

Colonialism, European Descendants and Democracy

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Abstract

This paper advances that the share of European descendants in the population is a major determinant of democracy in former colonial countries. We test this hypothesis using cross-section and panel regressions with 60 developing and developed countries that were once colonies. We find that the share of European descendants can explain more than half of the difference in measures of democracy between the least and the most democratic countries in our sample. We control for other potential determinants of democracy and test for endogeneity bias using instrumental variables.

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1 Introduction

Why are some countries more democratic than others? This paper proposes that the share of European descendants in the population of former colonized countries is a major explanatory factor of their democratic development today. We test this hypothesis using both cross-section and panel regressions and find robust evidence in its favor. The share of European descendants in the total population has a large positive effect on democracy scores, an effect that is larger than that of any of our control variables and that can account for a major part of the differences observed between democratic and non-democratic societies. Our interpretation of this relationship and the differences with other interpretations that exist in the literature are presented below.

A product of the unique influence that European nations have had throughout the world, European descendants constitute a numerous group in a large number of countries. In some, like the United States or Australia, the large majority of the population is of European origin. In others, such as most of Latin America, European descendants are a large group but the majority of the population is of mixed ancestry, children of Europeans, Amerindians and Africans. Yet in others, such as most of Sub-Saharan Africa or the Indian subcontinent, European descendants are just a very small fraction of the population.

Europeans arrived to these very diverse corners of the world first as colonizers, during a colonial period that in some regions extended for as much as

three centuries, and then as immigrants, once some of these regions had become attractive newly independent countries. They brought with them their culture, language and religion; and in the process transformed the societies they were settling in.

There are several good reasons to believe that a higher share of European descendants in a country will lead to a more democratic society today. First and foremost, Europeans and their descendants were typically in a better economic condition than the local population. Thanks partly to their higher levels of human and physical capital, and partly to policies which allocated key resources such as land in their favor, people of European origin were much better-off than non-Europeans throughout the colonial world. This economic preeminence raised their bargaining power at the moment of asking for political rights and democratization.

The Europeans' higher human capital was a natural consequence of their belonging to a technically advanced and highly literate society, as opposed to the colonized regions of the Americas and Sub-Saharan Africa (most of Asia and the Middle East did not trail much behind Europe in technical knowledge at the beginning of the colonial period, though this was no longer true by the 19th century). The policies that favored Europeans can be exemplified by the concession of large tracts of agricultural land to Spanish colonizers in the Americas, a concession which typically included rights over the labor force of the inhabitants of the land in question.

A second reason is the fact that in many former colonies the governing elite remained overwhelmingly of European origin after independence (Latin America, South Africa). Such an elite would be more willing to make democratic concessions if the share of the population that it regards as similar to itself in terms of culture and preferences is relatively large. Thus, in countries such as the United States or Canada, but also Argentina or Uruguay, we would expect democratic rights to be granted earlier than in countries with a large indigenous population such as Bolivia or Peru.

A third and final reason is that, thanks largely to Europe's rich network of universities and large production of books, the concept of democracy was known and discussed by the continent's intellectual elite. Democracy was, after all, a characteristic of classical Athens; and the classical authors from ancient Greece were among the most read and studied in Europe at the time. European settlers brought this knowledge with them wherever they settled in considerable numbers: witness the very early establishment of universities in the Americas (University of San Marcos in Lima, 1551; Royal and Pontifical University of Mexico, 1551; Harvard University, 1636). Knowledge of democracy was probably much more limited among other cultures.

We chose to limit the range of our thesis to former colonized countries. The reason is that the arguments presented above have much more force for colonized than for non-colonized countries. The advantages enjoyed by European settlers, for instance, were possible because of the enforcement

power of the colonial regime. The removal of the local governing elite and the establishment of an elite of European origin was also possible only in colonized countries. However, while we will focus on former colonized countries our analysis will not be limited to the colonial period. As we discuss below, much European immigration took place after the independence of some colonial countries and this kept on affecting the composition of the local population and the share of European descendants in it.

Our paper is related to a growing literature exploring the importance of colonial heritage in areas such as long-run economic development (Acemoglu et al. 2001, 2002, Engerman and Sokoloff 1997, 2005) or income inequality (Angeles 2007). The influential work of Acemoglu et al. (2001) advances that colonial experience was a major determinant of a country's economic institutions, such as property rights enforcement. These institutions persisted over time and came to determine the degree of economic development, in the spirit of North and Thomas (1973) and North (1981).

A more explicit discussion of the influence of colonialism on democratic development can be found in Engerman and Sokoloff (1997, 2005). The authors document the evolution of democracy in the Americas north and south of the Rio Grande. The different degree of European settlement in these two regions is invoked as a major reason behind the large and persistent democratic gap between them.

A second literature to which we are closely related is the empirical study

of the determinants of democracy. Contributors to this literature have traditionally come from political science (Lipset 1959, Londregan and Poole 1996, Przeworski and Limongi 1997, Przeworski et al. 2000, Papaioannou and Siourounis 2008), but economists have also addressed the issue (Barro 1999, Acemoglu et al. 2008, 2009). Lipset's (1959) influential "modernization hypothesis" can be found in most of this literature, as GDP per capita is usually the first variable to be tested as a potential determinant of democracy.

Of special interest to the present paper is the work of Acemoglu et al. (2008, 2009). The objective of these authors is to disprove the modernization hypothesis, which they do by focusing on the within-country variation of income and democracy by means of fixed-effects regressions. While they show that there is no relationship between income and democracy within countries, they also feel compelled to give a rationale for the existence of the well-known cross-sectional correlation between these two magnitudes. Their explanation is that both income and democracy are caused by the institutional framework of the country, which was determined in a large number of cases by the colonial past. Acemoglu et al. (2009) show that some plausible proxies for the quality of the country's early institutions, such as its year of independence or the constraints on the executive in the first ten years of independence, are good predictors of democracy¹.

¹The use of the word "institutions" can be confusing in this literature. We assume that Acemoglu et al. (2009) have in mind *economic* institutions, such as enforcement

Though related, there are several differences between our work and Acemoglu et al. (2009). First of all, we do not make any assumptions regarding the institutional framework of the country, or whether this one was determined by its colonial past or not. We believe our mechanism is more direct and transparent: countries where Europeans became more numerous turned more democratic because Europeans and their descendants were in a better position to bargain for democratic rights, because the governing elites had more trust in them and because they brought their knowledge of democracy to the country.

Like Acemoglu et al. (2009), we believe that the colonial past exercises a large influence on today's democratic outcomes; but we think this influence plays essentially through the degree of European immigration to the country. The regressor of interest in our empirical investigation will be the share of European descendants in total population, a variable that is not considered by Acemoglu et al. (2009).

Our explanation, finally, is not limited by what took place in the colonial period. As mentioned above, Europeans migrated to many countries long after these became independent. This later flow ought not to be ignored, as it concerned far greater numbers than those from the colonial period (though of property rights, in line with their thinking in Acemoglu et al. (2001). It would not be very insightful if democracy itself was encompassed in their concept of institutions for then their thesis would be just that countries are more democratic today because they were more democratic in the past; begging the question of what made some countries more democratic in the past anyway. Thus, throughout this paper references to "institutions" can be thought of as economic institutions such as enforcement of property rights.

concentrated in just a handful of countries). Accordingly, our measure of European descendants in the population corresponds to the situation in the late 20th century and incorporates these post-colonial flows.

The empirical part of this paper tests explicitly our explanation against that of Acemoglu et al. (2009) by including as a control variable the institutional quality of each country, measured by the risk of expropriation. Results are strongly supportive of our thesis.

The rest of the paper is organized as follows. Section 2 presents the data and the methodology. Section 3 carries out our empirical work using a cross-section of countries, the dependent variable being the average value of a democracy index over the period 1972-2006. Our results are challenged by the inclusion of a large set of control variables, by the use of alternative measures of both democracy and European settlement, by considering the exclusion of certain regions and by controlling for institutional quality. We also discuss potential endogeneity problems due to reverse causality and address them by instrumenting our measure of European descendants with climate-related variables. Section 4 presents a similar analysis as in section 3 but in a panel setting covering the period 1960-2005. Section 5 offers some concluding remarks.

2 Data and methodology

Our empirical analysis requires data on democracy, European descendants and on alternative explanatory factors of democracy. For democracy, we use two well-known and widely accepted measures that have figured prominently in the literature: Freedom House's Political Rights index and Polity IV's composite Polity index.

Freedom House's Political Rights index ranges from 1 to 7 and ratings are assigned according to how well a country fulfills a series of criteria established by the data publishers. These criteria are expressed in the form of ten questions, grouped themselves in three areas: electoral process, political pluralism and participation, and functioning of government. For instance, the first question relating to electoral processes asks: "Is the head of government or other chief national authority elected through free and fair elections?"; while the second question relating to political pluralism and participation asks "Is there a significant opposition vote and a realistic possibility for the opposition to increase its support or gain power through elections?" (See Freedom House 2009 for a full description of the questions and formation of the index). The Freedom House measure will be our primary measure of democracy.

The Polity composite index takes values between -10 and 10 according to how well a country scores along the following dimensions: competitiveness of executive recruitment, competitiveness of political participation, openness

of executive recruitment, constraints on chief executive and regulation of participation (see Marshall and Jaggers 2007 for more details). We use the Polity measure to test the robustness of our results to an alternative index of democracy. Following the literature, we normalize both indices so that they take values between 0 and 1, with higher values denoting a more democratic regime.

The Freedom House Political Rights index is available since 1972 and we will use its average value over the period 1972-2006 as endogenous variable in our cross-section analysis. The Polity index is available for a much longer period, and we will take the average over 1960-2006 as an alternative measure of democracy. There is not much point in going before 1960 since most colonized countries outside the Americas did not become independent before this date. For our panel regressions we take the approach of Acemoglu et al. (2008) and construct a panel using observations separated by five year intervals from 1960 to 2005².

Our main explanatory factor will be the share of European descendants in total population in the last quarter of the 20th century. We start from the data provided by McEvedy and Jones (1975), as reported by Acemoglu et al. (2001). McEvedy and Jones (1975) report for each country the percentage

²For the Polity index we take the observations for 1960, 1965, ..., 2005. For the Freedom House index we take the observations for 1975, 1980, ... 2005 and then, as in Barro (1999) and Acemoglu et al. (2008), we assign the value of 1972 to the year 1970 and use the data in Bollen (1990) to fill in the observations for 1960 and 1965.

of the population that is "white" or "European"³. This is good enough for countries where ethnic mixing did not take place in a large scale, but would underestimate the European component in the population in countries where a large part of those who are not "white" or "European" are actually of mixed ancestry. This is precisely the case in today's Latin America.

To address this issue, we use data on ethnic composition from the CIA (2008) which lists, for every Latin American country, the percentage of the population belonging to the "mestizo" group (of mixed European and Amerindian ancestry⁴). We then adjust the values of McEvedy and Jones (1975) by adding to the percentage of the population classified as "white" or "European" *one half* of the percentage of the population classified as mestizo. For countries outside Latin America no information is provided on the number of mestizos, which are probably a small group anyway, so we keep the numbers of McEvedy and Jones (1975). We call this variable "European descendants" and use it in most of our regressions; but we run some robustness checks in which we substitute it with the data from McEvedy and Jones without any modification. Table A1 in the Appendix reports this variable for all the countries in our sample together with the average level of democracy for 1972-2006 and several other control variables⁵.

³The data from McEvedy and Jones are estimates for 1975, but there shouldn't be any major changes in them over the next quarter century since the age of European migration was over well before the second world war.

⁴There is no data on people of mixed European and African ancestry, but this group is certainly much less numerous.

⁵Our sample consists of the same 64 former colonial countries considered by Acemoglu et al. (2001) with the exception Hong Kong, for which data on democracy is not available.

A first look at the bivariate relationship between democracy and European descendants is provided in Figure 1. This figure plots the average value of the Freedom House Political Rights index over the period 1972-2006 against the percentage of European descendants in the population. A positive relationship between the two variables is apparent and does not seem to be caused by the presence of outliers.

The relationship between these two variables will be studied more formally using the following cross-sectional specification:

$$D_i = \alpha + \beta_1 E_i + BX + \varepsilon_i \tag{1}$$

and the following panel specification:

$$D_{i,t} = \alpha + \beta_1 E_i + BX + \lambda_t + \varepsilon_{i,t} \tag{2}$$

In equations (1) and (2) D is a measure of democracy, i and t are country and time indices, E_i is the percentage of European descendants in the total population in country i , X is a set of control variables and λ_t a full set of time dummies. Equation (2) does not include country fixed effects because of the presence of the time-invariant variable E_i . We focus our attention on coefficient β_1 , which is meant to capture the effect of European descendants on democracy, but the vector of coefficients B is also of interest and will be

The sample includes most former colonies from all continents and allows for comparison with the literature.

commented as we include different sets of control variables.

Our main set of control variables includes: variables identifying former British and former French colonies (the excluded category being former Spanish or Portuguese colonies), the latitude of the country, an index of ethnolinguistic fractionalization, variables measuring the percentage of the population who profess the Catholic, Muslim and Protestant religions, dummy variables for Latin America and Africa and of course, GDP per capita. The sources for all variables used in the paper can be found in table A2 in the Appendix.

3 Empirical analysis: cross-section

3.1 Baseline results

We start by analyzing the relationship between European descendants in the population and democracy using cross-section analysis. The interest of using a cross-section is that our endogenous variable is the average of democracy scores over a reasonably long period, 1972-2006 in most regressions and 1960-2006 in a robustness check. This average will eliminate short-term fluctuations, for which our theory is not relevant, and focus on the long run. Table 1 reports the initial results of this analysis.

In the first column of table 1 we run a simple regression where the share of European descendants in the population is included without any controls.

The coefficient on European descendants takes the value of 0.629 and is statistically significant at the 1% level. This coefficient represents the effect on the democracy score of passing from 0 to 100% of European descendants in the population, roughly the difference between a typical country in Sub-Saharan Africa and a country like Canada or New Zealand. If we consider that the average value of the Freedom House democracy index over the period 1972-2006 is 1 for Canada and 0.31 for Nigeria, 0.20 for Tunisia and 0.08 for the Democratic Republic of Congo it becomes clear that the magnitude of the estimated effect would account for most of the difference between these countries. Passing from 0 to 50% of European descendants in the population (roughly the difference between an African country and an average Latin American country like Colombia or the Dominican Republic) would increase the democracy index by $0.629 * 0.50 = 0.315$, also a large part of the observed difference. Notably, this simple regression is able to explain half of the variation in our measure of democracy.

The second column of table 1 incorporates what is perhaps the most popular explanatory factor of democracy: economic development, as measured by the country's GDP per capita. Since the "modernization hypothesis" proposes that economic development will eventually lead to democratic changes, we use GDP per capita in 1970, at the beginning of our period of analysis, as an explanatory factor. This also addresses the potential reverse causality that would arise if democracy is beneficial for economic development.

It is worth noting that the degree of European settlement in a country may well be one of the long-run determinants of GDP per capita, either because of its effect on institutional development (Acemoglu et al. 2001, 2002), because of the Europeans' higher levels of human capital (Glaeser et al. 2004) or through any other potential channel. If the degree of European descendants is affecting democracy only through its effect on GDP per capita then the inclusion of this variable would render the effect of European descendants insignificant. Such a result would not imply that the degree of European settlement is irrelevant, but it would point to a mechanism that is not stressed in the present paper but in other parts of the literature.

The results, however, are still supportive of our interpretation. When we include GDP per capita the coefficient on European descendants falls slightly, to 0.420, but remains statistically significant and of large magnitude. The coefficient on GDP per capita is statistically significant in this regression but, as we shall see, loses significance once additional controls are added to the equation. Thus, European descendants tend to have a positive effect on democracy scores for a given level of economic development

The next five columns of table 1 incorporate progressively additional control variables to the two regressors considered above. Column 7 presents our full baseline regression with all control variables included simultaneously. Each of the control variables that we include is of interest not only because they are plausible determinants of democracy (and have figured as such in

previous empirical analysis such as Barro 1999); but also because they may be correlated with our measure of European descendants and could thus lead to an omitted variable bias.

In column 3 we incorporate dummy variables identifying former British colonies and former French colonies (the omitted category being former colonies of Spain and Portugal). This tests for an important alternative explanation linking colonialism to democracy, namely that colonies of more democratic countries (such as Britain) became more democratic than colonies of more authoritarian regimes such as France or Spain; arguably because of some form of institutional transfer that does not depend on the degree of European settlement. An omitted variable bias would arise if the colonies of the most democratic European power, say Britain, tend to receive more settlers than the others.

Column 4 adds a measure of climate, latitude, which is simply the distance from the equator scaled between 0 and 1. Places further away from the equator are characterized by temperate climate while tropical countries find themselves close to the equator. It can be argued that tropical climate can somehow influence the political regime, for instance because the production of tropical products such as cane sugar or cacao implies a highly unequal income distribution and therefore concentrates power in a few hands. Moreover, it was certainly the case that fewer Europeans settled in tropical regions, once again raising the possibility of an omitted variable bias.

The next column considers the influence of ethnic diversity, as measured by a country's ethnolinguistic fractionalization. Ethnic diversity may make democracy less workable, as each ethnic group pushes for its own interests and blocs measures that are beneficial for the country as a whole but not for each particular group (Easterly and Levine 1997).

In column 6 we add the percentage of the population that follow the Catholic, Muslim and Protestant religions. One may well argue that certain religions impart a world view more akin to autocracy or to democracy in their followers. It is also certainly the case that European settlement will be positively correlated with the percentage of Christians, either Catholic or Protestants, in the population. Thus, the inclusion of these controls covers yet another potential bias.

Column 7, finally, adds dummy variables for Latin America and for Sub-Saharan Africa to account for any particular characteristic of these two regions that may be driving the results. This is not necessarily a very appropriate test, since the share of European descendants in the population may be precisely the particular characteristic that we allude to. Our thesis should survive the inclusion of these controls, however, since democracy and European descendants should be correlated within these regions as well.

As table 1 makes clear, the share of European descendants in the population remains statistically significant at the 1% level in all regression and its coefficient does not change much, stabilizing at around 0.500. This is

not much different from the initial coefficient in column 1, and it implies an important effect on democracy scores.

On the other hand, GDP per capita becomes statistically not significant as we consider a larger set of control variables; its coefficient falling in size from 0.106 in the first column to 0.036 in the last one. This result joins those of Acemoglu et al. (2008, 2009) on the lack of support for the modernization hypothesis once historical factors are taken into account.

Most other control variables fail to achieve statistical significance, although the size of their coefficients can be large in some cases. The two control variables that appear to have a clear, statistically significant, effect on democracy are the dummy for former British colonies and the dummy for Latin American countries. The results in column 7 imply that a former British colony would have a democracy score 0.151 higher than otherwise expected, while the effect for a Latin American country would be even larger at 0.282. It is worth mentioning that since the early 1980s Latin America has experienced a successful democratic period that was not a characteristic of the region in earlier decades.

Overall, these initial results show strong support for our thesis. The share of European descendants in the population appears to have a large effect on the prevalence of democracy that cannot be accounted by the potential effect of Europeans on GDP per capita or by the fact that European settlement may be correlated with factors such as the identity of the colonial power,

climate or religion.

3.2 Robustness tests

We test the robustness of the above results by changing our measures of democracy, changing our measure of European settlement, excluding parts of the sample, controlling for institutional quality and considering the possibility of endogeneity bias. Our departure point is column 7 of table 1, our baseline regression with all controls. Results are reported in table 2.

In the first column of table 2 we substitute the Freedom House measure of democracy with the one from Polity IV, which we average over the period 1960-2006. This has no consequence on most control variables, since they are time-invariant anyway, the exception being GDP per capita. In order to remain with a measure of economic development at the beginning of the period, we consider GDP per capita in 1960 for this regression alone.

Results are fully consistent with those of previous regressions. The coefficient on European descendants is 0.489, very similar to the value obtained with the democracy index from Freedom House, and is statistically significant. Control variables have similar effects, with GDP per capita in 1960 showing a coefficient that is small and not significant.

In the second column the change is on our measure of European descendants, by considering the original estimates from McEvedy and Jones (1975)

without the adjustments described in the previous section. Our results continue to hold, though we notice that the coefficient on European settlers -while still statistically significant at the 5% level- is smaller than in other columns. This result can be explained if we regard the measure of European descendants used in this column as a noisier version of the more appropriate one considered in the rest of the paper, since measurement errors produce a bias towards zero in estimated coefficients.

The third and fourth columns of table 2 see the exclusion of Latin American (column 3) and Sub-Saharan African (column 4) countries. Results remain unchallenged, with the coefficient on European descendants keeping its value of about 0.500. The coefficients on other control variables do not suffer major changes.

The regression reported in the fifth column of table 2 is thought as a test of our thesis of the link between European descendants and democracy as opposed to the thesis developed in Acemoglu et al. (2008, 2009). As discussed previously, Acemoglu et al. (2008, 2009) link the colonial past to the democratic present through the institutional development of a country. This is a different channel from the one we are stressing here, where the colonial past matters because it can bring a significant number of European settlers to the country and European settlers make democracy more likely irrespective of other institutional settings. A simple way to control for the thesis of Acemoglu et al. (2008,2009) is to include a measure of institutional qual-

ity in our regression. If European settlement matters only because it makes a country's (economic) institutions better, then controlling for institutional quality should render the share of European descendants in the population insignificant.

Column 5 uses as a control the preferred measure of institutional quality from Acemoglu et al. (2001), namely the risk of expropriation by the government in 1985. The results are strongly supportive of our thesis: the coefficient on European descendants continues to be statistically significant with a coefficient of about 0.500 whereas the measure of institutional quality is not significant and its coefficient is relatively small⁶.

3.3 Robustness tests: endogeneity

The final robustness test that we consider deals with the potential problem of reverse causality in our regression. One may argue that Europeans decided to emigrate to countries that were already democratic or in the process of becoming so. In this case our results would be capturing the effects of democracy on European settlement and not the opposite.

Our first argument against such eventuality is that for the large majority of colonized countries European immigration took place essentially during

⁶Acemoglu et al. (2009) find support for their interpretation by considering plausible indicators of early institutional quality: year of independence, population density in 1500 and the polity scores in the first ten years of independence. By considering a measure of current institutional quality we are giving higher chances to this institutional channel since we are ignoring the possibility of reverse causality.

the colonial period, well before the establishment of any democratic regime. Of course, post-colonial European migration also took place, and it actually concerned much larger numbers of people than in colonial times, but the relevant point for our analysis is that these post-colonial flows concerned only a small number of countries: the United States, Canada, Australia and the southern cone of South America (Argentina, Brazil, Uruguay and Chile)⁷. Some of these are very big countries, but since every country has the same weight in our cross-section we can say that for the majority of our observations reverse causality is not a likely problem.

Of course, even a small number of biased observations may be sufficient to invalidate our results; so let us consider the matter further. The choice of destination of European immigrants during the late 19th century and early 20th century could be suspected to be influenced by the presence or absence of democracy in the destination countries. This seems unlikely for South American countries, which were not democratic until well into the 20th century (Smith 2005), but is a more tenable position when we consider the countries that attracted by far the most immigrants: the United States and Canada.

As is well known, the United States and Canada were among the most democratic countries in the world at the time (Engerman and Sokoloff 1997, 2005). There are, however, two important elements in this historical episode

⁷See Hatton and Williamson (2005) and Maddison (2007). For estimates of immigration to Argentina, Brazil, Uruguay and Chile during this period see Sanchez-Albornoz (1986).

that lead us to think that causality runs from European settlement to democracy and not the other way round. First is the fact that both the United States and Canada were countries whose population was overwhelmingly of European origin long before the late 19th century. Indeed, these countries became mostly European first and democratic later on. The large numbers of immigrants that they attracted once they had become democratic did not change the ethnic composition of their population: they were already mostly populated by European descendants.

The second element becomes apparent once we take a closer look at the evolution of democratic rights in the United States during the late 19th and early 20th centuries. As it turns out, the period from 1890 to 1926 saw the reintroduction of literacy requirements for voting in 18 states of the Union (Engerman and Sokoloff 2005). These measures, largely directed towards blacks and immigrants, were a typical method to disenfranchise poor potential voters during this period. Thus, many of the immigrants coming to the United States were not able to participate in the democratic process, despite the fact that they were coming to a largely democratic country. It is therefore difficult to argue that it was the possibility of exercising democratic rights that attracted them in the first place.

While we find the above arguments quite convincing, it is worth addressing the issue more formally with an instrumental variables estimation in which the percentage of European descendants in the population is treated

as an endogenous variable. Our set of instruments consists of the country's mean temperature, the prevalence of malaria, the mortality rate for European settlers and the population density of the country in the year 1500 (see appendix for data sources). One can make a plausible argument for each of these variables' effect on the degree of European settlement. Europeans would be more reluctant to emigrate to countries with a high-risk disease environment, as measured by the mortality rate and the prevalence of malaria. They would prefer cooler, temperate regions closer in climate to their native countries over tropical, hot countries. Population density would be an attractive feature for Europeans interested in exploiting the labour resources of their colonies, as argued by Acemoglu et al. (2002). All this implies that the first condition for the validity of our instrumental variables is likely to be satisfied. Indeed, a regression of European descendants on these four variables explains 57% of the variation in the data.

The second condition for instrumental variable validity states that instruments should not be correlated with the error term in the second-stage regression. To make sure that this is the case we are including both GDP per capita and institutional quality as control variables of our second stage regression. Our instruments are likely determinants of these variables and could affect democracy through them.

The results of this IV regression are reported in column 6 of table 2 and are strongly supportive of our thesis. The coefficient on European descendants

continues to be statistically significant at the 1% level and its size is even larger than in previous regressions. Other coefficients take similar values as previously, with institutional quality remaining statistically insignificant and small in size. Overall, we find that instrumenting for the degree of European settlement does not invalidate our results, it actually tends to make them even stronger (suggesting that if our measure of European descendants is indeed endogenous then the correlation with the error term would actually be negative).

4 Empirical analysis: panel

We complement our cross-sectional analysis with a panel study. Panel regressions are not the first choice in the present paper for two reasons. First, a panel will capture relatively short-term variations in democracy as compared with a cross-section in which the endogenous variable is an average over several decades. Second, due to the time-invariant nature of our regressor of interest we cannot consider fixed effects regressions, which would be of interest by their capacity to remove unobservable country-specific factors.

Despite these shortcomings, there are still good reasons to test our thesis in a panel setting. First of all, a panel allows for the inclusion of time dummies. Time dummies are desirable in this context because of the existence of "democratic waves" throughout large regions of the world (Huntington 1993). The 1970s, for instance, saw a large number of developing countries

falling into military dictatorships whereas the 1990s was characterized by a return of democracy in most parts of the world. All our panel regressions will include time dummies.

A second reason is that a panel allows us to estimate a dynamic model that takes into account the persistence of democratic (or undemocratic) structures. This is done by estimating a model in which the (5-year) lag of democracy enters as an explanatory variable of current democracy. Panel regressions also allow for interesting comparisons with other works in the literature that also use this methodology (Barro 1999, Acemoglu et al. 2008, 2009). Our panel consists of 10 quinquennial observations for each country, from 1960 to 2005 (see section 2).

Our results are reported in table 3. The first column of this table corresponds to our full baseline regression from previous section (last column of table 1). The main difference is that instead of using GDP per capita at some initial period we use its 5-year lag. The results are very similar to those obtained in the cross-section, with the coefficient on European descendants taking value of 0.498 and being statistically significant at the 1% level. GDP per capita has an even smaller effect than before and is not statistically significant. The dummies on British colonies and Latin American countries remain positive and significant, and will be so in all panel regressions. Another variable that is now consistently significant is the share of Catholics in the population, with a large negative coefficient. The coefficients on time

dummies are not reported for conciseness, but they tend to be statistically significant.

The second column of table 3 incorporates the 5-year lag of democracy as an additional explanatory factor. As expected, democracy has a significant degree of persistence: the coefficient on lagged democracy takes the value of 0.528 and is clearly statistically significant. The influence of European descendants remains of similar magnitude as in previous specifications. To see this, one must consider that in a model with a lagged dependent variable the coefficient β_1 measures only the short-term effect of European descendants on democracy. The long term effect, once the model reaches a new equilibrium, would be given by $\beta_1/(1 - \gamma)$, where γ represents the coefficient on lagged democracy. This would yield an overall effect of $0.304/(1 - 0.528) = 0.644$, which is in line with our previous results. Results are consistent when we use longer lags of democracy⁸.

Columns 3 to 8 in table 6 constitute a series of robustness checks on our panel results that follow those performed in table 2. We run our baseline regression using quinquennial measures of democracy from the Polity IV dataset (column 3), using the measure of European descendants without adjusting for mixed ethnic origin (column 4), excluding Latin America or Sub-Saharan Africa (columns 5 and 6), controlling for institutional quality

⁸Using 10-year lags, for instance, produces a coefficient on European descendants of 0.464 and a coefficient on lagged democracy of 0.265, for a long-term effect of European descendants of 0.631.

(column 7) and instrumenting for European descendants while controlling for institutional quality (column 8). Our central result of a large and statistically significant effect of the share of European descendants on democracy is confirmed in each of these regressions. As before, the coefficient of this variable is somewhat smaller when we don't adjust for mixed ethnic origin and is larger when we use instrumental variables; in most other regressions the coefficient is close to 0.500. GDP per capita has an even smaller effect than in our cross-section analysis, and most control variables are not statistically significant with the exceptions noted above.

To sum up, the empirical analysis carried out in this and the preceding section is strongly supportive of the thesis developed in this paper. The share of European descendants in the population is a major explanatory factor of democracy over the last 4 or 5 decades. The effect does not appear to work, as one may be tempted to think, through the effect of European descendants on GDP per capita or on institutional quality; for we run regressions controlling for these country characteristics. Overall, the effect of European descendants on democracy scores appears to be robust and of large magnitude: passing from 0 to 100% of European descendants in the population would translate into an average democracy score about 0.500 higher.

5 Concluding remarks

This paper discusses and tests the hypothesis that the share of European descendants in the population is a major explanatory factor of democracy in former colonized countries. We differ from other papers in the literature since we do not advance that European settlement exercises its influence on democracy through institutional development or through higher levels of GDP per capita. Instead, we suggest a simpler mechanism according to which a population with a large European component makes democracy more likely because (i) European descendants are wealthier -and have thus more bargaining power-, (ii) The elite in many colonized countries trust them more than they trust the original population, and (iii) Europeans brought with them knowledge of democracy itself. Regression analysis supports our thesis, since our measure of European descendants in the population has a high effect on democracy scores while institutions and GDP per capita do not.

The results obtained in this paper underline the importance of historical factors in general, and colonial past in particular, in long run socioeconomic outcomes. It seems natural to think that in democratic development, as in economic development or in income distribution, there is a large degree of path dependence whose origins may stretch back for not only decades but centuries.

We would not like to convey the idea, however, that countries of low

European settlement are destined to remain undemocratic or that history is destiny. We find it thus pertinent to conclude with two points that may not have been evident in the preceding discussion. First, there is considerable unexplained variation in the data. A good example is India, where a negligible level of European settlement did not preclude this country from becoming a well-functioning democracy (average Freedom House score of 0.80). Second, our analysis has focused on the cross-sectional differences in democracy, not on its time dimension. This is of necessity in our cross-sectional analysis, but our panel analysis has also removed much of the time variation by the inclusion of time dummies. What is important to remember is that, although the differences in democracy across countries are large and have prevailed over the last few decades, there is also a general tendency towards more democracy in most parts of the world. In time, one would hope that the explanatory factors that we considered in this paper will not account for differences in democracy, for all the world will be democratic, but for differences in the establishment of democratic regimes.

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Figure 1
European descendants and democracy in former colonies

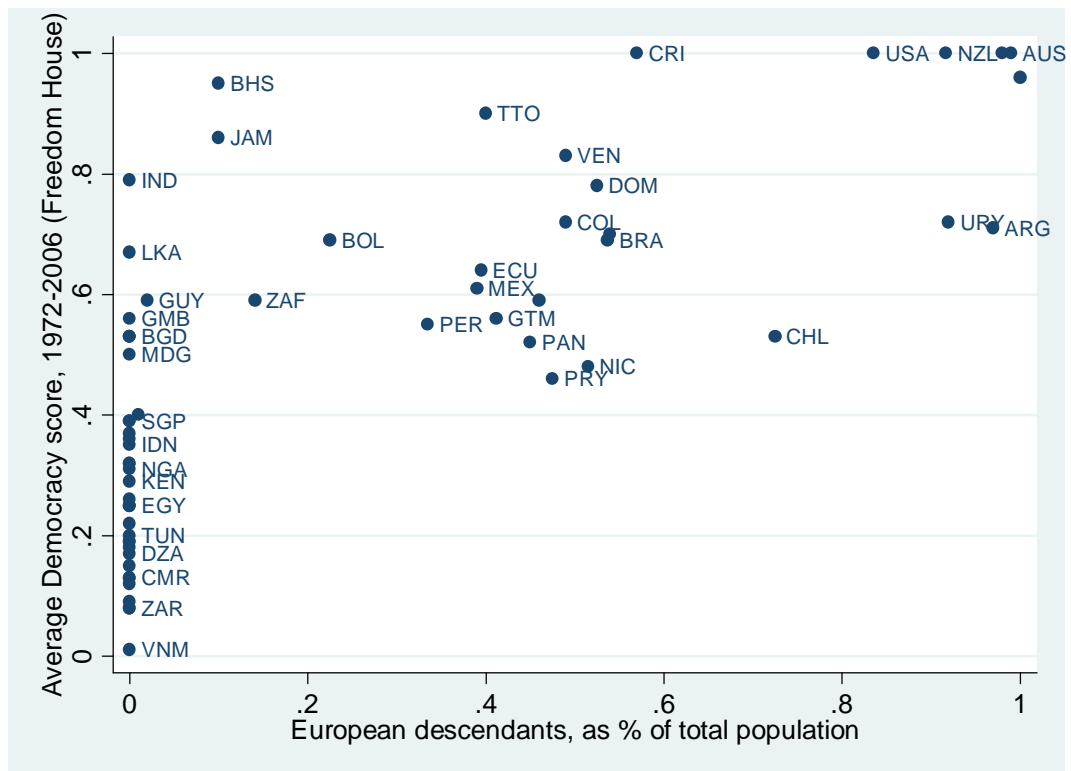


Table 1
Cross-sectional results: baseline regressions

	<i>Dependent variable: average democracy 1972-2006 (Freedom House Political Rights)</i>						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
European descendants	0.629	0.42	0.473	0.489	0.44	0.507	0.526
	[0.064]**	[0.122]**	[0.136]**	[0.154]**	[0.158]**	[0.174]**	[0.147]**
Log of GDP per capita in 1970		0.106	0.087	0.087	0.080	0.066	0.036
		[0.044]*	[0.049]+	[0.050]+	[0.048]	[0.045]	[0.047]
Ex-British colony			0.107	0.111	0.123	0.106	0.151
			[0.054]+	[0.058]+	[0.057]*	[0.066]	[0.062]*
Ex-French colony			0.02	0.026	0.024	0.019	0.080
			[0.059]	[0.065]	[0.065]	[0.064]	[0.071]
Latitude				-0.056	-0.107	-0.22	-0.228
				[0.192]	[0.193]	[0.333]	[0.282]
Ethno-linguistic fractional.					-0.128	-0.157	0.100
					[0.100]	[0.114]	[0.158]
Percentage Catholic						-0.057	-0.280
						[0.140]	[0.121]*
Percentage Muslim						0.004	-0.010
						[0.203]	[0.169]
Percentage Protestant						0.173	0.383
						[0.384]	[0.249]
Dummy for Latin America							0.282
							[0.082]**
Dummy for Africa							-0.130
							[0.099]
Observations	63	60	60	60	60	60	60
R ²	0.53	0.61	0.64	0.64	0.65	0.66	0.74

Note: Robust standard errors in parenthesis. The symbols **, * and + denote statistical significance at the 1%, 5% and 10% level respectively.

Table 2
Cross-sectional results: robustness tests

	<i>Dependent variable: average democracy 1972-2006 (Freedom House Political Rights)</i>					
	(1)	(2)	(3)	(4)	(5)	(6)
	Endogenous variable is average of polity index 1960-2006	European descendants is not adjusted for mixed ethnic origin	Excluding Latin American countries	Excluding African countries	Controlling for institutional quality	IV regression instrumenting European descendants
European descendants	0.489 [0.179]**	0.340 [0.136]*	0.438 [0.140]**	0.510 [0.214]*	0.486 [0.150]**	0.999 [0.391]*
Log of GDP per capita in 1970	0.018 [0.063]	0.067 [0.056]	0.013 [0.052]	0.006 [0.066]	0.008 [0.054]	-0.052 [0.070]
Ex-British colony	0.182 [0.066]**	0.150 [0.068]*	0.193 [0.069]**	0.221 [0.088]*	0.154 [0.060]*	0.141 [0.066]*
Ex-French colony	0.031 [0.064]	0.059 [0.084]	0.117 [0.075]	-0.023 [0.131]	0.088 [0.072]	0.119 [0.073]
Latitude	-0.31 [0.333]	-0.058 [0.256]	0.272 [0.260]	-0.45 [0.286]	-0.197 [0.280]	-0.738 [0.504]
Ethno-linguistic fractional.	0.114 [0.159]	0.038 [0.148]	0.177 [0.173]	0.154 [0.167]	0.066 [0.155]	0.144 [0.167]
Percentage Catholic	-0.388 [0.142]**	-0.199 [0.134]	-0.437 [0.120]**	-0.029 [0.155]	-0.229 [0.127]+	-0.328 [0.148]*
Percentage Muslim	-0.091 [0.168]	-0.034 [0.174]	-0.151 [0.169]	0.065 [0.193]	0.004 [0.168]	0.099 [0.203]
Percentage Protestant	0.472 [0.246]+	0.264 [0.260]	0.36 [0.315]	0.66 [0.285]*	0.414 [0.247]	0.601 [0.346]+
Dummy for Latin America	0.333 [0.089]**	0.303 [0.090]**		0.175 [0.099]+	0.303 [0.082]**	0.251 [0.119]*
Dummy for Africa	-0.11 [0.103]	-0.101 [0.098]	-0.104 [0.103]		-0.096 [0.096]	-0.174 [0.110]
Risk of expropriation					0.027 [0.022]	0.010 [0.030]
Observations	60	60	39	37	60	60
R ²	0.69	0.7	0.78	0.73	0.74	0.65

Note: Robust standard errors in parenthesis. The symbols **, * and + denote statistical significance at the 1%, 5% and 10% level respectively. In column (1) the log of GDP per capita is from 1960.

Table 3
Panel results

	<i>Dependent variable: democracy (Freedom House Political Rights)</i>							
	(1) Baseline regression	(2) Controlling for lagged democracy	(3) Endogenous variable is polity index	(4) European descendants is not adjusted for mixed ethnic origin	(5) Excluding Latin American countries	(6) Excluding African countries	(7) Controlling for institutional quality	(8) IV regression instrumenting European descendants
European descendants	0.498 [0.124]**	0.304 [0.070]**	0.571 [0.144]**	0.309 [0.111]**	0.386 [0.119]**	0.528 [0.163]**	0.451 [0.123]**	0.970 [0.332]**
Log of GDP per capita, lagged 5 year	0.028 [0.032]	0.003 [0.018]	-0.011 [0.043]	0.054 [0.039]	-0.014 [0.031]	0 [0.046]	0 [0.036]	-0.05 [0.045]
Ex-British colony	0.142 [0.051]**	0.049 [0.028]+	0.183 [0.058]**	0.140 [0.057]*	0.207 [0.054]**	0.196 [0.080]*	0.145 [0.049]**	0.132 [0.056]*
Ex-French colony	0.062 [0.056]	0.047 [0.034]	0.054 [0.054]	0.038 [0.068]	0.139 [0.061]*	-0.033 [0.088]	0.071 [0.056]	0.107 [0.059]+
Latitude	-0.202 [0.232]	-0.116 [0.126]	-0.368 [0.298]	-0.017 [0.208]	0.237 [0.213]	-0.377 [0.236]	-0.174 [0.224]	-0.741 [0.434]+
Ethno-linguistic fractional.	0.06 [0.138]	0.063 [0.065]	0.148 [0.140]	-0.004 [0.129]	0.163 [0.141]	0.108 [0.144]	0.024 [0.132]	0.112 [0.139]
Percentage Catholic	-0.310 [0.099]**	-0.175 [0.054]**	-0.423 [0.121]**	-0.226 [0.110]*	-0.386 [0.095]**	-0.177 [0.136]	-0.258 [0.102]*	-0.375 [0.132]**
Percentage Muslim	-0.068 [0.153]	-0.04 [0.077]	-0.114 [0.154]	-0.096 [0.156]	-0.191 [0.137]	-0.004 [0.185]	-0.051 [0.150]	0.048 [0.178]
Percentage Protestant	0.347 [0.206]+	0.186 [0.114]	0.517 [0.198]*	0.247 [0.211]	0.426 [0.255]	0.482 [0.242]+	0.365 [0.198]+	0.522 [0.272]+
Dummy for Latin America	0.245 [0.068]**	0.127 [0.037]**	0.353 [0.076]**	0.264 [0.073]**		0.198 [0.093]*	0.269 [0.066]**	0.216 [0.103]*
Dummy for Africa	-0.106 [0.091]	-0.081 [0.044]+	-0.141 [0.098]	-0.07 [0.090]	-0.147 [0.088]		-0.073 [0.084]	-0.167 [0.097]+
Risk of expropriation							0.031 [0.017]+	0.012 [0.025]
Democracy, lagged 5 years		0.528 [0.053]**						
Observations	586	525	582	586	376	363	586	586
R ²	0.51	0.65	0.53	0.48	0.56	0.48	0.51	0.47

Note: Robust standard errors clustered by country in parenthesis. The symbols **, * and + denote statistical significance at the 1%, 5% and 10% level respectively. .

APPENDIX

Table A1
Country list and selected variables

Country name	Freedom House Political Rights index, average 1972-2006	European descendants as % of total population	European descendants as % of total population (without mestizos)	Latitude index	Ethno-linguistic fractionalization	Fraction Catholic	Fraction Muslim	Fraction Protestant
Algeria	0.17	0	0	0.311	0.294	0.005	0.991	0
Angola	0.09	0	0	0.137	0.773	0.687	0	0.198
Argentina	0.71	97	90	0.378	0.177	0.916	0.002	0.027
Australia	1	99	99	0.300	0.113	0.296	0.002	0.235
Bahamas	0.95	10	10	0.268	0.000	0.255	0	0.472
Bangladesh	0.53	0	0	0.267	0.000	0.002	0.859	0.002
Bolivia	0.69	22.5	30	0.189	0.599	0.925	0	0.023
Brazil	0.69	53.7	55	0.111	0.056	0.878	0.001	0.04
Burkina Faso	0.32	0	0	0.144	0.547	0.09	0.43	0.016
Cameroon	0.13	0	0	0.067	0.852	0.35	0.22	0.181
Canada	1	98	98	0.667	0.376	0.466	0.006	0.296
Chile	0.53	72.5	50	0.333	0.051	0.821	0	0.019
Colombia	0.72	49	25	0.044	0.056	0.966	0.002	0.009
Congo	0.19	0	0	0.011	0.669	0.539	0.004	0.249
Costa Rica	1	57	20	0.111	0.053	0.905	0	0.058
Cote d'Ivoire	0.18	0	0	0.089	0.857	0.185	0.24	0.047
Dominican Rep.	0.78	52.5	25	0.211	0.011	0.966	0	0.014
Ecuador	0.64	39.5	30	0.022	0.325	0.964	0	0.019
Egypt	0.25	0	0	0.300	0.023	0.002	0.818	0.002
El Salvador	0.70	54	20	0.150	0.051	0.962	0	0.024
Ethiopia	0.19	0	0	0.089	0.677	0.007	0.314	0.038

Country name	Freedom House Political Rights index (average 1972-2006)	European descendants with mestizos (% of total population)	European descendants (% of total population)	Latitude index	Ethno-linguistic fractionalization	Fraction Catholic	Fraction Muslim	Fraction Protestant
Gabon	0.25	0	0	0.011	0.797	0.652	0.008	0.188
Gambia	0.56	0	0	0.148	0.780	0.019	0.848	0.004
Ghana	0.39	0	0	0.089	0.706	0.187	0.157	0.258
Guatemala	0.56	41.2	20	0.170	0.477	0.94	0	0.049
Guinea	0.08	0	0	0.122	0.760	0.011	0.69	0.001
Guyana	0.59	2	2	0.056	0.238	0.18	0.09	0.18
Haiti	0.15	0	0	0.211	0.064	0.826	0	0.128
Honduras	0.59	46	20	0.167	0.097	0.958	0.001	0.026
India	0.79	0	0	0.222	0.742	0.013	0.116	0.011
Indonesia	0.35	0	0	0.056	0.691	0.027	0.434	0.048
Jamaica	0.86	10	10	0.202	0.013	0.096	0.001	0.555
Kenya	0.29	0	0	0.011	0.827	0.264	0.06	0.193
Madagascar	0.50	0	0	0.222	0.063	0.26	0.017	0.22
Malaysia	0.53	0	0	0.026	0.610	0.028	0.494	0.014
Mali	0.37	0	0	0.189	0.809	0.007	0.8	0.002
Malta	0.96	100	100	0.394	0.103	0.973	0	0.005
Mexico	0.61	39	15	0.256	0.174	0.947	0	0.012
Morocco	0.4	1	1	0.356	0.348	0.002	0.994	0
New Zealand	1	91.7	91.7	0.456	0.148	0.187	0	0.379
Nicaragua	0.48	51.5	20	0.144	0.099	0.947	0	0.044
Niger	0.22	0	0	0.178	0.733	0.002	0.879	0
Nigeria	0.31	0	0	0.111	0.857	0.121	0.45	0.158
Pakistan	0.36	0	0	0.333	0.622	0.005	0.968	0.008
Panama	0.52	45	20	0.100	0.191	0.85	0.045	0.052
Paraguay	0.46	47.5	25	0.256	0.411	0.96	0	0.019
Peru	0.55	33.5	30	0.111	0.432	0.951	0	0.027
Senegal	0.53	0	0	0.156	0.779	0.056	0.91	0.001

Country name	Freedom House Political Rights index (average 1972-2006)	European descendants with mestizos (% of total population)	European descendants (% of total population)	Latitude index	Ethno-linguistic fractionalization	Fraction Catholic	Fraction Muslim	Fraction Protestant
Sierra Leone	0.32	0	0	0.092	0.813	0.022	0.394	0.048
Singapore	0.39	0	0	0.014	0.322	0.047	0.174	0.026
South Africa	0.59	14.05	16	0.322	0.831	0.104	0.013	0.39
Sri Lanka	0.67	0	0	0.078	0.326	0.068	0.072	0.004
Sudan	0.13	0	0	0.167	0.512	0.044	0.73	0.001
Tanzania	0.26	0	0	0.067	0.890	0.282	0.325	0.112
Togo	0.12	0	0	0.089	0.728	0.293	0.17	0.061
Trinidad and Tobago	0.90	40	40	0.122	0.231	0.358	0.065	0.132
Tunisia	0.20	0	0	0.378	0.070	0.001	0.994	0
United States	1	83.6	83.6	0.422	0.209	0.3	0.008	0.436
Uganda	0.25	0	0	0.011	0.836	0.496	0.066	0.019
Uruguay	0.72	92	90	0.367	0.067	0.595	0	0.019
Venezuela	0.83	49	20	0.089	0.053	0.948	0	0.01
Vietnam	0.01	0	0	0.178	0.118	0.039	0.01	0.002
Zaire (Democratic Republic of Congo)	0.08	0	0	0.000	0.872	0.484	0.014	0.29

Table A2
Data sources

<i>Series</i>	<i>Source</i>
Freedom House Political Rights index	Freedom House, Freedom in the World www.freedomhouse.org
Polity IV composite Polity index	Polity IV Project http://www.systemicpeace.org/polity/polity4.htm
European descendants as a % of total population	Acemoglu et al. (2001), McEvedy and Jones (1975), CIA (2009)
Real GDP per capita	Maddison (2009)
Percentage of the population of Catholic, Muslim and Protestant religion	La Porta et al. (1999)
Ethnolinguistic fractionalization	La Porta et al. (1999)
Latitude	La Porta et al. (1999)
Log of European settler mortality	Acemoglu et al. (2001)
Mean temperature	Acemoglu et al. (2001)
Malaria index	Acemoglu et al. (2001)
Population density in 1500	Acemoglu et al. (2002)