

The European Origins of Economic Development

William Easterly and Ross Levine*

April 2009

Abstract

How did European colonization shape economic development? In this paper, we compile new data on European settlement during colonization and its historical determinants. We use these data to evaluate different views on the European origins of comparative economic development. While subject to ample qualifications, the results run counter to two influential views: (1) Britain exported growth-enhancing institutions and (2) Based on the disease, mineral, and agricultural endowments encountered by Europeans, they developed distinct and enduring political institutions that explain comparative economic development today. The results are more consistent with the view that when Europeans actually settled, they brought a slowly disseminating factor of production, such as human capital, that substantively shaped long-run economic development.

Keywords: Institutions; Human Capital; Political Economy; Natural Resources

JEL Classification Codes: O43; O1; P48, N5

* Easterly: New York University and the NBER; Levine: Brown University and the NBER. We have received excellent research assistance and heroic data collection efforts from Alejandro Corvalan, Tomislav Ladika, Alex Levkov, Julia Schwenkenberg, Tobias Pfitze, and Liz Potamites. Oded Galor, Yona Rubinstein, and seminar participants at Brown University provided very helpful comments.

1 Introduction

Countries have followed remarkably divergent paths of economic development since European colonization. Some former colonies, such as the Congo, Ethiopia, Guinea-Bissau, Malawi, and Tanzania, have experienced depressingly little economic development over the last few centuries, with real per capita Gross Domestic Product (GDP) of less than \$2 per day. Other former colonies are among the richest countries in the world today, including Australia, Canada, and the United States that all had real per capita GDP levels of greater than \$20,000 per annum in 2002. Most former colonies fall along the spectrum between these extremes.

Recent theories about the colonial origins of economic development fall into two broad categories. Some emphasize what Europeans found. When Europeans (i) encountered natural resources with lucrative international markets and (ii) did not find the lands, climate, and disease environment suitable for large-scale settlement, they tended to create authoritarian political institutions to extract and exploit natural resources (Engerman and Sokoloff (1997), ES, and Acemoglu, Johnson, and Robinson (2001), AJR). This political institutions view further argues that when Europeans (i) failed to find extractable minerals and cash crops with large international markets or (ii) found lands and endowments, including a tolerable disease environment, suitable for smaller-scale agriculture, they tended to settle and formed more democratic political institutions. According to this view, egalitarian political institutions were more supportive of long-run economic development than authoritative political regimes. Moreover, political institutions endured after these colonies gained their independence from Europe. Endowments and international markets shaped and maintained political institutions that determined long-run rates of economic development.

A second approach stresses what Europeans brought. North (1990) argues that the British brought comparatively strong political and legal institutions that were more conducive to long-run

growth than the institutions exported by other European nations. In contrast, Glaeser, La Porta, Lopez-de-Silanes, and Shleifer (2005), GLLS, emphasize that Europeans brought themselves. In particular, they argue that Europeans brought human capital and human capital creating institutions, which are essential for long-run economic growth (Galor and Weil, 2000, and Galor, Moav, and Vollrath, 2008). Since human capital disseminates slowly, GLLS argue that more European settlers would materially expedite human capital development and hence the rate of long-run economic development. Rather than focusing on the nationality of the colonizer or on the endogenous creation of political institutions, GLLS feature the role of Europeans in promoting human capital.

The political institutions and human capital approaches yield distinctive views on the role of Europeans in comparative economic development. According to the political institutions view, European settlement is a reflection of the endowments encountered by colonizers. The proportion of Europeans in the colonial population is not an independent determinant of political or economic development. In colonies where it was profitable to create extractive, authoritarian political regimes, few Europeans settled. When endowments encouraged European settlement, they created more egalitarian political institutions that supported long-run growth. From this perspective, Europeans per se are unimportant. In contrast, the human capital view stresses the importance of Europeans. An increase in the proportion of Europeans translates into the more rapid dissemination of skills throughout the population and the more rapid creation of broad-based human capital creating institutions. Indeed, based on this dynamic perspective, Europeans during colonization should matter more than the current percentage of Europeans for explaining current economic development.

Specifically, the political institutions view predicts that the proportion of Europeans during colonization should not explain current economic development beyond its impact on political institutions, while the human capital view holds that (i) the proportion of Europeans during

colonization will explain current economic development beyond its effects on political institutions, (ii) only by accounting for human capital development will the effect of Europeans during colonization on current income vanish, and (iii) Europeans during colonization will have greater explanatory power over current economic development than the proportion of Europeans today. In light of these conflicting views, the empirical literature up to now is notable for its absence of the principal intermediating variable in many theories of comparative economic development: actual European settlement.

In this paper, we compile new data on the percentage of the European population in the early stages of colonization to assess these predictions. There is actually quite a bit of disparate historical documentation of the numbers of both Europeans and total population in colonies. A major contribution of this project is to assemble these data.

This paper also compiles data on historical determinants of European settlement, which we will then be able to use as instruments. We have in mind a very simple model of European settlement as a function of benefits and costs. Some determinants have already been discussed in the literature, such as (1) pre-colonial population density, (2) latitude, and (3) disease environment facing Europeans. Pre-colonial population density raises the costs to Europeans of seizing the land by force and/or makes less land available for new settlers. Latitude reduces the costs and raises the benefits of transferring European technologies (such as for housing and agriculture) to the newly settled areas. The disease environment facing Europeans obviously raises the expected costs of settlement.

We add one very important new variable: indigenous mortality from European diseases. Indigenous mortality from European diseases is a tragic natural experiment that is a very good predictor of European settlement, since it removed or weakened indigenous resistance to Europeans invading new lands, and made plenty of fertile land available to settlers. The phenomenon is limited

to lands that had essentially zero contact with Eurasia for thousands of years, since even a small amount of previous contact was enough to share diseases and develop some resistance to them – so, for example, trans-Saharan and trans-Indian Ocean contacts were enough to make Africa part of the Eurasian disease pool (McNeil 1976, Karlen 1995, Oldstone 1998). Checking multiple historical sources and some actual population figures that showed declines in indigenous population after European contact (McEvedy and Jones 1978), we concluded that only the New World (the Americas and Caribbean) and Oceania (including Australia and New Zealand) suffered from indigenous mortality due to lack of resistance to European diseases. We discuss this evidence below.

Using these historical determinants of European settlement as instruments, we identify the causal effect of colonial European settlement on development outcomes today, subject to caveats about the exclusion restrictions discussed below. The proportion of Europeans during colonization indeed helps explain economic development today, with effects of surprisingly large magnitudes. In contrast to North (1990), having British institutions, as proxied by the British common law legal tradition, does not help explain current levels of economic development. Consistent with both the political institutions and human capital views, the proportion of colonial Europeans is strongly and positively associated with current levels of economic development after accounting for (i) British legal heritage, (ii) the percentage of years the country has been independent since 1776, (iii) the ethnic diversity of the current population, and (iv) the proportion of the country's 1975 population of European descent. Moreover, all of these results hold when using instrumental variables to extract the exogenous component of the proportion of Europeans during colonization.

The association between Europeans during colonization and current economic development is robust to conditioning on political institutions, but not to controlling for educational attainment. In contrast to the political institutions view, the proportion of Europeans during the colonization period

remains positively associated with current economic development when controlling for current indicators of political institutional development, including measures of the degree to which private property is protected from official expropriation and an index of the accountability and effectiveness of government. This result holds even when simultaneously controlling for the proportion of Europeans in the 1975 population. Consistent with the human capital view, the linkage between current economic development and Europeans during colonization becomes insignificant when conditioning on educational attainment, as measured by the secondary school enrollment rate in 2002.

Furthermore, these results hold when eliminating the most extreme “settler” colonies. For example, Australia, Canada, the United States, and New Zealand are occasionally identified as neo-Europes, where Europeans formed a very large proportion of the colonial population. More generally, AJR distinguish between “settler” colonies where European settlers formed comparatively participatory political institutions and “extractive” colonies where a few Europeans formed authoritative political regimes. To abstract from this difference and focus on the role of Europeans per se, we conduct the analyses on only those former colonies where the proportion of Europeans was less than 15 percent during colonization. Even among these non- or minority- settler colonies, cross-country differences in the proportion of Europeans during colonization helps account for differences in economic development today. Only when conditioning on human capital development does the connection between Europeans during colonization and current income disappear. This is supportive – although far from definitive evidence – of the view that the connection between the proportion of Europeans in the colonial population and current development is associated with human capital development, but not with political institutions.

Ample qualifications temper our conclusions. First, our assessment is based on circumstantial evidence. We do not trace the impact of Europeans on the spread of human capital, the creation of

human capital creating institutions, or on the evolution of political institutions. Thus, while establishing strong linkages among the proportion of Europeans during colonization, human capital formation, and current economic development, we do not document the mechanisms underlying these relationships. Second, ES explicitly consider human capital creating institutions as reflecting the endowments and hence incentives encountered by Europeans in addition to political arrangements. Similarly, the AJR approach could be expanded to encompass educational organizations and the role of political institutions in shaping the provision of public education. Thus, it is incorrect to view our results as rejecting broad interpretations of these perspectives on the European origins of comparative economic development. Rather, consistent with GLLS, Galor and Weil (2000), and Galor, Moav, and Vollrath (2008), our work emphasizes human capital as playing a particularly central role in accounting for the divergent paths of economic growth since colonization.

Furthermore, human capital is a very general concept and may be proxying for closely related concepts, such as the degree of acceptance of specific ideas, values, or social norms (Pritchett 2007).¹ We extend our analyses and explore the relation between colonial European settlement and current measures of values.

Finally, ES stress that colonial European settlement shaped economic development through its effects on inequality, emphasizing differences between colonies controlled by an extractive elite (Latin America) and those shaped by a powerful middle class (North America). Consequently, we examine the relation between European settlement and inequality, and we also assess whether inequality modifies the effect of European settlement on economic development.

¹ Pritchett (2007) makes an argument that the reason that state provision of education is so universal is because states want to indoctrinate pupils with a favored set of ideas, values, and norms. Europeans differed from other regions in first of all having earlier, wider coverage of education, and second having distinctive values and norms that some historians have argued were conducive to economic development (Landes 1999). Comin, Easterly, and Gong (2009) have results on technology consistent with this paper. They show that pre-colonial technology history has a strong correlation with technology or income today, except there was a leap from primitive to frontier technology in places with heavy European settlement during the colonial period.

The remainder of the paper is organized as follows. Section 2 defines and discusses the data, while Section 3 provides preliminary evidence on the determinants of human settlement prior to European colonization and the factors shaping European settlement. Section 4 presents the paper's core results. Section 5 explores the effect of European settlement on inequality and values. Section 6 concludes.

2 Data

2.1 Available sources

Historical documentation of numbers of Europeans and total population at various points during colonial times is relatively abundant because it was one of the central concerns of colonial administrators. Of course there was hardly anything like a modern statistical service in colonial times. This has prevented any centralized database of historical total and European population from emerging. We had to consult (with the help of heroic research assistants) many specialized primary and secondary sources on colonial history to get numbers. Many of these sources are specific to only one country at a time. The data is far from being a continuous time series; rather it reflects relatively random dates at which colonial administrators measured or estimated population, which are usually different for each colony. The appendix gives our list of sources and the years for which data are available for each colony. We also adopted a “dog did not bark” strategy for recording zero European settlement – if we find no historical sources documenting any European settlement in a particular colony, we assume that there were no such settlers. This procedure runs the risk of biasing downward European settlement. However, we believe colonial histories (which are virtually all written by European historians) are extremely unlikely to fail to mention European settlers if there were any. We also double-checked this procedure against the Acemoglu et al. 2001 data appendix, which gives the share of Europeans in the population in 1900.

Another possible problem is that there may have been a wide variety of noisy methods to estimate population numbers; it is likely the numbers for Europeans are more reliable than those for total population. In a census-based method, there could be an undercount of non-European populations which would bias population numbers downward and European shares upward. In a sampling methodology, there is zero expected bias only if sampling were random. Unfortunately, we

have little information on methods followed to get these population numbers. The numbers for non-whites are likely to be somewhat more reliable if they record non-whites who (under compulsion) migrated, such as African American slaves, as opposed to indigenous population. Therefore, like all historical data, our dataset on European settlement is likely to be noisy and subject to possible biases. At the same time, this historical data represents a relatively untapped resource for assessing theories of long run economic development.

Another important historical variable is the indigenous mortality variable mentioned in the introduction. Europeans established at least a minimal level of contacts with virtually all populations in the world during the colonial period. Some of those populations had been completely isolated from Eurasia for thousands of years, and thus had no previous exposure or resistance to Eurasian diseases. When Europeans established even minimal contact with these populations (usually the first explorer to land, long before settlement, if any), European diseases such as smallpox and measles spread quickly through the population and had a tragically high mortality rate, decimating the indigenous population. For example, when the Pilgrims arrived in New England in 1620, they found the indigenous population already very sparse because European fisherman had occasionally landed along the coast of New England in the previous decades. Similarly, De Soto's expedition through the American South in 1542 spread smallpox and wiped out large numbers of indigenous people long before British settlers arrived. Therefore, the key determinant of this outcome is previous isolation of a region, not the extent of subsequent European settlement. Hence, we do not believe that there is reverse causality between European settlement and a dummy variable measuring "large scale indigenous mortality due to European diseases."

To identify the scope of the region covered by this phenomenon, we checked the population data of McEvedy and Jones (1978), and consulted three epidemiological world histories (McNeil

1976, Karlen 1995, Oldstone 1998). Diseases had circulated enough throughout the Old World (including Africa, after centuries of trans-Saharan and trans-Indian Ocean contact) that indigenous mortality did not shoot up after European contacts by explorers, traders, and slavers. The New World (Americas and Caribbean) and Oceania (the Pacific Islands, Australia, and New Zealand) were the regions where high indigenous mortality after European contact is well documented, which accords with their previous isolation that is also well documented. The evidence suggests very high mortality rates (90 percent is not an unusual number in this literature), but data on the exact mortality rate for each region is lacking or is agreed by historians to be unreliable. Although we originally thought in terms of a country by country variable for large-scale indigenous mortality, our review of the evidence indicated little measurable variation within the New World and Oceania, and so our indigenous mortality dummy variable wound up as a simple dummy for countries in the New World and Oceania.

2.2 The data

We construct a variable that measures the share of Europeans in the population during the early period of colonial settlement. One tricky issue is which date to choose for each colony to measure European settlement. We would like a date as early as possible after initial European contact to use European settlement as an initial historical condition affecting subsequent developments. At the same time, we can't pick a date that is too early after European contact, as early conditions were extremely unfavorable for settlement. It was only after some process of conquest, disease control, and building rudimentary colonial infrastructure that it becomes possible to speak of a European settlement community emerging. Given these considerations, it would not make sense to use a uniform date across all colonies. We constrained the measure to be at least a century after initial European contact for these reasons, but also at least 50 years before independence in order to measure

the colonial period. Subject to these constraints, we took the midpoint between first contact and independence. Finally, if there were a few measures close together, we took the average. However, if there were large difference between measures that were close together, we attempted to identify the source where we had the greatest confidence.

3 Preliminaries

3.1 Where Did People Settle?

Before examining where Europeans settled, it is first useful to establish which regions were densely settled before European contact, and why. Table 1a examines the determinants of population density in 1500. In particular, we regress the logarithm of population density in 1500 on exogenous characteristics, including (i) the biogeography of the area, inspired by the work of Diamond (1997), which is an index of the domesticable animals and plants existing prior to colonization (Biogeography), (ii) the suitability of the land for agriculture (Agriculture), (iii) the absolute value of the latitude of the colony (Latitude), (iv) an ecologically-based spatial index of the stability of malaria transmission (Malaria Ecology), which is based on the interaction of climate with the proportion of land area infected with malaria, and (v) a dummy variable for whether the region experienced a large drop in the indigenous population from diseases brought by Europeans (Indigenous Mortality), which, in practice, is a dummy variable for the Western Hemisphere and Oceania as defined above.

Unsurprisingly, population density in 1500 was greater in environment more conducive to the domestication of animals and plants, and in areas with naturally more productive agricultural endowments. Features such as the malaria ecology and latitude are not associated with population density in 1500. Furthermore, while areas that were isolated from Europeans prior to colonization and hence more susceptible to European borne diseases (Indigenous Mortality) also had higher population

density in 1500, this relation vanishes when conditioning on the regions' Biogeography. Indigenous mortality does not have an independent relation with 1500 population density.

3.2 Where Did Europeans Settle?

Table 1b provides information on where Europeans settled during colonization. The dependent variable is the proportion of Europeans in the colonial population (Euro Share). The regressors are as follows. First, the presence of precious metals might affect European settlement (Precious Metals). In particular, the ability to mine precious metals and sell them on world markets could induce a few Europeans to establish institutions that would facilitate the extraction of these valuable natural resources. Second, distance from Europe (we use London as the point of measurement) could adversely affect European settlement. Third, farming and livestock conditions could shape the desirability of large-scale European settlement (Agriculture and Biogeography). Fourth, the local disease environment, as proxied by the ecology of malaria (Malaria Ecology), could impede European settlement. Fifth, the latitudinal position of the region could affect the transferability of productive technologies developed in Europe, and hence the desirability of substantive European settlement. Sixth, European settlement could be affected by the indigenous population. The ability of the indigenous population to resist European settlement will likely depend on the density of the indigenous population, which we proxy with 1500 Population Density, and the degree to which the indigenous population fell victim to European-borne diseases, which we proxy with Indigenous Mortality.

As shown, three factors account for the bulk of cross-country variation in European settlement during the colonial period. First, the density of the indigenous population matters. In regions with a high concentration of non-Europeans, Europeans comprised a much smaller fraction of the colonial

population than in other lands. Second, indigenous mortality matters. Where the indigenous population fell drastically because of European diseases, European settlers were likely to take advantage of this tragic (mostly unintentional) outcome to establish settlements. Third, latitude matters. Europeans were a larger proportion of the colonial population in latitudes farther from the equator.

These three factors help explain in a simple way the most notable European settlements. Where all three factors were favorable for European settlement, such as Australia, Canada, New Zealand, and the United States, the European share of the colonial population was very high. When only some of the three factors were favorable, there tended to be a minority share of European settlers. Latin America also had indigenous mortality, but only some regions were temperate, and most regions had relatively high pre-Columbian population density (which is why more people of indigenous origin survived in Latin America compared to North America, despite indigenous mortality). Southern Africa was temperate and had low population density, but did not have indigenous mortality. These factors can also explain where Europeans did not settle. The rest of sub-Saharan Africa was tropical and again did not have indigenous mortality. Most of Asia had high population density, Asia did not have indigenous mortality, and significant parts of Asia are in or near the tropics.

Many popular and plausible explanations of European settlement, however, do not have an independent association with Euro Share. For example, the prevalence of malaria, the suitability of the land for agriculture, an index of domesticable plants and animals, and the availability of precious metals do not help explain cross-colonial differences in the proportion of Europeans.

The most famous variable in the previous literature for predicting European settlement is the settler mortality measure calculated by AJR. This variable does have a significant simple correlation

with European settlement. When entered with the three variables that we found most robust in other specifications, the settler mortality variable weakens the result on two of those three variables (reducing their significance to the 5.2 or 6.2 percent level), but it is not itself significant. For this reason, we chose not to use it below as an instrument for European settlement. We include settler mortality, however, as an additional control variable in the income regressions below, however.

4 Results: Do Europeans Matter?

4.1 *Do Europeans Matter? Framework*

We begin by assessing the relationship between the current level of economic development as measured by real per capita GDP in 2002 (Current Income) and the proportion of Europeans in the colonial population (Euro Share). Besides examining the simple bivariate relation between Current Income and Euro Share, we condition on a range of national characteristics to assess the independent relationship between Current Income and Euro Share and to provide evidence on the potential channels linking Euro Share and Current Income.

To evaluate conflicting theoretical predictions regarding the relations between Euro Share and Current Income, we consider the following cross-country regression:

$$\text{Current Income} = \alpha \text{Euro Share} + \beta X + u, \quad (1)$$

where X is a matrix of national characteristics define below, and u is an error term, potentially reflecting economic growth factors that are idiosyncratic to particular countries, as well as omitted variables, and mis-specification of the functional form. Different theories provide distinct predictions about (a) the coefficient on Euro Share (α), (b) how α changes across sub-samples of countries, and (c) whether α will change when conditioning on particular national characteristics.

Engerman and Sokoloff (1997), ES, and Acemoglu, Johnson, and Robinson (2001), AJR, do not stress the impact of Europeans per se on economic development. Rather, according to these

theories, the proportion of Europeans during the early stages of colonization reflects the endowments encountered by Europeans. In colonies (a) with natural resources enjoying lucrative international markets and (b) with lands, climate, and disease ecology unappealing to large-scale European settlement, Europeans had incentives to create institutions to extract and sell those natural resources on international markets. In these environments, a few Europeans tended to establish authoritative political regimes to exploit cheap labor, either indigenous or slave labor brought from Africa, to extract enormous wealth for themselves. In contrast, Europeans established settler colonies where endowments encouraged a more egalitarian socioeconomic structure. In the absence of extractable minerals and cash crops and in the presence of appealing farm lands, Europeans tended to settle on smaller plots of land, establishing more democratic, participatory political institutions, which were more conducive to long-run economic growth than autocratic regimes. Critically, ES and AJR argue that political institutions endured after European rule ended. Political institutions endured because Europeans per se were unimportant; the incentives created by endowments and international markets shaped and maintained political institutions.

In terms of equation (1), the predictions emerging from ES and AJR are that Euro Share will enter positively ($\alpha > 0$) in the full sample of former colonies when not conditioning on political institutions, but α will equal zero when conditioning on political institutions. Specifically, while Euro Share might be correlated with the formation of enduring political institutions during colonization, Euro Share is not an independent, causal factor underlying economic development according to these theories. Furthermore, AJR focus on the distinction between settler and extractive colonies. They stress that extractive colonies with low values of Euro Share will have growth-retarding autocratic political institutions. From this perspective, cross-country variation in Euro Share should be unrelated to Current Income in the subsample of extractive regimes. We evaluate these predictions below.

An alternative interpretation of the ES story is that areas of minority white settlement had hereditary white elites who oppressed non-whites. The historical fact of this kind of oppression is not in doubt (wars against indigenous people, European seizure of indigenous land, unequal political rights and distribution of public services, slavery, apartheid, etc.). The effect of this oppression on GDP per capita in the long run, however, remains an open question. The negative effects of inequality and oppression could fully or partially offset whatever positive contributions Europeans brought with them. We will test this question by running some regressions only for places with European share less than 15 percent.

Similarly, Douglas North's (1990) classic work on comparative economic development does not provide a starring role for Europeans. North (1990) treats colonial institutions as exogenously inherited from Europe. According to this view, colonial institutions were largely determined who happened to colonize a particular land. North argues that England had institutions more conducive to long-run economic development than other colonizers, arguing that exogenous institutions help account for the divergent paths of economic development since colonization. From this perspective, Euro Share will not explain current cross-country differences in economic development, especially when controlling for whether the country was a British colony.

In contrast to ES, AJR, and North, Glaeser, La Porta, Lopez-de-Silanes, and Shleifer (2005), GLLS, stress that Europeans brought human capital and human capital creating institutions. Indeed, Galor and Weil (2000) and Galor, Moav, and Vollrath (2008) provide fully dynamic theories of long-run growth in which endogenous human capital creation plays a central role. Though GLLS do not empirically document the mechanisms through Europeans augmented and promoted human capital development over decades and centuries, they (i) emphasize the role of Europeans in promoting human capital development and hence overall economic development and (ii) de-emphasize the role

of Europeans in shaping enduring political institutions. We provide evidence on the inter-relations among the proportion of Europeans during colonization, political institutions, educational attainment, and economic development.

4.2 Do Europeans Matter? OLS Results

We begin by evaluating equation (1) using an array of national characteristics (X), including (i) a dummy variable that equals one if the country was colonized by Great Britain and zero otherwise (UK Origin) and zero otherwise, (ii) the average rate of secondary school enrollment from 1998 to 2002 to measure educational attainment (Current Education), (iii) the degree to which private property is protected from official expropriation over the period 1985 to 1995 (Current Expropriation), (iv) the fraction of years since 1776 that a country has been independent (Independence), (v) an index of current level of government accountability and effectiveness (Government Quality), (vi) a measure of a country's level of ethnic diversity (Ethnicity), and (vii) Settler Mortality.

In the full sample of non-European countries, there is a robust, positive relation between Current Income and European Share using ordinary least squares (OLS), as shown in Table 2a. While Euro Share is significantly correlated with Current Income in all specifications, the coefficient on Euro Share falls by about two-thirds when conditioning on Government Quality or Current Education. This is unsurprising since considerable research finds a close relation between economic development, the quality of government, and the level of education. What is particularly noteworthy for the purposes of this paper is that the proportion of Europeans in the population during the colonial era remains significantly correlated with Current Income when conditioning on contemporaneous national characteristics.

These results could be driven by a few “settler colonies,” in which Europeans formed a large fraction of the population during the early stages of economic development. Thus, we also conduct the analysis using two sub-samples. First, we eliminate the Neo-European countries (Australia, Canada, New Zealand, and United States). Second, we restrict the sample to only those countries where Euro Share was less than 15 percent, which we call “non-settler” colonies. The goal of restricting the sample to only those countries where Europeans account for a small proportion of the population is to assess whether the relation between Euro Share and Current Income holds in colonies that are not typically defined as settler colonies. While there is no formal definition of what constitutes a “settler colony,” we use less than 15 percent European as a conservative benchmark of a non-settler colony. Although the Europeans composing these 15 percent or less of the population were themselves settlers, the AJR/ES idea of the “non-settler” (or extractive) colony is that non-European-settlers were a large majority and hence colonization strategies opted for exploitation of the non-Europeans by the small minority of Europeans. When instead Europeans were a large majority, there were few to exploit and so according to AJR/ES, colonization strategies emphasize institutions favorable for overall development of the colony.

With one noteworthy exception, the strong positive relation between Euro Share and Current Income holds when eliminating Neo-European countries (Table 2b) and when restricting the sample to countries where Euro Share is less than 15 percent (Table 2c). The increase in the coefficient on Euro Share when restricting the sample to former colonies with small values of Euro Share is consistent with the view that Europeans brought a (partially) non-rival good, and so that even a small share of Europeans boosted the colonies development potential. Furthermore, the increase in the coefficient on Euro Share is inconsistent with the view that oppression by a few Europeans had a

dominant, adverse effect on long run development. These findings are robust to conditioning on political institution and whether the country was colonized by the United Kingdom.

The only exception is when controlling for Current Education. In the non-settler colony sample, the relationship between Current Income and Euro Share becomes insignificant when we condition on Current Education. This suggests a particularly strong correlation between Euro Share and current levels of educational attainment. These findings are consistent with the view that Euro Share affects Current Income by affecting human capital development.

One curious feature of the results is that Settler Mortality has a significant effect on Current Income controlling for European Settlement. It is possible that past results on the link between settler mortality and current levels of economic development reflect some mechanism that does NOT operate through European settlement. This possibility can only be assessed now since we have collected the data on colonial European settlement. However, we will see below that this result is not robust to using IV methods for estimating the causal effect of Euro Share. Euro Share will still be significant, but not Settler Mortality.

The connection between Euro Share and Current Income is economically large. For example, consider an increase of Euro Share of 0.10, which is about one-half of the standard deviation of Euro Share in the full sample (0.18). Using the simplest regression from Table 2c (regression 1), this change in Euro Share is associated with a doubling of Current Income (i.e., the logarithm of real per capita GDP in 2002 rises by 0.76). A European settler colony with close to 100 percent European share would even do better than the original European countries themselves for some estimated coefficients. For example, the log difference between the European maximum (Norway) and the non-European minimum (Sierra Leone) in 2002 is 4.3 (a multiple of 72). Any coefficient larger than 4.3 on Euro Share (as some of the coefficients in these and following tables are) means that a settler

colony with 100 percent Europeans would be predicted to be richer than the poorest colony with no Europeans (Sierra Leone again) by an even larger amount.²

As noted, the size of the economic association between Current Income and Euro Share shrinks when conditioning on political and educational institutions. For instance, when using the regression from Table 2c that controls for Government Quality (regression 4), an increase in the European share of the population during colonial times of 0.10 is associated with an increase of real per capita today of about 65 percent.

4.3 Do Europeans Matter? 2SLS

Euro Share might be affected by factors shaping economic development. To control for simultaneity bias, we seek to employ instrumental variables that are correlated with the proportion of Europeans during colonization but that are unlikely to explain current levels of economic development beyond their affect on Euro Share. Based on the evidence presented above concerning the determinants of Euro Share, we use population density in 1500, indigenous mortality, and latitude as instruments for Euro Share and use a standard over-identification (OIR) test of whether the instruments explain Current Income beyond their effect on Euro Share. Latitude is positively associated with Euro Share, supporting the view that Europeans were attracted to familiar climates. In addition, Europeans settled in greater numbers in locations where there was less competition with the indigenous population, as measured by indigenous population density and indigenous mortality during early contact with European explorers. While population density reflects biogeographic conditions that are potentially positively linked to long-run growth, population density is negatively associated with European Share and not significantly associated with Current Income when conditioning on European Share.

² Canada has the largest Euro Share at 0.90.

The two-stage least squares (2SLS) results confirm that Euro Share is positively and significantly associated with Current Income when conditioning on political institutions, colonial heritage, ethnic diversity, and the number years the country has been independent since 1776. These results hold when limiting the sample to former non-settler colonies, i.e., countries where Europeans constituted a small fraction of the population during colonization. Moreover, the OIR test does not reject the hypothesis that the instruments explain current levels of economic development only through their effects on Euro Share.

The relationship between Current Income and Euro Share weakens, however, when conditioning on Current Education. In the non-settler sample, the exogenous component of Euro Share enters insignificantly with controlling for Current Education, suggesting that the relation between Euro Share and Current Income is not independent of its association with Current Education.

Indeed, Table 5 shows a robust, positive relationship between Euro Share and current measures of educational attainment. This strong connection between the proportion of Europeans in the colonial population and current education levels holds for both different levels of educational attainment and for different sub-samples of countries. The coefficient on Euro Share is significantly greater than unity, suggestive of a spillover from European human capital to human capital accumulation by non-Europeans, which gives additional insight into the human capital effects of colonial European settlement. It is also true that Euro Share has significant correlation with different measures of political institutional development as shown in Table 6. Yet, the impact of Euro Share on Current Income holds when conditioning on these political institutional indicators. Thus, although we do not control for the potential endogenous determination of education and political institutions (an important but inescapable caveat given the usual inability to develop a full identification strategy covering three endogenous regressors), the results suggest that Euro Share's relation with Current

Income is largely independent of political institutional development, but very dependent on a nation's level of educational achievement.

The impact of Euro Share on Current Income is economically very large, especially when using instrumental variables to extract the exogenous component of European settlement during the colonial era. Again, consider an increase in Euro Share of 0.10. From the specification in Table 3c (regression 4) that controls for political institutions (Government Quality), the estimated coefficient on Euro Share (13) indicates that the increase in the proportion of Europeans during colonization of will translate into a more than three-fold increase in real per capita income today.

4.4 Is it Europeans during Colonization or Europeans today?

Euro share might proxy for the proportion of the current population that is of European descent. There is indeed a significant association between colonial Euro Share and European share in modern times (measured in 1975, see below), with a coefficient not significantly different from one regressing modern Euro share on colonial Euro share (with an R-squared of 0.34). Since this is the case, then it may be inappropriate to interpret the results on Euro share as reflecting the enduring impact of Europeans during the colonization period on economic development. Rather, Europeans later on might have been drawn to economically successful countries.

In Tables 4a-c, we control for the proportion of Europeans in the 1975 population (Euro 1975). As with the above tables, we provide separate results on (i) the full sample of non-European countries, (ii) the sample when excluding the Neo-European countries, and (iii) the sample of countries where Euro Share is below 15 percent. We continue to use the same three instruments for colonial Euro Share.

All of the earlier results on Euro Share hold when simultaneously controlling for the proportion of Europeans in the 1975 population. In fact, Euro 1975 never enters significantly, and there is very little change in the coefficient on Euro Share when conditioning on Euro 1975. These results suggest that it is the proportion of Europeans during the colonization period that is associated with economic development today, not the proportion of Europeans today.³

5. *Other possible channels: the effect of European settlement on values and inequality*

As mentioned earlier, human capital could be a proxy for values that were brought by Europeans. A large and relatively recent literature documents how values persist across several generations among immigrants to a new culture (Bisin, Topa, and Verdier 2004, Bisin and Verdier 2000, Fernandez and Fogli 2007, Miguel and Fisman 2007, Miguel, Saiegh, and Satyanath 2008) and that values are an important determinant of development outcomes (Licht, Goldschmidt, and Schwartz 2007, Tabellini 2008a, 2008b).

Table 7 indicates that colonial European settlement has a strong effect on values like individualism, trust, tolerance, and “power distance” (a measure of deference towards social superiors). Unfortunately the sample size is small already with OLS and would be reduced to be unacceptably small if we used our IV approach. So we present only the OLS results.

Table 8 assesses whether the effect of European share is eliminated when we control for the possible channels of values. The only case where this occurs is with one of the measures of individualism (with a sample of only 30 countries). Another measure of individualistic versus group-oriented values is also significant, but does not eliminate the significance of Euro share. The other

³ Oddly enough, AJR settler mortality returns to having a significant independent role in two of the three IV regressions controlling for Euro 1975.

values measures are insignificant and leave the significance of Euro share unchanged (all of these regressions are again run in OLS because of the sample size problem with IV). There does not seem to be robust evidence that values are the only channel through which Euro share affects economic development and human capital accumulation.

Another possible channel for the effect of European settlement is inequality, which is an important factor in the ES story of why North America leapt ahead of Latin America. What is the effect of colonial European settlement on inequality? Table 9, Columns (1) through (6) presents OLS and IV estimates of our three samples: (a) non-European countries, (b) non-European and non-neo-European, and (c) colonial European share less than 0.15. Only the third sample of small European share shows an effect (positive) of European share on inequality. This is of interest because we find above a small European share to have a strong positive effect on level of development, yet inequality is usually thought to have a negative effect on development.

Inequality could have resulted from minority European settlement in two ways: (1) the ES story that a European elite consciously created privileges for itself and discriminated against the non-European population in a way that resulted in high inequality today, (2) a purely mechanical effect, in which inequality automatically increases when a minority of high income immigrants enters a society of low income natives, even if there is no exploitation of the latter by the former. The mechanical story would predict an inverted-U shape between European settler share and inequality – inequality would at first rise with a minority of high income European settlers, but then would eventually fall when most of the population becomes composed of high income European settlers. Unfortunately, the exploitation stories may also predict an inverted U, as the amount of inequality increase due to exploitation may fall as the exploiters become the majority and the exploited the minority. In any case, we test the inverted U in columns 7 (non-European countries) and 8 (non-European and non-

neo-Europe); it is strongly confirmed in both samples (we use only OLS because of the infeasibility of instrumenting for a second nonlinear term). The maximum inequality is reached at a Euro share of .344 in the first sample and .296 in the second. If the mechanical effect story is correct, this could explain why the inequality increase associated with minority European settlement did not seem to impair the positive effect of such settlement on level of development.

Table 10 examines how the effect of European share changes when controlling for inequality. If European share has positive effects through other channels and negative effects through inequality, we might expect the coefficient on Euro share to increase controlling for inequality. We do both OLS and IV for the 3 samples: (a) non-European countries, (b) non-European and non-Neo-Europe, and (c) Euro share $< .15$. The general result is that we find no significant effect of inequality on development and the significance of Euro share is unchanged. Inequality consistently has a negative sign but the coefficient is not precisely measured enough to reject a zero effect. Regressions (3) and (6) with the Euro share less than .15 are particularly notable, since over that range we found that Euro share increased inequality. We do not generally find a large increase in the coefficient on Euro share when controlling for inequality.

The results on inequality and the earlier results give a new perspective on minority European settler colonies, such as those in Latin America and southern Africa. There was higher inequality in these places, and other historical evidence indicates there was obviously exploitation (slavery, oppression of indigenous groups, land expropriation, apartheid), and yet we still find the effect of minority European settlement on development was strongly positive (this is obviously an empirical statement and not a moral judgment). Despite the literature on inequality being harmful to development (see Easterly 2007), the minority European colonies achieved a joint outcome of relatively high income and high inequality.

5 Conclusions

The results are consistent with the view that the proportion of Europeans during the early stages of colonization exerts an enduring, positive impact on economic development through the human capital development channel. These findings hold when (1) restricting the sample to non-settler colonies, (2) conditioning on the current proportion of the population of European descent, (3) controlling for the current development of political institutions, and (4) using instrumental variables to extract the exogenous component of Euro Share.

These results relate to theories of the origins of the divergent paths of economic development followed since European colonization. ES emphasize that agricultural, mineral, the size and robustness of the indigenous population, and other endowments encountered by Europeans affected the formation of institutions, including political institutions, with long-run effects on economic development. ES emphasize that the degree of European settlement reflects these endowments interacted, but Europeans per se are not a causal, independent explanation of the divergent paths of economic development since colonization. In the findings presented above, however, the proportion of Europeans during the early colonial period has a lasting effect beyond endowments and political institutions. Similarly, AJR stress that when endowments lead to the formation of settler colonies, this produced more egalitarian, enduring political institutions that fostered long-run economic development. In contrast, when endowments encouraged the formation of extractive colonies populated by only a few Europeans, this produced authoritative political institutions that stymied long-run economic development. Yet, we find that Euro Share is strongly linked with Current Income in non-settler colonies even when controlling for political institutions. Although both ES and AJR can be reinterpreted to focus on educational institutions, rather than political institutions, our findings

do not fit comfortably within the standard presentation of the ES and AJR visions of post-colonial development.

This paper's results are not strongly supportive of North's emphasis on the comparative benefits from having a British colonial heritage. After controlling for Euro Share, the dummy variable for British colonial heritage never enters the Current Income regressions significantly. There might be concerns that the British employed a different colonization with ramifications on Euro Share. If this were the case, Euro Share might proxy for British heritage, invalidating our conclusions. However, controlling for British colonial heritage does not alter the size of the coefficient on Euro Share, suggesting that the British, on average, did not adopt meaningfully different colonial strategies as reflected in Current Income.

Overall, the results are more consistent with the GLLS argument that Europeans brought human capital and human capital creating institutions and the Galor and Weil (2000) and Galor, Moav, and Vollrath (2008) emphasis on the role of human capital accumulation in explaining the divergence of economies in the long-run. We find a strong link between Euro Share and Current Education and a strong connection between Euro Share and Current Income, except when controlling for Current Education. At the same time, Euro Share remains robustly correlated with Current Income when controlling for political institutions. Although we are unable to sort and identify all possible channels linking Euro Share and Current Income, the results in this paper are broadly consistent with the view that Europeans enhanced and promoted human capital development.

Of course, there are many other things that Europeans carried with them besides general education, scientific and technological knowledge, access to international markets, and human capital creating institutions. They also brought ideologies, values, social norms, and so on. It is difficult for us to evaluate which of these were crucial either alone or in combination. A preliminary exploration

of values as the intermediating channel confirms that Europeans influenced values outcomes today, but provides only very limited support for values as the channel of European influence.

We can say a little about whether what the Europeans carried was rival or non-rival, because if it were only non-rival, the quantity of Europeans should not matter, only the existence of at least a few European settlers. There does seem to be a rival component, because we find that marginal increases in Euro Share help explain economic development today. Indeed, even when including a zero-one dummy variable that equals one if there was any European settlement during colonization, we continue to find that Euro Share enters robustly and the dummy variable does not. However, there is some evidence for a non-rival component in that our coefficient on a Euro share $< .15$ is higher than that for the full range of Euro share.

AJR and ES were correct to focus on colonial settlement as one of the pivotal events in the history of economic development. We have argued in this paper that further insight can be gained by directly measuring European settlement and exploring what other variables it influenced and by which channels its effects operated.

Bibliography (partial)

- Acemoglu, Daron, Simon Johnson and James Robinson, "The Colonial Origins of Comparative Development: An Empirical Investigation," *American Economic Review*, December, 2001, volume 91, pp. 1369-1401.
- Acemoglu, Daron, Simon Johnson and James Robinson, "Institutions as the Fundamental Cause of Long-Run Growth", in Aghion and Durlauf, *Handbook of Economic Growth*, 2005, <http://elsa.berkeley.edu/~chad/handbook9sj.pdf>
- Acemoglu, Daron and James Robinson, Persistence of Elites, Power and Institutions, *American Economic Review*, March 2008, volume 98, pp. 267-293.
- Banerjee, David and Lakshmi Iyer, 2005, "History Institutions and Economic Performance: The Legacy of Colonial Land Tenure Systems in India", *American Economic Review*, Vol. 95(4), pp. 1190-1213.
- Bisin, A. G. Topa and T. Verdier, "An Empirical Analysis of Religious Homogamy and Socialization in the U.S, *Journal of Political Economy*, 112(3), 615-64, 2004.
- Bisin, A. and T. Verdier, Beyond the Melting Pot: Cultural Transmission, Marriage, and the Evolution of Ethnic and Religious Traits (with), *Quarterly Journal of Economics*, CXV (3), 955-988, 2000.
- Bockstette, Valerie, Areendam Chanda, and Louis Putterman, 2002, States and Markets: the Advantage of an Early Start, *Journal of Economic Growth*, 7, 347-369
- Comin, Diego, William Easterly, and Erick Gong, "Was the Wealth of Nations Determined in 1000 B.C.?", 2009, mimeo, Harvard Business School and NYU.
- Easterly, W. and R. Levine, "Tropics, germs, and crops: the role of endowments in economic development", *Journal of Monetary Economics*, 50(1), January 2003.
- Easterly, W. "Inequality does cause underdevelopment" *Journal of Development Economics*, Vol. 84, Issue 2, November 2007, 755-776.
- Fernandez, R. and A. Fogli, Culture: An Empirical Investigation of Beliefs, Work, and Fertility, mimeo, NYU, January 2007
- Galor, Oded and David N. Weil, "Population, Technology and Growth: From Malthusian Stagnation to the Demographic Transition and Beyond," *American Economic Review*, 90, September 2000, 806-828.
- Galor, O., O. Moav and Vollrath, "Inequality in Land ownership, the Emergence of Human Capital Promoting Institutions and the Great Divergence" (with) *Review of Economic Studies*, 76, 143-179 (January 2009).

- Galor, O. and O. Moav “Das Human Kapital: A Theory of the Demise of the Class Structure, Review of Economic Studies, 73, 85-117 (January 2006).
- Hofstede, Geert. *Culture's Consequences: Comparing Values, Behaviors, Institutions and Organizations Across Nations*, 2nd Edition 596 pages. Thousand Oaks CA: Sage Publications, 2001 (1st edition 1980)
- Hofstede, Geert and Gert Jan Hofstede, *Cultures and Organizations: Software of the Mind* Revised and expanded 2nd Edition, 436 pages. New York: McGraw-Hill USA, 2005
- La Porta, Rafael, Florencio Lopez-de-Silanes, and Andrei Shleifer, “The Economic Consequences of Legal Origins,” *Journal of Economic Literature*, 46 (2008), 285–332.
- Licht, Amir N., Chanan Goldschmidt, and Shalom H. Schwartz (2007), Culture rules: The foundations of the rule of law and other norms of governance, *Journal of Comparative Economics*, 35 659–688
- Miguel, Edward, and Ray Fisman, “Corruption, Norms and Legal Enforcement: Evidence from Diplomatic Parking Tickets,” *Journal of Political Economy*, vol. 115, 2007, pp. 1020–1048.
- Miguel, Edward, Sebastian Saiegh, and Shanker Satyanath, “National Cultures and Soccer Violence,” 2008, mimeo, University of California, Berkeley
- Nunn, Nathan, “The Importance of History for Economic Development”, October 2008, http://www.economics.harvard.edu/faculty/nunn/files/Annual_Review_of_Economics.pdf
- Nunn, Nathan, “The Long-Term Effects of Africa’s Slave Trades,” *Quarterly Journal of Economics*, 123 (2008), 139–176.
- Putterman, Louis and David Weil “Post-1500 Population Flows and the Long Run Determinants of Economic Growth and Inequality”, October 2008, NBER Working Paper 14448, <http://www.nber.org/papers/w14448>
- Rodrik, D., A. Subramanian, and F. Trebbi, “Institutions Rule: The Primacy of Institutions over Geography and Integration in Economic Development”, *Journal of Economic Growth*, vol. 9, no.2, June 2004
- Tabellini, Guido, “The Scope of Cooperation: Values and Incentives,” *Quarterly Journal of Economics*, Vol. 123, 2008a, pp. 905–950.
- Tabellini, Guido, *Institutions and Culture*, *Journal of the European Economic Association Papers and Proceedings*, 2008b, Vol.6(2-3)
- Wacziarg, Romain and Enrico Spolaore, “The Diffusion of Development”, forthcoming, *Quarterly Journal of Economics*, May 2009, vol. 124, no. 2

Table 1a: Human Settlement before European Colonization

The sample is non-European countries. The dependent variable the log of population density in 1500. Biogeography is an index of domesticable animals and plants existing prior to colonization. Agriculture is a measure of the suitability of land for agriculture. Latitude is the absolute value of distance from the equator. Indigenous mortality is a dummy variable which is positive if a substantial number of natives died due to initial contact with Europeans. Malaria Ecology is an ecologically-based spatial index of the stability of malaria transmission. All specifications are estimated using OLS with heteroskedasticity-consistent standard errors. The null hypothesis of the F test is that the coefficients on all the explanatory variables equal zero. P values are reported in parentheses. ***, ** and * represent significance at 1, 5 and 10% level respectively. Detailed variable definitions and sources are in the appendix.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Popu- lation Density 1500	Popu- lation Density 1500	Popu- lation Density 1500	Popu- lation Density 1500	Popu- lation Density 1500	Popu- lation Density 1500	Popu- lation Density 1500	Popu- lation Density 1500	Popu- lation Density 1500
Biogeograph y	0.609* * (0.015)						0.617* (0.087)		0.815** (0.014)
Agriculture		-2.390* (0.065)						-2.429** (0.016)	-2.424*** (0.008)
Latitude			-3.113* (0.098)				-1.523 (0.547)	-0.677 (0.741)	-2.224 (0.290)
Malaria ecology				0.0275 (0.105)			-0.0739* (0.093)	-0.0837** (0.012)	-0.0242 (0.451)
Ind. Mort.					-1.529*** (0.000)		-1.370*** (0.006)	-2.686*** (0.000)	-1.693*** (0.002)
Settler Mort.						0.604*** (0.001)	0.679** (0.044)	0.274 (0.263)	0.00637 (0.981)
Observations	69	67	90	90	90	61	48	56	45
F test:	6.211	3.515	2.795	2.681	22.96	11.90	5.669	12.24	9.473
Prob > F	0.0152	0.0653	0.0981	0.105	6.65e-06	0.00104	0.000441	9.05e-08	2.29e-06
R-squared	0.110	0.045	0.054	0.017	0.202	0.183	0.369	0.567	0.587

Table 1b: What Determined the Degree of European Settlement?

The sample is non-European countries. The dependent variable Euro share is the proportion of Europeans in the colonial population. 1500 population density is the log of population density in 1500. Indigenous mortality is a dummy variable which is positive if a substantial number of natives died due to initial contact with Europeans. Latitude is the absolute value of distance from the equator. Precious metals is a dummy variable which is positive if a country is endowed with gold or silver. London is the absolute distance between the country and London. Agriculture is a measure of the suitability of land for agriculture. Biogeography is an index of domesticable animals and plants existing prior to colonization. Malaria Ecology is an ecologically-based spatial index of the stability of malaria transmission. All specifications are estimated using OLS with heteroskedasticity-consistent standard errors. The null hypothesis of the F test is that the coefficients on all the explanatory variables equal zero. P values are reported in parentheses. ***, ** and * represent significance at 1, 5 and 10% level respectively. Detailed variable definitions and sources are in the appendix.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Euro share	Euro share	Euro share	Euro share	Euro share	Euro share	Euro share
1500 population density	-0.0285** (0.023)	-0.0277** (0.023)	-0.0267** (0.026)	-0.0337** (0.030)	-0.00364 (0.242)	-0.0281** (0.025)	-0.0285* (0.062)
Indigenous mortality	0.127*** (0.000)	0.120*** (0.001)	0.123*** (0.001)	0.0951** (0.033)	0.0730*** (0.001)	0.131*** (0.000)	0.0861* (0.052)
Latitude	0.616*** (0.000)	0.597*** (0.000)	0.640*** (0.000)	0.660*** (0.002)	0.0601 (0.326)	0.627*** (0.001)	0.693*** (0.001)
Precious metals		0.0271 (0.389)					
London			3.24e-06 (0.687)				
Agriculture				-0.0298 (0.901)			
Biogeography					-0.000774 (0.868)		
Malaria ecology						0.000656 (0.561)	
Settler Mortality							-0.0210 (0.153)
Observations	90	90	86	67	69	90	61
R-squared	0.508	0.512	0.512	0.531	0.381	0.509	0.544
F test:	8.603	6.621	6.391	6.957	5.862	7.031	7.568
Prob > F	4.67e-05	0.000109	0.000161	0.000108	0.000440	6.13e-05	6.02e-05

Table 2a: Does the degree of European settlement explain per capita income today?

The sample is non-European countries. Current income is the log of 2002 per capita income. Euro share is proportion of Europeans in the colonial population. Legal origin is a dummy variable which is positive if a country's laws are based on the United Kingdom's legal system. Current education is the average rate of secondary school enrollment from 1998 to 2002. Current expropriation is a measure of protection from expropriation risk averaged from 1985 to 1995. Independence is the fraction of years since 1776 that a country has been independent. Government quality is an index of measures of current government accountability and effectiveness. Ethnicity is a measure of a country's ethnic diversity. All specifications are estimated using OLS with heteroskedasticity-consistent standard errors. The null hypothesis of the F test is that the coefficients on all the explanatory variables equal zero. P values are reported in parentheses. ***, ** and * represent significance at 1, 5 and 10% level respectively. Detailed variable definitions and sources are in the appendix.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Current income	Current income	Current income	Current income	Current income	Current income	Current income	Current income
Euro share	3.120*** (0.000)	3.139*** (0.000)	0.942** (0.040)	1.369*** (0.003)	2.649*** (0.000)	1.023*** (0.009)	2.681*** (0.000)	2.310*** (0.000)
Legal origin		-0.0295 (0.896)						
Current Educ.			2.452*** (0.000)					
Current Exp.				0.410*** (0.000)				
Independence					0.963*** (0.004)			
Gov. Quality						0.334*** (0.000)		
Ethnicity							-1.333*** (0.000)	
Settler Mort.								-0.358*** (0.002)
Observations	90	90	69	55	76	90	83	54
R-squared	0.258	0.258	0.770	0.522	0.379	0.487	0.441	0.571
F test:	0	0	0	0	0	0	0	0
Prob > F:	124.9	63.73	75.19	77.27	76.89	91.54	124.5	109.0

Table 2b: Does the degree of European settlement explain per capita income today?

The sample is non-European and non-neo-European countries. Current income is the log of 2002 per capita income. Euro share is proportion of Europeans in the colonial population. Legal origin is a dummy variable which is positive if a country's laws are based on the United Kingdom's legal system. Current education is the average rate of secondary school enrollment from 1998 to 2002. Current expropriation is a measure of protection from expropriation risk averaged from 1985 to 1995. Independence is the fraction of years since 1776 that a country has been independent. Government quality is an index of measures of current government accountability and effectiveness. Ethnicity is a measure of a country's ethnic diversity. All specifications are estimated using OLS with heteroskedasticity-consistent standard errors. The null hypothesis of the F test is that the coefficients on all the explanatory variables equal zero. P values are reported in parentheses. ***, ** and * represent significance at 1, 5 and 10% level respectively. Detailed variable definitions and sources are in the appendix.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Current income	Current income	Current income	Current income	Current income	Current income	Current income	Current income
Euro share	5.417*** (0.000)	5.470*** (0.000)	2.043*** (0.005)	6.053*** (0.000)	3.509** (0.041)	3.692*** (0.001)	3.708** (0.040)	5.724*** (0.001)
Legal origin		0.0370 (0.874)						
Current Educ.			2.551*** (0.000)					
Current Exp.				0.513*** (0.000)				
Independence					0.938** (0.013)			
Gov. Quality						0.342*** (0.000)		
Ethnicity							-1.285*** (0.000)	
Settler Mort.								-0.345*** (0.004)
Observations	86	86	65	51	72	86	79	50
R-squared	15.45	7.810	113.0	25.34	12.90	27.81	21.04	27.81
F test:	0.000174	0.000780	0	3.08e-08	1.74e-05	5.70e-10	5.36e-08	1.07e-08
Prob > F:	0.097	0.097	0.733	0.465	0.212	0.390	0.290	0.433

Table 2c: Does the degree of European settlement explain per capita income today?

The sample is countries with Euro share values of less than 0.15. Current income is the log of 2002 per capita income. Euro share is proportion of Europeans in the colonial population. Legal origin is a dummy variable which is positive if a country's laws are based on the United Kingdom's legal system. Current education is the average rate of secondary school enrollment from 1998 to 2002. Current expropriation is a measure of protection from expropriation risk averaged from 1985 to 1995. Independence is the fraction of years since 1776 that a country has been independent. Government quality is an index of measures of current government accountability and effectiveness. Ethnicity is a measure of a country's ethnic diversity. All specifications are estimated using OLS with heteroskedasticity-consistent standard errors. The null hypothesis of the F test is that the coefficients on all the explanatory variables equal zero. P values are reported in parentheses. ***, ** and * represent significance at 1, 5 and 10% level respectively. Detailed variable definitions and sources are in the appendix.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Current income	Current income	Current income	Current income	Current income	Current income	Current income	Current income
Euro share	7.770*** (0.000)	7.829*** (0.000)	2.101 (0.173)	7.736*** (0.000)	5.849*** (0.008)	5.201*** (0.001)	6.383*** (0.004)	8.689*** (0.001)
Legal origin		0.0428 (0.854)						
Current Educ.			2.552*** (0.000)					
Current Exp.				0.513*** (0.000)				
Independence					0.897** (0.018)			
Gov. Quality						0.337*** (0.000)		
Ethnicity							-1.277*** (0.000)	
Settler Mort.								-0.311** (0.015)
Observations	83	83	62	48	69	83	76	47
R-squared	3.15e-06	1.24e-05	0	3.85e-09	6.76e-06	1.89e-09	2.55e-09	0
F test:	0.094	0.095	0.722	0.471	0.205	0.384	0.295	0.437
Prob > F:	25.09	13.05	85.43	30.73	14.33	26.09	26.27	45.80

Table 3a: Using instrumental variables, does European settlement explain per capita income today?

The sample is non-European countries. Current income is the log of 2002 per capita income. Euro share is proportion of Europeans in the colonial population. Legal origin is a dummy variable which is positive if a country's laws are based on the United Kingdom's legal system. Current education is the average rate of secondary school enrollment from 1998 to 2002. Current expropriation is a measure of protection from expropriation risk averaged from 1985 to 1995. Independence is the fraction of years since 1776 that a country has been independent. Government quality is an index of measures of current government accountability and effectiveness. Ethnicity is a measure of a country's ethnic diversity. All specifications are estimated using 2SLS, with 1500 population density, indigenous mortality, and latitude instrumenting for Euro share, and with heteroskedasticity-robust standard errors. The OIR p-value refers to the J statistic from the Hansen-Sargan test, with null hypothesis that instruments are uncorrelated with the error term. The LR p-value refers to the Anderson canonical correlations likelihood-ratio test, with null hypothesis that the first-stage regression is underidentified. P values are reported in parentheses. ***, ** and * represent significance at 1, 5 and 10% level respectively. Detailed variable definitions and sources are in the appendix.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Current income	Current income	Current income	Current income	Current income	Current income	Current income	Current income
Euro share	5.167*** (0.000)	5.304*** (0.000)	1.993*** (0.001)	4.315*** (0.001)	4.766*** (0.000)	3.285** (0.028)	3.945*** (0.000)	3.771*** (0.001)
Legal origin		-0.268 (0.241)						
Current Educ.			1.935*** (0.000)					
Current Exp.				0.0453 (0.753)				
Independence					0.383 (0.294)			
Gov. Quality						0.210* (0.061)		
Ethnicity							-1.082*** (0.000)	
Settler Mort.								-0.226 (0.113)
Observations	70	70	57	47	66	70	70	52
OIR p-value:	0.136	0.300	0.451	0.152	0.374	0.0587	0.176	0.0311
LR p-value:	0	0	5.19e-05	1.51e-05	1.02e-09	3.19e-05	0	5.91e-07

Table 3b: Using instrumental variables, does European settlement explain per capita income today?

The sample is non-European countries and non-neo-European countries. Current income is the log of 2002 per capita income. Euro share is proportion of Europeans in the colonial population. Legal origin is a dummy variable which is positive if a country's laws are based on the United Kingdom's legal system. Current education is the average rate of secondary school enrollment from 1998 to 2002. Current expropriation is a measure of protection from expropriation risk averaged from 1985 to 1995. Independence is the fraction of years since 1776 that a country has been independent. Government quality is an index of measures of current government accountability and effectiveness. Ethnicity is a measure of a country's ethnic diversity. All specifications are estimated using 2SLS, with 1500 population density, indigenous mortality, and latitude instrumenting for Euro share, and with heteroskedasticity-robust standard errors. The OIR p-value refers to the J statistic from the Hansen-Sargan test, with null hypothesis that instruments are uncorrelated with the error term. The LR p-value refers to the Anderson canonical correlations likelihood-ratio test, with null hypothesis that the first-stage regression is underidentified. P values are reported in parentheses. ***, ** and * represent significance at 1, 5 and 10% level respectively. Detailed variable definitions and sources are in the appendix.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Current income	Current income	Current income	Current income	Current income	Current income	Current income	Current income
Euro share	13.95*** (0.000)	15.04*** (0.000)	3.737* (0.077)	12.28*** (0.000)	17.92*** (0.001)	9.402*** (0.000)	10.25*** (0.005)	11.00*** (0.007)
Legal origin		0.245 (0.277)						
Current Educ.			2.216*** (0.000)					
Current Exp.				0.447*** (0.000)				
Independence					-0.539 (0.232)			
Gov. Quality						0.320*** (0.000)		
Ethnicity							-0.703* (0.057)	
Settler Mort.								-0.263* (0.080)
Observations	66	66	53	43	62	66	66	48
OIR p-value:	0.283	0.335	0.546	0.172	0.481	0.966	0.210	0.450
LR p-value:	2.44e-06	1.18e-05	0.000782	0.000261	0.0106	1.12e-05	0.000772	0.000244

Table 3c: Using instrumental variables, does European settlement explain per capita income today?

The sample is countries with Euro share less than 15 percent. Current income is the log of 2002 per capita income. Euro share is proportion of Europeans in the colonial population. Legal origin is a dummy variable which is positive if a country's laws are based on the United Kingdom's legal system. Current education is the average rate of secondary school enrollment from 1998 to 2002. Current expropriation is a measure of protection from expropriation risk averaged from 1985 to 1995. Independence is the fraction of years since 1776 that a country has been independent. Government quality is an index of measures of current government accountability and effectiveness. Ethnicity is a measure of a country's ethnic diversity. All specifications are estimated using 2SLS, with 1500 population density, indigenous mortality, and latitude instrumenting for Euro share, and with heteroskedasticity-robust standard errors. The OIR p-value refers to the J statistic from the Hansen-Sargan test, with null hypothesis that instruments are uncorrelated with the error term. The LR p-value refers to the Anderson canonical correlations likelihood-ratio test, with null hypothesis that the first-stage regression is underidentified. P values are reported in parentheses. ***, ** and * represent significance at 1, 5 and 10% level respectively. Detailed variable definitions and sources are in the appendix.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Current income	Current income	Current income	Current income	Current income	Current income	Current income	Current income
Euro share	20.81*** (0.000)	22.00*** (0.000)	5.275 (0.163)	16.94*** (0.000)	25.78*** (0.004)	13.26*** (0.000)	14.61*** (0.004)	16.33*** (0.010)
Legal origin		0.205 (0.412)						
Current Educ.			2.122*** (0.000)					
Current Exp.				0.363*** (0.001)				
Independence					-0.447 (0.354)			
Gov. Quality						0.309*** (0.000)		
Ethnicity							-0.812** (0.011)	
Settler Mort.								-0.203 (0.240)
Observations	63	63	50	40	59	63	63	45
OIR p-value:	0.589	0.650	0.563	0.189	0.785	0.920	0.434	0.669
LR p-value:	3.90e-05	9.10e-05	0.0102	0.00109	0.0137	0.000189	0.00117	0.00147

Table 4a: Which has more of an effect on per capita income today, colonial or recent European settlement?

The sample is non-European countries. Current income is the log of 2002 per capita income. Euro share is proportion of Europeans in the colonial population. Euro 1975 is the proportion of Europeans in the 1975 population. Legal origin is a dummy variable which is positive if a country's laws are based on the United Kingdom's legal system. Current education is the average rate of secondary school enrollment from 1998 to 2002. Current expropriation is a measure of protection from expropriation risk averaged from 1985 to 1995. Independence is the fraction of years since 1776 that a country has been independent. Government quality is an index of measures of current government accountability and effectiveness. Ethnicity is a measure of a country's ethnic diversity. All specifications are estimated using 2SLS with heteroskedasticity-robust standard errors. 1500 population density, indigenous mortality, and latitude instrument for Euro share, and Agriculture instruments for Euro 1975. The OIR p-value refers to the J statistic from the Hansen-Sargan test, with null hypothesis that instruments are uncorrelated with the error term. The LR p-value refers to the Anderson canonical correlations likelihood-ratio test, with null hypothesis that the first-stage regression is underidentified. P values are reported in parentheses. ***, ** and * represent significance at 1, 5 and 10% level respectively. Detailed variable definitions and sources are in the appendix.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Current Income	Current Income	Current Income	Current Income	Current Income	Current Income	Current Income	Current Income
Euro share	3.492* (0.097)	4.297** (0.039)	2.218** (0.049)	3.060 (0.137)	4.532* (0.072)	3.301 (0.203)	3.353** (0.042)	1.396 (0.258)
Euro 1975	0.905 (0.390)	0.475 (0.660)	-0.0982 (0.866)	0.592 (0.487)	-0.0724 (0.962)	0.502 (0.579)	0.398 (0.671)	1.333** (0.015)
Legal Origin		-0.395 (0.101)						
Current Educ.			1.914*** (0.000)					
Current Exp.				0.105 (0.446)				
Independence					0.547 (0.198)			
Gov. Quality						0.106 (0.464)		
Ethnicity							-0.934*** (0.004)	
Settler Mort.								-0.276** (0.013)
Observations	60	60	57	44	56	60	60	50
LR p-value:	0.00477	0.00165	0.00823	0.0162	0.0132	0.0358	0.00413	0.00249
OIR p-value:	0.131	0.593	0.336	0.143	0.621	0.0623	0.366	0.0402

Table 4b: Which has more of an effect on per capita income today, colonial or recent European settlement?

The sample is non-European countries and non-neo-European countries. Current income is the log of 2002 per capita income. Euro share is proportion of Europeans in the colonial population. Euro 1975 is the proportion of Europeans in the 1975 population. Legal origin is a dummy variable which is positive if a country's laws are based on the United Kingdom's legal system. Current education is the average rate of secondary school enrollment from 1998 to 2002. Current expropriation is a measure of protection from expropriation risk averaged from 1985 to 1995. Independence is the fraction of years since 1776 that a country has been independent. Government quality is an index of measures of current government accountability and effectiveness. Ethnicity is a measure of a country's ethnic diversity. All specifications are estimated using 2SLS with heteroskedasticity-robust standard errors. 1500 population density, indigenous mortality, and latitude instrument for Euro share, and Agriculture instruments for Euro 1975. The OIR p-value refers to the J statistic from the Hansen-Sargan test, with null hypothesis that instruments are uncorrelated with the error term. The LR p-value refers to the Anderson canonical correlations likelihood-ratio test, with null hypothesis that the first-stage regression is underidentified. P values are reported in parentheses. ***, ** and * represent significance at 1, 5 and 10% level respectively. Detailed variable definitions and sources are in the appendix.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Current Income	Current Income	Current Income	Current Income	Current Income	Current Income	Current Income	Current Income
Euro share	9.130*** (0.007)	9.582*** (0.004)	4.783** (0.044)	10.06** (0.018)	10.80*** (0.002)	9.153*** (0.007)	7.087** (0.021)	8.405** (0.010)
Euro 1975	1.041 (0.162)	1.031 (0.180)	-0.156 (0.734)	0.496 (0.544)	1.377 (0.121)	-0.0640 (0.930)	0.816 (0.199)	0.918 (0.147)
Legal Origin		0.0820 (0.702)						
Current Educ.			2.187*** (0.000)					
Current Exp.				0.435*** (0.000)				
Independence					-0.429 (0.233)			
Gov. Quality						0.304*** (0.000)		
Ethnicity							-0.599* (0.061)	
Settler Mort.								-0.236** (0.013)
Observations	56	56	53	40	52	56	56	46
OIR p-value:	0.323	0.320	0.418	0.186	0.376	0.700	0.426	0.631
LR p-value:	0.000833	0.000646	0.00129	0.00951	0.00273	0.000809	0.00275	0.00242

Table 4c: Which has more of an effect on per capita income today, colonial or recent European settlement?

The sample is non-European countries with Euro share less than 15 percent. Current income is the log of 2002 per capita income. Euro share is proportion of Europeans in the colonial population. Euro 1975 is the proportion of Europeans in the 1975 population. Legal origin is a dummy variable which is positive if a country's laws are based on the United Kingdom's legal system. Current education is the average rate of secondary school enrollment from 1998 to 2002. Current expropriation is a measure of protection from expropriation risk averaged from 1985 to 1995. Independence is the fraction of years since 1776 that a country has been independent. Government quality is an index of measures of current government accountability and effectiveness. Ethnicity is a measure of a country's ethnic diversity. All specifications are estimated using 2SLS with heteroskedasticity-robust standard errors. 1500 population density, indigenous mortality, and latitude instrument for Euro share, and Agriculture instruments for Euro 1975. The OIR p-value refers to the J statistic from the Hansen-Sargan test, with null hypothesis that instruments are uncorrelated with the error term. The LR p-value refers to the Anderson canonical correlations likelihood-ratio test, with null hypothesis that the first-stage regression is underidentified. P values are reported in parentheses. ***, ** and * represent significance at 1, 5 and 10% level respectively. Detailed variable definitions and sources are in the appendix.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Current Income	Current Income	Current Income	Current Income	Current Income	Current Income	Current Income	Current Income
Euro share	13.55*** (0.003)	13.97*** (0.001)	7.265* (0.076)	14.65** (0.015)	15.12*** (0.000)	13.86*** (0.007)	10.75** (0.014)	10.98*** (0.008)
Euro 1975	0.950 (0.329)	0.946 (0.337)	-0.195 (0.755)	0.333 (0.777)	1.334 (0.200)	-0.346 (0.753)	0.582 (0.523)	1.113 (0.126)
Legal Origin		0.0545 (0.801)						
Current Educ.			2.043*** (0.000)					
Current Exp.				0.373*** (0.000)				
Independence					-0.332 (0.363)			
Gov. Quality						0.304*** (0.000)		
Ethnicity							-0.695** (0.020)	
Settler Mort.								-0.197* (0.057)
Observations	53	53	50	37	49	53	53	43
LR p-value:	0.00300	0.00170	0.00865	0.0150	0.00385	0.00298	0.00442	0.00264
OIR p-value:	0.272	0.274	0.483	0.120	0.297	0.723	0.419	0.461

Table 5: Do Europeans have external effects on the human capital accumulation of the whole society?

The sample is non-European countries. Current education is the average rate of secondary school enrollment from 1998 to 2002. Current literacy is the average literacy rate from 1995 to 2002. Euro share is proportion of Europeans in the colonial population. Neo-Europe is a dummy variable which is positive for the United States, Canada, Australia, and New Zealand. Legal origin is a dummy variable which is positive if a country's laws are based on the United Kingdom's legal system. Ethnicity is a measure of a country's ethnic diversity. All specifications are estimated using 2SLS with 1500 population density, Indigenous mortality, and Latitude instrumenting for Euro share, and with heteroskedasticity-consistent standard errors. The OIR p-value refers to the J statistic from the Hansen-Sargan test, with null hypothesis that instruments are uncorrelated with the error term. The LR p-value refers to the Anderson canonical correlations likelihood-ratio test, with null hypothesis that the first-stage regression is underidentified. P values are reported in parentheses. ***, ** and * represent significance at 1, 5 and 10% level respectively. Detailed variable definitions and sources are in the appendix.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Current Education	Current Education	Current Education	Current Education	Current Literacy	Current Literacy	Current Literacy	Current Literacy
Euro share	1.484*** (0.000)	2.983*** (0.004)	2.674*** (0.010)	1.320*** (0.000)	0.759*** (0.001)	2.820*** (0.000)	2.618*** (0.001)	0.656*** (0.005)
Neo-Europe		-1.539* (0.056)	-1.332* (0.090)			-1.821*** (0.003)	-1.681*** (0.005)	
Ethnicity			-0.115 (0.398)	-0.210 (0.128)			-0.0647 (0.512)	-0.193* (0.088)
Legal Origin				-0.0337 (0.644)				0.0406 (0.534)
Observations	66	66	66	66	61	61	61	61
OIR p-value:	0.419	0.642	0.481	0.463	0.00150	0.0976	0.0469	0.000869
LR p-value:	3.60e-10	0.000137	0.00347	4.36e-09	4.59e-10	2.18e-05	0.000394	2.06e-09

Table 6: What effect does European settlement have on different measures of current institutions?

The sample is non-European countries for the first three regressions, and non-European and non-neo-European countries for regressions four through six. Government quality is an index of measures of current government accountability and effectiveness. Current expropriation is a measure of protection from expropriation risk averaged from 1985 to 1995. Current institutions is an alternate measure of the current government quality. Euro share is proportion of Europeans in the colonial population. All specifications are estimated using 2SLS with 1500 population density, indigenous mortality, and latitude instrumenting for Euro share, and with heteroskedasticity-consistent standard errors. The OIR p-value refers to the J statistic from the Hansen-Sargan test, with null hypothesis that instruments are uncorrelated with the error term. The LR p-value refers to the Anderson canonical correlations likelihood-ratio test, with null hypothesis that the first-stage regression is underidentified. P values are reported in parentheses. ***, ** and * represent significance at 1, 5 and 10% level respectively. Detailed variable definitions and sources are in the appendix.

	(1)	(2)	(3)	(4)	(5)	(6)
	Government Quality	Current Expropriation	Current Institutions	Government Quality	Current Expropriation	Current Institutions
Euro share	9.227*** (0.000)	4.072*** (0.000)	11.42*** (0.000)	10.41** (0.013)	-1.317 (0.645)	19.51** (0.024)
Observations	90	58	80	86	54	76
OIR p-value:	0.269	0.109	0.149	0.0356	0.317	0.259
LR p-value:	0	1.47e-09	0	6.61e-07	0.000944	2.46e-08

Table 7: What effect does European settlement have on different measures of current values?

The sample is non-European countries. Euro share is proportion of Europeans in the colonial population. All specifications are estimated using OLS, and with heteroskedasticity-consistent standard errors. Standard errors are reported in parentheses. ***, ** and * represent significance at 1, 5 and 10% level respectively. Detailed variable definitions and sources are in the appendix.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Trust	Tolerance	Principal component of Trust and Tolerance	Individualism instead of Collectivism	Power Distance	Govt should take responsibility for individuals instead of individuals responsible for themselves	Group values rather than individual values
Euro_share	0.196*** (0.046)	0.118*** (0.0341)	0.485*** (0.097)	72.25*** (7.025)	-39.83*** (8.1)	-2.123*** (0.397)	-0.492*** (0.134)
Constant	0.238*** (0.0233)	0.635*** (0.0144)	-0.112*** (0.0392)	24.34*** (3.046)	67.81*** (3.796)	6.389*** (0.163)	4.037*** (0.0526)
Observations	43	43	43	33	33	32	26
R-squared	0.106	0.106	0.199	0.593	0.238	0.227	0.277

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Sources for values data: (1) through (3) from Tabellini (2008b), (4) and (5) from Hofstede 2001, (6) from World Values Survey, (7) from Licht, Goldschmidt, and Schwartz 2007.

Table 8: Does European Share affect Income controlling for Values?

Equations are estimated with OLS. The sample for all regressions is non-European countries; Euro share is proportion of Europeans in the colonial population. All specifications are estimated using heteroskedasticity-consistent standard errors. Standard errors are reported in parentheses. ***, ** and * represent significance at 1, 5 and 10% level respectively. Detailed variable definitions and sources are in the appendix.

	(1)	(2)	(3)	(4)	(5)	(6)
	Current Income	Current Income	Current Income	Current Income	Current Income	Current Income
euro_share	0.514 (0.615)	2.351*** (0.503)	1.281*** (0.436)	1.975*** (0.342)	2.307*** (0.521)	1.945*** (0.429)
Individualism instead of Collectivism	0.0168** (0.007)					
Govt should take responsibility for individuals instead of individuals responsible for themselves		0.0131 (0.257)				
Group values rather than individual values			-1.761** (0.616)			
Trust				1.169 (0.959)		
Tolerance					-0.857 (2.997)	
Principal component of Trust and Tolerance						0.545 (0.494)
Constant	8.398*** (0.183)	8.385*** (1.535)	15.67*** (2.479)	8.207*** (0.301)	9.030*** (1.862)	8.545*** (0.193)
Observations	30	29	21	36	36	36
R-squared	0.477	0.238	0.66	0.332	0.311	0.321

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 9: What effect does European settlement have on inequality?

Equations (1) through (3), (7) and (8) are estimated with OLS; (4) through (6) with the same IV method as other tables. The sample for (1),(4), and (7) is non-European countries; the sample for (2), (5), and (8) also excludes neo-European countries; (3) and (6) are for Euroshare < .15. Euro share is proportion of Europeans in the colonial population. All specifications are estimated using heteroskedasticity-consistent standard errors. Standard errors are reported in parentheses. ***, ** and * represent significance at 1, 5 and 10% level respectively. Detailed variable definitions and sources are in the appendix.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	gini	gini	gini	gini	gini	gini	gini	gini
euro_share	-2.891	11.35	80.72***	1.642	18.3	88.43**	44.00***	54.87**
	(3.815)	(7.059)	(25.33)	(8.544)	(16.12)	(36.93)	(15.19)	(21.26)
euro_share_sq							-63.97***	-92.54**
							(18.07)	(39.43)
Constant	45.00***	44.57***	43.34***	46.82***	46.51***	45.15***	43.96***	43.81***
	(0.988)	(0.995)	(1.07)	(1.221)	(1.38)	(1.579)	(1.028)	(1.054)
Observations	108	104	98	80	76	71	108	104
R-squared	0.003	0.014	0.096	.	.	0.072	0.072	0.053
*** p<0.01, ** p<0.05, * p<0.1								
Turning point for Euro Share							0.344	0.296

Table 10: Does European Share affect Income controlling for Inequality?

Equations (1) through (3) are estimated with OLS: (4) through (6) with the same IV methods for Euro share as previous tables. The sample for (1) and (4) is non-European countries; (2) and (5) is non-European and non-Neo-Europe. (3) and (6) are Euro share <.15. Euro share is proportion of Europeans in the colonial population. All specifications are estimated using heteroskedasticity-consistent standard errors. Standard errors are reported in parentheses. ***, ** and * represent significance at 1, 5 and 10% level respectively.

VARIABLES	(1) ly2002	(2) ly2002	(3) ly2002	(4) ly2002	(5) ly2002	(6) ly2002
euro_share	3.162*** (0.319)	6.305*** (1.58)	9.716*** (1.677)	5.162*** (1.074)	12.82*** (3.756)	19.14*** (6.01)
gini	-0.00604 (0.0102)	-0.0125 (0.0104)	-0.0161 (0.0104)	0.0142 (0.00943)	-0.0101 (0.00974)	-0.0187 (0.0127)
Constant	8.204*** (0.499)	8.418*** (0.497)	8.526*** (0.493)	6.962*** (0.455)	7.943*** (0.44)	8.262*** (0.533)
Observations	84	80	77	67	63	60
R-squared	0.287	0.132	0.141	0.321	0.104	0.145

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1