

Poverty and Civil War: Revisiting the evidence

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July 2008

Abstract

A popular “stylized fact” is that poverty is a main determinant of civil war: several scholars have interpreted the correlation between the two as evidence supporting this claim. In this paper, we find that the relationship between poverty and civil war is spurious, and is accounted for by historical phenomena that jointly determine income evolution and conflict. In particular, the statistical association between poverty, as proxied by income per capita, and civil wars disappears once we include country fixed effects. Also, using cross-section data for 1960-2005, we find that once historical variables like European settler mortality rates and the population density in 1500 are included in civil war regressions, poverty does not have an effect on civil wars. These results are confirmed using longer time series from 1825 to 2000.

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1. Introduction

Progress in stopping war, civil conflict and violence - the argument goes - requires a reduction in poverty. For example, German Chancellor Schröder stated in 2001: “Extreme poverty, growing inequality between countries, but also within countries themselves, are great challenges of our times, because they are a breeding ground for instability and conflict. So reducing worldwide poverty is, not least, essential to safeguarding peace and security.”

This “stylized fact,” that poverty breeds conflict and war, is supported by two empirical papers. Fearon and Laitin (2003) 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. If the government is weak, rebels can expect success. Collier and Hoeffler (2004) find that income per capita, which could be related to the viability of rebellion, has considerable explanatory power in civil war regressions. Neither study deals with the possibly endogeneity of war to economic stagnation. This is done in Miguel et al. (2004) in a study of 41 African countries. Miguel et al use rainfall as an instrument for economic growth and find that economic stagnation is strongly related to civil conflict, i.e., civil war is related to changes in income, not the level of income.

Recently, the theoretical literature on conflict has debated whether the relationship between per capita income and civil war is explained by an opportunity cost story (for example, Chassang and Padró 2007) or by the state capacity story (for example, Fearon 2007).

In this paper, we take another look at the relationship between poverty and civil war. We find that their correlation is spurious, and is accounted for by historical phenomena that jointly determine income evolution and conflict in the post-WWII era. In

particular, the statistical association between poverty, as proxied by income per capita, and civil wars disappears once we include country fixed effects. Also, using cross-section data for 1960-2005, we find that once historical variables like European settler mortality rates and the population density in 1500 are included in the civil war regressions, poverty does not have an effect on civil wars. These results are confirmed using longer time series for 1825 to 2000. The results are in line with Krueger and Malecková (2003), who provide evidence that any relationship between poverty and terrorism is indirect. Abadie (2006) also shows that terrorist risk is not significantly higher in poorer countries, once the effect of other country-specific characteristics, such as the level of political freedom, is taken into account.

The empirical strategy we follow is inspired by the work of Acemoglu et al (2007, 2008). They revisit one of the main stylized facts of the political economy literature - that per capita income causes democracy - and show that controlling for fixed country effects eliminates the correlation between income and democracy. Our results are robust to dividing the sample by 5-years, 10-years, or 20-years periods; or using annual data. We also use a historical sample from 1825 to 2000, divided in periods of 25 and 50 years and produce the same result.

The paper is organized as follows. Section 2 describes the data. Section 3 details the econometric specification. Section 4 presents the main findings. Section 5 shows cross-section results. Section 6 repeats the analysis using a historical sample from 1825 to 2000. Section 7 concludes.

2. Data

The data on civil wars come 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 call this variable civil war. The dataset also offers series to construct armed conflicts that generate more than 1000 deaths per year, which we call Civil Wars 1000.

The GDP per capita comes from Heston, Summers and Aten (2006), the last version of the Penn World Table, for the period 1960-2000. The historical GDP per capita and population data come from Maddison (2003), and historical data on civil war comes from the Correlates of War database. The latter takes the definition of civil war from Singer and Small (1982), and it is update using Reid (2000). Singer and Small define civil war as “any armed conflict that involves (a) military action internal to the metropole, (b) the active participation of the national government, and (c) effective resistance by both sides.”

The resulting sample includes 211 countries, of which 28 OECD countries and 183 non-OECD countries. Among those, no OECD country except Spain and UK experienced civil war², while 92 of the non-OECD countries suffered a civil war during the period 1960-2005. Of these 92 civil wars, 53 turned into a major civil war at some point.

3. Econometric specification

The explanatory variables follow the basic specifications of the literature on civil war, as in Fearon and Laitin (2003), Collier and Hoeffler (2004), and Montalvo and Reynal-Querol (2005). Collier and Hoeffler (2004) consider population size an additional proxy for the benefits of a rebellion since it measures potential labor income taxation. Fearon and Laitin

² Spain and UK appear due to Terrorist. If we do not consider these cases as civil war the results are exactly the same.

(2003) indicate that a large population implies difficulties in controlling what goes on at the local level and increases the number of potential rebels that can be recruited by the insurgents.

The basic specification we use is

$$cw_{it} = \alpha ly_{i(t-1)} + \beta lpop_{i(t-1)} + X'_{i(t-1)}\gamma + \delta_t + \lambda_i + \varepsilon_{it} ,$$

where cw_{it} is a dummy that has value 1 if there is a civil in the country and zero otherwise, $ly_{i(t-1)}$ is the lagged value of the natural log of per capita income, $lpop_{i(t-1)}$ is the lagged value of the log of population, X is a vector of all other potential covariates. δ_t denotes the full set of time effects that capture common shocks or trends to the civil wars of all countries. We include a full set of country dummies in λ_i . Finally, the ε_{it} , is an error term.

The standard regression in the literature usually omits country fixed effects (λ_i). In this context these dummies capture any time-invariant country characteristic that affect the probability of civil war. In the study of the relationship between per capita income and civil war this is important, as some determinants that affect the condition for conflict may at the same time the condition for economic development. If these omitted characteristics are time variant then fixed effect is not enough, so we need to use an instrumental variable approach (which we do in Section 4.1).

4. Results using pooled OLS and fixed effects

We first replicate the results reported in the previous literature. We perform a pooled OLS estimation of the effect of per capita income on the incidence and onset of civil war, using panel data from 1960 to 2000. We use the definition of incidence of civil war which corresponds to more than 25 battle-related deaths per year (Table 1A). In panel B, we use

the definition of onset of civil war, which corresponds to more than 25 battle-related deaths a year.

In columns 1 and 2 we use 5-years cut of the sample. The dependent variable is a dummy that has a value of 1 if there has been any civil war of more than 25 battle-related deaths per year, during the 5-years interval period, and zero otherwise. The independent variables are taken at the beginning of each period. For example, for the first period the covariates are taken in 1960, in the second period in 1965, and in the last period in 1995. All regressions include time dummies, and all have robust standard errors clustered at the country level. The results are in line with the literature and show that per capita income has a negative and significant effect on the probability of civil war, either if we use the incidence variable or the onset variable. The estimate indicates that a 10% reduction in poverty (increase in gdp per capita) is associated with a one percentage point reduction in the probability of civil war for the next five years. Given that the probability of having a civil war is 15%, this is a large effect.

(Table 1 here)

In column 2 we perform the same analysis, but controlling for time-invariant country specific variables. Results show that the relationship between per capita income and civil war disappears once fixed effects are included.

In column 3 and 4 we use the 10-years period sample, and in column 5 and 6 we use the 20-years period sample. In all regressions we find that per capita income has a negative and significant effect on civil war, however this effect disappears once we control for country fixed effects. Finally, we perform the same analysis using annual data (column 7 and 8) and find the same results.

These findings are robust to changing the threshold in the definition of civil war, to changes in the sample, and to including other time-variant variables. In Panel C we

perform the analysis using the 1,000-deaths threshold for the definition of civil wars. For this definition we show only the results using the incidence of civil war.³ As before, per capita income has a negative and significant effect on the probability of civil war. However, once country fixed effects are included in the specification, the relationship between per capita income and civil war disappears. We find the same results when using the five-years, 10-years and 20-years periods, as well as an annual specification.

We also check whether the results are robust to dropping specific groups of countries. For example, many of the poorest countries are in Sub-Saharan Africa. These countries also account for a large number of civil wars. We, therefore, do the same analysis without the sample of Sub-Saharan African countries. We find similar qualitative results. Once country fixed effects are included in the specification, per capita income does not have an effect on the probability of civil wars. Since contemporaneous civil wars do not take place in OECD countries, we also confirm that the results are robust to the exclusion of this group of countries from the sample.

Next, many of the usual determinants of civil war are time-invariant, for example the presence of mountains, being a non-contiguous state, having large quantities of oil, or having a high degree of ethnic polarization. Only the democracy variable is time-variant. We hence confirm that the results using country fixed effect are robust to the inclusion of a proxy for democracy.

³ We find the same qualitative results using onset but in this case the definition of onset is controversial since it is a dummy that has a value of 1 in the first year of a civil war with more than 1,000 battle-related deaths, zero otherwise. As civil wars may start with less than 1,000 deaths per year and then escalate, this variable may not be meaningful.

4.1 Instrumenting per capita income

Fixed effects estimators do not necessarily identify a causal relation between income and civil wars. It could be that other determinants that simultaneously affect income and civil war are time-variant. A way of addressing this endogeneity problem is to run an instrumental variable estimation for civil wars, in effect 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 similar to the average treatment effect obtained using a bivariate probit model.

When using the IV-2SLS approach, we need to find an instrument for per capita income. We rely on Acemoglu et al (2008). Using a 5-years specification, they take the saving rate in the previous five-year period as an instrument for per capita income in order to analyze the effect of per capita income on democracy. In our model, the corresponding first stage for the log of per capita income, $\ln y_{(t-1)i}$, is

$$\ln y_{i(t-1)} = \phi s_{i(t-2)} + \beta^y \ln pop_{i(t-1)} + X'_{i(t-1)} \gamma^y + \delta_{t-1}^y + \lambda_i^y + \mu_{it-1},$$

where the only excluded instrument is $s_{i(t-2)}$. The identification restriction is that the correlation between savings and the residuals of the civil war regression is zero. The exclusion restriction in the case of civil war is more difficult to satisfy than in the case of democracy.

There could be a number of channels through which savings may be correlated with the residuals of the civil war regression. For example, current conflict may affect saving rates. Also, saving rates could be correlated with changes in the distribution of income which may affect conflict, although there is no empirical evidence on the relationship between inequality and conflict. However, as a robustness exercise, it is still useful to do the analysis. With these in mind, the savings rate variable comes from the Penn World Table data. It is constructed and defined as nominal income minus

consumption minus government expenditure divided by nominal income. We performed the analysis using annual, 5-years and 10-years panel data.

As hypothesized, the savings rate has a positive and significant effect on per capita income. The second-stage results indicate that per capita income does not have an effect on the probability of civil war. These results are found using both incidence and onset data, and also incidence data with more than 1,000 battle related deaths.

5. Cross-country evidence

The results using fixed country effects indicate that the relationship between income and civil war is possibly spurious. It is likely that the colonization strategies brought by Europeans were important determinants for the economic development and political stability paths taken by colonies.

In this section we show that while the effect of per capita income on civil war is robust to the inclusion of some contemporaneous variables, its effect disappears once we include historical variables that capture colonization strategies. In the cross-section specification, 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. In order to reduce the endogeneity problems between per capita income and civil war, the independent variables are taken at the beginning of the period. The specification is

$$cw_{i60-05} = \alpha + \beta_1 \lg dp_{i60} + \beta_2 lpop_{i60} + X'_{i60} \phi + \varepsilon_i,$$

where cw is a dummy variable that has value 1 if the country had a civil war during the period 1960-2005 and zero otherwise, α is a constant, $lgdp$ is the natural log of real per capita income in 1960, $lpop$ is the log of the population of the country in 1960. And X is a set of covariates, some of which are time invariant. All regressions have robust standard errors.

In table 2 we analyze the effect of per capita income on civil war including contemporaneous variables, which are traditionally used in the civil war regressions. In panel A we use the definition of civil war with more than 25 battle related deaths, while in Panel B we use the definition of civil war with more than 1,000 battle related deaths. In columns 1 to 4 we use an OLS specification, and in columns 5 to 8 we perform the same analysis using a Probit specification.

(Table 2 here)

In column 1, we include only the log of per capita income and the log of population as covariates. In line with the previous literature, we find that poor as well as populous countries have a higher risk of conflict in comparison with rich, and small countries. 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 increases the payoff if victory is achieved. Fearon and Laitin (2003) find that oil dependent countries have a higher risk of conflict. Therefore we include the dummy for oil dependent countries from Fearon and Laitin (2003).

Mountains is another dimension of opportunity since this terrain could provide a safe haven for rebels, an example being the FARC in Colombia. Long distance from the center of state's power (the capital city) also favors the incidence of civil wars, especially if there is a natural frontier between them, like a sea or border. Next, Montalvo and Reynal-Querol (2005a, b)⁴ show that ethnic polarization explains the likelihood of conflicts and civil wars. Finally, many authors control for the contemporaneous level of democracy.

⁴Inspired by the work of Reynal-Querol (2002).

In column 2 we include the dummy for oil countries, in column 3 we include mountains and the non-contiguous state variable, and in column 4 we include ethnic polarization and democracy. In all the regressions per capita income has a negative and significant effect on the probability of civil war in line with the literature. In columns 5 to 8 we perform the same analysis but using a probit estimation, and we find qualitatively the same results.

In Panel B we perform the same analysis as in Panel A but using the definition of civil war of more than 1,000 battle related deaths, and we find qualitatively the same results: the effect of per capita income on civil war is robust to the inclusion on many contemporaneous variables, as the literature has already showed.

5.1 Results including historical variables

The results so far suggest that there could be some historical factors that jointly determine the development path and the political stability path of countries, and that could explain the positive correlation we observe between poverty and civil wars. To test this hypothesis, we include variables that capture these historical factors. Following Acemoglu et al. (2007, 2008) we use the log of European settler mortality rates, the population density in 1500 and the European settlement in 1900 as alternative historical variables.

Table 3 shows the results of this analysis. In Panel A we use the definition of civil war with more than 25 battle related deaths, and in Panel B we use the definition of civil war with more than 1,000 battle related deaths. In columns 1 to 6 we use an OLS specification, and in columns 7 to 12 we perform the same analysis using a Probit estimation.

(Table 3 here)

To perform this analysis we use the sample of ex-colonies. In column 1 we only include the log of capita income in 1960 and the log of population in 1960. In line with the previous literature, we find that poor as well as populous countries have a higher risk of civil war compared with rich and small countries.⁵ In column 2 we include the log of European settler mortality rate from Acemoglu et al. (2001). In column 3 we include the population density in 1500, and in column 4 we include European settlement in 1900 from Acemoglu et al. (2001, 2002). The effect of per capita income on civil war disappears with the inclusion of the European settler mortality rates or with the inclusion of European settlement in 1900. These results are robust to the inclusion of other historical variables like the identity of the colonizer or date of independence (column 5 and 6). In columns 7 to 12 we perform the same analysis using a Probit estimation, and find qualitatively the same results.

In Panel B we use the definition of civil war of more than 1,000 battle-related deaths. The results maintain. The effect of per capita income on civil war disappears with the inclusion of the population density in 1500 or with the inclusion of European settlement in 1900. These results are robust to the inclusion of other historical variables. Overall, these results indicate that once historical variables are included in the civil war regression, per capita income does not have an explanatory effect on civil wars.

6. Fixed effect estimates using historical sample: 1825-2000

Up to now we have concentrated the analysis on the period 1960-2005 because it is the period where we have high quality data on per capita income and civil wars. However, it is instructive to know whether the results hold in a longer time-series. The Correlates of War project provides information on the civil wars from 1816 and Maddison (2003) provides

⁵ We find the same results if we control for other contemporaneous factors as in Table 2.

estimates for per capita income from 1825. We use these sources to construct a dataset of 25-year periods between 1825 and 2000, 1850-2000, 1875-2000, and 1900-2000. Also we have constructed another dataset of 50-year periods between 1850-2000 and 1900-2000.

Table 4 provides the results of this analysis. Panel A uses the definition of incidence of civil war using the sample of 25-years intervals, and panel B uses the onset of civil war using the same sample. In columns 1 and 2 we start with the 1825 period, in columns 3 and 4 we start in 1850, in columns 5 and 6 in 1875, and in columns 7 and 8 in 1900.

(Table 4 here)

In column 1, we perform a pooled-OLS analysis and do not include country fixed effects. In line with the literature, we find that per capita income has a negative effect on the probability of civil war. In column 2, we include fixed country effects, which removes the statistical effect of per capita income on civil wars. We perform the same analysis starting in different sample years and find the same result. In Panel C, we perform the same analysis dividing the sample into 50-year periods, and the results are qualitatively the same.

We also construct a balanced panel of countries for which per capita income and population are available for every 25th period from 1850 to 2000, from 1875 to 2000 and from 1900 to 2000. The first balanced dataset, which starts in 1850, has only 22 countries. The one that starts in 1875 has 25 countries, and finally the one that starts in 1900 has 33 countries.⁶ The proportion of country-period with civil war using the balanced panel is very similar to the proportion of country- period with civil war when using the unbalanced panel. We also construct a balanced dataset for which per capita income and population are

⁶ These countries are Argentina, Australia, Austria, Belgium, Brazil, Bulgaria, Canada, Chile, Colombia, Denmark, Finland, France, Germany, Greece, India, Indonesia, Italy, Japan, Mexico, Netherlands, New Zealand, Norway, Peru, Portugal, Spain, Sri Lanka, Sweden, Switzerland, United Kingdom, United States, Uruguay, Venezuela and Yugoslavia.

available for every 50 period from 1850 to 2000 which includes 26 countries, and from 1900 to 2000 which includes 38 countries.⁷

We perform the same analysis as table 4. The results of the Pooled OLS analysis using the balanced historical data indicate that per capita income does not have an effect on the probability of civil war, while population has a large and significant effect (not reported). This result is obtained without controlling for country fixed effects. Controlling for country fixed effects, we again find no relationship between per capita income and civil war.

7. Conclusions

Using several alternatives data sources, and constructing samples of different duration, one going back almost 200 years, this paper casts doubt on the previous findings in the literature on poverty and civil war. In particular, we find no robust association between the two once the possibility of a spurious correlation is accounted for. We suggest that historical variables, which determine both the path to economic prosperity and to peace, are to blame. These should be the focus of analysis in further studies.

⁷ These are the 33 countries listed in footnote 6 plus Albania, China, Poland, Romania, and the USSR.

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Table 1: The Effect of Poverty on the Incidence and Onset of Civil War
(Pooled OLS, and OLS Fixed Effects, from 1960-2000)

	5-years	5-years	10-years	10-years	20-years	20-years	Annual	Annual
	Pooled	OLS FE	Pooled	OLS FE	Pooled	OLS FE	Pooled	OLS FE
	OLS		OLS		OLS		OLS	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A Dependent variable: Incidence of civil wars 25 deaths								
Lngdp(t-1)	-0.08 (-4.19)	-0.09 (-1.74)	-0.10 (-4.69)	-0.06 (-0.87)	-0.14 (-4.98)	0.12 (0.45)	-0.05 (-3.10)	-0.02 (-0.74)
Lpop(t-1)	0.06 (5.63)	0.02 (0.19)	0.06 (5.54)	-0.00 (-0.02)	0.07 (4.36)	0.56 (1.28)	0.05 (5.01)	0.15 (2.52)
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs	1169	1169	576	576	254	254	5308	5308
R-sq	0.15	0.55	0.16	0.59	0.18	0.74	0.12	0.53
Panel B Dependent variable: Onset of civil wars 25 deaths								
Lngdp(t-1)	-0.04 (-5.63)	0.04 (0.98)	-0.07 (-5.16)	0.03 (0.43)	-0.13 (-5.32)	-0.01 (-0.02)	-0.01 (-5.84)	0.01 (1.48)
Lpop(t-1)	0.01 (3.59)	0.07 (1.09)	0.03 (3.73)	0.03 (0.25)	0.03 (2.65)	0.19 (0.36)	0.003 (3.12)	0.01 (0.87)
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs	1169	1169	576	576	254	254	5308	5308
R-sq	0.04	0.19	0.07	0.33	0.13	0.59	0.02	0.05
Panel C Dependent variable: Incidence of civil war 1,000 deaths per year								
Lngdp(t-1)	-0.05 (-4.27)	-0.03 (-0.91)	-0.07 (-4.45)	-0.01 (-0.20)	0.09 (-4.13)	-0.004 (-0.03)	-0.026 (-3.14)	0.00 (0.20)
Lpop(t-1)	0.02 (4.96)	0.03 (0.77)	0.04 (5.02)	0.09 (1.38)	0.05 (4.19)	0.25 (0.87)	0.015 (4.34)	0.07 (2.22)
Time dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs	1169	1169	576	576	254	254	5308	5308
R-sq	0.09	0.43	0.13	0.59	0.14	0.77	0.05	0.36

Note: Pooled OLS regressions in columns 1, 3, 5 and 7 with robust standard-errors clustered at the country level. The t-statistics are in parentheses. Fixed effects OLS regressions in columns 2, 4, 6 and 8, with country dummies and robust standard-errors clustered at the country level. The t-statistics are in parentheses. Time dummies are included in all regressions. In Panel A and C the dependent variable is the incidence of civil war. In Panel B the dependent variable is onset of civil war of more than 25 battle related deaths. The base sample is an unbalanced panel, 1960-2000, with data at 5-years intervals in columns 1 and 2, 10-years intervals in columns 3 and 4, 20-years intervals in columns 5 and 6. T-1 refers to the beginning of each period. Columns 7 and 8 use annual data from the same sample. In columns 7 and 8, each right hand side variable has five lags, following Acemoglu et al (2008).

Table 2: Poverty, Contemporaneous factors and Civil Wars

Sample of all countries between 1960-2005 Cross-section								
	OLS	OLS	OLS	OLS	Probit	Probit	Probit	Probit
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A	Dependent variable: civil war 1960-2005, with at least 25 deaths per year							
Lgdp60	-0.23 (-5.31)	-0.25 (-5.72)	-0.23 (-4.96)	-0.20 (-3.37)	-0.66 (-4.24)	-0.79 (-4.30)	-0.73 (-3.97)	-0.67 (-2.95)
Lpop60	0.06 (2.40)	0.04 (1.38)	0.04 (1.24)	0.01 (0.18)	0.18 (2.08)	0.14 (1.27)	0.14 (1.08)	0.03 (0.17)
Oil		0.46 (5.20)	0.44 (4.89)	0.41 (4.22)		1.87 (3.35)	1.76 (3.17)	1.74 (3.30)
Mountain			0.001 (0.81)	0.00 (0.04)			0.004 (0.75)	0.00 (0.04)
ncontig			-0.11 (-0.90)	-0.01 (-0.08)			-0.26 (-0.67)	0.01 (0.03)
Ethpol				0.43 (2.20)				1.36 (2.04)
democ				-0.004 (-0.33)				-0.004 (-0.10)
Const	1.33 (2.62)	1.72 (3.25)	1.55 (2.57)	1.75 (2.09)	2.32 (1.54)	3.76 (2.13)	3.39 (1.66)	4.12 (1.51)
Obs	128	116	113	97	128	116	113	97
R-squared	0.21	0.24	0.25	0.27				
Pseudo R-sq					0.16	0.21	0.21	0.23
Panel B	Dependent variable: civil war 1960-2005, with at least 1,000 deaths over the conflict							
Lgdp60	-0.14 (-3.44)	-0.17 (-3.90)	-0.16 (-3.61)	-0.20 (-3.16)	-0.47 (-3.27)	-0.53 (-3.34)	-0.51 (-3.08)	-0.64 (-2.94)
Lpop60	0.09 (4.17)	0.10 (3.42)	0.11 (3.06)	0.10 (2.03)	0.30 (3.39)	0.30 (2.88)	0.33 (2.55)	0.29 (1.85)
Oil		0.32 (2.81)	0.31 (2.57)	0.32 (2.39)		0.98 (2.74)	0.95 (2.57)	1.03 (2.35)
Mountain			0.001 (0.79)	0.001 (0.74)			0.004 (0.75)	0.005 (0.74)
ncontig			-0.11 (-1.02)	-0.08 (-0.56)			-0.39 (-0.99)	-0.28 (-0.57)
Ethpol				0.40 (2.17)				1.38 (2.34)
democ				0.02 (1.21)				0.05 (1.20)
Const	0.01 (0.03)	-0.00 (-0.00)	-0.19 (-0.31)	-0.06 (-0.07)	-1.72 (-1.11)	-1.34 (-0.79)	-1.99 (-0.97)	-1.32 (-0.51)
Obs	128	116	113	97	128	116	113	97
R-squared	0.17	0.18	0.20	0.22				
Pseudo R-sq					0.15	0.15	0.17	0.19

Note: Pooled OLS regression in columns 1, 2, 3 and 4 with robust standard-errors. The t-statistics are in parentheses. Probit regressions in columns 5, 6, 7 and 8, reported with robust standard errors. The Z-statistics are in parentheses. In Panel A the dependent variable is the probability of civil war with more than 25 battle related deaths. In Panel B the dependent variable is probability of civil war with more than 1,000 battle related deaths. The independent variables, which are time variant, are taken at the beginning of the period, 1960, and for democracy 1965.

Table 3: The Historical Roots of Poverty and Civil Wars

Sample of ex-colonies between 1960-2005 Cross-section													
OLS						Probit							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	
Panel A Dependent variable: civil war 1960-2005, with at least 25 deaths per year													
Lgdp60	-0.15 (-2.42)	-0.100 (-1.43)	-0.15 (-2.25)	-0.02 (-0.37)	-0.12 (-1.49)	-0.04 (-0.38)	-0.52 (-2.39)	-0.27 (-1.03)	-0.30 (-1.25)	-0.04 (-0.15)	-0.38 (-1.24)	-0.02 (-0.06)	
	[-0.15] [-2.12]												
Lpop60	0.11 (3.73)	0.09 (3.24)	0.09 (2.84)	0.11 (4.19)	0.08 (2.58)	0.11 (3.26)	0.37 (3.09)	0.37 (2.76)	0.29 (2.40)	0.44 (3.76)	0.41 (2.81)	0.44 (3.23)	
Logmort		0.14 (4.01)			0.10 (2.27)			0.63 (3.52)			0.70 (2.48)		
Popdens1500			0.00 (1.21)						0.26 (1.92)				
Euro1900				-0.006 (-3.14)		-0.005 (-2.16)				-0.02 (-2.82)		-0.02 (-2.11)	
Ind.time					-0.00 (-0.72)	-0.00 (-0.53)					-0.00 (-0.91)	-0.00 (-0.86)	
Ident col.					Include d	Include d					Include d	Include d	
Const	0.17 (0.24)	-0.66 (-0.75)	0.39 (0.52)	-0.72 (-1.10)	-0.18 (-0.18)	-0.54 (-0.67)	-1.27 (-0.57)	-5.92 (-1.77)	-2.20 (-1.00)	-5.40 (-2.22)	-7.20 (-1.81)	-5.87 (-1.83)	
Obs	95	76	81	93	70	80	95	76	81	93	67	77	
R-squared	0.20	0.34	0.19	0.24	0.31	0.40							
Pseudo R-sq							0.18	0.33	0.24	0.22	0.31	0.25	
Panel B Dependent variable: civil war 1960-2005, with at least 1,000 deaths over the conflict													
Lgdp60	-0.11 (-2.06)	-0.20 (-3.13)	-0.09 (-1.79)	-0.01 (-0.11)	-0.07 (-1.00)	-0.01 (-0.06)	-0.42 (-2.28)	-0.76 (-2.82)	-0.21 (-1.07)	0.02 (0.09)	-0.20 (-0.79)	-0.02 (-0.08)	
Lpop60	0.13 (5.66)	0.12 (4.03)	0.12 (4.55)	0.14 (6.12)	0.12 (3.46)	0.14 (4.08)	0.47 (4.45)	0.40 (3.57)	0.42 (3.23)	0.55 (4.70)	0.37 (1.98)	0.51 (3.38)	
Logmort		-0.04 (-0.97)						-0.15 (-1.00)					
Popdens1500			0.01 (1.98)		0.01 (2.15)				0.13 (2.69)		0.18 (3.45)		
Euro1900				-0.005 (-2.45)		-0.01 (-2.17)				-0.03 (-2.41)		-0.04 (-1.82)	
Ind.time					-0.001 (-0.75)	0.00 (0.34)					-0.00 (-0.65)	0.00 (0.33)	
Ident col.					Include d	Include d					Include d	Include d	
Const	-0.83 (-1.32)	0.35 (0.41)	-0.80 (-1.34)	-1.68 (-2.33)	-0.59 (-0.87)	-1.32 (-1.43)	-4.47 (-2.10)	-0.42 (-0.13)	-5.82 (-2.52)	-8.66 (-3.05)	-4.07 (-1.31)	-7.75 (-2.14)	
Obs	95	76	81	93	75	80	95	76	81	93	72	77	
R-squared	0.43	0.43	0.28	0.43	0.43	0.44							
Pseudo R-sq							0.21	0.22	0.33	0.24	0.38	0.25	

Note: Pooled OLS regressions in columns 1-6 are reported with robust standard-errors. The t-statistics are in parentheses. The Probit regressions in columns 7-12 are reported with robust standard errors. The Z-statistics are in parentheses. In Panel A the dependent variable is the probability of civil war with more than 25 battle related deaths. In Panel B the dependent variable is probability of civil war with more than 1,000 battle related deaths. The independent variables, which are time variant, are taken at the beginning of the period, 1960.

Table 4: Pooled OLS, and OLS Fixed Effects, from 1825-2000

	Pooled OLS	OLS FE	Pooled OLS	OLS FE	Pooled OLS	OLS FE	Pooled OLS	OLS FE
	From 1825 to 2000		From 1850 to 2000		From 1875 to 2000		From 1900 to 2000	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A Dependent variable: Incidence of War, 25 years period								
Lngdp(t-1)	-0.06 (-2.31)	-0.06 (-0.54)	-0.07 (-2.36)	-0.07 (-0.69)	-0.07 (-2.56)	-0.09 (-0.69)	-0.07 (-2.48)	-0.06 (-0.50)
Lpop(t-1)	0.07 (5.20)	0.03 (0.34)	0.07 (5.14)	0.00 (0.01)	0.07 (5.23)	-0.03 (-0.24)	0.07 (5.14)	0.05 (0.38)
Time dummies	Included	Included	Included	Included	Included	Included	Included	Included
Obs	419	419	413	413	386	386	362	362
R-sq	0.10	0.53	0.10	0.53	0.09	0.53	0.09	0.55
Panel B Dependent variable: Onset of War, 25 years period								
Lngdp(t-1)	-0.06 (-2.25)	-0.06 (-0.56)	-0.06 (-2.30)	-0.08 (-0.70)	-0.07 (-2.50)	-0.09 (-0.73)	-0.06 (-2.43)	-0.06 (-0.46)
Lpop(t-1)	0.07 (5.10)	0.02 (0.28)	0.07 (5.04)	-0.005 (-0.07)	0.07 (5.12)	-0.05 (-0.36)	0.07 (5.11)	0.06 (0.40)
Time dummies	Included	Included	Included	Included	Included	Included	Included	Included
Obs	419	419	413	413	386	386	362	362
R-sq	0.10	0.51	0.10	0.38	0.10	0.51	0.10	0.52
Panel C Dependent variable: Incidence of War, 50 years period								
Lngdp(t-1)			-0.07 (-2.12)	-0.28 (-1.00)			-0.08 (-2.31)	-0.42 (-0.97)
Lpop(t-1)			0.1 (5.09)	0.04 (0.17)			0.08 (4.80)	0.36 (0.42)
Time dummies			Included	Included			Included	Included
Obs			205	205			178	178
R-sq			0.14	0.76			0.13	0.79

Note: The pooled OLS regressions in columns 1, 3, 5 and 7 are reported with robust standard-errors clustered at the country level. The t-statistics are in parentheses. The fixed effects OLS regressions in columns 2, 4, 6 and 8, are reported with country dummies and robust standard-errors clustered at the country level. The t-statistics are in parentheses. Time dummies are included in all regressions. In Panel A and C the dependent variable is the incidence of civil war. In Panel B the dependent variable is the onset of civil war. The sample is an unbalanced panel, 1825-2000 in columns 1 and 2, 1850-2000 in columns 3 and 4, 1875-2000 in columns 5 and 6, and 1900-2000 in columns 7 and 8. The table has data at 25-years intervals in panel A and B, and 50-years intervals in panel C. T-1 refers at the beginning of each period.