Economic Outlook: Sub-Saharan Africa). Floods and droughts being the more common disasters excluding epidemics in this region. Additionally, Africa has the highest levels of vulnerability to natural disasters (World Risk Report, 2016).

Unfortunately, natural disasters are not appropriate instruments for religiosity because they affect prejudice by other channels than religiosity (e.g., economic conditions, migration). Then, to rely in more plausible exclusion restrictions, we will leverage exogenous variation from *heterogeneous* responses to natural disasters. To do so, we will combine *spatial* and *temporal* variation on the occurrence of natural disasters (e.g., earthquakes, floods, droughts) with *individual-level* variation in exogenous characteristics that predict the relevance of religious coping strategies before the shock (e.g., gender, age at the time of the shock, minority ethnic-group).

The regression model that summarizes this strategy is given by

$$religiosity_{i,a,r,c} = \alpha_a + \alpha_{r,c} + \beta natural\_disaster_{r,c,\tau(a)} \cdot intensity_i + \gamma \mathbf{X}_{i,a,r,c} + \epsilon_{i,a,r,c}$$

where $religiosity_{i,a,r,c}$ is the church attendance category of respondent i in age-group a in region r of country c. α_a and $\alpha_{r,c}$ are age-group and region fixed effects. $natural\_disaster_{r,c,\tau(a)}$ is a dummy equal to 1 when region r in country c was hit by a natural disaster at year $\tau(a)$, when cohort a was old enough to be affect by the shock. $intensity_i$ is a characteristic of individual i of age-group a in region r of country c that predict the relevance of *religious coping strategies* before being affected by the natural disaster. $\mathbf{X}_{i,a,r,c}$ is a vector of characteristics of respondent i in age-group a in region r of country c.

The corresponding second-stage is given by

$$prejudice_{i,a,r,c} = \alpha_a + \alpha_{r,c} + \beta religiosity_{i,a,r,c} + \gamma \mathbf{X}_{i,a,r,c} + \epsilon_{i,a,r,c}$$

where $prejudice_{i,a,r,c}$ is dummy variable that is equal to 1 when the respondent i of age-group a in region r of country c *strongly dislike* or *somewhat dislike* having homosexuals as neighbors.

The coefficient of $religiosity_{i,a,r,c}$ in the second-stage identify the causal effect of an increase in religiosity on sexual prejudice if $natural\_disaster_{r,c,\tau(a)} \cdot intensity_i$ satisfy the *exogeneity assumption* and *exclusion restriction*. In this setting, the *exogeneity assumption* has a similar interpretation to the *parallel trends assumption*, meaning that pre-disaster trends of religiosity of individual with a given level of the intensity predictor are the same in regions affected or not by the reform. The *exclusion restriction* means that the intensity predictor has no direct impact on the dynamics of prejudice before the event.

Conclusion

In this project, we study the unusually high levels of prejudice towards homosexuals in the African continent to understand why some individuals display high levels of prejudice against individuals with choices to which they disagree while others are indifferent or even like them. We show descriptive evidence on the determinants of prejudice that is in line with the explanations proposed by social scientists and social psychologists. We also propose empirical strategies to identify the causal determinants of prejudice. We look forward to implement them in the next year and we hope we will have findings that help to answer our research question.

Table 1: Correlates of Prejudice: Age and Gender

	(1) b/se	(2) b/se	(3) b/se	(4) b/se	(5) b/se
Female	-0.007*	-0.007*	-0.009**	-0.009**	-0.011***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Age [18-24]	-0.020***	-0.021***	-0.020***	-0.021***	-0.020***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Age [25-34]	-0.014**	-0.014***	-0.012**	-0.012**	-0.012**
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Age [45-54]	0.018***	0.018***	0.016***	0.016***	0.016***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Age [55+]	0.033***	0.033***	0.029***	0.029***	0.029***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Individual Controls	Yes	Yes	Yes	Yes	Yes
Village Controls	No	Yes	Yes	Yes	Yes
Education FE	No	No	Yes	Yes	Yes
Religion FE	No	No	No	Yes	Yes
Practice FE	No	No	No	No	Yes
District FE	Yes	Yes	Yes	Yes	Yes
Observations	48030	48030	48030	48030	48030
Clusters	2170	2170	2170	2170	2170
R-Squared	0.408	0.408	0.409	0.409	0.410

Clustered standard errors (DISTRICT) reported between parentheses. FE: UNIQUEEA
Dep. Variable: DUM_PREJUD, **Reference Cat: AGE [35-44]**

Table 2: Correlates of Prejudice: Material Conditions

	(1) b/se	(2) b/se	(3) b/se	(4) b/se	(5) b/se
Living Cond. [Very Bad]	0.018***	0.018***	0.017**	0.017**	0.017**
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Living Cond. [Fairly Bad]	0.012*	0.012*	0.011*	0.011*	0.011*
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Living Cond. [Fairly Good]	-0.007	-0.007	-0.007	-0.007	-0.007
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Living Cond. [Very Good]	-0.021*	-0.021*	-0.020*	-0.021*	-0.020*
	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
Individual Controls	Yes	Yes	Yes	Yes	Yes
Village Controls	No	Yes	Yes	Yes	Yes
Education FE	No	No	Yes	Yes	Yes
Religion FE	No	No	No	Yes	Yes
Practice FE	No	No	No	No	Yes
District FE	Yes	Yes	Yes	Yes	Yes
Observations	48030	48030	48030	48030	48030
Clusters	2170	2170	2170	2170	2170
R-Squared	0.408	0.408	0.409	0.409	0.410

Clustered standard errors (DISTRICT) reported between parentheses. FE: UNIQUEEA
Dep. Variable: DUM_PREJUD, **Reference Cat: Neither good nor bad**

Table 3: Correlates of Prejudice: Education

	(1) b/se	(2) b/se	(3) b/se	(4) b/se	(5) b/se
Education [Primary]	0.012*	0.012*	0.012*	0.012**	0.012*
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Education [Secondary]	-0.010	-0.010	-0.009	-0.008	-0.010
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Education [Post-secondary]	-0.044***	-0.044***	-0.042***	-0.041***	-0.042***
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Individual Controls	Yes	Yes	Yes	Yes	Yes
Village Controls	No	Yes	Yes	Yes	Yes
Living Cond. FE	No	No	Yes	Yes	Yes
Religion FE	No	No	No	Yes	Yes
Practice FE	No	No	No	No	Yes
District FE	Yes	Yes	Yes	Yes	Yes
Observations	48030	48030	48030	48030	48030
Clusters	2170	2170	2170	2170	2170
R-Squared	0.408	0.409	0.409	0.409	0.410

Clustered standard errors (DISTRICT) reported between parentheses. FE: UNIQUEEA
Dep. Variable: DUM_PREJUD, **Reference Cat: No formal education**

Table 4: Correlates of Prejudice: Religion

	(1) b/se	(2) b/se	(3) b/se	(4) b/se	(5) b/se
Religion [Catholic]	0.008	0.008	0.009	0.009	-0.004
	(0.011)	(0.011)	(0.011)	(0.011)	(0.013)
Religion [Protestant]	0.008	0.008	0.009	0.010	-0.005
	(0.011)	(0.011)	(0.011)	(0.011)	(0.012)
Religion [Muslim]	0.034***	0.034***	0.034**	0.034***	0.019
	(0.013)	(0.013)	(0.013)	(0.013)	(0.015)
Religion [Other]	0.030*	0.029*	0.029*	0.031**	0.016
	(0.016)	(0.016)	(0.015)	(0.015)	(0.017)
Individual Controls	Yes	Yes	Yes	Yes	Yes
Village Controls	No	Yes	Yes	Yes	Yes
Education FE	No	No	Yes	Yes	Yes
Living Cond. FE	No	No	No	Yes	Yes
Practice FE	No	No	No	No	Yes
District FE	Yes	Yes	Yes	Yes	Yes
Observations	48030	48030	48030	48030	48030
Clusters	2170	2170	2170	2170	2170
R-Squared	0.408	0.408	0.409	0.409	0.410

Clustered standard errors (DISTRICT) reported between parentheses. FE: UNIQUEEA
Dep. Variable: DUM_PREJUD, **Reference Cat: None or Ethnic Religion**

Table 5: Correlates of Prejudice: Religious Practice

	(1) b/se	(2) b/se	(3) b/se	(4) b/se	(5) b/se
Rel. Practice [Never]	-0.019**	-0.019**	-0.019**	-0.020**	-0.021**
	(0.009)	(0.009)	(0.009)	(0.009)	(0.011)
Rel. Practice [≤ Once Month]	-0.024***	-0.024***	-0.024***	-0.024***	-0.025***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Rel. Practice [≤ Once Day]	0.003	0.003	0.003	0.003	0.003
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Rel. Practice [> Once Day]	0.004	0.004	0.004	0.005	0.000
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Individual Controls	Yes	Yes	Yes	Yes	Yes
Village Controls	No	Yes	Yes	Yes	Yes
Education FE	No	No	Yes	Yes	Yes
Living Cond. FE	No	No	No	Yes	Yes
Religion FE	No	No	No	No	Yes
District FE	Yes	Yes	Yes	Yes	Yes
Observations	48030	48030	48030	48030	48030
Clusters	2170	2170	2170	2170	2170
R-Squared	0.408	0.408	0.409	0.409	0.410

Clustered standard errors (DISTRICT) reported between parentheses. FE: UNIQUEEA
Dep. Variable: DUM_PREJUD, **Reference Cat: Once a week**

Table 6: Correlates of Prejudice: Distance to Missions

	(1)	(2)	(3)	(4)	(5)
					<200km
	b/se	b/se	b/se	b/se	b/se
(Ln) Dist. to Catholic Mission	-0.006*	-0.007*	-0.007**	-0.007**	-0.005
	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)
(Ln) Dist. to Protestant Mission	0.001	0.001	0.001	0.001	0.002
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Individual Controls	Yes	Yes	Yes	Yes	Yes
Village Controls	Yes	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes	Yes
Living Cond. FE	No	Yes	Yes	Yes	Yes
Religion FE	No	No	Yes	Yes	Yes
Practice FE	No	No	No	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes
Observations	48030	48030	48030	48030	38640
Clusters	711	711	711	711	704
R-Squared	0.250	0.251	0.252	0.253	0.216

Clustered standard errors (MISSION) reported between parentheses. FE: COUNTRY
Dep. Variable: DUM_PREJUD

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