The Effects of Government Revenue and Spending on Domestic Unrest

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Many studies on civil war concentrate in their theoretical arguments on the role of the state. For some the quality of government institutions and bureaucracy depends on the state's capacity to collect taxes and fighting corruption. A government's share in the economy but also its spending patterns, i.e. whether it mainly provides public or private goods to its supporters, is also important with regard to relative deprivation arguments of violent protest. Investigating how a state extracts and spends resources can inform us about causal mechanisms linking state capacity and size to civil unrest. Empirical studies, however, do not find strong support relating various indicators of state capacity to civil war, findings that we replicate in our first tests. Next, we analyzed the taxing and spending capacity of a state with regard to a less organized form of violent unrest, riots. We find that a state's extractive capacity is unrelated to the number of riots we observe. However, the size of government has a conflict-reducing effect in our tests, but is not explained by spending on a public good like on education, a variable that is insignificantly related to riots.

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Introduction

Research on civil war for a long time portrayed domestic violence as a consequence of dissatisfaction and grievances within the population. Central to this line of argument is the concept of relative deprivation, i.e. the discrepancy between what people think they deserve and what they think they can actually get (Gurr 1970). If parts of the population feel deprived of its political rights and/or feel economically disadvantaged, they develop a high potential of frustration that might cumulate in violent protests and even armed rebellion. Thus, armed violence is depicted as a motivation of rebels to eliminate political and socioeconomic inequalities and discrimination. This so called grievance-approach is contrasted by explanations based on greed and opportunity costs (Collier and Hoeffler 2004) where the focus is on the rebel groups that try to capture the state or secede from it. According to the greed-perspective the incentive to take up arms is not perceived inequalities, but the expected utility and probability of victory.

Recent studies on domestic violence, tried to enhance these approaches by referring to the role of the state in violent conflict. Within the grievance approach, the state and governmental policy is central to inequality and discrimination. A capable and strong state is in a better situation to encounter grievances as it has the resources to provide public goods to cushion negative effects of poverty and relative deprivation among the general population (Sobek 2010). Furthermore, with sufficient resources a state can pay rents to enlist the support of important segments in society (Azam 2001). Concentrating on a weak state in creating the opportunity for rebellion state capacity became a focus in the civil war literature. The strength of the state directly influences the expected probability of victory and possibly has a deterring effect, when actors consider the costs and benefits in their choice to rebel. Organizationally and financially weak states lack the military and police capabilities to suppress armed rebellion and conduct effective counterinsurgency (Fearon and Laitin 2003).

Although various approaches conceptualize the state as a central player within their theoretical models, in their empirical models the proxies for state capacity were poorly chosen (e.g. Fearon and Laitin 2003). Numerous recent empirical studies on domestic violence try to address this problem by using data on taxation, government spending and institutional coherence (Fjelde and de Soysa 2009; Bussmann 2009; Thies 2010).[1] However, these studies have not provided strong support for the argument that government spending and revenue are related to civil war.

We suspect that one of the reasons why empirical studies on the relationship between government revenue, spending and conflict provided only limited support for the relative deprivation theory is the focus on the narrowly defined phenomenon of civil war. Datasets used in the study of civil war specify narrow criteria for conflict events to meet their definition. Usually the datasets refer to the involvement of an organized non-state group and a certain threshold of casualties. For example the Uppsala Conflict Data Program (UCDP) only counts an event as an armed conflict if (1) arms were used, (2) it caused a minimum of 25 battle-related deaths and (3) it involved two parties of which one is the government of a state and the other an opposition organisation that has announced a name for their group (Harbom and Wallensteen 2010: 508).[2] However, grievance-based explanations of domestic conflict might better apply to less organized outbreaks of domestic violence. Thereby a state's capacity to provide public goods as a measure to encounter grievances might not directly affect the formation of a rebel group, but instead the population's dissatisfaction might break out in riots that are not necessarily organized by a clearly established rebel group with an identified name. Less organized forms of violence like riots might better capture the grievance and dissatisfaction aspects of some state capacity indicators, whereas armed conflict by an

[1] For a thorough discussion of various concepts and measurements of state capacity see Hendrix (2010).
[2] The full definition is stated at the UCDP website:
http://www.pcr.uu.se/research/ucdp/definitions/definition_of_armed_conflict/

organized rebel group has different underlying dynamics. Thus riots might be the appropriate concept to evaluate relative deprivation theory.

In Europe one can observe riots like the youth unrests that took place in 2005 in France that commentators explained with frustration caused by youth unemployment and a lack of opportunities and marginalization in the suburbs (Schneider 2008: 136-37) or recent riots in Greece surrounding public protests against cuts in government spending. Absolute or relative deprivations are also potential explanations for various food riots that took place throughout history, for example in England and France, to protest high food prices and government policy (Wilkinson 2009). In recent years concerns about rising food prices and shortage led again to riots, for example in Mozambique and Cameroon in 2008, and brought the topic back on the agenda of international politics (Fraser and Rimas 2011). Even the latest uprisings in Tunisia and Egypt are partly attributed to high prices of bread (The Economist 2011).

Events like these are usually studied under the label 'collective violence' (Tilly 2003) For Gurr (1970) collective violence depends on the intensity of the society's shared dissatisfaction, that he distinguishes from political violence in which case the political system and actors are blamed for the discontent. Work on collective and political violence covers a large number of more or less diverse events such as terrorism, civil war, riots or revolutions. What all these events have in common is that violence is conducted by and/or within a collective and not only by an individual. They can be distinguished by their level of organization with internal war being highly organized, and turmoil (e.g. riots, political clashes) can be described as "[r]elatively spontaneous, unorganized political violence with substantial popular participation" (Gurr 1970: 11).[3] Tilly (2003) uses two dimensions to classify events of violence: the salience of damage and the extent of coordination among

[3] Many scholars on riots though would question the spontaneous, unplanned character of riots (e.g. Wilkinson 2009).

actors. Especially when compared to events of civil war, the extent of coordination among actors in riots is low. In riots not all of the violence is targeted at persons, but also at property. Studying more closely the targets of riots could give important insights as to whether the attacks are directed towards authorities or civilians, public or private property (Martin, McCarthy, and McPhail 2009).

Relative deprivation is an explanation for these popular outbursts of violence that comes to mind. It pictures frustrated citizens, who resort to violence to vent their anger. Similar as with civil war, there are basically two dominant theoretical approaches to explain the causes and dynamics of riots: relative deprivation theory and the resource mobilization/expected utility approach.[4] Riot researchers in the past focused on factors that triggered violent protest like high food prices or rumors that spread, but also neglected the state's role in preventing or stopping violence (Wilkinson 2009). Scholars largely assumed that state repression and social inequality are the most important structural causes determining the onset and severity of riots and other forms of violent protest (Carey 2008; Gurr 1970).

This study will investigate the link between the extractive capacity of a state, the government's spending and the outbreak of domestic violence. Thus it will contribute directly to the debate on whether and what a government can do to satisfy its population and mitigate potential grievances by providing its citizens with welfare. Unlike previous studies we will concentrate on domestic unrest in the form of more spontaneous outbreaks, i.e. less organized violence in the form of riots. This form of violence might better capture the grievance and dissatisfaction aspects of some state capacity indicators, whereas armed conflict by an organized rebel group has different underlying dynamics that relate better to greed and

[4] Resource mobilization theory analyzes the circumstances under which people are mobilized to participate in events of collective violence (Tilly 1978). It is in general combined with expected utility models that try to identify factors that facilitate collective action. The theory considers the incentives of individuals to participate in collective violence of any kind (Olson 1965). For a discussion of the rational choice perspective on elite rebellions vs. relative deprivation arguments on mass rebellions see Weede and Muller (1998).

opportunity motivations. We will not investigate all aspects of state capacity but will concentrate on the extractive capacity and on government spending.

In the following section we will summarize arguments and findings on various aspects of state capacity and their relation to civil conflict before we develop the arguments that relate government revenue and spending to riots. In section three of the paper we will describe the research design and variables used. The presentation of the findings of the statistical tests will follow in section four. In the last section we will conclude.

State capacity and civil war

In the literature on civil war we can find various arguments that describe what government actors can do to avoid violent domestic unrest. What they all have in common is that a strong, or rather big state that performs its tasks effectively is necessary to prevent the appearance of armed opposition groups. Explanations concentrate either on the military strength of the state, on the capacity of the government to provide public goods, its capacity to generate revenue and extract taxes or on the quality of bureaucratic institutions and institutional coherence respectively (see Hendrix 2010). For Huntington (1968: 1) "[t]he most important political distinction among countries concerns not their form of government but their degree" and furthermore he considers a fast changing society coupled with slowly changing political institutions as the root of violence and political instability.

The prominent study by Fearon and Laitin (2003) brought state capacity back to the center stage of research on civil war. In their argument domestic violence is related to the loss of a state's monopoly on the use of force. A financially and organizationally weak central government cannot provide for the security of its population, instead a strong military and police force is necessary to effectively fight rebellions (Fearon and Laitin 2003). The government's eroding power concentration increases the potential for other groups to exert

influence. The possibility for rebel groups to strive for power is only present in weak states (Kalyvas 2006, Benson and Kugler 1998). Despite the expectation that a strong military apparatus might have a deterring or repressive effect, a positive relationship between military spending and domestic peace is not supported in empirical studies (Collier et al. 2003). On the contrary, high military expenditures are even associated with a higher risk of civil war onset in some studies (Henderson and Singer 2000, Bussmann 2009). Whereas for a conflict between the government and an organized rebel group the power distribution is important, less organized forms of conflicts, such as riots and demonstrations, simply need a government that possesses an efficient police force or military to disperse outbreaks if they occur and otherwise to have a deterrent effect (Wilkinson 2009) but not in relative terms. According to Ortiz (2007) a strong military infrastructure deters collective violence.

Studies on state capacity and armed conflict also targeted institutional aspects and good governance in relation to civil war. One major argument is that institutionally coherent regimes, like democracies and pure autocracies are less likely to experience armed rebellion when compared to inconsistent and incoherent regimes (Hegre et al. 2001; Gates et al. 2006). While consolidated autocracies have the capacity to repress any opposition effectively, coherent democracies are able to accommodate any dissident political opinion. A state with an effective bureaucracy is better able to circumvent a rebel victory (DeRouen & Sobek 2004, see also Fearon 2005).[5] A similar logic applies to the finding of Fjelde and de Soysa (2009) who show that a high level of contract intensive money in a society, an indicator that is to account for trust in government institutions, is related to a reduced risk of civil war. Other studies concentrate on the quality of institutions with regard to corruption. Fjelde (2009) finds support for her argument that high levels of corruption might weaken the conflict enhancing

[5] Fearon (2005) proxies administrative capacity with a measure for risk of expropriation and repudiation of government contracts. He finds that states that are dependent on primary commodity exports more often expropriate private property and repudiate contracts. He further argues that this might be the reason behind the correlation between resource dependence and civil war.

effect of oil-wealth. Oil-rich governments have sufficient financial resources to buy the support from key parts of the population, thus reducing opposition forces. The efficiency of a government can also be mirrored in its capacity to extract sufficient resources needed for spending on public and private goods to satisfy its selectorate.

Public spending, revenue and domestic violence

Empirical studies dealing with state capacity often look at a state's extractive capability to determine whether the state is strong or weak (e.g. Englehart 2009). According to Kugler and Arbetman (1997) political capacity consists of two parts: (1) relative political reach, which measures the government's capacity to reach human resources (i.e. black market activities of the labor force), and (2) relative political extraction as the ability of the government to generate income in order to be able to implement policy measures. In order to spend and allocate resources effectively, governments have to gather revenue which is crucial for providing any public or private good at all. A strong state with a well-functioning bureaucracy can collect sufficient taxes and generate other income that is essential to meet the needs of the population and to fulfil its various tasks. Insufficient financial means increase the risk of a state collapsing which in turn increases the chance that a civil war will break out (Snyder and Bhavani 2005).

The source of revenue is not irrelevant in this context. Some states generate their income predominantly from natural resources, whereas others have to rely directly on the financial support of its citizens.[6] Several studies associated especially the presence of oil with civil war based on the argument that states rich in oil have weak state structures (Fearon 2005, Humphreys 2005). For resources that are difficult to mine and that require a lot of capital and technology a state can hold a monopoly on the extraction or can authorize a few large private

[6] A large body of research dealt with natural resources and their impact on the outbreak and duration of civil war. For an overview see for example Ross (2001) or Humphreys (2005).

firms with the mining and these few firms are easy to be taxed. Controlling lootable resources is much harder because the state has to protect them against theft and illegal exploitation. The danger of a civil war is highest if lootable resources can be extracted by artisans that are hard to tax (Snyder and Bhavani 2005).

Resource rich states are generally less reliant on tax income. The missing necessity to collect taxes as revenues also hinders the development of a strong state apparatus and efficient bureaucracy (Humphreys 2005, Ross 2001). For states the collection of taxes is a central activity and determines whether the government is capable of acting (Benson and Kugler 1998, Kalyvas 2006). If a state relies heavily on taxes as source of income the government will take decisions with the tax payers in mind, likely being more hesitant with regard to repressive undertakings in order not to put off the people's willingness to pay taxes. Taxing and democratization are closely related. European monarchs had to provide their citizens with more participation and representation as a by-product, to further insure their financial support for its wars (Tilly 1988, Bates 2001).[7]

Empirically, the revenue generating capacity of a state is not clearly linked to more peace. Relying on the concept of relative political capacity (Kugler et al. 1998) that sets the actual level of tax revenue in relation to the predicted level of tax revenue, Fjelde and de Soysa (2009) find no support for a pacifying effect of this measure of state capacity. A government's ability to extract tax revenue appears unrelated to the onset of civil war if other influences are held constant. In Thies's (2010) study total government revenue and the tax ratio do also not affect a civil war onset in a two-stage framework. Instead, the onset of civil war reduced the state's capacity to extract resources. However, states with a low capacity to

[7] State-building can be a response to the external threat of war (Rasler and Thompson 1985). For example, the European monarchs had to raise money to build an army and thus developed a system of taxation, activities that affected the organization of state structures (Tilly 1985). State capacity, in terms of more state revenue, as well as generally more spending but especially military spending, increased in light of an international conflict in the state's neighbourhood. Despite a following decline in the threat, state capacity remained higher (Lektzian and Prins 2008).

generate tax income cannot effectively protect human rights abuse (Englehart 2009). Furthermore, Braithwaite (2010) shows that if a state possesses high extractive capacities it reduces the probability of a conflict contagion from neighbouring states.

Generally, a state with high income generating capacities, especially from taxes, is expected to have sufficient support in the population and can generate the resources to counteract discontent. This discontent might not be expressed in the form of organized armed conflict but rather in the form of street protests and riots. On the other hand, we could argue that if a government extracts too many taxes (basically squeezes its population) the people might be dissatisfied and express their discontent, especially if the population gets little in return in the form of public goods or general welfare. Thus it is necessary to see the state's tax revenues in relation to its provision of public goods. Despite this counterargument, we expect the extractive capacity of a state to be related to less domestic violence in the form of riots.

H1: High state revenue, especially from taxes, is related to fewer riots.

The allocation of the government's resources can be used to provide public goods but also for private goods to enlist the support and loyalty of important clients. Clientelism and political corruption are associated with more domestic unrest in the sense that they contribute to more grievances in the population. On the other hand, the allocation of (oil) revenues can also be used to stabilize a society if the money is spent to bribe important segments in the society to support the government. Thus, through the provision of private goods, the government can ensure alliances and support from otherwise potential challengers (Fjelde 2009). A state with a lot of resources for expenditure, essentially with a high government share of GDP, presumably is better situated to ensure the support of its selectorate and thus better able to avoid domestic violence.

On the other hand, the size of the government could also be related to an increased risk of armed conflict. Steinberg and Saideman (2008), for example, argue that a weak state, or little government involvement, reduce ethnic conflict.[8] They distinguish two dimensions of government involvement: share and allocation. The state's share in the economy can be operationally defined as government spending and consumption. The second dimension refers to allocation, whether the resources are distributed by governmental decisions or are left to market forces. Access to state power allows groups to extract rents. Extraordinary rents can increase the incentive for private rent-seeking among government officials which can increase the prize for state capture (see also Fjelde 2009, Fearon 2005). The more a government is involved in the economy, i.e. the larger the share of the economy it controls, the greater the benefits if a group controls or captures state power. If economic allocation is largely left to the market, it will be more difficult to channel resources towards one's supporters and clienteles. Thus there will be fewer incentives to capture state control making violent rebellion less interesting (Steinberg and Saideman 2008).

Empirically, so far there is mixed support for a conflict reducing effect of high government expenditure (Bussmann and Schneider 2007, Fjelde and de Soysa 2009). Steinberg and Saideman (2008) show that civil war is more likely in states where the government is stronger involved in the economy.[9] The government's share of the economy was insignificantly related to civil war, whereas the components relating to allocation (e.g. trade policy, restrictions on capital flows) were positively and significantly associated with more ethnic violence. Thus a government's reallocation efforts might be more effective rent-seeking tools and thus might more likely promote violence. Government size had no effect in

[8] The distinction between a strong and a weak state can also be made based on the difference between a minimal state, i.e. a state that provides only domestic security, external defence and basic infrastructure, and a maximal state (Desch 1996).

[9] Steinberg and Saideman (2008) rely on the Heritage Foundation's Index of Economic Freedom as indicator for government involvement. Components of this index relate to the government's share of the economy (e.g. tax rates, government expenditures, state consumption) and to allocation (e.g., trade policy, restrictions on capital flows).

their tests (see also Thies 2010). Whereas a large government might be an incentive, or prize, interesting to be captured by organized opposition groups, people rioting in the streets will be less inclined to take over the government directly but rather aim for a governmental policy change. Thus we expect the government size, as an indicator for available resources to be distributed to the selectorate, to be related to fewer violent protests.

H2: The higher the government's share of GDP the less frequently it is confronted with riots.

Arguments rooted in grievance theory consider a strong state to be advantageous for domestic peace because an economically strong state can provide public goods and thus satisfy the need of the general population. Thus not only a government's overall spending contributes to more peace, but what is more important is how the government spends its money. A state can secure the support of the population if it provides security and wealth. For Kugler and Arbetman (1997) the front-ranking goal of a capable and autonomous state is the preservation of power and the guarantee of stability, but once this is ensured the goal of a government has to be to generate socioeconomic welfare that is important to stabilize a society. With its spending policy and spending priorities a government can provide its population with welfare and thus neutralize prevailing grievances in society. Social security and welfare spending, or government consumption in developing states, could mitigate negative consequences from globalization and contribute to social cohesion (Rodrik 1997). Investments in education and infrastructure directly improve the general population's living conditions and are important requisites to attract private investment to assist economic growth. High investment in education can also simply be a signal by the government to the people that it cares about and tries to improve the welfare of the population and thus should assist in encountering grievances (Thyne 2006). Spending on education can also have important redistributive effects, especially if spent on primary and secondary education rather

than on tertiary (Azam 2001, Thyne 2006). Government spending can have important redistributive components and thus can contribute to the reduction of social inequalities. Therefore high government spending, especially in the form of public goods and social welfare provision might absorb grievances and thereby prevent the occurrence of riots. A state that is capable of addressing inequalities might not have to use repression to deter opposition, which should reduce the probability of riots. Thus we will test the hypothesis that especially spending on public goods like education is negatively related to the outbreak of riots.

H3: The higher public spending on education the less frequently there will be riots.

Research design

The hypotheses will be tested for an unbalanced sample of up to 150 countries in the time period 1972-2002. We will first reanalyze various indicators of state capacity in relation to civil war. The method of estimation in these tests is a pooled logit model with robust standard errors. Our first dependent variable is the onset of armed conflict from the UCDP/PRIO data (Gleditsch et al. 2002). It includes all armed conflicts with at least 25 casualties where the conflict parties are the state government and at least one organized rebel group.[10] Using Buhaug's (2006) version of the data we focus on conflicts that are fought over the control of the government because our interest is mainly in conflicts that challenge the central state authority due to dissatisfaction in the population.[11]

In the analyses of riots, we rely on data from the Cross-National Time-Series (CNTS) Data Archive (Banks 2008; as available from Pippa Norris' 2009 Democracy Timeseries Dataset), which is the most extensive dataset on events of domestic unrest. It defines riots as "[a]ny violent demonstration or clash of more than 100 citizens involving the use of physical

[10] The onset of an armed conflict is analyzed in this paper; subsequent years of ongoing conflicts are dropped. If a conflict falls below the 25 threshold for more than two years it is coded as a new outbreak.
[11] In tests of robustness we look at the onset of all civil wars.

force." The dataset specifies how often domestic conflict events have occurred in a year, using the New York Times as the source of information. Since the original data comes as a count variable we have to rely on negative-binominal regression models.[12] Alternatively, we recoded the data to a binary variable indicating only weather one or more riots occurred in a country during the respective year. With the binary variable we use random-effects logit model for the incidence of one or more riots.

As indicators of state capacity we rely on various measures. First, we concentrate on a set of variables that account for the extractive capacity of a state. The current *revenue* of a state as percentage of GDP includes revenue to the central government from taxes and nonrepayable receipts (excluding grants). The literature attributes special prominence to income from taxes with regard to a state's efficiency of the state apparatus (i.e. Thies 2010; Cheibub, 1998). Thus we specifically estimate the effect of the central government's *tax revenue* (as % of GDP) which reflects the capacity of the state to extract resources from individuals and groups in society. Total tax/GDP is identified by Hendrix (2010) as the most relevant measure of state capacity. The compulsory transfers to the central government exclude fines and penalties. These are part of *nontax revenue* (% of current revenue), another measure that we will investigate for comparative purposes. All revenue variables are taken from the World Development Indicators 2004. Finally, we include *relative political capacity* (RPC) another measure of the extractive capacity of the state, which is defined as the difference between actual and predicted level of tax revenue extraction. The indicator was developed by Organski and Kugler (1980) to measure the ability of a government to mobilize resources of its population. Thies (2010) as well as Braithwaite (2010) used it in their analysis

[12] An analysis of the distribution of scores of the riots-variable showed that the data does not meet the assumption of poisson distribution (mean=variance). A comparison of the observed proportions along with the poisson and negative binomial probabilities for the riots variable indicated that a negative binominal model is better suited for the analysis. Furthermore. the likelihood ratio test indicates the use of panel instead of pooled estimation.

of the relationship between state capacity and civil war. We use the replication data from Thies (2010) as a data source for the RPC variable.

In a second approach to state capacity we focus on the government's expenditure side. We test the overall *government's share of GDP*, an indicator typically used to measure the size and scope of a state (i.e. de Mesquita and Smith 2009). It includes government purchases of goods and services as well as pay of public sector employees, subsidies, social security, and most expenditure on national defence and security. The data comes from the Penn World Tables 6.3 (Heston, Summers and Aten, 2009). To capture the public goods aspects of government spending, we rely on public *spending on education* in relation to GDP. The data for public spending on education comes from the World Development Indicators 2004. All independent variables are lagged by one year.

The estimations include a minimum of control variables to keep the models parsimonious. We limit the controls to potential intervening variables that are related in the literature to civil war or riots and state capacity. In particular the logarithm of *GDP per capita* (data from Penn World Tables) was used by Fearon and Laitin (2003) as the main indicator for state capacity in their study on civil wars and is one of the most robust findings (Hegre and Sambanis 2007). For our model specification on riots, we substitute the GDP per capita with the *growth rate of GDP per capita* as riots more likely break out in times of economic crises. A recent study on riots in India showed that not the level of economic development but short-term economic growth has a negative effect on the number of riots (Bohlken and Sergenti 2010). The type of political regime and its square term (with data from Polity IV)[13] are included to test the assumption that inconsistent regimes are most conflict prone, whereas democracies as well as autocracies presumably are more peaceful (Hegre et al. 2001). The literature on riots identified the regime type as an important intervening factor that structures

[13] We use namely the *polity* variable, which scores from -10 (most autocratic) to +10 (most democratic). We converted the variable to a scale from 1 to 21 to exclude the value zero which would skew up the squared term. Furthermore we replaced all special authority codings (-66, -77, -88) with missing values.

the relationship between state repression and dissent (Carey 2008). The regime type influences not only the dynamics of the relationship between government coercion and dissident activities, but also the qualitative character of opposition response. Furthermore, the regime-variable addresses reliability problems due to concerns about over-reporting of protest-events in democracies compared to autocracies. The logarithm of the *population* and the number of *years since the last conflict/riot* enter both model specifications. Most variables on state capacity were linearly interpolated to reduce missing values.[14]

In our tests on riots we conduct several robustness checks by testing for omitted variable bias. Contemporary empirical analyses on the causes of collective violence tend to assume an interactive relationship between inequality, repression and regime type. Riots can be a backlash to state repression, for example against property like government buildings or police stations (Martin, McCarthy, and McPhail 2009). We include a variable measuring the degree of *state repression* towards society, since the literature on collective violence identified it as one of the most important explanatory factors. If individuals expect repression from participating in dissent-activity they will be less inclined to participate. By tightening its control over society the state may be able to annihilate social movements before they become a threat to the incumbent regime. Carey (2008) offers a model that assumes a reciprocal relationship between political repression by the government and violent dissent of the population.[15] On the other hand, state repression can radicalize members of society and thereby facilitate unrest and dissent behavior (Gurr 1970). We use data from the Political Terror Scale (PTS) which measures violations of physical or personal integrity rights carried out by a state (or its agents). It refers to actions such as extrajudicial killing, torture or similar physical abuse, disappearances, and political imprisonment. The PTS is coded as a 5-level

[14] In several cases implausible zeros were replaced with missing values first.
[15] Numerous studies also pointed to the reverse relationship, in the sense that collective violence is a determining factor of repression (Regan and Henderson 2002; Gupta et al. 1993; Davenport 1995).

scale, ranging from level 1, which refers to the absence of state terror to level 5 which refers to extreme cases of state terror where the whole population is targeted by repression (Gibney et al. 2010).

Perceived inequalities as expressed by the concept relative deprivation are the major causes of dissent behavior in general (Gurr 1970). If parts of the population feel deprived of its political rights and/or feel economically disadvantaged, they develop a high potential of frustration that might cumulate in actions of collective violence. Whereas early studies showed a relationship between inequality and political violence (e.g. Russett 1964), most recent studies on civil war could not find any supportive evidence that domestic violence is higher in societies with an unequal income distribution (Collier & Hoeffler 2004, Fearon & Laitin 2003, Bussmann & Schneider 2007). Instead studies on civil war concentrate on horizontal inequality (Ostby 2008). We focus on vertical economic inequality represented by the Gini index to assess the effect of relative deprivation on riots. The data comes from the Standardized Income Distribution Database (SIDD) build by Babones (2008). The SIDD is a standardized version of the United Nations World Income Inequality Database compiled for cross country comparison. We use version SIDD-3, which is an interpolated and extrapolated version of the data, incorporating in-sample and out-of-sample estimates for the period 1955-2005.

We use a variety of additional variables in robustness checks, such as the consumer price index to account for inflation, or the unemployment rate to account for arguments related to decremental deprivation. In these cases the people's situation deteriorates to what they had before. Discontent arises because they still have the same expectations but the values decline (Gurr 1970). Furthermore, we control for oil exports that might be related to state capacity.

Findings

In the following we first analyzed various indicators of government strength in relation to the onset of organized armed conflict (Table 1) before we take up the question how the various state capacity measures are related to riots (Table 2 and 3). In Table 1 we essentially replicate previous studies. The control variables in our tests perform largely as expected. The level of development (GDP per capita) is negatively associated with the onset of civil war. Similarly the level of democracy and its square show the expected curvilinear relationship, although are in some test only marginally jointly significant in explaining the onset of governmental conflicts. Populous states are more at risk to experience a civil war in the basic models, but as the peace years variable, it is not statistically significant.

In Table 1, we first added variables that are to account for the extractive capacity of a state. In the first column, the central government's revenue/GDP is not significantly related to the onset of conflict. Revenue/GDP is negatively and highly statistically significant in a bivariate analysis but as soon as some control variables are added, in particular the level of development and population, some of the minimum controls (Hegre and Sambanis 2006), this effect is no longer significant. The situation is quite similar with tax revenue which is also highly significant with the expected negative coefficient in bivariate tests but no longer if other influences, especially the level of development, are held constant in the models of conflict onset. Tax revenues are especially correlated with the level of democracy (r = .43) and the level of development (r= .49) in our sample. If development is excluded tax revenues become highly significant but only improve slightly in significance if the democracy variables are omitted. Votes and tax payments could be interpreted as popular support.[16] Altogether, there is no robust indication that states with high tax revenues are less likely to experience a conflict (see also Fjelde and de Soysa 2009, Thies 2010), unless if we exclude the level of development from the model. A variable accounting for nontax income was insignificant,

[16] We tested if they reinforce each other but the interactive term was not significant.

even in bivariate tests and is thus not reported here. The measure for relative political capacity, an indicator accounting for the actual and predicted level of tax revenue, is negatively related to the onset of governmental conflict, a finding that is highly significant $p<.01$. This result is less strong but still significant at $p<.11$ if tested for all conflicts.

We also analyzed some indicators on the expenditure side. In column 4, we estimated the effect of government's share in GDP, an overall measure of the amount of resources a government has at its disposition. The government's share of GDP is positively related to the onset of a conflict for governmental control, (only marginally significant at $p<.09$ in a one-tailed test). This result rather supports arguments that see in big government an attractive prize to be captured but less support for grievance arguments that big government spending could satisfy the selectorate.

The government's share of GDP does not inform us on whether the state distributes public or private goods. It includes a wide range of expenditures. Concentrating on an indicator that is to capture the provision of public goods we can see that spending on education has the expected negative coefficient ($p<.13$ in a one-tailed test) supporting Thyne's (2006) argument to some extent. In these tests we lose a lot of observations though.

Table 1 about here

As described above, one reason for the insignificant results of many state capacity indicators could be found in the inappropriate selection of the dependent variable. Not civil wars but riots might be the result of dissatisfaction in the population and be better suited to capture grievance arguments. In Table 2, we analyze the effect of the state capacity indicators on the number of riots a state experiences in a year with a random-effects negative binomial model. The control variables are, again, largely as expected. In economically prosperous

times we observe fewer riots.[17] As for civil wars, we observe the inverse u-curved relationship of regime type and the number of riots. Populous countries experience more riots and the longer ago the last riot the fewer events of this type of instability. In the first columns, we find that neither total revenue, nor tax revenue or relative political capacity is related to the number of riots.[18] The results are robust if we estimate the presence of riots with a dichotomous variable.

In column 4, the government's share of GDP is negatively related ($p<.01$) to the number of riots. This first test supports grievance based arguments that large government spending reduces the number of riots. Based on this highly aggregated measure of government size we are unable to conclude whether the government can prevent outbreaks of this form of violence through the provision of public goods to the general population or through the provision of private goods to selected supporters. However, the effect of government size is not very pronounced (Figure 1). Holding all other variables at their mean a state with the minimal amount of 1.4% government share of GDP has a risk of the outbreak of at least one riot of 12%, whereas for states with a the maximum share of 83% the risk is only 2%.[19]

Table 2 about here

With reference to the count model in column 4, we can say that if a state were to increase its government share of GDP by 1%, the number of riots would be expected to decrease by a

[17] Unlike in the model of civil war onset, the level of economic development is not linearly related to the number of riots. However, GDP per capita and its square term are jointly significant indicating an inverse U-shape of the relationship with riots. Our main findings are robust to these controls though.
[18] Non-tax revenues are not reported but are also insignificant.
[19] We based our calculation on random effects logit model of riot incidence.

factor of 0.98, while holding all other variables in the model constant at their means.[20] For comparison with one additional year without riots (as measured with the variable 'Time since last riots') the number of riots would be expected to decrease by a factor of 0.95, while holding all other variables in the model constant at their means.

Figure 1 about here

In column 5, we find no evidence for the conciliating effect of government spending on education, presumably a public good that should reach the general population. A state's spending on education is a measure to capture whether a state can reduce unrest by providing public good to the population. Spending on education presumably benefits all in society. The variable is, however, not significantly related to the number of riots. The argument that a government might signal through spending on education that it cares for all members in society, not just the ones close to it (Thyne 2006) is not supported in our analyses. Public spending on health was not significant either but the analysis was limited to few years only (not reported here).

In Table 3 we conducted several tests of robustness for the government's share of GDP. We added several variables to check whether the finding is robust to omitted variable bias. The variable for state repression is, as expected, negatively related to the number of riots. Unlike in the study of civil wars,[21] the Gini index for income inequality clearly supports the grievance arguments. In states with a more unequal income distribution (i.e. a high Gini index) we can observe more riots, a result that seems to be robust in various specifications. The inclusion of the Gini index decreases a bit the size of the coefficient of government share

[20] These values are based on the calculated 'incidence rate ratios' for which the complete results are not reported here. The logic of interpretation for 'incidence rate ratios' is similar to the analysis of 'odds ratios' in logistic regression models.

[21] If we include the Gini index in our model of civil war, we find as others (e.g. Fearon and Laitin 2003, Bussmann and Schneider 2007), an insignificant and even negative coefficient.

of GDP but it remains significant at the 10% level. Oil rich countries experience fewer riots (column 3). None of these variables, however, alter the main finding of government size.

In tests not reported here, we tested two variables that we would expect to be related to riots, according to relative deprivation theory, the consumer price index and the level of unemployment (data from the World Development Indicators 2004) but both seem to have no impact. In additional tests of robustness we added regional dummy variables that did not influence our main findings. It is interesting to note that more riots take place in Latin America, despite the inclusion of the measure of income inequality. Our results are robust if estimated with random-effects logit model for the incidence of riots except that relative political capacity becomes significant. The estimation of fixed effects had the effect that neither the Gini index nor the government share of GDP is any longer significant. In the fixed effects models we lose, however, the observations of all countries that were very stable, i.e. that did not observe a riot in the period of estimation.

Finally, in the last column of Table 3 we tested an interactive effect between government share of GDP and the type of political regime as measured by the Polity index. The interaction effect is significant and also robust in several model specifications.[22] The effect of government share seems to be more pronounced in autocracies than in democracies. We use a random-effects logit model with the same specification as in column 4 of Table 3 to illustrate the interaction effect. Figure 2 shows the marginal effect of a one-unit change of 'government share' on the probability of riots at different values of the polity score, while all other variables in the model were set to their mean. As shown in Figure 2, the marginal effect of 'government share' on the probability of riots decreases when the Polity score increases.

[22] We tested logit and negative-binominal models with all combinations of control variables described in the research design.

Figure 2 about here

Whereas in strong autocracies (polity=1) one unit change in 'government share' decreases the probability of riots by 0.009, in strong democracies (polity=21) one unit change in kg decreases the probability only by 0.002.[23]

Conclusion

Increasingly, the literature associates civil war with a weak state. Arguments rooted in opportunity theory or grievance theory consider a strong state to be advantageous for domestic peace, either because a militarily strong state can deter or effectively fight rebellions or because an economically strong state can provide public or private goods and thus satisfy the general population or its selectorate. On the other hand, there are arguments that a weak state, or little government intervention, is beneficial to peace.

In this study we reanalyzed various indicators of state capacity, specifically relating the government's revenue and spending, with regard to a less organized form of domestic violence than civil war, namely riots. In sum, our findings do not provide unlimited support for the state capacity arguments found in the literature. Many of the state capacity variables are not related robustly to domestic unrest, either in form of civil war or riots. However, our results show that the size of government is related to fewer riots but not to civil war, whereas relative political extractive capacity is related to a reduced risk of civil war not to the outbreak of riots. The effect of government share is robust to a variety of model specifications. We find indication that its effect is stronger in autocratic regimes. Whether this effect can be explained by public goods provisions or by military spending that is included in this variable, needs to

[23] Note that we rescaled the Polity index to 1-21.

be investigated closer. The government's share of GDP is a very general concept that includes many different types of spending. Based on the government's spending on education we find little evidence for grievance based arguments. Future research needs to better capture the public vs. private goods dimensions of government spending.

Future research also needs to develop escalation models similar to the ones found in the study of international conflict. Riots might be an early-warning mechanism for a developing civil war. The combination of small rebel groups and violent street protest might be a cocktail for large-scale rebellions and civil war. The political consequences of riots vary in scope and depth but many of them had substantial and enduring implication, leading to organized protest movements and even revolutions. If enduring and escalating, riots might lead to a full-fletched civil war, or as Dominique Strauss-Kahn stated referring to the consequences of rising food prices, "those kinds of questions sometimes end in war" (quoted in Fraser and Rimas 2011).

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Table 1. State capacity and the onset governmental armed conflict

	(1)	(2)	(3)	(4)	(5)
GDP per capita (log), $_{t-1}$	-0.657***	-0.634***	-0.423***	-0.315**	-0.673***
	(-2.91)	(-3.02)	(-2.68)	(-2.09)	(-3.02)
Population (log), $_{t-1}$	0.0586	0.0580	0.0290	0.0595	0.0250
	(0.56)	(0.59)	(0.34)	(0.71)	(0.19)
Polity, $_{t-1}$	0.220	0.222	0.285***	0.268***	0.215*
	(1.57)	(1.58)	(3.13)	(3.35)	(1.65)
Polity^2, $_{t-1}$	-0.0103*	-0.0101*	-0.0136***	-0.0131***	-0.00957
	(-1.79)	(-1.74)	(-3.39)	(-3.69)	(-1.60)
Years since last onset, $_{t-1}$	0.0193	0.0154	0.00973	-0.00421	0.00549
	(1.58)	(1.30)	(0.93)	(-0.45)	(0.42)
Revenue (% GDP), $_{t-1}$	-0.0124				
	(-0.79)				
Tax Revenue (% GDP), $_{t-1}$		-0.0220			
		(-1.22)			
Relative Political Capacity, $_{t-1}$			-0.834***		
			(-3.00)		
Government Share (% GDP), $_{t-1}$				0.0174	
				(1.40)	
Spending on Education (% GDP), $_{t-1}$					-0.0989
					(-1.14)
Constant	0.232	0.166	-0.829	-2.843*	1.071
	(0.16)	(0.11)	(-0.54)	(-1.93)	(0.49)
Observations	2165	2157	3314	4414	1742
Countries	123	123	108	147	140
Time Period	1970-1999	1970-1999	1960-1999	1950-1999	1960-1999
pseudo R^2	0.072	0.071	0.063	0.048	0.080
Log pseudolikelihood	-188.67	-185.05	-314.36	-403.33	-161.34
Wald chi^2	36.26***	38.76***	46.14***	42.68***	46.71***

Logit estimation with robust standard errors clustered on the state. t statistics are reported in parentheses;
* p<0.10, ** p<0.05, *** p<0.01 in two-tailed test

Table 2. State Capacity and Riots

	(1)	(2)	(3)	(4)	(5)
GDP Growth, $_{t-1}$	-0.0121	-0.0112	-0.0164**	-0.0203***	-0.0193*
	(-1.36)	(-1.26)	(-1.97)	(-2.76)	(-1.76)
Population (log), $_{t-1}$	0.260***	0.262***	0.266***	0.278***	0.259***
	(5.87)	(5.91)	(5.84)	(6.94)	(5.04)
Polity, $_{t-1}$	0.181***	0.171***	0.198***	0.193***	0.158**
	(3.62)	(3.40)	(4.11)	(4.56)	(2.52)
Polity^2, $_{t-1}$	-0.00805***	-0.00769***	-0.00857***	-0.00846***	-0.00720***
	(-3.83)	(-3.65)	(-4.21)	(-4.69)	(-2.73)
Years since last Riots, $_{t-1}$	-0.0650***	-0.0651***	-0.0486***	-0.0434***	-0.0504***
	(-4.76)	(-4.77)	(-3.78)	(-4.03)	(-3.37)
Revenue (% GDP), $_{t-1}$	0.00144				
	(0.39)				
Tax Revenue (% GDP), $_{t-1}$		0.000847			
		(0.19)			
Relative Political Capacity, $_{t-1}$			-0.135		
			(-1.16)		
Government Share (% GDP), $_{t-1}$				-0.0181***	
				(-2.59)	
Spending on Education (% GDP), $_{t-1}$					0.0186
					(0.75)
Constant	-4.308***	-4.253***	-4.265***	-4.278***	-4.166***
	(-8.27)	(-8.17)	(-7.94)	(-9.32)	(-6.76)
Observations	2693	2687	2898	3977	2005
Countries	131	133	111	150	146
Time Period	1972-2002	1972-2002	1972-1999	1972-2002	1975-2002
Log likelihood	-1810.04	-1795.19	-1878.33	-2296.73	-1218.64
Wald chi^2	85.18***	85.63***	75.96***	108.43***	58.72***

t statistics in parentheses; * p<0.10, ** p<0.05, *** p<0.01 in two-tailed test

Table 3. Government Size and Riots

	(1)	(2)	(3)	(4)
GDP Growth$_{, t-1}$	-0.0181**	-0.0207**	-0.0190**	-0.0215***
	(-2.23)	(-2.52)	(-2.44)	(-2.89)
Population (log)$_{, t-1}$	0.312***	0.298***	0.304***	0.274***
	(7.04)	(6.59)	(7.07)	(6.93)
Polity$_{, t-1}$	0.157***	0.139***	0.172***	-0.0501***
	(3.29)	(3.02)	(3.89)	(-2.97)
Polity$^2_{, t-1}$	-0.00736***	-0.00647***	-0.00773***	
	(-3.59)	(-3.33)	(-4.10)	
Years since last Riots	-0.0574***	-0.0560***	-0.0369***	-0.0451***
	(-5.11)	(-4.65)	(-3.21)	(-4.14)
Government Share (% GDP)$_{, t-1}$	-0.0190**	-0.0141*	-0.0203***	-0.0499***
	(-2.55)	(-1.82)	(-2.75)	(-3.87)
Political Terror Scale$_{, t-1}$	-0.126**			
	(-2.32)			
Gini$_{, t-1}$		0.0191***		
		(2.62)		
Oil$_{, t-1}$			-0.411**	
			(-2.47)	
Government Share * Polity$_{, t-1}$				0.00289***
				(3.11)
Constant	-3.979***	-5.090***	-4.296***	-3.074***
	(-8.10)	(-7.56)	(-8.88)	(-6.52)
Observations	3320	3253	3556	3977
Countries	149	123	145	150
Time Period	1976-2002	1972-2002	1972-2000	1972-2002
Log likelihood	-1970.53	-2078.89	-2144.61	-2302.72
Wald chi2	121.24***	101.47***	100.32***	92.53***

t statistics in parentheses; * p<0.10, ** p<0.05, *** p<0.01 in two-tailed tests

Figure 1. Predicted probabilities of riots at different values of ‘government share’.

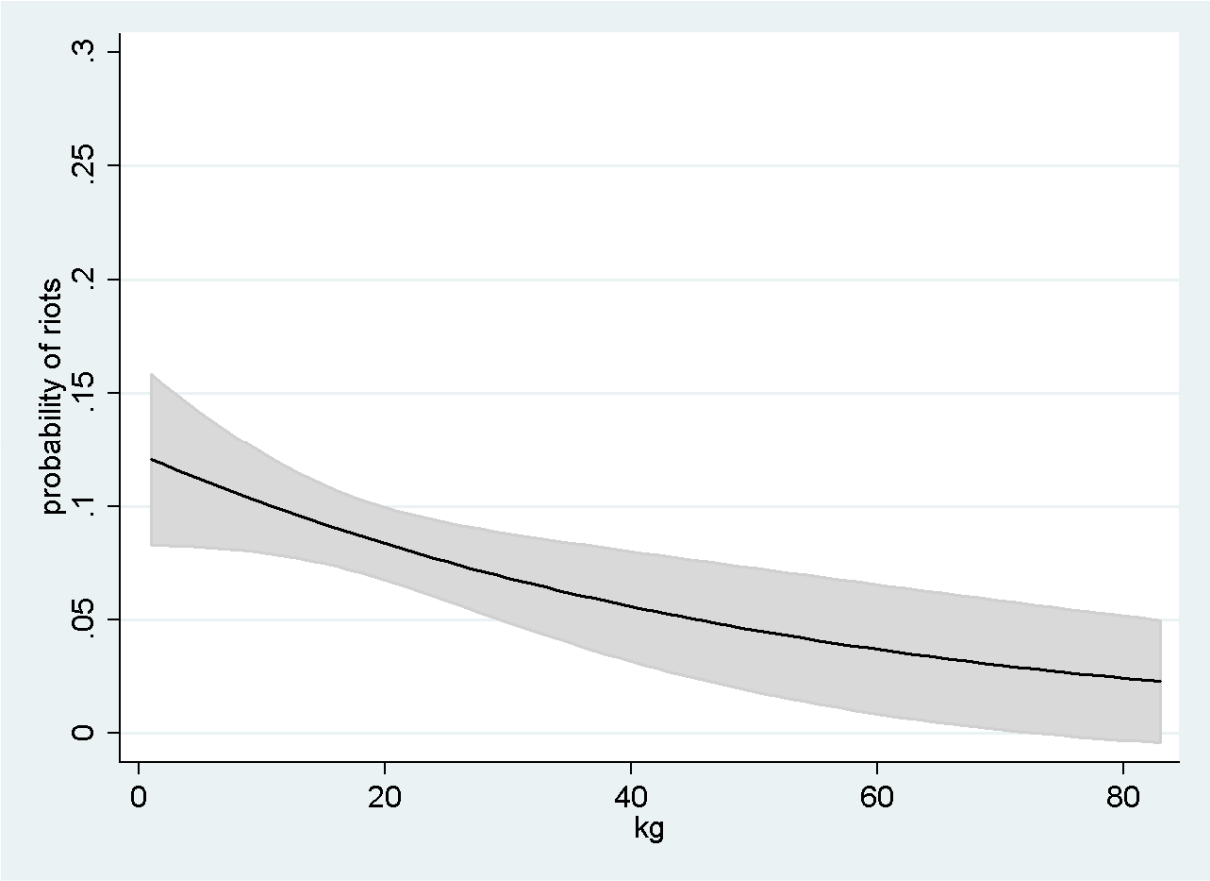

Figure 2. Marginal effect of ‘government share’ on the probability of riots at different values of ‘polity’.