

The Slave Trade and the Origins of Mistrust in Africa

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ABSTRACT: We investigate the historical origins of mistrust within Africa. Combining contemporary household survey data with historic data on slave shipments by ethnic group, we show that individuals whose ancestors were heavily threatened by the slave trade today exhibit less trust in neighbors, relatives, and their local government. We confirm that the relationship is causal by instrumenting the historic intensity of the slave trade by the historic distance from the coast of the respondent's ancestors, controlling for the respondent's current distance from the coast. We undertake a number of falsification exercises, all of which suggest that the necessary exclusion restrictions are likely satisfied. We then show that much of the relationship between the slave trade and an individual's level of trust today cannot be explained by the slave trade's effect on factors external to the individual, such as domestic institutions or the legal environment. Instead, the evidence shows that a significant portion of the effects of the slave trade work through vertically transmitted factors that are internal to the individual, such as cultural norms of behavior, beliefs and values.

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1. Introduction

In a recent paper, Nunn (2008) looks at the persistent impacts of a different historic shock, Africa's slave trades, and finds that the slave trades, which occurred over more than 400 years, had a significant negative effect on long-term economic development. One short-coming of Nunn's (2008) analysis is that the exact causal mechanisms underlying the negative relationship between the slave trade and long-term economic development is not identified. In this paper, using fine-grained household survey data, we examine one of the channels through which the slave trade may affect economic development today. We test whether the 400 years of slave raiding caused a culture of mistrust to evolve among the societies exposed to the trade.

Early in the slave trade, slaves were primarily captured through state organized raids and warfare. However, as data on the manner of enslavement at the end of the trans-Atlantic slave trade show, the environment of pervasive insecurity generated by the slave trade caused individuals to turn on others within their own communities, and even on their own friends and families (e.g., Koelle, 1854, Hair, 1965, Piot, 1996). In this environment, where individuals had to constantly be on guard against being sold into slavery by those around them, we hypothesize that individuals may have optimally developed beliefs or 'rules-of-thumb' that in general people cannot be trusted.

Our hypothesis builds on the well established result from cultural anthropology that in environments where information acquisition is either costly or imperfect, the use of 'rules-of-thumb' can be an optimal strategy (e.g., Boyd and Richerson, 1985, 1995). These general rules or beliefs about what is the 'right' action in certain situations saves the individual from the costs of information acquisition. Of course, these norms or rules-of-thumb do not develop in a vacuum, but evolve according to which beliefs or norms yield the highest payoff. Our view is that in areas more exposed to the slave trade, rules-of-thumb or beliefs based on the mistrust of others would have been relatively more beneficial and therefore more prevalent. Put in slightly looser terms, our hypothesis is that the slave trade would have engendered a culture of mistrust. Because these beliefs and norms persist, particularly in environments where they remain optimal, the relationship between these norms and a history of the slave trade may still exist in the data today, almost 100 years after the slave trade has ended. Alternatively, the culture of mistrust that was a consequence of the slave trade may be an outcome that is stable. In other words, the slave trade may have caused a permanent change in the level of mistrust in the society. Recent contributions, like Tabellini (2008)

and Guiso, Sapienza, and Zingales (2007c), provide models that show in which environments this can occur.

To test our hypothesis, we use data from the 2005 round of the Afrobarometer survey and examine whether individuals belonging to an ethnic group that was heavily targeted in the past are less trusting of others today. Because of the richness of the Afrobarometer surveys, we are able to test for the effect of the slave trade on the amount of trust that each respondent places in different individuals. Specifically, we examine the effects of the slave trade on individuals' trust in (i) their relatives, (ii) their neighbors, and (iii) their local government council. We find that individuals belonging to ethnicities that were exposed to the slave trades today exhibit lower levels of trust in their relative, neighbors, and their local government. This finding is consistent with the historical fact that by the end of the slave trade, it had become very common for individuals to be sold into slavery by neighbors, friends and family members.

An alternative explanation for these findings is that more slaves were supplied by ethnic groups that initially had lower levels of trust of those around them, and that these lower levels of trust continue to persist today. We pursue a number of strategies to identify the direction of causality in our OLS estimates. One strategy we pursue is to use the historic distance from the coast of ethnic groups as an instrument for the number of slaves taken from that ethnic group. There is ample historical evidence suggesting that the instrument is relevant, but it is far less clear that it satisfies the necessary exclusion restrictions. The most likely reason why the exclusion restriction may fail is that the historic distance from the coast of an individual's ancestors is correlated with the current distance from the coast of the respondent. This in turn tends to be negatively correlated with income (e.g., Rappaport and Sachs, 2003) and income in turn tends to be positively correlated with trust (e.g., Alesina and La Ferrara, 2002). Therefore, through this channel, the historic distance from the coast of an individual's ethnic group may be negatively correlated with the individual's current income and trust.¹ For this reason, in all IV estimates, where we are using the *historic* distance from the coast of a respondent's ancestors as an instrument, we control for the respondent's *current* distance from the coast. The IV estimation produces estimates very similar to the OLS estimates. They provide evidence that the slave trade caused the descendants of those targeted by the trade to be less trusting today.

As is always the case with instruments, it is possible that despite our second stage controls,

¹Note that this actually results in IV estimates that are biased towards zero.

our instrument still does not satisfy the necessary exclusion restrictions. For this reason, we also perform a number of falsification exercises to assess the validity of our identification strategy. We examine the reduced form relationship between distance from the coast and trust within Africa and in two samples outside of Africa using data from the *World Values Surveys* and the *Asiabarometer*. Within Africa, we find a strong positive relationship between the distance from the coast and trust. This is expected given our IV estimates. Places further from the coast had less slaves taken in the past, and therefore exhibit higher levels of trust today. Our IV strategy relies on the assumption that the distance from the coast only affects trust through the slave trade. Therefore, if our exclusion restriction is satisfied, then when we examine the reduced form relationship between distance from the coast and trust outside of Africa where there was no slave trade, we expect to see no relationship. This is exactly what we find. In our samples outside of Africa, we estimate a statistically insignificant relationship between distance from the coast and trust. We also perform a similar exercise looking within Africa. We find that within the regions of Africa that were not exposed to the slave trade we do not observe a relationship between an individual's distance from the coast and trust today.

After establishing that the slave trade had an adverse effect on trust, we then turn to the task of distinguishing between the two most likely channels through which this could have occurred. One channel, which is the focus of our paper, is that the slave trade altered the cultural norms of the ethnic groups exposed to the trade, making them inherently less trusting. However, there is also a second channel, which a priori is as plausible and as important. This is that the slave trade resulted in a long-term deterioration of legal and political institutions, and these weak institutions enable citizens to more easily cheat others and, for this reason, individuals are less trusting of those around them.

We undertake two exercises that attempt to identify the relative importance of these two channels. First, we look more closely at the determinants of respondents' trust in their local government. Specifically, we examine how the estimated effect of the slave trade changes when we control for a number of measures of individuals' perceptions about the quality of their local government. By doing this, we attempt to control for differences in the external environment of each respondent and more closely isolate the beliefs and values internal to the individual. This exercise follows the same logic as other studies that seek to identify internal norms and beliefs by either controlling for or holding constant the external environment of individuals (Henrich, Boyd,

Bowles, Camerer, Gintis, McElreath, and Fehr, 2001, Miguel and Fisman, 2007, Miguel, Saiegh, and Satyanath, 2008). We find that when controlling for measures of individuals' perceived quality of the government, the estimated coefficient for slave exports decreases by 30–50%, but remain precisely estimated and highly significant.

The next strategy we undertake is to construct a second measure of slave exports, which is the average number of slaves that were taken from the geographic location that each individual is currently living in today. This is different from our baseline measure, which is the average number of slaves taken from an individual's ethnic group. The logic behind our examining the two measures is based the fact that when an individual relocates, the individual's internal beliefs move with them, but the external environment changes. In other words, an individual's external environment is geographically fixed, while the individual's internal beliefs and values are mobile and move with the individual. Therefore, if one accepts that the slave trade had a causal effect on trust, then the two variables can be used to distinguish between the extent to which the slave trade affects trust through individuals' internal beliefs and values, which are vertically transmitted over generations, and the extent to which the slave trade affected institutions, the organization of societies, and political, legal and social structures, all of which are factors external to the individual.

If the slave trade affects trust primarily through internal beliefs and values, then when looking across individuals, what should matter is whether an individual's ancestors were heavily impacted by the slave trade. If the slave trade affects trust primarily through its deterioration of institutions, social structures, or any other factor external to the individual, then what should matter is whether the external environment the individual is living in today was heavily exposed to the slave trade.

Our results suggest that the slave trades adversely affected trust by altering both individuals' internal beliefs and values, and by affecting factors external to the individual, like domestic political and legal institutions. We also find that the estimated magnitude of the internal channel is always larger than the magnitude of the external channel.

The logic of this test is the same as that used in previous studies by Giuliano (2007), Guiso, Sapienza, and Zingales (2004), and Fernandez and Fogli (2007). Giuliano (2007) tests for the cultural determinants of living arrangements of second generation migrants to the U.S. Examining the change between 1970 and 2000 in the propensity of youth to live with their parents, she finds that the pattern of second generation immigrants mirrors the changes in the country of origin over the same time period. Fernandez and Fogli (2007) also utilize a similar logic and examine

the labor force participation and fertility of second generation migrants to the U.S. They find that the labor force participation and fertility of their home country is highly correlated with the same variables among second generation migrants living in the U.S. today. In Guiso *et al.* (2004), the authors examine the relationship between measures of social capital and financial development. Looking at individuals that have moved, they estimate the relationship between social capital in the province where the individual is currently living and financial decisions, as well as between social capital in the province that the individual was born and financial decisions. They find an important role for both the environment in which a person was raised and the environment where they currently live.

Taken as a whole, the results of our paper complement the findings of a number of recent studies that document the importance of trust for economic development (Tabellini, 2007, Knack and Keefer, 1997, Fafchamps, 2006), for international trade (Greif, 1989, Butter and Mosch, 2003, Guiso, Sapienza, and Zingales, 2007a), for political institutions (Warren, 2003, Putnam, 2000), and firm management practices (Bloom, Sadun, and Van Reenan, 2008).² Given the mounting evidence of the importance of trust, we feel that it is also important to understand its historical origins. Because of this focus, the evidence presented here most naturally complements the few studies that also consider the historical determinants of differences in cultural norms of behavior. Specifically, the evidence presented here dovetails nicely with Guiso *et al.*'s (2007c) study empirically linking differences in social capital within Italy to whether cities were independent in the 11th to 14th centuries, as well as Tabellini's (2007) argument that within Europe, the levels of education and the extent of democracy in the 18th century are important determinants of current levels of interpersonal trust.

It is important to understand that our focus on the long-term historic determinants of cultural norms does not mean that shorter-run determinants are not important. In fact, there is evidence that non-historic determinants of trust, such as current experiences, income, education, information flows, and organization membership are also very important (e.g. Fisman and Khanna, 1999, Alesina and La Ferrara, 2002, Bellows and Miguel, 2008). Although these short-term determinants of trust are not the focus of this paper, our results also provide additional evidence of the importance of similar non-historic factors. We discuss these results in more detail in the body of the paper.

²See also the review article by Guiso and Sapienze (2006).

We begin our analysis in section 2 by first laying the historical and conceptual groundwork. We discuss the theoretical literature that seeks to understand how and why norms evolve, as well as the historical literature that describes the slave trade and the environment of insecurity that it generated. We then turn, in section 3, to a description of the data, and report our OLS and IV estimates in section 4. In section 5 we turn to the specific channels underlying this relationship and attempt to distinguish between the two potential reasons why the slave trades may affect trust: (i) by affecting internal cultural norms, and (ii) by affecting the institutional and legal structures of societies, which affects the trustworthiness of its citizens. In the penultimate section, section 6, we highlight some suggestive evidence of the potential consequences of mistrust. We show that an individual's mistrust is strongly correlated with their political participation and civic engagement, as well as their attitudes towards political violence. Section 7 concludes.

2. Historical Background and Conceptual Framework

A. Historical Background

Early in the slave trade, those sold into slavery were almost exclusively prisoners of war. Because raids often involved villages raiding other villages, this form of slave procurement often caused relations between villages to turn hostile, even if these villages had previously formed federations or other ties with one another (Inikori, 2000). There are numerous historical accounts documenting this consequence of the slave trade (e.g., Hubbell, 2001, Azevedo, 1982, Klein, 2001). One consequence of this heightened conflict between communities may be increased mistrust of those outside of one's ethnic group.

As the slave trade progressed, individuals began to turn on one another, and even on those closest to them, such as friends and family. Because of the environment of insecurity that arose from increased conflict between communities, individuals required weapons, which could be obtained from Europeans, to defend themselves. To trade with Europeans on needed slaves, and these slaves were often obtained through local kidnappings and other forms of small scale violence (Mahadi, 1992, Hawthorne, 1999). Slave merchants and raiders also played a role in promoting this internal conflict, forming strategic alliances with key groups inside villages and states in order to extract slaves (Barry, 1992, Inikori, 2003, Klein, 2003).

Walter Hawthorne (2003), in his book *Planting Rice and Harvesting Slaves*, writes of the Beafaes

of the Guineau Bissau region of Africa. Hawthorne documents the decentralized and interpersonal nature of slave capture in the region, writing that “the Atlantic slave trade was insidious because its effects penetrated deep into the social fabric of the Upper Guinea Coast—beyond the level of the state and to the level of the village and household . . . Hence, in many areas, the slave trade pitted neighbor against neighbor. . .” (Hawthorne, 2003, pp. 106–107).

Hawthorne also provides a particularly telling example, which is taken from Almada (1984). Households located near ports were able to profit from the slave trade by ‘tricking’ unsuspecting strangers and then selling them to merchants. Almada writes that “these Beafares are so smart, that if a yokel arrives from the interior, they pretend that they want to give him shelter, and they receive him into their homes. After a few days have passed, they persuade him that they have friends on the ships, and that they would like to take him and have a party. But when they go to the ships, they sell him. In this way they trick many yokels.” (Almada, 1984, p. 121)³

Akyeampong (2001) describes the experience of a drumming group that was tricked into slavery in Atorkor (in what is modern day Ghana) in the 1850s. The chief of Whuti, who was also a slave trader, was jealous of the leader of a local drumming group, because he fancied the chief’s wife. The chief then arranged with a slave merchant named Dokutsu, who had contact with European slave traders, for the entire group of 40 drummers to be sold into slavery. It was arranged with the Europeans that the group of drummers would be tricked on board the slave ship. The drummers were told that the Europeans on board the ship were interested in their drums and would like to hear them perform. The drummers were served rum on board the ship and became drunk, and before they were able to realize what was happening, the ship had sailed off, headed for the New World.

During the Atlantic trade, even Africans that worked for Europeans as boatmen, deck-hands, and translators were not immune to the insecurity and predatory atmosphere that existed during the slave trade. African mariners and traders were also enslaved directly by the Europeans or by other Africans (Akyeampong, 2001, pp. 8–9). Bolster (1997, p. 52) writes that the “African mariners in the slave trade exhibited the nervous detachment of men simultaneously smug about their own favored positions and constantly leery of their European employers’ potential duplicity or of other Africans’ revenge”.

Data on the manner of enslavement in the 19th century confirm the descriptive evidence sug-

³Also see the discussion in Hawthorne (2003, p. 106).

gesting that by the end of the slave trade slaves were being taken in a variety of different ways, including being sold into slavery by acquaintances, friends, and family. Table 1 reports information of the manner of enslavement for a sample of 144 slaves from Free Town, Sierra Leone, interviewed by linguist Sigismund Koelle (1854) in the 1840s.

Table 1. Data on the method of enslavement among Koelle’s informants

Manner of Enslavement	Percentage
Kidnapped or seized	40.3%
Taken in a war	24.3%
Sold/tricked by a relative, friend, etc.	19.4%
Through a judicial process	16.0%

Notes: The data are from Sigismund Koelle’s (1854) Linguistic Inventory. The sample consists of 144 informants interviewed by Koelle for which their means of enslavement is known.

In the sample, the most common manner of enslavement was kidnapping, with just under 40% of the slaves in the sample being taken in this manner. The next most common manner of enslavement was the capture of slaves during wars, with 25% of the slaves captured in this manner. Amazingly, almost 20% of the slaves were sold by relatives or friends. These slaves were sold by family members, or they were tricked into slavery by acquaintances and supposed friends. The survey by Koelle (1854) documents numerous accounts of individuals being sold into slavery by family members, relatives, and “supposed friends”. One of the more notable accounts is of a slave that was sold into slavery after being “enticed on board of a Portuguese vessel” by “a treacherous friend”. An extreme example of this manner of enslavement is probably the Kabre of Northern Togo, who during the nineteenth century developed the custom of selling their own kin into slavery (Piot, 1996). The final category reported in the table is for slaves that entered slavery through the judicial process. The slaves in the sample were convicted of witchcraft, adultery, theft, and murder; 16% of the slaves in the sample entered slavery in this way. Another common manner in which one could acquire slaves was to accuse others of witchcraft. If they were found guilty they and their family would become your slave and could be sold into slavery. It was also common for leaders of local communities to obtain slaves in this manner (Hawthorne, 1999, 2003, Klein, 2001).

The fact that slaves were often taken or tricked into slavery by others close to them, such as acquaintances, co-ethnics, friends and even family, suggests that the slave trade may have affected

individual's trust of those around them, even those closest to them such as friends, neighbors, and relatives. Because, historically, chiefs were often slave traders or they were forced to sell their own people into slavery, the slave trade may have also resulted in an evolution of mistrust of political figures, particularly local leaders.

Informal evidence of the long-term effects of the slave trade can be found in the oral traditions that demonstrate a history and culture of mistrust that have their origins in the external slave trade. In slave dealing areas of Nigeria, such as Badagry, some communities are considered living symbols of cruelty and wickedness because of the role their ancestors played in the slave trade. Other prominent slave trading communities such as Arochukwu in Eastern Nigeria are associated with deceit and trickery (Simpson, 2004, p. 42). In the same way, the Fon, whose ancestors were subjects of Dahomey Kingdom, one of the epicenters of the slave trade in West Africa, are associated with dishonesty. On the other hand, the Goun from Porto Novo (also located in Benin) whose ancestors were subjects of the Kingdom of Porto Novo, are perceived as honest and trustworthy. These differences are intriguing since both Dahomey and Porto Novo were created late 17th Century by two brothers who immigrated from Tado (in Western Togo), and the two kingdoms had almost identical political and economic institutions. A possible solution to this puzzle could be that Dahomey was much more heavily involved in Trans-Atlantic Slave Trade than Porto Novo (Cornevin, 1962). In fact, oral tradition from Benin describes parts of the Porto Novo as safe havens for those trying to escape slave raiders (Simpson, 2004).

In Benin popular culture, untrustworthiness is defined as being capable of tricking one's friend or neighbor into slavery. This can be most clearly seen from the common Fon saying: "*Me elo na sa we du*", which translates to "This person will sell you and enjoy it". It is a saying that is used to describe someone who is deceitful. A Wolof saying, "*Ki meun na la diaye, lekke sa ndieque*", also has the same meaning, linking deceit directly to the selling of others into slavery. These examples illustrate the great extent to which the slave trade has permeated deep into the culture of many African societies, and the extent that the slave trade is linked directly with mistrust.

B. Conceptual Framework

In seeking to explain the historical determinants of a cultural norm like trust, we must first provide a clear definition of culture. To do this we appeal to recent research in evolutionary anthropology that models culture as heuristic rules-of-thumb that are used in decision making in environments

where decision making is complex. Using theoretic models, (Boyd and Richerson, 1985, 2005) show that when making decisions, if information acquisition is either costly or imperfect, then it is optimal for individuals to develop heuristics, or general 'rules-of-thumb' in decision making. By developing general beliefs about the "right" thing to do in different situations, individuals may not behave in a manner that is optimal in every instance, but they do save on the costs required to obtain the information necessary to behave optimally for every decision that needs to be made. They show that in an evolutionary environment culture or these behavioral 'rules-of-thumb' can arise optimally. In these models, the prevalence of different behavioral rules evolve through a process of natural selection determined by their relative payoffs.

The definition and insights from (Boyd and Richerson, 1985, 2005) help us to understand recent empirical research showing that individuals from different backgrounds behave in systematically different ways when faced with the same decision with the same environment and payoffs (e.g., Nisbett and Cohen, 1996, Henrich *et al.*, 2001, Fernandez and Fogli, 2007, Giuliano, 2007, Miguel and Fisman, 2007, Miguel *et al.*, 2008). The natural question that faces these studies is why individuals behave differently, and why they do not simply maximize their payoffs in every situation, resulting in the same behavior. The concept of culture as 'rules-of-thumb' answers that because individuals from different backgrounds have developed different 'rules-of-thumb' that are used in decision making they behave very differently even when faced with the same decision, with the same payoffs, the same constraints, etc.

Relying on the notion of culture as information and cost saving heuristics in decision making, the hypothesis being tested in this paper is that the environment of insecurity caused by the slave trade increased the relative returns of rules-of-thumb based on mistrust relative to rules-of-thumb based on trust, and this caused an increase in a culture of mistrust. In areas that were more exposed to the slave trade, mistrust increased over the 400 year period of the trade.

The natural question that arises is why, 100 years after the end of the slave trade, do we still find evidence of a culture of mistrust in the areas exposed to the trade? For insights into our empirical finding we turn the theoretical literature in economics, which have built on the premise that individuals have different beliefs or values and have developed models providing further insights into the transmission and evolution of beliefs and norms over time (e.g., Bisin and Verdier, 2000, 2001, Guiso *et al.*, 2007c, Tabellini, 2008).

The recent models developed in Guiso *et al.* (2007c) and Tabellini (2008) can applied to show

that multiple equilibria can be used to explain the persistent effect of the slave trade. In the model developed by Guiso *et al.* (2007c), parents transmit to their children their priors about how trustworthy others are. The model features multiple equilibrium levels of trust. A community can be permanently trapped in a low trust equilibrium. In this equilibrium, individuals have priors that others cannot be trusted. Because of these beliefs, individuals do not interact with others, and this lack of interaction results in a lack of learning and updating of their priors of mistrust. The authors discuss how a positive shock can permanently increase the equilibrium level of trust in the economy. Similarly, a large negative shock, like the slave trade, can permanently decrease the equilibrium level of trust in a society.

Another explanation for the persistence of mistrust after the end of the slave trade is that it is a result of a complementarity between cultural norms and domestic institutions. This channel is highlighted in the model developed by Tabellini (2008). In his model, individuals inherit norms of cooperation from their parents and make political choices (through voting) that determine the quality of domestic institutions. Through this mechanism, norms of cooperation affect the equilibrium quality of domestic institutions. When there is a negative shock to internal norms of cooperation, not only will the next generation be less trusting, but they will also choose weaker institutions, and the lower level of trust and the weaker institutions will persist among future generations. In this manner, the complementarity between cooperation and the quality of institutions can explain the persistence of mistrust in Africa. Applied to Africa, the model suggests that areas with low levels of trust developed weaker institutions, and the weaker institutions in turn resulted in lower levels of trust and cooperation. These societies remain trapped in an equilibrium of uncooperative behavior, mistrust, and poor institutions.

It is also possible that our results do not arise because African societies remain trapped in low trust equilibria, but because the shocks caused by the slave trade – an event lasting for over 400 years – have not yet fully dissipated, and therefore continue to be felt today. This explanation requires that culture change and social learning occur relatively slowly. One of the few pieces of empirical work on the speed of cultural change is Alesina and Fuchs-Schündeln (2007), who study the effects of the division of Germany between 1945 and 1990 on individual's beliefs about the benefits of redistribution and government intervention. They find that, controlling for observable characteristics, East Germans view government intervention more favorably than West Germans, and that the beliefs of East Germans eventually converge to those of the West Germans reunifi-

cation. Although, the shock being examined here lasted only 45 years, the authors still find that the differences arising from the shock will take 20 to 40 years to diminish to zero. Therefore, at least in this specific environment, the effects of the shock persistence for as long as the duration of the shock itself. In this paper, we are examining the effects 100 years after a shock that has lasted well over 400 years. There, it is a possible that the effects of the shock on norms of mistrust may continue to be felt today, even if the effects are temporary and will eventually die out in the long-run.

We have implicitly assumed that because the slave trade increased the relative payoffs to rules-of-thumb based on mistrust, through social learning these rules-of-thumb became more prevalent in the population. The mechanism of social learning is consistent with the dominant framework in the economics where that cultural norms evolve as they are transmitted from parents to children (e.g., Bisin and Verdier, 2001). When deciding what values to teach to their children, parents take into account the relative returns to different values, but evaluate these with their own preferences.⁴

We must also acknowledge that it is also possible that the change in cultural norms during the slave trade arose, not because of cultural evolution, but because a disproportionately greater number of inherently more trusting individuals were captured and shipped from the continent, leaving a greater proportion of the inherently less trusting individuals within Africa. That is, even without any social learning the slave trade can still have a large effect on mistrust in the long-term. As well, a lack of social learning could explain why the effects of slave trade persist.

This explanation requires that mistrust be an inherent or hard-wired characteristic. This would occur for example if an individual's proclivity to trust others was completely determined by genetics. Although it is clear that an individual's beliefs about their ability to trust others is not completely an inherent characteristic, recent studies have argued that genetics may play some role. Cesarini, Dawes, Fowler, Johannesson, and Lichtenstein (2008a) conduct standard trust games among a sample of monozygotic and dizygotic twins in the United States and Sweden. Each sample included approximately 700 individuals. The study compares the similarity of behavior between the monozygotic and dizygotic twins. The studies find that monozygotic twins exhibit behavior that is much more similar than for dizygotic twins. The authors argue that since monozygotic and dizygotic twins both share the same environment, but only monozygotic twins

⁴For more recent papers that also use this same framework see for e.g., Hauk and Saez-Marti (2002), Francois and Zabojnik (2005), Francois (2008), and Tabellini (2008). For an overview of the theoretical literature modeling cultural transmission see Bisin and Verdier (2008).

have exactly the same genetic make-up, the results show that a large part of trust is genetically determined. According to their best estimates, 20% is genetically inherited in the Swedish sample and 10% in the American sample.⁵

Our analysis is not able to distinguish between these different transmission mechanisms and explanations for the persistent impact of slave trade on a culture of mistrust. Instead, our goal and intended contribution is to empirically estimate causal effect of the long-term effect slave trade on individual trust of others, and to show the extent to which this relationship arises by the slave trade's effect on norms and beliefs that are internal to the individual.

3. Data Sources and Description

A. *Afrobarometer Data*

Data on the trust of individuals in Africa are from the fourth (2005) round of the Afrobarometer survey. The Afrobarometer is an independent and non-partisan research project conducted by the Center for Democratic Development (CDD), Institute for Democracy in South Africa (IDASA) and Michigan State University (MSU). The nationally standardized questionnaire measures economic conditions, the political atmosphere, social capital, and individual attitudes about a variety of topics, including democracy, and civil society. Each survey is based on interviews conducted in the local languages of a random sample of either 1,200 or 2,400 individuals in each country. The 2005 Afrobarometer covers the following 17 sub-Saharan African countries: Benin, Botswana, Ghana, Kenya, Lesotho, Madagascar, Malawi, Mali, Mozambique, Namibia, Nigeria, Senegal, South Africa, Tanzania, Uganda, Zambia, Zimbabwe.⁶

The countries included in the Afrobarometer are shown in dark brown in the map from figure 3. From the map it is clear that they are not a random sample. The countries in the sample tend to be concentrated in West Africa, Eastern Africa, and Southern Africa. All of West Central Africa is not included (e.g., Cameroon, Gabon Democratic Republic of Congo, Angola, etc.), as well as countries inland of the Red Sea (e.g., Sudan, Ethiopia, Eritrea, etc.). Given this, it is important to keep in mind that all of the results in the paper only apply to the 17 sub-Saharan African countries

⁵For other studies that argue that other traits are, in part, genetically determined see Clark (2008) and Cesarini, Dawes, Johannesson, Lichtenstein, and Wallace (2009), Cesarini, Johannesson, Lichtenstein, Örjan Sandewall, and Wallace (2008b).

⁶The survey also includes the Cape Verde Islands. However, because this survey does not record the ethnicity of the respondents, it is not included in our analysis.

Table 2. Overview of the Afrobarometer trust questions.

Response	How much do you trust each of the following:									
	Your relatives?		Your neighbors?		Your elected local government council?		People from your own ethnic group or tribe?		People from other ethnic groups?	
Not at all	1,412	7%	2,719	13%	3,981	20%	2,797	14%	4,471	22%
Just a little	3,705	18%	5,770	28%	4,869	24%	6,304	31%	7,278	36%
Somewhat	5,154	25%	6,317	31%	5,314	26%	6,119	30%	5,266	26%
A lot	10,357	50%	5,774	28%	6,046	30%	5,282	26%	3,286	16%
Total	20,628	100%	20,580	100%	20,210	100%	20,502	100%	20,301	100%

Notes : The table reports summary statistics for five measures of trust from the 2005 Afrobarometer survey. The four interpersonal trust questions are from questions 84a to 84d in the survey. The trust in the locally elected government council is from question 55d. Respondents also have the option of answering "Don't know". The number of respondents answering this to each of the five question (in order from the left to right column) are: 43, 80, 159, 357, and 1,491.

included in our sample. The effects of the slave trade for the countries not included in our analysis may be different from the effects we estimate here.

From the surveys for the 17 countries, we have a potential sample of 21,822 respondents. Among this sample, the ethnicities of 120 respondents either: (i) list 'other' as their ethnicity (ii) list their ethnicity as their country (iii) belong to an ethnic group that is not an indigenous Africa ethnicity, or (iv) listed an indigenous ethnicity that could not yet be cleanly matched to the slave trade data. This leaves a total of 21,702 potential observations.

The Afrobarometer asks respondents how much they trust their relatives, neighbors, and their locally elected government council. They also ask about their trust in others from their country from a different ethnic group and others in their country from the same ethnic group.

The exact wording of each question is shown in Table 2.⁷

The respondents chose between four possible answers: (i) not at all, (ii) just a little, (iii) somewhat, or (iv) a lot. They also had the option of answering that they "do not know".⁸ The distribution of responses for each question are summarized in table 2. A number of characteristics of the responses are notable. First, as expected, the level of trust of individuals closer to the respondent, such as relatives, is higher than those further from the respondent, such as individuals

⁷For the question about other ethnic groups, the question differed by country. For example respondents from *Kenya* are asked how much they trust "*Kenyans* from other ethnic groups".

⁸See the notes of table 2 for the number of individuals that answer "don't know" for each trust question.

from other ethnic groups. However, a non-negligible number of respondents still report that they do not trust their relatives at all.

Since respondents' answers to the trust questions are categorical in nature, a number of different empirical strategies are possible. The first is to convert the categorical responses into a variable that codes the responses of each respondent. Following this strategy, we calculate a value of trust which takes on the value of 0, 1, 2, or 3, where 0 corresponds to the response "not at all", 1 to "just a little", 2 to "somewhat", and 3 to the response "a lot". (These are the numeric values assigned to each question in the Afrobarometer survey.) Rather than collapsing the information from the responses into one variable, an alternative strategy is to estimate an ordered logit model. We also follow this alternative strategy and show that the results are qualitatively identical whether one uses OLS or an ordered logit model.

The Afrobarometer trust questions have a some advantages over more general trust questions that are typically asked in other surveys such as the World Values Surveys. The trust question in this survey is: "Generally speaking, would you say that most people can be trusted or that you can't be too careful when dealing with people?" One advantage of the Afrobarometer trust questions is that they specify explicitly the object of the respondent's trust. How narrowly defined the object is depends on the specific question and is either: neighbors, relatives, individuals in the same country and in the same ethnic group, individuals in the same country but in other ethnic groups, or the local government council.

An additional shortcoming of trust questions in general is that the action that the object is expected to perform is not specified. In other words, when a respondent is asked whether he or she trusts another individual, it is not specified what they are trusting them to do. We feel that the more narrowly the question specifies the object of trust, the more narrow the set of actions that the respondents will have in their minds, and therefore the more accurately the trust measure.

Among the five trust questions that we examine, we feel that the two questions asking about the respondent's trust of those within and outside of the respondent's ethnic group are the least precise measures of trust among the five trust questions that we examined. Therefore, our prior is that the least noisy measures of trust are the ones deriving from the questions about trust of neighbors, relatives, and the local government council. For these three measures we expect that the object, and the action of the object are most precisely defined. Given this, we report results using each of the five trust questions, but place the most confidence in estimates using the three

more precise measures of trust.

In a recent study, Glaeser, Laibson, Scheinkman, and Soutter (2000) express concern about trust questions of the type being examined here. In the study the authors show that, among a sample of 200 Harvard undergraduates, questions about an individual's trust of others are more strongly correlated with the individual's trustworthiness than with their trust, where trust and trustworthiness are measured by the individual's behavior in controlled trust experiments. These results have recently been re-examined by Fehr, Fischbacher, Schupp, von Rosenbladt, and Wagner (2003) and Sapienza, Toldra, and Zingales (2007). Fehr *et al.* (2003) randomly surveyed a sample of 429 German adults who answered a questionnaire containing trust questions and also participated in controlled trust experiments. The authors find that questions about each individual's past trusting behavior and their trust of strangers does correlate strongly with their trusting behavior in the experiment. Further, contrary to Glaeser *et al.*'s (2000) finding among Harvard students, Fehr *et al.* (2003) find that the trust questions are not correlated with trustworthy behavior.

Sapienza *et al.* (2007) reconcile the two contradictory findings by appealing to the difference in the homogeneity of the populations in the two studies. The participants of the trust game in Glaeser *et al.* (2000) were Harvard undergraduate students enrolled in an introductory economics class, while the participants from Fehr *et al.* (2003) were a broad cross-section of German citizens. Sapienza *et al.* (2007) argue and provide evidence that in homogenous populations an individual's trust in others is strongly influenced by the individual's own trustworthiness. However, in more heterogenous populations this is not the case.

The heterogeneity in the Afrobarometer sample is much more similar to Fehr *et al.*'s sample than the sample from Glaeser *et al.* (2000). Like Fehr *et al.*'s German sample, the Afrobarometer contains a random sample of all adults in the country being surveyed. Therefore, as in Fehr *et al.*, the trust questions most likely reflect the trust of an individual and not the trustworthiness of the individual. However, it is important to keep in mind the possibility that the questions may also reflect to a some extent the trustworthiness of the individual being surveyed.

B. Ethnicity Level Slave Export Data

The construction of estimates of the number of slaves taken from each ethnic group within Africa relies on the country-level slave export estimates calculated by Nunn (2008). The country-level estimates are constructed by combining data on the total number of slaves shipped from all ports

and regions of Africa with data on the ethnic origins of slaves shipped from Africa. The estimates constructed in Nunn (2008) cover all four of Africa's slave trades - the trans-Atlantic, Indian Ocean, Red Sea, and trans-Saharan - and the period between 1400 and 1900. Full details of the underlying data, their sources, and the construction procedure are provided in Nunn (2008).

To construct ethnicity-level estimates we disaggregate the country-level slave export figures to the ethnicity level using the same ethnicity samples that were used in Nunn (2008). Only two of the four slave trades (the trans-Atlantic and Indian Ocean) have ethnicity data detailed enough to construct reliable estimates of the number of slaves taken from each ethnicity. For the trans-Atlantic slave trade, Nunn (2008) has collected a sample of 80,656 slaves for which their ethnic identity is known. The aggregate sample is comprised of 54 different samples that report 229 distinct ethnic designations. The individual samples are originally from a variety of historical records, such as slave runaway notices, plantation inventories, marriage records, death records, etc. For the Indian Ocean slave trade, an aggregate sample of over 21,048 slaves was collected, covering 80 distinct ethnic groups.

A crucial step in our construction of ethnicity-level slave export estimates is consistently aggregating the ethnic groups in the historic documents to a common classification scheme. Using a variety of different sources, the original ethnic groups are matched to the ethnic classification constructed and mapped by Murdock (1959). The authors of the secondary sources, from which much of the data were taken, generally provide detailed analysis of the meanings and locations of the ethnicities recorded in the historic records. In the most of the secondary sources, the authors also provide maps showing the historic locations of the ethnic groups. This helped significantly in mapping the different ethnic designations into a common ethnicity classification. Full details about these mappings are in Nunn (2008).

Because the ethnicity data for the Red Sea and trans-Saharan slave trade are not fine enough to construct ethnicity-level estimates of the number of slaves shipped during these slave trades, we restrict our analysis to the trans-Atlantic and Indian Ocean slave trades. Since the trans-Atlantic slave trade was by far the largest of the slave trades, the omission of the Red Sea and trans-Saharan slave trades will not likely have a large impact. As well, the countries that were most impacted by the Red Sea and trans-Saharan slave trades - Sudan, Ethiopia, and Chad - are not included in our analysis. Further, Nunn (2008) has shown that the impact of the slave trades as a whole is driven almost solely by the trans-Atlantic slave trade. As we report below, all of our results are robust to

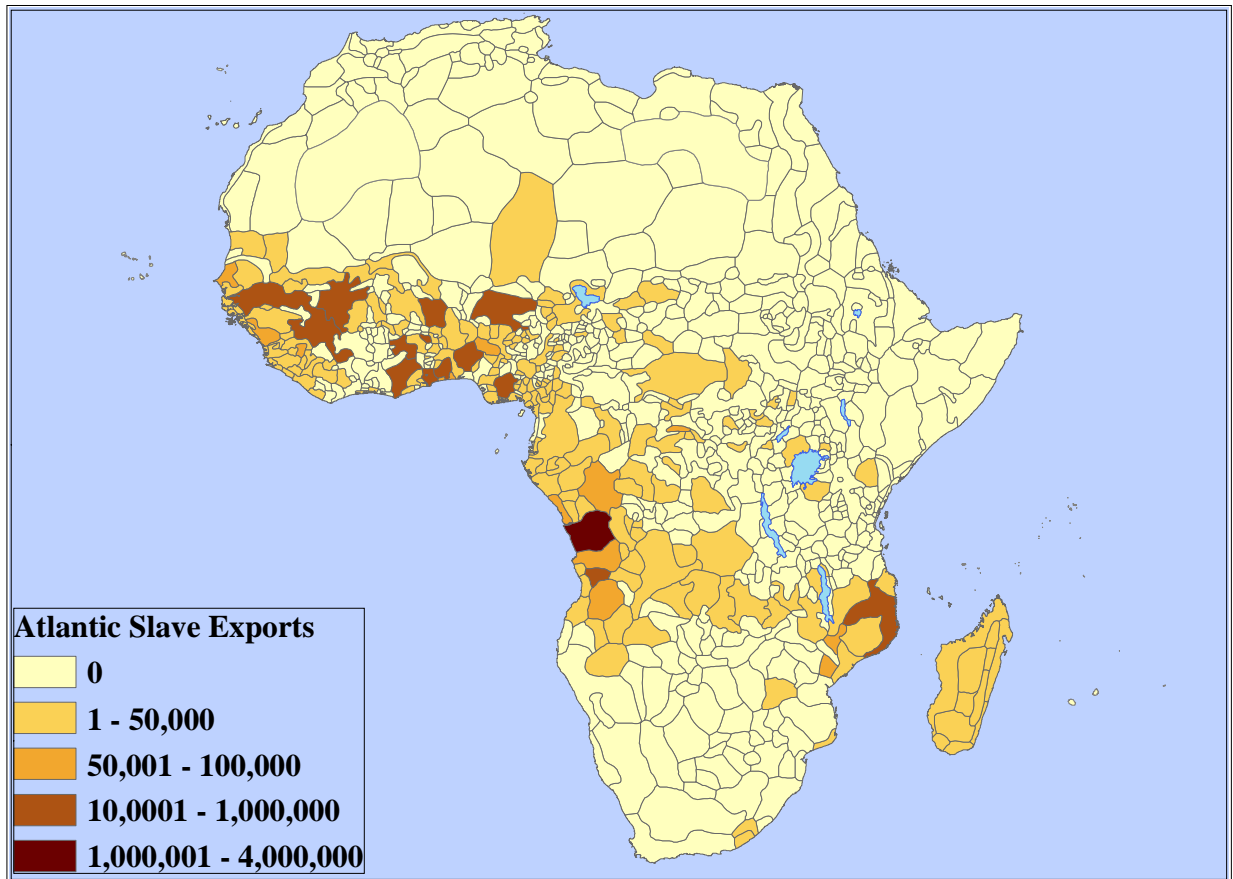


Figure 1. Map displaying the number of slaves of each ethnicity shipped during the trans-Atlantic slave trade.

omitting observations from the four countries in our sample that shipped some non-zero amount of slaves during either the trans-Saharan or Red Sea slave trades.⁹

In figures 1 and 2 we report maps that display the number of slaves shipped from each ethnic group during the trans-Atlantic and Indian Ocean slave trades. The two maps show the historic boundaries of each ethnic groups (in the 19th century), which have been categorized and mapped by Murdock (1959). The shade of each polygon indicates the number of slaves of that ethnicity taken during the relevant slave trade between 1400 and 1900. As figure 1 shows, the trans-Atlantic slave trade impacted much of the African continent. Not only were slaves taken from West Africa and West-Central Africa, but also from Eastern Africa and Madagascar as well. The much smaller Indian Ocean slave trade was confined primarily to Eastern Africa. The patterns of slaving observed in the data, and illustrated in the maps, are consistent with the qualitative

⁹The four countries are: Kenya, Mali, Nigeria, and Senegal. This is based on the figures reported in Table 2 of Nunn (2008).

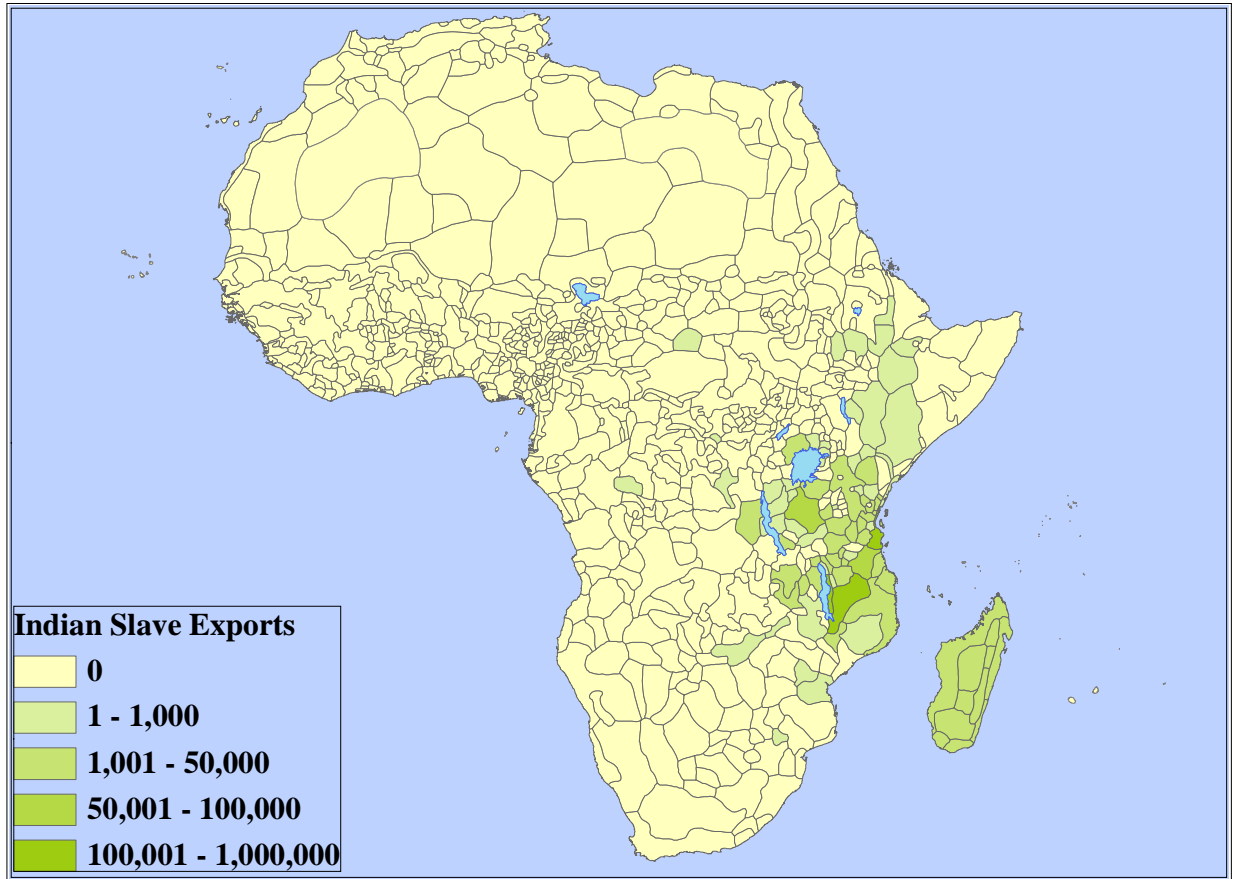


Figure 2. Map displaying the number of slaves of each ethnicity shipped during the Indian Ocean slave trade.

evidence on the sources of slaves taken during the trans-Atlantic and Indian Ocean slave trades (see e.g., Manning, 1990, Lovejoy, 2000).

4. Estimating Equations and Empirical Results

A. OLS Estimates

We begin our analysis by first testing for an empirical relationship between the number of slaves taken from an individual's ethnic group in the past and the individual's current level of trust today. We examine this relationship with the following estimating equation:

$$\text{trust}_{i,e,d,c} = \alpha_c + \beta \text{slave exports}_e + X'_{i,e,d,c} \delta + \gamma_1 \text{EF}_{d,c} + \gamma_2 \text{E}_{e,d,c} / \text{Pop}_{d,c} + \gamma_3 \text{missions}_e + \varepsilon_{i,e,d,c} \quad (1)$$

where i indexes individuals, e ethnic groups, d districts and c countries. The variable trust denotes one of our five measures of trust, which vary across individuals i and α_c denotes country fixed

effects. The variable slave exports_e is a measure of the number of slaves taken from ethnic group e during the slave trade. We describe this measure in detail below. The vector $X'_{i,e,d,c}$ denotes a set of individual level characteristics that we include as control variables. The variables include: an indicator variable for the respondent's sex, the respondent's age and age squared, indicator variable for whether the respondent lives in an urban or rural area, five fixed effects for the respondent's living conditions, 10 fixed effects for the educational attainment of the respondent and 25 occupation fixed effects, 20 religion fixed effects. The living condition fixed effects are based on the respondent's view of their present living conditions: (i) very bad, (ii) fairly bad, (iii) neither good nor bad, (iv) fairly good, or (v) very good. The education fixed effects are for the following categories: (i) no formal schooling, (ii) informal schooling only, (iii) some primary schooling, (iv) primary school completed, (v) some secondary school/high school, (vi) secondary school completed/high school, (vii) post-secondary qualifications, but no university, (viii) some university, (ix) university completed, and (x) post-graduate.

The country fixed effects are included to capture country-specific factors that are potentially important determinants of trust, such as government regulation (see Aghion, Algan, Cahuc, and Shleifer, 2008b, Aghion, Algan, and Cahuc, 2008a). They also capture differences in colonial strategies or outcomes that differ at the colony level, such as legal origin, and therefore, help to separate the effects of colonial rule from the slave trade. We also include our ethnicity level measure of the historic prevalence of missions, missions_e , to control for sub-national variation in the extent of European penetration and the de facto influence of colonial rule. The measure is the total number of missions (per square kilometer) in 1924 located on land that was inhabited by ethnic group e at the time. Data on the location of ethnic groups is from Murdock (1959), while data on the location of missions are from Roome (1924). Our measure of the number of missions is meant to not only quantify the extent of missionary activity, but to also capture the extent of European colonial penetration. Historically within Africa, missionary activity tended to go hand-in-hand with colonial penetration. Missionaries, who were interested in converting Africans to Christianity, generally felt that this was most easily accomplished with the protection of European political and military forces. As well, native leaders were more accepting of Christianity when it was accompanied by British military power, which they were eager to form alliances with to defeat their rivals (Falola and Heaton, 2008, pp. 85–109).

We include a number of proxy measures of the income of each individual. Although we do not

have a direct measure of the income, we feel that the occupation, education, and living condition fixed effects are reasonable proxies, and that our estimating equation does a good job of controlling for income, which has been shown to be highly correlated with trust. Occupation, as well as proxying for income, may also be an important determinant of trust itself. Francois and van Ypersele (2008) provide evidence showing that within the United States individuals that work in sectors that are more competitive have higher levels of trust.

We also include a number of measures that are meant to capture the ethnic composition of the area where each respondent lives. The first measure is the ethnic fractionalization of the district that the respondent lives in $EF_{d,c}$. Previous studies, such as Easterly and Levine (1997), have documented a relationship between ethnic fractionalization and income. Through this channel, the ethnic fractionalization of a respondent's location may affect the respondent's trust.¹⁰ Based on similar logic, we also control for the share of the district's population that is the same ethnicity of the respondent. This variable is denoted $E_{e,d,c}/Pop_{d,c}$ in (1). When respondents are among the ethnic minority, they may be less trusting of others. Evidence of this has been found in the context of the United States by Alesina and La Ferrara (2002). Both measures, $EF_{d,c}$ and $E_{e,d,c}/Pop_{d,c}$, are constructed from the sample of individuals in the Afrobarometer sample.

Our coefficient of interest is β , the estimated relationship between the historic slave exports of an individual's ethnic group and the individual's measure of trust today. Because our key explanatory variable, $slave\ exports_e$, only varies at the ethnicity level, all standard errors are clustered at the ethnicity level.

An alternative estimation strategy to equation (1) is to aggregate all data to the ethnicity level and estimate an equation where the unit of observation is an ethnic group. The results are robust to this alternative procedure. We choose the individual level regressions as our baseline strategy for a number of reasons. First, it allows us to control for individual level characteristics, resulting in more precise estimates of β . Second, in subsequent analysis, where we tackle issues of causality and the exact channels underlying the OLS estimates, our empirical strategies rely on variation across individuals. We are not able to perform these tests with data at the ethnicity level.

Estimates of equation (1) with trust measured by individuals' trust in others from their own ethnic group are reported in table 3. In the first three columns, we report OLS estimates of (1). To save space, we do not report the estimated coefficients and standard errors for the control

¹⁰Ethnic fractionalization is constructed in the standard manner. See Easterly and Levine (1997) for details.

Table 3. Estimates of the determinants of the trust of neighbors.

	Dependent variable: Trust of your neighbors											
	Full Sample						Restricted Sample: Kenya and Mali omitted					
	OLS			Ordered Logit			OLS			Ordered Logit		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
slave exports (millions)	-.690*** (.140)			-1.41*** (.289)			-.716*** (.146)			-1.43*** (.305)		
exports/area	-.018*** (.005)			-.032*** (.006)			-.018*** (.005)			-.037*** (.011)		
ln (1+exports/area)	-.156*** (.034)			-.320*** (.071)			-.160*** (.036)			-.324*** (.075)		
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District ethnicity controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Colonial missions controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	20,027	20,027	20,027	20,027	20,027	20,027	17,682	17,682	17,682	17,682	17,682	17,682
Number of clusters	185	185	185	185	185	185	151	151	151	151	151	151
R-squared	0.16	0.16	0.16	0.07	0.05	0.07	0.16	0.16	0.16	0.07	0.07	0.07

Notes: The unit of observation is an individual. Standard errors are clustered at the ethnicity level. The individual controls are for age, age squared, a gender indicator variable, 5 living conditions fixed effects, 10 education fixed effects, 20 religion fixed effects, 25 occupation fixed effects, and an indicator for whether the respondent lives in an urban location. The district ethnicity controls include a measure of ethnic fractionalization at the district level and the share of the district's population that are the same ethnicity as the respondent. The colonial missions variable is the density of mission stations (number per square kilometer) located in the area of Africa historically inhabited by the respondent's ethnic group. ***, ** and * indicates significance at the 1, 5 and 10% level.

Table 4. Marginal effects of the ordered logit estimates.

Response to: How much do you trust your neighbors?	Marginal effects, dP_i/dx_i :					
	Full sample			Restricted sample		
	exports	exports/area	ln (1+exports/area)	exports	exports/area	ln (1+exports/area)
	(1)	(2)	(3)	(4)	(5)	(6)
Not at all	.136*** (.028)	.0032*** (.0007)	.031*** (.007)	.146*** (.031)	.0038*** (.0011)	.033*** (.007)
Just a little	.200*** (.042)	.0044*** (.0009)	.046*** (.011)	.199*** (.044)	.0052*** (.0016)	.045*** (.011)
Somewhat	-.070*** (.017)	-.0015*** (.0004)	-.016*** (.004)	-.080*** (.019)	-.0021*** (.0007)	-.018*** (.005)
A lot	-.266*** (.055)	-.0061*** (.0012)	-.061*** (.014)	-.265*** (.057)	-.0069*** (.0021)	-.060*** (.014)
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
District ethnicity controls	Yes	Yes	Yes	Yes	Yes	Yes
Colonial missions controls	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	20,027	20,027	20,027	17,682	17,682	17,682
Number of clusters	185	185	185	150	150	150
Pseudo R-squared	0.07	0.05	0.07	0.07	0.07	0.07

Notes: Marginal effects are reported evaluated at the means. The unit of observation is an individual. Standard errors are clustered at the ethnicity level. The individual controls are for age, age squared, a gender indicator variable, 5 living conditions fixed effects, 10 education fixed effects, 20 religion fixed effects, 25 occupation fixed effects, and an indicator for whether the respondent lives in an urban location. The district ethnicity controls include a measure of ethnic fractionalization at the district level and the share of the district's population that are the same ethnicity as the respondent. The colonial missions variable is the density of mission stations (number per square kilometer) located in the area of Africa historically inhabited by the respondent's ethnic group. ***, ** and * indicates significance at the 1, 5 and 10% level.

variables. The coefficients of the individual level control variables are generally in agreement with the findings from previous studies. Consistent with Alesina and La Ferrara's (2002) findings from a U.S. sample, we find that trust is increasing, but at a decreasing rate, in age and is higher for males than for females. We also find trust to be uncorrelated with educational attainment. This is in contrast to Alesina and La Ferrara's (2002) finding that trust is increasing in the education. The difference might be explained by the different samples (Africa vs. USA) or by the fact that we also include occupation fixed effects and living standard fixed effects, both of which are highly collinear with the education fixed effects. We also find that individuals living in urban areas are less trusting than those in rural areas.¹¹ We find neither district level ethnicity measure, $EF_{d,c}$ or $E_{e,d,c}/Pop_{d,c}$, to be robustly correlated with trust.

In the first column of table 5, we use the total number of slaves taken from an ethnic group (measured in millions of people) as our measure of the intensity of the slave trade. The estimated coefficient for slave exports (β) is negative and statistically significant. This is consistent with the slave trade adversely affecting individuals' trust of those around them.

One problem with using total number of slaves as a measure of the impact of the slave trade on an ethnic group is that it does not account for differences in the initial sizes of different ethnic groups. In the second column, we use an alternative measure that normalizes the number of slaves taken by the size of the land inhabited by the ethnic group during the 19th century. The measure of land area is calculated using the map of the historic locations of ethnic groups produced by Murdock (1959). The results are similar with this alternative measure. Because the distribution of the exports/area is highly left skewed, with a small number of outliers with large values, in the third column, we take the natural log of one plus the variable from column 2. As shown, the results are similar when this third measure of slave exports is used. In further analysis we use this as our baseline measure of slave exports.

Ideally, we would prefer to use a measure of slave exports normalized by the populations of each ethnic group prior to the slave trade. Unfortunately, these data are unavailable. However, some historic population data are available from Murdock (1959), although they are from the end of the slave trade in the 19th century. An additional draw back of this data is that they only exist for just over half of the ethnic groups in Africa. Although we do not report the results here, we find that normalizing slave exports by this population measure also yields estimates of β that are

¹¹Although this results is not surprising, as far as we are aware, this relationship has not been shown.

negative and statistically significant estimates. However, the number of ethnic groups included in the analysis is only 109, rather than 185.

In columns 4–6, we report estimates from an ordered logit model. The estimated coefficients are negative and statistically significant, confirming the OLS estimates. Because one cannot interpret the estimated coefficients directly, we report the marginal effects for the probability that the respondent will choose each of the four categories in the first 3 columns of table 4. The first four rows of each column report the marginal effects for the four possible responses to each trust question. For each of the three measures of slave exports, the marginal effects show that if an individual’s ancestors were more heavily impacted by the slave trade, then he or she is more likely to answer “Not at all” or “Just a little” when asked whether they trust their neighbors, and less likely to answer “Somewhat” or “A lot”.

In columns 7–12 of table 5, we re-estimate the OLS and ordered logit estimates of columns 1–6, omitting respondents living in Kenya and Mali, the two countries in our sample that were significantly enslaved during the Saharan and Red Sea slave trades. The marginal effects from the ordered logit estimates are reported in columns 4–6 of table 4. The results show that the estimates remain robust to the omission of these two countries. The point estimates of the coefficients are essentially identical, and they remain highly significant. One also obtains similar results if the sample is further restricted to exclude Nigeria and Senegal, the remaining countries in the sample that had a non-zero number of slaves taken during the Saharan and Red Sea slave trades. Given that the results change little when we omit the countries affected by the Red Sea and trans-Saharan slave trades, for the remainder of the paper we use the full sample of Afro-barometer countries in our analysis.

Given that the results are qualitatively identical if equation (1) is estimated using OLS or an ordered logit model, for the remainder of the paper we report OLS estimates, which have the advantage of being simpler to interpret and to easier to report.

Our baseline OLS estimates for each of our three measures of trust are reported in the first three columns of table 5. The estimates show clearly that the slave trade is negatively correlated with trust in relatives, neighbors, and the local government. These relationships are consistent with the historical evidence that the effects of the slave trade penetrated deep into the social fabric of societies and eventually turned friends, families, and neighbors against each other.

In columns 4 and 5, we also report the estimates using our less preferred measures of trust: trust

Table 5. OLS estimates of the determinants of the trust of others.

	Full Sample					Restricted Sample: Languages and ethnicity are the same				
	Relatives	Neighbors	Local	Intra-group	Inter-group	Relatives	Neighbors	Local	Intra-group	Inter-group
			council					council		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
ln normalized slave exports	-.131*** (.036)	-.156*** (.034)	-.109*** (.022)	-.138*** (.031)	-.093*** (.028)	-.156*** (.045)	-.210*** (.039)	-.149*** (.031)	-.170*** (.041)	-.141*** (.043)
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District ethnicity controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Colonial missions controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	20,062	20,027	19,733	19,952	19,765	7,309	7,298	6,803	7,263	7,168
Number of clusters	185	185	185	185	185	71	71	71	71	71
R-squared	0.13	0.16	0.20	0.15	0.11	0.15	0.18	0.20	0.16	0.12

Notes: The unit of observation is an individual. Standard errors are clustered at the ethnicity level. The individual controls are for age, age squared, a gender indicator variable, 5 living conditions fixed effects, 10 education fixed effects, 20 religion fixed effects, 25 occupation fixed effects, and an indicator for whether the respondent lives in an urban location. The district ethnicity controls include a measure of ethnic fractionalization at the district level and the share of the district's population that are the same ethnicity as the respondent. The colonial missions variable is the density of mission stations (number per square kilometer) located in the area of Africa historically inhabited by the respondent's ethnic group. ***, ** and * indicates significance at the 1, 5 and 10% level.

of others within your ethnic group and trust of others outside of your ethnic group. As shown, one also finds a positive and statistically significant relationship between the slave trade and trust using these alternative trust measures.

Since the construction of our ethnicity-level historic slave export measure requires us to cleanly identify the ethnicity of the respondent in the survey, our hypothesized relationship will be much weaker if an individual cannot be cleanly linked to a single ethnic group. This will occur, for example, if the respondent is the child of parents belonging to two different ethnic groups.

Although we do not observe the ethnicity of the respondent's parents, we do have variables that may indicate that the respondent has parents of different ethnicities. In addition to the respondent's reported ethnicity, we also observe his or her primary language, as well as the language of the interview. When the ethnicity, primary language, and language of interview are not the same, this may provide evidence that the individual is of mixed ethnicity. For robustness, we re-estimate (1) using only observations for which the ethnicity, primary language, and language of interview are the same. The results are reported in columns 6–10 of table 5. As shown, the estimates are robust to the use of this smaller, which consists of 7,000 respondents belonging to 71 different ethnic groups.

B. IV Estimates

As we have discussed, our hypothesis is that the negative correlation between slave exports and trusts exists because ethnic groups that were exposed to the slave trade became less trusting of those around them. The historical evidence reviewed in section A indicates that this is a plausible explanation for the correlation. However, it is also possible that ethnic groups that were inherently less trusting were more likely to be taken during the slave trades, and that these groups continue to be less trusting today. In our view, the history of the slave trade does not provide strong support for this explanation. The historic accounts that we have reviewed suggest that individuals who were inherently more trusting appear to have been *more* likely to be kidnapped or tricked into slavery, not less likely. (Recall the examples from Koelle and the story of the drumming group from Anlo, Ghana.)

In this section, our goal is to determine whether the correlations documented in section A are in fact causal. To do this we use instrumental variables (IV). This requires an instrument that is correlated with slave exports, but uncorrelated with any characteristics of the ethnic groups that may affect trust today. We use the historic distance of each ethnic group from the coast as an instrument for the number of slaves of that ethnicity taken during the trades. The measure is constructed using data on the historic borders of ethnic groups during the 19th century (shown in figures 1 and 2) from Murdock (1959). The measure we use is the distance from the centroid of an ethnic group to the closest point along the coast.

The history of Africa's slave trades leave little doubt that the instrument is relevant. History and our first stage results show clearly that places closer to the coast had more slaves taken. Miller (1988) describes the slave trade as progressing in waves of destruction originating from the coast. The critical issue is then whether the instrument satisfies the necessary exclusion restrictions. That is, whether an ethnic group's historic distance from the coast is correlated with factors other than the slave trade that may have affect how trusting the ethnic group is today.

The most obvious reason why the exclusion restrictions may not be satisfied arises because the historic distance from the coast of an individual's ethnic group will be positively correlated with the individual's current distance from the coast, which may be correlated with the individual's current income (see Rappaport and Sachs, 2003, Frankel and Romer, 1999) which may in turn affect trust (see Alesina and La Ferrara, 2002, Guiso *et al.*, 2007a).¹² Because of this potential violation, as

¹²Note that this violation of the exclusion restriction actually results in IV estimates that are biased towards zero.

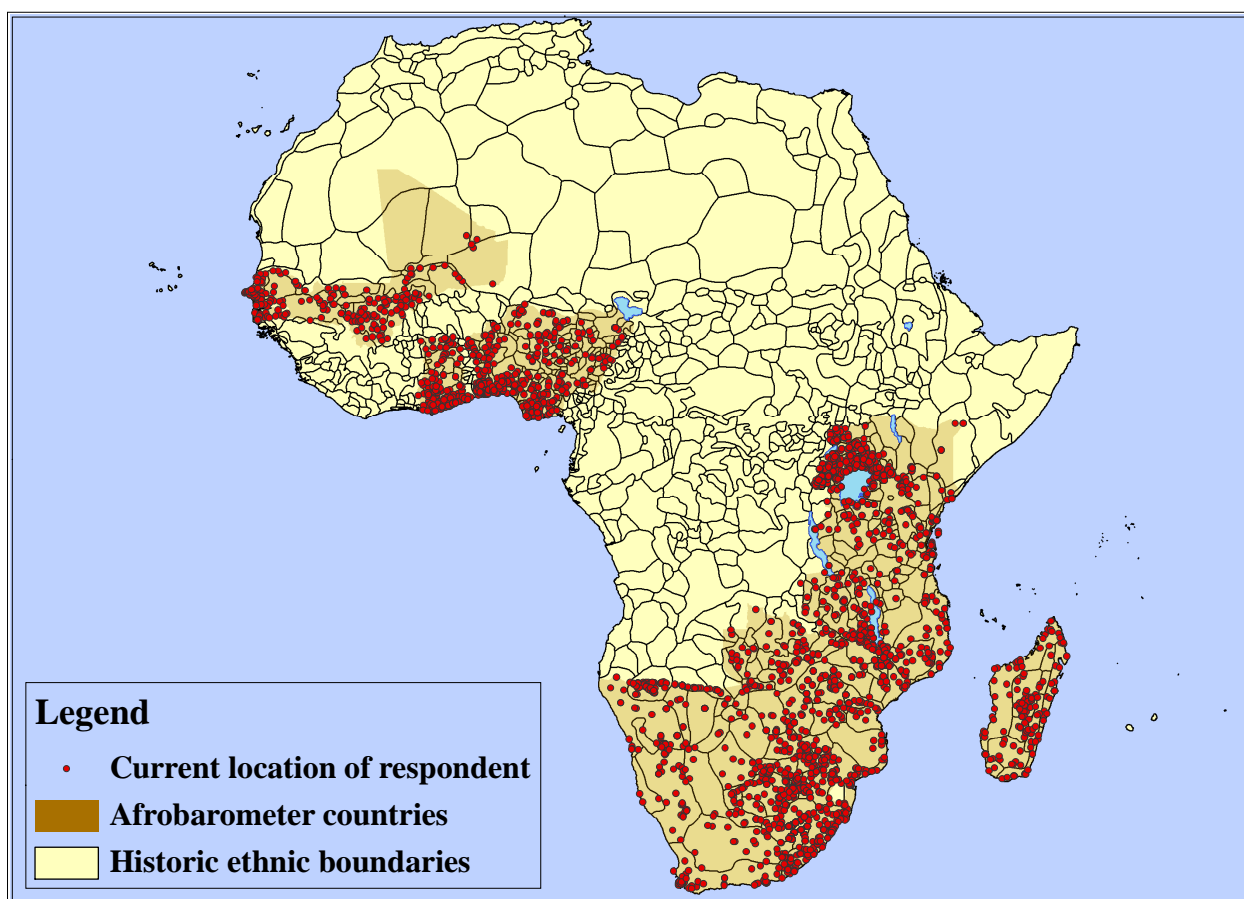


Figure 3. Map showing the historic location of ethnic groups and the current locations of respondents in the Afrobarometer surveys.

well as other similar violations that arise because of the correlation between an individual's current distance from the coast and their ancestor's historic distance from the coast, in our IV estimates we control for the current distance from the coast of the respondents in our sample.

An individual's current distance from the coast is calculated from the location of the respondent, which is recorded in the Afrobarometer surveys. The Afrobarometer records the town or village of each rural respondent. For urban respondents, the district or neighborhood of the city in which the individual resides is recorded.¹³ The geographic locations of the respondents are shown in Figure 3. In total, there are over 3,000 different locations recorded in the 2005 Afrobarometer survey. Using ARC GIS software, we calculate the distance from the town to the nearest point along the coast. This is our measure of how close the respondent is from the coast today.

In figure 4, we compare the two distance measures. From the figure it is clear that the current

¹³The geographic coordinates of each location were determined using a number of digitized global gazetteers provided by Harvard's Africa Map project. Details of this procedure are provided in the Data Appendix.

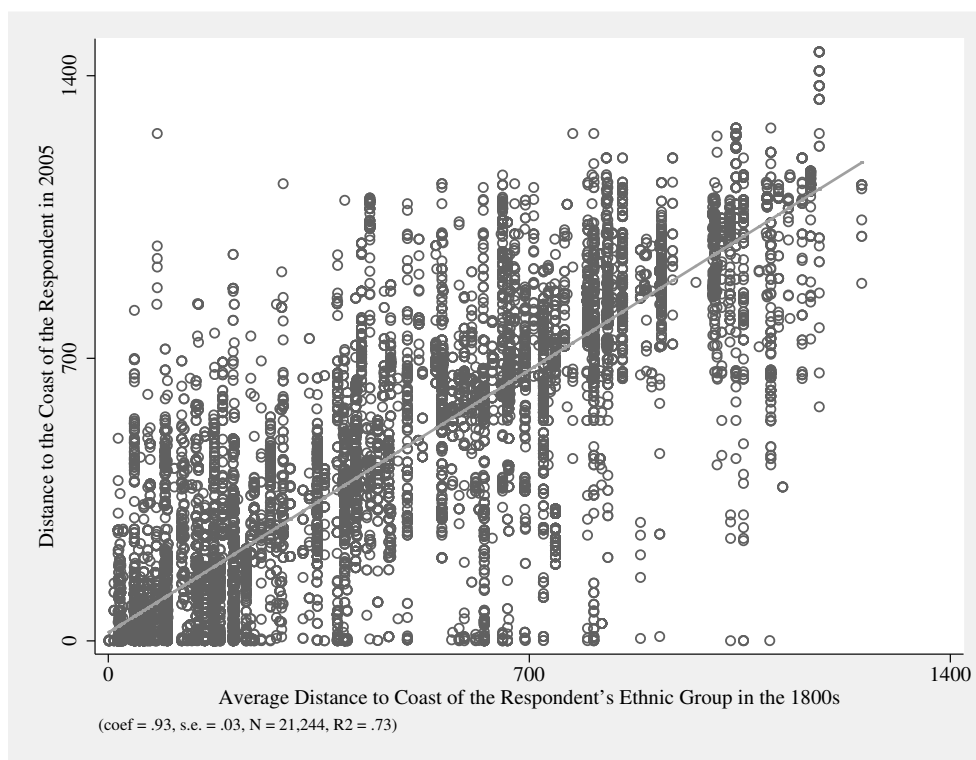


Figure 4. Correlation between the distance to the coast of the respondent in 2005 and the average distance to the coast of the respondent's ethnic group in 1800s.

distance of an individual from the coast is strongly correlated with the historic distance from the coast of the individual's ethnic group. If the two measures were equal, all observations would lie on a 45 degree ray from the origin. It is clear that a large mass of observations actually lie on this line. However, for many individuals the two measures are different. In the IV estimates that we report below, identification is by these individuals, and therefore the IV estimates will be a local estimate of the effect of the slave trade on the trust of these individuals. This is an important point to keep in mind. We discuss the differences between these individuals and the rest of the population below.

The IV estimates are reported in Table 6. The first stage estimates are reported in the bottom panel and the second stage estimates are reported in the top panel. The first three columns report IV estimates for each of our three measures of trust without controlling for each respondent's current distance from the coast in the second stage. In the first stage, the historic distance from the coast is strongly correlated with slave exports. As expected, ethnic groups that were further from the coast historically exported fewer slaves.

In columns 4–6, we report IV estimates with the current distance from the coast included as a

control variable. When we control for the current distance from the coast, both the historic and current distances from the coast are included in the first stage. In this case, the variation in historic slave exports is primarily explained by the historic distance from the coast rather than by individuals' current distance from the coast. This is reassuring, since logically it is the historic distance that should matter for historic slave exports. The fact that some of the variation is explained by current distance can be explained by the fact that the current distance of the individual from the coast is more precisely measured than the historic distance of ethnic group from the coast.

The second stage results show that even after controlling for each individual's current distance from the coast, the IV estimates still report a statistically significant negative effect of a history of the slave trade on an individual's trust today. The magnitudes of the estimates are slightly larger, but similar in magnitude to the OLS estimates. In fact, in all specifications but one, the Durbin-Wu-Hausman test cannot reject the null hypothesis of the consistency of the OLS estimates at anything standard significance level. These results provide evidence that selection into the slave trade is not strongly biasing the OLS estimates. This is consistent with the findings in Nunn (2008), where the IV estimates of the effect of the slave trade on per capita income across countries were very similar to the OLS estimates.

For much of Africa, prior to European contact in the 15th century, there was no overseas contact with the outside world. This fact provide one reason why the historic distance from the coast may no affect trust today through channels other than the slave trade. However, strictly speaking, this is not true for the northern coast of Eastern Africa, which was in contact with Swahili traders since at least 800AD. For this reason, in columns 7–9 we re-estimate the specifications from columns 4–6 omitting Tanzania and Kenya, the two countries in our sample where there was early contact with overseas traders. Although this reduces the sample by roughly 2,000 observations and the number of ethnicities by 33, the results remain robust. The estimated effects of the slave trade on our trust measures remain negative and significant, and for all three trust measures, the Durbin-Wu-Hausman test cannot reject the null hypothesis of the consistency of the OLS estimates.

For all observations, the location data are very precise. Typically, for individuals living in large cities we know the district within the city that they live in, and for those living in rural villages we know the location of the village. However, for some observations the data are slightly less precise. Instead of knowing the district of the city, we only know the city, and instead of knowing the rural village, we only know the more general vicinity that the village is located in. As a final robustness

Table 6. IV estimates of the effect of the slave trade on trust.

	Baseline sample						Omitting Kenya and Tanzania			Omitting observations with less precise data on current location		
	Trust of relatives	Trust of neighbors	Trust of local council	Trust of relatives	Trust of neighbors	Trust of local council	Trust of relatives	Trust of neighbors	Trust of local council	Trust of relatives	Trust of neighbors	Trust of local council
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Second Stage: Dependent variable is and individual level trust measure												
In normalized slave exports	-.225*** (.065)	-.253*** (.069)	-.226*** (.056)	-.207** (.091)	-.152* (.086)	-.169** (.078)	-.256*** (.087)	-.179** (.077)	-.123* (.074)	-.205** (.088)	-.183** (.080)	-.178** (.075)
Current distance of respondent from coast				.0001 (.0001)	.0002** (.0001)	.0001 (.0001)	.0001 (.0001)	.0003*** (.0001)	.0001 (.0001)	.0000 (.0001)	.0002* (.0001)	.0001 (.0001)
Hausman test (p-value)	0.14	0.15	0.02	0.31	0.81	0.29	0.06	0.50	0.68	0.25	0.38	0.18
R-squared	0.13	0.15	0.19	0.13	0.16	0.19	0.13	0.16	0.19	0.14	0.16	0.20
First Stage: Dependent variable is ln normalized slave exports												
Historic distance of ethnic group from coast	-.0013*** (.0003)	-.0013*** (.0003)	-.0012*** (.0003)	-.0010*** (.0003)	-.0010*** (.0003)	-.0010*** (.0002)	-.0011*** (.0003)	-.0011*** (.0003)	-.0011*** (.0003)	-.0011*** (.0003)	-.0011*** (.0003)	-.0011*** (.0003)
Current distance of respondent from coast				-.0006*** (.0002)	-.0006*** (.0002)	-.0005*** (.0002)	-.0007*** (.0002)	-.0007*** (.0002)	-.0006*** (.0002)	-.0005*** (.0002)	-.0005*** (.0002)	-.0005*** (.0002)
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District ethnicity controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Colonial missions controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	20,062	20,027	19,733	19,618	19,585	19,298	17,754	17,721	17,514	13,986	13,956	13,591
Number of clusters	185	185	185	184	184	184	151	151	151	182	182	182
F-statistic	70.41	57.19	78.26	139.55	99.65	153.85	200.02	133.22	156.34	116.47	99.28	103.95
F-stat of excl. instrument	19.22	19.25	19.30	14.86	14.89	15.15	14.08	14.09	14.29	16.96	17.02	16.85
R-squared	0.68	0.68	0.69	0.69	0.69	0.70	0.69	0.69	0.72	0.70	0.70	0.72

Notes: The table reports IV estimates. The top panel reports the second stage estimates and the bottom panel reports first stage estimates. Columns 1-6 reports estimates with the full sample of observations. Columns 7-9 report estimates with Kenya and Tanzania omitted from the sample, and columns 10-12 report estimates where observations with less precise current location data are omitted from the sample. All standard errors are clustered at the ethnicity level. The individual controls are for age, age squared, a gender indicator variable, 5 'living conditions' fixed effects, 10 education fixed effects, 20 religion fixed effects, 25 occupation fixed effects and an indicator for whether the respondent lives in an urban location. The district ethnicity controls include a measure of ethnic fractionalization at the district level and the share of the district's population that are the same ethnicity as the respondent. The colonial missions variable is the density of mission stations (number per square kilometer) located in the area of Africa historically inhabited by the respondent's ethnic group. The null hypothesis of the Hausman test is that the OLS estimates are consistent. ***, **, and * indicates significance at the 1, 5 and 10% levels.

check, in columns 10–12 we report estimates, omitting the observations for which the information on the current location of the respondent is less precise. The estimates remain completely robust to the omission of these observations. The coefficients barely change and remain highly significant.

C. Falsification Tests

We are aware that, as is always the case with IV, there remains uncertainty about whether our instrument satisfies the necessary exclusion restrictions. To provide the reader with some sense of the likely validity of our instrument, we undertake a number of falsifications tests.

If one estimates the reduced form relationship between the historic distance from the coast and trust today, a strong positive relationship is found. Individuals whose ancestors lived further from the coast are more trusting today. A similar relationship is also found if one examines the relationship between current distance from the coast and trust. These results are completely consistent with the first and second stage IV estimates reported in Table 6. Individuals with ancestors who lived closer to the coast were more exposed to the slave trade and their descendants are less trusting today. Our identification assumes that this is the only channel through which

distance from the coast affects trust. Therefore, if our identification assumption is satisfied, then we should not observe a similar positive relationship between distance from the coast and trust in the parts of the world where the slave trade did not occur.

This is exactly the falsification exercises that we undertake. Specifically, we search for surveys that ask the same or very similar trust questions as in the Afrobarometer survey and that also report the locations of the respondents in the surveys. We have found two data sources with both types of information: the Asiabarometer and the European Values Survey.

The first non-African sample that we consider relies on data from 10 Asian countries reported in the 2003 Asiabarometer. The ten countries are: Japan, South Korea, China, Malaysia, Thailand, Vietnam, Myanmar, India, Sri Lanka, and Uzbekistan. In the survey, the region where each individual lives is provided. Using this information we are able to calculate a measure of the minimum distance to the coast of each respondent in the sample. It is important to note that this distance measure is slightly different than the distance measure used in the African sample. In the Asian sample, it is a measure of the current distance from the coast of the respondent, but in the Africa data, it is a measure of the historic distance from the coast of the respondent's ethnic group. However, given the persistence in families' location over time, and the strong correlation between historic and current distances from the coast in the African, this is still a meaningful measure to consider.

A second important difference in the two samples is in the precise wording of the question in the two samples. In the Asiabarometer the question is: "How much do you trust your local government?", which is a slight different from the exact wording in the Afrobarometer: "How much do you trust your locally elected government council?". The available answers for the two questions are the same, and we construct our dependent variable in the same manner. Because income, occupation, and ethnic fractionalization measures are unavailable in the Asiabarometer sample, these covariates are not included in the estimating equations of either the African or Asian samples. Even for the covariates that exist in both samples, they are measured slightly differently. For this reason, we also report all specifications with only country fixed effects and no covariates.

The reduced form estimates in Africa and Asia are reported in columns 1–4 of Table 7. The first two columns report the reduced form relationship between distance from the coast and trust in the local government within Africa with and without individual level control variables. There is a strong positive relationship between an ethnic group's historic distance from the coast and their

Table 7. Reduced form relationship between the distance from the coast and trust within Africa and outside of Africa.

	Trust of Local Government Council				Inter-Group Trust				
	Afrobarometer Sample		Asiabarometer Sample		Afrobarometer Sample		WVS Non-Africa Sample		WVS Nigeria
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Distance from the coast	.0004*** (.0001)	.0003*** (.0001)	.0001 (.0001)	-.0082 (.0075)	.0004*** (.0001)	.0004*** (.0001)	-.0003 (.0002)	-.0002 (.0002)	.0008*** (.0001)
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	n/a
Individual controls	No	Yes	No	Yes	No	Yes	No	Yes	Yes
Number of observations	19,859	19,859	5,409	5,409	19,970	19,970	10,308	10,308	974
Number of clusters	185	185	57	57	185	185	107	107	16
R-squared	0.16	0.18	0.19	0.22	0.09	0.10	0.09	0.11	0.06

Notes: The unit of observation is an individual. The dependent variable in the Asiabarometer sample is the respondent's answer to the question: "How much do you trust your local government?". The categories for the answers are the same in the Asiabarometer as in the Afrobarometer. The dependent variable in the WVS sample is the respondent's answer to the question: "How much do you trust <nationality> people in general?". The categories for the respondent's answers are: "not at all", "not very much", "neither trust nor distrust", "a little", completely. The responses take on the values 0, 1, 2, 3, 4. Standard errors are clustered at the ethnicity level in the Afrobarometer regressions and at the location level in the Asiabarometer and the WVS samples. When the dependent variable is trust in the local government council, the individual controls are for age, age squared, a gender indicator variable, education fixed effects, and religion fixed effects. When the dependent variable is inter-group trust, the individual controls are for age, age squared, a gender indicator, an indicator for living in an urban location, and occupation fixed effects. ***, **, and * indicates significance at the 1, 5, and 10% levels.

trust in their local council. This relationship is very similar if current distance from the coast is used instead of the historic distance from the coast. Columns 3 and 4 report the same reduced form estimates, using the same covariates and the nearly identical trust question, but using data from 10 Asian countries from the 2003 Asiabarometer. Contrary to the African sample, the Asian sample shows no systematic relationship between the distance from the coast and trust.

In the remaining columns of the table we repeat this same exercise, but use a subset of the countries from the 1990 World Values Survey (WVS) for which the necessary data are available. These countries are Chile, Norway, Sweden, Great Britain, and Northern Ireland.¹⁴ These are the only countries in the first four rounds of the WVS for which we know the location of respondents and a trust question similar to one of the questions being examined here is asked. The question from the WVS is: "How much do you trust <nationality> people in general?". The similar Afrobarometer question reads: "How much do you trust <nationality> people from other ethnic groups?". The categories for the respondent's answers in the WVS are slightly different from the Afrobarometer. They are: "not at all", "not very much", "neither trust nor distrust", "a little", and "completely". The core difference with the Afrobarometer question is that in the WVS respondents are given a choice of five different responses, not four. As a consequence, the WVS variable ranges from 0 to 4 and takes on the value 0, 1, 2, 3, or 4. Because the WVS survey does not include measures

¹⁴The results are nearly identical if we omit Chile and provides estimates based on an all Europe sample.

of education, living conditions or religion, these measures are not included among the individual level controls when comparing the results inside and outside of Africa.

The estimation results are reported in columns 5–9 of Table 7. Columns 5 and 6 report the reduced form relationship within Africa with and without the set of controls. Again, we find a positive relationship between distance from the coast and trust. Columns 7 and 8 report the same estimates with the sample of countries from the EVS. Again, like the Asian sample, we do not find evidence of a positive relationship between distance from the coast and trust outside of Africa.

One concern is that the differences in the relationship between distance and trust within and outside of Africa may be driven by differences in the two surveys. This could occur, for example, if there were differences in the unintentional priming of respondents in the two surveys or if the location measures are more noisy in the non-African surveys. However, as shown in column 9, even if we look at respondents from African countries within the WVS (the only country being Nigeria), we find a very strong positive relationship between distance from the coast and trust. Therefore, it is unlikely that the different relationships between distance from the coast and trust within Africa and outside of Africa can be explained by the fact that the data are from different underlying surveys.

One objection to our falsification test is that countries outside of Africa are very different from African countries in many ways other than their history of the slave trade. Because of this concern, the ideal comparison would be with a counterfactual Africa that is otherwise identical except that the slave trade did not occur. While this comparison clearly is not possible, we can compare the portions of Africa that experienced the slave trade to the portions of Africa that did not and examine whether the reduced form relationship between distance from the coast and trust is absent in the parts of Africa that were not exposed to the slave trade. This comparison can even be refined further. Some countries, like South Africa and Namibia, barely experienced the slave trade. For these countries the relationship between distance from the coast and trust today should be very weak and close to zero. Further, the relationship should be stronger the more impacted an area was by the slave trade. In other words, if the exclusion restrictions are satisfied, the more exposed a region was to the slave trade, the stronger should be the reduced form relationship between historic distance from the coast and trust today; and for the countries that did not experience the slave trade at all, we should not observe any relationship.

We test for these patterns in the data by estimating the following equation:

$$\begin{aligned} \text{trust}_{i,e,d,c} = & \alpha_c + \beta_1 \text{distance from coast}_e + \beta_2 \text{distance from coast}_e \times \text{slave exports}_c \\ & + X'_{i,e,d,c} \delta + \gamma_1 \text{EF}_{d,c} + \gamma_2 \text{E}_{e,d,c} / \text{Pop}_{d,c} + \gamma_3 \text{missions}_e + \varepsilon_{i,e,d,c} \end{aligned} \quad (2)$$

where all variables are as defined as in (1). The variable $\text{distance from coast}_e$ denotes the historic distance from the coast of ethnic group e . To capture the fact that the relationship between distance from the coast and trust may differ according to whether the country was impacted by the slave trade, we interact this variable with slave exports_c , the natural log of the number of slaves taken from country c , which is taken from Nunn (2008). To facilitate the comparison of β_1 and β_2 , we transform our country-level slave export measure so that it ranges from 0 to 1, by dividing by the maximum value of the variable. With this transformation, the relationship between distance from the coast and trust for countries unaffected by the slave trade is β_1 , and is $\beta_1 + \beta_2$ for the country most affected by the slave trade.

If our exclusion restrictions are satisfied, then we expect to see that the relationship between the historic distance from the coast and trust today should be much stronger in the regions that were most exposed to the slave trade: $\beta_2 > 0$. Further, we should observe a non-positive relationship in the countries where there was no slave trade: ($\beta_1 \leq 0$).

Estimates of equation (2) are reported in table 8. For each of our three measures of trust, the estimated coefficients for β_1 are close to zero and always negative, while the coefficients for the interaction between distance from the coast and with slave exports β_2 is positive and statistically significant. This suggests that where there was no slave trade, there is no relationship between historic distance from the coast and trust today, or if anything a negative relationship. It is only in areas with involvement in the slave trade where we see a positive reduced form relationship between historic distance from the coast and trust.

Taken together, the results of Tables 7 and 8 are highly suggestive, and provide strong evidence supporting the validity of our identification strategy. In the sample of countries where the slave trade occurred, we see a very strong robust positive relationship between distance from the coast and trust.¹⁵ In the other parts of the world where the slave trade was absent, the estimated relationship between distance from the coast and trust is zero. This is true whether the comparison is between Africa and the rest of the world or between countries within Africa.

¹⁵This is true whether we use historic or current distance from the coast.

Table 8. Reduced form relationship between distance from the coast and trust within Africa.

	Trust of relatives		Trust of neighbors		Trust local council	
	(1)	(2)	(3)	(4)	(5)	(6)
Historic distance from the coast _e	-.0004** (.0002)	-.0003** (.00015)	-.0004* (.0002)	-.0003* (.00017)	-.00026** (.00015)	-.0002** (.00012)
Historic distance from coast _e × Country level slave exports _c	.0012*** (.0003)	.0010*** (.0002)	.0014*** (.0003)	.0010*** (.0003)	.0010*** (.0002)	.0008*** (.0002)
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
All control variables	No	Yes	No	Yes	No	Yes
Number of observations	20,062	20,062	20,027	20,027	19,733	19,733
Number of clusters	185	185	185	185	185	185
R-squared	0.12	0.14	0.12	0.15	0.16	0.20

Notes : The unit of observation is an individual. Standard errors are clustered at the ethnicity level. The individual controls are for age, age squared, a gender indicator variable, 5 'living conditions' fixed effects, 10 education fixed effects, 20 religion fixed effects, 25 occupation fixed effects, an indicator for whether the respondent lives in an urban or rural location, ethnic fractionalization in the respondent's district, the share of the population of the respondent's ethnic group in the district, and the density of mission stations located in the area of Africa historically inhabited by the respondent's ethnic group. `Country level slave exports' is the log normalized number of slaves taken from each country. The variable has been normalized to range between 0 to 1. It has a mean of 0.59 and a standard deviation of 0.32. ***, **, and * indicates significance at the 1, 5 and 10% levels.

5. Testing for Channels of Causality: Internal Norms versus the External Factors

To this point, we have documented a relationship between the extent to which a respondent's ancestors were threatened by the slave trade and the individual's level of reported trust today. We have also used IV estimates and falsification tests to provide evidence that this relationship is causal. The evidence suggests that the slave trade caused the descendants of those exposed to the trade to become less trusting. However, the underlying channel of causality still remains unclear. It is possible that the evolution of vertically transmitted norms were influenced during the 400 year period of the slave trade and that this is the cause of the relationship being captured. Those exposed to the trade, and their descendants, became less trusting over time and remain less trusting today. However, a second explanation is also possible. We know that the slave trade also resulted in the deterioration of pre-existing states, institutions, and legal structures. The slave trades may be correlated with lower trust today because they resulted in poorly functioning legal systems that still persist today, and the reason that people have lower levels of trust is because a weak rule of law allows people behave badly and therefore they cannot be trusted.

We undertake two empirical exercises to distinguish between these two channels. In the first

exercise, we focus on individuals' reported trust in their local government council. We choose this measure because the survey also asks respondents a number of questions about how they perceive the performance, corruption, and receptiveness of their local council. Part of the reason that respondents with a history of slaving may have a lower level of trust in their local council is because the slave trade had an adverse effect on the long-term development of local institutions. Therefore, it may be that there is mistrust in the local council, not because individuals have developed internal norms of mistrust, but because the council is not trustworthy.

We attempt to isolate the effect of the slave trades working through individuals' internal norms by controlling directly for differences in the quality of the local council. Respondents are asked three questions about the perceived performance of their local council. They were asked whether they approve or disapprove of the way their locally elected government councillor has performed his/her job over the past 12 months. Respondents then chose between the following responses: strongly disapprove, disapprove, approve, or strongly approve. The responses were coded to a variable that takes on the values 0, 1, 2 or 3, where strongly disapprove is coded as 0 and strongly approve is coded as 3. We feel that this is an excellent summary measure of the overall perceived quality of the local council. Respondents were also asked two more specific questions: (i) how many of their locally elected councillors were corrupt, and (ii) whether their local council members listen to their concerns. For the corruption question, the respondents were given the option of answering: none, some, most, or all of the councillors were corrupt. For the question about whether councillors listen, the respondents were given the option of answering: never, only sometimes, often, or always. Again, we code each response as 0, 1, 2 and 3, respectively.

The results of this exercise are reported in table 9. In the first three columns, the dependent variable is each of the three measures of respondents' views on their councillors performance, corruption, and willingness to listen. In each of the three regressions, the dependent variable is regressed on the full set of covariates from equation (1). For all three measures, individuals' perceived performance of their council is adversely affected by a history of past slave exports. This may be because the slave trade resulted in a deterioration of local political structures and networks, which are important for well functioning local politics today.

Because the variation in the perceived performance of the local councilor may capture differences in local political institutions, in column 5 we re-estimate equation (1) controlling for the three measures of the performance of their local government councilor. In column 6, we include fixed

Table 9. OLS estimates of the determinants of the trust in the local government, controlling for actual performance.

	Performance of local council			Trust in local government council			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
In normalized slave exports	-.079*** (.018)	-.077*** (.032)	-.050** (.025)	-.114*** (.022)	-.059*** (.016)	-.057*** (.015)	-.057*** (.014)
Performance measure					.337*** (.013)		
Corruption measure	n/a	n/a	n/a		-.214*** (.014)		
Councillors listen measure	n/a	n/a	n/a		.135*** (.014)		
Performance fixed effects	n/a	n/a	n/a	No	No	Yes	Yes
Corruption fixed effects	n/a	n/a	n/a	No	No	Yes	Yes
Councillor listens fixed effects	n/a	n/a	n/a	No	No	Yes	Yes
Indicator variables for the presence of 5 different public goods	n/a	n/a	n/a	No	No	No	Yes
All control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	18,540	17,266	18,436	15,748	15,748	15,748	15,748
Number of clusters	185	185	185	185	185	185	185
R-squared	0.15	0.15	0.09	0.20	0.36	0.36	0.36

Notes: The unit of observation is an individual. Standard errors are clustered at the ethnicity level. The 'indicator variables for 5 different public goods' are for the existence of the following public goods in the respondent's town or village: school, health clinic, sewage, piped water, and electricity. 'All control variables' includes our full set of individual level control variables, district ethnicity control variables, and our measure of colonial missions. ***, ** and * indicate significance at the 1, 5 and 10% levels.

effects for each of the response categories in each of the three variables. (Column 4 reports baseline estimates without the performance controls included for comparison.) As shown, the estimated relationship between slave exports and trust remains negative and statistically significant and the estimated magnitude decreases by almost 50%.¹⁶

In the final column, we also include controls for objective measures of the quality of the local government. The Afrobarometer survey records whether electricity, piped water, sewage, health clinics, and schools are available in each the respondent's village. Using this information we construct five indicator variables that equal one if the respondent's village has access to each of the five public goods. Also including these objective measures has no effect on the estimated effect of the slave trade on trust.

The second exercise that we undertake in an attempt to distinguish between the two channels

¹⁶The results are similar if each of the three control variables are included individually.

is to construct a second measure of slave exports. Recall that our baseline measure of the slave trade is the average number of slaves taken from an individual's ethnic group. This variable measures how intensively an individual's ethnic group (and ancestors) were impacted by the slave trade. The second measure that we construct uses the number of slaves that were taken from the geographic location where the individual is living today. In practice, the variable is constructed by identifying the current location that the individual is living in (these are the points indicated in figure 3), and then determining which historic ethnic group this point lies within. The variable for the individual takes on the normalized slave exports measure from the ethnic group that was historically living in this location. If an individual currently lives where his ancestors lived, then the two measures will be the same. Otherwise, the two slave export measures will differ.

The motivation for constructing the two variables comes from the insight that when an individual relocates, the individual's cultural beliefs move with them, but the external environment the individual faces is left behind. In other words, factors external to the individual are much more geographically fixed relative to cultural norms which are internal to the individual.

If one accepts that the slave trade had a causal effect on trust, then the two variables can be used to distinguish between the effect of the slave trade on trust through factors internal to the individual, like norms and beliefs, and factors external to individuals, like the domestic institutions. If the slave trade affects trust primarily through internal norms and beliefs, then mistrust should be correlated with the extent to which their ancestors were heavily impacted by the slave trade. If the slave trade affects trust primarily through its deterioration of domestic institutions and other external factors, then mistrust should be correlated with whether the external environment that the individual is living in today was heavily impacted by the slave trade.

To identify the effect of the slave trade through these two channels, we include our second geography-based measure of slave exports in our baseline estimating equation (1). Because the coefficients for the two variables are going to be driven solely by observations for which the two measures differ, and by differences in the variation between the two variables more generally, it is important to understand the relationship between the two variables. Not surprisingly, we find a strong positive relationship between the two variables. For approximately 44% of the respondents in the sample, both variables take on the same values. These are individuals who currently live in the same location as their ancestors. The other 56% of the sample can be explained by either migration or measurement error in either variable. We refer to this latter group as the 'movers' in

the sample.

Because identification is driven by the movers, it is important to understand that the estimation results with both slave export variables is an average effect among the movers only. The estimates may not apply to the population more generally. However, since the movers constitute 45% of the population, we feel that even estimating an average effect among this group is informative.

To assess whether there are key differences between movers and non-movers, in Table 10 we summarize the characteristics of, and differences between, the two groups. The table shows that movers tend to currently live in an urban area, to be younger, be closer to the coast, and to live in districts with less co-ethnics. These characteristics are consistent with the general migration patterns within Africa, where younger individuals, in search of work, are moving from their more ethnically homogenous rural villages to large cities, which tend to be located closer to the coast.

The table also reports that movers tend to have higher levels of trust in their relatives and neighbors than non-movers. Although we do not know for certain, it may be that individuals are more likely to migrate if they are more trusting of those around them, especially those that they do not know well. It is also possible that movers are more optimistic and hopeful and that this positively correlated with trust. Whatever the reason behind the difference, this difference is important to keep in mind when assessing the extent to which the results for movers also applies to non-movers in the sample.¹⁷

Estimates of equation (1), with both slave export variables included, are reported in table 11. The table reports estimates for each of our three measures of trust. In the odd numbered columns, we report estimates using all observations, and in the even numbered columns, we report the same estimates using only movers. In general, the estimated coefficients for both variables are negative and significant. However, the estimated coefficients for the ethnicity based slave exports variable appears more robust, and is always twice the magnitude of the location based slave exports variable.

These estimates suggest that the slave trades adversely affected trust through factors internal to the individual, such as cultural norms, as well as factors external to the individual, such as institutions and social structures, but that the magnitude of the internal channel is approximately twice the magnitude of the external channel.

¹⁷It is puzzling, however, that movers are not more trusting of their local government.

Table 10. Differences between movers and non-movers.

Variable	Movers		Non-movers		Difference: (Movers - Non-movers)	
	Obs.	Mean	Obs.	Mean	Mean	S.d.
<u>Trust measures:</u>						
Trust in relatives	9,049	2.243	11,113	2.141	0.102***	0.014
Trust in neighbors	9,029	1.810	11,097	1.683	0.122***	0.014
Trust in local council	8,791	1.665	10,973	1.676	-0.011	0.016
<u>Slave export measures:</u>						
In normalized ethnicity based slave export measure	9,381	0.458	11,863	0.473	-0.015	0.012
In normalized geographic location based slave export measure	9,381	0.603	11,863	0.473	0.130***	0.016
<u>Control variables:</u>						
Currently living in an urban city	9,381	0.387	11,863	0.351	0.037***	0.007
Age	9,260	35.63	11,730	37.08	-1.443***	0.204
Gender = Male	9,381	0.501	11,863	0.499	0.002	0.007
Secondary school education or higher	9,354	0.441	11,812	0.440	0.001	0.007
Ethnic fractionalization in current district	9,381	0.431	11,863	0.388	0.044***	0.004
Share of ethnic group in current district	9,381	0.531	11,863	0.649	-0.118***	0.005
Current distance from coast	9,381	421.41	11,863	441.83	-20.41***	4.66
Historic prevalence of colonial missions	9,381	0.235	11,863	0.202	0.033***	0.005

Notes: The unit of observation is an individual. 'In normalized ethnicity based slave export measure' is our baseline measure of slave exports used throughout the paper; it is the log of the number of slaves taken from an individual's ethnic group normalized by the size of the ethnic group (measured by land area). 'In normalized geographic location based slave export measure' is our alternative measure of slave exports, which is the log of the number of slaves taken from the location where an individual is currently living (normalized by land area). ***, **, and * indicate significance at the 1, 5 and 10% levels.

Table 11. Channels of causality: distinguishing internal norms from the external environment.

	Trust of relatives		Trust of neighbors		Trust local council	
	Baseline sample	Movers only	Baseline sample	Movers only	Baseline sample	Movers only
	(1)	(2)	(3)	(4)	(5)	(6)
In normalized ethnicity based slave export measure	-1.08*** (.030)	-.085*** (.031)	-.136*** (.029)	-.076*** (.030)	-.100*** (.020)	-.068*** (.022)
In normalized geographic location based slave export measure	-.057*** (.011)	-.039** (.017)	-.055*** (.014)	-.024 (.016)	-.029** (.013)	.000 (.021)
All control variables	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	19,618	8,787	19,585	8,768	19,298	8,566
Number of clusters	184	162	184	162	184	162
R-squared	0.14	0.14	0.16	0.18	0.19	0.21

Notes: The unit of observation is an individual. Standard errors are clustered at the ethnicity level. 'In normalized ethnicity based slave export measure' is our baseline measure of slave exports used throughout the paper; it is the log of the number of slaves taken from an individual's ethnic group normalized by the size of the ethnic group (measured by land area). 'In normalized geographic location based slave export measure' is our alternative measure of slave exports, which is the log of the number of slaves taken from the location where an individual is currently living (normalized by land area). 'All control variables' includes our full set of individual level control variables, district ethnicity control variables, and our measure of colonial missions. ***, ** and * indicates significance at the 1, 5 and 10% level.

It is important to keep in mind that since the estimated coefficients for the two slave export variables are identified from the movers in our sample, our estimates are an average effect among this group only. The relative importance of the two channels could be very different among the non-movers. Nonetheless, since movers constitute 45% of the sample, the estimated effects for this group are important and informative.

Our finding of a greater importance of internal norms over external factors is in line with other studies that also find internal factors to be more important than the external environment. For example, Ichino and Maggi (2000) examine the determinants of employee shirking in Italian banks and find that an individual's background is a much more important determinant of shirking than the employees environment.

6. Some Potential Consequences of Mistrust

Having provided evidence of the causal effects of the slave trades on trust, we now provide exploratory evidence that highlights some of the potential consequences of lower trust. As we highlight, the data show that individuals with lower levels of trust in their local government council are also less likely to attend local council meetings, less likely to contact a local councillor about a problem, and more likely to feel that violence is sometimes justified.

These correlations are summarized in table 12. In the first two columns, the dependent variable is a quantification of respondents' answers to the following question: "Have you personally attended a community meeting in the past year?" Respondents answered: (i) no, would never do this, (ii) no, but would do if had the chance, (iii) yes, once or twice, (iv) yes, several times, or (v) yes, often. Their answers were coded into a variable that took on the values 0, 1, 2, 3, 4, where 0 corresponds to the first category and 4 to the fifth category. Our results show that the higher an individual's trust in the local council, the more likely he or she is to attend local community meetings. As shown in the second column, this remains true even after controlling for the three measures of individuals' perceptions of the performance of their local government council.

In columns 3 and 4 of the table, the dependent variable is based on respondents' answers to the following question: "During the past year, how often have you contacted a local government councillor?" The respondents answered: (i) never, (ii) only once, (iii) a few times, and (iv) often. The responses were coded in a variable taking on the values 0, 1, 2, and 3. The results show that respondents who trust their local councillors more also tend to contact their local councilor

Table 12. The relationship between individuals' trust and their behavior.

	Attend community meetings		Contacted local government councillor		Feel violence is sometimes justified	
	(1)	(2)	(3)	(4)	(5)	(6)
Trust of local council	.049*** (.009)	.0027*** (.010)	.050*** (.007)	.020** (.008)	-.053*** (.007)	-.042*** (.008)
Council quality fixed effects	No	Yes	No	Yes	No	Yes
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes
District ethnicity controls	Yes	Yes	Yes	Yes	Yes	Yes
Colonial missions control	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	15,696	15,696	14,793	14,793	15,166	15,166
R-squared	0.19	0.19	0.17	0.18	0.07	0.07

Notes: The unit of observation is an individual. The individual controls are for age, age squared, a gender indicator variable, 5 living conditions fixed effects, 10 education fixed effects, 20 religion fixed effects, 25 occupation fixed effects, and an indicator for whether the respondent lives in an urban location. The district ethnicity controls include a measure of ethnic fractionalization at the district level and the share of the district's population that are the same ethnicity as the respondent. The colonial missions variable is the density of mission stations (number per thousand square kilometers) located in the area of Africa historically inhabited by the respondent's ethnic group. ***, ** and * indicates significance at the 1, 5 and 10% level.

more often. Again, this result remains robust when our three measures of individuals' perceived performance of their local government council are controlled for.

The final outcome considered is each respondent's attitude towards political violence. The respondents were given two statements: (A) "The use of violence is never justified in <country name's> politics today", and (B) "In this country, it is sometimes necessary to use violence in support of a just cause". Respondents were then instructed to choose one of the following responses about the extent to which they agree or disagree with the two statements: (i) agree very strongly with A, (ii) agree with A, (iii) agree with B, or (iv) agree very strongly with B. Respondents were also allowed to answer that they agree with neither, or that they do not know. We omit observations that chose one of the last two responses, and construct a measure that takes on the values 0, 1, 2, and 3, each number corresponding to (i), (ii), (iii) and (iv), respectively. As shown in columns 5 and 6, individuals who trust their local councillor are less likely to feel that violence is sometimes justified. Again, this is robust to controlling for the perceived quality of the local government.

Overall, the results from Table 12 show that an individual's level of trust in their local government council is strongly correlated with their local civic participation, which may in turn have strong impact on the well-functioning political institutions in a region or country. This may be one channel explaining the large estimated effects of trust on long-term economic development shown

in studies like Algan and Cahuc (2007).

7. Conclusions

The evidence presented in this paper adds to a new and growing literature in economics that seeks to better understand the role that culture, norms, and beliefs play in the decision making of individuals. The focus of the empirical literature has generally been to either show empirically that culture exists (e.g., Giuliano, 2007, Fernandez and Fogli, 2007, Miguel and Fisman, 2007, Miguel *et al.*, 2008); or to identify the economic impacts of cultural differences (e.g., Guiso *et al.*, 2004, 2007a, Algan and Cahuc, 2007, Bloom *et al.*, 2008). The natural next step is to try and understand the origins of cultural differences. Our study, like the recent contributions by Guiso, Sapienza, and Zingales (2007b) and Tabellini (2007), seeks to explain current differences by differences in the historical experiences of societies.

We have shown that the low levels of trust in Africa can be traced back to the legacy of the slave trade. In particular, we find that individuals' trust in their relatives, neighbors, and local government is lower when their ancestors were strongly impacted during the slave trade. To determine whether this relationship is causal, we provide IV estimates using the historic distance from the coast during the slave trade of an individual's ethnic group as an instrument for slave exports, while controlling for the individual's current distance from the coast. Our IV estimates also find a negative effect of the slave trade on trust today. We undertake a number of falsification tests to assess the validity of our instrument. We show that within Africa, one observes a robust positive relationship between distance from the coast and trust, while outside of Africa, the two measures are uncorrelated. Similarly, within the regions of Africa unaffected by the slave trade, no relationship exists. These correlations are consistent with the notion that distance from the coast affects trust only through the slave trade.

We then turn to the question of how and why the slave trade affects trust today. We examine the two most likely explanations for the relationship. The first is that over the 400 years of insecurity generated by the slave trade, general beliefs or 'rules-of-thumb' based on mistrust evolved. These beliefs were then transmitted from parents to children over time, and continue to manifest themselves today over 100 years after the end of the slave trade. The second is that the slave trade resulted in a deterioration in legal institutions and the rule of law in general. Because these poor legal environments continue to persist today, individuals are not constrained to act in a trustworthy

manner. Individuals therefore exhibit low levels of trust because the legal environment does not constrain those around him or her to be trustworthy.

We undertake a number of tests to try and distinguish between the two channels. We find evidence in the data for both channels of causality. The evidence suggests that the slave trade had an adverse effect on the external environment and this affects the trust of others around them. We also find strong evidence that the slave trades altered internal norms of trust. The magnitude of our estimates suggest that the later channel is always greater than the former.

Appendix A. Data Appendix

The individual-level survey data used in our analysis is taken from the fourth round of the Afrobarometer survey. The data are publicly available and can be downloaded at: www.afrobarometer.org

Estimates of the total number of slaves shipped from each ethnic group during the trans-Atlantic and Indian Ocean slave trade are constructed by disaggregating the aggregate country level estimates from Nunn (2008) to the ethnicity level. This is done using data on the ethnic identity of slaves over 80,656 slaves shipped from Africa during the trans-Atlantic Slave trade and over 21,048 slaves shipped during the Indian Ocean slave trade. A full description of the data and their sources is provided in Nunn (2008).

To construct our baseline measure of slave exports, the ethnicity level slave export figures were merged with the individual level Afrobarometer survey data based on the reported ethnicity of each respondent (question q79 in the survey). The ethnicities were merged using information on synonyms and alternative spellings of ethnic groups documented in Murdock (1959). For the vast majority of ethnic groups reported in the Afrobarometer a match to the slave exports data was possible. The exceptions are European ethnic designations, which we omit from our analysis. There are 28 individuals in the survey for which this is the case.¹⁸ For 78 individuals from Ghana their ethnic designations were grouped as reported as “Other northern languages”. These individuals are also omitted from our analysis. We were unable to match eight ethnic groups in the Afrobarometer survey with the Murdock classification. These are: Arabe (6 people), Gabawen (3), Garmug (1), and Mchegu (1), Ombuya (1).

¹⁸Three of the 28 are a Dutch and native mixed designation called “Baster”. We also omit this classification.

We construct the average historic distance of each ethnic group from the coast using a digitized version of the map of the 19th century location of ethnic groups within Africa Murdock (1959). Using ARCGIS software, we overlay a grid of points 1km apart over the Murdock ethnicity map, and calculate distance from each grid-point to the closest point along the coast. We then take an average of all distances. The constructed variable gives us an ethnicity level measure of the average historic distance of each ethnic group from the coast.

To construct measures of each respondent's current distance from the coast, we first identify the geographic location of each respondent using the information on the location in which the respondent lives. The Afrobarometer database provides the name of the village of each respondent. When the respondent lives in a large city, the neighborhood of the city is also provided. Using this information, we were able to determine the latitude and longitude of the respondents using a number of global gazetteers that report the location of villages, towns, cities, and neighborhoods of cities. The gazetteers are accessible through Harvard's AfricaMap project. The primary gazetteer that was used is Geonames, which can also be accessed directly at: www.geonames.org.

Our measure of the number of missions in 1924 located on land that was inhabited by ethnic group e includes all Protestant missions, Catholic missions, and BFBS Bible depots. Data on the location of ethnic groups is from Murdock (1959), while data on the location of missions are from Roome (1924).

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