The Causes of Civil War

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Abstract

We analyze the effect of institutions on civil war, controlling for income per capita. In our set up, institutions are endogenous and we approach this empirical investigation by means of two strategies. First, we use the sample of former colonies and the instruments used most commonly in the literature. Secondly, we use slave trade as an instrument for institutions for the Sub-Saharan African sample. Our results indicate that institutions and state capacity, proxied by the protection of property rights, rule of law and the efficiency of the legal system, are a fundamental cause of civil war. In particular, an improvement in institutions from the median value in the sample to the 75th percentile is associated with a 36 percentage point reduction in the incidence of civil war. Moreover, once institutions are included as explanatory variables of civil war, income has no statistical effect, either directly or indirectly.

1. Introduction

What causes civil war? To date, differences in income have received the most attention as being the answer. The idea that poverty increases the risk of conflict is stated in the United Nations Millennium Development Goals: "Poor and hungry societies are much more likely than high-income societies to fall into conflict over scarce vital resources, such as watering holes and arable land. Poverty increases the risks of conflict through multiple paths."[2] Two main studies provide some empirical support to this claim. Collier and Hoeffler (2004) find that income variables, which could proxy some grievances but are perhaps more related to the viability of rebellion, have considerable explanatory power. Fearon and Laitin (2003) also find that lower income per capita increases the likelihood of civil war. They argue that income per capita is a proxy for the "state's overall financial, administrative, police and military capabilities."

However, these two studies do not address the problem of endogeneity between income and conflict. Miguel et al. (2004) is the first study that addresses such endogeneity problem. In a study of 41 African countries using rainfall as an instrument for economic growth, they find that economic stagnation is related to civil conflict, i.e., civil war is related to changes in income, not level of income. More recently, Djankov and Reynal-Querol (2010) have casted some doubts as to the relationship between income and conflict. They find that the relationship between poverty and civil war is spurious, and is accounted for by historical phenomena that jointly determine income and conflict. In particular, the statistical association between poverty and civil war disappears once you include country-fixed effects. Also, using cross-sectional data for 1960-2000, they find that once historical variables such as European settler mortality rates and population density in 1500 are included in civil war regressions, poverty does not have a statistically significant effect on civil wars. These results are confirmed using longer time series from 1825 to 2000.

One potential channel through which historical variables might affect the probability of contemporaneous civil war is through their effect on the development of the quality of institutions and state capacity. This is what we test in this paper. Although economic and legal institutions have become a central topic in the literature of economic development, they have received little attention

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[2] United Nations (2005), p. 6.

in the empirical literature of conflict[3]. Recently Besley and Persson (2008, 2010) have provided a theoretical model on the relationship between State Capacity and Conflict.

In this paper we investigate whether the quality of economic institutions, or measures that capture state capacity, has played a role in sustaining peace. In particular, we test the hypothesis that when governments cannot enforce the law and protect property rights, conflict emerges. The idea that strong institutions prevent conflict derives from the theoretical literature of conflict: Haavelmo (1954), Grossman (1994, 1996), Skaperdas (1992, 1996), Garfinkel (1990), Hirshleifer (1995), among others.

Hence, this paper is also related to the extensive empirical literature that investigates the role of institutions in development. Mauro (1995), Knack and Keefer (1995), Hall and Jones (1999), Acemoglu et al. (2001, 2002), Easterly and Levine (2003), Djankov et al. (2002; 2003), Alcala and Ciccone (2004), Dollar and Kraay (2003) and Rodrik (2004), among others, show a positive relationship between institutions and various proxies for development.
Our empirical approach is closely related to this literature. The common idea in the literature is that there are some historical roots that are based on the European influence during colonization that explain institutional development, and that have nothing to do with contemporaneous factors, in our case civil wars.

We approach this empirical investigation by means of two strategies. First of all, we follow the work of Acemoglu, Johnson and Robinson (2001), who propose a theory of institutional differences between countries colonized by Europeans, based on the role of settler mortality in shaping local institutions. We also study institutional differences between different colonizers. Aware of the limitations of such instruments (see Albouy (2008)), we propose a new instrument for institutions. Secondly we use the measure of slave trade constructed by Nunn (2008) as an instrument for institutions for sub-Saharan African countries. Nunn (2008), based on Inikori

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[3] There is a broader literature that studies the relationship between political institutions and civil war. Sambanis (2001), Hegre et al. (2001), and Reynal-Querol (2002a,b) find that partial democracies are more prone to civil wars than full democracies and autocracies. Reynal-Querol (2005) tests whether the type of democracy, rather than democracy *per se,* can explain why some countries have civil war and others do not. She finds a negative relationship between the inclusiveness of political institutions and the incidence of civil wars. The rationale is that political inclusiveness increases the opportunity cost of rebellion. The results concerning the relationship between democracy and civil wars parallel the literature on the relationship between democracy and growth. Barro (1997) and Glaeser et al. (2004) find weak effects of political institutions on growth. Persson (2004) shows that the form of democracy, rather than democracy *per se*, has important consequences for the adoption of structural policies that promote growth.

(2003), claims that slave trade breaks down the law and order of those countries where slavery took place, and this was partially responsible for the weakening and eventual fall of powerful states in the past. (pag 143). Therefore, slave trade could affect conflict by weakening countries' law and order. We also show that slave trade only affects contemporaneous civil war by weakening countries' law and order system.

The results indicate that the lack of secure property rights and law enforcement is a fundamental cause of civil war. In particular, an improvement in institutions from the median value in the sample to the 75th percentile is associated with a 36 percentage point reduction in the incidence of civil wars. Moreover, once institutions are included in the regression analysis, income has no direct effect on civil war. This suggests that the direct effect of per capita income found in previous literature may have simply captured the effect of institutions. In this respect, these results support the argument explained by Fearon and Laitin (2003). Finally, we find that per capita income has no indirect effect on civil war through worsening institutions once we include historical factors as instrument for institutions. This result is in line with the recent findings in Acemoglu et al. (2006), who test the relationship between income and democracy. They show that controlling for factors that simultaneously affect both variables removes the statistical association between income per capita and various measures of democracy. Our findings indicate that if we wish to understand the causes of civil war, research should move towards the analysis of institutions instead of concentrating on economic development.

Section 2 describes the data. Section 3 details the empirical strategy. Section 4 develops an instrumental variables approach to studying the causes of civil wars. Sections 5 and 6 provide robustness tests. Section 7 concludes.

2. Data

Data on civil wars comes from the Armed Conflict Dataset, a joint project between the Department of Peace and Conflict Studies, Uppsala University and the Center for the Study of Civil War at the International Peace Research Institute, Oslo. An armed conflict is defined as a contested incompatibility that concerns government and/or territory where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths. We use conflict types 3 and 4, which correspond to civil wars.

Since we do not observe the exact characteristics of institutions that are related with conflict, we need to identify the institutional variables that best capture the lack of contract enforcement and insecurity property rights. We start the analysis by using the average protection against expropriation risk. This variable captures the risk of expropriation of private foreign investment by government, and goes from 0 to 10, where a higher score means less risk. This index is the average between 1985 and 1995. This variable, which comes from Acemoglu et al. (2001), was originally used by Knack and Keefer (1995). Table 1 lists the ranking of the fifteen countries with the lowest and the highest protection against expropriation risk. The civil war variable indicates whether the country suffered any civil war during the period 1960-2005. All of the fifteen countries with the lowest scores suffered a civil war, while only seven of the fifteen countries with the strongest protection suffered a civil war.

Our second proxy for the quality of institutions is a measure of law and order, which could also be considered a proxy for state capacity. It measures the strength and impartiality of the legal system, and popular observance of the law. The source for this variable is the International Country Risk Guide (ICRG). The law and order variable can take values from 0 to 6. Higher numbers indicate a stronger legal system.[4] Table 2 lists the ranking of the fifteen countries with the weakest law and order system, and the fifteen countries with the strongest legal system. The law and order index is the average of the law and order indicator from 1984 to 1999. All of the fifteen countries with the lowest scores suffered a civil war, while only four of the fifteen countries with the strongest legal system suffered a civil war.

The rankings here are simply descriptive since they are subject to the endogeneity of institutions. However, they provide some evidence of the correlation between economic institutions and the likelihood of conflict.

3. Empirical strategy

We have a sample of 211 countries among which 113 are former colonies. Between 1960 and 2005, 94 countries suffered a civil war, of which 72 are former colonies. Moreover, only 22 of the 96 non-former colonies suffered a civil war. Our specification is a cross-section of countries. There are several advantages that favor the use of a cross-section in this type of analysis.

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[4] Other variables from the ICRG are the quality of bureaucracy and corruption. The results are robust to the use of these variables.

First of all, researchers have used three alternative measures in the study of the causes of civil wars: the onset of civil wars, their incidence and their duration. These analyses are complementary[5] but deal with different sides of the civil war phenomenon. In principle, some factors that may affect the onset of a civil war may have no impact on its duration. In a cross-sectional analysis, incidence and onset are the same. The dependent variable is a dummy that has a value of 1 if the country suffered a civil war during the period 1960-2005, and zero otherwise. Finally, we use per capita income in 1960 to reduce the problem of endogeneity between per capita income and civil war.

The explanatory variables follow the basic specifications in the literature on civil war. The size of the population is one common suspect in the explanation of conflict. Collier and Hoeffler (2004) consider that the size of the population is an additional proxy for the benefits of a rebellion since it measures potential labor income taxation. Fearon and Laitin (2003) indicate that a large population implies difficulties in controlling what goes on at local level and increases the number of potential rebels that can be recruited by the insurgents.

The explanatory variables for the core specification of the probability of civil wars include the log of real GDP per capita in 1960 (lgdp60) and the log of the population in 1960 (lpop60). We calculate the mean of the institutional variable for the period for which data is available. In the case of the ICRG, this period is 1984-1999, and for the protection against expropriation risk we have the average for the 1985-1995 period. We first show some preliminary results using OLS specification and also Probit specification, and then we analyze the relationship between institutions and civil war addressing the problem of endogeneity between institutions and conflict using the IV-2SLS approach.

We first present the estimation of an OLS model for civil wars, using a sample of 211 countries. We estimate the following equation:

$$conflict_{i60-05} = \alpha + \beta_1 \lg dp_{i60} + \beta_2 lpop_{i60} + \beta_3 av\_inst_i + \varepsilon_i ,$$

where *conflict* is a dummy variable that has a value of 1 if the country had a civil war during the period 1960-2005 and zero otherwise, α is a constant, *lgdp* is the log of real per capita income in 1960, *lpop* is the log of the population of the country in 1960, *av_inst* is the average of the institutional measure between 1985 and 1995 for the protection against expropriation risk, between 1984 and 1999 for the ICRG law and order measure. We would like to have information on the

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[5] See Montalvo and Reynal-Querol (2010).

quality of institutions before 1960, but data are not available for that period. Since we have the initial value of law and order for 1984, in the robustness section we show that results are robust to the use of the initial value in 1984 for all control variables, and civil war between 1985 and 2005 for the dependent variable. We will also address the endogeneity issue in the next section.

In column 1 of Table 3, we analyze the effect of the two core variables, population and per capita income on civil war, and find that poor countries and highly populated countries have a higher risk of conflict. In column 2, we include our first proxy for economic institutions, the protection against the risk of expropriation. The results show that countries with high protection against expropriation risk have a lower probability of civil war than countries with low protection. When we include the core variables in civil war regression, in column 3, this result is maintained, and per capita income loses its effect. In columns 4 and 5, we include the law and order institutional variable. The results indicate that countries with a weak legal system have a higher probability of civil war than countries with efficient courts. In column 5, we include per capita income, population and law and order. We find that per capita income is no longer significant, whereas law and order is still significant. Columns 6 and 7 show that results also hold if we use a probit specification.

We next check whether the results are maintained when we control for the inclusion of other variables that have been used in different studies of civil wars. Collier and Hoeffler (2004) point out that the existence of natural resources provides an opportunity for rebellion since these resources can be used to finance war and increase the payoff if victory is achieved. We include variables that capture the percentage of world gold, iron, silver, zinc and oil reserves. Following Fearon and Laitin (2003), mountains are another dimension of opportunity since this terrain could provide a safe haven for rebels. Additionally, long distances from the center of the state's power also favor the incidence of civil wars, especially if there is a natural frontier between them, such as a sea or other countries. Montalvo and Reynal-Querol (2005a, b) show that ethnic polarization explains the likelihood of conflicts and civil wars. Finally, many authors control for the level of democracy.

We include all of these variables together with our core variables in Table 4, columns 1 through 3. In columns 4 to 9, we perform the same exercise but include our institutional variable. As before, the results indicate that once the institutional variable is included, per capita income

loses its significant effect on civil wars, while the lack of economic institutions keeps its negative and significant effect.

In table 5 we perform the same analysis as table 3 but using the sample of 113 former colonies. The results are similar to those obtained using the whole sample. In particular, if we go from the median of the explanatory variable to the 75th percentile, the probability of suffering a civil war is reduced by 20 percentage points. In all of the specifications, economic institutions have the expected effect and sign, and per capita income becomes insignificant when included together with economic institutions.

Overall, these results suggest that institutions could matter in explaining conflict, and that they seem to matter more than poverty *per se*. These results are in line with Djankov and Reynal-Querol (2010) who find that the relationship between poverty and civil war is spurious. In particular, using cross-sectional data for 1960-2000, they find that once historical variables such as European settler mortality rates and population density in 1500 are included in civil war regressions, poverty does not have an effect on civil wars. We believe that one potential channel through which historical variables might affect the probability of contemporaneous civil war is through their effect on the development of the quality of institutions and state capacity.

Given that the simple OLS estimation is problematic due to the possibility of reverse causality between economic institutions and civil wars, in the next section we perform the same analysis while considering economic institutions as endogenous.

4. An Instrumental variable approach

One way of looking at the problem of endogeneity is to run an instrumental variable estimation for civil wars disregarding the fact that this is a 0-1 variable that is an IV-2SLS. Angrist (1991) shows, using a Monte Carlo experiment, that if we ignore the fact that the dependent variable is dichotomous and use the instrumental variables approach, the estimates are very close to the average treatment effect obtained using a bivariate probit model. Therefore this approach has sound theoretical support. Moreover, following Angrist and Krueger (2001), the IV-2SLS method is typically preferred even in cases in which the dependent variable is dichotomous.

When using an instrumental variable approach, we need to find an instrument for economic institutions: variables correlated with institutions and uncorrelated with the residual of the regression for civil wars. The work of Acemoglu, Johnson and Robinson (2001), emphasizes the

role of European settler mortality rates to estimate the effect of economic institutions on development. In places where Europeans faced high mortality rates, they could not settle and were more likely to set up extractive institutions. These institutions persist at present. Given the problems with this instrument, as explained in Albouy (2008), we also consider european settlement in 1900 and differences between colonies from the great imperial powers (British, French, Spanish and Portuguese colonies). Col_br is a dummy that has a value of 1 if the country is a former British colony and zero otherwise. Col_fr is a dummy variable has a value of 1 if the country is a former colony of France, and zero otherwise. Col_sp is a dummy variable that has a value of 1 if the country is a former colony of Spain, and zero otherwise. The Col_port is a dummy variable that has a value of 1 if the country was a former colony of Portugal, and zero otherwise. Col_oth is a dummy variable that has a value of 1 if the country is a former colony of other colonial powers, and zero otherwise. Other studies emphasize the role of the legal transplantation to explain institutional development as in La Porta et al. (1999), Djankov et al. (2002) and Botero et al. (2004), among others, who find significant differences between common law and civil law countries[6]. They conclude that having a tradition of common law or civil law is a significant determinant of economic institutions today. We also check the robustness of the results to the use of the legal origin instrument.

We analyze the effect of institutions on civil war, using the log of European settler mortality, European settlement in 1900, and colonial origin dummies. The exclusion restriction implied by our instrumental variable regression is that, conditional upon the controls included in the regression, settler mortality and colonial origin have no effect on civil wars other than their effect through institutions.

$$conflict_{i60-05} = \alpha + \beta_1 \lg dp_{i60} + \beta_2 lpop_{i60} + \beta_3 av\_inst_i + \varepsilon_i$$
$$av\_inst_i = \delta_1 col\_orig_i + \delta_2 \ln mortal_i + \omega_i$$

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[6] They argue that as "European powers conquered much of the world, they brought with them their institutions, including their laws. During his wars, Napoleon exported the French legal system to Spain, Portugal and Holland. Through colonial conquest, it was transplanted to Latin America, to large parts of Europe and North and West Africa, and part to the Caribbean and Asia. The common law tradition was transplanted by England to the US, Canada, Australia, New Zealand, East Africa, to large parts of Asia, including India, and to parts of the Caribbean".

In Table 6 we analyze the effect of the average protection against expropriation risk on the probability of civil wars using the IV-2SLS specification. The first eight columns do not include per capita income and population. In the first column we use the log of European settler mortality as an instrument for institutions. The first stage results suggest that countries where Europeans encountered large settler mortality rates have lower protection against expropriation risk than countries where Europeans encountered a healthier environment. Results of civil war regression indicate that the higher the protection against expropriation risk, the lower the probability of civil war. In order to obtain more observations, we include the percentage of European population or of European descendents in 1900, instead of European settler mortality, as an alternative instrument. Results are shown in columns 2 and 3. In column 2, analysis is restricted to the sample for which we have mortality data to show that results when using European settlement in 1900 are similar to when using settler mortality data, and in column 3, we do not restrict the sample. As expected, European settlement in 1900 exhibits a positive and significant effect in explaining the protection against expropriation risk.

In column 4, we include the dummies of colonial origin as an instrument for economic institutions. The first stage results indicate that countries of French colonial origin have lower protection against expropriation risk than countries of British colonial origin. In column 6, we include both instruments together. The F test for excluded instruments indicates that the instruments do not seem to be weak (p>0.0016). In columns 7 and 8, we substitute the settler mortality variable with European settlement in 1900 in order to obtain more observations. Now, not only French, but also Spanish colonial origin explains bad institutions. In column 7, analysis is restricted to the sample for which we have mortality. In column 8, we use all observations. The first stage relationship between institutions, colonial origin and European settlement in 1900 is stronger, and the F test for excluded instruments is larger than when using mortality data (p>0.000). In all specifications, the results of civil war regression show the negative and significant effect of protection against expropriation risk on the probability of civil wars.

In columns 9 to 11, we perform the same analysis but include per capita income and population. The results show that protection against expropriation risk affects the probability of civil war negatively and significantly. Improving the institutional framework of a country from the value of the median to the 75th percentile, the probability of civil war is reduced by 36 percentage points. When we include the institutional variable in the regression, per capita income becomes

insignificant in all specifications. First stage results show that Spanish colonial origin matters in explaining institutional development. In this specification, the log of European settler mortality is not significant. In columns 10 and 11, we substitute the log of European settler mortality with the percentage of Europeans or European descent in 1900. In this case, settlement is not significant when we restrict the analysis to the sample for which there are mortality data (column 10). However in column 11, when we use all available data, European settlement in 1900 has a significant and positive effect in explaining institutional development.

Notice that while per capita income has no direct effect on civil wars, it has an indirect effect through worsening institutions, when we use the reduced sample in columns 9 and 10. However, once we include European settlement in 1900 with all available data (column 11), per capita income has no effect on institutions. This result is in line with the recent findings in Acemoglu et al. (2006), in which they test the relationship between income and democracy. They show that controlling for factors that simultaneously affect both variables removes the statistical association between income per capita and various measures of democracy.

In Table 7, we perform the same analysis as in table 6, but using the ICRG law and order index. When using the ICRG variable, the results are similar to those in table 6 where we use the protection against expropriation risk. The stronger the legal system, the lower the probability of civil war. Moreover, in all specifications, per capita income does not exhibit any effect on civil war. The first stage results are also in line with the results in table 6. Spanish colonial origin and European settlement in 1900 exhibits a significant effect on the law and order variable. Once European settlement in 1900 is included as an instrument, per capita income does not exhibit any indirect effect.

4.1 Over-identification tests

In this section, we investigate the validity of our exclusion restriction condition. The Sargan test for over-identification cannot reject the null hypothesis that the instruments satisfy orthogonality conditions (p=0.5537). Another issue of importance is to consider European settlement in 1900 and colonial origin as included instruments, and therefore incorporate them into the civil war regression, and analyze whether they have any direct effect on civil wars. We approach this problem via two different strategies. In the first, we add no new instrument. Therefore, to analyze the direct effect of colonial origins on civil wars, we assume that European settlement in 1900 is

exogenous and therefore satisfies the orthogonality condition, and to analyze the direct effect of European Settlement in 1900 on civil wars, we assume that colonial origin satisfies the orthogonality condition. Results are shown in columns 1 and 2, and 4 and 5 of Table 8. In columns 1 and 2, we use the protection against expropriation risk as our institutional variable, and in columns 4 and 5, we use the law and order. In columns 1 and 4, we check the validity of the colonial origin instrument, and in columns 2 and 5, the validity of European settlement in 1900. The results indicate that colonial origin and European settlement in 1900 have no significant direct effect on civil war. In column 4, the French colonial dummy appears significant in the second stage. However, this should not concern us since the dummy that matters in the first stage is Spanish colonial origin.

Our second approach uses additional variables as instruments. The excluded instruments we use are a set of dummy variables that describe the quality of the soil, and are dummies for steppe (low latitude), desert (low latitude), steppe (middle latitude), desert (middle latitude), dry steppe wasteland, desert dry winter, and highland. Results are shown in columns 3 and 6 of table 8. The results indicate that colonial origin and European settlement in 1900 have no direct effect on civil war, and they only affect conflict through their effect on institutions.

4.2 New Instrument for Sub-Saharan African sample: Slave Trade

Although from a purely statistical viewpoint the instruments seem to be appropriate, European settlement in 1900 and colonial origin may be subject to criticism. However, it is difficult to find good instruments for institutions for this large sample of countries. Inspired by the work of Nunn (2008), we use slave trade as an instrument for institutions for the sample of Sub-Saharan African countries.

Nunn (2008) performs the first empirical examination of the importance of Africa's salve trades in shaping economic development. He also explores the channel through which the slave trade affects economic development. Nunn (2008) argues that "*Africa's slave trade was also unique because, unlike previous slave trades, individuals of the same or similar ethnicities enslaved one another. This had particularly detrimental consequences, including social and ethnic fragmentation, political instability and a weakening of states, and the corruption of the judicial institutions*". (page 142)

Nunn (2008) explains, citing Inikori (2003), that the slave trade breaks down law and order, and this was partially responsible for the weakening and eventual fall of the once powerful state. (page 143). Therefore, the slave trade could affect conflict by weakening countries' law and order. The variable, constructed by Nunn (2008) is the natural log of the total number of slaves exported between 1400 and 1900 normalized by population or by area[7].

Table 9 analyzes the effect of institutions on civil war using slave trade as instrument, and law and order as a proxy of institutional quality. Following the arguments presented above, the ideal institutional variable for this exercise is law and order[8]. In column 1, we use slave trade as an instrument for law and order. The first stage result suggests that countries that suffer most slave trade have a weaker law and order system. This result is in line with the story explained by Nunn (2008) and other authors on the effects of slave trade on the African countries. Moreover, the results of civil war regression indicate that the stronger the law and order system, the lower the probability of civil war. In columns 2 and 3, we perform the same analysis but include the traditional instruments for institutions (colonial origin and European settlement in 1900) to check whether the effect of slave trade could have already been captured by these other colonial variables. The results corroborate that salve trade significantly affects law and order institutions. The second stage results are maintained.

Nunn (2008) shows a negative relationship between slave exports and a measure of pre-colonial state development constructed by Gennaioli and Rainer (2006). It could be that the relationship between slave trade and contemporaneous institutional quality is simply capturing the fact that countries with slave trade had a less developed pre-colonial state. To test for this hypothesis we include state development as an instrument in columns 4, 5 and 6. The results indicate that the effect of salve trade is maintained. Moreover, pre-colonial state development has no effect on the strength of the legal system.

In order for slave trade to be a good instrument for law and order, it should not affect conflict trough other channels other than institutions. We argue that slave trade only affects contemporaneous civil war by weakening countries' law and order system. Nunn (2008) explains that the channels through which slave trade affect economic development today were by increasing ethnic fractionalization, and also, another consequence of slave trade was the weakening and

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[7] The results are qualitatively the same if we use the natural log of the total number of slaves exported between 1400 and 1900 normalized by land area.

[8] Slave trade, while highly correlated with law and order, has a low correlation with the risk of expropriation variable.

underdevelopment of states. Regarding the first channel, since ethnic fractionalization has no effect on civil war[9], slave trade cannot affect conflict through increasing ethnic fractionalization. If we include ethnic fractionalization in this regression, (column 7), it is insignificant, which corroborates the findings of the civil war literature. Regarding the second channel, our law and order variable captures precisely the institutional channel described by Nunn (2008).

In a recent paper, Nunn and Wantchekon (2008) argue that slave trade affects the level of today's mistrust within Africa. They provide evidence that shows that the effect of slave trade works primarily through vertically transmitted factors that are internal to the individual, such as cultural norms and behavior. They also argue that there is a second channel which is as plausible as important. That is that "slave trade resulted in long-term deterioration of legal and political institutions, and these weak institutions enable citizens to more easily cheat others and, for this reason, individuals are less trusting of those around them" (page 3). While the second channel will not violate the exclusion restriction, the first channel may cast some doubts. In order to check whether slave trade has other direct effects on civil wars, apart from the indirect institutional one, column 8 shows that in an OLS specification with institutions included in the control variable, slave trade has no direct effect on civil war. This provides support for the idea that slave trade satisfies the exclusion restriction condition.

Although we believe that the analysis using slave trade could provide more suggestive evidence on the relationship between institutions and conflict, it has the disadvantage that we work only with 35 countries. For this reason, we do the robust analysis using the whole sample of former colonies.

5. Robust analysis

We now assess the robustness of these results to a variety of alternative specifications: to the use of additional instruments; to regional samples; to the use of different thresholds in the definition of a civil war, and different definitions of civil war; to the use of the 1985-2005 sample, and finally to the use of other institutional variables.

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[9] The literature on civil war does not find any effect of ethnic fractionalization on conflict. Montalvo and Reynal-Querol (2005) shows that it is ethnic polarization that matters for conflict rather than ethnic fractionalization.

5.1 Robustness to the use of additional instruments

In Table 10, we test the robustness of our results to the inclusion of some additional instruments. We run four different specifications for each of the two institutional variables. From columns 1 to 4, we use protection against expropriation risk, and from columns 5 to 8, we use law and order. In the first specification, we include the absolute value of the latitude of the country. This variable measures the distance from the equator and is scaled to take values between 0 and 1, where 0 is the equator. Although it is not clear why latitude should have any effect on institutions, many authors such as La Porta et al. (1999) have used it as a determinant of institutional development. In the second specification, we include time since independence, which is constructed by subtracting the year of independence from 1995. The idea is that the longer the period of independence, the greater the probability that institutions will be stronger and more stable. In the third specification we include a variable that captures the health environment in 1900. We choose yellow fever. This is a dummy that equals 1 if there are yellow fever epidemics before 1900 and 0 otherwise. Finally, in the fourth specification, we include some variables that capture the quality of the soil. As before, in all four specifications, second stage results show the negative and significant effect of institutions on civil wars, and the lack of significance of per capita income. Moreover, first stage results indicate that colonial origin and European settlement in 1900 keep their expected significant effect and sign, while they reinforce the idea that once historical variables are controlled for, per capita income does not exhibit any indirect effect through institutions.

5.2 Robustness to regional samples.

In Table 11 we check the robustness of our results using different samples. For columns 1 to 2 we use the protection against expropriation risk as the institutional variable, and for columns 3 to 4 we use the law and order variable. For each of the institutional variables we run two specifications. In the first case, we drop the former colonies that have been identified as Neo-Europes, which are Australia, Canada, United States and New Zealand. Columns 1 and 3 show that the results of the effect of institutions on civil wars are not driven by the inclusion of the Neo-Europes in the sample. In the second specification, columns 2 and 4, we show that our results are robust to the elimination of African countries from the sample of former colonies. In all specifications, the institutional variable exhibits the expected effect and sign in the civil war regression, while per capita income

does not exhibit any significant effect. Moreover, first stage results show that colonial origin and European settlement in 1900 exhibit their expected effect and sign.

5.3 Robustness to the use of different definitions of civil war

We want to check whether the results are robust to the use of different thresholds for civil war. In particular, the Armed Conflict Dataset also provides information on armed conflict that results in at least 1000 battle-related deaths throughout the duration of all conflict, and also information on conflict that results in at least 1000 battle-related deaths per year. Columns 1 to 4 of table 12 show that the results are robust to the use of these different thresholds for the definition of civil war. Perhaps what also matters it is not whether a country suffered a civil war or not, but the number of years during this period that the country was under civil war (or the percentage of time during the period that the country had civil war). Columns 5 to 8 show that results are robust to the use of the percentage of time that the country had been under civil war, using different thresholds for the definition of civil war.

5.4 Robustness to the use of the 1985-2005 sample

It could also be the case that institutions, measured in the 80s, are affected by past civil war. Although the IV strategy tries precisely to solve this problem, we wish to show that results are robust if we use different timing for the dependent variable, and if we include previous civil war in the regression. Since we could only have access to the law and order variable for 1984, we perform this analysis by using the law and order data. We estimate the following equation:

$$conflict_{i85-05} = \alpha + \beta_1 \lg dp_{i84} + \beta_2 lpop_{i84} + \beta_3 inst_{84} + \varepsilon_i$$

where $conflict_{i85-05}$ is a dummy variable that has a value of 1 if the country had a civil war during the period 1985-2005 and zero otherwise, α is a constant, *lgdp* is the log of real per capita income in 1984, *lpop* is the log of the population of the country in 1984, *inst* is the value of the ICRG law and order measured in 1984.

Columns 1 and 2 of Table 13 use all sample of countries and the results are maintained, either using OLS (column 1) or probit specification (column 2). In columns 3, 4 and 5, we use the sample of former colonies, and we analyze the effect of institutions in 1984 on civil war between 1985 and 2005 using OLS, probit and 2SLS estimations. In all three cases, the results of institutions are maintained. Since it could be argued that law and order is the result of previous conflict, we

check whether results are robust to the inclusion in the regression of a dummy that has value 1 if the country had been in civil war during the period 1946 and 1984. The results in columns 6 to 8 indicate that the effect of law and order is maintained, and that conflict in a previous period has no direct effect on conflict between 1985 and 2005.

5.5 Robustness to the use of other institutional variables: Contracting Institutions and Civil War

Finally we check the validity of our results using a variable that captures the efficiency of the legal system. Our purpose is to show that even government efficiency in solving disputes between private agents affects conflict. The methodology of these data is described in Djankov et al. (2003). Table 14 lists the ranking of countries with the lowest and the highest index of efficiency of the judicial (or administrative) system in the collection of overdue debt. The index has been standardized between 0 and 100. Column 1 indicates the number of procedures mandated by law or court regulation that demand interaction between the parties, or between them and the judge (or administrator) or court officer, which are recorded. Twelve of the fifteen less efficient countries had a civil war during the 1960-2005 period. On the other hand, only five of the fifteen countries with the most efficient legal system suffered conflict.

In table 15, we perform the basic analysis using the efficiency of the legal system as the institutional variable. In the first four columns we perform the analysis done in tables 4 and 5, and from columns 4 to 8 we perform the IV analysis using the main specifications of tables 3, 5 and 6. In columns 1 and 2, we use the whole sample of countries, and in columns 3 and 4, we use the sample of former colonies. The index has been standardized between 0 and 1. The results indicate that the less efficient the legal system, the higher the probability of conflict. Once we include this index together with the core variables, we find that per capita income, together with population and regulation have a significant effect on conflict. The only result which is different from the results when using the protection against expropriation risks and law and order, is that per capita income is significant when included together with the variable that captures contracting institutions, although this result is not robust once we take into account the reverse causality between economic institutions and civil wars (columns 5 to 8). When using the efficiency of the legal system as our institutional variable, we use the legal origin instead of the colonial origin following Djankov et al. (2003), who find strong effects of legal origin on the efficiency of the legal system. Results are

robust to the use of colonial origin. The first stage shows that while the legal origin is a strong instrument for contracting institutions, the log of European settler mortality is not significant when we include per capita income in the civil war regression.

6. The endogeneity of income.

We check whether our results are robust if we consider per capita income in 1960 as an endogenous variable (table 16). In models with two endogenous variables, instruments can be weak. Stock and Yogo (2003) provide a framework that allows testing the hypothesis of weak instruments in models with more than one endogenous variable. Although we are aware of these tests, we approach this issue in a more intuitive, although probably less rigorous way: First of all, we identify an instrument which affects per capita income but does not affect institutions. At the same time, we need to find an instrument that explains institutions but not per capita income, which is a difficult task. Fortunately we find that while legal origin is a strong predictor of the quality of institutions, it does not predict per capita income besides its effect on institutions. Moreover, Landlocked is a strong predictor of per capita income but not of institutions. These two instruments are practically uncorrelated. The correlation between Landlocked and legal origin is 0.01, and the correlation between Landlocked and common law is –0.04.

Before considering institutions and per capita income as endogenous variables together, we first analyze the results considering only per capita income as an endogenous variable. One might think that the results in previous sections may be biased because, while we address the problem of endogeneity between institutions and civil war, we do not address the problem of endogeneity between per capita income and civil war. Because of this, in the first two columns we consider only per capita income as an endogenous variable. In column 1, we do not include institutions. The instruments for per capita income are Landlocked and European settlement in 1900. There is a strong relationship between Landlocked, European settlement in 1900 and per capita income. Moreover the instruments are strong. The F of excluded instruments is above the usual threshold. Second stage results indicate that per capita income has a negative and significant effect on civil war, in line with the results we obtained in column 1 of table 4. In columns 2 and 4, we include institutions as an exogenous variable, and per capita income as an endogenous variable. In column 2, we use the protection against expropriation risk, and in column 4, we use law and order. While first stage results are similar to the results in column 1, second stage results are not. Once

institutions are included, per capita income has no effect on civil wars, while institutions negatively and significantly affect civil wars. In columns 3 and 5, we consider institutions and per capita income as endogenous variables. In column 3, we use the protection against expropriation risk and in column 5, we use law and order. The instruments for institutions are legal origin and European settlement in 1900. The instruments for per capita income are European settlement in 1900 and Landlocked. Although European settlement affects both endogenous variables, we assume that Landlocked only affects per capita income, and legal origin only affects institutions.

First stage results indicate that while European settlement is a good predictor for per capita income and for institutions, legal origin is a good instrument only for institutions, and Landlocked is a good instrument only for per capita income. The results of the civil war regression corroborate that per capita income does not affect civil war in the presence of institutions, while economic institutions have a negative and significant effect on civil wars.

7. Conclusions

In this paper, we analyze the effect of institutions on civil wars. The main innovation is to consider the role of the quality of economic institutions in explaining civil war, and to address the problem of endogeneity between institutions and conflict. We use a broad measure of the quality and efficiency of institutions as our basic variable and we address the potential endogeneity between institutions and conflict, using two approaches. First, we use the sample of former colonies and the instruments used most commonly in the literature. Secondly, we propose a new instrument for institutions inspired by the work of Nunn (2008). We use slave trade as an instrument for institutions for the Sub-Saharan African sample.

Using a cross-section of countries and data on civil war from 1960-2005, the results of the paper indicate that the quality of institutions is an important determinant of the likelihood of conflict. Moreover, once economic institutions are considered, per capita income has no significant direct or indirect effect in explaining civil wars.

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Table 1: Ranking of the fifteen former colonies with the lowest and the highest average protection of expropriation risk

Countryname	Avexpr	countryname	avexpr
Iraq	1.63	United States	10
Somalia	3	New Zealand	9.72
Congo, Dem. Rep.	3.5	Canada	9.72
Haiti	3.72	Singapore	9.31
Sudan	4	Auatralia	9.31
Mali	4	**Israel**	9.54
Burkina Faso	4.45	**Cyprus**	8.4
Uganda	4.45	**Gambia, The**	8.27
Madagascar	4.45	**India**	8.27
Guinea-Bissau	4.54	Hong Kong	8.13
Congo, Rep	4.68	Bahrain	8
El Salvador	5	**Malaysia**	7.95
Níger	5	Brazil	7.90
Guatemala	5.13	**Chile**	7.81
Bangladesh	5.13	**Gabon**	7.81

Table 2: Ranking of the fifteen former colonies with the lowest and the highest law and order index

Countryname	Laworder	countryname	laworder
Guinea-Bissau	1	Australia	6
Congo, Dem.Rep	1.06	United States	6
Colombia	1.43	New Zealand	6
Iraq	1.62	Canada	6
Haiti	1.62	Singapore	5.37
Bolivia	1.81	Hong Kong	4.93
Guatemala	1.81	Namibia	4.8
Sri Lanka	1.81	Botswana	4.73
Angola	1.87	Bahrain	4.62
El Salvador	1.87	**Saudi Arabia**	4.43
Bangladesh	1.87	**Chile**	4.37
Peru	1.87	Qatar	4.26
Sudan	2.	Malta	4.21
Somalia	2	**Malaysia**	4.18
Nigeria	2.06	Oman	4.12

Table 3: OLS and Probit analysis on the causes of civil wars. Sample of all-countries.

	PRIOCW	PRIOCW	PRIOCW	PRIOCW	PRIOCW	PRIOCW	PRIOCW
	OLS	OLS	OLS	OLS	OLS	Probit	Probit
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Lngdp60	-0.22		-0.01		0.02	0.15	0.16
	(-5.31)		(-0.30)		(0.46)	(0.65)	(0.72)
Lpop60	0.06		0.05		0.04	0.22	0.20
	(2.40)		(1.84)		(1.84)	(2.06)	(1.87)
Avexpr		-0.16	-0.16			-0.75	
		(-10.32)	(-6.65)			(-5.11)	
laword				-0.22	-0.25		-0.97
				(-12.38)	(-9,24)		(-5.88)
Constant	1.33	1.72	1.12	1.35	0.62	1.29	-0.41
	(2.62)	(15.43)	(0.56)	(17.80)	(1.21)	(0.61)	(-0.19)
N	128	121	110	140	110	110	110
R-squared	0.2073	0.3440	0.4066	0.3507	0.4728	0.3914	0.4284

Note: t-statistics and z-statistics in parentheses.

Table 4 : Robust analysis of the OLS and Probit regressions. Sample of all countries

	PRIOCW	PRIOCW	PRIOCW	PRIOCW	PRIOCW	PRIOCW	PRIOCW	PRIOCW	PRIOCW
	OLS	OLS	Probit	OLS	OLS	Probit	OLS	OLS	Probit
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Avexpr				-0.15	-0.13	-0.84			
				(-5.72)	(-4.35)	(-5.06)			
laworder							-0.23	-0.22	-1.07
							(-7.98)	(-5.74)	(-4.59)
Lngdp60	-0.23	-0.17	-0.68	-0.03	-0.03	0.03	0.01	0.03	0.15
	(-4.83)	(-2.36)	(-2.68)	(-0.51)	(-0.41)	(0.10)	(0.13)	(0.36)	(0.46)
Lpop60	0.06	0.02	0.15	0.05	0.02	0.27	0.05	0.02	0.27
	(2.17)	(0.45)	(0.99)	(1.82)	(0.61)	(1.36)	(1.96)	(0.55)	(1.15)
Natural resurces dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mount, ncontig, ethpol, democ		Yes	Yes		Yes	Yes		Yes	Yes
Constant	1.39	1.27	1.82	1.10	1.20	0.94	0.58	0.73	-2.00
	(2.38)	(1.38)	(0.57)	(1.72)	(1.32)	(0.24)	(0.96)	(0.77)	(-0.45)
N	124	98	96	109	92	90	109	91	89
R-squared	0.2704	0.3179	0.2825	0.4339	0.4709	0.4973	0.4990	0.5226	0.5144

Note: t-statistics and z-statistics in parentheses.

Table 5: OLS and Probit analysis on the causes of civil war using the sample of Former colonies

	PRIOCW	PRIOCW	PRIOCW	PRIOCW	PRIOCW	PRIOCW	PRIOCW
	OLS	OLS	OLS	OLS	OLS	Probit	Probit
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Lngdp60	-0.15		-0.03		0.001	0.04	0.05
	(-2.42)		(-0.45)		(0.02)	(0.18)	(0.24)
Lpop60	0.10		0.07		0.06	0.26	0.26
	(3.73)		(2.25)		(2.17)	(2.35)	(2.04)
Avexpr		-0.13	-0.12			-0.58	
		(-5.74	(-4.20)			(-3.45)	
laword				-0.22	-0.20		-0.76
				(-8.35)	(-5.54)		(-4.17)
Constant	0.17	1.57	0.67	1.39	0.40	0.40	-1.17
	(0.24)	(11.01)	(0.97)	(16.32)	(0.66)	(0.18)	(-0.48)
N	95	87	80	88	81	80	81
R-squared	0.2053	0.1947	0.2580	0.28	0.3248	0.2662	0.3036

Note: t-statistics and z-statistics in parentheses.

Table 6: IV-2SLS regressions on institutions and Civil wars.

	PRIOCW	PRIOCW	PRIOCW	PRIOCW	PRIOCW	PRIOCW	PRIOCW	PRIOCW	PRIOCW	PRIOCW	PRIOCW
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Avexpr	-0.27	-0.22	-0.20	-0.35	-0.28	-0.25	-0.22	-0.24	-0.34	-0.30	-0.36
	(-4.24)	(-5.95)	(-4.44)	(-2.79)	(-2.58)	(-4.40)	(-7.87)	(-7.51)	(-3.21)	(-2.78)	(-4.77)
Lngdp60									0.15	0.11	0.18
									(1.20)	(0.80)	(1.59)
Lpop60									0.08	0.07	0.07
									(1.88)	(1.46)	(1.75)
Constant	2.50	2.23	1.97	3.02	2.52	2.42	2.20	2.27	0.59	0.81	0.61
	(6.11)	(8.68)	(6.59)	(3.65)	(3.58)	(6.43)	(11.20)	(10.26)	(0.65)	(0.80)	(0.70)
N	67	66	86	87	87	67	66	86	66	65	79
		Sample of mortality					Sample of mortality			Sample of mortality	
First Stage	Avexpr	Avexpr	Avexpr	Avexpr	Avexpr	Avexpr	Avexpr	Avexpr	Avexpr	Avexpr	Avexpr
Lngdp60									1.00	0.85	0.43
									(4.50)	(2.82)	(1.56)
Lpop60									0.06	0.06	-0.02
									(0.67)	(0.63)	(-0.23)
Col_fr				-1.09		-0.56	-0.78	-0.79	-0.42	-0.58	-0.60
				(-2.58)		(-1.25)	(-2.02)	(-2.09)	(-1.05)	(-1.50)	(-1.46)
Col_sp				-0.56		-0.63	-1.10	-1.08	-0.95	-1.08	-1.01
				(-1.30)		(-1.57)	(-2.89)	(-2.73)	(-2.63)	(-2.91)	(-2.47)
Col_port				-0.56		-0.73	-1.10	-0.85	-0.50	-0.70	-0.67
				(-0.92)		(-0.94)	(-1.53)	(-1.60)	(-0.72)	(-0.99)	(-1.11)
Col_other				-1.05		-0.67	-0.59	-0.72	0.23	0.09	-0.03
				(-1.64)		(-1.07)	(-1.01)	(-1.26)	(0.39)	(0.16)	(-0.05)
Legor_fr					-0.94						
					(-3.02)						
LnACmortality	-0.59					-0.52			-0.19		
	(-4.70)					(-3.64)			(-1.30)		
Euro1900		0.031	0.03				0.03	0.03		0.01	0.02
		(5.19)	(4.88)				(5.13)	(5.09)		(1.27)	(2.87)
Constant	9.25	5.98	6.09	6.92	7.01	9.27	6.52	6.54	-0.51	-0.45	3.75
	(15.21)	(33.29)	(37.02)	(30.09)	(29.98)	(14.41)	(25.27)	(30.10)	(-0.19)	(-0.15)	(1.41)
R-squared	0.2538	0.2962	0.2209	0.0912	0.0967	0.0953	0.1648	0.0629	0.4773	0.768	0.3446

Note: t-statistics in parentheses.

Table 7. IV-2SLS regressions on institutions and Civil wars using data on law and order.

	PRIOCW	PRIOCW	PRIOCW	PRIOCW	PRIOCW	PRIOCW	PRIOCW	PRIOCW	PRIOCW	PRIOCW	PRIOCW
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Laword	-0.36	-0.26	-0.25	-0.41	-0.41	-0.29	-0.22	-0.27	-0.28	-0.21	-0.31
	(-5.11)	(-6.21)	(-3.99)	(-3.11)	(-2.85)	(-4.80)	(-7.43)	(-7.67)	(-2.77)	(-2.96)	(-5.05)
Lngdp60									0.01	-0.05	0.07
									(0.09)	(-0.54)	(0.98)
Lpop60									0.05	0.04	0.05
									(1.49)	(1.16)	(1.82)
Constant	1.88	1.57	1.48	1.99	1.97	1.66	1.46	1.55	0.81	1.17	0.34
	(8.93)	(11.45)	(7.20)	(4.86)	(4.45)	(8.92)	(13.47)	(13.06)	(1.05)	(1.61)	(0.51)
N	67	66	87	88	88	67	66	87	66	65	80
First Stage	Laword	Laword	Laword	laword	Laword	Laword	laword	Laword	Laword	Laword	Laword
Lngdp60									0.80	0.36	0.35
									(4.46)	(1.62)	(1.96)
Lpop60									-0.02	-0.05	-0.09
									(-0.22)	(-0.62)	(-1.38)
Col_fr				-0.64		-0.06	-0.15	-0.39	-0.01	-0.17	-0.26
				(-2.09)		(-0.17)	(-0.56)	(-1.49)	(-0.04)	(-0.57)	(-0.98)
Col_sp				-0.69		-0.58	-1.04	-1.13	-0.86	-1.03	-1.08
				(-2.19)		(-1.80)	(-3.62)	(-4.16)	(-2.95)	(-3.76)	(-4.07)
Col_port				-0.91		-1.02	-1.29	-1.16	-0.83	-1.14	-1.07
				(-2.08)		(-1.61)	(-2.48)	(-3.18)	(-1.49)	(-2.17)	(-2.73)
Col_other				-0.68		-0.33	-0.16	-0.39	0.48	0.21	0.16
				(-1.45)		(-0.65)	(-0.39)	(-1.01)	(0.99)	(0.46)	(0.35)
Legor_fr					-0.68						
					(-2.98)						
LnACmortality	-0.43					-0.43			-0.18		
	(-4.22)					(-3.78)			(-1.58)		
Euro1900		0.03	0.02				0.03	0.02		0.02	0.02
		(5.90)	(5.01)				(6.86)	(6.30)		(3.34)	(3.99)
Constant	5.10	2.63	2.85	3.52	3.53	5.31	2.91	3.19	-1.32	1.12	2.03
	(10.26)	(19.24)	(23.85)	(21.13)	(20.64)	(10.26)	(15.57)	(21.64)	(-0.61)	(0.51)	(1.18)
R-squared	0.2151	0.3526	0.2279	0.1058	0.0934	0.2803	0.4976	0.3965	0.4694	0.5378	0.4763

Note: t-statistics in parentheses.

Table 8. IV-2SLS. Overidentification analysis

	PRIOCW (1)	PRIOCW (2)	PRIOCW (3)	PRIOCW (4)	PRIOCW (5)	PRIOCW (6)
Avexpr	-0.34 (-2.68)	-0.36 (-2.66)	-0.27 (-2.37)			
Laword				-0.36 (-4.04)	-0.25 (-2.89)	-0.27 (-2.52)
Lngdp60	0.18 (1.02)	0.18 (1.56)	0.25 (1.83)	0.15 (1.31)	0.09 (1.30)	0.12 (1.27)
Lpop60	0.08 (1.88)	0.07 (1.73)	0.08 (1.88)	0.06 (1.82)	0.06 (2.31)	0.07 (2.06)
Col_fr	0.15 (0.86)		0.19 (1.18)	0.27 (2.44)		0.29 (3.01)
Col_sp	-0.01 (-0.06)		0.03 (0.17)	-0.05 (-0.29)		0.05 (0.28)
Col_port	-0.07 (-0.45)		-0.05 (-0.26)	-0.22 (-1.43)		-0.12 (.0.68)
Col_other	0.01 (0.06)		0.07 (0.30)	0.08 (0.45)		0.07 (0.40)
Euro1900		0.00 (0.01)	-0.00 (-1.05)		-0.00 (-1.03)	-0.00 (-0.70)
Constant	0.38 (0.41)	0.61 (0.48)	-0.57 (-0.50)	-0.19 (-0.25)	-0.08 (-0.12)	-0.38 (-0.45)
N	79	79	79	80	80	80
First Stage	Avexpr	Avexpr	avexpr	Laword	laword	Laword
Lngdp60	0.43 (1.56)	0.43 (1.56)	0.66 (1.83)	0.35 (1.96)	0.35 (1.96)	0.29 (1.56)
Lpop60	-0.02 (-0.23)	-0.02 (-0.23)	0.06 (0.50)	-0.09 (-1.38)	-0.09 (-1.38)	-0.11 (-1.52)
Col_fr	-0.60 (-1.46)	-0.60 (-1.46)	-0.51 (-1.19)	-0.26 (-0.98)	-0.26 (-0.98)	-0.23 (-0.88)
Col_sp	-1.01 (-2.47)	-1.01 (-2.47)	-1.05 (-1.75)	-1.08 (-4.07)	-1.08 (-4.07)	-1.12 (-4.11)
Col_port	-0.67 (-1.11)	-0.67 (-1.11)	-0.85 (-1.40)	-1.07 (-2.73)	-1.07 (-2.73)	-1.15 (-2.93)
Col_other	-0.03 (-0.05)	-0.03 (-0.05)	-0.14 (-0.20)	0.16 (0.35)	0.16 (0.35)	-1.15 (-2.93)
Euro1900	0.02 (2.87)	0.02 (2.87)	0.01 (1.34)	0.02 (3.99)	0.02 (3.99)	0.02 (3.69)
Geography			Included			Included
Constant	3.75 (1.41)	3.75 (1.41)	0.92 (0.30)	2.03 (1.18)	2.03 (1.18)	2.58 (1.43)
R-squared	0.3446	0.3446	0.4645	0.4765	0.4765	0.5309

Note: t-statistics in parentheses.

Table 9. IV-2SLS. New Instrument for Sub-Saharan African sample.

	PRIOCW (1)	PRIOCW (2)	PRIOCW (3)	PRIOCW (4)	PRIOCW (5)	PRIOCW (6)	PRIOCW (7)	PRIOCW (8) OLS
Laword	-0.25	-0.25	-0.20	-0.25	-0.21	-0.20	-0.32	-0.17
	(-2.48)	(-3.08)	(-2.61)	(-2.47)	(-3.02)	(-2.21)	(-3.01)	(-1.95)
Lngdp60	0.07	0.07	0.07	0.08	0.08		0.02	0.10
	(0.62)	(0.62)	(0.63)	(0.57)	(0.59)		(0.19)	(0.90)
Lpop60	0.04	0.04	0.05	0.04	0.05		0.005	0.05
	(0.84)	(0.86)	(1.08)	(0.78)	(1.00)		(0.10)	(1.35)
Ethnicfrag							-0.44	
							(-1.60)	
Slave trade								0.01
								(0.55)
Constant	0.41	0.43	0.15	0.38	0.16	1.36	1.72	-0.37
	(0.31)	(0.35)	(0.12)	(0.24)	(0.11)	(5.62)	(0.93)	(-0.35)
N	35	35	35	34	34	34	34	35
First Stage	Laword	Laword	Laword	Laword	Laword	Laword	Laword	
Lngdp60	-0.36	-0.26	-0.06	-0.32	0.05		-0.29	
	(-1.46)	(-0.92)	(-0.19)	(-1.19)	(0.16)		(-1.10)	
Lpop60	-0.20	-0.23	-0.18	-0.19	-0.21		-0.18	
	(-1.98)	(-2.12)	(-1.56)	(-1.70)	(-1.76)		(-1.71)	
Slaves	-0.17	-0.15	-0.15	-0.17	-0.12	-0.13	-0.18	
	(-3.92)	(-3.10)	(-3.25)	(-3.40)	(-2.18)	(-2.49)	(-3.66)	
Col_fr		-0.04	-0.07		-0.02	0.001		
		(-0.15)	(-0.26)		(-0.09)	(0.00)		
Col_port		-0.69	-0.59		-0.57	-0.45		
		(-1.42)	(-1.22)		(-1.14)	(-0.91)		
Col_other		0.19	0.28		0.36	0.06		
		(0.41)	(0.60)		(0.78)	(0.15)		
Euro1900			-0.04		-0.09	-0.09		
			(-1.32)		(-1.86)	(-2.12)		
State_dev				0.04	0.68	0.38		
				(0.08)	(1.24)	(0.76)		
Ethnicfrag							0.35	
							(0.48)	
Constant	10.08	9.65	7.65	9.74	6.63	4.10	9,25	
	(3.89)	(3.65)	(2.54)	(3.40)	(2.13)	(5.78)	(3.17)	
R-squared	0.3671	0.4188	0.4538	0.3675	0.3315	0.3017	0.3787	

Note: t-statistics in parentheses.

Table 10. Robustness checks for IV-2SLS Regressions to the use of additional instruments.

	PRIOCW	PRIOCW	PRIOCW	PRIOCW	PRIOCW	PRIOCW	PRIOCW	PRIOCW
Institutional variable used	Avexpr	Avexpr	Avexpr	Avexpr	laword	laword	laword	laword
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Institutional variable	-0.36	-0.39	-0.32	-0.33	-0.30	-0.29	-0.28	-0.30
	(-4.70)	(-3.94)	(-4.80)	(-5.09)	(-4.95)	(-5.09)	(-4.52)	(-5.81)
Lngdp60	0.18	0.24	0.15	0.15	0.07	0.07	0.05	0.07
	(1.56)	(1.89)	(1.47)	(1.53)	(0.91)	(0.91)	(0.69)	(0.97)
Lpop60	0.07	0.08	0.07	0.07	0.05	0.04	0.05	0.05
	(1.75)	(1.46)	(1.82)	(1.82)	(1.84)	(1.46)	(1.89)	(1.83)
Constant	0.61	0.28	0.63	0.63	0.34	0.42	0.38	0.34
	(0.71)	(0.28)	(0.79)	(0.79)	(0.52)	(0.63)	(0.59)	(0.54)
N	79	69	79	79	80	70	80	80
First Stage	Avexpr	Avexpr	Avexpr	Avexpr	laword	laword	laword	laword
Lngdp60	0.45	0.65	0.37	0.36	0.31	0.28	0.29	-0.29
	(1.57)	(1.91)	(1.27)	(1.19)	(1.67)	(1.19)	(1.59)	(1.56)
Lpop60	-0.01	-0.01	-0.04	0.03	-0.11	-0.11	-0.11	-0.10
	(-0.14)	(-0.05)	(-0.38)	(0.30)	(-1.58)	(-1.36)	(-1.60)	(-1.52)
Col_fr	-0.59	-0.65	-0.61	-0.53	-0.28	-0.27	-0.27	-0.23
	(-1.43)	(-1.57)	(-1.48)	(-1.26)	(-1.04)	(-0.94)	(-1.01)	(-0.88)
Col_sp	-1.03	-1.28	-1.01	-1.06	-1.02	-1.22	-1.08	-1.12
	(-2.45)	(-2.27)	(-2.47)	(-2.45)	(-3.72)	(-3.09)	(-4.10)	(-4.11)
Col_port	-0.71	-0.70	-0.63	-0.75	-0.98	-0.92	-1.04	-1.15
	(-1.14)	(-1.16)	(-1.05)	(-1.21)	(-2.44)	(-2.21)	(-2.67)	(-2.93)
Col_other	-0.08	0.07	0.02	-0.41	0.27	0.19	0.21	0.19
	(-0.11)	(0.10)	(0.03)	(-0.55)	(0.57)	(0.43)	(0.46)	(0.40)
Euro1900	0.02	0.01	0.02	0.02	0.02	0.02	0.02	0.02
	(2.85)	(1.41)	(0.03)	(2.72)	(3.70)	(3.06)	(4.08)	(3.69)
Latitude	-0.42				0.91			
	(-0.28)				(0.95)			
Ind. Time		0.002				0.00		
		(0.56)				(0.57)		
Yellow			-0.33				-0.29	
			(-0.93)				(-1.29)	
Soil				included				Included
Constant	3.56	1.93	4.71	3.58	02.44	2.67	2.91	2.58
	(1.29)	(0.65)	(1.65)	(1.26)	(1.37)	(1.28)	(1.58)	(1.43)
R-sqaured	0.3453	0.4083	0.3525	0.3788	0.4831	0.5056	0.4886	0.5309

Note: t-statistics in parentheses.

Table 11. Robustness checks for IV-2SLS
Regressions to regional samples

	PRIOCW	PRIOCW	PRIOCW	PRIOCW
Institutional variable used	Avexpr	Avexpr	laword	laword
Sample	Without Neo-Europes	without African countries	Without Neo-Europes	without African countries
	(1)	(2)	(3)	(4)
Institutional variable	-0.37	-0.27	-0.27	-0.33
	(-2.87)	(-4.55)	(-2.09)	(-4.04)
Lngdp60	0.19	0.08	0.07	0.15
	(1.63)	(0.81)	(0.97)	(1.18)
Lpop60	0.08	0.10	0.06	0.07
	(1.58)	(2.46)	(1.99)	(1.67)
Constant	0.58	0.30	0.06	-0.48
	(0.47)	(0.29)	(0.07)	(-0.38)
N	75	45	76	45
First Stage	Avexpr	Avexpr	laword	laword
Lngdp60	0.40	0.35	0.32	0.53
	(1.42)	(0.96)	(1.74)	(2.14)
Lpop60	-0.04	0.04	-0.12	-0.04
	(-0.38)	(0.33)	(-1.65)	(-0.47)
Col_fr	-0.59	-1.64	-0.24	-0.46
	(-1.41)	(-2.00)	(-0.89)	(-0.81)
Col_sp	-0.88	-1.19	-0.84	-1.08
	(-1.73)	(-2.71)	(-2.56)	(-3.58)
Col_port	-0.56	-0.67	-0.87	-0.80
	(-0.84)	(-0.78)	(-2.03)	(-1.34)
Col_other	-0.01	0.99	0.19	0.31
	(-0.02)	(0.70)	(0.42)	(0.32)
Euro1900	0.02	0.02	0.01	0.02
	(1.64)	(2.56)	(1.83)	(2.99)
Constant	4.21	3.58	2.65	-0.11
	(1.48)	(1.00)	(1.45)	(-0.05)
R-squared	0.1466	0.4576	0.2147	0.5889

Note: t-statistics in parentheses.

Table 12. Robustness checks for IV-2SLS Regressions to the definition of civil war.

	PRIOCW 1000 overall conflict	PRIOCW 1000 overall conflict	PRIOCW 1000	PRIOCW 1000	Number of Years with Civil War during the period			
					PRIO CW	PRI CW	PRIOCW 1000 overall conflict	PRIOCW 1000 overall conflict
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Institutional variable	-0.18	-0.22	-0.15	-0.21	-3.32	-4.46	-2.37	-3.89
	(-2.53)	(-3.18)	(-2.28)	(-3.00)	(-1.77)	(-2.37)	(-1.31)	(-1.99)
Lngdp60	0.05	0.05	0.03	0.04	0.88	1.04	-0.29	0.31
	(0.61)	(0.62)	(0.34)	(0.49)	(0.32)	(0.42)	(-0.12)	(0.13)
Lpop60	0.14	0.12	0.12	0.11	3.42	3.13	3.19	2.94
	(5.04)	(4.99)	(3.99)	(3.92)	(4.14)	(4.21)	(4.04)	(4.00)
Constant	-0.95	-1.16	-0.72	-0.92	-29.19	-33.43	-25.10	-28.97
	(-1.56)	(-1.93)	(-1.20)	(-1.57)	(-1.95)	(-2.28)	(-1.82)	(-2.07)
N	79	80	79	80	79	80	79	80
First Stage	Avexpr	laword	Avexpr	laword	Avexpr	laword	Avexpr	laword
Lngdp60	0.43	0.35	0.43	0.35	0.43	0.35	0.43	0.35
	(1.56)	(1.96)	(1.56)	(1.96)	(1.56)	(1.96)	(1.56)	(1.96)
Lpop60	-0.02	-0.09	-0.02	-0.09	-0.02	-0.09	-0.02	-0.09
	(-0.23)	(-1.38)	(-0.23)	(-1.38)	(-0.23)	(-1.38)	(-0.23)	(-1.38)
Col_fr	-0.60	-0.26	-0.60	-0.26	-0.60	-0.26	-0.60	-0.26
	(-1.46)	(-0.98)	(-1.46)	(-0.98)	(-1.46)	(-0.98)	(-1.46)	(-0.98)
Col_sp	-1.01	-1.08	-1.01	-1.08	-1.01	-1.08	-1.01	-1.08
	(-2.47)	(-4.07)	(-2.47)	(-4.07)	(-2.47)	(-4.07)	(-2.47)	(-4.07)
Col_port	-0.67	-1.07	-0.67	-1.07	-0.66	-1.07	-0.67	-1.07
	(-1.11)	(-2.73)	(-1.11)	(-2.73)	(-1.11)	(-2.73)	(-1.11)	(-2.73)
Col_other	-0.03	0.16	-0.03	0.16	-0.03	0.16	-0.03	0.16
	(-0.05)	(0.35)	(-0.05)	(0.35)	(-0.05)	(0.35)	(-0.05)	(0.35)
Euro1900	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
	(2.87)	(3.99)	(2.87)	(3.99)	(2.87)	(3.99)	(2.87)	(3.99)
Constant	3.75	2.03	3.75	2.03	3.75	2.03	3.75	2.03
	(1.41)	(1.18)	(1.41)	(1.18)	(1.41)	(1.18)	(1.41)	(1.18)
R-squared	0.3446	0.4765	0.3446	0.4765	0.3446	0.4765	0.2799	0.4765

Note: t-statistics in parentheses.

Table 13. Robustness checks for IV-2SLS Regressions to the use of 1985-2005 sample.

	PRIOCW8505	PRIOCW8505	PRIOCW8505	PRIOCW8505	PRIOCW8505	PRIOCW8505	PRIOCW8505	PRIOCW8505
	OLS	Probit	OLS	Probit	2SLS	OLS	Probit	2SLS
sample	all	all	Former colonies	former colonies	Former colonies	Former colonies	Former colonies	Former colonies
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Lngdp84	-0.03	-0.07	-0.03	-0.10	0.05	-0.02	-0.08	0.08
	(-0.42)	(-0.35)	(-0.39)	(-0.44)	(0.51)	(-0.32)	(-0.35)	(0.74)
Lpop84	0.09	0.32	0.13	0.42	0.14	0.14	0.44	0.17
	(2.72)	(2.53)	(3.70)	(3.09)	(3.58)	(3.66)	(3.10)	(3.49)
laword84	-0.12	-0.411	-0.09	-0.30	-0.19	-0.11	-0.33	-0.23
	(-3.23)	(-3.16)	(-2.00)	(-1.93)	(-2.19)	(-2.11)	(-2.01)	(-2.21)
Previous cw						-0.06	-0.15	-0.18
						(-0.44)	(-0.40)	(-1.05)
Constant	-0.46	-3.52	-1.07	-5.12	-1.74	-1.16	-5.37	-2.12
	(-0.54)	(-1.35)	(-1.12)	(-1.76)	(-1.48)	(-1.20)	(-1.82)	(-1.63)
N	97	97	69	69	69	69	69	69
R-squared	0.2914	0.2475	0.2502	0.2068		0.2525	0.2084	
First stage					Laword84			Laword84
Lgdp84					0.70			0.69
					(4.60)			(4.74)
Lpop84					0.06			0.14
					(0.67)			(1.48)
Previous cw								-0.72
								(-2.82)
Col_fr					0.08			0.06
					(0.23)			(0.18)
Col_sp					-0.84			-0.58
					(-2.65)			(-1.87)
Col_port					-0.28			-0.26
					(-0.46)			(-0.45)
Col_oth					0.21			0.23
					(0.37)			(0.45)
Eur1900					0.02			0.02
					(3.86)			(3.29)
Constant					-4.06			-4.70
					(-1.88)			(-2.28)
R-squared					0.5675			0.6181

Note: t-statistics and z-statistics in parentheses.

Table 14: Ranking of the fifteen former colonies with the lowest and the highest enforcing contracts procedure index. Normalized between 1-100

Countryname	Enfcontproc	Countryname	enfcontproc
Cameroon	100	Australia	18.96
Sierra Leone	100	**Tunisia**	24.13
Egypt	94.82	**Uganda**	25.86
Laos	91.37	Malawi	27.58
United Arab Emirates	91.37	Hong Kong	27.58
Chad	89.65	Zambia	27.58
Kuwait	89.65	United States	29.31
Congo, Dem. Rep.	87.93	Canada	29.31
Burundi	87.93	**Sri Lanka**	29.31
Lesotho	84.48	**Morocco**	29.31
Algeria	84.48	**Nicaragua**	31.03
Benin	84.48	Jamaica	31.03
Syrian Arab Rep.	82.75	New Zealand	32.75
Angola	81.03	Bhutan	34.48
Congo, Rep.	81.03	Tanzania	36.20

Table 15. Contracting institutions and civil wars. OLS and IV-2SLS analysis. (The index has been standardized between 0 and 1)

	PRIOCW	PRIOCW	PRIOCW	PRIOCW	PRIOCW	PRIOCW	PRIOCW	PRIOCW
	All sample OLS	All Sample OLS	Former colonies OLS	Former colonies OLS	IV	IV	IV	IV
	(3)	(4)	(1)	(2)	(5)	(6)	(7)	(8)
enfcontcont	4.38	5.87	3.79	0.06	1.42	1.74	1.22	1.86
	(3.99)	(3.69)	(2.50)	(3.15)	(3.00)	(4.06)	(2.29)	(3.76)
Lngdp60		-0.85		-0.78			-0.12	-0.05
		(-2.62)		(-2.00)			(-1.72)	(-0.87)
Lpop60		0.41		0.72			0.07	0.10
		(1.54)		(2.30)			(1.85)	(2.72)
Constant	-2.16	-2.72	-1.18	-7.39	-0.05	-0.29	-0.10	-1.56
	(-3.71)	(-0.67)	(-1.46)	(-1.42)	(-0.19)	(-1.19)	(-0.10)	(-1.88)
N	145	105	84	78	66	83	64	77
R.squared	0.1040)	0.2622	0.0891	0.2555				
First Stage					Enfcontproc	Enfcontproc	enfcontproc	enfcontproc
Lngdp60							-0.08	-0.01
							(-2.10)	(-0.27)
Lpop60							0.004	-0.003
							(0.26)	(-0.17)
Legor_fr					0.20	0.18	0.22	0.19
					(3.97)	(4.56)	(4.17)	(4.46)
LnACmortality					0.02		-0.02	
					(0.87)		(-0.62)	
Euro1900						-0.002		-0.002
						(-2.67)		(-1.34)
Constant					0.36	0.50	0.99	0.60
					(4.03)	(15.11)	(2.14)	(1.57)
R-squared					0.2642	0.2643	0.3113	0.2773

Note: z-statistics and t-statistics in parentheses.

Table 16: Robustness check to consider per capita income Endogenous.

	PRIOCW	PRIOCW	PRIOCW	PRIOCW	PRIOCW
	(1)	(2)	(3)	(4)	(5)
Avexpr		-0.08	-0.41		
		(-2.39)	(-2.76)		
Laword				-0.15	-0.40
				(-3.04)	(-3.92)
Lngdp60	-0.29	-0.17	0.27	-0.13	0.12
	(-4.02)	(-1.69)	(1.20)	(-1.30)	(0.93)
Lpop60	0.09	0.05	0.08	0.05	0.05
	(3.41)	(1.90)	(1.64)	(1.99)	(1.59)
Constant	1.31	1.66	0.25	1.30	0.38
	(1.79)	(2.00)	(0.22)	(1.68)	(0.44)
N	93	79	79	80	80
First stage	Lngdp60	Lngdp60	Lngdp60	Lngdp60	Lngdp60
Lpop60	-0.07	-0.07	-0.05	-0.07	-0.05
	(-1.85)	(-1.65)	(-1.06)	(-1.57)	(-1.17)
Avexpr		0.07			
		(1.43)			
Laword				0.13	
				(1.98)	
Col_frspport			-0.17		-0.18
			(-1.34)		(-1.43)
Col_other			-0.96		-0.96
			(-3.60)		(-3.64)
Euro1900	0.02	0.02	0.02	0.02	0.02
	(8.49)	(6.46)	(8.18)	(6.02)	(8.20)
Landlocked	-0.54	-0.52	-0.60	-0.57	-0.61
	(-3.21)	(-2.35)	(-2.91)	(-2.64)	(-2.96)
Constant	8.01	7.63	7.78	7.62	7.85
	(13.55	(9.91)	(11.51)	(10.42)	(11.87)
R-squared	0.5082	0.5228	0.5854	0.5318	0.5844
First Stage			avexpr		Laword
Lpop60			-0.05		-0.11
			(-0.49)		(-1.58)
Col_frspport			0.03		-0.80
			(5.18)		(-3.76)
Col_other			-0.83		-0.20
			(-2.71)		(-0.44)
Euro1900			-0.49		0.025
			(-0.76)		(6.17)
Landlocked			-0.61		0.02
			(-1.24)		(0.07)
Constant			7.28		4.85
			(4.45)		(4.36)
R-squared			0.3330		0.4007

Note: t-statistics in parentheses.