NBER WORKING PAPER SERIES

THE IMPORTANCE OF HISTORY FOR ECONOMIC DEVELOPMENT

Nathan Nunn

Working Paper 14899
http://www.nber.org/papers/w14899

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
April 2009

Forthcoming in the Annual Review of Economics. I have benefitted from useful discussions with Daron Acemoglu, Robert Bates, Joseph Henrich, Karla Hoff, Joel Mokyr and James Robinson. The views expressed herein are those of the author(s) and do not necessarily reflect the views of the National Bureau of Economic Research.

The Importance of History for Economic Development
Nathan Nunn
NBER Working Paper No. 14899
April 2009
JEL No. N0,O0

ABSTRACT

This article provides a survey of a growing body of empirical evidence that points towards the important long-term effects that historic events can have on current economic development. The most recent studies, using micro-level data and more sophisticated identification techniques, have moved beyond testing whether history matters, and attempt to identify exactly why history matters. The most commonly examined channels include: institutions, culture, knowledge and technology, and movements between multiple equilibria. The article concludes with a discussion of the questions that remain and the direct of current research in the literature.

Nathan Nunn
Department of Economics
Harvard University
1805 Cambridge Street
Cambridge, MA 02138
and NBER
nnunn@fas.harvard.edu

Contents

1. Introduction

In recent years, an exciting new literature has emerged empirically examining whether historic events are important determinants of economic development today. The origins of this literature can be traced to three lines of research that began roughly a decade ago. Engerman and Sokoloff (1997, 2002) examined the importance of factor endowments and colonial rule for the subsequent economic development of colonies within the Americas. Acemoglu, Johnson, and Robinson (2001, 2002) developed a research agenda that sought to better understand the historical origins of current institutions and their importance for long-term economic development. The line of inquiry undertaken by La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1997, 1998) also examined the importance of colonial rule, but focused on the legal institutions that were transplanted by the different colonial powers and the long-term consequences this had for investor protection and financial development.

What united these three lines of research, and what made them particulary novel at the time, was their analysis of the potential importance of a historic event, colonial rule, for long-term economic development. These three studies spawned a large literature of empirical studies seeking to identify the importance of historic events for economic development. The earliest subsequent studies typically examined correlations between variables quantifying the impact of historic events, which almost exclusively was colonial rule, and typically the unit of observation was a country. These initial studies were successful at highlighting correlations in the data consistent with the notion that history can matter, even in the long-run. However, because of their inability to establish causality, the evidence presented was suggestive at best.[1]

Since these early contributions, the literature has developed in a number of significant ways. Much more effort has been put into collecting and compiling new variables based on detailed historic data. Recent studies, exploiting these richer data sources, are also able to employ much more satisfying identification strategies that typically rely on instrumental variables, falsification tests, regression discontinuities, differences-in-differences estimation, or propensity score matching techniques.[2]

The literature has also moved beyond simply estimating reduced form causal relationships

[1]Examples of these early studies include Grier (1999), Englebert (2000a,b), Bertocchi and Canova (2002), and Price (2003).

[2]See for example Acemoglu and Johnson (2004), Banerjee and Iyer (2005), Berger (2008), Dell (2008), Feyrer and Sacerdote (2009), Huillery (2008*a*), Iyer (2007), Nunn (2008*a*), Nunn and Qian (2008), and Nunn and Wantchekon (2008).

between historic events and economic development. For many studies, the goal is to also explain exactly how and why specific historic events can continue to matter today. That is, the literature has moved from asking whether history matters to asking why history matters.[3]

This paper provides a survey of this body of empirical research. I begin by reviewing the seminal articles by Acemoglu *et al.* (2001), Engerman and Sokoloff (1997, 2002), and La Porta *et al.* (1997, 1998) as well as the body of literature that each contribution has generated. The next section reviews the additional evidence from second generation studies that provide identification-based evidence that history matters. Section 4 then surveys the precise channels of causality that have been examined in the literature. The evidence for the importance of (*i*) multiple equilibria and path dependence; (*ii*) domestic institutions; (*iii*) cultural norms of behavior; and (*iv*) knowledge and technology are examined. The penultimate section of the paper, section 5, discusses the interesting relationship between geography and history that has developed in the literature. While some studies have pitted these two factors against each other as alternative determinants of economic development, other studies have shown that the two factors interact in interesting and important ways. As will be discussed, the existing body of evidence indicates that the greatest effect that geography has on economic development is through its influence on history. The final section of the paper, section 6, concludes by discussing the current direction of future research.

2. The Seminal Contributions

The literature linking history to economic development has its origins in three distinct but related strands of research: Acemoglu *et al.* (2001); La Porta *et al.* (1997, 1998); and Engerman and Sokoloff (1997, 2002). All three examine one of the largest and most important events in the world's history: European expansion and colonization of the globe, which began in the 16th century.

The studies document the lasting impact that Europe's colonization had on the development paths of former colonies. They also share a common view that an important part of the causal mechanism was the impact that colonial rule had on the domestic institutions that persisted after independence.[4] Viewed in this light, all three lines of research are conceptually consistent with one another. All three argue that the institutions of a society are an important determinant of long-

[3]See for example Acemoglu, Johnson, and Robinson (2005*a*) Acemoglu and Johnson (2004), Becker and Woessmann (2009), Dell (2008), Iyer (2007), Munshi and Wilson (2008), Nunn (2008*b*), Nunn and Qian (2008), and Nunn and Wantchekon (2008).

[4]The studies build on an even earlier literature arguing for the importance of domestic institutions for long-term growth. See for example North and Thomas (1973) and North (1981, 1990). More recently, also see Greif (2006).

term economic development, and that historical events can be an important determinant of the evolution and long-term persistence of domestic institutions. Where the studies differ, however, is in their views of which aspects of colonial rule were crucial for shaping institutions, and in the specifics of the proposed causal mechanisms.

For La Porta *et al.*, the identity of the colonizer determined whether a civil law or common law legal system was established and this was important for long-term development. Unlike La Porta *et al.*, Engerman and Sokoloff and Acemoglu *et al.* share the common view that it is the characteristics of the region being colonized that were crucial factors that determined the effect of colonial rule on long-term economic development. For Acemoglu *et al.*, the initial disease environment shaped the extent to which secure property rights were established in the colony, and through their persistence these initial institutions had a large effect on long-term economic development. Engerman and Sokoloff focus on the importance of a region's endowment of geography suitable for growing lucrative globally traded cash crops that were best cultivated using large scale plantations and slave labor. These large plantations resulted in economic and political inequality, which in turn impeded the development of institutions that promoted commercial interests and long-term economic growth.

We now examine the three seminal contributions, as well as the resulting literature that has been generated by each.

A. *La Porta, Lopez-de-Silanes, Shleifer and Vishny*

The core of La Porta *et al.*'s (1997, 1998) analysis is their emphasis on the differences between legal systems based on British common law versus Roman civil law. They argue that countries with legal systems based on British common law offer greater investor protection relative to countries with legal systems based on civil law. They then recognize that in British colonies common law based legal systems were transplanted, while the European countries with a legal system based on Roman civil law – namely Spain, France, and Portugal – transplanted civil law legal systems. La Porta *et al.* (1997, 1998) use this historic fact to examine the causal effect of the strength of legal rules protecting investor rights on financial development. The authors argue that for former colonies legal origin is largely exogenous to country characteristics and is therefore a potential instrument that can be used to estimate the effect of the protection of investor rights on financial development. The first stage of their IV estimates show that civil law countries, relative to common law countries, do have better investor protection, and their second stage estimates indicate that countries with weaker investor protection have smaller debt and equity markets.

Since these initial studies a large literature has emerged exploring the potential effect that legal origin may have on other factors.[5] These studies show that legal origin is also correlated with a host of other country characteristics, such as military conscription (Mulligan and Shleifer, 2005*a*,*b*), labor market regulation (Botero, Djankov, La Porta, de Silanes, and Shleifer, 2004), contract enforcement (Djankov, La Porta, Lopez-de-Silanes, and Shleifer, 2003, Acemoglu and Johnson, 2004), comparative advantage (Nunn, 2007*b*), and even economic growth (Mahoney, 2001). These results are both good and bad for La Porta *et al.*'s (1997, 1998) initial studies. They suggest that legal origin may have effects that are even more wide-ranging than originally assumed in La Porta *et al.* (1997, 1998). However, if this is the case, then this calls into question the validity their use of legal origin as an instrument for investor protection. Given that legal origin appears to be correlated with a host of other country characteristics that may also affect financial development, it is unlikely that the exclusion restrictions from their original papers are satisfied. As discussed in La Porta *et al.* (2008), the authors are clearly aware of this fact.

Subsequent studies also look for similar relationships involving legal origin within the United States. Ten U.S. states that were first settled by either France, Spain, or Mexico initially developed civil law legal systems.[6] Berkowitz and Clay (2005, 2006) find that today these civil law states have a less independent judiciaries, lower quality courts, and less stable constitutions. Although both studies rely on OLS estimates, they do show that the correlations remain robust to controlling for a number of additional factors, such as slavery, date of entry into the Union, state size, and climatic characteristics.

Other studies also highlight correlations in the data and show that there exists a relationship between the identify of the colonizer and various measures of long-term economic development. For example, Grier (1999) finds that at independence former British colonies on average had a larger share of their populations in school. Bertocchi and Canova (2002) find that within Africa, former British and French colonies have higher levels of investment and education after independence. Although these correlations do not provide proof of the causal importance of the identity of

[5] La Porta, Lopez-de-Silanes, and Shleifer (2008) provide a survey of these early studies as well as the subsequent literature that they generated.

[6] The ten states include: Alabama, Arizona, Arkansas, California, Florida, Louisiana, Mississippi, Missouri, New Mexico, and Texas. Of these states only Louisiana continues to have a civil law legal system.

colonizer, they are consistent with La Porta *et al.*'s emphasis on the impact that the identity of the colonizer (specifically, its legal system) has on the long-term economic development of its colony.

B. *Acemoglu, Johnson and Robinson*

Like La Porta *et al.* (1997), Acemoglu *et al.* (2001) also examine the effect of colonial rule on the institutions that were implemented and their long-term impact on economic development. However, Acemoglu *et al.* (2001) focus on a different determinant of the differences in institutions that evolved across former colonies. They hypothesize that since colonies with a less deadly disease environment had greater European settlement, in these colonies growth promoting institutions that protected property rights were established during colonial rule. In colonies in which European mortality was high and settlement low, the colonizers did not have an incentive to establish strong property rights and instead established extractive rent-seeking institutions. Using this logic, the authors estimate the causal effect of current domestic institutions on per capita income, using early European mortality rates as an instrument for institutions. One of the assumptions underlying the IV strategy is that initial settler mortality is not correlated with current income other than through domestic institutions. In the first stage of their IV procedure, the authors find a strong negative relationship between initial settler mortality and institutional quality today. The second stage estimates indicate that domestic institutions exert a strong positive effect on per capita income.

The elegance of the paper lies in its ability to develop a clear and convincing historical narrative with supporting empirical evidence and show how a historic event can affect past institutions, which through their persistence have an influence on income levels today. The study provided an empirical foundation to support the seminal works on the importance of institutions written by North and Thomas (1973) and North (1981, 1990).[7] The study emerged at a time when the literature was still in the process of trying to convincingly estimate the causal impact of domestic institutions on economic development.[8] An important contribution of Acemoglu *et al.* (2001) was to develop a much more satisfying identification strategy than previous empirical studies.

A number of studies have attempted to extend Acemoglu *et al.*'s line of research, providing evidence for the importance of historic institutions for current economic development. Two recent studies by Banerjee and Iyer (2005) and Dell (2008), rather than taking a broader more macro

[7] More recently, also see Greif (2006).

[8] Early papers in this literature include DeLong and Shleifer (1993), Knack and Keefer (1995), Mauro (1995), Hall and Jones (1999) and Englebert (2000a,b).

perspective, focus on a specific regions. By doing this, the authors are able to collect and analyze much richer data at a more micro level. The use of this richer data also allow the authors to employ additional estimation strategies that help identify the causal effects of history on economic outcomes today.

Dell (2008) examines the mita forced labor system, which was instituted by the Spanish in Peru and Bolivia between 1573 and 1812. The study combines contemporary household survey data, geographic data, and data from historic record, and uses a regression discontinuity estimation strategy to identify the long-term impacts of the mita system. Her identification exploits the fact that there was a discrete change in the boundaries of the mita conscription area and that other relevant factors likely vary smoothly around the mita boundary. Because of this, comparing the outcomes of mita and non-mita districts very close to the border provides an unbiased estimate of the long-term effects of the mita. The study finds that the mita system had an adverse effect on long-term economic development. All else equal, today former mita districts have an average level of household consumption that is 32% lower than households in former non-mita districts. The study finds that a significant proportion of the difference can be explained by lower levels of education and less developed road networks. Dell's study provides valuable evidence showing that the institutions established during colonial rule can have long-term impacts that continue to be felt today.

Like Dell (2008), Banerjee and Iyer (2005) also analyze the long-term effects of colonial institutions, but examine differences in revenue collection institutions across districts within colonial India. The authors compare districts where revenue was historically collected directly by British officials to districts where revenue was collected by native landlords. They find that after independence districts with non-landlord systems have higher levels of health, education, and agricultural technology investments relative to landlord systems. To determine the extent to which the correlation is causal, the authors exploit the fact that in the parts of India conquered between 1820 and 1856, non-landlord revenue collection was implemented. They argue that the historic reasons for this pattern are orthogonal to district characteristics and therefore the date of British conquer can be used as an instrument for the revenue collection system. Their IV estimates are consistent with their OLS estimates. They also show that their OLS results are robust when the sample is restricted to 35 districts, in which all landlord districts are bordered by non-landlord districts.

Although the analysis of Banerjee and Iyer (2005) and Dell (2008) provide evidence of the long-term impacts of initial colonial institutions, the studies do differ from Acemoglu *et al.* (2001) since the transmission mechanism is not the persistence of these initially implemented institutions. In Dell, the hypothesized mechanism is the concentration of wealth and power, and the resulting provision of public goods. Similarly, in Banerjee and Iyer's analysis the transmission mechanism is not through the persistence of these initially implemented institutions, since the differences in colonial land revenue collection systems no longer exist.

One study that does empirically link early colonial institutions to institutional outcomes today is sociologist Matthew Lange's (2004) analysis of the differential effects of indirect rule relative to direct rule on the quality of institutions and governance today. Using colonial documents housed in Britain's Public Records Office, Lange compiles information on court cases held in 33 former British colonies in 1955. He then uses the fraction of the court cases that were presided over by local chiefs, rather than colonial officials, as a measure of the extent of indirect rule in each country. The measure is intended to provide a proxy for the overall extent to which colonial rule in the country relied on traditional legal, political, and institutional structures. The study finds a positive relationship between the extent of indirect rule and a variety of measures of institutional quality and good governance. The primary shortcoming of the study, however, lies in its lack of a convincing identification strategy. Because the paper relies on OLS estimates it is unknown whether the correlations between past and current institutions capture the causal effect of historic institutions on institutions today or simply reflect a spurious correlation driven by omitted country characteristics.

C. *Engerman and Sokoloff*

The studies by Engerman and Sokoloff (1997, 2002) focus on the differential paths of development among the New World countries of the Americas.[9] Engerman and Sokoloff argue that the different development experiences of the countries in the Americas can be explained by initial differences in endowments of land and geography suitable for growing globally traded crops like sugar, which were best grown on large-scale plantations using slave labor. These areas were characterized by severe economic and political inequality, which resulted in the subsequent evolution of the domestic institutions that protected the privileges of the elites and restricted the participation of the

[9] For a review and discussion of these and related studies see Hoff (2003).

rest of the population in the commercial economy. In former Spanish colonies endowments of rich mineral resources further strengthened the tendency towards political and economic inequality.

Since the analysis of Engerman and Sokoloff (1997, 2002) is primarily qualitative in nature, the literature has taken the natural next step, which is to begin to empirically examine the core predictions that arise from their analysis. A number of studies have uncovered correlations in the data that support the authors' hypothesis that slavery was detrimental for subsequent economic development. The studies find a negative relationship between various measures of economic development and past slave use, looking across U.S. states (Mitchener and McLean, 2003) or counties (Lagerlöf, 2005) or across New World countries (Nunn, 2008*b*).

Studies have also examined additional hypotheses that arise from their study. Nunn (2008*b*) uses information from the 1860 U.S. Census to examine whether the data support the inequality channel proposed by Engerman and Sokoloff. The study, based on OLS estimates, finds a strong positive relationship between slavery and inequality in the size of land holdings, when looking across either states or counties. This finding is consistent with the notion that slavery resulted in economic inequality. However, Nunn fails to find any evidence of an empirical relationship between initial economic inequality and current income levels. Although it is true that the counties and states with higher levels of land inequality in 1860 also have higher levels of income inequality today, it is not true that these states and counties have lower levels of income today.[10] In other words, there is no evidence of a relationship between historic inequality and current economic underdevelopment as hypothesized by Engerman and Sokoloff. Instead, the data are most consistent with slavery having had two unrelated consequences. It increased economic inequality, which persists today, and it also resulted in lower levels of economic development.

Nunn (2008*b*) also looks outside of the U.S. to examine the inequality channel proposed by Engerman and Sokoloff. Specifically, he examines their argument that slavery was detrimental because it took the form of large-scale plantation slavery, which promoted extreme inequality. Using data from British Slave Registrars, Nunn disaggregates slave populations into those that were used on plantations and those that worked in other occupations such as industry, livestock, salt, timber, fishing, and shipping. In a second exercise, Nunn does something similar, disaggregating slave populations by the size of the holdings that they were held on. By doing this he is able to

[10]Related to this is Frankema's (2006) finding of a positive relationship between colonial land inequality and post-colonial income inequality across former colonies.

examine whether the negative correlation between slavery and economic development is being driven by large-scale plantation slavery. He finds that this is not the case. All forms of slavery are negatively correlated with subsequent economic development, and when statistically significant differences in the estimates exist, large-scale plantation slavery is found to be less correlated with underdevelopment than smaller-scale non-plantation slavery.

Additional evidence on the validity of Engerman and Sokoloff's hypothesized inequality channel comes from the study by Acemoglu, Bautista, Querubin, and Robinson (2008) that examines variation across municipalities within the state of Cundinamarca, Colombia. The analysis shows that within Cundinamarca there is a positive relationship between 19th century land inequality and current economic development proxied by measures of primary and secondary school enrollment rates. This relationship is opposite to the negative relationship that one would expect to observe if Engerman and Sokoloff's hypothesis was correct. This finding can also be contrasted to evidence from the United States showing that until 1940 there was a negative relationship between inequality and education (Galor, Moav, and Vollrath, 2009). The study also shows that in Cundinamarca economic inequality and political inequality are negatively correlated, a fact that also runs counter to Engerman and Sokoloff's hypothesis that initial economic inequality resulted in political inequality.

Additional evidence can be gleaned from Melissa Dell's (2008) study of colonial Peru and Bolivia. In her analysis, Dell explains her finding of a negative effect of the mita system on education and the development of road networks by the fact that in mita districts the colonial government restricted the formation of large Spanish land holdings, called haciendas. Because the large land owners typically lobbied for the greater provision of public goods, the non-mita districts, without these large land owners, had lower levels of public goods. Dell provides empirical evidence to support her argument. Comparing districts on both sides of the mita boundary, one observes a significantly lower presence of haciendas in former non-mita districts both during and after the mita, as well less dense road networks and less market integration today. These estimates support her explanation that because non-mita districts had less haciendas, they did not have large landowners that were able to lobby for local public goods. Dell's explanation and her supporting evidence run contrary to the inequality channel put forth by Engerman and Sokoloff. In Dell's setting, not enough (rather than too much) concentration and inequality in land ownership, was the cause of long-term economic underdevelopment.

3. Additional Evidence that History Matters

Much of the early literature examining the importance of history for economic development examined correlations between different measures of colonial rule and current economic performance across countries (Grier, 1999, Englebert, 2000a,b, Bertocchi and Canova, 2002, Price, 2003). Although these studies are useful in highlighting correlations that exist in the data, they stop short of providing causal evidence of the effect of history on long-term development. The more recent empirical studies at the forefront of this literature combine much richer data, typically at a level of analysis much finer than the country, with much more sophisticated identification techniques to provide causal evidence of the importance of history for long-term economic development.

One example of this line of research is Huillery's (2008*a*) analysis of the differential effects of colonial rule across districts within French West Africa. Her study combines data from historic documents from archives in Paris and Dakar with household surveys from the 1990s. She shows that looking across districts there is a positive relationship between early colonial investments in education, health and infrastructure and current levels of schooling, health outcomes, and access to electricity, water, and fuel. The study then moves to testing for the causal effect of colonial policy on these subsequent outcome measures. Exploiting the richness of her district level data set, Huillery uses a regression discontinuity estimation strategy, comparing the differences in her outcomes of interest between neighboring districts only. Her estimates provide strong support that colonial investments on education, health and infrastructure have positive and persistent effects on current education, health, and infrastructure.

Like Huillery (2008*a*), the recent study by Berger (2008) also uses micro-level data to identify long-term impacts of colonial policies. The study also uses a regression discontinuity estimation strategy and examines the difference in outcomes between Northern Nigeria and Southern Nigeria, two regions of colonial Nigeria. During colonial rule the two districts were split by a straight line running East-West located at $7^{\circ}10'$ N. Although there were many differences between the two regions, one of the primary differences was the form of taxation. In the coastal Southern region revenue was raised primarily through tariffs on internationally traded goods. The landlocked North relied on a poll tax to raise revenue. As a result, in the North it was necessary to develop an institutional structure and network to collect taxes, and to develop mechanisms to control corruption and incompetence of government officials and native chiefs.

Berger uses vaccination rates as his measure of local government quality today. Comparing households within 1 degree on either side of the historic border between Northern and Southern Nigeria, he finds that vaccination rates are significantly lower on the Northern side of the border. A falsification test shows that there is something distinct about the historic border located at $7°10'$ N. As one moves the border north or south, the estimates find no difference in vaccination rates of households on either side of the false borders. It is only for this historic border, which does not correspond to any modern boundary, that a significant difference exists.

Other studies, using more sophisticated identification techniques, have revisited old questions that were never satisfactorily answered in the early literature. One of these questions is the effect that the length of colonial rule had on subsequent development. This question has been examined previously by Grier (1999) and Price (2003), but their analysis relies on OLS estimates. Feyrer and Sacerdote (2009) use a novel instrumental variables estimation strategy to provides the first causal estimates of the impact of the length of colonial rule. The authors, as part of their identification strategy, consider only former island colonies. They argue that how early an island was discovered was determined in part by its location relative to prevailing wind patterns and that these wind patterns most likely do not affect long-term development through channels other than through the island's date of discovery. If this is the case, then the wind vectors surrounding an island can be used as instruments to estimate the causal effect of the length of colonial rule on subsequent development. Their baseline set of instruments, which are constructed from satellite imagery data reported monthly on a 1 degree by 1 degree global grid, include the annual mean and variance of monthly East-West wind vectors.

Their first stage estimates show that stronger westerly winds are associated with earlier discovery and more years under colonial rule. According to their second stage estimates, the length of colonial rule has a positive effect on per capita income in 2000. This result may seem surprising since it appears to provide evidence that colonial rule was good for economic development. However, this conclusion does not follow from their study. Because the estimated effects are for the length of colonial rule conditional on being colonized, it does not provide an estimate of the average effect of being colonized relative to not being colonized.

A second long-standing question that has recently been revisited with improved identification is the long-term effect of direct colonial rule relative to indirect rule. The distinction between direct and indirect rule, although not always clear-cut, lies in the amount of bureaucratic responsibility given to native agents rather than European administrators. Direct rule occurs when only the lowest levels of responsibility are given to natives and all other positions are occupied by Europeans. Under indirect rule, much more power is given to natives, and typically local governance structures and local elites are integrated into the colonial governance structure.

The recent study by Iyer (2007) employs an empirically persuasive identification strategy to examine the relative effects of direct versus indirect rule across regions within India. She addresses the problem of the endogeneity of the form of British rule by exploiting the 'Doctrine of Lapse', which was in place between 1848 and 1856. The doctrine, which stated that a native ruler's adopted heirs were not to be recognized by the British government, allowed the British to annex several states where the native ruler died without a natural heir. Exploiting the Doctrine of Lapse, Iyer constructs a district specific indicator variable that equals one if the ruler died without a natural heir between 1848 and 1856 when the Doctrine of Lapse was in place.[11]

Looking across 415 districts, Iyer estimates the effect of colonial indirect and direct rule on investment in agriculture and agricultural productivity today. She first estimates the relationship using OLS and finds a positive and statistically significant relationship between direct rule on agricultural investments and productivity. On the other hand, her IV estimates report no statistically significant difference between the two types of districts. The difference between the IV and OLS estimates is consistent with the British selectively annexing the most productive states. Iyer (2007) also examines the effect of direct rule on the availability of public goods such as health, education, and roads. Again she finds that the IV estimates are consistently lower than the OLS estimates, which again is consistent with the British selecting the 'better' states. According to the IV estimates, direct rule exerted a negative effect on the long-term availability of public goods.[12]

As is always the case with IV estimates, the validity of the estimates rests crucially on whether the instruments satisfy the necessary exclusion restrictions. As a test of the validity of her instruments, Iyer performs a number of falsification tests. She first reports the reduced form relationship between her instrument and her measures of the availability of public goods. Consistent with the IV estimates, her reduced form shows a statistically significant negative relationship between her instrument and the public goods measures. Iyer then constructs a 'fake instrument', which is an indicator variable that equals one if a state's ruler died without a natural heir between 1858

[11]In her analysis, Iyer only considers the subset of states that were not annexed before 1848.

[12]Banerjee, Iyer, and Somanathan (2005) examine the robustness of this result across 27 different public good measures. Overall, the results confirm the findings of Iyer (2007) looking across a more restricted range of public goods.

and 1884, a period when the Doctrine of Lapse was no longer in place. According to the channel proposed by Iyer, the results with the fake instrument should not provide the same reduced form estimates as with the actual instruments. This is exactly what she finds. For all outcome measures except one, she finds no statistically significant relationship between the fake instrument and the outcome measures.

One of the most dramatic examples of how history can shape long-term economic development comes from Nunn's (2008*a*) study of the impact that the external trade in slaves had on long-term political and economic development within Africa. Combining data from historic shipping records, reporting the total number of slaves shipped on each voyage from Africa, with historic records that report the ethnic identity of the slaves being shipped, Nunn constructs estimates of the number of slaves shipped during the trans-Atlantic Slave Trade. He also constructs similar estimates for Africa's three other slave trades: the Indian Ocean, Red Sea and trans-Saharan slave trades. The study finds that the parts of Africa from which the largest number of slaves were taken (normalized by land area or historic population) today are the poorest parts of Africa. The core issue in interpreting this correlation is selection into the slave trades. If, for example, the societies with the most poorly functioning institutions and the poorest future growth prospects selected into the slave trades, then this would explain the negative relationship even if the external trade in slave trades had no direct impact on the societies within Africa.

Nunn tests whether selection is driving the results by looking at the evidence on the nature of selection during the slave trades. He finds that the descriptive and quantitative evidence suggest that it was not the least developed societies that selected into the slave trade. Instead, it was actually the more developed and more densely populated societies that supplied the largest numbers of slaves. Nunn also constructs instruments based on the distance of each country from the external locations of demand for the slaves. The key identification assumption is that the location of demand influenced the location of supply and not vice versa. If, as Sokoloff and Engerman (2000) argue, the demand for slaves was determined primarily by geographic characteristics, such as soil quality suitable for plantation agriculture, then this assumption is reasonable. The IV estimates provide estimates that is consistent with the OLS estimates. Overall, Nunn concludes that the empirical evidence suggest that Africa's external trade in slaves did have a significant negative impact on the subsequent economic development of the regions within Africa.

4. Why History Matters

A. *Multiple Equilibria and Path Dependence*

If one thinks about classical models in economics, it far from obvious why historic events should have any impact in the long-run. For example, in the classic Solow model, for a given set of parameter values, there is a unique steady state level of capital and income per worker. Any event that shocks either capital or output has a temporary impact only. In the long-run the economy eventually converges back to a unique steady state equilibrium. Viewed in this light, it is unclear why history should matter. However, once models with multiple equilibria are considered, then historic events have permanent effects if they cause a movement from one equilibrium to another.[13]

A recent paper by Nunn (2007*a*) illustrates this point by developing a model that features multiple equilibria in the security of property rights and output per worker. It is then shown that a period of severe extraction, by temporarily causing the optimal equilibrium to disappear, can cause a permanent movement to an equilibrium with significantly lower income levels. Because this equilibrium is stable, the society remains 'stuck' in this equilibrium even after the high-income equilibrium returns. Using historic evidence, Nunn argues that the movement from one equilibrium to another explains why in Africa the slave trade and colonial rule appear to have had permanent impacts.

On many levels, it is clear that the world we live in is filled with multiple equilibria. Suggestive evidence of this fact can be found in a variety of real world phenomena, such as the fact that this article was typed on a QWERTY keyboard rather than the significantly more efficient DVORAK keyboard[14] or the fact that cars are driven on the right hand-side of the road in the U.S., but on the left side in the UK. As well, historic events, such as the battle for market dominance between VHS and Betamax in the 1980s, also provide further evidence that multiple equilibria exist.

Very recently, a number of studies have undertaken the task of testing empirically for the existence of multiple equilibria. One strategy that some of studies have employed is to examine cases where there has been an extremely large shock to an equilibrium. The studies then test whether the shock causes a movement from the previous equilibrium to a new equilibrium. Davis

[13]For early examples of models of this type see Murphy, Shleifer, and Vishny (1993), Acemoglu (1995), and Mehlum, Moene, and Torvik (2003).

[14]For a discussion of the historic reasons for the adoption of the QWERTY keyboard see David (1985).

and Weinstein (2008) examine the effect of bombings on 114 Japanese cities during World War II.[15] The authors find that after the bombings, the cities returned to their pre-bombing populations, regained their shares in total manufacturing output, and most surprisingly, they also regained their pre-existing industrial composition. Overall, the results point towards the existence of a unique stable equilibrium of production, rather than the existence of multiple equilibria. A similar result is found in Miguel and Roland's (2006) analysis of the long-term effects of the U.S. bombings in Vietnam. The authors find that the bombings had no long-term effects on populations, poverty or consumption 25 years later.

These tests, although very suggestive, do not provide airtight proof against the existence of multiple equilibria in these environments. This is true for a number of reasons. It is possible that other equilibria exist, but the shocks were not large enough to cause a movement to a new equilibrium. It is also possible that the shocks were large enough to cause a movement, but that the pre-bombing equilibrium is focal and therefore after the bombings this equilibrium was selected among all possible equilibria (see Schelling, 1960).

An innovative study by Redding, Sturm, and Wolf (2007) tests for the existence of multiple equilibria in an environment very different from Davis and Weinstein (2008) and Miguel and Roland (2006). The study examines the location of airport hubs in Germany before and after the division of Germany following World War II. It is shown that after division, the location of West Germany's primary airport hub switched from Berlin to Frankfurt. After reunification in 1990, the location of the hub did not switch back to Berlin. Redding *et al.* show that this shift cannot be explained by changes in fundamentals over the time period. Thus, the evidence suggests that the temporary division of Germany resulted in a permanent movement of the location of Germany's largest airport hub.

One of the most dramatic examples of how a historic event can drastically alter the subsequent path of economic development is the history of Tasmania. According to archaeological evidence, humans first arrived in what today is Tasmania as early as 22,000 years ago across a land bridge that connected present day Australia to Tasmania. Approximately 12,000 years ago, at the end of the Pleistocene, rising sea levels drowned the land bridge, turning it into what is now the shallow Bass Straight (Diamond, 1978). The archeological evidence indicates that the technologies used by the Tasmanians deteriorated over time. The Tasmanians lost their ability to construct bone tools,

[15]See also Davis and Weinstein (2002) which was a precursor to this paper.

make cold-weather clothing, and to catch fish.

An explanation for Tasmania's dramatic deterioration has been put forth by Anthropologist Joseph Henrich (2004). He develops a model where skills are imperfectly transmitted from the most skillful or successful individual in the society to all other members of the society. Henrich shows that in this environment the size of the population matters. This is because in a larger population the most skilled individual is, on average, more skilled. He also shows that because of imperfect transmission, there exists a minimum population size below which the average skill of the society actually decreases over time. Therefore, his model explains the Tasmanian technology losses by the drop in effective population size after rising sea levels isolated Tasmania from Australia.

The Tasmanian experience provides a dramatic example of path dependence. One historic event – the rising sea levels and flooding of the Bass Straight – resulted in a permanent change in the evolutionary process and moved the society to a new trajectory, where technologies and skills deteriorated over time. One historic event permanently changed, in a very dramatic way, the long-term social and economic development of the Tasmanians.

B. *Domestic Institutions*

Even without the existence of multiple equilibria, historic events can still affect economic development in the long-run if they alter deep determinants of long-term economic growth. The deep determinant that has received the greatest attention in the literature is domestic institutions. The emphasis on institutions can be seen clearly from the fact that in each of the seminal papers by Acemoglu *et al.* (2001, 2002), Engerman and Sokoloff (1997, 2002), and La Porta *et al.* (1997, 1998) the mechanism through which colonial rule affects current development is domestic institutions.

The focus on institutions as a causal mechanism has also continued in subsequent research. An example of this is Acemoglu *et al.*'s (2005*a*) study of the effect that early Atlantic trade had in Europe. The authors argue that in countries with access to the lucrative Atlantic three corner trade, economic and political power shifted towards commercial interests. As the merchant class became more powerful, they were able alter domestic institutions to protect their interests against the interests of the royalty, and these institutional changes in turn had a positive effect on long-term prosperity. Using data on historic urbanization rates and per capita incomes, the study first shows that the rise of Europe was actually a rise of the nations with access to the lucrative Atlantic trade.[16] Their explanation is shown to be robust even when controlling for alternative explanations of the rise of Western Europe, such as the rise of a Protestant work ethic (Weber, 1930, Landes, 1998), war and inter-state competition (Tilly, 1990), and the legacy of the Roman Empire.[17]

The authors argue that profits alone are not able to explain the divergent growth of Atlantic traders and that the evolution of domestic institutions played an important role in the process.[18] To test this hypothesis, the authors extend the Polity IV data back to 1350 and show that Atlantic trade increased the quality of domestic institutions as measured by an index of the constraints on the executive. They further hypothesize that the process of institutional change could only occur in countries that initially had non-absolutist political institutions. They show that the data is also consistent with this. They show that the increase in economic growth generated by the Atlantic trade was higher for countries with better initial domestic institutions, again measured by the constraint on the executive.

The recent study by Gennaioli and Rainer (2007) also provides evidence of the persistence of domestic institutions, but within the African context. The authors use ethnographic data to construct a measure of the level of state development in pre-colonial African societies. Their OLS estimates show that there is a positive correlation between pre-colonial political development and the provision of public goods today. This result can be combined with evidence from Nunn (2008*a*) showing that the parts of Africa from which more slaves were taken had less developed political systems after the slave trade (and before official colonial rule). Because the evidence for both relationships is based on correlations in the data, one must be cautious when drawing conclusions. However, the combined evidence from Gennaioli and Rainer (2007) and Nunn (2008*a*) is consistent with a chain of causality where the slave trade resulted in a deterioration of domestic political institutions, which in turn had a long-term adverse impact on the provision of public goods. Therefore, the evidence from the two studies provides support for the notion that history can matter through the evolution and persistence of early institutions.

[16] These countries were Britain, France, the Netherlands, Portugal and Spain.

[17] More recently, Becker and Woessmann (2009) also provide empirical support for the importance of the Protestant religion, but focuses instead on the religion's emphasis on the importance of literacy so that each individual was able to read the Bible. The analysis identifies a positive effect of the Protestant religion on literacy and industrialization in 19th century Prussia. (Also related is the evidence put forth by Iyigun (2008) showing that the rise of the Ottoman Empire and its movement into Europe is partly responsible for the Protestant Reformation.)

[18] See Inikori (2002) for the alternative view that the profits that accrued to Western Europe during the three corner Atlantic trade explains much of its growth during the time.

The persistence of historically determined institutions is also the channel of causality in the recent study by Saumitra Jha (2008) that examines the effect of early medieval trade on the formation and persistence of institutions promoting religious tolerance. The study by Jha shows that when looking across cities within India, one finds a positive relationship between participation in overseas trade during the medieval period and religious conflict during the late 19th and early 20th centuries. Jha addresses the endogeneity of the selection of medieval ports by using the existence of natural harbors as an instrument for whether a coastal city was a trading port and by using propensity score matching techniques. His estimates show that being a town that was a medieval trading port made it less likely that the town later experienced Hindu-Muslim riots. Using historical evidence, Jha argues that because Muslims provided access to the markets of the Middle East, in the towns connected to this overseas trade the returns to Hindu-Muslim cooperation was much higher. As a result, institutions that supported exchange and a peaceful coexistence between Hindus and Muslims were developed. Although Jha's analysis provides evidence of a causal effect of medieval trade on long-term religious tolerance, it stops short of verifying empirically that the intervening channel is the persistence of historic institutions.

A number of studies also provide suggestive evidence of the importance of historic institutions. Rather than empirically documenting the evolution and persistence of institutions over time, they show that historic institutions have a strong effect on economic outcomes today. Examples include Dell's (2008) analysis of the impact of the early forced labor institutions in colonial Peru and Bolivia, as well as Banerjee and Iyer's (2005, 2008) studies of the effects of early land tenure institutions in colonial India.

Overall, the literature since Acemoglu *et al.* (2001) has succeeded at providing additional evidence showing that institutions are an important channel through which history matters. However, much work remains to be done before we have a clear understanding of the effect that historic events have on the formation or early institutions and their persistence and importance for long-term development. For example, in past studies (typically at the macro-level) institutions have been conceptualized and measured as a broad cluster of institutions. The result of this is that by and large institutions have remained a black box that we do not clearly understand the details of. As empirical research continues to examine specific examples of institutional change and persistence at the micro-level, our understanding of the causes and consequences of specific institutions will naturally improve.

The recent study by Acemoglu and Johnson (2004) directly tackles the task of unpacking the black box we call institutions. The authors make a distinction between two broad clusters of institutions that they refer to as "property rights institutions" and "contracting institutions". According to their definitions, property rights institutions protects individuals from theft or expropriation by the government or elites, and contracting institutions enforce private contracts written between individuals. The study explores the historical determinants of both types of institutions. They show that although there is a strong relationship between a country's legal origin and the quality of its contracting environment today,[19] legal origin is not correlated with measures of property rights institutions. Extending previous research by Acemoglu *et al.* (2001), the study shows that there is a strong correlation between initial European settler mortality rates and property rights institutions, but no correlation between settler mortality and contracting institutions.

To unbundle the effects of these different types of institutions on economic outcomes, the authors use legal origin as an instrument for contracting institutions and initial settler mortality as an instrument for property rights institutions.[20] Using this IV procedure, the authors estimate the effect of both types of institutions on three outcome variables: current income, investment, financial development, and the form of financial intermediation (i.e. equity versus debt contracts). They find that property rights institutions have a positive and significant effect on income, investment and financial development. On the other had, contracting institutions appear to have a much more limited impact, only affecting the form of financial intermediation.

C. *Cultural Norms of Behavior*

Another way in which historic events can have long-term impacts is if these past events permanently affect culture or norms of behavior. Although in economics the notion of culture is often batted around with little meaning, in other disciplines culture is often given much more content.[21] For example, evolutionary anthropologists have long recognized that there are clear micro-foundations that explain the existence of a phenomenon like culture (e.g., Cavalli-Sforza and Feldman, 1981, Boyd and Richerson, 1985). If information acquisition is either imperfect or

[19] This is consistent with the previous findings of Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2002), Djankov *et al.* (2003) and Lerner and Schoar (2005).

[20] Motivated by Acemoglu *et al.* (2002), the authors also use initial population density in 1500 as an alternative instrument for property rights institutions.

[21] This is not to say that there are not serious studies in economics that seek to understand and model in a concrete way culture and its transmission. Examples include Verdier (2000, 2001) and Tabellini (2008).

costly, then selection favors short-cuts to learning. Individuals, rather than using scarce resources to acquire all of the information needed for every decision to be made, will instead develop 'rules-of-thumb'. These short-cuts or norms of behavior allows individuals to free-ride on the learning of others. These short-cuts then become internalized as individuals come to believe that certain behaviors are the 'right' behaviors in certain situations.

The idea that norms of behavior may be a channel through which history can affect long-term economic development is not new. One of the most famous links between history, culture, and development is Max Weber's (1930) hypothesis that the Protestant Reformation was instrumental in facilitating the rise of industrial capitalism in Western Europe. He argues that Protestantism, in contrast to Catholicism, approved the virtues of hard work and the accumulation of wealth, and that these values, referred to as the "Protestant work ethic", provided the moral foundation that spurred the transition to a modern market based industrial economy. A more recent example is Mokyr's (2008) argument that an important determinant of the Industrial Revolution was the development of a social norm he calls 'gentlemanly culture' that emphasized honesty, commitment, and cooperation.

Empirical studies exploring the link between history and culture typically attempt to isolate culture by comparing the some measure or proxy of a cultural belief across individuals in the same external environment. If individuals' stated beliefs or actions vary in a systematic manner when faced with the same situation, then this provides suggestive evidence of the importance of culture.

This logic builds on earlier studies that attempt to identify the existence of cultural differences between groups. In this literature, two strategies are employed in an attempt to identify systematic differences in behavior among individuals in the same environment. The first strategy is to bring the same environment to people of different backgrounds. This is the strategy undertaken in the studies by Henrich, Boyd, Bowles, Camerer, Gintis, McElreath, and Fehr (2001) and Henrich, Boyd, Bowles, Gintis, Fehr, Camerer, McElreath, Gurven, Hill, Barr, Ensminger, Tracer, Marlow, Patton, Alvard, Gil-White, and Henrich (2005) where the ultimatum game was conducted in 15 extremely remote small-scale societies across the world. The second strategy that has been employed is to examine situations where individuals from different backgrounds have been brought into the same environment. Miguel and Fisman (2007) look for a culture of corruption using the accumulation of unpaid parking violations among foreign diplomats stationed in Manhattan. Following a similar logic, Miguel, Saiegh, and Satyanath (2008) seek to identify the existence of a culture of violence by examining the number of yellow and red cards fouls given to soccer players from different countries playing in six professional soccer leagues. Fernandez and Fogli (2007) examine the behavior of individuals whose parents were born in different countries, but today live in the United States. They find that the labor force participation and fertility of second generation females are positively correlated with the historic labor force participation and fertility of the individual's country of ancestry.

The earliest studies examining the possibility that cultural norms may be historically determined use an experimental setting to control for the external environment of individuals. Psychologists Cohen, Nisbett, Bowdle, and Schwarz (1996) test whether in the U.S. South there is a 'culture of honor', where a special importance is placed in defending one's reputation and honor, even if this requires aggression and violence. Their explanation for why this culture exists in the U.S. South and not the North lies in the different histories of settlement in the two areas. The North was settled by groups with a farming background, while the South was settled primarily by the Celts which had been herders since prehistoric times and had never engaged in large-scale agriculture. They argue that historically in herding cultures, with their low population densities and weak states, protection of one's property was left to the individual. The result of this is that some aspects of the norms of aggressive behavior that were developed as a means to protect one's herds continue to persist today.

To test the culture of honor hypothesis, Cohen *et al.* (1996) conducted a series of experiments involving white males from the U.S. North and South. In the experiments, each individual was bumped by an accomplis and called an "asshole". (The participants did not know this was part of the experiment.) Cohen *et al.*, using a number of methods including direct observation, psychological tests, and saliva tests, compare the effects of this incident on Southerners relative to Northerners. They find the Southerners became more upset, were more likely to feel that their masculinity was threatened, became more physiologically and cognitively primed for aggression as measured by a rise in testosterone and cortisol levels, and were more likely to engage in aggressive behavior subsequently.

Another study, which is well-known study in the sociology literature, is Salaman's (1980) comparison of two similar towns located in the same county in Eastern Illinois. Both towns were settled about 100 years ago, but one was settled by German immigrants from East Frisia and the other by Irish immigrants. Using survey data, Salaman documents the persistent of norms relating to land inheritance, which reflect the ethnic heritage of the two communities.

Avner Greif (1994), relying on game theory and historic evidence, examines the historical origins of the divergent evolution of collectivist and individualist cultures among the Genoese and Maghribis, respectively. Relying on qualitative historical evidence, Greif argues that the differences between the two groups have their origins in the different enforcement strategies undertaken by merchants towards overseas agents during long-distance medieval trade. Among the Maghribi, merchants relied on a collective enforcement strategy, where all merchants collectively punish any agent who had cheated. Among the Genoese, enforcement was achieved through an individual punishment strategy (Greif, 1993).

Although these pioneering studies provide scarce evidence supporting the role of norms as a channel through which history matters, the shortcoming of each study is that only two groups are being compared. Although the studies by Cohen *et al.* (1996), Salaman (1980), and Greif (1994) carefully document differences between the two groups being examined, the studies are unable to prove that the source of these difference is the historical channel being examined. In all three examples, the two groups being examined differ along many dimensions other than the historic dimension under consideration. Because of this, one cannot conclude that the cultural differences observed today do not arise as a result of other factors.

More recent studies attempt to use the same comparative logic of these early studies, but extend the sample to include many more observations. By doing this, more sophisticated statistical techniques can be employed to help identify with greater certainty the importance of history in determining current cultural norms of behavior. Guiso, Sapienza, and Zingales (2008) empirically examine the well-know hypothesis put forth by Putnam, Leonardi, and Nanetti (1993) that within Italy city states that became independent during the 1000–1300 period developed higher level of social capital and these higher levels of social capital continue to persist today. The authors bring Putnam *et al.*'s hypothesis to the data by collecting various city level measures of social capital. They show that looking across 400 Italian cities, there is a positive relationship between their measures of social capital and whether the city was free in 1176.

The core issue when interpreting this correlation is that these independent cities may also be different along many other dimensions which may also affect social capital today. In an attempt to overcome this identification issue, the authors rely on historically motivated instrumental variables. Motivated by the historic fact that after the collapse of the Holy Roman Empire, local autonomy was often formed around existing religious authorities, the authors use whether a town had a local bishop in the 5th century as one instrument. Their second instrument is motivated by the author's argument that a city that was a part of the Etruscan civilization during the 8th century was more likely to have become an independent city during the Middle Ages. Using these instruments, the authors provide IV estimates that are consistent with their OLS estimates.

The authors also use the historic presence of the Norman Kingdom in the South of Italy to develop a falsification test to assess the validity of their instruments. Because of the Norman Kingdom in the South of Italy, Southern cities were unable to gain independence. Using the first stage estimates from their IV procedure, the authors derive, for each Southern city, the predicted probability of its being free if it wasn't located in the South. They show that among these Southern cities, this predicted probability is uncorrelated with their measures of social capital. The authors argue that this result provides suggestive evidence that the exclusion restrictions for their IV estimates are satisfied. Having a local bishop during the Holy Roman Empire and being an Etruscan city does not appear to have an effect on social capital in the South, where their potential effect through independence was shut down historically. If the relationship between their instruments and social capital was because of a correlation with factors other than independence, then one would also expect to find a similar relationship in Southern Italy.

The recent study by Guido Tabellini (2007) also considers the historical origins of norms of behavior, but is interested in using this relationship to identify the causal effect of norms on economic development. His analysis examines differences in trust in others, respect for others, and confidence in the benefit of individual effort across regions within Europe. Using an IV estimation strategy to isolate exogenous' variation in cultural norms, Tabellini uses two historically based instruments: (*i*) the literacy rate at the end of the 19th century, and (*ii*) the political institutions in place over the past several centuries. According to the first stage estimates, European regions with historically lower literacy and less well developed institutions today have less trust in others, less respect for others, and less confidence in the benefit of individual effort. The second stage of the IV estimates report a positive effect of the measured norms on current per capita income levels and average annual growth between 1977 and 2001.

Although the instruments are relevant, it is less clear whether the necessary exclusion restrictions are satisfied. The historic variables may have affected the evolution of factors other than cultural norms. Tabellini clearly understands this concern and controls for a variety of factors including current literacy, current political institutions, and the historic urbanization rate. He also controls for the capital stock and the sectoral composition of employment in the 1970s, arguing that these are also possible channels through which the historic variables may affect current economic development. The extent to which one takes the estimates as causal rather than correlations observed in the data is clearly a matter of individual judgement based on the plausibility of the identification strategy.

Like Tabellini (2007), Nunn and Wantchekon (2008) also consider the historical determinants of trust, but in a very different environment. The authors examine whether the trans-Atlantic and Indian Ocean slave trades were responsible for a culture of mistrust within Africa. This is done by combining survey data from the 2005 Afrobarometer with estimates of the number of slaves taken from each ethnic group in Africa. The study finds a very strong negative relationship between an individual's reported trust in others and the number of slaves taken from the individual's ethnic group during the slave trades. As always, the core concern with this correlation is the non-random nature of the selection of the historic event. To better understand whether the relationship is causal, the authors instrument for slave exports using the historic distance from the coast of each individual's ethnic group, while controlling for each individual's current distance from the coast. The IV results confirm the OLS estimates. They also perform a number of falsification tests, the results of which suggest that the instrument's exclusion restrictions are likely satisfied.

The study then attempts to distinguish between the two most plausible channels through which the slave trade could have adversely affected trust. One channel is that the slave trade altered the cultural norms of the ethnic groups exposed to the trade, making them inherently less trusting. A second channel is that the slave trade resulted in a long-term deterioration of the legal and political institutions, and these weak institutions cause individuals to be less trusting of others. To distinguish between these two channels, the authors construct a second measure of slave exports, which is the average number of slaves that were taken from the geographic location that each individual is currently living in. This is different from the first measure, which is the average number of slaves taken from an individual's ethnic group.[22]

Identification between the two channels is based on the fact that when an individual relocates the individual's internal norms move with them, but the individual's external institutional en-

[22]Both measures are averages over a given land area. Because the two variables are measured in the same units, if the individual lives in the same location as his ancestors the two variables will take on the same value.

vironment is left behind. In other words, institutions, which are external to the individual, are much more geographically fixed, relative to cultural beliefs which are internal to the individual. Therefore, if one accepts that the slave trade had a causal effect on trust, then the two variables can be used distinguish to which extent the slave trade affects trust through the culture channel and through the institutions channel. If the slave trade affects trust primarily through internalized norms and cultural beliefs, which are ethnically based and internal to the individuals, then when looking across individuals what should matter is whether their ancestors were heavily enslaved. If the slave trade affects trust primarily through its deterioration of domestic institutions, which are external to the individual and geographically immobile, then what should matter is whether the external environment the individual is living in was heavily affected by the slave trades.

The empirical results provide evidence consistent with the slave trades adversely affecting trust through both cultural norms and institutions, but the magnitude of the culture channel is approximately twice the magnitude of the institutions channel. This result is significant because it provides one of the first pieces of evidence attempting to quantifying the impact of a historic event through both its effect on institutions and on its effect on culture.

Although, there has been a recent surge in papers seeking to test whether norms of behavior are one channel through which history matters, the literature is still very young and still very far from developing a clear understanding about norms. For example, we still do not understand a number of very fundamental and important issues related to history, norms, and economic development. In what environments do norms be changed and when do they tend to persist? Which norms are more persistent and which are more prone to change? What is the relationship between norms and institutions? How do the two interact? Are they complements or substitutes?

D. *Knowledge and Technology*

A number of studies have hypothesized that knowledge, education and technology may also be channels through which historic events have long-term impacts. Glaeser, La Porta, Lopez-De-Silanes, and Shleifer (2004) conjecture that part of the positive relationship between European settlement and economic growth documented by Acemoglu *et al.* (2001) may reflect the knowledge and "know how" brought by the settlers to the colony. Although their study is unable to provide causal evidence proving their hypothesis, it does highlight correlations in the data that are consistent with their view. Using OLS estimates the authors show that across countries, school enrollment in 1900 is positively correlated with income in 2000, and that a country's initial settler mortality rate is strongly correlated with schooling in 1900. The authors also examine panel data over five year intervals between 1960 and 2000. They find a strong positive relationship between initial education and the subsequent five year change in democracy.[23] However, in a subsequent study, Acemoglu, Johnson, Robinson, and Yared (2005*b*) show that this result is driven by the worldwide increase in average education and democracy that has occurred between 1960 and 2000. Once one includes time period fixed effects, then the correlation disappears.

Evidence from other studies also provide evidence consistent with education being a channel through which historic events affect long-term development. A recent study by sociologist Robert Woodberry (2004) documents correlations between measures of the historic presence of missionaries and current per capita income and democracy across former non-settler colonies. Woodberry argues that the historical presence of missionaries, particularly protestant missionaries, resulted in a number of benefits for the native populations, such as increased education and a decrease in injustice and abuse by the colonizers. Because these abuses angered the indigenous populations, making missionary work more difficult, missionaries had an incentive to fight against these injustices. According to Woodberry, these consequences in turn served to promote democracy after independence.

As well, Huillery's (2008*a*) finding that in French West Africa differences in colonial investments in schooling can still be observed today also provides some evidence that consistent with a persistent impact of education. Similarly, Bolt and Bezemer (2008) also show that there is a positive correlation between colonial education levels and current income across African countries.

As Glaeser *et al.* (2004) acknowledge, their analysis (as well as the other studies cited here) are unable to prove the primacy of education as a fundamental factor affecting long-term development. The primary difficulty is establishing a causal link. Both the demand for and the supply of education are potentially endogenous to a large number of factors, including the quality of domestic institutions. Countries with better institutions also tend to have better governments that provide a higher level of public goods, including education. As well, countries with better institutions tend to have more secure property rights, which raises the returns to investments, including human capital investments. Therefore, when examining correlations between colonial

[23] For additional evidence on the possible link between education and democratic institutions also see Glaeser, Ponzetto, and Shleifer (2006).

education and current economic development, it is possible that this correlation is being driven by other omitted factors.

Although these studies all focus on the transfer of education and knowledge from Europe to the colonies, historically, there was also knowledge transfer in the other direction. An example is the Columbian Exchange. A study by Nunn and Qian (2008) examines one part of this exchange: the introduction of the potato to the Old World from the New World. Their study estimates the impact of the new food technology on population growth and development in the Old World. The authors show that the potato was calorically and nutritionally superior to all Old World crops, such as wheat, barley, rye, and rice. Because of this, for the parts of the Old World that were able to adopt the potato, its diffusion from the New World resulted in a large positive shock to agricultural productivity. The authors use a difference-in-differences estimation strategy and compare the difference in population growth before introduction relative to the population growth after introduction between countries that were able to adopt potatoes and those that were not. A country's ability to adopt potatoes is measured using GIS based climate and soil data from the FAO. According to their estimates, the introduction of the potato had a very large positive impact on population growth, accounting for about a quarter of the observed increase in population after 1700. The authors also find that the introduction of the potato spurred economic development, which they measure by the urbanization rate, but that this effect is felt approximately 100 years after the increase in population growth.

The recent study by Comin, Easterly, and Gong (2007) providews a unique analysis of the possible historical persistence and importance of knowledge and technology. The authors document a positive relationship between historic technology levels (as far back as 1000BC) and current income per capita across different parts of the world. The authors interpret their findings using a model where the stock of existing technology decreases the cost of adopting new technologies, they show that if a society has a more advanced technology in the past, then because of lower costs to technology acquisition, this will increase its stock of technology and income today. Therefore, according to the model, past technology levels can have a direct causal impact on economic development today. However, other interpretations of their correlations are also possible. The most obvious is that the relationship between historic technology and current technology is being driven by some omitted factor, which tends to persist over time. Viewed in this light, their correlation is not at all surprisingly, especially given that previous studies have also documented a similar persistence in economic and political performance over time. For example, Bockstette, Chanda, and Putterman (2002) empirically document a positive relationship between state antiquity and current economic performance. The persistence of technology may simply be another manifestation of the persistence of economic performance over long periods of time.

5. The Relationship between History and Geography

An alternative determinant of economic development which is often pitted against history is geography. Proponents of the geography view argue that unchanging fixed geographic factors, such as ecology, climate, natural endowments, and the disease environment, are the primary determinants of long-term economic development. This view has been emphasized by a number of studies that highlight strong statistical correlations between economic development and a variety of geographic characteristics, such as the climate (Kamarck, 1976), the disease environment (Sachs, Mellinger, and Gallup, 2001, Sachs and Malaney, 2002), natural openness (Rappaport and Sachs, 2003), and resource endowments (Sachs and Warner, 2001).

An example of the tension between the 'geography matters' and the 'history matters' views can be seen if we return to Acemoglu *et al.*'s (2001) examination of the effects of institutions on long-term growth.[24] In their study, because initial settler mortality is used as an instrument for domestic institutions to explain the causal effect of institutions on income, the exclusion restriction that must be satisfied is that initial settler mortality only affects current income through its historic effect on institutions. Jeffrey Sachs (2003), a proponent of the geography view, argues that the IV estimates are biased because there is a direct and persistent effect of geographic characteristics on income today. The argument is that areas that had high settler mortality during colonial rule continue to have deadly disease environments and this results in low income levels today. Therefore, initial settler mortality is correlated with income through a channel other than institutions and the exclusion restriction is not satisfied.

Acemoglu *et al.* (2001) clearly understand this concern and address it directly in their study. They argue that the primary diseases that killed Europeans were malaria and yellow fever, and that these diseases have a limited effect on indigenous populations that have developed immunities to the diseases. Because of native immunities, it is unlikely that European settler mortality rates are

[24]This debate often takes the form of 'geography matters' versus 'history matters'. See for example Rodrik, Subramanian, and Trebbi (2004).

highly correlated with the disease burdens faced by native populations either historically or today. The authors also show that their results remain robust to the inclusion of a host of controls that measure geographic characteristics and the local disease environment.

Another piece of evidence of the relative importance of history versus geography has been put forth by Acemoglu *et al.* (2002), who document that there has been a 'reversal of fortunes' among countries that were colonized. The countries that were the most prosperous in 1500 are the poorest countries today.[25] They argue that if geography is a fundamental determinant long-term economic development, then we would not expect this drastic change in the relative prosperity of countries over time.

Part of the reason for the debate lies in the fact that geography affects human actions in the past, and it affects human actions today. In other words, in addition to affecting income directly, geography also influences history which in turn affects income today. There are many examples where small and seemingly innocuous geographic differences become magnified through historic events and as a result end up having large impacts on long-term economic development. One example is the differences in soil and climate which made plantation agriculture and its reliance on slavery more or less profitable in different parts of the Americas (Engerman and Sokoloff, 1997, 2002). Even more dramatic examples of the effect of geography through history come from Jared Diamond's (1997) book *Guns, Germs and Steel*. The book is devoted to exploring the answer to the question of why Europeans colonized the rest of the world and not the other way around. The proximate answer to this question is clear. It is because Europeans had superior technology, such as guns, swords, and ships. As well, they also brought with them germs with them that killed large numbers of native populations, particularly in the Americas and Australia. But why did Europeans have superior technology? And why did their germs kill native populations and not the other way around?

Diamond's answer to the first question is that the Europe's technological advantage, which stems from more complex specialized societies, arose because crops and animals were domesticated earlier and in more varieties than in other parts of the world. Among the nine locations that food production initially arose, the Fertile Crescent was the first and domesticated the most

[25] Huillery (2008*b*) tests for a reversal of fortunes within districts of former French West Africa. She does not find any evidence of a reversal at this more micro level. Instead, she finds that Europeans tended to settle in the initially more prosperous parts of French West Africa and European settlement exerted a strong positive effect on long-term development.

species. Despite its name, the Fertile Crescent was not the most fertile region on earth. Instead, its advantage lied in its having the largest number of species of wild plants that were suitable for domestication. Similarly, the Fertile Crescent, and Eurasia more generally, also had the largest endowment of animals that could be domesticated.

The domestication of plants and animals quickly spread East and West throughout Eurasia, but diffused much less quickly South to the African continent. This is because when moving East or West, the length of the day does not change, and the climate is generally not drastically different. However, this is not true when moving North or South, where the length of the day changes and the climate typically is very different. More generally, for continents with a North-South orientation, such as the Americas or Africa, domestication or technological advance tended not to spread as quickly as in Eurasia with its East-West orientation. Because of the early domestication of animals in Eurasia, humans lived in close proximity to animals. As a result of this, new animal-based diseases, such as measles, tuberculosis, influenza, and smallpox, developed. Over time genetic resistances to the diseases were developed. The parts of the world without domesticated animals did not develop these diseases or a genetic resistance to the diseases. This explains why European diseases decimated native populations and not the other way around.

Overall, Diamond's explanation for Europe's global dominance illustrates clearly the large effects that geography can have through history. The historical origins of European colonization of the globe lies in two deep determinants: (*i*) being endowed with wild plants and animals suitable for domestication, and (*ii*) being located on a continents with an East-West orientation.

Although Diamond's analysis provides descriptive evidence showing that geography can have large impacts through history, it does not provide a quantitative assessment of the relative importance of the historic effect of geography relative to its direct contemporaneous effect on development.[26] A recent study by Nunn and Puga (2007) attempts to estimate the magnitude of these two channels for one geographic characteristic, terrain ruggedness, which is measured as the average absolute slope of a country's surface area. The study identifies two channels through which terrain ruggedness should matter for economic development. One is a direct contemporaneous effect of ruggedness on income. All else equal, on rugged terrain it is more difficult to build buildings, roads, bridges and other infrastructure; agriculture and irrigation is also more difficult; and trade

[26]Olsson and Hibbs Jr. (2005) empirically tests Diamond (1997). Overall, their estimates provide strong support for his hypotheses.

is more costly. For these reasons, terrain ruggedness is expected to have a direct negative effect on income.

The study also identifies a historic effect of terrain ruggedness. During Africa's slave trade, societies were able to use rugged terrain to protect and hide from slave raiders and kidnappers. This allowed individuals, villages, and societies to partially defend against the negative effects of the slave trades documented in Nunn (2008*a*). Therefore, for the African continent which was exposed to the slave trade, ruggedness also had a historic indirect positive effect on income. Ruggedness allowed areas to escape from the slave trade, thereby increasing long-term economic growth. Exploiting the fact that the slave trade only affected Africa, Nunn and Puga are able to estimate the magnitude of both effects of ruggedness. They find that the indirect historic effect of ruggedness is consistently twice the magnitude of the direct contemporaneous effect of ruggedness, suggesting that for this geographic characteristics, the importance of geography through history swamps its importance today.

Overall, the body of evidence reviewed here suggests that the largest effects of geography on current economic development may work through its influence on past events rather than through its direct effect on economic outcomes today.

6. Conclusions

The empirical literature examining the relationship between history and current economic development has developed considerably in the past years. The main fact established by this literature is that history matters. A wide variety of papers have documented the important effects that certain historic events have had on long-term economic development. These studies range from Acemoglu *et al.*'s (2001) study showing that colonial rule affected the subsequent development of domestic institutions and economic development to Banerjee and Iyer's (2005) study that shows the importance of colonial land revenue systems within India to Nunn's (2008*a*) analysis showing that Africa's slave trade adversely affected subsequent development.

Although the literature has made considerable progress in showing that history matters, what remains less well understood are the exact channels of causality through which history matters. For most of the studies undertaken to date, their greatest shortcomings lie in their inability to precisely identify the exact mechanism or channel of causality. For example, Nunn's (2008*a*) study of Africa's slave trade documents the adverse long-term effects of the slave trade, but it is unable to identify the precise channels and mechanisms at play. Similarly, Banerjee and Iyer's (2005) analysis is unable to pin down the precise channels through which the historical land revenue system in India, established by the British 150 years ago, continues to have an effect long after it was abolished. Even in Acemoglu *et al.*'s (2001) analysis, which identifies a broad cluster of institutions as the intervening mechanism, this broad cluster remains, by and large, a black box left to be unpacked. Although the follow-up paper by Acemoglu and Johnson (2004) takes initial steps in this direction, much remains to be done before this historic channel of causality is clearly understood.

The most recent studies that rely on micro-level data and analysis (e.g., Acemoglu *et al.*, 2008, Dell, 2008, Huillery, 2008*a*, Iyer, 2007, Nunn and Wantchekon, 2008) are beginning to identify finer causal factors and more precise mechanisms. However, since these studies rely on data at a much more micro level, the scope of their analysis is more limited. For example, it is difficult to know if the effects of the mita forced labor system convincingly identified by Dell (2008) are similar to the effects of other coercive labor systems in other parts of the world. For this reason, as studies becomes much more focused, evidence from complementary studies from other locations and times are also needed before one can assess whether specific results are part of broad systematic patterns that exist in the data or whether the results are specific to that environment. For this reason, although this literature has grown greatly in recent years, many more historic events and mechanisms left to be examined before we have a clear picture of the overall importance of historic events and the specific channels through which they continue to affect economic development today.

References

Acemoglu, Daron, "Reward Structure and the Allocation of Talent," *European Economic Review*, 39 (1995), 17–33.

Acemoglu, Daron, María Angélica Bautista, Pablo Querubin, and James A. Robinson, "Economic and Political Inequality in Development: The Case of Cundinamarca, Colombia," in Elhanan Helpman, ed., *Institutions and Economic Performance* (Harvard University Press, Cambridge, MA, 2008), 181–245.

Acemoglu, Daron, and Simon Johnson, "Unbundling Institutions," *Journal of Political Economy*, 113 (2004), 949–995.

Acemoglu, Daron, Simon Johnson, and James A. Robinson, "The Colonial Origins of Comparative Development: An Empirical Investigation," *American Economic Review*, 91 (2001), 1369–1401.

———, "Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution," *Quarterly Journal of Economics*, 117 (2002), 1231–1294.

———, "The Rise of Europe: Atlantic Trade, Institutional Change and Economic Growth," *American Economic Review*, 95 (2005*a*), 546–579.

Acemoglu, Daron, Simon Johnson, James A. Robinson, and Pierre Yared, "From Education to Democracy," *American Economic Review Papers and Proceedings*, 95 (2005*b*), 44–49.

Banerjee, Abhijit, and Lakshmi Iyer, "History, Institutions and Economic Performance: The Legacy of Colonial Land Tenure Systems in India," *American Economic Review*, 95 (2005), 1190–1213.

———, "Colonial Land Tenure, Electoral Competition and Public Goods in India," (2008), Harvard Business School Working Paper 08-062.

Banerjee, Abhijit, Lakshmi Iyer, and Rohini Somanathan, "History, Social Divisions and Public Goods in Rural India," *Journal of the European Economic Association Papers and Proceedings*, 3 (2005), 639–647.

Becker, Sascha O., and Ludger Woessmann, "Was Weber Wrong? A Human Capital Theory of Protestant Economic History," *Quarterly Journal of Economics*, 124 (2009), forthcoming.

Berger, Daniel, "Taxes, Institutions and Governance: Evidence from Colonial Nigeria," (2008), mimeo, New York University.

Berkowitz, Daniel, and Karen Clay, "American Civil Law Origins: Implications for State Constitutions," *American Law and Economics Review*, 7 (2005), 62–84.

———, "The Effect of Judicial Independence on Courts: Evidence from the American States," *Journal of Legal Studies*, 35 (2006), 399–400.

Bertocchi, Graziella, and Fabio Canova, "Did Colonization Matter for Growth? An Empirical Exploration into the Historical Causes of Africa's Underdevelopment," *European Economic Review*, 46 (2002), 1851–1871.

Bockstette, Valeri, Areendam Chanda, and Louis Putterman, "States and Markets: The Advantage of an Early Start," *Journal of Economic Growth*, 7 (2002), 347–369.

Bolt, Jutta, and Dirk Bezemer, "Understanding Long-Run African Growth: Colonial Institutions or Colonial Education? Evidence from a New Data Set," (2008), mimeo.

Botero, Juan C., Simeon Djankov, Rafael La Porta, Florencio Lopez de Silanes, and Andrei Shleifer, "The Regulation of Labor," *Quarterly Journal of Economics*, 119 (2004), 1339–1382.

Boyd, Robert, and Peter J. Richerson, *Culture and the Evolutionary Process* (University of Chicago Press, London, 1985).

Cavalli-Sforza, L.L., and M.W. Feldman, *Cultural Transmission and Evolution: A Quantitative Approach* (Princeton University Press, Princeton, 1981).

Cohen, Dov, Richard E. Nisbett, Brian F. Bowdle, and Norbert Schwarz, "Insult, Agression, and the Southern Culture of Honor: An "Experimental Ethnography"," *Journal of Personality and Social Psychology*, 70 (1996), 945–960.

Comin, Diego, William Easterly, and Erick Gong, "Was the Wealth of Nations Determined in 1000 B.C.?" (2007), mimeo, Harvard Business School.

David, Paul A., “Clio and the Economics of QWERTY,” *American Economic Review Papers and Proceedings*, 75 (1985), 332–337.

Davis, Donald R., and David E. Weinstein, “Bones, Bombs, and Breakpoints: The Geography of Economic Activity,” *American Economic Review*, 92 (2002), 1269–1289.

———, “A Search for Multiple Equilibria in Urban Industrial Structure,” *Journal of Regional Science*, 48 (2008), 29–65.

Dell, Melissa, “The Mining Mita: Explaining Institutional Persistence,” (2008), mimeo, MIT.

DeLong, J. Bradford, and Andrei Shleifer, “Princes and Merchants: City Growth before the Industrial Revolution,” *Journal of Law and Economics*, 36 (1993), 671–702.

Diamond, Jared, “The Tasmanians: The Longest Isolation, the Simplest Technology,” *Nature*, 274 (1978), 185–186.

———, *Guns, Germs, and Steel* (W.W. Norton & Company, New York, 1997).

Djankov, Simeon, Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer, “The Regulation of Entry,” *Quarterly Journal of Economics*, 117 (2002), 1–37.

———, “Courts,” *Quarterly Journal of Economics*, 118 (2003), 453–517.

Engerman, Stanley L., and Kenneth L. Sokoloff, “Factor Endowments, Institutions, and Differential Paths of Growth Among New World Economies: A View from Economic Historians of the United States,” in Stephen Harber, ed., *How Latin America Fell Behind* (Stanford University Press, Stanford, 1997), 260–304.

———, “Factor Endowments, Inequality, and Paths of Development Among New World Economies,” Working Paper 9259, National Bureau of Economic Research (2002).

Englebert, Pierre, “Pre-Colonial Institutions, Post-Colonial States, and Economic Development in Tropical Africa,” *Political Research Quarterly*, 53 (2000a), 7–36.

———, “Solving the Mystery of the Africa Dummy,” *World Development*, 28 (2000b), 1821–1835.

Fernandez, Raquel, and Alessandra Fogli, “Culture: An Empirical Investigation of Beliefs, Work, and Fertility,” (2007), mimeo, New York University.

Feyrer, James D., and Bruce Sacerdote, “Colonialism and Modern Income: Islands as Natural Experiments,” *Review of Economics and Statistics* (2009), forthcoming.

Frankema, Ewout, “Colonial Origins of Inequality: Exploring the Causes and Consequences of Land Distribution,” (2006), mimeo, University of Groningen.

Galor, Oded, Omer Moav, and Dietrich Vollrath, “Inequality in Land Ownership, the Emergence of Human Capital Promoting Institutions and the Great Divergence,” *Review of Economic Studies* (2009), forthcoming.

Gennaioli, Nicola, and Ilia Rainer, “The Modern Impact of Precolonial Centralization in Africa,” *Journal of Economic Growth*, 12 (2007), 185–234.

Glaeser, Edward L., Rafael La Porta, Florencio Lopez-De-Silanes, and Andrei Shleifer, “Do Institutions Cause Growth?” *Journal of Economic Growth*, 9 (2004), 271–303.

Glaeser, Edward L., Giancomo Ponzetto, and Andrei Shleifer, "Why Does Democracy Need Education," Working Paper 12128, National Bureau of Economic Research (2006).

Greif, Avner, "Contract Enforceability and Economic Institutions in Early Trade: The Maghribi Traders' Coalition," *American Economic Review*, 83 (1993), 525–548.

———, "Cultural Beliefs and the Organization of Society: A Historical and Theoretical Reflection on Collectivist and Individualist Societies," *Journal of Political Economy*, 102 (1994), 912–950.

———, *Institutions and the Path ot the Modern Economy: Lessons from Medieval Trade* (Cambridge University Press, New York, 2006).

Grier, Robin M., "Colonial Legacies and Economic Growth," *Public Choice*, 98 (1999), 317–335.

Guiso, Luigi, Paola Sapienza, and Luigi Zingales, "Long-Term Persistence," (2008), mimeo.

Hall, Robert E., and Charles I. Jones, "Why Do Some Countries Produce So Much More Output Per Worker than Others?" *Quarterly Journal of Economics*, 114 (1999), 83–116.

Henrich, Joseph, "Demography and Cultural Evolution: How Adaptive Cultural Processes can Produce Maladaptive Losses – The Tasmanian Case," *American Antiquity*, 69 (2004), 197–214.

Henrich, Joseph, R. Boyd, S. Bowles, H. Gintis, E. Fehr, C. Camerer, R. McElreath, M. Gurven, K. Hill, A. Barr, J. Ensminger, D. Tracer, F. Marlow, J. Patton, M. Alvard, F. Gil-White, and N. Henrich, "'Economic Man' in Cross-Cultural Perspective: Ethnography and Experiments from 15 Small-Scale Societies," *Behavioral and Brain Sciences*, 28 (2005), 795–855.

Henrich, Joseph, Robert Boyd, Sam Bowles, Colin Camerer, Herbert Gintis, Richard McElreath, and Ernst Fehr, "In Search of Homo Economicus: Experiments in 15 Small-Scale Societies," *American Economic Review*, 91 (2001), 73–79.

Hoff, Karla, "Paths of Institutional Development: A View from Economic History," *World Bank Research Observer*, 18 (2003), 205–226.

Huillery, Elise, "History Matters: The Long-Term Impact of Colonial Public Investments in French West Africa," (2008*a*), mimeo, Paris School of Economics.

———, "The Impact of European Settlement within French West Africa: Did Pre-Colonial Prosperous Areas Fall Behind?" (2008*b*), mimeo, Paris School of Economics.

Inikori, Joseph E., *Africans and the Industrial Revolution in England: A Study in International Trade and Economic Development* (Cambridge University Press, Cambridge, 2002).

Iyer, Lakshmi, "Direct Versus Indirect Colonial Rule in India: Long-Term Consequences," (2007), mimeo, Harvard Business School.

Iyigun, Murat, "Luther and Suleyman," *Quarterly Journal of Economics*, 123 (2008), forthcoming.

Jha, Saumitra, "Trade, Institutions and Religious Tolerance: Evidence from India," (2008), mimeo, Stanford University.

Kamarck, Andrew M., *The Tropics and Economic Development* (John Hopkins University Press, Baltimore, MD, 1976).

Knack, Stephen, and Philip Keefer, "Institutions and Economic Performance: Cross-Country Tests Using Alternative Institutional Measures," *Economics & Politics*, 7 (1995), 207–227.

La Porta, Rafael, Florencio Lopez-de-Silanes, and Andrei Shleifer, "The Economic Consequences of Legal Origins," *Journal of Economic Literature*, 46 (2008), 285–332.

La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert Vishny, "Legal Determinants of External Finance," *Journal of Finance*, 52 (1997), 1131–1150.

———, "Law and Finance," *Journal of Political Economy*, 106 (1998), 1113–1155.

Lagerlöf, Nils-Petter, "Geography, Institutions and Growth: The United States as a Microcosm," (2005), mimeo, York University.

Landes, David S., *The Wealth and Poverty of Nations: Why Some are so Rich and Some so Poor* (W.W. Norton & Company, New York, 1998).

Lange, Matthew K., "British Colonial Legacies and Political Development," *World Development*, 32 (2004), 905–922.

Lerner, Josh, and Antoinette Schoar, "Does Legal Enforcement Affect Financial Transactions? The Contractual Channel in Private Equity," *Quarterly Journal of Economics*, 120 (2005), 223–246.

Mahoney, Paul G., "The Common Law and Economic Growth: Hayek Might be Right," *The Journal of Legal Studies*, 30 (2001), 503–525.

Mauro, Paolo, "Corruption and Growth," *Quarterly Journal of Economics*, 110 (1995), 681–712.

Mehlum, Halvor, Karl Moene, and Ragnar Torvik, "Predator or Prey? Parasitic Enterprises in Economic Development," *European Economic Review*, 47 (2003), 275–294.

Miguel, Edward, and Ray Fisman, "Corruption, Norms and Legal Enforcement: Evidence from Diplomatic Parking Tickets," *Journal of Political Economy*, 115 (2007), 1020–1048.

Miguel, Edward, and Gérard Roland, "The Long Run Impact of Bombing Vietnam," (2006), mimeo, University of California, Berkeley.

Miguel, Edward, Sebastian Saiegh, and Shanker Satyanath, "National Cultures and Soccer Violence," (2008), mimeo, University of California, Berkeley.

Mitchener, Kris James, and Ian W. McLean, "The Productivity of U.S. States Since 1880," *Journal of Economic Growth*, 8 (2003), 73–114.

Mokyr, Joel, "The Institutional Origins of the Industrial Revolution," in Elhanan Helpman, ed., *Institutions and Economic Performance* (Harvard University Press, Cambridge, MA, 2008), 64–119.

Mulligan, Casey B., and Andrei Shleifer, "Conscription as Regulation," *American Law and Economics Review*, 7 (2005*a*), 85–111.

———, "The Extent of the Market and the Supply of Regulation," *Quarterly Journal of Economics*, 120 (2005*b*), 1445–1473.

Munshi, Kaivan, and Nicholas Wilson, "Identity, Parochial Institutions, and Career Decisions: Linking the Past to the Present in the American Midwest," (2008), mimeo, Brown University.

Murphy, Kevin M., Andrei Shleifer, and Robert W. Vishny, "Why is Rent-Seeking So Costly to Growth," *American Economic Review Papers and Proceedings*, 83 (1993), 409–414.

North, Douglas C., *Structure and Change in Economic History* (W.W. Norton & Company, New York, 1981).

———, *Institutions, Institutional Change and Economic Performance* (Cambridge University Press, New York, 1990).

North, Douglas C., and Robert Paul Thomas, *The Rise of the Western World* (Cambridge University Press, Cambridge, UK, 1973).

Nunn, Nathan, "Historical Legacies: A Model Linking Africa's Past to its Current Underdevelopment," *Journal of Development Economics*, 83 (2007*a*), 157–175.

———, "Relationship-Specificity, Incomplete Contracts, and the Pattern of Trade," *Quarterly Journal of Economics*, 122 (2007*b*), 569–600.

———, "The Long-Term Effects of Africa's Slave Trades," *Quarterly Journal of Economics*, 123 (2008*a*), 139–176.

———, "Slavery, Inequality, and Economic Development in the Americas: An Examination of the Engerman-Sokoloff Hypothesis," in Elhanan Helpman, ed., *Institutions and Economic Performance* (Harvard University Press, Cambridge, MA, 2008*b*), 148–180.

Nunn, Nathan, and Diego Puga, "Ruggedness: The Blessing of Bad Geography in Africa," (2007), mimeo.

Nunn, Nathan, and Nancy Qian, "Columbus's Contribution to World Population and Urbanization: A Natural Experiment Examining the Introduction of Potatoes," (2008), mimeo, Harvard University.

Nunn, Nathan, and Leonard Wantchekon, "The Trans-Atlantic Slave Trade and the Evolution of Mistrust in Africa: An Empirical Analysis," (2008), mimeo, Harvard University.

Olsson, Ola, and Douglas A. Hibbs Jr., "Biogeography and Long-Run Economic Development," *European Economic Review*, 49 (2005), 909–938.

Price, Gregory N., "Economic Growth in a Cross-section of Nonindustrial Countries: Does Colonial Heritage Matter for Africa?" *Review of Development Economics*, 7 (2003), 478–495.

Putnam, Robert, Robert Leonardi, and Raffaella Nanetti, *Making Democracy Work* (Simon & Schuster, New York, 1993).

Rappaport, Jordan, and Jeffrey D. Sachs, "The United States as a Coastal Nation," *Journal of Economic Growth*, 8 (2003), 5–46.

Redding, Stephen J., Daniel Sturm, and Nikolaus Wolf, "History and Industrial Location: Evidence from German Airports," (2007), CEPR Discussion Paper Series, No. 6345.

Rodrik, Dani, Arvind Subramanian, and Francesco Trebbi, "Institutions Rule: The Primacy of Institutions Over Geography and Integration in Economic Development," *Journal of Economic Growth*, 9 (2004), 131–165.

Sachs, Jeffrey D., "Institutions Don't Rule: Direct Effects of Geography on Per Capita Income," Working Paper 9490, National Bureau of Economic Research (2003).

Sachs, Jeffrey D., and Pia Malaney, "The Economic and Social Burden of Malaria," *Nature*, 415 (2002), 680–685.

Sachs, Jeffrey D., Andrew D. Mellinger, and John L. Gallup, "The Geography of Poverty and Wealth," *Scientific American*, 284 (2001), 70–76.

Sachs, Jeffrey D., and Andrew Warner, "The Curse of Natural Resources," *European Economic Review*, 45 (2001), 827–838.

Salaman, Sonya, "Ethnic Differences in Farm Family Land Transfers," *Rural Sociology*, 45 (1980), 290–308.

Schelling, Thomas, *The Strategy of Conflict* (Harvard University Press, Cambridge, 1960).

Sokoloff, Kenneth L., and Stanley L. Engerman, "History Lessons: Institutions, Factor Endowments, and Paths of Development in the New World," *Journal of Economic Perspectives*, 14 (2000), 217–232.

Tabellini, Guido, "Culture and Institutions: Economic Development in the Regions of Europe," (2007), mimeo, Bocconi University.

———, "The Scope of Cooperation: Values and Incentives," *Quarterly Journal of Economics*, 123 (2008), 905–950.

Tilly, Charles, *Coercion, Capital and European States, A.D. 990–1990* (Blackwell Publishers, Cambridge, 1990).

Verdier, Alberto Bisin Thierry, "Beyond the Melting Pot: Cultural Transmission, Marriage and the Evolution of Ethnic and Religious Traits," *Quarterly Journal of Economics*, 115 (2000), 955–988.

———, "The Economics of Cultural Transmission and the Dynamics of Preferences," *Journal of Economic Theory*, 97 (2001), 298–319.

Weber, Max, *The Protestant Ethic and the Spirit of Capitalism* (Routledge, London, 1930).

Woodberry, Robert D., "The Shadow of Empire: Christian Missions, Colonial Policy, and Democracy in PostColonial Societies," Phd dissertation in sociology, University of North Carolonia at Chapel Hill (2004).