

Poverty, Confidence in the Army and Civil War

Essay for the 2003 Isaac Roet Prize Competition on

“The distribution of wealth and income: a question of war and peace?”

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1. Introduction

The present paper seeks to investigate the link between poverty and the incidence of civil war. Taking as its starting point the proposition that social conflicts are an unavoidable part of the human condition, the paper tries to empirically examine a channel through which poverty may promote the recurrence to military power as a means to address the social conflicts that arise. The thesis to be examined at this stage is a simple one: at the individual level, low living standard tends to enhance confidence in the armed forces and therefore, on average, more support for attempting military solutions to emerging conflicts. At the national level this means that, assuming central governments need some popular support in order to start and sustain military campaigns, poorer countries will tend to attempt a military solution to a wider range of conflicts than would richer nations. Thus, the oft reported correlation between low GDP per-capita and civil war incidence, is partly explained through the effects income has on the attitudes of the population and the resulting effect on the ability of governments to sustain a military-solution approach to conflicts. The paper currently only examines the empirical plausibility of this thesis. First, at the national level, I show that the prevalence of confidence in the army is positively related to the risk of experiencing civil war, even after controlling for a host of other factors that are commonly held to account for civil war risk. Further, confidence in the army is shown to be partly responsible for the relationship between GDP per-capita and civil war incidence. Second, at the individual level, I show that in a wide range of countries, with very different economic, cultural and institutional characteristics, income (measured on the same absolute scale in all countries) tends to be negatively related to confidence in the army. The results are preliminary, and

further research is needed. Most importantly, I do not claim to present here an explanation of the crucial link between income and confidence in the army. Yet I believe that the results presented here do suggest that this is an important question that merits further investigation.

I should also emphasize that the results presented here may not apply to the civil wars afflicting Africa, as data on Sub-Saharan Africa is scant and save South Africa, none of the African countries who recently experienced civil war takes part in the empirical analysis that follows. It also seems plausible that the mechanism suggested above - where a government representing the majority of the population faces a potentially insurgent minority - may not hold for many African conflicts where no such central government exists.

Finally it should be noted that much of the literature on civil wars tends to focus on the insurgent side of the conflict and the forces that drive them to rebel (or, more recently, on why people become terrorists). In fact, when I first started thinking about the relation of income-distribution and war, I thought about the conditions under which the exploited poor would rebel against the rich. But civil wars today often appear to be fought over other issues and moreover, there are always at least two sides to a conflict and it oftentimes seems that the poor support the government in *fighting* the rebels. Thus, while studying the rebels' decisions is obviously of major importance, the present paper sets these concerns aside in order to focus on the government side of the conflict, and the population from which it draws its support. The rest of this section sets the stage for the analysis and develops the above thesis in some more detail.

Civil wars account for most of the armed conflicts going on in the world today. According to Marshall and Gurr (2003), "At the end of 2002 there were twelve ongoing major societal wars... In addition, eleven societal wars were experiencing sporadic outbursts of violence" On the other hand, "Interstate wars were uncommon after the United Nations collective security system was established following World War II. In the 1990s, there were very few interstate wars and their magnitude and duration were mostly limited" (pp.12-13). The enormous human suffering caused by civil wars and by their negative effect on economic development, makes the study of the causes and the

underlying conditions conducive to civil wars of primary importance. In recent years, attempts have been made to empirically identify the sources of civil wars using large data sets, mostly from the second half of the 20th century (see Sambanis, 2002 for a survey of the literature). The empirical studies typically attempt to estimate a model where the probability of the eruption of civil war in a given country at a given time interval is determined by various aggregate measures at the country level such as GDP, natural resources, ethno-linguistic and religious fractionalization indices, education level, civil liberties and democracy indices and inequality measures. These studies have proved to be useful in testing the plausibility of theoretical claims made as to the effects of various factors - such as regime type, income inequality or ethnic diversity – on the risk of civil war. Yet, while they have been able to reveal correlations – or the lack thereof – between the incidence of civil war and a range of country features, it has been very hard to establish causal links based on cross-country data only.

The strongest and most robust finding in the empirical literature seems to be that societies at low levels of economic development have suffered much more from societal warfare than prosperous societies. This seems to suggest that higher national income, as measured by GDP per capita, significantly reduces the risk of civil war. But it is equally well argued that civil wars – and socio-political instability in general – are detrimental to economic growth, at least in the short run (Benabou 1996, Murdoch and Sandler 2002). In fact, the results often come from rather similar data sets, with a different variable assigned to the role of independent variable. Causality, in other words, probably runs both ways, and it may be hard to separate the effects in a cross-section of countries. Although most authors are aware of the endogeneity problem, few studies have directly addressed this issue. Notably, Miguel, Satyanath and Sergenti (2003) use rainfall variation as an instrument for per capita income *growth* in Sub-Saharan African countries to show a strong effect of negative economic shocks on the likelihood of conflict.

Yet even accepting that low levels of economic development are conducive to civil war, it is not quite clear *why* this should be the case – and as acknowledged by Miguel et. al. (2003), cross-country data seem insufficient to answer this question. Collier and Hoeffler (2001), for example, view income per-capita as a proxy for the cost of recruiting rebels. Low per-capita income thus facilitates conflict by making rebellion

cheaper. This interpretation may perhaps be in line with standard economic theories of crime, where forgone income is a crucial factor in the decision to allocate time to criminal activities (Becker, 1968) – but it does not necessarily follow from the cross country data.¹ Fearon and Laitin (2003), on the other hand, while finding a similar relationship between GDP per-capita and civil wars, claim that low GDP per-capita is related to “weak states”, which in turn attract insurgency: “Financially, organizationally, and politically weak central governments render insurgency more feasible and attractive due to weak local policing or inept and corrupt counterinsurgency practices” (pp. 75-76). Once again, while plausible, the interpretation doesn’t necessarily follow from the cross country correlations. In particular, since GDP per-capita is correlated with so many factors that are not easily controlled for - social, economic, political, international - it is hard to point to any particular mechanism as driving the statistical relationship. In order to do that, the aggregate-level analysis probably needs to be augmented by a disaggregated one.

The present paper investigates the plausibility of a different possible link between poverty and civil war by examining both aggregate and individual level data. The basic idea is that poverty may facilitate the eruption and persistence of wars not just through motivating the poor to choose violent action against the rich, but by cultivating attitudes that are more favorable to military solutions to civil conflicts. This shifts the emphasis from the insurgent side of the conflict to the government and the attitudes of its population. Thus lower income may enhance civil wars even if it does not generate incentives to expropriate the rich, grievances, or feelings of relative deprivation on the part of the poor. Nor does poverty need to directly encourage individuals to opt for violent political actions themselves, say by lowering opportunity costs. Indeed recent research into the determinants of participation in militant and terrorist activities -- Hezbollah militant activities in Lebanon, attacks by Israeli Jewish settlers on Palestinians in the West Bank, suicide bombings in Israel by Palestinians -- has found no evidence that having a lower living standard or a lower education level is positively associated with participation in militant and terrorist activities (Krueger and Maleckova 2002,

¹ Collier and Hoeffler (2001) also use male secondary schooling rates and growth rates to proxy forgone income (and find the expected sign), but one can think of other plausible reasons why aggregate education levels or growth might be correlated with civil war eruption.

Berrebi 2003). Yet it has been repeatedly demonstrated in Europe and elsewhere, that lower social strata (poorly educated, manual workers or unemployed) are more likely to vote for extreme right parties and express hostility towards immigrants, favorable in-group attitudes and authoritarian attitudes (see e.g. Kitschelt 1996, Ignazi 2003 and Lubbers et al. 2002. Lipset 1960 provides a classical reference point on “Working-class Authoritarianism”). This paper tries to link these two observations to the observed correlation between GDP per capita and civil wars. The thesis to be explored here is that lower income – in absolute terms – is associated with beliefs that make the choice of military actions in response to an emerging conflict, and the continued use of force to deal with ongoing conflicts, more likely. More specifically, income seems to be negatively associated with confidence in the armed forces. This relationship holds at high industrialized-countries income levels as well as at low developing countries levels and may help explain why poor countries also have a higher prevalence of high confidence in the army, which in turn can help explain the frequent recurrence to violence in dealing with conflicts in these countries.

Illustrating how confidence in the army might lead, on average, to more conflicts being addressed by use of the military is rather straightforward. Let us abstract from the motives and calculations of rebels and rebel leaders - which appear to be many and diverse - and consider a central government that faces a potentially violent conflict with some minority group. The issue at stake can be represented by the interval $[0,1]$. For example, an outcome x in this interval may represent the proportion of a disputed territory that is controlled by the government or a measure of the level of net transfers to members of the minority group. Assume the government prefers outcomes closer to one, and set the government's utility numbers as $u(1)=1$ and $u(0)=0$. The government has the option of trying to solve the conflict by negotiations, which would yield some expected utility z . Alternatively, the government can choose to confront the minority militarily, at a cost of c utils. The government's perceived probability of winning the war is p and of losing $1-p$. The winner takes all: if the government wins it can enforce its optimal outcome $x=1$, and if it loses the rebels set $x=0$. Using expected utility, the government would opt for war if $p-c > z$. Now it seems reasonable to suspect that many factors other than p may affect z , the expected utility from opting for negotiations. One can think of

historical, social, cultural, economic or other factors that may affect the preferences of the rebels, their capability to cooperate, their ability to commit to future actions and so on. Whatever those factors might be – a higher value of p would mean that a wider range of conflicts (as captured by their z 's) would be met by a military response.²

Now, we can think of each member of the non-rebel population as going through similar reasoning when forming a preference as to whether the government should opt for war or negotiations. If for some reason, low income leads to a higher assessment of the capabilities of the armed forces, then low-income individuals would also tend to support military solutions to a wider range of conflicts than would high-income individuals. Assuming the government's choice of going to war is affected by the preferences of its people³, this provides a possible link between low income countries and the risk of civil war.

The outline of the rest of the paper is as follows. Section 2 replicates cross country results on the correlates of civil war, and then looks at the effect of including a measure of confidence in the armed forces in the analysis. Section 3 uses surveys from 27 countries during the 1990's to examine whether the relationship between income and confidence in the army holds at the individual level as well. Section 4 offers a brief conclusion.

2. Confidence in the armed forces and civil war risk – the cross-country patterns

Figure 1 shows the mean level of confidence in the armed forces plotted against GDP per capita. The level of confidence is taken from the second and third waves of the World Values Survey (Inglehart et al. 2000, henceforth WVS), performed in the early and mid 1990's, respectively. Each point represents the estimated mean from one country at

² It can of course be argued that a higher p would lead to a higher z : if the government is perceived as strong, rational rebels will be expected to settle for less in negotiations. Granted, it still seems reasonable to assume that p is not the only cause of variation in z , and the analysis above would pertain to that variation in z that is not caused by changes in p .

³ In a perfect majoritarian democracy that would mean the choice of the median voter, in a less perfect one of some other pivotal actor.

one year. Confidence in the army is measured on a scale of 1 to 4, where 4 represents “a great deal of confidence”; 3 “quite a lot of confidence”; 2 “not very much confidence” and 1 “none at all”. Figure 2 shows a similar pattern using the proportion of the population professing the highest level of confidence in the armed forces, which is a more meaningful measure since using a 1 to 4 scale to calculate the mean is rather arbitrary. The figures suggest that some of the observed correlation between GDP per-capita and civil wars might indeed be due to the former picking up the effect of confidence in the armed forces. This section explores that possibility, using Fearon and Laitin (2003) as the point of reference

2.1. Data

The data to be used are essentially those used in Fearon and Laitin, 2003 (Henceforth FL), augmented by measures of confidence in the armed forces taken from the WVS, and by alternative ways to code civil wars and civil conflicts, taken from Gleditsch, Wallensteen, Eriksson, Sollenberg & Strand, 2002 (Henceforth GWESS). Detailed information on the variables, the coding methods and the countries participating in the analysis is given in the data appendix. Confidence in the armed forces is measured by the proportion of the population professing the highest level of confidence in the armed forces, taken from the WVS.

I use three different measures of armed conflicts to code countries that participated in the WVS and have experienced civil war within the five years following the year at which the survey was conducted (the analysis is hardly affected by using only one subsequent year). The first measure is the one used by FL. It codes as “*Civil Wars (FL)*” violent conflicts that satisfy the following primary criteria: (1) They involved fighting between agents of a state and organized, nonstate groups who sought either to take control of a government, to take power in a region, or to use violence to change government policies. (2) The conflict killed at least 1,000 over its course, with a yearly average of at least 100. (3) At least 100 were killed on both sides (including civilians

attacked by rebels).⁴ A possible drawback of this definition for our purposes might be that it emphasizes the history of the conflict, coding a country as experiencing civil war so long as war has not “ended” even if there is little actual fighting going on that year. The UK during the 90’s is a case in point. The second and third measures deal with this problem in that they use battle-related deaths per year as the primary criterion. These measures are based on the Armed Conflict Dataset version 1.2 compiled by GWESS, which is an extension of the Correlates of War project (Singer and Small, 1972; Small and Singer, 1982; Singer and Small, 1994). 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. The subset of conflicts in which I will be interested here is internal conflicts, or Civil Conflicts. A “*Civil Conflict (GWESS)*” is a conflict within a country between a government and one or more opposition groups. Finally I shall define a “*Civil War (GWESS)*” an internal armed conflict with at least 1000 battle-related deaths per year. The results of the three coding schemes are presented in table 1. It is important to note that Sub-Sahara-African civil wars, which account for many of the civil wars troubling the world today, are virtually absent from the analysis to be performed here as Nigeria, Ghana and South-Africa are the only SSA countries surveyed.

Finally, Table 2 presents descriptive statistics. For comparison purposes, it also presents the same statistics from the complete FL data set at comparable years, which may be thought of as the entire population. As can readily be seen, the sample to be used here is biased towards richer and more democratic countries. It also has a lower proportion of civil wars. Again, the bias is primarily due to the under-sampling of African countries.

2.2 Results:

⁴ Fearon and Laitin 2003, p. 76. The last condition is intended to rule out massacres where there is no organized or effective opposition. See the appendix for the full list of criteria used.

I use a simple linear probability model (LPM), estimated by OLS.⁵ The dependant variable is whether the country had a civil war in progress in any of the ensuing five years, regardless of whether this was a “new” war that erupted during the period [see Elbadawi and Sambanis 2002 for a discussion on using this measure rather than separating onset from duration]. As in most cross-country regressions, a causal link between confidence in the army (or other covariates) and civil war risk cannot be established based on these regressions alone. An obvious reason is that in countries experiencing -- or even expecting -- war, support for the army may tend to rise, which may be reflected in the reported confidence in the army. If this is the case, it would be very hard to separate such effects from the effect these attitudes in turn have on the eruption or perpetuation of the war. It should also be emphasized that the sample used here is much smaller than the samples typically used in the literature on determinants of civil war, which contain data on most of the post WWII period, and more than 150 countries.⁶ Using WVS data, on the other hand, reduces these to only two periods with 30 to 40 (often different) countries in each. Thus, the exercise in this section is intended mainly to establish the claim that part of the observed relationship between GDP per capita and civil war risk is due to widespread confidence in the army.

The results are presented in Table 3. For each measure of armed civil conflict, the table shows the results from estimating a model without controlling for confidence in the army, and then the effect of including it in the model (keeping the sample unchanged). The baseline specification is built on that used in FL.⁷ The sample of countries with both WVS and FL data available consists of 71 to 74 country-years.⁸ In order to assess the

⁵ Maximum likelihood estimation of probit or logit models cannot identify several specifications, since some outcomes are completely determined by the various dummy variables. LPM also has the benefit of readily interpretable coefficients. Where probit models could be identified (e.g. for column (1) in table 3), the estimated marginal effects at the means were for the most part almost identical to the LPM estimates.

⁶ Thus, Collier and Hoeffler. (2001), working with five-year intervals, use between 600 to 800 data points (country-year) in most regressions. Fearon and Laitin (2003), employing annual data, use between 5100 to 6400 data points..

⁷ Two variables are dropped from the analysis however. The dummy used by FL for new states doesn't vary in this sample and hence is dropped. Including a dummy for prior war doesn't make much sense when the dependent variable is not the start of a new war, and it tends to make most other coefficients insignificant as most of the wars in this sample have been ongoing for several years.

⁸ The difference is due to using a different measures of GDP per capita in the first three columns.⁸ In the last four columns I use log GDP per capita from PWT 6.1 rather than the FL measure which is based on PWT 5.6 and imputations by the authors. For comparability with the result in the first column, which uses the entire FL sample, all first three columns use the FL measure of log GDP per capita.

comparability of the results obtained from this small sample to the larger-sample results in the literature, the first column shows the results of estimating the baseline specification using the full post-World-War-II FL sample.⁹ Comparing the first two columns we first note that the effects are generally in the same direction and have the expected sign. There are however rather large differences in the size of the effects of GDP and population size. Also noteworthy are the vanishing effects of ethnic fractionalization and political instability in the smaller sample. The rest of the coefficients look rather similar, though they usually lose statistical significance. The overall picture seems reassuring in that the coefficient have the same sign and are at least of the same order of magnitude as the ones obtained from the full sample. Also reassuring is the fact that the results in column (2) are in line with the results reported by FL, despite the fact that the dependent variable there is civil war *onset*. Most variables have similar qualitative effects. GDP per-capita has a negative effect, population size a positive effect, and state contiguity, democracy, and levels of ethnic and religious fractionalizations appear not to be significantly related to the risk of civil wars, when other features – in particular income – are controlled for. The deviations from the FL results are of some variables becoming statistically insignificant, which is to be expected due to the small sample. These are mountainous terrain and the Oil Exporter and Instability dummies.

Column (3) adds the variable measuring the proportion of the population expressing “a great deal” of confidence in the armed forces, while keeping the sample fixed. The effect seems positive, large and statistically significant. If we took it literally, it would mean that a percentage point increase in the proportion of the population with high confidence in the army gets translated to a percentage point increase in the risk of civil war, all else equal. Note also the substantial improvement in the fit of the regression: after including the confidence in the army variable, the R^2 increases from 0.38 to 0.49. The point to emphasize, however, is that the marginal effect of log GDP per-capita is cut significantly from 0.18 to 0.11. This seems to support the claim that part of the relation between income per-capita and civil war is due to the correlation between income and

⁹ The specification here may well be objected to – for example because there is no accounting for possible endogeneity of GDP and instability or for the panel nature of the data. But again, I am not claiming to be estimating a causal relationship here. The purpose is to show that part of the relationship between GDP and civil wars can be related to confidence in the army.

confidence in the armed forces. One may also note a similar outcome with respect to the coefficient on population size – a coefficient that received relatively little attention in the literature. Confidence in the army is generally higher in bigger countries, and omitting it from the analysis results in a higher estimated effect of population size. Columns (4) and (5) repeat the exercise with the GWESS definition of civil wars. The results are similar. Confidence in the army has large positive effect, the fit is substantially improved and the estimated effect of log GDP per-capita is considerably reduced (from a marginal effect of -0.11 to -0.05).

To check whether this is the effect of confidence *in the army* and not confidence in institutions in general, the above procedures were repeated with a range of similar measures taken from the WVS for confidence in the churches, the press, the legal system, the police, the civil service and major companies (results not shown). None had a similarly positive effect on civil war, and none undermined the effect of GDP per capita.

Finally, columns (6) and (7) look at the effect on the more inclusive category of civil conflicts (requiring “only” 25 battle-related deaths per year). The effects here are less clear since these conflicts were experienced by a more heterogeneous set of countries. Thus, GDP per-capita does not appear to be negatively related to civil conflicts, even before introducing confidence in the army. Interestingly, the only coefficient significant at the 5% level in column (6) is ethnic fractionalization, which appears to have an (intuitive) positive effect. Confidence in the army, however, is estimated to have a positive effect, similar in size to the ones estimated for the two measures of civil war, and with a p-value of 0.074.

Overall, then, the cross sectional patterns are consistent with the claim made in the introduction, that part of the relationship between GDP per-capita and civil wars is due to the level of confidence that the army enjoys in the populations of poor countries. This does not prove a causal link, but at least the data does not refute the existence of such a link. We now turn to examining whether the relationship between confidence in the army and national income levels is spurious – that is, whether it is simply the case that in rich countries everyone has relatively low confidence in the army, and conversely in poor countries, which may be due to other factors affecting both GDP and attitudes –

or whether the relationship also holds at the individual level, both in rich and in poor countries.

3. Poverty and confidence in the army at the individual level

Is there a consistent relationship between income and confidence in the army at the individual level? Are richer people less likely to have a high level of confidence in their country's armed forces, regardless of whether they live in a poor or a rich country? The answer I offer in this section is a tentative yes, based on surveys from a reasonably diverse sample of 27 countries during the 1990's, all using the same confidence-in-the-army question. Why this may be the case is a matter for further research and is almost certainly related to the broader question of the relationship between nationalism and modernization (e.g. Gellner, 1983; Anderson, 1991; Hobsbawm, 1992). The results presented here suggest that education probably plays a prominent role. But while consistent with the data, I wish to caution once again against a causal interpretation of these results – no theoretical claim has been made as to why and through what mechanism income should be related to confidence in the army at the individual level.

3.1 Data

Data is taken from the WVS, second and third waves. To measure income - or living standards - in a comparable way, I use income per household member, converted to 1996 dollars using the PWT 6.1 consumption-purchasing-power-parities. The household income question in the WVS typically uses ten categories of income, which differ from survey to survey. However, information on the income categories used is not available for all countries participating in the WVS. Moreover, for a few of those countries where detailed income data is available, no reliable PPP exchange rates exist. As a consequence, we are left with 31 national surveys and four surveys from Spanish regions. Details on

the procedures used to obtain household income, household-size and PPP's are given in the data appendix.

Table 4 presents some summary statistics. Sample sizes vary from below 500 in Finland Galicia and Valencia to 2771 in Spain 1996, with an average of 960 observations per sample. Median confidence in the army ranges from 2 (“not very much”) to 4 (“a great deal”) and the proportion with the highest level of confidence in the army ranges from below 5% in Austria, Belgium, Latvia and the Netherlands to over 64% in Turkey. Confidence in the army normally has within-country standard deviation of around 0.8. Log of income per household member in 1996 PPP dollars ranges in these data from 5.7 (\$300) to 10.6 (\$40,000) and the country-means of the logs range from 6.7 to 9.6. Finally, the average age in these samples is normally around 47 with standard deviation of 15, and the samples are usually balanced between the sexes, except for Austria, India and the Netherlands that over-represent women.

3.2 results

Two estimation strategies are used. The first is the ordered probit model that seeks to use all the information available in the confidence-in-the-army question, which has four possible answers, ordered from “none at all” to “a great deal” of confidence. The natural way to do that is to use a latent variable model of the form:

$$y^* = \beta'x + \varepsilon, \varepsilon \sim N(0,1)$$

where y^* - the continuous underlying level of confidence - is unobserved. We observe the discrete level of confidence y :

$$\begin{aligned} y &= 1 \text{ if } y^* \leq \mu_1 \\ &= 2 \text{ if } \mu_1 < y^* \leq \mu_2 \\ &= 3 \text{ if } \mu_2 < y^* \leq \mu_3 \\ &= 4 \text{ if } \mu_3 < y^*. \end{aligned}$$

The parameters (β , μ_1 μ_2 μ_3) can then be estimated by maximum likelihood. The difficulty with this approach is that it is difficult to interpret and compare the coefficients obtained from different regressions run on different surveys, since in each one the estimated cutoff points (the μ 's) will be different. Also, the results are not directly related to those presented in the previous section, where the measure of confidence we used was the frequency of the highest level of support for the army. To address these issues, a linear probability model is also used, with an indicator variable for the highest level of confidence in the armed forces as dependant variable. The cost is of losing the information contained in the variation between the three lower confidence levels.

The results are summarized in Table 5. Column (1) shows, for each survey, the estimated ordered probit coefficient on log income per household member (each estimated coefficient represents a separate regression). The only controls included in these regressions are age and sex. The results are rather striking in that the point estimates are overwhelmingly negative, suggesting a negative effect of income (or, more likely, of some unobserved variable associated with income) on the level of confidence in the armed forces. Note that there is no clear difference between richer and poorer countries with respect to the marginal effect of log-income. There appears to be a strong negative relationship between income and confidence in the army in Italy and Brazil, Bulgaria and Canada. Interestingly enough, the negative relationship is also present in the Basque region of Spain, where roughly 50% of the respondents described themselves either as "Only Basque" or as "More Basque than Spanish". Including controls for ethnic self description in this model, while drawing highly significant coefficients with the expected sign (the more people describe themselves as Spanish rather than Basque, the more confidence they have in the army), does little to reduce the effect of household income. This suggests that ethnic identification may not be the entire story underlying confidence in the army. One should note however that roughly half of the estimated coefficients are not statistically different from zero, and a few of these actually have a positive point estimate. Some of these results may perhaps be attributed to the small samples (e.g. Finland) but there are probably other factors at work as well. In India for example, although confidence in the army is generally very high, most of the *variation* in

confidence in the army in the 1990 survey seems to come from regional differences and *not* from differences in income or education.¹⁰

Column (3) presents the LPM estimated coefficients. The overall picture is similar – almost all point estimates are negative – but they tend to be less precise, and fewer attain statistical significance. However, these coefficients enable us to gain some feeling for the size of the effect. For concreteness, take a coefficient of around -0.05 (Canada, Macedonia, Netherlands, Russia). This coefficient means that a doubling of the annual household income is associated with a 5 percentage points decrease in the probability that the respondent would report the highest level of confidence in the army. Is this effect large? Let's take another look at figure 2, showing the national proportion of highest level of confidence against log of GDP. If we were to fit a straight line to that figure the slope of the line would be -0.1. That is, the association between income and confidence in the army *at the individual level* is enough to explain half of the association observed at the national level. This leaves plenty of room for other, national factors – such as recent conflicts – to simultaneously affect both average income and average support for the army. But the association at the individual level seems to suggest that the cross country association is not all due to such factors.

We are left then with the intriguing question of what might drive the relationship between income and confidence in the army. That question requires further study, and will not be addressed at this stage. One prominent candidate, however, deserves a preliminary checkup. It has often been argued that formal education is related to non-tolerant, racist or authoritarian predispositions (e.g. Lipset 1960; Altemeyer 1988, 1996; Kitschelt 1996; Schuman, Steeh, Bobo, and Krysan, 1997. On the link between confidence in the army and authoritarian attitudes see the analyses in Fleishman 1988 and Kitschelt 1996). Columns (2) and (4) in table 5 estimate the same ordered probit and LPM models as above, but control for education, in those surveys where such data is available. The result in almost all the regressions is to diminish the negative effect of income on the confidence measure used. It appears then that part of the individual-level

¹⁰ Residents of the north region have a significantly higher level of confidence in the army than do residents in the south, while residents of the east and west regions are in between. These differences are significant in the sense that including regional dummies in the ordered probit specification of column (1) yields coefficients statistically significant at 1% level. It is interesting to note that *within* the educated group (completed high school and beyond) income does have a negative and highly significant effect.

effect of income is due to the higher education levels associated with higher income. That the income effect often remains significant might perhaps be due to badly measured education data. Specifically, one would like to be able to control for the content of the education received, and not just its “quantity”. But it is at least as likely that other factors, related both to income and to attitudes toward the military, are also at work.

4. Concluding Remark

Military and political leaders engaged in violent conflict often seem to devote considerable efforts to try and boost popular confidence in their armed forces. It seems plausible to assume that such efforts are not unreasonable, in the sense that higher confidence in the armed forces can lead to higher popular support for the war being fought (or anticipated). As we have seen, the claim that widespread confidence in the army may facilitate the practice of civil war is consistent with the available data. Yet confidence in the army is not determined just by governmental propaganda. The present paper tried to point to the possibility that the living standards of the population may also be related to the levels of confidence they have for the army. Could it be then that the extensive popular confidence that the army enjoys in countries like Turkey and India is not just a *result* of the long conflicts in which they have been involved, but also a factor that prolongs them – and that such confidence is partly due to the low income levels of much of the populations of these countries? I tried to show here that this possibility is not rejected by the available data, but to be able to say more we need to identify the mechanism underlying the association of income to confidence in the army. This is yet to be done.

Data Appendix

- A. Conflict definitions and lists of civil conflicts
- B. Variable definitions
- C. List of countries included in the cross-country regressions
- D. Household income data (WVS)

A. Conflict definitions and lists of civil conflicts

A1. FL definitions

The following criteria are used by Fearon and Laitin (2003) to code civil wars:

- (1) They involved fighting between agents of (or claimants to) a state and organized, non-state groups who sought either to take control of a government, to take power in a region, or to use violence to change government policies.
- (2) The conflict killed at least 1,000 over its course, with a yearly average of at least 100.
- (3) At least 100 were killed on both sides (including civilians attacked by rebels).
- (4) The start year is the first year in which 100 were killed or in which a violent event occurred that was followed by a sequence of actions that came to satisfy the primary criteria.
- (5) If a main party to the conflict drops out, a new war start is recorded if the fighting continues.
- (6) War ends are coded by observation of a victory, wholesale demobilization, truce, or peace agreement followed by at least two years of peace.
- (7) Involvement by foreign troops does not disqualify a case as a civil war, provided the other criteria are satisfied.
- (8) Multiple wars in a country are coded when distinct rebel groups with distinct objectives are fighting a coherent central state on distinct fronts with little or no explicit coordination.
- (9) If a state seeks to incorporate and govern territory that is not a recognized state, we consider it a “civil war” only if the fighting continues after the state begins to govern the territory.

These criteria yield the following conflicts for countries included in the cross country regressions reported in table 3.

Country	War years	Case
Bangladesh	1976-97	Chittagong Hills/Shanti Bahini
UK	1969-99	IRA
China	1991-	Xinjiang
Colombia	1963-	FARC, ELN, etc
India	1989- 1982-93	Kashmir Sikhs
	1952-	N. East rebels
Pakistan	1993-99	MQM: Sindhis v. Mohajirs
Philippines	1968-	MNLF, MILF

Russia	1994-96, 1999-	Chechnya
South Africa	1983-94	ANC, PAC, Azapo
Turkey	1984-99	PKK

A2. GWESS definitions

The following definitions are used in Gleditsch, Wallensteen, Eriksson, Sollenberg, & Strand (2002):

- **Armed conflict**

An *armed conflict* is 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.

The separate elements of the definition are operationalized as follows:

(1) *Use of armed force*: use of arms in order to promote the parties' general position in the conflict, resulting in deaths.

(1.1) *Arms*: any material means, e.g. manufactured weapons but also sticks, stones, fire, water, etc.

(2) *25 deaths*: A minimum of 25 battle-related deaths per year and per incompatibility.

(3) *Party*: A government of a state or any opposition organization or alliance of opposition organizations.

(3.1) *Government*: The party controlling the capital of the state.

(3.2) *Opposition organization*: Any non-governmental group of people having announced a name for their group and using armed force.

(4) *State*: A state is:

(4.1) an internationally recognized sovereign government controlling a specified territory,
or

(4.2) an internationally unrecognized government controlling a specified territory whose sovereignty is not disputed by another internationally recognized sovereign government previously controlling the same territory.

(5) *Incompatibility concerning government and/or territory*: The incompatibility, as stated by the parties, must concern government and/or territory.

(5.1) *Incompatibility*: the stated generally incompatible positions.

(5.2) *Incompatibility concerning government*: Incompatibility concerning type of political system, the replacement of the central government, or the change of its composition.

(5.3) *Incompatibility concerning territory*: Incompatibility concerning the status of a territory, e.g. the change of the state in control of a certain territory (interstate conflict), secession, or autonomy (internal conflict).

- **Intensity**

The intensity variable is coded in three categories:

1. *Minor*: More than 25 battle-related deaths per year for every year in the period.

2. *Intermediate*: More than 25 battle-related deaths per year and a total conflict history of more than 1000 battle-related deaths.

3. *War*: More than 1000 battle-related deaths per year for every year in the period

- **Type of conflict**

GWESS define four types of conflict:

1. *Extra-state*: Extra-state conflict is a conflict over a territory between a government and one or more opposition groups, where the territory is a colony of the government.
2. *Interstate*: Interstate conflict is a conflict between two or more countries and governments.
3. *Internal*: Internal conflict is conflict within a country between a government and one or more opposition groups, with no interference from other countries
4. *Internationalized internal*: Similar to Internal conflict, but where the government, the opposition or both sides receive support from other governments

These criteria yield the following conflicts for countries included in the cross country regressions reported in table 3.

1. Civil war:

Country	Case
South Africa	1989-1993 – Civil war involving the government and the ANC, PAC and AZAPO
India	1989-1992 - Civil war over the Punjab involving the government and Sikh insurgents (more than 24 organizations reported). Ended after 1993. 1990-93, 1999-2001 - Civil war over Kashmir involving the government and Kashmir insurgents (over 60 groups reported). Intermediate conflict in the intervening years. 1991 – Civil war over Assam, involving the government and Assam insurgents. Continued on an Intermediate level 1992-2001.
Turkey	1992-97 - Civil war over Kurdistan, involving the government and the PKK. Conflict started at minor level in 1984 and picked up. Continued on an Intermediate level 1998-2001.
Russia	1995-96, 1999-2001 - Civil war over Chechnya, involving the government and the “Republic of Chechnya (Ichkeria)” organization.
Philippines	2000 MILF Civil war over Mindanao, involving the government and the MILF (Moro Islamic Liberation Front), Abu Sayyaf ,MNLF (Moro National Liberation Front). History of war and intermediate level conflicts over Mindanao since 1970. intermediate level of conflict 94-99.
Colombia	1992-93, 1998-2001 - Civil war between the Government and rebel groups (FARC, ELN, EPL, M-19). Intermediate level of conflict in the intervening years. Rebel groups are leftist but coca production and drug trade is a major issue.

2. Internal conflict with less than 1000 casualties per year:

UK	1978-93, 1998 – intermediate conflict over Northern Ireland involving the British government and the IRA.
Spain	1991-92 – minor internal conflict over Basque region involving the

government and the ETA. History of minor internal conflicts in 1980-81, 1987.

Peru 1993-1999 - intermediate level of conflict between the government and rebel groups. History of civil wars in 1981-1985, 1988-1992 with intermediate levels of conflict in between.

Mexico 1994 – minor internal conflict between the government and the EZLN (Zapatistas, over Chiapas, autonomy for Mexico's indigenous communities).

Macedonia 2001 - Minor internal conflict with the UCK

Croatia 1995 - minor internal conflict involving the government, Serbian irregulars and the Serbian Republic of Krajina. history of conflict/war with Serbia (1991) and Serbian irregulars in 1992-93

B. Variable definitions

Variable	Source	Details
Real GDP per-capita	Fearon & Laitin (2003) (used in columns 1-3 of table 3 only). PWT 6.1	PWT 5.6 if available, and then authors' imputations derived from WDI 2001 growth rates and COW energy consumption data. Real GDP per-capita (chained)
Population	Fearon and Laitin (2003)	PWT 5.6 if available, then WDI 2001, then COW. Measured in 1000s.
Mountainous terrain	Ibid	Proportion of the country that is "mountainous" according to the codings of geographer A.J. Gerard.
Noncontiguous state	Ibid	Countries with territory holding at least 10,000 people and separated from the land area containing the capital city either by land or by 100 km of water.
Oil exporter	Ibid	Fuel exports as percentage of merchandise export greater than 33%. (WDI data).
Instability	Ibid	Dummy variable indicating whether the country had a three-or greater change on the Polity IV regime index in any of the three years prior to the country-year in question.
Democracy	Ibid	Polity IV measure (lagged 1 year). Varies from -10 to 10.
Ethnic fractionalization	Ibid	Ethnolinguistic fractionalization (ELF) index based on data from Atlas Narodov Mira 1964, which gives the probability that two randomly drawn individuals in a country are from different ethnolinguistic groups.
Religious fractionalization	Ibid	Analogous to ELF, from the CIA Factbook.
Confidence in Armed Forces	WVS, waves 2 and 3 (Inglehart et al. 2000).	Percentage of the population reporting "a great deal" of confidence in the armed forces, in response to the following question: <i>"I am going to name a number of organizations. For each one, could you tell me how much confidence you have in them: is it a great deal of confidence, quite a lot of confidence, not very much confidence or none at all?"</i>

C. List of countries included in the cross-country regressions

(Nation and WVS year, total: 74)

Argentina 90	Denmark 90	Moldova 96	Slovenia 95
Argentina 95	Dominic rep 96	Netherlands 90	Spain 90
Armenia 95	Estonia 96	Nigeria 90	spain 96
australia 95	finland 90	Nigeria 95	Sweden 90
Austria 90	Finland 96	Norway 90	Sweden 96
Azerbaijan 96	France 90	Norway 96	Switzerland 96
Bangladesh 96	Georgia 96	Pakistan 96	Taiwan 95
Belarus 96	Ghana 95	Peru 96	turkey 90
Belgium 90	Hungary 90	Philippines 96	turkey 96
brazil 90	India 90	Poland 90	Ukraine 96
brazil 96	India 96	Poland 96	Uruguay 96
Britain 90	Ireland 90	Portugal 90	usa 90
Bulgaria 98	Italy 90	Romania 90	usa 95
Canada 90	Japan 90	Russia 90	Venezuela 96
Chile 90	Japan 95	Russia 95	
Chile 96	Latvia 96	s Africa 90	
china 90	Lithuania 96	s Africa 95	
Colombia 97	Macedonia 97	s Korea 90	
Croatia 95	Mexico 90	s Korea 96	
Czech 90	Mexico 96	Slovenia 90	

D. Household income data (WVS)

D1. Estimating Household Income by Income Categories

The World Values Surveys report a measure of total, pre-tax household income "counting all wages, salaries, pensions and other incomes that come in." For most countries, household income is reported in ten categories, usually running from 1 to 10, where the cutoff points between categories differ from country to country, and the lowest and uppermost categories are open ended (e.g. "More than 450,000 Pesetas"). The major exceptions are Bulgaria and Macedonia in the third wave, where the actual level of income is reported.¹¹ The data used for individual level analysis in this paper are only from those countries where the income categories cutoff points can be ascertained. It should be emphasized that contrary to the impression one might get from the WVS literature, these income categories are *not* deciles. A small problem arises, therefore, of assigning individuals a level of income based on the reported categories, that is, of assigning a specific point within the reported interval. This is done here by assuming a log-normal distribution of household income within each nation and wave, and estimating the parameters of the distribution by maximum likelihood. Once one has the distribution, each individual is assigned the median point conditional on the interval within which her income lies.

Formally, let h_i denote the upper bound of individual i 's log-income, and l_i denote i 's log-income lower bound. Let $h_i = \infty$ and $l_i = 0$ if, respectively, no upper and lower bounds are given. Under log normality, the probability of observing, say, \tilde{h} and \tilde{l} is:

$$\text{prob}(h_i = \tilde{h}, l_i = \tilde{l}) = \begin{cases} \Phi\left(\frac{\tilde{h}-\mu}{\sigma}\right) & \tilde{l} = 0, 0 < \tilde{h} < \infty \\ \Phi\left(\frac{\tilde{h}-\mu}{\sigma}\right) - \Phi\left(\frac{\tilde{l}-\mu}{\sigma}\right) & \tilde{l} > 0, 0 < \tilde{h} < \infty \\ 1 - \Phi\left(\frac{\tilde{l}-\mu}{\sigma}\right) & \tilde{l} > 0, \tilde{h} = \infty \end{cases}$$

where $\Phi(\cdot)$ is the standard normal CDF. We then estimate μ and σ for each nation and wave by:

¹¹ The USA in the second wave has several open categories at the top. The top four categories are: 07. \$50,000 and over per year; 08. \$50,000 to \$60,000; 09. \$60,000 to \$70,000; 10. over \$70,000. This does not alter the form of the likelihood function to be used below.

$$Max_{\mu, \sigma} \prod_{i=1}^n \left[\Phi\left(\frac{h_i - \mu}{\sigma}\right) \right]^{1(l_i=0, 0 < h_i < \infty)} \cdot \left[\Phi\left(\frac{h_i - \mu}{\sigma}\right) - \Phi\left(\frac{l_i - \mu}{\sigma}\right) \right]^{1(l_i > 0, 0 < h_i < \infty)} \cdot \left[1 - \Phi\left(\frac{l_i - \mu}{\sigma}\right) \right]^{1(l_i > 0, h_i = \infty)}$$

Given the estimated $\hat{\mu}$ and $\hat{\sigma}$, the predicted log-income is simply the median within each interval, that is

$$\widehat{\ln income}_i = \hat{\mu} + \hat{\sigma}[\Phi^{-1}(p_i)]$$

where

$$p_i = \begin{cases} 0.5\Phi\left(\frac{h_i - \hat{\mu}}{\hat{\sigma}}\right) & l_i = 0, 0 < h_i < \infty \\ 0.5\left[\Phi\left(\frac{h_i - \hat{\mu}}{\hat{\sigma}}\right) + \Phi\left(\frac{l_i - \hat{\mu}}{\hat{\sigma}}\right)\right] & l_i > 0, 0 < h_i < \infty \\ 0.5\left[1 + \Phi\left(\frac{l_i - \hat{\mu}}{\hat{\sigma}}\right)\right] & l_i > 0, h_i = \infty \end{cases}$$

These calculations were performed using the sampling weights in the different nations and waves.

D2. Estimating household size

Information related to household size in the world values surveys is available from the following questions:

- Have you had any children? IF YES, how many?
- How many of them are still living at home? [asked in second wave only]
- Do you live with your parents?
- Are you currently....(1) Married; (2) Living as married; (3) Divorced; (4) Separated; (5) Widowed; (6) Single

Since in second wave data on number of children still living at home one can reasonably impute household size for most respondents. However, there is no clear way to predict household size for young respondents living with their parents. For the third wave we do the following. First we estimate for each country participating in the second wave household-size equations, using as regressors the above mentioned questions that appear in both waves, as well as sex, income and religion (the fit was good in all regressions: R^2 around 0.7). We then use the obtained coefficients to predict household size for wave 3. For countries that did not participate in the second wave we use coefficients from neighboring countries with similar distribution of number of children. Once again, household size cannot be predicted for young respondents living with parents.

D3. Consumption PPP's

Household income data was converted from local currencies using official exchange rates and consumption PPP's. Official exchange rates were based on PWT and WDI data, but were verified using IMF data, (some exchange rates in the WDI database were wrong or needed to be multiplied by 1000 etc.). Consumption PPP's were taken from PWT 6.1, except for West Germany 1990, which is based on PWT 5.6. There was no clear way to get reliable consumption PPP's for East Germany and the USSR republics in 1990 (the PPP's in the PWT database appear grossly unreasonable and are very different for countries within the USSR) and for Serbia and Montenegro in 1996.

For details on the PPP estimation procedures see "Data Appendix for a Space-Time System of National Accounts: Penn World Table 6.1 (PWT 6.1)" available from <http://pwt.econ.upenn.edu/Downloads/index.htm>.

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**Table 1: Countries surveyed by WVS that experienced civil conflict
Within the five years following the survey**

Civil War (FL)	Civil War (GWESS)	Civil Conflict (GWESS)
Bangladesh, 96 Britain, 90 China, 90 Colombia, 97 India, 90, 96 Pakistan, 96 Philippines, 96 Russia, 90*, 95 South Africa, 90 Turkey, 90, 96	Colombia, 97 India, 90, 96 Philippines, 96* Russia, 90*, 95 South Africa, 90 Turkey, 90, 96	Britain, 90 Spain, 90 Mexico, 90* South Africa, 90 India, 90, 96 Turkey, 90, 96 Russia, 90, 95 Peru, 96 Philippines, 96 Colombia, 97 Macedonia, 97* Croatia, 95
<p>Table shows countries and year(s) of survey. * Conflict occurred more than one year after the survey. See data appendix for details on the conflicts and the coding criteria.</p>		

Table 2: Summary Statistics: Cross Country Data

Variable	<u>WVS sample</u>			<u>FL sample, 1990 and 1995</u>		
	mean	sd	N	mean	sd	N
Civil war(FL)	0.188	0.393	80	0.243	0.430	292
Civil War(GWESS)	0.122	0.329	82			
Civil Conflict (GWESS)	0.207	0.408	82			
Confidence in Armed Forces	0.191	0.154	96	0.188	0.154	39
GDP per-capita (FL, 1000s)	7.481	5.436	75	4.619	4.813	275
Log population	10.073	1.570	81	9.212	1.446	295
log(% mountainous)	2.211	1.430	81	2.099	1.431	295
Noncontiguous state	0.284	0.454	81	0.159	0.367	295
Oil exporter	0.111	0.316	81	0.159	0.367	295
Instability	0.198	0.401	81	0.197	0.398	295
Democracy	6.329	5.168	79	1.676	7.207	290
Ethnic fractionalization	0.309	0.259	81	0.408	0.283	295
Religious fractionalization	0.360	0.201	81	0.382	0.218	295

Note: The last 3 columns are presented for comparison purposes only. They present statistics from the sample of countries included in the FL dataset at the years most 2nd and 3rd wave WVS surveys were conducted.

Table 3: Cross Country Regressions

	Civil War (FL)			Civil War (GWESS)		Civil Conflict	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Confidence in Armed Forces			1.0212 (0.2723)		0.7720 (0.4009)		0.8372 (0.4604)
Log GDP per capita	-0.0984 (0.0058)	-0.1789 (0.0629)	-0.1135 (0.0687)	-0.1147 (0.0626)	-0.0547 (0.0620)	-0.0258 (0.0807)	0.0392 (0.0852)
Log population	0.0533 (0.0035)	0.1045 (0.0318)	0.0529 (0.0375)	0.0332 (0.0210)	0.0006 (0.0197)	0.0121 (0.0374)	-0.0232 (0.0403)
log(% mountainous)	0.0247 (0.0033)	0.0186 (0.0296)	0.0077 (0.0270)	0.0362 (0.0244)	0.0257 (0.0192)	0.0485 (0.0299)	0.0371 (0.0269)
Noncontiguous state	0.0870 (0.0137)	0.1230 (0.1003)	0.1807 (0.0975)	0.1893 (0.0985)	0.2232 (0.0899)	0.2348 (0.1248)	0.2715 (0.1203)
Oil exporter	0.0901 (0.0140)	0.0566 (0.1458)	0.0781 (0.1412)	0.0951 (0.1313)	0.1280 (0.1242)	0.0363 (0.1672)	0.0719 (0.1626)
Instability	0.1121 (0.0163)	-0.0755 (0.1120)	-0.0814 (0.1116)	0.0178 (0.0929)	0.0197 (0.0864)	0.0090 (0.1369)	0.0111 (0.1304)
Democracy	0.0040 (0.0007)	0.0150 (0.0125)	0.0140 (0.0124)	0.0181 (0.0095)	0.0179 (0.0084)	-0.0032 (0.0184)	-0.0035 (0.0166)
Ethnic fractionalization	0.1308 (0.0194)	0.0352 (0.2054)	0.0700 (0.2210)	0.3018 (0.1850)	0.3334 (0.1815)	0.5567 (0.1902)	0.5910 (0.1913)
Religious fractionalization	-0.0042 (0.0227)	-0.0157 (0.1747)	-0.0814 (0.1634)	-0.1571 (0.1389)	-0.2290 (0.1347)	-0.3501 (0.2126)	-0.4281 (0.2063)
Constant	-0.3694 (0.0300)	-0.7611 (0.3155)	-0.5327 (0.2941)	0.5101 (0.6373)	0.1651 (0.6509)	0.1002 (0.8608)	-0.2740 (0.8864)
N	6205	71	71	74	74	74	74
R ²	0.175	0.383	0.49	0.333	0.413	0.27	0.332

Notes: OLS estimates from a linear probability model, robust standard errors in parentheses. Confidence in Armed Forces is the estimated percentage of the population expressing “a great deal of confidence in the armed forces” (the highest degree of confidence in a scale of 1 to 4). GDP per-capita data for the first three columns are from FL, and are based on PWT 5.6 and the authors’ imputations. For the last four columns GDP per-capita is taken from PWT 6.1. Democracy is taken from Polity IV, varies from -10 to 10. Noncontiguous state, Oil Exporter and Instability are dummy variables.

Table 4: Summary Statistics for Individual Level Data

<u>Survey</u>	<u>N</u>	<u>Confidence in Army (1-4)</u>			<u>% highest level of confidence</u>	<u>ln(income per cap)</u>		<u>Age</u>		<u>% male</u>
		<u>median</u>	<u>mean</u>	<u>sd</u>		<u>mean</u>	<u>sd</u>	<u>mean</u>	<u>sd</u>	
Austria 90	1040	2	2.19	0.78	0.05	8.88	0.51	50.78	14.83	0.37
Belgium 90	1227	2	2.03	0.83	0.04	8.99	0.56	43.64	14.17	0.50
Brazil 90	1106	3	2.98	1.00	0.38	6.68	1.03	41.68	11.33	0.46
Britain 90	1001	3	3.15	0.78	0.36	9.10	0.76	48.21	17.37	0.51
Bulgaria 98	740	3	3.21	0.81	0.41	7.32	0.75	50.21	16.16	0.49
Canada 90	1324	3	2.59	0.78	0.10	9.50	0.64	44.51	16.10	0.49
Chile 90	1019	2	2.43	0.99	0.19	7.23	0.84	43.76	14.60	0.46
Croatia 95	785	3	3.21	0.75	0.38	7.84	0.63	51.01	14.85	0.49
Estonia 96	737	3	2.44	0.82	0.07	7.84	0.51	46.23	13.67	0.42
Finland 90	437	3	2.63	0.80	0.13	9.12	0.47	43.80	12.96	0.51
Hungary 90	768	3	2.57	0.79	0.10	8.23	0.57	48.89	15.40	0.47
India 90	1703	4	3.44	0.73	0.56	6.94	0.64	45.80	13.74	0.35
Italy 90	1104	2	2.40	0.87	0.09	8.88	0.68	47.23	13.76	0.49
Japan 90	777	2	2.14	0.68	0.03	9.15	0.57	46.07	12.76	0.50
Japan 95	609	3	2.67	0.69	0.08	9.17	0.46	47.60	11.69	0.55
Latvia 96	770	2	2.09	0.80	0.03	7.90	0.62	46.54	13.95	0.44
Macedonia 97	537	2	2.47	0.96	0.19	7.53	0.73	43.47	12.76	0.54
Mexico 90	1041	2	2.37	0.93	0.10	8.04	1.29	39.03	12.23	0.58
Netherlands 90	740	2	2.13	0.76	0.03	9.29	0.57	42.03	14.54	0.28
Portugal 90	879	3	2.50	0.77	0.08	8.15	0.73	47.30	15.56	0.47
Russia 95	1477	3	2.93	0.88	0.29	7.33	0.76	47.90	15.37	0.42
Spain 90	2771	2	2.32	0.89	0.09	8.63	0.65	49.06	16.49	0.46
Spain 96	587	2	2.42	0.85	0.09	8.29	0.60	51.38	15.67	0.48
Sweden 96	639	3	2.54	0.68	0.05	9.24	0.47	48.59	13.78	0.51
Switzerland 96	600	3	2.53	0.82	0.09	9.02	0.54	50.45	15.61	0.48
Turkey 90	735	4	3.55	0.66	0.63	7.50	0.99	40.70	12.91	0.47
Turkey 96	1107	4	3.64	0.64	0.71	7.58	0.82	40.55	12.49	0.51
USA 90	1558	2	2.75	0.91	0.29	9.55	0.69	46.28	17.47	0.50
USA 95	987	3	3.21	0.69	0.35	9.41	0.66	48.08	16.34	0.47
Venezuela 96	784	3	2.80	1.02	0.31	6.72	0.77	41.69	13.30	0.48
W Germany 90	1726	2	2.31	0.80	0.06	9.37	0.51	48.75	16.85	0.46
Andalusia 96	874	3	2.57	0.86	0.12	7.94	0.55	49.80	15.22	0.46
Basque 95	697	2	1.81	0.85	0.04	8.69	0.56	53.22	14.14	0.47
Galicia 96	462	2	2.34	0.95	0.12	8.61	0.69	46.63	14.43	0.39
Valencia 96	224	2	2.33	0.89	0.10	8.40	0.58	50.72	13.59	0.49

**Table 5: Effect of Income Per Household Member on Confidence in the Army:
Ordered Probit and Linear Probability Models**

Survey	<u>Confidence in Army (1-4), Ordered Probit</u>				<u>Highest Level of Confidence, LPM</u>			
	(1) No control for education		(2) Controlling for education		(3) No control for education		(4) Controlling for education	
Austria 90	-0.248**	(0.072)	-0.204**	(0.076)	-0.034*	(0.014)	-0.025	(0.014)
Belgium 90	-0.125	(0.072)	.	.	-0.019	(0.013)	.	.
Brazil 90	-0.131**	(0.033)	-0.076*	(0.039)	-0.069**	(0.014)	-0.034*	(0.016)
Britain 90	0.044	(0.055)	.	.	-0.004	(0.021)	.	.
Bulgaria 98	-0.092	(0.052)	-0.061	(0.055)	-0.066	(0.024)	-0.047	(0.025)
Canada 90	-0.227**	(0.048)	.	.	-0.053**	(0.014)	.	.
Chile 90	0.015	(0.042)	.	.	-0.004	(0.015)	.	.
Croatia 95	-0.049	(0.074)	0.045	(0.082)	-0.009	(0.032)	0.023	(0.035)
Estonia 96	-0.032	(0.083)	-0.018	(0.086)	-0.014	(0.021)	-0.012	(0.021)
Finland 90	0.143	(0.110)	.	.	0.030	(0.031)	.	.
Hungary 90	-0.189**	(0.076)	.	.	-0.080**	(0.021)	.	.
India 90	0.035	(0.076)	0.006	(0.080)	-0.001	(0.034)	-0.015	(0.036)
Italy 90	-0.225**	(0.048)	.	.	-0.044**	(0.012)	.	.
Japan 90	-0.031	(0.076)	.	.	0.010	(0.011)	.	.
Japan 95	0.134	(0.109)	.	.	0.042	(0.026)	.	.
Latvia 96	-0.043	(0.068)	-0.016	(0.070)	-0.006	(0.012)	-0.004	(0.011)
Macedonia 97	-0.079	(0.067)	-0.059	(0.071)	-0.046	(0.024)	-0.044	(0.025)
Mexico 90	-0.024	(0.027)	.	.	0.006	(0.008)	.	.
Netherlands 90	-0.163*	(0.084)	.	.	-0.049**	(0.017)	.	.
Portugal 90	-0.272**	(0.063)	.	.	-0.062**	(0.014)	.	.
Russia 95	-0.123**	(0.038)	-0.093*	(0.039)	-0.054**	(0.015)	-0.045*	(0.016)
Spain 90	-0.185**	(0.035)	.	.	-0.027**	(0.009)	.	.
Spain 96	-0.200**	(0.082)	-0.166	(0.094)	0.017	(0.022)	0.023	(0.028)
Sweden 96	0.119	(0.112)	0.090	(0.115)	-0.014	(0.025)	-0.012	(0.025)
Switzerland 96	-0.021	(0.107)	-0.046	(0.114)	-0.003	(0.029)	-0.015	(0.032)
Turkey 90	-0.207**	(0.047)	-0.081	(0.052)	-0.076**	(0.017)	-0.028	(0.019)
Turkey 96	-0.199**	(0.060)	-0.105	(0.065)	-0.075**	(0.020)	-0.035	(0.023)
USA 90	-0.001	(0.044)	.	.	-0.027	(0.018)	.	.
USA 95	-0.078	(0.061)	-0.048	(0.067)	-0.039	(0.025)	-0.030	(0.027)
Venezuela 96	-0.076	(0.054)	-0.040	(0.057)	-0.010	(0.023)	0.016	(0.024)
W Germany 90	-0.053	(0.051)	.	.	-0.005	(0.010)	.	.
Andalusia 96	-0.092	(0.068)	-0.071	(0.074)	-0.007	(0.020)	-0.018	(0.022)
Basque 95	-0.306**	(0.082)	-0.342**	(0.089)	-0.022	(0.015)	-0.024	(0.015)
Galicia 96	-0.240**	(0.082)	-0.163	(0.091)	-0.026	(0.025)	-0.010	(0.027)
Valencia 96	-0.360**	(0.135)	-0.286	(0.150)	-0.011	(0.030)	-0.027	(0.036)

Note: the table presents the coefficients on log (ppp income per household member) from separate regressions for each survey (standard errors in parentheses). The dependent variable in models (1) and (2) is confidence in the armed forces, taking four values from 1 to 4. The dependent variable in models (3) and (4) is a dummy variable for having the highest level (“a great deal”) of confidence in the armed forces. All models include controls for age, age-squared and sex. Models (2) and (4) include controls for up to five education levels: No formal education; primary or less; some secondary; complete secondary (possibly college dropout); and university degree. Estimations correct for the sample-specific sampling weights. All coefficients significant at 10% level are in **bold** type. * indicates $p < 0.05$; ** indicates $p < 0.01$.

Figure 1: Mean confidence in armed forces and GDP per capita

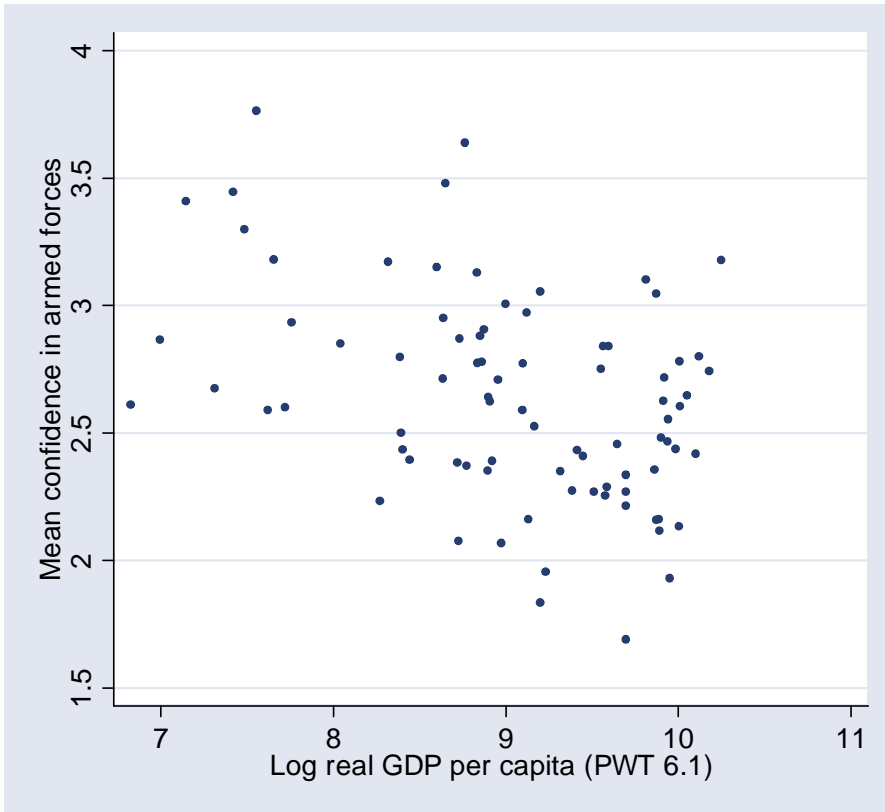


Figure 2: High confidence in the armed forces and GDP per capita

