THE ORIGINS OF FINANCIAL DEVELOPMENT:
THE AFRICAN SLAVE TRADE AND MODERN FINANCE

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Abstract

Given the importance of financial development for economic growth, why do so many countries have poorly developed financial systems? We evaluate the impact of the 1400-1900 African slave trade on household and firm financing constraints today. Exploiting cross-country and cross-ethnic group differences in the intensity with which people were enslaved and exported from Africa and using several identification strategies, we find that the intensity of slave exports adversely influences household and firm credit constraints and these effects do not reflect country-specific factors. The slave trade had an enduring, deleterious effect on social cohesion that continues to harm credit institutions.

JEL Codes: G21; G3; N2; O16; O55

Keywords: Financial Institutions; Corporate Finance; History of Financial Institutions; Economic Growth

1. INTRODUCTION

Given the importance of finance for economic growth, an active body of research examines the historical determinants of financial development.[1] La Porta, et al. (1997, 1998, 2008) show that as European countries colonized much of the world, they spread distinct legal systems that continue to influence investor protection laws and financial development. Engerman and Sokoloff (1997) and Acemoglu, Johnson, and Robinson (2001) stress that European colonizers created enduring political institutions that have had long-lasting effects on economies, including on financial systems (Beck, Demirgüç-Kunt, and Levine 2003).

In a recent paper, Pierce and Snyder (2017) open a new line of research into the historical determinants of financial development by discovering a relationship between the slave trade in Africa during 1400-1900 period and firms' access to credit across Africa today. The economic reasoning is as follows. Lovejoy (2000) explains that enslavement often occurred through inter-African village raids that damaged social cohesion. Indeed, Nunn and Wantchekon (2011) show that the intensity with which people were enslaved and exported from African countries explains differences in distrust today. Distrust, in turn, impedes the willingness of potential lenders to supply credit (e.g., McMillan and Woodruff 1999, Guiso, Sapienza, and Zingales 2004, Karlan 2005, and Karlan et al 2009). Similarly, the breakdown in social cohesion generated by the slave trade tended to limit economic and social interactions to members of small clans, which intensified narrow ethnic identities (e.g., Alesina and La Ferrara 2000). Such fragmentation can stymie the development of institutions that facilitate transactions among diffuse (non-clan) members, harming financial development (e.g., Easterly and Levine 1997). Consistent with these arguments, Pierce and Snyder (2017) demonstrate that firms in high-slave-extraction countries have less access to credit today than firms in lower-slave-extraction countries. What remains challenging is whether the slave trade influences firm financing constraints or whether it influences other country factors shaping firms' access to credit.

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[1] On finance and growth, see, for example, King and Levine (1993), Jayaratne and Strahan (1996), Levine and Zervos (1998), Rajan and Zingales (1998), and the literature reviews by Levine (2005a) and Popov (2018).

In this paper, we contribute to the study of the historical determinants of financial development in two crucial ways. First, we offer an enhanced strategy for identifying the impact of the slave trade on firm financing constraints. We differentiate among firms and assess whether the slave trade has a disproportionately large connection with firms' access to credit among firms that theory suggests would be most influenced by credit constraints: firms that rely on external finance for technological reasons. Thus, using the methods developed by Rajan and Zingales (1998), we assess whether the association between slave exports and firms' access to credit is especially pronounced for firms in industries that depend for technological reasons on external finance. This strategy allows us to (a) control for country-year and industry-year fixed effects, reducing concerns that other factors drive the relationship between the slave trade and firms' access to credit, and (b) better isolate one mechanism—firm financing constraints—through which the slave trade might influence modern financial systems.

Second, we provide the first evaluation of the impact of the slave trade on household finance. Besides financing firms, financial systems also influence economic welfare by lending to households (e.g., Campbell 2006). For example, household finance can mitigate the repercussions of adverse shocks to family income on the schooling of children (e.g., Jacoby 1994 and Jacoby and Skoufias 1997) and allow households to purchase homes and accumulated home equity, which can then be used as collateral for new businesses. Furthermore, by examining households, we can differentiate individuals by ethnic groups and better identify the impact of the slave trade on liquidity constraints. Nunn and Wantchekon (2011) provide data on the intensity of slave exports by ethnic group and *Afrobarometer* (2005) provides data on current household liquidity constraints by ethnic group. We evaluate whether the intensity with which each ethnic group was enslaved during the 1400-1900 period is positively associated the financing constraints faced by households of those same ethnic groups today. These household-level analyses provide information on an additional channel—household liquidity constraints—through which the slave trade might exert an enduring impact on modern finance.

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To conduct our study, we assemble data on slave exports from 49 African countries. Nunn (2008) provides data on the intensity with which people were enslaved and exported from each country: *Slave exports* equals the natural logarithm of the total number of slaves taken from each country during the period from 1400 through 1900 divided by the size of the country in millions of square kilometers. Furthermore, Nunn and Wantchekon (2011) provide information on the intensity with which people from particular ethnic groups were enslaved and exported from Africa: *Ethnicity based slave exports* equals the natural logarithm of one plus the total number of slaves taken from each ethnic group during the 1400-1900 period, divided by the area of land inhabited by the ethnic group measured in square kilometers. We use these to examine the impact of the slave trade on firm and household financial constraints today.

Our analyses are divided into three parts. The first part motivates our examination of the impact of the historical slave trade on firm and household financial constraints by documenting, for the first time, the strong, negative cross-country relationship between *Slave exports* and modern financial development. To measure modern financial development, we use the King and Levine (1993) and Levine and Zervos (1998) measures of the overall size of the financial intermediary sector and the Djankov, McLiesh, and Shleifer (2007) measures of the extent to which national institutions effectively collect and disseminate credit information. The negative relationship between *Slave exports* and overall financial development holds when conditioning on many country characteristics, including its legal origins, geography, and culture. Nevertheless, omitted factors might explain both the intensity of the slave trade and current financial development. To partially address this concern, we use instrumental variables. Nunn (2008) argues that the intensity of the slave trade across Africa was drive by the demand for slaves from particular external markets, e.g., the trans-Atlantic market, the trans-Indian markets, etc., and not by cross-Africa differences in the supply of slaves. He uses the distance to four key slave-demanding markets as instruments for *Slave exports*. We do the same and confirm the negative link between *Slave exports* and modern financial development. Nevertheless, there remain concerns that omitted country factors drive the results. Thus, the next parts of our analyses use

firm-level and household-level data to identify the impact of the historical slave trade on financial constraints.

In the second part of our study, we find that the negative association between slave exports and access to external finance is especially pronounced among firms that depend heavily on external finance. The results hold when conditioning on country-year and industry-year fixed effects as well as time-varying firm level characteristics. These analyses (a) reduce concerns that omitted variables drive the negative relationship between slave exports and firms' access to credit and (b) increase confidence in the view that the intensity of slave exports during the 1400-1900 period has had an enduring impact on firm financing constraints.

Third, we discover that the slave trade influences household access to credit. We find that the intensity of slave exports during the 1400 – 1900 period is strongly, negatively associated with household access to finance. This result holds when conditioning on household traits, such as household income, education, gender, etc. Moreover, the results hold when differentiating households by ethnicity. For a random sample of over 20,000 individuals across 17 African countries, *Afrobarometer* data on the self-reported ethnicity of each respondent along with the individual's views on the importance of financial constraints. We find that the intensity with which people from particular ethnic groups were enslaved and exported from Africa is negatively linked with how households from those same ethnic groups perceive the severity of credit constraints today. These results hold when controlling for country fixed effects, providing evidence of a strong negative connection between slave exports and household liquidity constraints across ethnic groups.

It is worth noting that this paper is not simply about the 1400-1900 slave trade and Africa; it is about understanding the determinants of financial development and providing insights on policy strategies to improve the operation of current financial systems. For example, the law and finance literature triggered by La Porta et al (1997, 1998) not only demonstrates that the legal systems exported by European colonizer shape the operation of financial systems; it also shows which characteristics of those legal systems support financial development. And, the literature on

European colonization and political institutions spurred by Acemoglu, Johnson, and Robinson (2001) is not just about colonization strategies; it also provides insights on the characteristics of political institutions associated with long-run prosperity and financial development. Similarly, although our paper exploits the quasi-natural experiment of cross-country and cross-ethnicity differences in the intensity of the African slave trade to evaluate the origins of modern financial development across Africa, the research provides insights into the relationship between social cohesion and the operation of financial systems, which may in turn provide guidance to policy analysts and policymakers.

The remainder of this paper proceeds as follows. Section 2 describes the data. Section 3 presents the motivating cross-country analyses of the relationship between slave exports and overall financial development. Section 4 provides the analyses of firm financing constraints and Section 5 presents the household-level analyses. Section 6 concludes.

2. DATA

In this section, we define the key data that we use to evaluate the relationship between historical African slave trade and modern financial development. Table 1 gives detailed variable definitions and sources, and Table 2 provides summary statistics.

2.1 The Slave Trade Measure

We use two measures of the historical slave trade. The first measure, constructed by Nunn (2008), is *Slave exports*, which equals the natural logarithm of the total number of slaves taken from each country during the period from 1400 through 1900, divided by the size of the country, as measured in millions of square kilometers. Over this period, there were four simultaneously slaves. The largest involved the trans-Atlantic shipment of people from Africa to the Western Hemisphere. The other three slave trades were the movement of slaves from Sub-Saharan to Northern Africa, the transportation of slaves across the Red Sea to the Middle East, and the Indian Ocean slave trade in which people were shipped to India, plantation islands in the

Indian Ocean, or the Middle East. To estimate the total number of slaves taken from each country, Nunn (2008) first calculates the total number of slaves shipped from each coastal country in Africa. He then uses ethnic identity data on a sample of slaves exported from Africa to impute the proportion of slaves extracted from each country in Africa during the 1400 – 1900 period. If no slaves were exported from a country, Nunn (2008) uses a value of 0.1 for the total number of slaves exported from a country, so that *Slave exports* is set to -2.3.

As shown in Table 2, *Slave exports* ranges from -2.3 to 8.8, indicating that the total number of slaves taken from a country ranges from 0 to 6,756 relative to a country's land area. Although there are 52 countries in the Nunn (2008) sample, we exclude Somalia due to a lack of financial development data. For our sample of 51 countries, the median ratio of total slaves exported to land area is 102. There is considerable cross-country variation. Angola exported the largest number of slaves (more than 3.6 million), whereas 11 countries, such as Swaziland and Tunisia, exported virtually no slaves.

The second measure, constructed by Nunn and Wantchekon (2011), is *Ethnicity based slave exports*, which equals the natural logarithm of one plus the total number of slaves taken from each ethnic group during the period from 1400 through 1900, divided by the area of land inhabited by the ethnic group, as measured in square kilometers. Due to data availability, the ethnicity-level slave trade measure is based on two of the four slave trades: the transatlantic slave, which is the largest of the slave trade, and the Indian Ocean slave trade. There is one observation for each of the 186 distinct ethnic groups. As shown in Table 2, the values of *Ethnicity based slave exports* ranges from 0 to 3.66, indicating that the total number of slaves taken from an ethnic group relative to the land area that it inhabited ranged from 0 to 38.

2.2 Country-level financial and legal system indicators

We use two cross-country indicators of the overall size of intermediaries from the *Global Financial Development Database* (2016), where these indicators are based on the work of King and Levine (1993) and Čihák et al (2013). We focus on banks, because banks represent the bulk

of African financial systems. *Private credit to GDP* equals the total credit provided by domestic money banks (commercial banks and other deposit-taking financial institutions) to the private sector as a percentage of gross domestic product (GDP) averaged over the 2006 – 2014 period. It measures the extent to which a country's savings are channeled to private borrowers through financial institutions. We analyze *Private credit to GDP* because King and Levine (1993), Levine and Zervos (1998) show that it is strongly associated with economic growth. As reported in Table 2, *Private credit to GDP* ranges from three percent of GDP in the Democratic Republic of Congo to 85 percent of GDP in Mauritius. The sample mean is 21, with a standard deviation of 18. As an additional measure of the size of the financial sector, we use *Bank deposits to GDP*, which equals the total value of demand, time, and saving deposits in banks as a percentage of GDP. It is also averaged over the 2006 – 2014 period.

We also use three cross-country measures of the extent to which financial institutions collect and disseminate information on the quality of borrowers. The data are from the World Bank's *Doing Business Data* and were constructed using the methodologies initially developed by Djankov, McLiesh, and Shleifer (2007). We analyze measures of the quality of information sharing institutions because Pagano and Jappelli (1993) and Djankov, McLiesh, and Shleifer (2007) show that information sharing about borrower creditworthiness facilitates the flow of bank credit to the private sector. That is, the quality of information sharing is a key factor shaping the operation of national financial systems. The three measures are as follows.

Depth of credit information is an index of the coverage, scope, and accessibility of credit information. It uses data on the range of firms and individuals for which credit information is distributed, the types of credit information that are distributed and whether historical data are available, and the ease with which borrowers or lenders (banks and other financial institutions) can obtain credit information. The variable ranges from 0 to 8, with higher values indicating greater coverage, scope, and accessibility of credit information.

Private bureau coverage measures the extent to which private credit bureaus (private firms or nonprofit organizations) maintain a database on the creditworthiness of borrowers

(individuals or firms) and facilitate the exchange of credit information among creditors. It equals the number of individuals and firms listed in a credit bureau, with information on their borrowing history within the past five years, plus the number of individuals and firms that have had no borrowing history in the past five years but for which a lender requested a credit report from the bureau during the past year, as a percentage of the adult population.

Public registry coverage measures the extent to which a public credit registry, which is usually managed by the central bank or the bank supervisory agency, collects information on the creditworthiness of borrowers (individuals or firms) and facilitates the exchange of credit information among banks and other regulated financial institutions. It equals the number of individuals and firms listed in a public credit registry, with information on their borrowing history within the past five years, plus the number of individuals and firms that have had no borrowing history in the past five years but for which a lender requested a credit report from the registry during the past year, as a percentage of the adult population.

As an illustrative, additional test, we examine legal system indicators. The economic reasoning concerning the impact of the historical slave trade on modern finance focuses on social cohesion as the intermediating channel through which the slave trade has an enduring effect on financial constraints. From this perspective, the slave trade should not have an independent effect on modern legal systems, which is the mechanism emphasized by the law and finance view. Thus, as an additional test, we examine whether the slave trade is associated with the following indicators of the contracting environment (all of which are from the World Bank's *Doing Business Data*). *Legal rights of creditors and debtors* measures the degree to which collateral and bankruptcy laws protect the claims of creditors, which promotes the availability of credit, as shown by Djankov, McLiesh, and Shleifer (2007). *Strength of insolvency framework index* measures the effectiveness of country's legal system in resolving insolvency, which Djankov et al. (2008) suggest facilitates external financing. *Contract enforcement time* measures how long it typically takes to resolve a commercial dispute. More specifically, it equals logarithm of the average number of days, from the moment that a creditor, for example, files a lawsuit until the

plaintiff receives payment (conditional the creditor wins the lawsuit). *Contract enforcement cost* measures the direct costs (e.g., legal and other fees) of resolving a commercial dispute. It equals costs of instituting a typical commercial claim as a percentage of the typical claim value. As discussed in Djankov et al. (2003), both *Contract enforcement time* and *Contract enforcement cost* are linked to the willingness of lenders to lend and to access to credit.

2.3 Other country-level indicators

In our examination of the relationship between the slave trade and financial development, we control for many country characteristics. We focus on characteristics that past researchers have found account for financial development, so that we can assess the independent link between the African slave trade and the functioning of modern financial systems across Africa. First, *French legal origin* equals one if the origins of country's legal system are the French civil law and zero if the system has British common law origins, as all of the countries in our sample have either French or British legal origins. We use this measure based on the seminal findings in La Porta et al. (1997, 1998). They show that (1) former colonies that inherited British common law systems tend to have legal systems that better protect creditors and minority shareholders than former colonies with French legal origins and (2) these legal system differences materially shaped cross-country differences in financial development.

Second, as emphasized by Acemoglu, Johnson, and Robinson (2001), Beck, Demirgüç-Kunt, and Levine (2003), Levine (2005b), and Easterly and Levine (2003, 2016), Europeans adjusted their colonization strategies based on how familiar and hospitable they found conditions around the world. In places where Europeans found hospitable environments, they tended to settle and create institutions that protect private property rights, check against government power, and reduce contractual and informational impediments to competitive markets. In places with less hospitable conditions, Europeans were more likely to set up extractive states that had enduring, adverse repercussions on the country's institutional development in general and financial development in particular. To quantify cross-country differences in the degree to which

Europeans found more or less familiar and hospitable conditions, we use (1) *Latitude*, *Longitude*, *Rain min*, *Humid max*, and *Colonizer indicators* and (2) endowments of natural resources including *Gold*, *Oil*, and *Diamonds*.

Third, several researchers stress that religion and the length of time a country has been independent can also influence financial development. For example, La Porta et al. (1999), Beck, Demirgüç-Kunt, and Levine (2003), and Stulz and Williamson (2003) find that religious differences shape the functioning of legal and financial institutions. Consequently, we control for each country's religious composition. In particular, *Catholic*, *Muslim*, *Protestant*, and *Other* equals the share of the population that is Catholic, Muslim, Protestant, or another religions respectively. We refer to these four variables as *Culture controls*. In addition, we control for how long each country has been independent. Easterly and Levine (2003) and Beck, Demirgüç-Kunt, and Levine (2003) emphasize that longer periods of independence from colonial rules allowed countries to develop institutions that support economic and financial development. To capture this view, we control for *Independence*, which equals 2006 minus a country's first year of independence.

2.4 Firm-level financing constraint measures and other indicators

We use firm-level data from the World Bank's *Enterprise Survey* to gauge the degree to which firms access finance from financial institutions. The *Enterprise Survey* consists of almost 20,000 firm-year observations from 40 African countries over the period from 2006 through 2015. We focus on two indicators of firms' access to capital: (1) *Working capital financed from banks* equals the proportion of a firm's working capital that is financed by borrowing from banks, and (2) *Investment financed from banks* equals the proportion of a firm's long-term investment (i.e., purchases of fixed assets) that is financed by borrowing from banks.

In addition to these measures of access to capital, the survey also collects information on other firm attributes. In the firm-level analyses, we control for the following firm-specific traits: *Firm size* equals the logarithm of the total number of employees; *Firm age* equals the logarithm

of the number of years since a firm starts operation; *Profitability* equals the ratio of net profits to total sales; *Government (Foreign)* is an indicator that equals one if a firm has positive government (foreign) ownership, and zero otherwise; *Exports* is a dummy variable that equals one if a firm has a positive share of sales exported outside of the country, and zero otherwise; *Sales growth* is the median value of firms' sales growth within an industry in each year.

2.5 Household-level financing constraint measures and other indicators

We use three indicators of household access to credit from the World Bank's *Financial Inclusion Database 2014*. First, *Borrow from financial institutions* equals one if the respondent borrowed from a formal financial institution during 12 months before the 2014 survey and zero otherwise. The average across survey participants with countries varies widely. For example, over 16% of respondents had a received a loan in the last year in Uganda, Botswana, and Mauritius, while less than 2.5% of respondents received a loan in the last year in Cameroon, Niger, and Guinea. Second, *Credit card* equals one if the respondent reports having a credit card and zero otherwise. *Credit card* also varies materially. The average across survey participants in Mauritius and South Africa is greater than 16%, while it is below 0.5% in Madagascar, Sudan, and Ethiopia. Third, *Mistrust in financial institutions* equals one if the respondent indicates not having a bank account because the person does not trust financial institutions, and zero otherwise. We examine mistrust in financial institutions because Nunn and Wantchekon (2011) show that the African slave trade had lasting effects on trust and an extensive literature shows that trust has first-order effects on financial systems (e.g., Guiso, Sapienza, and Zingales 2004; Aghion, Algan, Cahuc, and Shleifer 2010; and Ayyagari, Demirgüç-Kunt, and Maksimovic 2010, 2011). In Mauritius, only 0.3% of the respondents indicate a lack of trust in banks, while 22% of the respondents from Niger respond that they do not trust banks or other formal financial institutions.

Furthermore, we use the 2005 *Afrobarometer* surveys to measure differences in the degree to which individuals perceive that obtaining finance is a material constraint, while differentiating household by ethnicity. The surveys are conducted on a random sample of over

20,000 individuals in 17 African countries. The surveys contain information on the self-reported ethnicity of each respondent. The *Afrobarometer* asks respondents, "In your opinion, what are the most important problems facing this country that government should address?" We define *Loans/credit as the most important problem* as equal to one if a respondent chooses "Loans/credit" in response to the question, and zero otherwise. Thus, the measure reflects the subjective assessment of the respondent concerning liquidity constraints.

We condition on many household-level characteristics. Specifically, when using *Financial Inclusion Database*, we control for a set of individual demographics, including an education indicator that equals one if an individual's educational attainment is secondary or more, indicators of income quintile, age and age squared, and a gender indicator. When using the *Afrobarometer*, we control for age and age squared, a gender indicator, an indicator of living in an urban area, ten education fixed effects, five living conditions fixed effects, 18 religion fixed effects, and 25 occupation fixed effects.

3. SLAVE EXPORTS AND MODERN FINANCIAL DEVELOPMENT

In this section, we use cross-country comparisons of the historical slave trade and modern financial development to motivate our examination of the impact of the slave trade on firm and household financing constraints. We begin with the following regression specification:

$$FD = \alpha + \beta Slave\ exports +\ X'\Gamma + \varepsilon, \tag{1}$$

where the dependent variable, *FD*, is one of the country-level measures of financial development, and the key explanatory variable is *Slave exports*. The other explanatory variables, *X*, include an array of country characteristics, and Γ are coefficients on these controls. In all of the regressions, we control for *French legal origin*, *Latitude, Culture controls*, and *Independence*. In several specifications, we control for additional geographic or colonial factors including *Longitude*, *Rain min*, *Humid max*, and *Colonizer indicators*, and natural resource endowments including *Gold, Oil, and Diamonds*. Our coefficient of interest is β, which gauges the relationship between

historical slave exports and overall financial development today. We report heteroskedasticity robust p-values in parentheses.

As shown in Table 3 Panel A, the extent to which slaves were exported from a country is strongly, negatively associated with financial development today. For example, consider the *Private credit to GDP* regressions. *Slave exports* enters negatively and significantly at least at the five percent level and the estimated coefficients are economically large. The coefficient estimate implies that if a country were to move from the 75th percentile of the cross-country distribution of *Slave exports* (6.66) to the 25th percentile (-1.47), the coefficient estimates from column (2) imply that *Private credit to GDP* would jump by 17.6, where the sample median value of *Private credit to GDP* equals 15.1. Furthermore, the findings are robust to controlling for plausibly exogenous country characteristics (*French legal origin*, *Latitude, Religion controls*, and *Independence*) in column (1), and when also conditioning on additional geographic and colonizer controls (*Longitude*, *Rain min*, *Humid max*, and *Colonizer indicators*) in column (2).

The negative relation between *Slave exports* and financial development also holds when examining measures of the extent to which financial institutions effectively collect and disseminate information on the quality of borrowers. *Slave exports* enters negatively and significantly when the dependent variable is either *Depth of credit information* or *Private bureau coverage*. In contrast, *Slave exports* enters insignificantly when the dependent variable is *Public registry coverage*, which Djankov, McLiesh, and Shleifer (2007) suggest is not as good an indicator of the quality of information sharing as the other measures. The contrasting findings on *Private bureau coverage* and *Public registry coverage* are also consistent with the view that the historical slave trade impedes people's willingness to voluntarily share information with others, as private credit bureaus are not operated by the public sector. To illustrate the economic magnitudes, we use the same example from above: If a country were to move from the 75th percentile of the cross-country distribution of *Slave exports* (6.66) to the 25th percentile (-1.47), the coefficient estimate on *Slave exports* (-0.363) from column (6) implies that *Depth of credit*

information would increase by 2.95, where the average value of *Depth of credit information* in the sample is 1.71.[2]

We also provide an additional test by examining the connection between the slave trade and the operation of modern legal systems. The economic reasoning underlying the influence of the Africa slave trade on financial systems runs from enslavement to the enduring deterioration of social cohesion to poorly functioning credit institutions. This rationale does not focus on differences in the operation of legal system, which is the focus of the law and finance view. Thus, we evaluate whether the intensity of the slave trade is correlated with legal system indicators. Specifically, our null hypothesis is that *Slave exports* does account for cross-country differences in the following four legal system indicators: *Legal rights of creditors and debtors*, *Strength of insolvency framework index*, *Contract enforcement time*, and *Contract enforcement cost*. As shown in Appendix Table A2, we cannot reject this null hypothesis: *Slave exports* enters each of these regression insignificantly. These findings do not indicate that the legal system is unimportant for financial development; rather, the findings are consistent with the view that the slave trade does not influence financial development through its effect on the legal system.

Concerns about omitted variables and endogeneity imply that we cannot interpret these regressions as reflecting the causal impact of the slave trade on financial development. There might be, for example, omitted country characteristics that explain both the intensity of slave exports and the operation of the financial system.

As an initial attempt to addresses these challenges, we employ the instrumental variables (IV) strategy developed by Nunn (2008). Nunn (2008) explains that the intensity with which people were enslaved and exported from different parts of Africa reflects the demand for slaves from around the world during the 1400—1900 period. He stresses that the historical evidence indicates that it was the location of demand for African slaves that affected the location of supply; the location of slaves did not influence the location of the demand for slaves. As described by

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[2] The negative relation between *Slave exports* and financial development and institutions reported in Table 3 also holds when we include indicators of whether the country is heavily endowed with gold, oil, and diamonds. We report the robustness tests in Appendix Table A1.

Nunn (2008, p. 160), "In the West Indies and the southern United States, slaves were imported because of climates suitable for growing highly valued, globally traded commodities such as sugar and tobacco. The existence of gold and silver mines was a determinant of the demand for slaves in Brazil. In the northern Sahara, Arabia, and Persia, slaves were needed to work in salt mines, and in the Red Sea area slaves were used as pearl divers." It was not the location of slaves across different parts of Africa that triggered these demands for slaves in the Caribbean, southern United States, Brazil, etc. As instruments for *Slave exports*, Nunn (2008) uses the travel distances between each African country and the largest demanders of slaves in each of four of the slave trades. In particular, *Minimum Atlantic distance* is the minimum sailing distance from the point on the African coast that is closest to the country to the closest of nine major trans-Atlantic markets for slaves (Virginia, USA; Cuba; Haiti, Jamaica, Dominica; Martinique; Guyana; Salvador, Brazil; and Rio de Janeiro, Brazil). *Minimum Indian distance* is the minimum sailing distance from the point on the African coast that is closest to the country to the closest of two trans-Indian Ocean markets for slaves (Mauritius and Muscat, Oman). *Minimum Saharan distance* is the overland distance from a country to the closest trans-Saharan markets and trading posts for slaves (Algiers, Tunis, Tripoli, Benghazi, and Cairo). *Minimum Red Sea distance* is the overland distance from a country to the closest ports of exporting slaves via the Red Sea (Massawa, Suakin, and Djibouti). We use these same instruments to assess the relationship between the historical slave trade and modern financial development.

As shown in Table 3 Panel B, the IV results corroborate the earlier findings using OLS: More slave exports during the African slave trades are negatively associated with modern financial development. In terms of the first-stage regressions, *Minimum Atlantic distance*, *Minimum Indian distance*, and *Minimum Saharan distance* enter negatively and significantly. This suggests that fewer people were enslaved in countries farther away from these markets demanding slaves. We provide F-tests of the null hypothesis that these excluded instruments do not explain *Slave exports*. Although several of these F-statistics are "small," i.e., less than 10, they are similar to those reported in Nunn (2008).

Given the weakness of the instrument variables, therefore, we employ two additional strategies for addressing omitted variable concerns and assessing the impact of the slave trade on modern finance.[3] In particular, we examine whether the relationship between the slave trade and the financing constraints faced by (a) different firms and (b) different households vary in theoretically predictable ways.

4. SLAVE EXPORTS AND FIRM FINANCIAL CONSTRAINTS

4.1 Bank finance

To assess the relationship between the slave trade and firm financing constraints, we begin with the following regression equation:

$$F_{f,c} = \alpha + \beta Slave\ exports_c + X'_c\Gamma + X'_f\Theta + \Psi + \varepsilon_{f,c}, \qquad (2)$$

where the dependent variable, $F_{f,c}$, is either *Working capital financed from banks*, or *Investment financed from banks* for firm *f* in country *c*. The key explanatory variable is $Slave\ exports_c$ and the other historical country-level explanatory variables are X_c (*French legal origin*, *Culture controls*, *Latitude*, *Independence*), with the corresponding coefficient vector Γ.

The regressions also control for firm-specific characteristics, X_f, *Firm size, Firm age, Sales growth, Profitability, Government ownership, Foreign ownership,* and *Exports*, with their corresponding coefficient vector Θ. In addition, we include industry and year fixed effects, as denoted by Ψ, to account for time-invariant factors within the same industry (at the three-digit International Standard Industrial Classification (ISIC) level), and common time-varying factors.

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[3] We also employ the methodology of Oster (2017) for assessing potential biases created by unobservables. We calculate the degree of selection on unobservables relative to observables as δ, which equals $\beta_{Full}/(\beta_{Restrict}-\beta_{Full}) \times (R_{Full}-R_{Restrict})/(R_{Max}-R_{Full})$, where β_{Full} represents the coefficient estimate on *Slave exports* from the model using a full set of controls, $\beta_{Restrict}$ is the coefficient on *Slave exports* from the model using a restricted set of controls. R_{Full} and $R_{Restrict}$ denote the R-squared from the model with a full set of controls or a restricted set of controls, respectively. R_{Max} is the R-squared from a hypothetical model on a complete set of observable and unobservable independent variables, which we assume equals one. We estimate δ using a full model with (a) basic country controls (French legal origin, Culture controls, Latitude, and Independence), or (b) both basic country controls and additional controls (Longitude, Rain min, Humid max, and Colonizer indicators). The estimates of δ ranges from 2.8 to 6.9, suggesting that selection on unobservable country factors needs to be 2.8 to 6.9 times larger than selection on observables to explain away the treatment effects of the slave trades in our specifications.

We report heteroskedasticity robust p-values, where the standard errors are clustered at the country level.

Consistent with the findings in Pierce and Snyder (2017) of a positive association between slave exports and firms reporting that they face material external financing constraints, we find that firms tend to receive much less financing from banks in countries that had more *Slave exports* during the 1400–1900 period. As shown in Panel A of Table 4, *Slave exports* enters negatively and significantly in the regressions where the dependent variable is either *Working capital financed from banks* or *Investment financed from banks*. The estimated economic magnitudes are large. Consider, for example, the coefficients reported in Panel A columns (1) and (2). They suggest that a one standard deviation increase in *Slave exports* (3.9) diminishes the proportion of working capital financed from banks and the proportion of long-term investment financed from banks by about 0.055 (=0.014*3.9) and 0.074 (=0.019*3.9), respectively, which is equivalent to about 63% of the sample average of *Working capital financed from banks* (0.086) and 57% of the sample average of *Investment financed from banks* (0.131). One potential concern with interpreting these results is that it could be a demand side rather than a supply side effect. Perhaps, cross-country differences in the intensity of slave exports influence the nature of production and hence the degree to which firms demand bank finance.[4] To address such identification concerns, we now differentiate among firms within countries.

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[4] See the discussion in Pierce and Snyder (2018) and the work on the historical determinants of organizations by Kluppel, Pierce, and Snyder (2017).

4.2 Bank finance: Differentiating by Industry

We next explore whether the associations between *Slave exports* and firm access to formal credit vary across industries in a theoretically predictable manner. In particular, if the intensity of slave exports in the 1400–1900 period has had enduring, deleterious effects on the financial system in a manner that impedes firms from obtaining credit from formal financial institutions, then the relationship between *Slave exports* and firm financing should be especially pronounced in industries that depend, for technological reasons, on credit from financial institutions. If these cross-industry predictions hold, it would reduce concerns that the previous results are spurious or reflect an omitted variable.

We differentiate industries by their "technological" dependence on (a) external finance (*EFD*), and (b) physical capital for production (*Capital intensity*). With respect to dependence on external finance, we follow Rajan and Zingales (1998) and use the variable *External finance dependence* (*EFD*), which equals the fraction of capital expenditures not financed with internally generated cash flows in the United States. Rajan and Zingales (1998) argue that since U.S. financial markets are relatively frictionless, *EFD* provides information on the degree to which firms in an industry depend on external finance for technological reasons. Given the level of economic and technological development in Africa, we use U.S. data over the earliest available decade, the 1970s, to calculate *EFD* at the three-digit ISIC level. With respect to *Capital intensity*, we follow Bartelsman and Gray (1996) and define *Capital intensity* as the total real capital stock in an industry divided by value added in the industry using data from the *NBER Manufacturing Productivity Database* in the 1970s. As the *Manufacturing Productivity Data* are available only for manufacturing industries, the number of industries in our analyses would fall from 89 to 55 when we include the *Capital intensity* into the estimation.

Thus, we use the following regression specification to assess the relationship between firm financing and the slave trade while differentiating by industry.

$$F_{f,c} = \alpha + \gamma Slave\ exports_c * I_f + X'_c \Gamma + X'_f \Theta + \Lambda + \varepsilon_f, \tag{3}$$

where the dependent variable, $F_{f,c}$, is either *Working capital financed from banks*, or *Investment finance from banks* for firm f in country c. The key explanatory variable is the interaction term, *Slave exports$_c$* $* I_f$, where I_f is one of two variables indicating the nature of firm f's industry (*EFD* or *Capital intensity*). The country-level and firm-level explanatory variables (X_c and X_f, respectively) are the same as in equation (2). In these interaction term analyses, we also include several fixed effects, as represented by Λ. In particular, we control for (a) country, industry, and year fixed effects, (b) country by year, and industry fixed effects, or (c) country by year and industry by year fixed effects. As a result, both *Slave exports* and I_f drop as regressors. We use heteroskedasticity robust standard errors clustered at the country level.

As reported in Panels B & C of Table 4, the relationships between *Slave exports* and the firm financing indicators vary across industries in a manner that is fully consistent with the two theoretical predictions articulated above. In particular, as shown in columns (1) – (3) of Panel B and C, *Slave exports*EFD* enters negatively and significantly in both the *Working capital financed from banks* and *Investment finance from banks* regressions, indicating that the relationship between *Slave exports* and obtaining financing from banks is especially strong in industries that naturally depend heavily on credit from financial institutions. The estimated economic magnitudes are large. For example, consider the estimates from column (1) of Table 4 Panel C, in which the dependent variable is *Investment financed from banks*. The industry at the 75th percentile of *EFD* (0.280) is Restaurants, and the industry at the 25th percentile (-0.066) is Dairy products. The country at the 75th percentile of *Slave trade* (6.66) is Mozambique, and the country at the 25th percentile of *Slave trade* (-1.47) is Central African Republic. Setting the other factors to their sample mean values, the coefficient estimate on *Slave trade*EFD* (-0.01) predicts that Restaurants would receive 0.028 less *Investment financed from banks* than Dairy products, in Mozambique as compared to Central African Republic (-0.028 = -0.010*8.13*0.346). This magnitude is not small, given that the sample average of *Investment financed from banks* equals 0.13.

These analyses reduce concerns that omitted variables drive the negative relationship between slave exports and firms' access to credit. Indeed, the results hold when conditioning on (a) country, industry, and year fixed effects, (b) country × year, and industry fixed effects, and (c) country × year, and industry × year fixed effects. The findings suggest that the intensity of slave exports during the 1400-1900 period has had an enduring impact on firm financing constraints.

5. SLAVE EXPORTS AND HOUSEHOLD FINANCIAL CONSTRAINTS

5.1 Household credit: Slave exports by country

We next turn to the question: Is the intensity with which people were enslaved and exported from African during the 1400 – 1900 period related to the degree to which household access credit today. We begin with the following regression specification that exploits cross-country variations in slave exports:

$$HH\_FD_{i,c} = \alpha + \theta Slave\ exports_c + X'_c \mathbf{M} + + X'_i \mathbf{N} + \varepsilon_{i,c}, \tag{4}$$

where the dependent variable, $HH\_FD_{i,c}$, is one of our two measures of the degree to which household i in country c has obtained credit from the formal financial system: *Borrow from financial institutions* or *Credit card*. With respect to the explanatory variables, *Slave exports$_c$* is the same as that used in the estimation of equation (1). X_c represents a set of country variables including *French legal origin*, *Latitude, Culture controls*, and *Independence*. The individual-level control variables, X_i, include the person's education, income quintile, gender, age and a quadratic in age. Our coefficient of interest is θ, which measures the relationship between slave exports and household access to finance. We report heteroskedasticity consistent p-values, where the standard errors are clustered at the country level.

The results in Table 5 Panel A indicate that the intensity of the historical slave trade is negatively associated with household access to credit across Africa. *Slave exports* enters negatively and significantly in the regressions using the overall sample (columns (1) and (4), and two subsamples of individuals based on whether income is above quarter 40%, which split the

sample into two relatively equal sized groups (columns (2) & (3) and (5) & (6)). This holds when the dependent variable is either *Borrow from financial institutions* or *Credit card*. With respect to the economic sizes of the estimated coefficients, consider the regression of *Borrow from financial institutions* on *Slave exports* in column (1). The estimates indicate that if a country were to move from the 75th percentile of the cross-country distribution of *Slave exports* (6.66) to the 25th percentile (-1.47), the probability that an average person in that country would have received a loan from a formal financial institution would rise by almost 5 percentage points, which amounts to more than 50% of the sample mean of *Borrow from financial institutions*. This suggests that the relationship between the intensity of slave exports during the half a millennium from 1400 until 1900 is powerfully related to the current degree to which households obtain loans from formal financial institutions.

Using the estimation model in equation (4), Table 5 Panel B shows that there is a strong positive relationship between *Slave exports* and *Mistrust in financial institutions*. Consider first the full sample results. *Slave exports* enters positively and significantly whether excluding or including the additional geographic and colonizer controls (columns (1) & (3)). Furthermore, the coefficient estimates on *Slave exports* do not vary much across these specifications, emphasizing the independent link between the slave trades and trust in financial institutions. The estimated coefficients from column (1) imply that the relationship is economically large. If a country were to move from the 75th percentile of the cross-country distribution of *Slave exports* (6.66) to the 25th percentile (-1.47), the average person in that country would tend to report a value of *Mistrust in financial institutions* that is 0.05 lower than his current response. This is large given that the average value of *Mistrust in financial institutions* is 0.09 with a standard deviation of 0.28. We next push these analyses a bit further by asking: Is the enduring impact of the historical slave trade on mistrust in financial institutions mitigated by education, or is the slave trade's influence on culture and social cohesion largely independent of the degree of education that an individual has received? To shed some empirical light on this question, we repeated these analyses for two subsamples of individuals: those who completed primary education or less and those that had at

least some secondary education, which split the sample into two relatively equal sized groups. As shown in columns (2) & (3) and (5) & (6), there is little difference in the estimated coefficient on *Slave exports* between these two subsamples.

These findings are consistent with the view that the historical slave trade had an enduring, deleterious effect on social cohesion that in turn manifests as distrust in financial institutions. As summarized in the Introduction, Nunn and Wantchekon (2011) demonstrate that the slave trade created an enduring culture of distrust and a large literature demonstrates that social trust exerts a positive impact on the operation of financial systems by facilitating transactions between unfamiliar counterparties and transactions that occur over time. In turn, we discover that the slave trade is negatively associated with trust in financial institutions.

Identification concerns, however, complicate the interpretation of these results. As above, cross-country differences in the intensity of slave exports might influence economies in a way that reduce household demand for credit, not constraints on the supply of household finance. Thus, we next (a) differentiate among ethnic groups within countries and (b) examine the extent to which households report that access to credit materially influences their well-being.

5.2 Household credit: Slave exports by ethnicity

To better identify the impact of the slave trade on household financing constraints, we employ two different datasets. In moving from the World Bank's *Financial Inclusion Database* to the *Afrobarometer* survey data, we can (a) differentiate households by ethnic origins rather than simply by nationality and (b) use responses to questions about whether households believe the supply of credit is of first order importance rather than responses to questions about whether households access bank credit. In moving from the Nunn (2008) data to the Nunn and Wantchekon (2011) data, we can differentiate slave exports by ethnicity, not simply by country. In this way, we examine the link between slave exports by ethnicity during the 1400-1500 period and how decedents from those same ethnic groups today report that the supply of credit is a major public policy concern.

For the ethnic-level analyses, we use the following regression:

$$HH\_FD_{i,e,c} = \alpha + \varphi Slave\ exports_e + X_i'P + \alpha_c + \varepsilon_{i,e,c}, \tag{5}$$

where the dependent variable, $HH\_FD_{i,e.d,c}$, represents the indicator of whether household i, belonging to ethnic group e, in country c considers access to loans/credit from the formal financial system as the most important problem facing the country: *Loans/credit as the most important problem*. The key explanatory variable, $Slave\ exports_e$, is the measure of slave exports at the ethnic group level: *Ethnicity based slave exports*. The vector X_i is the individual-level control variables, including each respondent's gender indicator, an live-in-an-urban-area indicator, age, age squared, ten indicators of education, five indicators of living conditions, 18 indicators religion fixed effects, and 25 indicators occupation. We further include country fixed effects to condition out any time-invariant country traits. We estimate the equation using OLS, with heteroskedasticity robust standard errors either clustered at the ethnicity level.

Table 6 shows that the negative association between historical slave trade and household access to credit holds at the ethnic group level. The ethnicity specific measure, *Ethnicity based slave exports*, enters positively and significantly in both columns, suggesting that individuals belonging to ethnic groups that have had a greater number of slaves captured in history would find it more difficult in accessing loans/credit from formal financial institutions today.

6. CONCLUSIONS

Motivated by findings that finance influences economic growth, poverty, and income distribution, researchers examine the historical determinants of financial development. The law and finance literature stress that different European colonizers spread distinct legal systems that continue to influence financial markets. The literature on political institutions emphasizes that European colonizers adopted different strategies that led to the creation of distinct political system that have enduring effects on credit markets. More recently, research indicates that the intensity of the 1400-1900 African slave trade across countries had an enduring adverse impact

on social trust (Nunn and Wantchekon 2011) and is negatively associated with firms' access to credit today (Pierce and Snyder 2017). If researchers can dissect the historical origins of financial development, this could highlight deep-rooted impediments to improving credit markets and therefore guide future policy reforms.

In this paper, we contribute to the study of the historical determinants of financial development by (1) improving the identification of the impact of the slave trade on firm financing constraint and (2) providing the first evaluation of the impact of the slave trade on household credit constraints. With respect to firm financing constraints, we assess whether the slave trade has a disproportionately large impact on firms' that rely heavily on external finance for technological reasons. When implementing this strategy, we control for country-year and industry-year fixed effects. This allows us to better identify the impact of the intensity of the slave trade across countries on firm financing constraints. With respect household access to credit, we examine whether the intensity of the 1400-1900 slave trade by ethnic group explains the credit constraints faced by households of those same ethnic groups today while controlling for country fixed effects.

We discover that the intensity of slave exports is adversely associated with firm and household credit constraints. We find that the negative association between slave exports and access to external finance is especially pronounced among firms that depend heavily on external finance. The results hold when conditioning on country-year and industry-year fixed effects as well as time-varying firm characteristics. Furthermore, we show that the slave trade influences household access to credit. We find that the intensity of slave exports during the 1400 – 1900 period is strongly, negatively associated with household access to finance. Moreover, the results hold when differentiating households by ethnicity. We find that the intensity with which people from particular ethnic groups were enslaved and exported from Africa is positively associated with severity of credit constraints faced by households from those same ethnic groups today. The evidence is consistent with the view that the slave trade had an enduring, deleterious effect on social cohesion that continues to harm the operation of credit institutions.

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Table 1 Variable definitions

Variable	Definition	Source
Country-level variables		
Private credit to GDP	The financial resources provided to the private sector by domestic money banks as a share of GDP. Domestic money banks comprise commercial banks and other financial institutions that accept transferable deposits, such as demand deposits. We take the average value across 2006-2014.	Global Financial Development Database (2016), Cihák, Demirgüç-Kunt, Feyen, and Levine (2012)
Bank deposits to GDP	The total value of demand, time and saving deposits at domestic deposit money banks as a share of GDP. Deposit money banks comprise commercial banks and other financial institutions that accept transferable deposits, such as demand deposits. We take the average value across 2006-2014.	
Slave exports	Natural logarithm of the total number of slaves exported from each country between 1400 and 1900 in the four slave trades normalized by land area, as measured in millions of square kilometers. If no slaves were exported from a country, Nunn (2008) uses a value of 0.1 for the total number of slaves exported from a country	Nunn (2008)
Ethnicity based slave exports	Natural logarithm of one plus the total number of slaves taken from each ethnic group during the period from 1400 through 1900, divided by the area of land inhabited by the ethnic group, as measured in square kilometers. The ethnicity specific slave trade measure uses the number of slaves from two of the four slave trades that have available information on slaves' ethnicity: the transatlantic, which was the largest of slave trades, and Indian Ocean.	Nunn and Wantchekon (2011)
Depth of credit information	The depth of credit information index measures rules and practices affecting the coverage, scope and accessibility of credit information available through either a credit bureau or a credit registry, measured in 2014 or the earliest available year. The index ranges from 0 to 8, with higher values indicating the availability of more credit information, from either a credit bureau or a credit registry, to facilitate lending decisions. If the credit bureau or registry is not operational or covers less than 5% of the adult population, the score on the depth of credit information index is 0.	Doing Business,[5] Djankov, McLiesh, and Shleifer (2007)

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[5] For more details, see http://www.doingbusiness.org/Methodology/Getting-Credit.

Private bureau coverage	The number of individuals and firms listed in a credit bureau's database as of January 1, 2014, with information on their borrowing history within the past five years, plus the number of individuals and firms that have had no borrowing history in the past five years but for which a lender requested a credit report from the bureau in the period between January 2, 2013, and January 1, 2014. The number is expressed as a percentage of the adult population (the population age 15 and above in 2013 according to the World Bank's World Development Indicators). A credit bureau is defined as a private firm or nonprofit organization that maintains a database on the creditworthiness of borrowers (individuals or firms) in the financial system and facilitates the exchange of credit information among creditors. If no credit bureau operates, the coverage value is 0.0%.	
Public registry coverage	The number of individuals and firms listed in a credit registry's database as of January 1, 2014, with information on their borrowing history within the past five years, plus the number of individuals and firms that have had no borrowing history in the past five years but for which a lender requested a credit report from the registry in the period between January 2, 2013, and January 1, 2014. The number is expressed as a percentage of the adult population (the population age 15 and above in 2013 according to the World Bank's World Development Indicators). A credit registry is defined as a database that is managed by the public sector, usually by the central bank or the superintendent of banks, and that collects information on the creditworthiness of borrowers (individuals or firms) in the financial system and facilitates the exchange of credit information among banks and other regulated financial institutions. If no credit registry operates, the coverage value is 0.0%.	
Legal rights of creditors and debtors	Measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders to expand access to credit. The index includes several key components in the Creditor rights index in Djankov, McLiesh, and Shleifer (2007), such as secured creditors are paid first (before other creditors such as government and employees) when a business is liquidated; or secured creditors are not subject to an automatic stay or moratorium on enforcement procedures when a debtor enters a court-supervised reorganization procedure. Besides creditor rights, the index also captures several aspects of collateral laws that supposedly enhance the borrowers' access-to-finance ability: whether certain types of assets (i.e., movable assets) are legally accepted as collateral by financial institutions. The index of legal rights ranges from 0 to 10, with higher value indicating stronger legal rules that facilitate private credit extended from financial intermediaries to individuals and firms	Doing Business, Djankov, McLiesh, and Shleifer (2007)

Strength of insolvency framework index	The index comprises four components, namely commencement of proceedings, management of debtor's assets, reorganization proceedings and creditor participation. Commencement of proceedings describes the availability of liquidation and reorganization to debtors and creditors, as well as the standard used for commencement of insolvency proceedings. Management of debtor's assets includes whether the debtor can continue and reject contracts during insolvency, avoid preferential and undervalued transactions after proceedings are initiated, and the availability and seniority of post-commencement finance. Reorganization proceedings measure the extent to which creditors' approval and content are required to proceed with a reorganization plan. Creditor participation captures creditors' participation and legal rights in the course of insolvency proceedings, namely the selection of insolvency representatives, approval of the sale of substantial assets of the debtor, access financial information of the debtor, and objection to the court decision. The index of Strength of insolvency framework ranges from 0 to 18, with higher values suggesting greater effectiveness of a country's legal system in resolving insolvency.	Doing Business, Djankov, Hart, McLiesh and Shleifer (2008)
Contract enforcement time	Measures the time of resolving a commercial dispute through a local first-instance court, with the value of the claim equal to 200% of the economy's income per capita or $5,000, whichever is greater. It equals the logarithm of the number of days from the moment the plaintiff decides to file the lawsuit in court until the final payment.	Doing Business, Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2003)
Contract enforcement cost	Measures the cost of resolving a commercial dispute through a local first-instance court, with the value of the claim equal to 200% of the economy's income per capita or $5,000, whichever is greater. It is recorded as the value of costs, including court costs, enforcement costs and average attorney fees, a percentage of the claim value.	
French legal origin	An indicator that equals one if a country implants laws from the French civil law traditions, and zero otherwise.	La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1999)
Latitude	The logarithm of the absolute distance between each country and the equator.	Nunn (2008)
Culture controls	Includes four variables, namely Catholic, Muslim, Protestant, and Other, which equal the shares of the population that are Catholic, Muslim, Protestant, or another religions respectively in 1980.	Beck, Demirgüç-Kunt, and Levine (2003); Stulz and Williamson (2003)
Independence	The number of independent years from the first year of independence to the beginning of our sample period, computed as 2006 minus a country's first year of independence.	Beck, Demirgüç-Kunt, and Levine

Longitude	The longitude of each country's centroid	Nunn (2008)
Rain min	The average total rainfall (in millimeters) in the driest month of the year	
Humid max	Average maximum afternoon humidity (in percentage) during the hottest month of the year	
Colonizer indicators	Eight indicators for the identity of a country's colonizer at the time of its independence, indicating not colonized, colonized by Britain, France, Portugal, Belgium, Spain, Italy or UN	
Gold	The natural log of the average annual production of mined gold (in kilograms) per thousand inhabitants from 1970 to 2000.	
Oil	The natural log of the average annual production of crude petroleum (in thousands of tonnes) per thousand inhabitants from 1970 to 2000.	
Diamonds	The natural log of the average annual production of diamonds (in thousands of carats) per thousand inhabitants from 1970 to 2000.	
Minimum Atlantic distance	The shortest sailing distance from each country to the closest major slave-importing market in the trans-Atlantic slave trades	
Minimum Indian distance	The shortest sailing distance from each country to the closest major slave-importing market in the Indian Ocean slave trades	
Minimum Saharan distance	The shortest overland distance from a country to the nearest port of export in the trans-Saharan slave trades	
Minimum Red Sea distance	The shortest overland distance from a country to the nearest port of export in the Red Sea slave trades	

Individual-level variables

Borrow from financial institutions	An indicator that equals one if a respondent borrowed any money from a bank or another formal financial institution, and zero otherwise	Global Financial Inclusion Database (2014),[6] the World Bank
Credit card	An indicator that equals one if the respondent is reported to own a credit card that allows one to borrow money in order to make payments or buy things, and one can pay the balance off later.	
Mistrust in financial institutions	An indicator that equals one if a respondent does not trust banks or other financial institutions, and zero otherwise	
Education	An indicator that equals one if an individual's educational attainment is secondary or more, and zero otherwise.	

[6] For more details, see http://microdata.worldbank.org/index.php/catalog/2512.

Income	Household income quintile indicators within each country.	
Gender	An indicator that equals one if the respondent is female, and zero otherwise.	
Age	Natural logarithm of the respondent age.	

Individual-level variables from Afrobarometer

Loans/credit as the most important problem	An indicator that equals one if a respondent chooses "Loans/credit" in response to the question "*In your opinion, what are the most important problems facing this country that government should address?*", and zero otherwise.	Afrobarometer (2005)
Age	The respondent's reported age.	Nunn and Wantchekon (2011)
Gender	An indicator that equals one if the respondent is male, and zero otherwise.	
Urban	An indicator that equals one if the respondent lives in urban area, and zero otherwise.	
Education	Ten indicators of the respondent's education categories, including (1) no formal schooling, (2) informal schooling only, (3) some primary schooling, (4) primary school completed, (5) some secondary school/high school, (6) secondary school completed/high school, (7) post-secondary qualifications, but no university, (8) some university, (9) university completed, and (10) post-graduate.	
Occupation	25 indicators of the respondent's main occupation, see the Afrobarometer manual for more detail.	
Religion	18 indicators of the respondent's religion, see the Afrobarometer manual for more detail.	
Living conditions	Five indicators of the respondent's view of their present living conditions: (1) very bad, (2) fairly bad, (3) neither good nor bad, (4) fairly good, or (5) very good.	

Firm-level variables

Working capital financed from banks	The proportion of working capital in a firm that is financed from borrowed from banks.	Enterprise Survey, World Bank
Investment financed from banks	The proportion of a firm's long-term investment (i.e., purchase of fixed assets) that is financed from borrowed from banks.	
Firm size	Natural logarithm of total number of employees.	
Firm age	Natural logarithm of the number of years since a firm starts operation.	
Profitability	The ratio of net profits to total sales.	

Government ownership	An indicator that equals one if a firm has positive government ownership, and zero otherwise.	
Foreign ownership	An indicator that equals one if a firm has positive government ownership, and zero otherwise.	
Exports	A dummy variable that equals one if a firm has a positive share of sales exported outside of the country, and zero otherwise.	
Sales growth	The median value of firms' sales growth within an industry in each year.	

Industry-level variables

External finance dependence	The fraction of capital expenditures not financed with internally generated cash flows in the United States. We use U.S. data over the earliest available decade, the 1970s, to calculate EFD at the three-digit ISIC level.	Rajan and Zingales (1998)
Capital intensity	The total real capital stock in an industry divided by value added in the industry. For each industry, we calculate the ratio at the three-digit ISIC level using U.S. data over the 1970s.	NBER-CES Manufacturing Industry Database

Table 2 Summary statistics

Variable	N	Mean	SD	Min	P25	P50	P75	Max
Country- and Ethnic-group-level variables								
Private credit to GDP	49	21.222	18.198	3.067	10.567	15.136	24.59	84.938
Bank deposits to GDP	49	29.747	20.247	5.259	15.864	23.123	38.12	89.636
Slave exports	51	3.247	3.932	-2.303	-1.465	4.627	6.66	8.818
Ethnicity based slave exports	186	0.257	0.624	0	0	0.004	0.191	3.656
Depth of credit information	51	1.706	2.802	0	0	0	4	8
Private bureau coverage	51	6.753	15.990	0	0	0	4.1	66.2
Public registry coverage	51	4.551	12.473	0	0	0.5	3.1	69.2
French legal origin	51	0.667	0.476	0	0	1	1	1
Catholic	51	25.6	27.1	0.1	1.9	18.5	35	95.9
Muslim	51	33.735	37.308	0	0.9	16.4	73	99.7
Protestant	51	12.286	14.789	0	0.2	4.9	21.4	64.2
Latitude	51	13.718	9.882	0.2	6	12	20	36
Independence	51	53.529	38.288	16	40	46	46	206
Longitude	51	16.126	19.984	-24.044	-1.207	17.541	30.042	57.794
Rain min	51	9.039	16.165	0	0	3	13	69
Humid max	51	71.510	12.007	35	67	73	78	95
Gold	51	-7.360	5.649	-13.816	-13.816	-5.280	-2.877	3.084
Oil	51	-6.666	4.055	-9.210	-9.210	-9.210	-3.532	3.236
Diamonds	51	-5.462	2.412	-6.908	-6.908	-6.908	-4.187	2.187
Household-level variables from Global Financial Inclusion								
Borrow from financial institutions	35825	0.068	0.251	0	0	0	0	1
Credit card	35579	0.039	0.194	0	0	0	0	1
Mistrust in financial institutions	35415	0.088	0.284	0	0	0	0	1
Education	35963	0.470	0.499	0	0	0	1	1
Income	35963	3.242	1.429	1	2	3	5	5
Gender	35963	0.492	0.500	0	0	0	1	1

Age	35963	34.934	15.321	15	23	31	44	99

	N	Mean	SD					
Age	35963	34.934	15.321	15	23	31	44	99
Household-level variables from Afrobarometer								
Loans/credit as the most important problem	21135	0.010	0.099	0	0	0	0	1
Age	21135	36.392	14.662	18	25	33	45	130
Gender	21135	0.503	0.500	0	0	1	1	1
Urban	21135	0.368	0.482	0	0	0	1	1
Education	21135	3.102	1.995	0	2	3	4	9
Occupation	21135	15.932	76.632	0	2	7	20	995
Religion	21135	28.356	105.875	0	2	4	10	995
Living conditions	21135	2.558	1.204	1	2	2	4	5
Firm-level variables								
Working capital financed from banks	18720	0.086	0.204	0	0	0	0	1
Investment financed from banks	8149	0.131	0.294	0	0	0	0	1
Firm size	19866	3.079	1.288	-2.303	2.092	2.794	3.809	9.393
Firm age	19866	2.572	0.766	0	2.079	2.565	3.091	5.252
Profitability	19866	0.476	0.333	-0.086	0.197	0.446	0.796	0.983
Government ownership	19866	0.024	0.153	0	0	0	0	1
Foreign ownership	19866	0.147	0.354	0	0	0	0	1
Exports	19866	0.137	0.343	0	0	0	0	1
Sales growth	19866	0.293	0.666	-0.25	0.042	0.208	0.389	5.636
Industry-level measures								
External finance dependence	89	-0.046	1.229	-9.325	-0.066	0.097	0.280	1.174
Capital intensity	55	1.724	0.919	0.538	1.092	1.395	2.252	4.644

Table 3 Slave exports and financial development and institutions, country-level analyses

This table reports OLS (Panel A) and 2SLS (Panel B) regression results of financial development and credit market institutions on historical slave exports. The dependent variable is *Private credit to GDP*, *Bank deposits to GDP*, *Depth of credit information*, *Private bureau coverage*, and *Public registry coverage*. The key explanatory variable, *Slave exports*, is from Nunn (2008) and equals the natural logarithm of the total number of slaves exported from each country between 1400 and 1900 normalized by land area. The excluded instrumental variables are *Minimum Atlantic distance, Minimum Indian distance, Minimum Saharan distance, and Minimum Red Sea distance* (in thousands of kms). Basic *Country controls* include *French legal origin* (an indicator that equals one if a country's commercial code has a French legal origin, and zero otherwise), *Culture controls* (percentage of population that follows (a) Catholic, (2) Muslim, and (3) Protestant religion in 1980), *Latitude* (the logarithm of the absolute distance between each country and the equator), and *Independence* (2006 minus a country's first year of independence). *Additional controls* include *Longitude*, *Rain min*, *Humid max*, and *Colonizer indicators*. See the Table 1 for more detailed variable definitions and data sources. P-values calculated using heteroskedasticity robust standard errors are reported in parentheses. *,**, and *** indicate significance at 10%, 5%, and 1%.

Panel A: OLS

	Private credit to GDP		Bank deposits to GDP		Depth of credit information		Private bureau coverage		Public registry coverage	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Slave exports	-2.294***	-2.161***	-2.661***	-2.102***	-0.331***	-0.363***	-1.777***	-1.662**	-0.808	-0.773
	(0.008)	(0.006)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.012)	(0.289)	(0.200)
French legal origin	0.510	15.722	-3.145	14.557	-0.279	4.191***	-4.954	-6.535	7.228*	30.904*
	(0.905)	(0.389)	(0.521)	(0.209)	(0.731)	(0.003)	(0.243)	(0.538)	(0.060)	(0.066)
Independence	0.117	0.156	0.139**	0.188***	0.021**	0.021***	0.046	0.115*	-0.023	-0.046
	(0.136)	(0.121)	(0.018)	(0.001)	(0.043)	(0.009)	(0.420)	(0.061)	(0.555)	(0.388)
Latitude	3.421*	3.484**	5.033**	5.811***	0.473	0.299	1.149	0.646	-1.165	-1.128
	(0.088)	(0.040)	(0.028)	(0.009)	(0.210)	(0.431)	(0.445)	(0.553)	(0.715)	(0.712)
Culture controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Additional controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Observations	49	49	49	49	51	51	51	51	51	51
R-squared	0.404	0.633	0.527	0.759	0.499	0.723	0.637	0.783	0.143	0.450

Panel B: IV

	Private credit to GDP	Bank deposits to GDP	Depth of credit information	Private bureau coverage	Public registry coverage	Slave exports	Private credit to GDP	Bank deposits to GDP	Depth of credit information	Private bureau coverage	Public registry coverage	Slave exports
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Slave exports	-3.049**	-4.813***	-0.515***	-2.992**	-0.934		-2.678*	-4.411***	-0.284*	-1.966***	-1.842	
	(0.014)	(0.000)	(0.002)	(0.011)	(0.313)		(0.068)	(0.003)	(0.095)	(0.002)	(0.186)	
Minimum Atlantic distance						-1.309***						-1.054**
						(0.001)						(0.027)
Minimum Indian distance						-1.091***						-0.899*
						(0.006)						(0.050)
Minimum Saharan distance						-2.431***						-2.682**
						(0.005)						(0.025)
Minimum Red Sea distance						0.022						0.175
						(0.976)						(0.870)
Country controls	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Observations	49	49	51	51	51	51	49	49	51	51	51	51
F-stat of excl. instruments						5.194						4.492

Table 4 Slave exports and firm access to finance, firm-level analyses

This table reports the regression results of the impact of historical slave exports on firm access to finance. Panel A presents the average effects, while Panel B, and C shows the heterogeneous effects that differentiate industries by their dependence on external finance or the capital intensity. The dependent variable is the amount of bank credit as a proportion of total working capital (*Working capital financed from banks*), the amount of bank credit for investment as a proportion of total investment (*Investment financed from banks*). The key explanatory variable, *Slave exports*, is from Nunn (2008) and equals the natural logarithm of the total number of slaves exported from each country between 1400 and 1900 normalized by land area. *External Financial dependence (EFD)* measures the extent to which firms depend on external finance and is calculated at the three-digit ISIC level using U.S. companies data over the 1970s following the method in Rajan and Zingales (1998). *Capital intensity* equals the total real capital stock in an industry divided by value added in the industry, and is calculated at the three-digit ISIC level using U.S. data over the 1970s. *Firm controls* include *Firm size*, *Firm age*, *Profitability*, *Government*, *Foreign*, *Exports*, and industry *Sales growth*. *Country controls* include *French legal origin*, *Culture controls*, *Latitude*, and *Independence*. We additionally include industry (at the three-digit ISIC level) and year fixed effects in Panel A, and country, year, and industry fixed effects, country by year and industry fixed effects, or country-year and industry by year fixed effects in Panel B and C. See the Table 1 for detailed variable definitions and data sources. P-values calculated using heteroskedasticity robust standard errors clustered at the country level are reported in parentheses. *,**, and *** indicate significance at 10%, 5%, and 1%.

Panel A: Average effects

	Working capital financed from banks	Investment financed from banks
	(1)	(2)
Slave exports	-0.014***	-0.019***
	(0.000)	(0.000)
Firm size	0.022***	0.032***
	(0.000)	(0.000)
Firm age	0.008*	0.001
	(0.053)	(0.875)
Sales growth	-0.005*	0.006
	(0.085)	(0.237)
Profitability	-0.010	-0.028
	(0.501)	(0.212)
Government ownership	0.037**	0.000
	(0.029)	(0.999)
Foreign ownership	-0.017*	-0.045***
	(0.066)	(0.004)
Exports	0.023**	0.034**
	(0.030)	(0.022)
Country controls	Yes	Yes
Industry fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Observations	18,720	8,149
R2	0.120	0.136
# of countries	40	40

Panel B: Heterogeneous effects, Working capital financed from banks

| | Working capital financed from banks | | | | | |
	(1)	(2)	(3)	(4)	(5)	(6)
Slave exports*EFD	-0.005***	-0.005***	-0.007***			
	(0.000)	(0.000)	(0.001)			
Slave exports*Capital Intensity				-0.003**	-0.002**	-0.003***
				(0.022)	(0.026)	(0.007)
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	No	No	Yes	No	No
Country by Year fixed effects	No	Yes	Yes	No	Yes	Yes
Industry fixed effects	Yes	Yes	No	Yes	Yes	No
Industry by Year fixed effects	No	No	Yes	No	No	Yes
Year fixed effects	Yes	No	No	Yes	No	No
Observations	17,726	17,726	17,726	12,010	12,010	12,010
R2	0.157	0.164	0.191	0.160	0.165	0.195
# of countries	40	40	40	40	40	40

Panel C: Heterogeneous effects, Investment financed from banks

| | Investment financed from banks | | | | | |
	(1)	(2)	(3)	(4)	(5)	(6)
Slave exports*EFD	-0.010**	-0.010**	-0.014***			
	(0.026)	(0.016)	(0.004)			
Slave exports*Capital Intensity				-0.004**	-0.004**	-0.004**
				(0.050)	(0.042)	(0.038)
Firm controls	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	No	No	Yes	No	No
Country by Year fixed effects	No	Yes	Yes	No	Yes	Yes
Industry fixed effects	Yes	Yes	No	Yes	Yes	No
Industry by Year fixed effects	No	No	Yes	No	No	Yes
Year fixed effects	Yes	No	No	Yes	No	No
Observations	7,685	7,685	7,685	5,309	5,309	5,309
R2	0.186	0.192	0.230	0.170	0.175	0.210
# of countries	40	40	40	40	40	40

Table 5 Slave exports and household access to finance, household-level analyses

This table reports OLS regression results of household access to finance (Panel A) and household mistrust in financial institutions (Panel B) on historical slave exports. The dependent variable in Panel A, *Borrow from financial institutions*, equals to one if a respondent borrowed any money from a bank or another formal financial institution, and zero otherwise. *Credit card* is an indicator that equals one if the respondent is reported to own a credit card that allows one to borrow money in order to make payments or buy things, and one can pay the balance off later. Panel A uses the full sample in columns 1 and 4, and the subsample of high income (low income) households in a country in columns 2 and 5 (3 and 6). The dependent variable in Panel B, *Mistrust in financial institutions*, equals to one if a respondent has no trust in banks or other financial institutions, and zero otherwise. Panel B uses the full sample in column 1 and 4, and subsamples based on the level of education in columns 2 and 5 (3 and 6). The key explanatory variable, *Slave exports*, is from Nunn (2008) and equals the natural logarithm of the total number of slaves exported from each country between 1400 and 1900 normalized by land area. *Individual controls* include a gender indicator, age, age squared, three respondent education fixed effects (the omit group: education (completed tertiary or more)), and five household income level fixed effects (the omit group: Income (richest 20%)). *Country controls* include *French legal origin*, *Culture controls*, *Latitude*, and *Independence*. See the Table 1 for more detailed variable definitions and data sources. P-values calculated using heteroskedasticity robust standard errors clustered at the country level are reported in parentheses. *,**, and *** indicate significance at 10%, 5%, and 1%.

Panel A: Household access to finance

	Borrow from financial institutions			Credit card		
	Overall sample	Income bottom 60%	Income top 40%	Overall sample	Income bottom 60%	Income top 40%
	(1)	(2)	(3)	(4)	(5)	(6)
Slave exports	-0.006***	-0.004**	-0.009***	-0.007***	-0.003**	-0.010***
	(0.000)	(0.011)	(0.000)	(0.004)	(0.016)	(0.002)
Education (secondary or more)	0.038***	0.028***	0.046***	0.038***	0.021***	0.053***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)
Income (second 20%)	0.008*	0.009**		0.006**	0.006**	
	(0.054)	(0.045)		(0.017)	(0.012)	
Income (middle 20%)	0.021***	0.023***		0.004	0.005*	
	(0.000)	(0.000)		(0.142)	(0.052)	
Income (fourth 20%)	0.022***			0.019***		-0.026***
	(0.000)			(0.001)		(0.000)
Income (richest 20%)	0.057***		0.032***	0.048***		
	(0.000)		(0.000)	(0.000)		
Gender	-0.007**	-0.003	-0.010*	-0.007**	-0.004	-0.007
	(0.030)	(0.439)	(0.062)	(0.039)	(0.115)	(0.122)
Age	0.623***	0.374***	0.946***	0.209***	0.136**	0.301***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.014)	(0.001)
Age squared	-0.082***	-0.049***	-0.125***	-0.026***	-0.018**	-0.036***
	(0.000)	(0.000)	(0.000)	(0.001)	(0.021)	(0.002)
Country controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	35,825	18,725	17,100	35,579	18,551	17,028
R-squared	0.042	0.025	0.049	0.048	0.016	0.059
# of countries	36	36	36	36	36	36

Panel B: Mistrust in financial institutions

	Overall sample	Education: completed primary or less	Education: secondary or more	Overall sample	Education: completed primary or less	Education: secondary or more
			Mistrust in financial institutions			
	(1)	(2)	(3)	(4)	(5)	(6)
Slave exports	0.006***	0.007***	0.005**	0.005**	0.007**	0.004**
	(0.009)	(0.004)	(0.023)	(0.019)	(0.026)	(0.024)
Education (secondary or more)	-0.035***			-0.041***		
	(0.000)			(0.000)		
Income (second 20%)	-0.008	-0.013	-0.001	-0.008	-0.013	-0.002
	(0.289)	(0.159)	(0.954)	(0.296)	(0.165)	(0.884)
Income (middle 20%)	-0.011*	-0.014	-0.009	-0.011	-0.014	-0.008
	(0.087)	(0.127)	(0.270)	(0.102)	(0.125)	(0.290)
Income (fourth 20%)	-0.029***	-0.025***	-0.035***	-0.028***	-0.025***	-0.033***
	(0.000)	(0.002)	(0.008)	(0.000)	(0.002)	(0.005)
Income (richest 20%)	-0.035***	-0.026***	-0.042***	-0.034***	-0.025***	-0.039***
	(0.000)	(0.002)	(0.001)	(0.000)	(0.001)	(0.000)
Gender	-0.003	-0.005	-0.001	-0.003	-0.006	-0.000
	(0.185)	(0.238)	(0.759)	(0.242)	(0.229)	(0.917)
Age	0.032	0.120	-0.056	0.019	0.098	-0.066
	(0.681)	(0.245)	(0.577)	(0.781)	(0.308)	(0.484)
Age squared	-0.006	-0.017	0.006	-0.004	-0.014	0.007
	(0.600)	(0.232)	(0.690)	(0.671)	(0.286)	(0.587)
Country controls	Yes	Yes	Yes	Yes	Yes	Yes
Additional controls	No	No	No	Yes	Yes	Yes
Observations	35,415	18,680	16,735	35,415	18,680	16,735
R-squared	0.017	0.012	0.015	0.024	0.018	0.029
# of countries	36	36	36	36	36	36

Table 6 Slave exports and individual perception on financing problems, slave trade at the ethnic-group level

This table reports OLS regression results of the extent to which individuals consider loans/credit as the most important problem facing the country on historical slave exports at the ethnicity-group level, using individual-level data from the 2005 Afrobarometer survey. The dependent variable, *Loans/credit as the most important problem*, equals to one if a respondent chooses "loans/credit" in response to the question: "In your opinion, what are the most important problems facing this country that government should address?", and zero otherwise. The key explanatory variable, *Ethnicity based slave exports*, is from Nunn and Wantchekon (2011) and equals the natural logarithm of the total number of slaves exported from each respondent's ethnic group between 1400 and 1900 normalized by land area. *Individual controls* include a gender indicator, an live-in-an-urban-area indicator, age, age squared, ten education fixed effects, five living conditions fixed effects, 18 religion fixed effects, and 25 occupation fixed effects. We include country fixed effects in both columns. See the Table 1 for more detailed variable definitions and data sources. P-values calculated using heteroskedasticity robust standard errors clustered at the ethnicity level are reported in parentheses. *,**, and *** indicate significance at 10%, 5%, and 1%.

	Loans /credit as the most important problem	
	(1)	(2)
Ethnicity based slave exports	0.006***	0.005**
	(0.009)	(0.019)
Individual controls	No	Yes
Country fixed effects	Yes	Yes
Observations	21,701	21,135
R-squared	0.015	0.021

Appendix

Table A1 Slave exports and financial development and institutions, robustness

This table reports the robustness OLS regressions of financial development and credit market institutions on historical slave exports. The specifications are similar to Table 3 in the main text, except for controlling for a set of *Endowments of natural resources* including *Gold*, *Oil*, and *Diamonds*. The dependent variable is *Private credit to GDP*, *Bank deposits to GDP*, *Depth of credit information*, *Private bureau coverage*, and *Public registry coverage*. The key explanatory variable, *Slave exports*, is from Nunn (2008) and equals the natural logarithm of the total number of slaves exported from each country between 1400 and 1900 normalized by land area. Basic *Country controls* include *French legal origin* (an indicator that equals one if a country's commercial code has a French legal origin, and zero otherwise), *Culture controls* (percentage of population that follows (a) Catholic, (2) Muslim, and (3) Protestant religion in 1980), *Latitude* (the logarithm of the absolute distance between each country and the equator), and *Independence* (2006 minus a country's first year of independence). *Additional controls* include *Longitude*, *Rain min*, *Humid max*, and *Colonizer indicators*. See the Table 1 for more detailed variable definitions and data sources. P-values calculated using heteroskedasticity robust standard errors are reported in parentheses. *,**, and *** indicate significance at 10%, 5%, and 1%.

	Private credit to GDP	Bank deposits to GDP	Depth of credit information	Private bureau coverage	Public registry coverage
	(1)	(2)	(3)	(4)	(5)
Slave exports	-2.566**	-2.032***	-0.460***	-1.753***	-1.140*
	(0.012)	(0.009)	(0.000)	(0.002)	(0.068)
Country controls	Yes	Yes	Yes	Yes	Yes
Additional controls	Yes	Yes	Yes	Yes	Yes
Endowment controls	Yes	Yes	Yes	Yes	Yes
Observations	49	49	51	51	51
R-squared	0.649	0.766	0.780	0.806	0.536

Table A2 Slave exports and general investor protections

This table reports OLS regression results of general investor protections on historical slave exports. The dependent variable is *Legal rights of creditors and debtors*, *Strength of insolvency framework index*, *Contract enforcement time* and *Contract enforcement cost*. The key explanatory variable, *Slave exports*, is from Nunn (2008) and equals the natural logarithm of the total number of slaves exported from each country between 1400 and 1900 normalized by land area. Basic *Country controls* include *French legal origin* (an indicator that equals one if a country's commercial code has a French legal origin, and zero otherwise), *Culture controls* (percentage of population that follows (a) Catholic, (2) Muslim, and (3) Protestant religion in 1980), *Latitude* (the logarithm of the absolute distance between each country and the equator), and *Independence* (2006 minus a country's first year of independence). *Additional controls* include *Longitude*, *Rain min*, *Humid max*, and *Colonizer indicators*. See the Table 1 for more detailed variable definitions and data sources. P-values calculated using heteroskedasticity robust standard errors are reported in parentheses. *,**, and *** indicate significance at 10%, 5%, and 1%.

	Legal rights of creditors and debtors		Strength of insolvency framework index		Contract enforcement time		Contract enforcement cost	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Slave exports	0.044	0.045	-0.123	-0.113	0.014	0.017	0.180	0.170
	(0.516)	(0.485)	(0.417)	(0.370)	(0.484)	(0.375)	(0.855)	(0.854)
Country controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Additional controls	No	Yes	No	Yes	No	Yes	No	Yes
Observations	51	51	51	51	51	51	51	51
R-squared	0.522	0.692	0.115	0.588	0.074	0.330	0.184	0.486