Social Constraints and Civil War:
Bridging the Gap with Criminological Theory

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Scholars' views on civil warfare have changed dramatically. Understanding that conventional and ideological civil wars are rare, scholars are increasingly coming to view rebellions as large-scale criminality. However, much work remains to link criminality and civil conflict. The authors draw on a large body of criminological research known as social control theory, which identifies informal factors that are expected to produce conformity with norms and laws, such as social attachments, commitment to achieve goals, involvement in the community, and belief that law is just. While a plethora of work has linked these processes to criminological behavior, the authors build a bridge to the civil war literature. Empirical tests examine how marriage, unemployment and military involvement impact the one's 'taste for revolt' at the individual-level, and the likelihood of civil war onset at the macro-level. The results present a robust empirical link between social control theory and internal conflict.

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The nature of warfare has changed. While history is replete with examples of both conventional and insurgent warfare, the former type, including major power wars, colonial wars, ideological civil wars, and conventional civil wars, are in such notable decline that they could "well be considered to be obsolescent, if not obsolete" (Mueller 2003:507). Instead, scholars are increasingly coming to view modern internal warfare akin to criminal activity. Grossman's (1999:269) economic models of insurrections view insurgents as "indistinguishable from bandits or pirates," for example, while Mueller (2003:507) views "new war" as "nearly opportunistic predation waged by packs – often remarkably small ones – of criminal, bandits, and thugs." This viewpoint is becoming increasingly difficult to ignore, particularly given recent studies that highlight the criminal nature of modern warfare.[2]

Several innovative paths of research on civil conflicts have responded to this changing viewpoint of warfare to explain why conflicts begin. Economists were quick to counter the idea that rebellions were based on noble and psychological-based grievance factors, instead taking a rationalist approach in modeling rebels as greed-driven entrepreneurs who will turn to organized criminality to maximize their economic utility if the opportunity presents itself (e.g., Grossman 1999; Collier 2007; Azam and Hoeffler 2002; de Soysa 2002; Collier and Hoeffler 2004). Political scientists have likewise adapted to the criminological view of civil warfare by focusing on how the state provides formal mechanisms to inhibit the opportunity for predation (e.g., Fearon and Laitin 2003).

While these paths of research have certainly furthered our understanding of civil conflicts, much more can be done to explore the criminological nature of modern warfare. In fact, only a handful of scholars have explored what we consider the most direct and obvious vein

[2] For example, see studies of sexual violence (Wood 2008), displacement (Steele 2009), and lethal violence (Kalyvas 2006, Weinstein 2007).

of research for understanding civil conflict—an enormous body of sociological work examining why “criminals and thugs” commit crimes in the first place. Surprisingly close parallels have emerged in spite of a near total absence of cross-pollination between studies of criminology and civil conflict. These parallels are presented in Table 1. The first column presents the theoretical concept, while the second shows how the concept has been examined to understand organized crime within the criminology literature. Mullins and Rothe (2008) summarize four factors that structure organized crime, which have direct links to existing civil war scholarship. The first three factors include drives that provoke offending (motivation), social interactions where the possibility for criminal offense emerges (opportunity), and constraints that prevent criminal action or punish violations (control). As shown in the third column, these factors closely parallel arguments from civil war scholars, including respective literatures on grievances, opportunity costs, and state strength. In spite of these parallels, Mullins and Rothe (both sociologists) do not cite a single study common to the civil war literature, just as civil war scholars very rarely cite scholarship among the criminology literature.

[Table 1 here]

We move beyond these parallels by pointing to Mullins and Rothe’s (2008) fourth factor to explain organized crime—“constraints,” which has been largely ignored in the literature on civil conflict. Constraints include “social control elements that stand to make a potential crime either riskier or less profitable” (p. 88). Unlike controls, which focus on formal mechanisms to dissuade or punish offenders, constraints include informal controls on one’s propensity to commit crimes. Differentiating between formal and informal social controls opens an interesting avenue for study because only formal social controls, frequently characterized as “state strength,” have been found to substantially impact the likelihood of rebellion (e.g., Fearon and

Laitin 2003). Empirical studies from the criminology literature indicate that informal controls are at least as important as formal controls in dissuading crime (Patternoster, et al., 1983; Hollinger and Clark 1982), suggesting that a study of informal mechanisms might reap enormous rewards in furthering our understanding of why men rebel.

Beyond expanding our understanding of the causes of civil conflicts, a focus on informal social controls allows for refinement of existing theories and provides an overarching logic to combine important components of past research efforts. For example, work on both youth bulges (e.g., Urdal 2006) and opportunity costs (e.g., Collier and Hoeffler 2004) recognize unemployment and marriage as important factors that impact both the motivation and opportunity to rebel against the government. Our work moves these propositions forward by further articulating a theory for why these factors increase costs for fighting, and by providing direct empirical tests of the impact of these factors on the likelihood of violently challenging the government. Likewise, the argument from economic/rationalist models that people will rebel when it is economically profitable has been met with mixed empirical results (e.g., Ross 2004). If rebels can indeed be characterized as criminals, then the gap between the theoretical argument and empirical results can be bridged by considering informal costs associated with criminality. People do not always commit crimes when the profits are high and the costs are low, and informal social control theory gives us the tools to understand why. Theories based on state strength can also be refined with this approach. Rather than assuming that state strength is derived from formal institutional and coercive power, it is possible that the state's ability to ward off rebellions can be attributed to its ability to manufacture or support informal mechanisms.

In the following pages, we articulate a theory to explain how informal mechanisms of social control influence an individual's propensity to challenge the state. In order to begin

bridging the interdisciplinary divide, we begin by briefly explaining informal social control theory within the criminology literature, noting how the assumptions of the theory mirror recent work within the civil war literature. We then focus on specific factors identified within the social control literature that might impact one's decision to rebel, deriving hypotheses related to marital attachments, military involvement, and gainful employment. This is followed by empirical tests of our propositions. We offer two sets of tests, which reflects the ability of social control theory to predict the propensity for violence at both the individual and aggregate levels. The first relies on surveys to capture an individual's 'taste for revolt' (MacCulloch 2004), while the second takes a macro-level approach to predict the onset of civil conflicts. We end by discussing our empirical findings and pointing towards avenues for future study.

BACKGROUND ON CRIMINOLOGY AND INTERNATIONAL AFFAIRS

Although rare in the history of the discipline, criminologists have made recent efforts to contribute to the study of international affairs. Most notably, Hagan, Rymond-Richmond, and Parker (2005) address the genocide in the Darfur region of Sudan, highlighting the power and control exercised by the Sudanese government through racist appeals in the perpetration and continuation of the large-scale killing of non-Arab African tribal groups. In a similar analysis, Hagan and Rymond-Richmond (2008) outline the importance of criminological research in exposing and documenting international atrocities and in developing international criminal courts. Addressing the mass killings in the Democratic Republic of the Congo, Mullins and Rothe (2008) further emphasize the criminality of state leaders and transnational corporations in exploiting economic disorder and weak formal controls to gain control of the valuable mineral fields in the DRC. Genocide then has become one source of integration between criminology and international relations.

Terrorism is the other prominent topic of international concern addressed by recent criminological research. For instance, Aradau and van Muster (2009) argue that the rhetoric of exceptionalism is crucial to the foundation, transformation, and transgressions of criminal laws.[3] Further, exceptionalism in the relation to terrorism influences global power relations, sovereignty, and the deterioration of political communities and social transformation and contextualizes terms, such as deterrence and detention, common to both criminology and international relations. Also addressing terrorism, Savelsberg (2006) suggests that knowledge systems constructed through a combination of long-term beliefs and institutions where such beliefs are cultivated and radicalized are important precursors to terrorism. Lastly, Black (2002) describes terrorism as a form of social control, a tactic that terrorists use against perceived threats when formal state controls are deemed insufficient.

Killing is a key concern in criminological research, and assessments of killing on a mass scale are a logical extension of criminological enterprise. Both genocide and terrorism are integral topics for initial integration efforts between criminology and international relations, but civil war has yet to be addressed within the criminological literature. Furthermore, the early efforts to integrate criminology and international relations have almost exclusively relied on the conflict perspective from sociology. The conflict perspective emphasizes state coercive power and the concomitant manipulation of ideology and knowledge systems leading to violent actions against perceived threats, thus maintaining a central emphasis on state institutions and actors in developing societal grievances or perpetuating societal greed. The conflict theory is, therefore,

[3] Exceptionalism refers to "illiberal policies and practices that are legitimated through claims about necessary exceptions to the norm" (Neal 2006). Exceptionalism is fundamental to the governmental actions of law formation and social control, translating fear of the enemy into concrete policies and therefore represents an important link between the academic disciplines of criminology and international relations (Aradau and Munster 2009).

closely mirrors the "state strength" perspective on civil war offered by political scientists (e.g., Fearon and Laitin 2003).

In the current project, we attempt to promote a theoretical understanding of civil war onset that is somewhat independent of greed, grievance, and state strength, focusing rather on informal social controls that constrain motivated actors from initiating civil war. While the proceeding argument is meant to speak to all rebel activity, we recognize that our theory may be more applicable to some war types than others. The most direct link between criminality and civil war is among conflicts that have been characterized as being driven by greed, as these rebellions are largely defined by their ignoble motives (e.g., Grossman 1999). Our theory is geared to speak beyond the greed connection, however. Weak rebel groups undertaking non-conventional campaigns are likely to use coercion to extract resources from the civilian population to fund, arm, shelter, and staff their rebellion, which makes criminal activity an unavoidable part of most rebellions (Kalyvas 2006; Wood 2010). Likewise, while strong rebel organization may be able to effectively challenge the government without relying on criminal forms of coercion, it is impossible for potential recruits to know the strength of the rebellion before the conflict begins. Moreover, while rebel groups may eventually come to match the capabilities of government forces, they are likely to be much weaker early on (Regan 2002). Thus, if we make the minimal assumption that potential rebels need to project how they will fund and maintain their activities once fighting begins, it is likely that they will foresee the need to use criminal activity at least some point in the conflict. Thus, regardless of the type of conflict that eventually develops, we expect all potential rebels to expect criminal activities to be a part of their activities if they join a rebellion, and should be similarly influenced by the factors provided by our theory. We now turn to a more thorough explanation of these factors.

HIRSCHI'S SOCIAL BOND THEORY

The social bond theory is a prominent theory in the study of crime and deviance, originating from the classic theoretical assessment of suicide by Emile Durkheim (1951), a foundational sociologist credited with establishing the functionalist tradition in sociology. Durkheim's (1951) focus, however, was not suicide *per se*, but rather the foundation of social unity. In his classic work *Suicide*, Durkheim "…viewed suicide as a manifestation of the lack of social cohesion and the suicide rate a convenient index of weak social bonds" (Berk 2006:60). The theory was originally formulated as a macro-level theory, as the original intent and accompanying analysis were designed to explain differences in suicide rates *between groups*. Although subsequent analysis has uncovered the incomplete specification of the theory (Pickering and Walford 2000; Lester 1994) and critics have questioned the methodological shortcomings and micro-level implications of Durkheim's study (Berk 2006, Pescosolido and Georgianna 1989), the notion that egoistic social impulses can be controlled by a high degree of social integration remains a stalwart of sociological inquiry, and forms the basis of Hirschi's (1969) social bond theory.

Consistent with the notion that that all nations experience situations and contexts that motivate the pursuit of civil war (Tilly 1978; Tarrow 1994; DeNardo 1985; Lichbach 1990; Collier and Hoeffler 2004), the social bond theory assumes that all individuals are motivated to deviate from social norms (Hirschi 1969). From this perspective, the difference between an offender and a non-offender is not rooted in varying levels of motivation to offend, but rather differences in the degree of constraints imposed on each individual's behaviors. Traditional control theories in criminology point to the constraints on offending imposed through *formal* legal mechanisms, such as the law, police, courts, and prisons (Cohen 1985). The social bond

theory, on the other hand, stresses the controlling influence of *informal* processes that strengthen bonds to conventional society (Hirschi 1969).

The social bond theory identifies four informal mechanisms that collectively build and sustain affective bonds to society (Hirschi 1969). *Attachment* refers to an affective relationship an individual has with members and institutions within the dominant society, including parents, educators, coaches, religious leaders, and peers. *Commitment* identifies the degree to which individuals value future goals, such as completing an education, entering a career, or starting a family. *Involvement* suggests that engagement with conventional activities reduces the time and energy necessary to commit criminal or deviant acts. *Belief* suggests that accepting society's formal and informal rules as legitimate decreases the likelihood that an individual will violate social norms. Taken together, attachment to people and institutions, commitment to future goals, involvement in conventional activities, and belief in the moral legitimacy of rules coalesce to form a "stake in conformity." In other words, bonded individuals are unlikely to place their good standing in society at risk through acts of crime and deviance.

Empirical tests of the social bond theory have been supportive of the criminal deterrent effect of social bonds among both adolescents (Hirschi 1969; Chapple, McQuillan, and Berdahl 2005; Wiatrowski, Griswold, and Roberts 1981) and adults (Sampson and Laub 1993; Laub and Sampson 2003), and the theory also shows strong support in cross-national studies (Junger and Marshall 1997; Junger-Tas 1992). Marriage, employment, and military service have been identified as the key sources of social bonding among adults associated with lower levels of criminal offending (Gibbens 1984; Shover 1996; Warr 1998; Osgood, et al., 1996; Bouffard 2003) and as turning points in criminal desistance processes (Sampson and Laub 1993; Laub and Sampson 2003), primarily through the process of creating a stake in conformity for individuals.

Although the social bond theory is rooted in the macro-level Durkhemian theoretical tradition, Hirschi's (1969) social bond theory was originally conceptualized as an individual-level theory of criminality. More recent work, however, has extended the concept of the social bond to macro-level processes (Steffensmeier and Haynie 2000; Lo and Zhong 2006; Cantor and Land 1985; Chiricos 1987). For instance, Chiricos (1987) reports a consistently positive relationship between subnational aggregate unemployment rates and crime rates. Similarly, Lo and Zhong (2006) show that aggregate married to divorced ratios predict arrest rates in the same jurisdictions, especially among females. Accordingly, Berk (1996) illustrates that Durkheim's (1951) notion of integration, upon which the social bond theory is based, can be aptly analyzed from both a macro and a micro perspective. For instance, from the macro perspective,

> "Durkheim identifies common beliefs and practices as the essential aspect of integration. The more they pervade various aspects of the individual's life, and the greater extent to which they regulate behavior, the greater the integration of the group. Adherence to norms is the hallmark of a strongly integrated society…In this normative sense, *integration refers to the group's culture*; it is indicated by the *extent* to which the culture is: *shared, pervasive, strongly held, and a guide for behavior*" (Berk, 1996, p. 64, italics in original)

A society characterized by high levels of marriage, employment, and/or military service, therefore, will represent a highly integrated society bound by the norms of family obligation, economic production, and/or national service. These shared norms then provide not only guides for behavior, but also social bonds (i.e., a "stake in conformity") that restrain deviant proclivities. At the micro level, consistent with Hirschi's social bond theory, Durkheim suggests that individual social isolation creates feelings of meaninglessness coupled with weakened restraints, thereby intensifying the effect of misfortunes or personal troubles (Berk 1996). Integration at the individual level, therefore, creates a "stake in conformity" through social bonds that discourage deviance and act as a buffer to negative life events. Marriage, employment, and/or military service thus act as social bonds at the individual level of analysis. In sum, although the social

bond theory is a micro-level theory of deviant behavior, the theoretical background and empirical applications of the theory suggest that the social bond processes also operate at the macro level, as well. We expect that social bonds will operate as social control mechanisms that constrain the onset of civil conflict at the macro level, and limit one's "taste for revolt" at the micro level.

HYPOTHESES

Our discussion thus far has explained how many factors from informal social control theory might be related to civil conflict. Some of these factors, such as education (e.g., Thyne 2006), have already been directly examined in the civil conflict literature. Other factors, including marriage and employment, have received at least some theoretical attention, but have not been accompanied by direct empirical tests (e.g., Collier and Hoeffler 2004; Urdal 2006). Our purpose here is to develop testable hypotheses linking informal social control theory to civil conflict. We focus on factors that (1) have strong empirical support as predictors of crime and (2) have received weak theoretical and/or empirical attention within the civil war literature.

We begin by considering how employment might impact civil conflict. Employment captures the "involvement" component of informal social control theory, which suggests that engagement with conventional activities reduces the time and energy necessary to commit criminal or deviant acts (Hirschi 1969). Employed individuals are engaged in an activity that is likely consistent with the conventional norms of a given society, and therefore have solidified a bond to that society. Further, the time and energy that employment consumes leaves very little time or energy to devote to the pursuit of civil war, thus increasing the costs of rebellion.

The negative relationship between employment and crime has found strong support within the criminology literature (Sampson and Laub, 1993; Farrington, et al., 1986; Osgood et al., 1996; Uggen 2000). Though we know of no large-N studies that examine the impact of

employment on civil war onset, a plethora of anecdotal evidence suggests that unemployed young men contributed greatly to the ability of rebel leaders to get their movements off the ground. Warlords in Sierra Leone, for example, were able to recruit followers to capture the country's diamonds area by drawing on the large pool of unemployed youth in the country (Addison and Murshed 2003). The unemployed Tutsis in Rwanda and the Hutu in Burundi were likewise "easy targets for political mobilization by opposition movements" (Ndikumana 2001:6). In contrast, states that are seemingly ripe for conflict, such as Mozambique and Cambodia, have been able to remain peaceful by improving the employment situation for potential rebels (Ohiorhenuan and Stewart 2008:108).

Policy-makers seem quick to use this anecdotal evidence to develop their current conflict-prevention strategies. Shortly after leaving his command of the Multinational Corps in Iraq, for example, Lt. Gen. Chiarelli noted that finding jobs for "angry young men" was "absolutely critical to lowering the level of violence" (Dept. of Defense 2006). This viewpoint resonates with Tanzanian President Kikwete's more general urging for the international community to address unemployment to prevent further conflict in Africa. According to Kikwete, "We have seen how some youths with no job prospects and little hope of getting any have become the petrol to raging tires in conflict…they easily fall prey to war lords, criminal gangs and political manipulators to the detriment of peace and stability in their countries" (UN News Service 2009). We seek to test of the wisdom of these policies with the following hypotheses:

H1a: Unemployed individuals should have a higher 'taste for revolt' than employed individuals.
H1b: Higher levels of employment should reduce the likelihood of civil war onset.

We expect military involvement to also constrain one from joining rebel groups through the involvement informal social control mechanism. Criminologists have found strong empirical support suggesting that military service is a key life event that can reshape trajectories of

criminal offending (Laub and Sampson 2003; Sampson and Laub 1993; Bouffard, 2003). According to Hollingshead (1945:442), military institutions are designed to strip soldiers of their civic and personal identities:

> From the viewpoint of the institution, the ideal soldier would be one who had so identified himself with the military situation that all his personal, psychic, and emotional needs would be satisfied by instrumentalities provided by the institution…The distractions of civilian life would not then disturb the soldier. He would not worry about his parents, his wife, girl friend, his future after the army, his lost dignity, his possible death…the military situation is designed to produce soldiers- men conditioned to institutional requirements, defined situations, and explicit expectancies who will neither think for themselves nor make demands on the institution for needs that are not identified with institutional ends.

From this viewpoint, involvement in the military largely removes soldiers from the set of potential recruits from a rebel organization. The process of military socialization reorients a soldier's social bonds, making him prioritize solidarity with the institution, the society as a whole, and his brothers-at-arms (Holmes 1985; Dyer 2004).

The importance of socializing soldiers to maintain the stability of a country is a recurrent theme throughout history. The Spartans shaped 'citizen-solders' to establish loyalty to the state (Ducat 2006), for instance, while the Soviets viewed their conscript army as a key component of their socialization program (Jones and Grupp 1982). In potentially chaotic situations, military socialization is often viewed as the primary glue by which the country can build unity. As Lieutenant General Dempsey, the head of the Multi-National Security Training Command-Iraq (MNSTC-I) remarked, "The Iraqi Army has the opportunity to be the single institution that can elevate the narrative beyond regional, local, religious interests…[they are] becoming that institution of national unity" (Shanker and Wong 2006). More broadly, we expect the process of military socialization to produce citizens that are less likely to view violence against the government as an acceptable means of social change. This leads to our second set of hypotheses:

H2a: Members of the military should have a lower 'taste for revolt' than non-members.

H2b: Higher levels of military involvement should reduce the likelihood of civil war onset.

Our third expectation draws on the “attachment” component of informal social control theory, which suggests that affective relationships an individual has with members and institutions within a dominant society will result in lower criminal behavior. We focus on marital attachments, which criminologists have found to be a strong predictor of criminal desistance (Sampson, Laub and Wimer 2006). Marriage is expected to deter people from criminal activities for a number of reasons. It creates a system of obligation, mutual support, and restraint (Sampson and Laub 1993), and redirects everyday routines and patterns of association with others away from criminal enterprises (Sampson, Laub and Wimer 2006). It also provides a mechanism for spouses to moderate behavior by exerting direct social control (Umberson 1992), and forces one to undergo cognitive transformations that heighten one’s responsibilities to care for one’s family (Giordano, Cernkovich and Rudolph 2002). We expect these same mechanisms to matter in one’s decision to join a rebel organization.

Though the importance of marital attachments certainly varies by culture, marriage is largely viewed as a transformational experience whereby one’s responsibilities detach from oneself to one’s spouse and family. Within the Dinka, Bari and Kakwa tribes in southern Sudan, for example, young unmarried men are responsible for warfare and cattle keeping. Marriage marks the transformation into full adulthood, whereby a male becomes responsible for his family above all else. Fighting with rebel organizations, therefore, is largely the responsibility of the unmarried males in society (Leonardi 2007:393). This fits with the more general pattern of rebels coming largely from the ranks of the unmarried (Collier et al., 2003:27). Taken together, we expect the informal control exerted by spouses to decrease the likelihood that married individuals will join rebellions, which leads to our third set of hypotheses:

H3a: Married individuals should have a lower 'taste for revolt' than unmarried individuals.
H3b: Higher levels of marriage rates should reduce the likelihood of civil war onset.

RESEARCH DESIGN[4]

As explained above, social control theory has been developed both at the individual and aggregate levels, and empirical work on the impact of social controls on crime has found robust empirical support at both levels. Our theory remains consistent with this approach in developing hypotheses both at the macro- and individual-levels, which requires commensurate research designs. The unit of analysis at the macro-level is country-year for all countries with available data. The dependent variable, *civil war onset*, is coded 1 for each country-year in which a civil war began and 0 otherwise. Data for the dependent variable come from the Uppsala/Peace Research Institute of Oslo (PRIO) dataset, which defines armed conflict as a "contested incompatibility that concerns government and/or territory where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths" (Gleditsch et al. 2002:18).

Though the construction of our macro-level tests is consistent with the bulk of large-N empirical research on civil war onset, scholars have increasingly come to recognize the danger in drawing invalid inferences about individual-level behavior based on aggregate data. A handful of innovative studies have relied on surveys to capture an individual's propensity to challenge the state violently. Humphreys and Weinstein's (2008) analysis of the Sierra Leone civil conflict (1991-1999) comes as close to an ideal research design as we have seen, as the authors interviewed both ex-combatants and ex-noncombatants to determine the factors that motivated the participation in violence. Given safety concerns and lack of resources, few have attempted similarly heroic efforts to understand why individuals revolt. One exception is MacCulloch's

[4] Due to space constraints, we provide expanded documentation and description of our variables, alternative variable specifications, and robustness checks in the Appendix.

(2004) usage of the combined World Values and Eurobarometer surveys. Though unable to directly capture participation in violence like Humphreys and Weinstein, MacCulloch uses a unique survey item to capture one's support of revolutionary action or 'taste for revolt.' While this does not speak directly to actual action against the state, it is a reasonable proxy for future violent anti-state behavior and has at least some relationship with low-level revolutionary actions (e.g., boycotts and unlawful demonstrations) (MacCulloch 2004: 834).

Our individual-level design follows the work from MacCulloch in attempting to explain individuals' taste for revolt. We utilize aggregated survey responses from the World Values Survey (WVS), which includes more than 250,000 interviews from 5 waves of studies in 87 societies from 1981 to 2008. The dependent variable, *taste for revolt*, is captured with a question that asks: "On this card are three basic kinds of attitudes vis-à-vis the society in which we live in. Please choose the one which best describes your own opinion." Responses include: "the entire way our society is organized must be radically changed by revolutionary action," "Our society must be gradually improved by reforms," and "Our present society must be valiantly defended against subversive forces." Our dependent variable is coded 1 for respondents who choose the first option (12.3% of observations) and zero otherwise.

Given that both the aggregate- and individual-level research designs employ dichotomous dependent variables, we use logistic regression to test the hypotheses. In the aggregate analyses, we control for temporal dependence using a variable counting the number of *peace years* and *cubic splines* (Beck, Katz, and Tucker 1998). The individual-level analyses employ fixed effects by year and state, which help compensate for potential omitted variable bias (e.g., influence of cultural and language differences on survey responses) and shifts in public tastes.

Independent Variables

While examining the individual impact of concepts discussed in our theory provides the most direct test of our hypotheses, it is important to note that the mechanisms identified by social control theory are easily blurred. Attachment can refer to military involvement or marriage, for instance, just as involvement can work through either the military or employment. Thus, we begin our analyses by taking a more comprehensive look at the combined effects of the social control elements (explained below) by creating a common factor "social controls index" for both the aggregate- and individual-level analyses.

Moving to the specific expectations, our first set of hypotheses predicts that unemployed individuals should have a higher taste for revolt (H1a), and that higher aggregate levels of unemployment should increase the likelihood of civil war onset (H1b). At the individual-level, *unemployed* is coded 1 if the respondent chose "unemployed" in response to his/her employment status (9.4%). For the macro tests, *unemployment* captures those unemployed as a percentage of the total labor force from the World Development Indicators (WDI) dataset (2009). This measure includes 154 states from 1980 to 2007, ranging from 0.3 to 43.5. We expect these measures to be positive and significant to support the first set of hypotheses.

Our second set of hypotheses predicts that married individuals should have a lower taste for revolt (H2a), and that the likelihood of civil war onset should decrease in states with high rates of military involvement (H2b). At the individual-level, *military* is coded 1 if the respondent chose "Member of the armed forces" when asked about his/her profession/occupation (1.4%). At the aggregate-level, *military involvement* equals the total number of military personnel divided by the total population. Data come from the Correlates of War National Material Capabilities

dataset, which cover 198 countries in our dataset from 1951 to 2002. This measure ranges from 0 to 21.1 percent (Singer 1988; Bennet and Stam 2000).

Our final hypotheses predicts that married individuals should have a lower taste for revolt (H3a), and that the likelihood of civil war onset should be lower in states with high marriage rates (H3b). At the individual-level, *married* is coded 1 if the respondent chose “Married” when asked about his/her marital status (58.3%). At the aggregate-level, *marriage rate* is the number of marriages per 1000 people for each calendar year, ranging from 0.4 to 30.0. Data come from the United Nation’s Statistics and Indicators on Women and Men (2009). These data include 107 countries in our dataset from 1950 to 2009.

Control Variables

Following previous work, we provide two sets of control variables for both the individual and aggregate tests. The individual-level analyses employ control variables that have been found to be important in previous work, largely following MacCulloch (2004). The first control, *income*, comes from a WVS question that asks the respondent to choose their household income (wages, salaries, pensions, and other) among deciles for their home country (mean=4.51, SD=2.39). Following Grossman (1999), we expect income to have a negative impact on one’s taste for revolt as the opportunity costs of fighting should increase with an individual’s peacetime income. Likewise, (although somewhat controversial and subject to criminal justice system bias) criminologists have found income to have a generally negative relationship on one’s propensity to commit crimes (Patterson 1991). The second control, *male*, asks respondents their gender (48.45% male). We expect males to have a higher propensity for violence following both civil war literature on youth bulges (Urdal 2006) and sociological work on criminality (Elliott 1994). Education has also been shown to both decrease the likelihood of civil war onset (Thyne

2006) and one's propensity to commit crimes (Maguin and Loeber 1996). Thus, our next two control variables use a three-level measure to capture the "highest education level attained" on a country bases, including "lower," "middle," and "upper." We include the latter two measures, leaving "lower" as the baseline category. The final measures ask the respondent their age (in years) (mean=40.3, SD=15.9). We include both age and age squared, expecting the highest taste for revolt to come neither from the very young or the very old, which is grounded in both literature on civil wars (Urdal 2006) and crime (Hirschi and Gottfreson 1983).

Control variables for the aggregate tests include variables that have been found to exert considerable influence in past efforts to predict the onset of civil war. The first control variable, *population*, has consistently found to increase the likelihood of civil war onset because large populations confound a government's ability to control the people, while opposition leaders have an easier time recruiting fighters as the supply of potential fighters increases (Fearon and Laitin 2003; Collier and Hoeffler 2004). Previous scholars have argued that the likelihood of civil war should be greatest in semi-democracies, which fail to adequately deter revolt with insufficient repressiveness and fail to provide political openness to allow people to address grievances using non-violent means (Hegre et al. 2001; Mueller and Weede 1990). Therefore, we control for regime type using dummy variables for *democracies* and *authoritarian* regimes. Democracies are defined as countries receiving a score of 6+ from Polity IV's democ-autoc index, while authoritarian regimes receive a score of -6 and below (Marshall, Jaggers and Gurr 2009). Semi-authoritarian regimes are the excluded/baseline category. We also recognize that our measure for military personnel is apt to capture elements of state strength or high opportunity costs for rebellion. Thus, we control for *military expenditures* to help isolate the social control elements within this measure (Singer 1988; Bennet and Stam 2000). We likewise control for the general

level of *state wealth* in a society by including GDP/capita (logged) in the analyses (Gleditsch 2002). This measure should help isolate social control elements in both the unemployment and military involvement variables because it captures several related concepts, including opportunity, grievances, and state strength (Collier and Hoeffler 2004; Fearon and Laitin 2003).

DATA ANALYSES

We begin by examining the Social controls indices in Table 2, which show the combined effects of the social control measures at both the individual- (Model 1) and aggregate-levels (Model 5). As expected, each index is negative and significant, which provides support for the combined measures identified by our theory (Model 1, $p<.001$; Model 5, $p<.016$). Beyond statistical significance, in Figure 1 we present the substantive influence of the independent variables by calculating each variable's marginal effect on the dependent variable using *Clarify* (King, Tomz and Wittenberg, 2000; Tomz, Wittenberg and King, 2003). The figure displays how the likelihood of one's taste for revolt ("X"s) and the state's likelihood of civil war onset ("O"s) varies as each independent variable ranges from either 0 to 1 (for dichotomous) and from the 10th to 90th percentile (for continuous), while holding all other variables constant at their mean or mode. Using this approach, we see an average 6.6% (.014 to .125) decrease in the taste for revolt and an average 84.2% (.012 to .002) decrease in the likelihood of civil war onset as the social controls indices vary from their 10th to 90th percentile.[5]

[Table 2 here]

[Figure 1 here]

We now move to tests of our specific hypotheses. The first set of hypotheses predicts that unemployed individuals should have a higher taste for revolt (H1a), and that higher rates of male

[5] We should note that while the probabilities of civil war onset are small, the rareness of the dependent variable produces small predicted probabilities in general. This is similar to other analyses of both civil and interstate conflicts.

unemployment should increase the likelihood of civil war onset (H1b). We find strong support for both expectations with positive and significant coefficients at both the individual-level (Model 2, p<.001) and at the aggregate-level (Model 6, p<.016). Importantly, unemployment is significant even when controlling for personal income and levels of state wealth. Instead of capturing general discontent based on poor economic conditions, therefore, our results suggests that employment produces informal social controls independent of more commonly captured concepts. In substantive terms, we can expect an average increase of 9.8 percent (.134 to .147) in one's taste for revolt and an increase of 140.9% (.007 to .016) in the likelihood of civil war onset when unemployment ranges from the 10th to 90th percentile, which provides strong support for the first set of hypotheses.

Our second set of hypotheses predicts that individuals in the military will have a lower taste for revolt and the individual-level (H2a), and that higher levels of military involvement will decrease the likelihood of civil war onset at the aggregate-level (H2b). We find strong support for these expectations with negative and significant coefficients in Models 3 (p<.002) and 7 (p<.020). We also note that the aggregate-level finding is significant even when controlling for military expenditures and GDP/capita, which suggests that military involvement is likely working through informal mechanisms, rather than capturing state strength.[6] In substantive terms, those in the military are found to have a 19.6% (.124 to .100) decrease in taste for revolt on average, while an increase in military personnel from the 10th to 90th percentile reduces the likelihood of civil war by 35.7% (.044 to .028). These results represent two of the strongest influences on our dependent variables. Thus, we conclude strong support for our second set of hypotheses.

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[6] The correlation between military personnel and military expenditures is lower than on might suspect (r=.311, p<.001).

Our final set of hypotheses predict that married individuals will have a lower taste for revolt (H3a), and that higher levels of marriage rates should decrease the likelihood of civil war onset (H3b). We find mixed support for these expectations. At the individual-level, we see strong support for our expectation with a negative and significant coefficient for marriage (Model 4, $p<.001$). In substantive terms, we should expect a 10% (.116 to .104) average decrease in one's taste for revolt when they are married. Though strong compared to the individual-level control variables, this represents the weakest social control element identified by our theory.

At the aggregate-level, we see marriage rates to have the expected negative sign, though the result is far from significant ($p<.329$). We have two potential explanations for this null finding. First, it is possible that the pacifying effect of marriage is countered by potentially altruistic motives, whereby married men initiate civil war to protect their families from inter-group atrocities. This is consistent with criminological research documenting that altruism is a salient factor in some criminal events, where individual offenders commit crimes for the betterment of other individuals, groups, or movements (Cromwell and Thurman, 2001; Kivivuori, 2007). In fact, in Sykes and Matza's (1957) elaboration of neutralization theory, "appeal to higher loyalties" is promoted as a common method by which many criminals rationalize their offending. In this case, family protection and well-being could be the higher loyalty that justifies the initiation of civil war. Second, our theory implicitly assumes that spouses can influence their partner's choices at a constant rate, which may be unsafe given the wide variation in discrimination (particularly towards females) across societies. Instead, we might expect the impact of marriage rates on civil war onset to matter most when genders are equally valued throughout society. Subsequent analyses (not shown) interacting marriage rates with gender equality (proxied by a ratio of female to male life expectancy) support the

expectation that marriage matters most under gender equality, which provides at least some support for this explanation.

In regards to the control variables, we see evidence further supporting the conclusions by past scholars at both the individual- and aggregate-levels. Regarding the former, the pacifying influence of household income on one's taste for revolt is consistent across all models, which matches past research efforts at the individual-level (e.g., MacCulloch 2004). Given that income is generally identified as a component of criminality, this provides a useful baseline to gauge the substantive influence of the social control elements identified by our theory. From Figure 1, we see that the influences of all three social control elements are at least as strong as the influence for income, which speaks to the strong pacifying strength of social control elements. We also find that males have a consistently higher taste for revolt, which is also consistent with criminological evidence showing that males are more likely to commit violent crimes (Elliott 1994). The influence of education generally shows that one's taste for revolt decreases as education increases, though the findings are not sufficiently consistent across models to draw a robust inference. Likewise, the combined effects of age and age-squared suggest that taste for revolt should be lowest among the very young and the very old, which is consistent with work in both criminology (e.g., Hirschi and Gottfredson 1983) and civil war (e.g., Urdal 2006).

Moving to the control variables for the aggregate models, we see that military expenditures are apt to decrease the likelihood of civil war onset, which supports state-strength arguments (e.g., Fearon and Laitin 2003). However, this finding is not consistent across the models. In contrast, population is positive and significant in each model, and has a very strong substantive effect. Likewise, GDP/capita shows a negative impact on the likelihood of civil war onset in the most fully-specified model (Model 7). Given that GDP/capita and population show

the most consistent influences on civil war onset (e.g., Hegre and Sambanis 2006; Dixon 2009), the substantive impacts of these measure provide useful baselines to gauge the importance of the social control elements. As displayed in Figure 1, the substantive impact of unemployment on civil war onset is at least as strong as the influence of either GDP/capita or population, though the influence of military involvement lags behind each. Finally, the findings for democracy and authoritarian regimes likewise concur with the inverted-U expectation found in previous research (e.g., Hegre et al. 2001), though democracy appears to be more robust across models.

CONCLUSION AND IMPLICATIONS

While economists and political scientists have adapted to the changing nature of civil warfare—marked by a transition from ideological to criminal warfare—little work has drawn upon a large literature developed by criminologists to explain the decision to rebel. The purpose of this paper was to build a bridge between civil war and criminology research. We began by noting the rather impressive congruence in the two literatures, which have managed to develop in parallel with little cross-pollination of the approaches. Formal social controls, such as state strength in the civil war literature and the judicial process in the criminology literature, have been found to dramatically reduce the likelihood of civil war onset and criminal offenses, respectively. We sought to better understand how the decision to join modern rebellions might be influenced by informal controls, which have received great attention in the criminological literature but scant attention in the civil war literature. Examining both individual- and aggregate-level effects, our findings suggest that employment and military involvement provide strong informal controls to lessen the likelihood of rebellion. Strong support is also found for the impact of marriage in the individual-level analyses, though weaker support was found at the state-level.

This work provides important implications for scholars studying both civil conflict and crime. For the former, we show the importance of thinking across disciplines to improve our understanding of civil conflict. Early work integrating sociology and civil conflict produced strong evidence that informal controls increased the likelihood of civil conflict. From this approach, rebellion was seen as a collective good, and informal ties helped peasants overcome the collective action problem (Tarrow 1994; DeNardo 1985; Lichbach 1990). We take a radically different approach. Recognizing that most modern conflicts are best described as criminal adventures, we argue that informal controls should discourage young men from joining a rebellion. Our empirical results provide strong support for this approach, both standing alone and in comparison to the 'usual suspects' from other theoretical approaches to studying civil conflict. Due to space limitations, we left aside many other developments within the criminology literature that are likely to improve our understanding of civil conflicts. Future work might focus on the "belief" component of informal social control theory (focusing on one's perception of the moral legitimacy of society's formal and informal rules), for example, in better understanding the decision to join a rebellion. Much more work could be done to directly extend our work as well, perhaps focusing on the ability of a person to improve his social standing through employment, formal and informal rules constricting marriage decisions, and conscripted versus voluntary decisions to join the military.

This work also has important implications for those studying crime from a sociological perspective. Most obviously, this paper shows that there is little reason to confine studies of criminality to US borders, nor to take a narrow perspective on the definition of "crime." Recent work among criminologists has improved our understanding of genocide and terrorism. This paper shows another fruitful area of expansion: civil conflicts. Our paper also unwittingly

stumbled upon a third potentially fruitful area of expansion: integrating feminist theories into studies of civil conflict. Our inconsistent finding for the impact of marriage on the likelihood of civil conflict contrasts greatly with studies of crime, which finds that marriage provides strong informal social controls to deter criminal offense. Our efforts to make sense of this finding suggested that gender equality plays an important role in strengthening informal social controls. Thus far, criminologists have done little to analyze the impact of gender equality in studies of crime. Likewise, scholars studying civil conflicts have done little to consider how gender issues impact the decision to rebel. Future studies might consider the how the gender composition of both the rebel and government forces impact civil conflicts, for instance.

This paper also highlights important implications for policy-makers. First, our empirical data strongly support the importance of employment in reducing civil conflict. While leaders have many options to pursue economic advancement, our results highlight the importance of putting men to work. When considering investments in various sectors of the economy, therefore, governments should place emphasis on areas that require an abundant labor source (e.g., infrastructural improvements), as opposed to sectors that require little labor (e.g., resource extraction). Second, our results show that experience in the military is a social-transformative process that makes people less likely to rebel. This suggests that states prone to civil violence should consider at least a minimal level of compulsory military conscription. Finally, while admittedly underdeveloped both theoretically and empirically, our results point towards gender equity as a potentially important concern for policy-makers seeking peace. At a minimum, this paper shows that informal mechanisms identified in the criminological literature have important implications for studies of civil conflict, and we urge scholars to more carefully consider this cross-disciplinary component in future research.

Table 1. The Links and Disconnect between Criminology and Civil Conflict

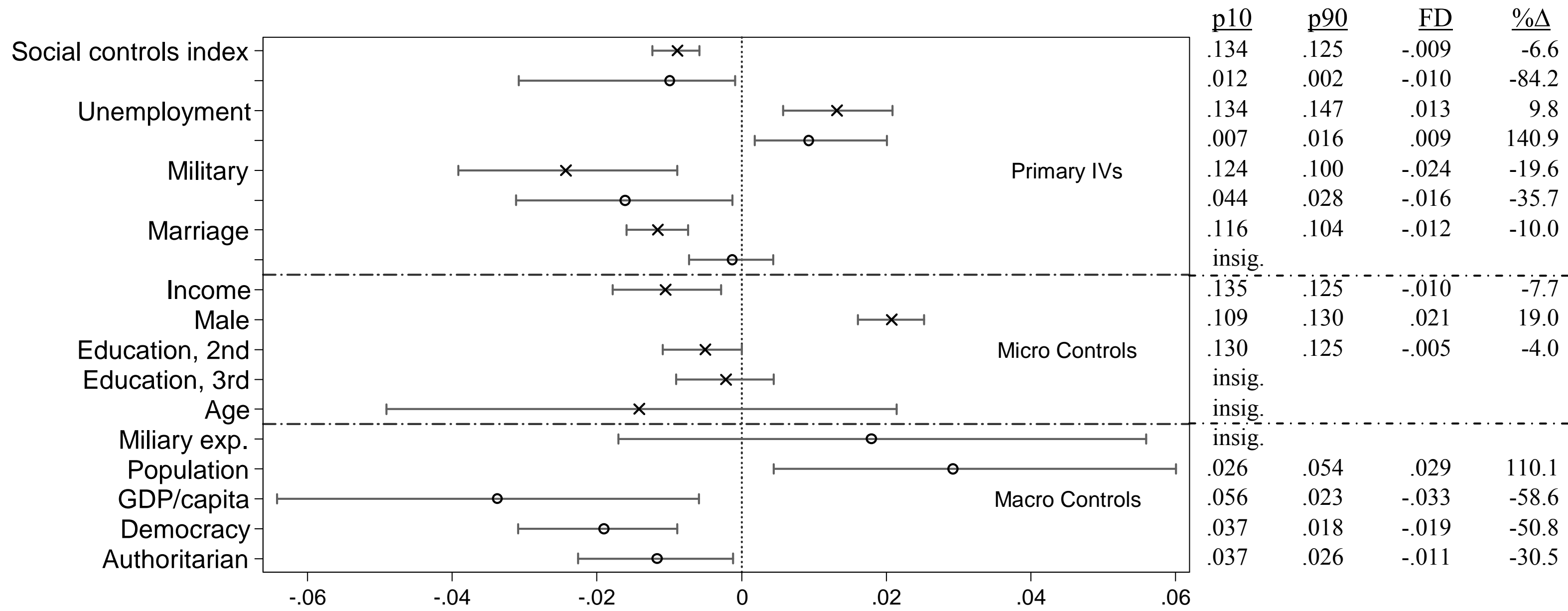
Theoretical Concept	Criminology Literature	Civil War Literature
Motivation	Drives that provoke offending, such as unemployment and poverty (e.g., Chiricos, 1987; Brownfield, 1986)	Factors that increase grievances, such as relative deprivation (e.g., Gurr 1970)
Opportunity	Interactions where opportunities for offending emerge (e.g., Cohen and Felson, 1979)	A group's ability to organize and fund a rebellion (e.g., Collier & Hoeffler 2004)
Control	Constraints to prevent/punish criminal behavior (e.g., Wilson and Herrnstein, 1985)	The ability of the state to control the population (e.g., Fearon & Laitin 2003)
Constraints	Informal controls on one's propensity to commit crimes (Hirschi 1969)	[Unexplored]

Table 2. Impact of Informal Social Controls on Taste for Revolt and Civil War Onset

	Taste for Revolt (individual-level)				Civil War Onset (aggregate-level)			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Soc. cont. index	-0.164***				-1.721*			
	(0.029)				(0.797)			
Unemployment		0.108***				0.066**		
		(0.031)				(0.027)		
Military			-0.252**				-27.700*	
			(0.085)				(13.470)	
Marriage				-0.119***				-0.039
				(0.023)				(0.089)
Income	-0.013**	-0.018***	-0.016***	-0.017***				
	(0.005)	(0.005)	(0.005)	(0.005)				
Male	0.197***	0.195***	0.211***	0.198***				
	(0.020)	(0.020)	(0.020)	(0.019)				
Education, 2nd	-0.046*	-0.031	-0.038	-0.037				
	(0.026)	(0.025)	(0.025)	(0.024)				
Education, 3rd	-0.021	-0.012	-0.018	-0.028				
	(0.031)	(0.030)	(0.030)	(0.029)				
Age	-0.003	-0.009**	-0.009**	-0.001				
	(0.004)	(0.004)	(0.004)	(0.004)				
Age^2	-0.000*	-0.000	-0.000	-0.000**				
	(0.000)	(0.000)	(0.000)	(0.000)				
Military exp.					-0.320	-0.732	0.175	-0.003
					(0.955)	(0.467)	(0.171)	(0.405)
Population					1.328	1.451**	0.487*	0.823*
					(1.066)	(0.537)	(0.227)	(0.493)
GDP/capita					2.040	-0.271	-0.625**	0.237
					(2.174)	(0.849)	(0.243)	(0.643)
Democracy					-2.220**	-0.431	-0.735***	-1.858***
					(0.789)	(0.477)	(0.209)	(0.435)
Authoritarian					-0.379	0.491	-0.381*	-1.616***
					(1.012)	(0.480)	(0.172)	(0.516)
Constant	-1.916***	-1.673***	-1.871***	-1.848***	-14.209*	-4.604*	-3.525***	-6.614***
	(0.102)	(0.093)	(0.092)	(0.090)	(7.456)	(2.723)	(0.878)	(2.122)
Observations	97,515	104,511	102,531	109,869	915	1,462	6,300	2,600
Wald Chi2	5165***	5442***	5295***	5612***	27.92***	52.83***	115.0***	43.29***

Note: Robust standard errors in parentheses. *p<.05, **p<.01, p<.001 (one-tailed). Fixed effects (M1-M4) and peace years and splines (M5-M8) not shown.

Figure 1. Impact of Informal Social Controls on Civil War Onset and Taste for Revolt: Substantive Effects



	p10	p90	FD	%Δ
Social controls index	.134	.125	-.009	-6.6
	.012	.002	-.010	-84.2
Unemployment	.134	.147	.013	9.8
	.007	.016	.009	140.9
Military	.124	.100	-.024	-19.6
	.044	.028	-.016	-35.7
Marriage	.116	.104	-.012	-10.0
	insig.			
Income	.135	.125	-.010	-7.7
Male	.109	.130	.021	19.0
Education, 2nd	.130	.125	-.005	-4.0
Education, 3rd	insig.			
Age	insig.			
Miliary exp.	insig.			
Population	.026	.054	.029	110.1
GDP/capita	.056	.023	-.033	-58.6
Democracy	.037	.018	-.019	-50.8
Authoritarian	.037	.026	-.011	-30.5

Note: "X"s denote individual/micro-level effects (Models 1-4). "O"s denote aggregate/macro-level effects (Models 5-8). Control variables are calculated from Models 1(micro) and 7 (macro).

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Appendix

As noted in footnote 4, a plethora of analyses were run to assure the robustness of the results presented in our manuscript. Below we provide a more thorough description of these efforts.

I. Dependent Variables

I.a. Civil War onset (macro-level): We began building our dependent variable using Strand's (2006) list of armed conflicts. A new onset is coded after two years of inactivity. This dataset ends in 2004, so we updated our dependent variable using Version 4_2009 of the Uppsala/PRIO Armed Conflict Dataset, using rules consistent with Strand (2006). We followed Powell and Thyne (2011) in removing instances of armed conflict that are better specified as bloody coups than civil wars.

We ran two additional tests to assure that our results were insensitive to how we operationalized civil war onset. First, the measure used in the paper includes both intrastate and externalized intrastate conflicts. We limited this to intrastate conflicts only, which did not provide an appreciable difference in our findings. Second, the measure used in the paper codes a new civil war following a two-year break in fighting. Alternative specifications included coding a new civil war following both 1 and 3 year breaks in findings. Neither of these specifications produced appreciable differences in our primary findings.

I.b. Taste for revolt (micro-level): While we operationalize 'taste for revolt' using a dichotomous indicator in the paper, the responses could also be considered as an ordinal measure. Thus, we also ran analyses using ordered logit with the following specification:

3 = "The entire way our society is organized must be radically changed by revolutionary action"
2 = "Our society must be gradually improved by reforms"
1 = "Our present society must be valiantly defended against subversive forces."

This alternative specification provided results that were substantively identical to those presented in the paper.

II. Independent Variables

II.a. Social Controls Index: The indices in the manuscript are common factor indices, which uses the correlations matrix of the independent variables derived from our theory—unemployment, military involvement, and marital attachments—to derive the value of a common factor, which we refer to as the "Social control index." For both the macro and micro analyses, the three measures used to capture these concepts loaded onto only one factor with an Eigenvalue of 1.31 (macro) and 1.46 (micro). For the macro-study, the factor loading were similar for each component of the index, including 0.71 for military personnel, 0.70 for marriage rate, and 0.57 for male unemployment. For the micro index, factor loadings were similar for employed (.266),

married (.267), and were weaker for armed forces (.06). We used these factor loadings to create the "Social controls index" measures used in Table 2, Models 1 and 5.

We also tested indices using a more naïve additive approach. For the macro-study, this was accomplished in three steps. First, we multiplied unemployment by -1 to make the direction of its expectation consistent with the measures for marriage rate and military personnel (i.e., higher values should decrease the likelihood of civil war onset). Second, we rescaled each measure to vary between 0 (lowest controls) and 1 (highest controls). Third, we added each measure to create a single "Social controls (additive) index." The final additive measure correlates with the common factor (explained above) at r=.90, and the results using the additive alternative do not alter the results appreciably (coefficient=-7.07, p=.002).

The naïve additive approach for the micro-tests was simpler. Given that the indicators are already dichotomous, we skipped the rescaling step. We reversed the sign of unemployed to create a measure for employed (i.e., switched 0s to 1s and 1s to 0s), and then added the three components. This again produced a very high correlation with the factor index (r=.97) and produced similar results (coefficient=-.106, p<.001).

II.b. Validity Concerns. We considered several issues to assure the validity of our independent variables, particularly for unemployment and marriage. Obtaining measures for these concepts is exceedingly difficult. Both the UN marriage data and the unemployment data provided by the World Bank come from the UN's International Labor Office (ILO) rely on a series of surveys. Each of these measures is likely influenced by reporting bias and difficulties reaching isolated population centers. While problems undoubtedly exist, these are the best available data available, and we have little reason to suspect systematic bias in the data that would result in Type I error in the forthcoming analyses. For a detailed discussion of these issues and solutions, see http://siteresources.worldbank.org/DATASTATISTICS/Resources/doc.pdf (for employment data) and http://unstats.un.org/unsd/demographic/products/indwm/standards.htm (for marriage data).

III. Missing Data.

In order to test as many country/years as possible in the macro-level tests, we were forced to alter the original unemployment and marriage data to deal with missing data. The marriage indicators are reported for sporadic years and include a single observation for each state in our dataset. For example, the UN reports that 5.3 percent of males aged 15-19 in Chile were married in 1992. No other years were reported for the Chile. We deal with this by assuming that reported marriage rate remains constant for each state in our dataset (e.g., *Male marriage rate* equals 5.3 from 1981 to 2008 in Chile). This approach seems reasonable for several reasons. First, many variables commonly examined in models of civil war onset (e.g., ethnic fractionalization, mountainous terrain, region, country size, resources) also remain constant for each year under study. Second, more detailed studies focusing specifically of marriage rates over time show that marriage rates change little, even in turbulent times (e.g., Fussell and Palloni 2004). Third, unlike our dependent variable, our approach eliminates temporal variation in the data, which likely works against our finding a statistically significant relationship.

Data capturing employment also include a decent amount of missing data. Many countries have complete data from 1980 to 2006, while others have gaps of missing years. For example, Chile has complete employment data for males from 1981 to 2007, while Mexico is missing values for 1990-1991. As with marriage, there is sound evidence that employment rates vary little over time (World Development Indicators: People 2009:36). Thus, we impute missing data by filling down from the most recent year that data are available. Values for 1990-1991 in Mexico, for example, equal the 1989 value (1.99 percent). We do not fill down beyond 5 years of missing data. This approach brings our unemployment observations from 1808 to 2636.

Finally, we should also note that while the WVS data include over 250,000 observations, our final analyses are much smaller due to missing data in the dependent variable. Rather than assuming that these data were missing at random, we ran a logit model in an attempt to predict the missing values using the same independent variables included in Models 1-4. These analyses revealed little of interest to suggest that our results should be biased by missing data.

IV. Control Variables

The analyses presented in the paper are kept as parsimonious as possible in terms of the control variables presented. The efforts from our macro-tests largely followed Dixon's (2009) discussion of the empirical results on civil war onset by including measures for the concepts deemed consistently important across many studies. To assure the robustness of our results, we also included measures for ethno-linguistic fractionaliation, income inequality, alternative regime type indicators (e.g., polity and polity^2), resources, and the yearly change in state wealth. The inclusion of these indicators made no appreciable difference in our results.

Regarding the micro-tests, we largely followed MacCulloch (2004) and Humphreys and Weinstein (2008, when possible) in developing appropriate control variables. All measures are at the individual-level, and we employed fixed effects by state and year/survey wave to help control for country- and time-specific effects. Additional analyses focused on including country-level variables using multi-level modeling methods, including the measures for population, GDP/capita, and regime type from the macro-level tests. These analyses did not alter our findings appreciable, and largely served to make our analyses unnecessarily complex.

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