WAR, SOCIAL IDENTITY, AND TAXATION: CAPITALIZING PATRIOTISM THROUGH VOLUNTARY TAX COMPLIANCE

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Abstract

This paper explores the relationship among war, government financing, and citizens' willingness to voluntarily comply with tax and other obligations because of social identity. The motivating idea is that the willingness to voluntarily comply with obligations to the government may be a function of the perceived military threat to a country, and the willingness to pay in turn affects the marginal efficiency cost of raising resources, both via taxes and conscription. A model of the interactions generates predictions about the effect of the external threat on military spending, non-military spending, and the share of military resources raised via conscription, as well as predictions concerning the effect of wars and external threats on the willingness to voluntarily pay taxes. These predictions are tested empirically using cross-country data from 1970 to the present on government finances, the Correlates of War Militarized Interstate Disputes dataset, and data on attitudes toward tax evasion and military service from the World Values Survey.

We benefited greatly from the able and tireless research assistance of Tomislav Ladika.

"War made the state, and the state made war."

Charles Tilly (1975, p. 42)

"War …has but one thing certain, and that is to increase taxes.**"**

Thomas Paine (1787)

1. Introduction

The history of the state is closely entwined with war. For example, Mann (1980, p. 197) estimated that for the English state between 1130 and 1815 somewhere between 75 percent and 90 percent of its financial resources were spent on the acquisition and use of military force. Today, although the non-military responsibilities of governments have vastly expanded, war making and national defense remain a central responsibility of governments. That military activities use resources is well known. What has been less studied is the extent to which (particularly popular) wars also build social identity and thereby reduce the cost of government mobilization of resources.

As Thomas Paine observed, war requires higher taxes. Eventually, at least. Many prominent public finance economists have studied war financing (e.g., Hicks et al (1941), Haig (1942), Edgeworth (undated)). The modern literature is dominated by the "tax smoothing" hypothesis presented in Barro (1979), which argues that efficient financing would equalize across time the marginal excess burden of taxes. If the marginal excess burden is an unchanging function of the tax rate, efficiency requires equal tax rates over time, and therefore large use of debt financing in times of extraordinary government expenditure—mostly wartime. This assertion, though, relies on the presumption that the marginal excess burden of taxes is an unchanging function of the tax rate. If, however, as much anecdotal evidence suggests, during a (popular) war citizens' "willingness to voluntarily comply" with their tax liabilities is higher for any given tax rate, then it is optimal to tax more during wartime, instead of smoothing. When citizens identify with their place in society and country, the government can reduce enforcement efforts because the presence of identity acts as a substitute for the threat of detection and penalties. Thus, we consider the government's ability to motivate its citizens through such identification as a valuable asset of the government as well as a possible object of investment.

This paper explores the relationship among war, government financing, and citizens' willingness to voluntarily comply with tax and other obligations because of social identity. The motivating idea is that the willingness to voluntarily comply with obligations to the government may be a function of the perceived military threat to a country, and the willingness to pay in turn affects the marginal efficiency cost of raising resources, both via taxes and conscription. A model of the interactions generates predictions about the effect of the external threat on military spending, non-military spending, and the share of military resources raised via conscription, as well as predictions concerning the effect of wars and external threats on the willingness to voluntarily pay taxes. These predictions are tested empirically using cross-country data from 1970 to the present on government finances, demographics, the Correlates of War Militarized Interstate Disputes dataset, and attitudes toward tax evasion and military service from the World Values Survey.

2. Related Literature

Scholars have examined many aspects of how war affects the public finances. In an influential book, Peacock and Wiseman (1961) argued that the increase in taxation caused by wars has a ratchet effect, so that post-war levels of taxation do not return to their pre-war levels. One interpretation of this is that war effects a permanent reduction in the cost of raising funds, and so has a hysteresis effect on the optimal level of government funding. An example is the fact that income tax withholding was introduced in the U.S. in 1942-3, and not eliminated after the war.

An alternative explanation for the ratchet effect is that the demands of war are regressive, and after they end there is a political demand for changes in government policy to reward those who sacrificed. Lucassen and Zurcher (1998, p. 415) note that "in exchange for the willingness of the populations to fight and keep on fighting, hard-pressed governments had to make promises of social justice ("A land fit for heroes to live in"). In the aftermath both of the First World War and the Second World War these promises were at least partly fulfilled, leading to the welfare state after 1945." Even if

society wants to reward only those families that made especially large sacrifices, it is difficult to target the reward.[1]

For both taxation and conscription, during wartime governments often invest a substantial amount of resources into propaganda that stresses a "we're in this together" mentality, which is designed partly to overcome free riding impulses.[2] Such propaganda, in the form of "public service announcements," is also utilized in peacetime, although its effectiveness with respect to taxpaying has not been demonstrated.[3] Putnam (2000) notes that World War II, like earlier major wars in U.S. history, ushered in a period of intense patriotism nationally and civic activism locally: membership in civic associations spurted after both major wars of this century. He goes on to suggest that a plausible explanation for the strong generational effects in the decline in civic engagement after World War II is the replacement of a cohort of men and women whose values and civic habits were formed during a period of heightened civic obligation with others whose formative years were different.[4] A heightened civic obligation, if carried over to attitudes toward taxation, provides yet another explanation for the Peacock-Wiseman ratchet phenomenon.

Many countries, during wartime and peacetime, have a draft, which is an (earmarked) tax with its own peculiar equity, efficiency, as well as administrative and enforcement aspects. Like taxpaying, military service is subject to a free rider problem, and the cost of raising resources via conscription is reduced if free riding is restrained.

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[1] Note, though, that the U.S. GI Bill of 1944 and generous military pensions are examples of targeted compensation to those who served in the Armed Forces.

[2] The Secretary of Treasury during World War I, William Gibbs McAdoo, called this "capitalizing patriotism." For details, see Kang and Rockoff (2006). Polenberg (1972) also notes that the sale of war bonds in the U.S. during World War II illustrated the fine line between voluntarism and compulsion. In 1942 most of President Roosevelt's advisors favored a compulsory savings plan, but the President decided instead to institute a voluntary plan. Those who wanted a compulsory plan argued that a formal and impartial compulsory plan would in fact be less oppressive than the haphazard and unequal community pressure that would be applied to a "voluntary" program.

[3] In a randomized field experiment in a peacetime setting, Blumenthal, Christian, and Slemrod (2001) find no evidence that either of two written appeals to taxpayers' consciences had a significant effect on compliance. One stressed the beneficial effects of tax-funded projects, while the other conveyed the message that most taxpayers were compliant. Torgler (2004), using a controlled field experiment in Switzerland, also found that moral suasion has hardly any effect on taxpayers' compliance behavior.

[4] Putnam stresses that he does not believe that war is a necessary or praiseworthy means of accomplishing civic (re-)engagement. He advocates the search for a "moral equivalent of war" that has its positive consequences without the glorification of martial virtues or mortal sacrifice. (2000, pp. 275-6)

Levi (1997) addresses military service as one way in which democratic governments demonstrate their immense power to tax, and examines why at some times and in some places there is widespread draft evasion and at other times and places there is considerable patriotism and volunteering. In this context, it is fascinating to note that, during World War I, a system was devised to make conscription look as much like volunteering--even like voting--as possible. Local civilian volunteers would first register eligible young men in much the same way as persons registered to vote; in fact, registration was even held at each precinct's voting location. (Ellis and Noyes, 1990, p. 190)

Some theorists have attempted to formalize the conditions under which individuals will forego their incentive to free ride. For example, in Bordignon (1993) there is a relationship between the individual and the government that involves exchange rather than mere coercion. The taxpayer computes the terms of trade between his private consumption and the government provision of public goods, and evades (up to his level of risk aversion or up to the level he feels re-establishes fairness) if he finds these terms unfair. Unfairness in this model reflects either an inadequate level of goods provision with respect to the required tax payment, an unfair tax structure, or evasion by other taxpayers. As Andreoni, Erard, and Feinstein (1998) point out, though, an individual can also find unfairness due to the provision of the *wrong* goods—i.e., someone such as Thoreau may avoid taxes because he thinks government policy wrong. But, as Daunton (1998) argues, this is not a simple matter. Expenditures on warfare might be tolerated in a patriotic period but rejected during another period characterized by anti-militarism.

In this paper we take seriously the ideas that compliance with tax and military obligations may respond to citizens' attitudes toward government, and that there may be a source of motivation missing from models of tax compliance.[5] Akerlof and Kranton

[5] The standard economics framework for considering an individual's choice of whether and how much to evade is a deterrence model due to Allingham and Sandmo (1972), who adapted Becker's (1968) model of the economics of crime. In this model taxpayers are completely amoral, deciding whether and how much to evade taxes in the same way they would approach any risky decision or gamble—by maximizing expected utility—and considering the legal penalties no differently than any other contingent cost. Successful tax evasion benefits the taxpayer because it saves on taxes, but detected tax evasion results in paying what is owed plus a penalty. Optimal tax evasion, from the individual's standpoint, depends negatively on the (assumed to be fixed) chance of getting caught and penalized, the size of the penalty for evasion, and the individual's degree of risk aversion.

(2005) characterize this missing characteristic as *identity* -- a person's self-image, identification with his or her society and government authority. The hypothesis is that when citizens identify with the country and their role in society, they incur a loss of utility if they do not follow society's rules and act in the interest of their country. Moreover, the more an individual identifies with his or her country, the less he or she need be rewarded monetarily (in other words, a lower tax burden) for participating and contributing to society. Akerlof and Kranton (2005) term this "motivational capital" in the context of employee-firm relations, where it is the responsibility of the firm to motivate its employees to use their skills in the interest of the firm; we explore the extent to which it also applies to the citizen-government relationship.

3. Framework

To determine our choice of the right proxies for social identity and the empirical tests, we sketch a simple model of the links among government spending, social identity, and the threat of war. We begin by considering the choice of military and non-military government spending. How much a government spends in these two ways depends on the value (demand) of the services and the cost of mobilizing the resources to produce the services. This is a more general formulation than assuming that a government will always provide the optimal level of the two types of services, according to the original formulation of Samuelson, and as adjusted for the distortionary effect of taxation by Stiglitz and Dasgupta (1971). Thus we write

$gn = gn(gnb, gnc)$
$gm = gm(gmb, gmc)$,

where *gn* and *gm* are non-military (or domestic) and military spending, respectively, while *gnb* and *gmb* refer to factors affecting the benefits of spending, and *gnc* and *gmc* refer to factors affecting its cost.

We assume that all non-military spending (other than conscripted resources) must be financed by raising taxes. For simplicity, consider that all taxes are raised by a proportional income tax, levied at rate *t*. The marginal efficiency cost of raising revenue

increases with t, which in turn is assumed to be rising in both gn and the portion of gm that is raised via taxation.

Now consider the effect of an external threat, which we denote by e. By definition, an increase in e raises the perceived value of military spending. While in the standard model, the marginal efficiency cost of funds for any level of t has the same value regardless of the purpose to which the revenues will be put and to what extent the citizen/taxpayers identify with those purposes, we generalize that assumption by allowing the cost of raising funds to depend on the presence—and perhaps nature—of the external threat. We hypothesize that people are not always free riders in determining their tax compliance behavior, and instead their willingness to comply depends on their trust in or identification with the government and how the government spends its revenues. The more willing taxpayers are to "voluntarily" comply, the lower is the marginal efficiency cost of raising any given amount of money to finance government, because of the saving in enforcement costs. While any type of conflict increase the demand for military spending, it is possible that some conflicts, "popular" ones, may increase identity and compliance with obligations to the state, while "unpopular" conflicts may do the opposite.

If that were the end of the story, the model predicts when e increases, gm goes up and gn declines. The latter effect occurs because, to the extent that the increase in gm is tax-financed, the increased taxes will increase the marginal efficiency cost of funds for non-military spending. Given that, by assumption, the value of non-military spending has not fallen, gn will decline.

To allow for a variety of interrelations, we let gnc depend not only on the required tax rate, but also on tc, which proxies for the extent of voluntary compliance. If an increase in e makes people more willing to comply with the tax system, then $\partial(gmc)/\partial e<0$. In this case the model predicts that $\partial gm/\partial e >>0$ and that the sign of $\partial gn/\partial e$ is ambiguous. The key to this result is that the funding mechanism for the government does not differentiate to what use the funds are put, so that more voluntary tax compliance lowers the social cost of raising revenues for either military or non-military purposes.

In many countries a significant fraction of the personnel requirements are drafted, i.e., mobilized through compulsory military service, under which the individuals are required to serve with compensation often well below their reservation wage for serving. For a country with a draft, the full social costs of mobilizing resources are not reflected in the military budget. In addition, there is a separate administrative mechanism for mobilizing drafted resources, which may be resisted at various levels of intensity; the level of resistance may depend on the identification of the prospective soldiers, and their families, with the government and its activities.

We assume that citizens do not have tastes over the technology by which military goods are delivered. Mulligan and Shleifer (forthcoming) stress that countries that have relatively high costs for raising money through taxes will tend to favor a draft as a way of mobilizing resources, and provide empirical evidence for this relationship. Because understanding why countries use a draft is not the central focus of our study, we assume only that the amount of drafted resources, denoted *gd*, depends on *gmb* and *gnc*. This appears in our model because less tax administrative capacity will decrease the social cost of raising funds, making the draft a relatively inexpensive way to produce military capacity.

Recasting the model to include these factors yields:

$gn = gn(gnb(zb), gnc(vt,(t, tc, mc), zt))$
$gm = gm(gmb(e), gmc(vt(t, tc, mc), zd))$
$gd = gd(gmb(e), gnc(vd(d, tc, mc), zt, zd))$
where $t = gn+gm$.

Here *gd* represents conscripted resources, and *gdc* the cost of conscription. The terms *vt* and *vd* stand for the voluntary willingness of taxpayer/citizens to comply with the tax and conscription system, respectively, and *zt* and *zd* stand for other factors, including administrative capacity, that affect the cost of raising funds and conscripting labor, respectively; *zb* stand for exogenous factors that affect the demand for *gn*. Finally, *tc* and *mc* denote the voluntary willingness to comply with tax and military obligations, respectively.

In addition to how war affects government spending decisions, we are also interested in the (endogenous) determination of the voluntary willingness to comply with taxes and with the draft, and especially how it depends on social identity. We postulate the followings set of relationships:

$tc = tc(t, i(e, zi))$
$mc = mc(gd, i(e, zi))$

We allow for the extent of voluntary tax compliance to depend on the level of taxation and a measure of social identity, denoted *i*. Similarly, we let the extent of voluntary compliance with the draft to depend on the extent of the draft and social identity. Finally, and critical to our analysis, we hypothesize that social identity might depend on, in addition to exogenous country characteristics denoted *zi*, the level of external threat *e*.

Because as of this writing we do not have reliable cross-country, time-series estimates of the extent of a country's draft , in what follows we explore empirically a version of the model without a draft or attitudes toward military conscription, and leave for future research the full model. The stripped-down model is thus

$gn = gn(gnb(zb), gc(tc, zt))$
$gm = gm(gmb(e), gc(tc, zt))$
$tc = tc(t, i(e, zi))$
where $t = gn+gm$.

Because conscripted resources are ignored, the cost of either military or non-military expenditures, now denoted *gc*, depends on attitudes toward tax compliances and other factors. Ordinary least-squares estimation of these equations will produce inconsistent estimates of the structural parameters, predominantly but not exclusively because of the fact that the level of taxes may affect attitudes toward compliance, and vice versa. We will claim identification of these structural relationships based on exclusion restrictions. In particular, the *gn* equation is identified by the exclusion of *e* and *zi*, the *gm* equation is

identified by the exclusion of *zb* and *zi*, and the *tc* equation is identified by the exclusion of *zb* and *zt*.

4. Data

Our empirical analysis requires quantitative information on (i) interstate and intrastate conflicts, (ii) citizen attitudes toward government and their obligations to government, and (iii) fiscal and demographic information. In what follows we describe our sources of each of these three types of data, and the problematic aspects of each.

4.1 Conflict data

From Maoz (2005) and the Militarized Interstate Disputes database of the Correlates of War (COW) project, we have collected data on all conflicts involving two or more states which started in 1970 or later; intrastate conflicts, although potentially important to the issues this paper addresses, have not yet been analyzed.[6] These datasets include the start and end year of the conflict, a measure of the total fatalities suffered by each side involved in the conflict, and the originator of the conflict. Other variables include each state's opponent in the conflict, the highest hostility level and highest military act that each state engaged in, and each state's role in the conflict. The highest hostility level is a dichotomous 1-5 measure, defined as follows: 1 = No militarized action, 2 = Threat to use force, 3 = Display use of force, 4 = Use of force, 5 = War. In what follows we consider only disputes of a hostility level of 3 or higher to be conflicts. The fatality level is a dichotomous 1-6 measure, defined as follows: 0 = None, 1 = 1 to 25 deaths, 2 = 26 to 100 deaths, 3 = 101 to 250 deaths, 4 = 251 to 500 deaths, 5 = 501 to 999 deaths, 6 = greater than 999 deaths; we use the midpoint of the bracketed (2-5) measures, and 2000 fatalities for category 6. We use fatalities per capita, expressed as a percentage. The origin measure equals 1 if the country originated the conflict, and 0 if not. This is not an either/or measure, because for some conflicts both participants are listed as originators.

[6] COW's Intrastate Militarized Disputes dataset has information on civil wars starting in 1970, including the start and end year of the war, the name of the dissenting group, the winner of the war, the type of civil war, total fatalities in the conflict and fatalities suffered by the pro-government side, and whether another country intervened in the war.

We construct several alternative measures of the extent of external conflict by, for each of the four waves of WVS data, calculating over the previous decade the following:

1. Number of different conflicts
2. Number of conflict-years
3. Number of fatalities per capita
4. Measures 1-3 above limited to those conflicts that were self-originated

Note that conflict-years is often less than total conflicts because conflicts that end and start in the same year are coded as lasting 1/2 year, and a large fraction of the conflicts end and start in same year.

4.2 Social identity variables

The data on attitudes toward tax compliance *(tc)* come from the four waves of the World Values Survey (WVS), administered in 1981, 1990, 1995-7, and 1999-2000. The purpose of the WVS is to facilitate cross-national comparisons of values, norms, and attitudes. The survey was conducted, with limited national modifications, in 23, 44, 49, and more than 60 countries, respectively, in the four waves. It asked about attitudes toward work, family, religion, politics, and contemporary social issues and gathered demographic data as well. Although the data are subject to the usual reservations about attitude surveys, and in particular cross-country attitude surveys, the data has been widely and fruitfully used by political scientists, sociologists, and economists such as in the Knack and Keefer (1997) cross-country study of the effect of social capital on economic performance; for an extensive albeit incomplete list of its use in research, see Inglehart, Basanez, and Moreno (1998).

We focus on the WVS question that refers to people's attitude toward compliance with tax obligations. The precise wording is

> Please tell me whether you think that cheating on tax if you have the chance can always be justified, never be justified, or something in between. (scale from 1=never justified to 10=always justified)

We rescale it on a 0-1 scale, with a value of one being that cheating is never justified, so that the rescaled variable measures compliance, rather than noncompliance as in the question as posed; we use the weighted average for each country-wave. In other research, this variable has been shown to have an association with the size of the informal economy and with the size of the government sector.[7]

4.3 Fiscal and Demographic Information

Data on military *(gm)* and non-military spending *(gn)* are taken from the IMF *Government Finance Statistics* publications as well as the IMF's International Finance Statistics online database.

The *zb* vector contains variables that we expect would influence the demand for non-military spending. We consider two such measures. The first is the level of real GDP per capita, to stand for those aspects of development that affect the demand for government services per Wagner's Law. Second is the age dependency ratio, which provides a measure of the number of dependent population that is supported by every 100 members of the working-age population. Youth dependents are the population groups aged 0-18, and the elderly dependents are those persons aged 65 and over.

As measures of the administrative difficulty of collecting taxes *(zt)*, we examine two measures: the fraction of GDP in the agricultural sector, reflecting the difficulty of collecting taxes from the agricultural sector, and the literacy rate, reflecting the difficulty of collecting (especially income) taxes from an illiterate population. Both of these measures have been widely used in empirical analyses of the determinants of the size of the government sector.

The *zi* vector includes measures of religious and ethnic heterogeneity. These are defined as Herfindahl indices, equal to $1 - \Sigma s_{ij}^2$, where s_{ij} is the share of ethnic or religious group i (i = 1...N) in country j. These measures reflect the probability that two randomly selected individuals from a population belong to different groups.

In all the equations we also include a dummy variable for "not free", which is a dummy equal to one if the country is considered by Freedom House (2006) to be not free;

[7] See Torgler (2003) and Slemrod (2003).

this encompasses all the communist countries as well as some other non-communist countries. It is included to reflect the potentially very different processes that determine government spending and social identity in these countries.

Because for many variables we do not have time-varying data, we do not include country fixed effects, so that the estimated relationships are entirely cross-sectional in nature. Robust standard errors are calculated.

5 Results

5.1. Reduced-Form Results

Before we attempt to unravel the structural relationships among the key variables, in Tables 1A-C we report the results of regressions of the reduced form of the government spending and tax compliance attitude relationships;

The reduced-form equations explaining tax compliance attitudes, in Table 1A, show that for two measures of external conflict—total conflicts and conflict-years—the proclivity for tax compliance increases with the threat. This is consistent with our hypothesis that an external threat strengthens social identity. The magnitude of this effect is non-trivial; for example, a one standard deviation change in total conflicts increases *tc* by 0.27 standard deviations. But we can say more than that, because one measure of conflict—total fatalities per capita—has the opposite sign; it is associated with *less* voluntary compliance. We suggest that this finding means that incurring fatalities make a conflict unpopular, and erode the social identity. Another pattern that is prominent in Table 1A concerns the role of self-origination of a conflict. When the fatalities are the result of a self-originated conflict, the negative effect on tax compliance attitudes disappears; only fatalities from a conflict originated by another country erode voluntary tax compliance. The same holds true for the other measures of external conflicts—the positive effect is largely coming from non-self-originated conflicts.

Table 1B reports that exactly the same patterns show up in a reduced-form estimation of the percentage of GDP going to military spending. We find that the conflict-based measures are positively associated with military spending, the fatalities measure is negatively associated, and the impact of all three is largely due to the effect of the non-self-originated conflicts.

Table 1C shows that the conflict-based measures have no statistically significant association with the share of GDP going to non-military spending—there is no clearly apparent crowding out or in. Non-self-originated fatalities are, though, associated with less non-military government spending.

5.2. Structural Model Results

This draft does not present the results of our attempts to estimate the three-equation or five-equation structural model discussed above, in part because the instruments we propose turn out to be weak, providing little conditional explanatory power to the endogenous variables. In the spirit of full(er) disclosure, the (unreported) results of attempting to estimate the structural three-equation model find, as in the reduced-form model, that external threats increase both voluntary tax compliance and military spending. However, although there is some evidence that higher required tax rates reduce voluntary tax compliance, as the model hypothesizes, there is no support for the hypothesized idea that higher voluntary compliance facilitates government spending; indeed, the estimated structural coefficient of tax compliance attitudes on non-military spending is often negative. Clarifying these inter-relationships is a major objective of future research.

6 Conclusions

Government activities, both military and non-military, require resources to be transferred from the private sector, either through taxation or, for military personnel, a draft. If, as some scholars and evidence suggests, some people treat compliance with their obligations to the state as more than a self-interested cost-benefit calculus, then people's social identification can affect the social cost of mobilizing resources. The empirical analysis presented in this paper provides some preliminary support for the idea that external threats affect social identification and that social identification affects compliance attitudes; it has not, though, uncovered evidence that the level of voluntary compliance affects government spending via its effect on the cost of raising resources.

TABLE 1A

The Effect of External Conflicts on Tax Compliance Attitudes -- Reduced-Form Model

	(1)	(2)	(3)	(4)	(5)	(6)
Total Conflicts	0.002			0.004		
	(0.001)**			(0.005)		
Conflict-Years		0.002			0.006	
		(0.001)**			(0.003)*	
Fatality Ratio			-6.022			-1.812
			(4.524)			(0.545)
Self-Originated Total Conflicts				-0.002		
				(0.004)		
Self-Originated Conflict-Years					-0.005	
					(0.006)	
Self-Originated Fatality Ratio						2.143
						(0.656)*
R^2	0.18	0.18	0.16	0.18	0.18	0.17

Notes: 1. Number of observations = 71.

2. Other variables in the regression are the age-dependency ratio, log of real GDP, the agricultural percentage of GDP, literacy rate, dummies for the World Values Survey wave, an ethnic fractionalization index, a religious fractionalization index, the Freedom House dummy for "not free," and a constant.
3. *** significant at .01 level
   ** significant at .05 level
   * significant at .10 level

TABLE 1B

The Effect of External Conflicts on Military Spending -- Reduced-Form Model

	(1)	(2)	(3)	(4)	(5)	(6)
Total Conflicts	0.054			0.081		
	(0.015)***			(0.051)		
Conflict-Years		0.074			0.169	
		(0.018)***			(0.037)***	
Fatality Ratio			-191.8			372.7
			(108.9)*			(219.6)*
Self-Originated Total Conflicts				-0.047		
				(0.096)		
Self-Originated Conflict-Years					-0.199	
					(0.085)**	
Self-Originated Fatality Ratio						245.8
						(336.9)
R^2	0.44	0.45	0.39	0.44	0.47	0.39

Notes: 1. Number of observations = 71.
2. Other variables in the regression are the age-dependency ratio, log of real GDP, the agricultural percentage of GDP, literacy rate, dummies for the World Values Survey wave, an ethnic fractionalization index, a religious fractionalization index, the Freedom House dummy for "not free," and a constant.
3. *** significant at .01 level
** significant at .05 level
* significant at .10 level

TABLE 1C

The Effect of External Conflicts on Non-Military Spending – Reduced-Form Model

	(1)	(2)	(3)	(4)	(5)	(6)
Total Conflicts	0.137			-0.452		
	(0.184)			(0.441)		
Conflict-Years		0.111			-0.516	
		(0.256)			(0.475)	
Fatality Ratio			-1757			-5657
			(1114			(-1855)***
Self-Originated Total Conflicts				1.027		
				(0.682)		
Self-Originated Conflict-Years					1.313	
					(0.740)*	
Self-Originated Fatality Ratio						5298
						(2020)**
R^2	0.44	0.43	0.45	0.44	0.44	0.46

Notes: 1. Number of observations = 71.
2. Other variables in the regression are the age-dependency ratio, log of real GDP, the agricultural percentage of GDP, literacy rat, dummies for the World Values Survey wave, an ethnic fractionalization index, a religious fractionalization index, the Freedom House dummy for "not free," and a constant.
3. *** significant at .01 level
** significant at .05 level
* significant at .10 level

TABLE A-1

Sample Statistics

	Mean	S.D.	Min	Max
Tax compliance index	0.753	0.057	0.578	0.853
Non-military spending % of GDP	2.07	1.20	0	5.59
Military spending % of GDP	29.80	10.12	11.40	56.75
Log (real GDP per capita)	8.70	1.097	5.76	10.28
Age-dependency ratio	0.549	0.074	0.390	0.840
% Agricultural	8.69	7.08	0.18	34.6
Literacy rate	94.0	12.8	39.3	99.8
Ethnic fractionalization	0.255	0.195	0.059	0.735
Religious fractionalization	0.425	0.213	0.115	0.824
Conflicts	4.07	7.73	0	4.0
Conflict-years	3.18	5.99	0	30.5
Fatality ratio	0.000194	0.000940	0	0.0057
Self-originated conflicts	2.61	4.81	0	22
Self-originated conflict-years	1.66	3.20	0	13.5
Self-originated fatality ratio	0.000139	0.000762	0	0.0057

Notes: Number of observations = 71.

References

Akerlof, George and Rachel Kranton. 2005. "Identity and the Economics of Organizations." *Journal of Economic Perspectives*, 19(1): 9-32.

Allingham, Maurice and Agnar Sandmo. 1972. 1972. "Income Tax Evasion: A Theoretical Analysis." *Journal of Public Economics*. November, 1:3-4, pp. 323-38.

Ames, Edward and Richard T. Rapp. 1977. "The Birth and Death of Taxes: A Hypothesis." *Journal of Economic History* 37: 161-178.

Andreoni, James, Brian Erard, and Jonathan Feinstein. 1998. "Tax Compliance." *Journal of Economic Literature*. June, 36:2, pp. 818-860.

Barro, Robert J. 1979. "On the Determination of the Public Debt." *Journal of Political Economy*, 87(5): 940-71.

Becker, Gary S. 1968. "Crime and Punishment: An Economic Approach." *Journal of Political Economy.* March-April, 76:2, pp. 169-217.

Blumenthal, Marsha, Charles Christian and Joel Slemrod. 2001. "Do Normative Appeals Affect Tax Compliance? Evidence from a Controlled Experiment in Minnesota." *National Tax Journal*. March, 54:1, pp. 125-138.

Bordignon, Massimo. 1993. "A Fairness Approach to Income Tax Evasion." *Journal of Public Economics* 52(3): 345-62.

Daunton, Martin. 1998. "Trusting Leviathan: British Fiscal Administration from the Napoleonic Wars to the Second World War." In M. Levi and V. Braithwaite (eds.), *Trust and Governance.* New York: Russell Sage Foundation.

Edgeworth, Francis Y. Undated. *On the Relations of Political Economy to War.* London: Oxford University Press.

Ellis, S. J. and K. H. Noyes. 1990. *By the People: A History of Americans as Volunteers*, San Francisco: Jossey-Boss.

Freedom House. 2005. *Freedom in the World: The Annual Survey of Political Rights and Civil Liberties.*

Ghosn, Faten, Glenn Palmer, and Stuart Bremer. 2004. "The MID3 Data Set, 1993–2001: Procedures, Coding Rules, and Description." *Conflict Management and Peace Science* 21:133-154.

Haig, Robert Murray. 1942. *Financing Total War.* Columbia Home Front Warbooks, Number 5. New York: Columbia University Press.

Hicks, John R., Ursula K. Hicks, and L. Rostas. 1941. *The Taxation of War Wealth*. New York, Oxford University Press.

Inglehart, Ronald, Miguel Basanez and Alejandro Moreno. 1998. *Human Values and Beliefs: A Cross-Cultural Sourcebook*. Ann Arbor: University of Michigan Press.

Jones, Carolyn. 1988/9. "Class Tax to Mass Tax: The Role of Propaganda in the Expansion of the Income Tax during World War II." *Buffalo Law Review* (37): pp. 685-737.

Kang, Sung Won and Hugh Rockoff. 2006. "Capitalizing Patriotism: The Liberty Loans of World War I." NBER Working Paper No. 1191, January.

Knack, Steven and Philip Keefer. 1997. "Does Social Capital Have an Economic Payoff? A Cross-Country Investigation." *Quarterly Journal of Economics* 112(4) (November): 1251-88.

Levi, Margaret. 1997. *Consent, Dissent, and Patriotism*. Cambridge: Cambridge University Press.

Lucassen, Jan and Zurcher, Erik Jan. 1998. "Conscription as Military Labour: The Historical Context," *International Review of Social History* 43, pp. 405-419.

Mann, Michael. 1980. "State and Society: 1130-1815: An Analysis of English State Finances." *Political Power and Social Theory 1: 165-208.*

Maoz, Zeev. 2005. Dyadic MID Dataset (version 2.0): http://psfaculty.ucdavis.edu/zmaoz/dyadmid.html.

Mulligan, Casey and Andrei Shleifer. Forthcoming. "Conscription as Regulation. *American Law and Economics Review*, forthcoming.

Paine, Thomas. 1787. *Prospects on the Rubicon***.** Reprinted in Wheeler, Daniel Edwin (ed.)**,** *Life and Writings of Thomas Paine.* Vincent Parle & Co., 1908.

Peacock, Alan and Jack Wiseman. 1961. *The Growth of Public Expenditures in the United Kingdom* (Princeton: Princeton University Press).

Polenberg, Richard. 1972. *War and Society: The United States, 1941-1945*. New York: Lippincott.

Porter, Bruce D. 1994. *War and the Rise of the State: The Military Foundations of Modern Politics.* New York: The Free Press.

Putnam, Robert. 2000. *Bowling Alone*. New York: Simon & Schuster.

Sandel, Michael J. 1998. *Democracy's Discontent: America in Search of a Public Philosophy*, Cambridge, MA and London: Belknap Press of Harvard University Press.

Slemrod, Joel. 2003. "Trust in Public Finance." In *Public Finance and Public Policy in the New Century.* Sijbren Cnossen and Hans-Werner Sinn, eds., Cambridge, MA: MIT Press: 49-88.

Stiglitz, Joseph and Partha Dasgupta. 1971. "Differential Taxation, Public Goods, and Economic Efficiency." *Review of Economic Studies* 38(114): 151-74.

Tilly, Charles. 1975. "Reflections on the History of European State-Making," in C. Tilly, ed., *The Formation of National States in Western Europe* (Princeton: Princeton University Press).

Torgler, Benno. 2003. "Tax Morale, Rule-Governed Behaviour, and Trust." *Constitutional Political Economy.* 14:2, pp. 119-140.

Torgler, Benno. 2004. "Moral Suasion: An Alternative Tax Policy Strategy? Evidence from a Controlled Field Experiment." *Economics of Governance.* November, 5:3, pp. 235-253.