Does Recording of Ethnicity in Censuses Increase the Risk of Political Instability and Violence?

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Abstract

There is a large pool of rigorous empirical studies investigating the relationship between ethnic heterogeneity and armed conflict. A general finding is that ethnicity is associated with a somewhat higher risk of conflict in bipolar societies with two large groups. Very fragmented societies, on the other hand, are not particularly conflict prone. But a largely neglected aspect of these quantitative studies is how changes in the relative strength of groups affect conflict. Toft (2002) argues that differential growth may destabilize heterogeneous democracies internally. In democratic societies, political power is distributed according to popular support in elections. A changing balance between groups may thus alter the distribution of power and potentially lead to political instability and ultimately violent conflict. We argue that the relationship between differential growth and instability and violence may be even more important in semi-democracies with electoral systems, but with weak and inconsistent political institutions. Starting from the premise that for differential growth to become a potential driver of conflict and instability, information of such change has to be recorded with a national census and actually published. In a cross-national time-series study we investigate whether countries publishing identity data from censuses are at a greater risk of experiencing violence and political instability. Investigating the census data in two models of civil war and regime duration, we find no empirical support for the expectation that publishing identity data increases the risk of violent conflict and political instability.

1.0 Introduction

A number of prominent studies of ethnic[1] conflict have suggested that when ethnic groups grow at different rates, this may lead to fears of an altered political balance, potentially causing political instability and violent conflict (Brown, 2001; DeVotta, 2002; Goldstone, 2002; Horowitz, 2001; Krebs & Levy, 2001; Lake & Rotschield, 2001; Toft, 2002; Weiner & Teitelbaum, 2001; Wriggins & Guyot, 1973). Anecdotal evidence for such connection is ample. In Lebanon, censuses were suspended altogether to avoid conflict over the distribution of ethnic quotas for parliamentary elections (Baaklini, 1983; Krebs & Levy, 2001). In Bosnia-Herzegovina in the early 1990s, radical Serb leaders were agitating for the secession of 'Serbian' areas in Bosnia-Herzegovina by instigating popular fears that Serbs would soon be outnumbered by a growing Muslim population heading for the establishment of a Sharia state (Urdal, 2001). In Northern Ireland, the Catholic population is estimated to form a majority of the electorate within a few decades.

Although popular perceptions of ancient hatreds and protracted identity conflict are widespread, comparative empirical studies suggest a modest impact of ethnic heterogeneity on violent conflict (Ellingsen, 2000; Fearon & Laitin, 2001; Henderson & Singer, 2000). It has also been suggested that ethnic conflicts may have different causes than other conflicts (Sambanis, 2001; Besancon, 2005). As it is clear that multiethnicity in itself is not a strong predictor of conflict, we should focus on what contextual factors makes identity politically relevant. In societies where political power, and thus scarce resources, is partly distributed according to ethnic divisions, we would like to know what mechanisms can trigger political violence.

The political influence of an ethnic group is often at least partly a function of it's size. And to the extent that numbers matter, it is also reasonable to expect that changes in the balance between ethnic groups matter. Despite often being mentioned as a potential driver of ethnic conflict, surprisingly few attempts have been made to deepen our understanding of how and when unequal growth rates can influence conflict behavior. A major exception is Toft (2005), who does not find a statistically significant relationship between differential growth and armed conflict for a global

[1] We will be using 'ethnic group' and 'ethnicity' for identity groups separated by linguistic, religious or ethnic divisions.

time-series sample of countries.[2] Addressing the issue from a different angle, this study investigates the potential role of identity registration in censuses as a trigger of political instability and political violence.

Critical to the very idea that differential growth rates may matter is that information about the growth of competing ethnic groups is available, not only to decision-makers, but also to the population of a country at large. While not the only public source to such information, a census will often be the most authoritative source to estimates of the ethnic composition and change of populations. For this reason, and for the purpose of cross-national comparison, we focus on the role of censuses in collecting and disseminating information about ethnic group size and changes, in order to see whether countries that publish data on ethnic composition from censuses are more prone to violent conflict and political instability. The publishing of such data is a necessary condition for differential growth to influence the risk of conflict and instability. The results from this study suggest that publishing such data does not affect the risk of violent conflict and political instability.

2.0 Ethnicity, differential growth and political violence

The numerousness of ethnic groups is generally related to their political influence. Horowitz argues that it is not only the numbers as such that matter, but that the 'apprehensions about numbers are equally important' (2001: 170). Fears of being outnumbered may cynically be exploited for political purposes even where higher minority growth poses no real threat to overwhelm a majority. DeVotta (2002) shows how differential growth is exploited by Hindu fundamentalists to stir up inter-communal tensions even under the impossible scenario that the 10% Muslims in India will outnumber the Hindu population for the next several hundred years. As Krebs & Levy (2001: 82) note, 'ethnic groups in a society generally have different fertility rates and different rates of immigration', and hold that the differential growth

[2] In an early stage of this project we attempted to analyze the impact of differential growth directly, based on estimates made from a widely used dataset on ethnic heterogeneity (Ellingsen, 2000). The dataset is not constructed for this purpose, however, and is of limited use as a basis for estimating inter-census differential growth especially due considerable changes in what categories constitute the two largest groups over time within the same country. When employing these data in our statistical models, differential growth was estimated to significantly reduce the risk of civil war and instability.

argument overstates the relationship. We agree, of course, that differential growth does not always lead to serious episodes of instability and conflict. Rather, the relationship is conditioned on several factors that will be addressed below. Krebs & Levy (2001: 82) go on to argue that the differential growth hypothesis fails to recognize that ethnicity is neither constant nor exclusive. In our view, this goes to the heart of the problem of comparing multietnicity crossnationally and temporally as there are no universal criteria employed for determining what constitutes a separate identity group and thus for measuring multiethnicity. Census categories as well as subjective self-identification can change significantly within the same country over time. In our view, this is a more fundamental critique of large-N empirical studies of ethnic heterogeneity and conflict. For the differential growth argument, the question of whether ethnic categories are 'true' or exclusive is of lesser importance. Furthermore, changes in census categories or people's self-identification are an integral part of popular apprehension of changes in relative strength. But as Horowitz (2001: 170) notes, 'the significance of numbers, real or apprehended, should not be overestimated. Numbers often have something to do with political power, but not always, not everywhere, and not everything'. Our aim with this paper is to try to answer whether differential growth, proxied by the publication of identity data from censuses, may be related to some forms of political instability and conflict.

2.1 Ethnicity and conflict

Literature on nations and nationalism draws a distinction between an 'East-European' and culturally oriented, and a 'West European' and 'civic' concept of a nation (e.g. Smith, 1998). The 'civic' nation describes the process of nation-building and cultural standardization that happened within already established states like France and the UK, and connotes an open and assimilative nation where the inhabitants voluntarily joins on the basis of loyalty to the state. The cultural nation exists despite or even in direct conflict with the state as a political entity, and is based on a set of shared cultural characteristics like language, religion or ethnic identity. And while 'civic' colonial powers of Western Europe banned cultural categories in their own censuses, they promoted ethnical categorization elsewhere through colonial censuses (Kertzer & Arel, 2001: 10). The two forms of national identity can exist simultaneously as competing forms of identity, like in former Yugoslavia where census respondents could register either as belonging to an ethnic group, or as Yugoslavs (Urdal, 2001).

Competing forms of identity adds to the fluidity of identity, and may lead to substantial changes in self-identification following for instance political developments, as happened in Bosnia-Herzegovina.

The reasons why some identities come to the fore while other cultural divisions are irrelevant, vary between contexts. While religion plays an important role in distinguishing groups in Bosnia-Herzegovina, language and shared history has taken prominence and made the same religious cleavages largely irrelevant in neighboring Albania. The relevance of identity is strengthened where group competition is formed along ethnic lines (Lake & Rotschild, 2001: 130), and weakened 'if ethnic antagonism cuts across other divisions in society' (Guelke, 2004: 245). While it is beyond the scope of this paper to explain how and why certain identities become politically relevant, such relevance is crucial to the differential growth argument developed below.

Lake & Rotschild (2001: 126) argue that ethnic conflict most often arise as a result of lack of credible commitments on the part of the dominant ethnic group, leading to collective fears of the future. Ethnic activists and political entrepreneurs build up and exploit fears of being subdued a system of political dominance and exclusion. 'Collective fears of the future arise when states lose their ability to arbitrate between groups or provide credible guarantees of protection for groups' (Lake & Rotschild, 2001: 128).

As long as the balance of power does not change, and is not perceived to change, this enables ethnic groups to preserve contracts to avoid violent conflict despite differing policy preferences (Lake & Rotschild, 2001: 135). The problem is that the balance of power most often changes over time, and even more so is perceived to change as a result of differential growth. 'Problems of credible commitment arise, as Fearon shows, whenever the balance of ethnic power shifts.[…] The checks and balances that safeguard the agreement today become insufficient tomorrow. Even if the group that is growing stronger promises not to exploit the weaker group in the future, there is nothing to prevent it from breaking its promise when it actually is stronger.' (Lake & Rotschild, 2001: 135). This leaves the ethnic group that is growing weaker with the option of taking up arms today, or accepting a contract that becomes increasingly insecure.

2.2 Ethnicity, democracy and conflict

To what degree is differential growth a problem confined to democratic regimes? Even in autocratic states, there is generally a positive relationship between relative group size and political power, although group resources and the ability and skills to mobilize and organize effectively are also crucial factors (Bookman, 2002: 25; Lake & Rotschild, 2001: 135). Horowitz (2001: 25) holds that if an ethnic minority is able to effectively control a state with small numbers and without having to face democratic elections, there is actually an incentive to keep the size of the group that shares the benefits of inclusion low. But in most authoritarian regimes, declining ruling elites are likely to experience an increasing pressure in the longer run, while excluded groups can be encouraged by increasing numbers. Kertzer & Arel (2002: 23) provide interesting examples of how autocratic regimes have suspended censuses in fear of being shown to be a minority.

But there can be little doubt that differential growth should be seen as a more direct and imminent threat to stability and peace in societies where the political power is distributed primarily through elections, as suggested by Toft (2002). Horowitz (1994: 36) argues that ethnically divided societies where resources are distributed according to ethnic lines, have 'a special version of the usual democratic problem of assuring decent treatment of the opposition'. A multi-party democracy in a society where identity is highly politically relevant is at great risk of being reorganized along ethnic lines, distributing political power according to group size (Weiner & Teitelbaum, 2001: 23; Wimmer, 2002: 107). But as the number of ethnic groups grows, and the smaller the largest groups are, differential growth becomes less relevant. Such situation does not preclude ethnic dominance, but makes it less likely since groups necessarily have to enter into alliances with others.

One solution that has been suggested as a remedy for highly ethnically divided countries is wide-ranging autonomy or federalism. Provided that ethnic groups to a large extent live in different geographical areas, a federalist solution will also mute the problem of differential growth. However, as argued by Lapidoth (1996: 40), 'a disadvantage of territorial autonomy is that since people move from one place to another, the composition of the population of a given region may change. The purpose of autonomy may be lost'. Kertzer & Arel (2002: 30) argue that groups 'fear becoming a minority in the territory that matters most to them, which can be conceived either as a state, a province, or a district'. So in autonomous regions where

the polarization between ethnic groups is high, we would expect to see an equally increased risk of violence and politically instability as predicted on national level for multiethnic states in general. This may be particularly problematic if changes in population balances regionally are encouraged by central governments (Lapidoth 1996: 40).

2.3 Census and the numbers game

In terms of quantifying ethnic groups, censuses are by far the most important and authoritative tool. According to Kertzer & Arel (2002: 30), the census tends to become politically contested because it is the most important means by which 'majorities' and 'minorities' are being officialized. 'The acts of categorizing and measuring become parts of society's struggles, both directly – for they set the size of various groups' claims on scarce resources – and indirectly – for they contribute to crystallizing people's identities' (Uvin, 2002: 170). But not only do census categories contribute to cementing ethnic identity. There are also examples of campaigning from 'below', to make census categories better correspond to subjective identification.

The census is an indication of whose country it is, and needs to be 'won' (Horowitz, 1985: 194, 196). In fact, in many countries, the instrumental dimensions of census politics are immense, and the prize for winning similarly large. The measuring of ethnic groups may be used to inform policies such as the establishment of social programs based on sizes of ethnic minorities, establishing quotas for ethnic representation in parliament or public administration, and the designation and use of official languages in schools and public administration, nationally or locally.

While changes in relative size between groups is often popularly portrayed as being a result of high fertility and immigration, aspects about the census itself may also be important reasons why groups change over time. Ethnic identities are not mutually exclusive or clear cut. This presents challenges to census enumerators trying to fit individuals into often preset ethnic categories. Colonial powers often struggled to find categories that could place their colonial subjects in the racial hierarchy, colonial censuses in Malaysia show 'an extraordinarily rapid, superficially arbitrary, series of changes, in which categories are continuously agglomerated, disaggregated, recombined, intermixed, and reordered' (Anderson, 1992: 164, summarizing original studies by Charles Hirschman). Significant changes in categories happen quite frequently, even in US censuses (Nobles, 2002). While changes in categories most

often result from governmental initiatives, there are also examples that popular pressure has forced governments to recognize new categories. A prominent example is the massive registration by Slavic Muslims as 'uncategorized Yugoslavs' in the 1953 census finally leading to the recognition of 'Muslims' as a separate category in the 1971 census (Urdal, 2001).

In addition to altered identity categories, changes in perceptions among the respondents may also account for substantial variation in the support for ethnic groups. Kertzer & Arel (2002: 28-29) describe how groups have been campaigning for respondents to report specific identities. Following a grassroots campaign against the 'balkanization' of Canada, the share of registered 'Canadiens' on the 'ethnic origin' question, increased from 3.3 to 24.1 per cent between 1991 and 1996 (Kertzer & Arel 2002: 16). Categories appearing as ambiguous to respondents may equally lead to unforeseen and shifting results. On the race question in the 1981 US census, 55.6 per cent of all Hispanics considered themselves to be white, while the other half either reported 'other' or 'black' (Thernstrom, 1987: 315). Identity groups that are listed as examples are also increasingly likely to be reported, as shown for the ancestry question in the 1970 US census (Kertzer & Arel, 2002: 17).

The assumption made here is that publishing data on ethnicity showing differential growth may be exploited by political entrepreneurs to create fears of being outnumbered. In France, asking questions on ethnicity, language or religion is prohibited by law. In Lebanon, censuses were suspended after the 1932 census showing a narrow Christian majority. In Pakistan the government postponed the census five times between 1991 and 1998, fearing violence by groups likely to claim that they were undercounted. When the results finally were published they showed the highly unlikely result that there had been no change in relative group size since 1981 (Kertzer & Arel, 2002: 23). In Burundi, ethnicity categories have been officially ruled out to mask the rule of the Tutsi minority, while in Mauretania, the results of the 1978 census were suppressed by the minority Moor government (Kertzer & Arel, 2002: 23).

Hence, we would like to know whether a country that publishes data showing a changed balance between ethnic, religious or linguistic groups more likely to experience political violence, ceteris paribus. From this follows the next question: Under what conditions is public knowledge on differential growth dangerous?

2.4 Differential growth and violence

Under what conditions may differential growth between ethnic groups result in political instability and violence? As argued above, to the extent that numbers constitute an element in the distribution of political power and resources between groups, a change in numbers is a factor that may alter the balance of power and potentially lead to instability and violence (Kerzer & Arel, 2002: 30; Toft, 2002: 75; Weiner & Teitelbaum, 2001: 32).

We contend that for differential growth to be an important driver of instability and violence, proof of such changes has to be publicized and known among the population. It is not primarily slow, actual changes 'on the ground' that matters, but rather fears of being outnumbered, usually instigated by political entrepreneurs. As noted by Weiner & Teitelbaum (2001: 32), groups often perceive differences in their relative size and growth rates as affecting the distribution of political power for the future. Hence, current population trends projected into the future may be thought to foretell changes in future political fortunes of competing ethnic groups. While not the only source to such information, we have chosen to focus on the publication of identity data from censuses, including religion, ethnicity, and language.

There are a number of factors that have been argued to increase the risk that differential growth results in instability and violence. The most important contextual factor is type of governance. In heterogeneous societies where political power is distributed through open elections, a changing balance between identity groups is most likely to be perceived as a threat to the political balance (Toft, 2002; Weiner & Teitelbaum, 2001). But also aspects about the composition are likely to affect conflict propensity. The larger the share that the two largest groups make up of the total population and the closer they are in size, the more likely is it that differential growth will lead to violence and conflict (Toft, 2002). We argue that a more relevant distinction is that of institutionally consistent regimes ('ideal' democracies and autocracies), and semi-democracies that allow some competition over power, usually in the form of elections, but where institutions are inconsistent and weak.

It can be difficult to separate meaningfully between the process that leads to a regime shift and the process that leads to civil war. We are agnostic as to what outcome is more likely, ceteris paribus, from a differential growth process, but we do believe that the political regime type is an important factor in either case. A regime with absolutely no form of power-sharing institutions, such as totalitarian

dictatorships, is known to be fairly capable in handling all forms of opposition, whether it is identity-based or ideology-based. Likewise, liberal democracies are also less exposed to violent political action, most probably because the open channels prove more effective (Hegre et al. 2001). The interesting category is the semi-democratic states, where some democratic institutions are present, but not all. These regimes do not possess the autocratic regime's ability to repress mobilization, and do not feature democratic responsiveness. This regime type is thus an unfortunate mix of opportunity and frustration. When we add identity to this nexus, we fulfill Ellingsen's (2000) criteria for armed conflict onset.

We believe that differential growth is dependent on political entrepreneurship, and we therefore see the political competition as an interaction among political elites. Przeworski (1991) models democratic stability as a game between an incumbent and opposing candidate. Strand (2005) shows how this model can be used to separate between different aspects of the relationship between political regimes, political events, and armed conflict.

(1) $U_a = C_l + p[r(C_w)+(1-r)(C_l)]$, $U_o = q(C_{aut})$,

(1) describes the incumbents perceived payoff from either accepting defeat and attempting to win the next election (with probability *r*) which might or might not be held (with probability *p*)or attempting to overthrow the election outcome with probability of success equal to *q* ($q(C_{aut})$). The model posits that if the expected utility from overthrowing democracy is larger than the expected utility from accepting defeat, a regime shift will be attempted, which also can lead to a civil war. Strand (2005) find evidence indicating that the level of institutional constraints on the executive branch reduce increase the likelihood that the incumbent will accept defeat, as it increases the likelihood for another election at a later stage (parameter *p*).

In our model, we find it very likely that differential growth rates between different politically relevant groups can affect the perceived likelihood of winning another election (parameter *r*), which also gives the incumbent and his/hers supporters incentives for both election cheating and political reforms.

In this paper we will empirically investigate the following hypotheses:

H_1: Countries publishing identity data from censuses are more likely to experience political violence and instability.

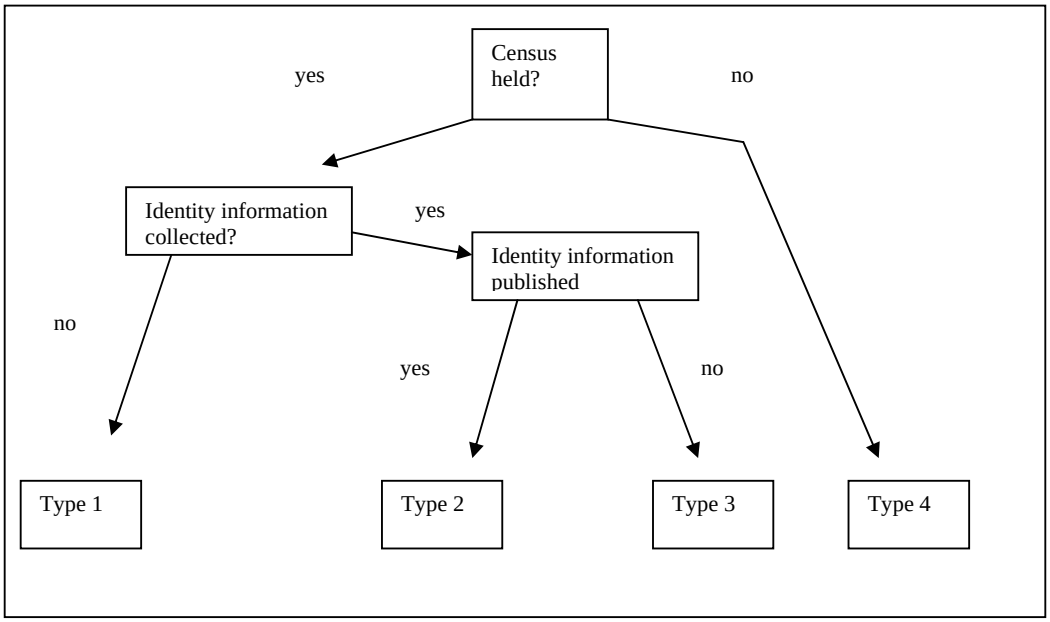
H_2: Semi-democracies are more likely to experience political violence and instability when publishing census data on ethnic group size.

H_3: Highly polarized societies are more likely to experience political violence and instability when publishing census data on ethnic group size.

3.0 Data and Methods

We aim at discovering whether publishing data that potentially document shifts within a country's demographic composition is associated with increased risks of political instability and internal armed conflict. A major challenge is that the effect group is quite heterogeneous. There are several possible scenarios that that may explain why no identity data being published. First, there are the countries that lack the capacity to conduct a large-scale population census. Somalia has not held a census in 20 years, for obvious reasons. A wide range of authors agree that low state capacity is highly correlated with armed conflict. Second, as we already have pointed out, a number of high income countries have banned by law gathering of identity affiliation data in combination with censuses. These countries can be labeled 'Do not want to know'-countries. These countries are very often characterized by strong 'rule of law'-institutions, and therefore often very low conflict propensity. Third, there are the countries that gather data, but then decline to publish them, for unknown reasons. Let us label these as "Do not want to tell"-countries. A priori, there must be some reason for why this information is withheld, and regardless of what the real motivation is, political entrepreneurs are likely to build upon the uncertainty introduced by the government's failure to publish. Figure 1 presents the different categories:

Figure 1: Four Different Possible Categories



Regimes that are unable to complete a census are, as argued above, probably very weak states, and as such more likely to experience instability and violence. These regimes are categorized as Type 4. The regimes we really are most interested in are Type 2 and Type 3. Together these regimes include all regimes which gather data on identity composition along with census data. If the pessimistic claim that publishing such data is correct, then we should expect Type 3 to be less at risk for experiencing political instability than Type 2 regimes. However, if there is a strategic component behind this choice, it might be that Type 2 regimes publish data because they are certain that the data either contains no explosive information or that the information presented can be handled within the current political institutions. In this regard, Type 2 regimes may be expected to be more stable than Type 3. Unfortunately, we can only observe whether a census was held, and whether identity data where published. Therefore, we can't empirically separate Type 3 and Type 1 regimes. Hence, we distinguish between three categories using two dummy variables: regimes that carry out censuses but do not publish identity data (Types 1 and 3, reference category), regimes that publish such data and finally regimes that do not arrange censuses at all.

We address two different dependent variables. Civil unrest can manifest itself in a number of phenomena. Civil unrest can take form as demonstrations or strikes. It can lead to a strengthened political mobilization along identity lines, demand for

political reforms, such as democratization or autocratization, demands for secession or for autonomy. In the worst scenario, it can be a civil war. Some forms of civil unrest are more dangerous than others. Civil wars and regime failure are two of the worst outcomes, and we start by investigating these two outcomes. These phenomena are theoretically very different, and the way we observe them force us to use drastically different models to investigate them. Following Gates et al. (2006) we define a political regime along three dimensions, Constraints on the Executive, Participation, and Recruitment of the Executive. Therefore, a regime change can happen in several directions, and is multi-dimensional by nature. This is in stark contrast to the onset of a civil war, which we view as a one-dimensional dichotomous event. We will base these preliminary analyses on two models which already exist in the literature, and add our variables to these studies.

Civil War Model

We base our analysis of civil war onset on Collier-Höffler model (Collier & Höffler, 2002), which is based on observations of onset within five-year periods. Civil War is defined as large-scale armed conflict between organized parties, involving the government of the state, with at least 1,000 battle-related deaths per year and a certain ability of both sides to inflict losses on the opponent side. This model is interesting for our study, since it includes a measure for polarization and it is based on fairly long observation intervals. Collier & Höffler (2002) do not find that polarization poses a danger for conflict, which in itself is not contrary to our hypothesis. Our test is to see whether the publication of identity data from censuses impacts the results of the CH model, and whether these results are conditional on a certain level of polarization. We assume that the conflict onset most likely will take place within the same five-year period as the census data are released. Since census data have a tendency to be recorded in the first year of a decade, the likelihood of an inverse causation is comparably low.

Following the Collier-Höffler model, we employ a standard logistic regression, where we assume that the countries in our analysis are independent of each other. Furthermore, we model the dependence within each time series through a variable measuring the time since last conflict. This is similar to how Collier and Höffler (2002) address this problem. Our model is given by $\Pr(war = 1) = F(a + bX_{it} + cM_{it-1} + dZ_i)$, where F is the cumulative logistic

distribution, given by $F(x) = \frac{e^x}{1+e^x}$. X is a set of variables observed in the same period as *war*, M is a set of variables observed in the previous period (in order to avoid measuring an inverse causal relationship), and Z is a set of variables that is constant over time. The results will be reported as odds ratios, which can be interpreted as the relative change in Pr(war=1) with each unit change in the independent variable.

Political Instability Model

Gates et al. (2006) present a multidimensional model of political regimes, and find that institutionally consistent regimes are more likely to survive than other regimes.[3] The most interesting 'other' regimes are the flora of semi-democracies. We build on their model to test whether regimes that present census data on ethnic composition are more or less durable than their counterparts.

The Gates et al. (2006) statistical model analyzes the duration of each regime, with both a set of time-varying covariates, such as economic performance and neighborhood effects, and regime specific covariates, such as the institutional composition of the regime in question. We add to this a variable similar to the variable of interest in the civil war analysis, which in this design measures whether a regime (1) has published census data during its existence and (2) has published data from a census that can be used to measure differential growth rates. Gates et al. (2006) use a parametric survival analysis with log-logistic distribution of regime duration. The hazard function is as follows:

$$h(t) = \frac{\lambda^{\frac{1}{\gamma}} t^{\frac{1}{\gamma}-1}}{\gamma\left(1+(\lambda t)^{\frac{1}{\gamma}}\right)}$$

where $\lambda = e^{-x_j\beta}$ and the scale parameter γ is estimated from the data. We report ln(γ) in our tables. If ln(γ) is positive, then the hazard rates are initially increasing and later decrasing. Negative values of ln(γ) indicates that the hazard function is monotonically decreasing, which is an indication that political regimes become more stable over time.

[3] For a definition of regime failure, see Gates et al. (2006).

We report our results as time ratios. These ratios tell us how many times longer or shorter the median regime is expected to last given one unit increase in an independent variable. A value above 1.0 indicates a positive relationship, while a value below 1.0 indicates a negative relationship. Our variables of interest are dummy variables, which eases interpretation of the time ratios.

4.0 Results

The civil war analysis reveals some interesting results. Model 1 in Table I is the Collier-Höffler model, our point of departure. In Model 2 we add dummy variables for whether no census has been held for ten years, and for whether a census has been held and identity data has been published. These dummies represent Type 4 and Type 2 in Figure 1. The combined category consisting of Types 1 and 3 is the reference category in our analysis. Model 2 seems to support a claim that there is no difference between our categories with regard to civil war onset. Both categories are insignificant and the change in Log-likelihood is insignificant. However, when we separate the analysis between semi-democracies on the one hand and consistent democracies and autocracies on the other hand (Models 3 and 4), we find interesting results.

- Table I here -

Like Strand (2005), we find that among semi-democracies, level of economic development does not seem to influence the risk of conflict. Furthermore, the cold war dummy is significant in Model 4, which probably reflects the last part of the third wave of democratization. For us, the most interesting difference between Model 3 and 4 is the changes for the census variables. In Model 3, which is considering consistent regimes, countries that do not hold censuses are at greater risk of experiencing civil war than countries that have performed a census within the last decade. There is no significant difference between those countries that publish identity data and those that do not. For the inconsistent regimes in Model 4, the picture is the opposite: the ones that do not collect census information at all are most peaceful, albeit the difference is only borderline significant. The difference between Types 3 and 1, and Type 2 is negative in this model, but again far from significant.

Table II: Predicted mean pr(war) for each category:

	Type 1+3	Type 2	Type 4
Semidemocracies	13.2 %	14.0 %	6.3 %
Consistent regimes	3.5 %	6.5 %	8.5 %

The mean of the predicted probabilities in each cell indicate two very different patterns. Among semi-democratic countries, those regimes that do not gather census data at all are more than twice as peaceful as the other categories. It does not seem to make a difference whether a census is published with or without identity information. On the other hand, among consistent and predictably stable regimes, there is seemingly a pattern, where the regimes that do not hold censuses are more at risk than those that do. Furthermore, the regimes that publish data on differential growth are slightly more at risk than the Type 1+3 category. However, these differences are rather small and their importance should not be over exaggerated.

- Table III here -

The results from the duration analysis are less dramatic. The most noticeable result is that adding the census categories to the Gates et al. (2006) model is a real improvement, since the log-likelihood value is almost 9% lower in Model 2 compared with Model 1. Compared with regimes that do not publish census data at all, regimes that publish census data with or without identity are between three and four times more likely to survive. Regimes that publish identity data with the census results are more likely to survive than regimes publishing census data without identity, but only by a very small fraction.

Model 3 and 4 compare semi-democracies (3) with consistent regimes (4). We find the same results, but there are some interesting differences. The difference between Type 2-regimes and the joint Type 1+3 category is much smaller for semi-democratic regimes, and semi-democracies that do not publish identity information are more likely to survive than regimes that do. On the other hand, consistent regimes are significantly more stable if they publishing identity information than not. Regimes in the Type 2-category are predicted to last 40% longer than the Type 1+3 regimes.

All regimes that collect census data are, as predicted, very much more likely to survive than regimes which do not collect census data.

Models 5 and 6 compare ethnically non-polarized countries (5) with polarized countries (6). We find the same pattern here as we do when we compared Models 3 and 4. There is no significant difference between different regimes that collect census data, but all of these regimes are much more stable than the regimes which do not publish data.

The results from the duration analysis indicate that publishing data on differential growth is at least not harmful, except perhaps for semi-democratic countries. In four of our five models, the regimes which publish such data are estimated to be more durable than the regimes which do not. Among regimes that are predicted to be fairly stable, pure democracies and pure autocracies, the difference is in fact significant.

Table IV: Predicted mean pr(life length) for each category:

	Type 1+3	Type 2	Type 4
Semidemocracies	8.5	6.6	2.5
Consistent regimes	21.6	48.8	4.0
Non-polarized regimes	29.8	57.9	4.4
Polarized regimes	17.5	26.5	3.6

If we look at the mean of the predicted life length in each category, it is clear that our Type 2-class is the more stable category. The strength of this relationship is much stronger than the regression analysis indicated, which probably can be explained with a tendency among Type 2-regimes to be prominently far along those dimensions that also contribute to stability.

5.0 Conclusion

Our preliminary conclusion is that countries that publish data on group size from censuses, which is the primary source to information about differential growth rates between identity groups, do not, all other things being equal, have an increased risk of experiencing violent conflict or instability.

In the extension of this project, we would like to address also the following hypotheses:

H_4: Among democracies, federations are less likely to experience political violence and instability as a result of differential growth.

H_5: The risk of political violence and instability Periods following censuses with an ethnic/religious/linguistic count are more associated with.

H_6: Countries that seize recording ethnicity, religion and/or language are less susceptible to political violence and instability compared to the universe of countries that publish such data.

H_7: In countries where identity is highly politiziced, publishing identity information from censuses is associated with an increased risk of political violence and instability.

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Table I: The Collier-Höffler Civil War Model

	(1) Original	(2) All regimes	(3) Consistent regimes	(4) Semi-democracies
Primary Commodity Exports/GDP	21.55***	21.93***	23.77***	13.86
	(3.36)	(3.40)	(2.93)	(0.97)
(Primary Commodity Exports/GDP)²	-32.16***	-32.75***	-38.72**	-12.54
	(-2.57)	(-2.60)	(-2.40)	(-0.55)
Cold War Period	-0.37	-0.30	0.29	-2.33*
	(-0.80)	(-0.63)	(0.54)	(-1.66)
Male Sec. Schooling	-0.0056	-0.0046	-0.0099	0.017
	(-0.42)	(-0.34)	(-0.59)	(0.45)
GDP/cap (log-transformed)	-0.93**	-0.93**	-0.92**	-0.70
	(-2.45)	(-2.44)	(-2.05)	(-0.61)
GDP growth (t-1)	-0.11**	-0.10**	-0.10**	-0.24
	(-2.33)	(-2.24)	(-2.03)	(-1.41)
Peace Duration	-0.0032***	-0.0032***	-0.0041***	-0.0015
	(-2.78)	(-2.75)	(-2.96)	(-0.44)
Mountainous Terrain	0.011	0.012	0.0092	-0.0022
	(1.22)	(1.26)	(0.84)	(-0.07)
Geographic Dispersion	-2.53**	-2.51**	-3.14**	-3.97
	(-2.21)	(-2.19)	(-2.26)	(-1.21)
Population (log-transformed)	0.69***	0.68***	0.72***	0.98*
	(3.92)	(3.86)	(3.41)	(1.89)
Social Fractionalization	-0.00020	-0.00020	-0.00029	0.00049
	(-0.63)	(-0.65)	(-0.75)	(0.32)
Ethnic Fractionalization	0.0039	0.0046	-0.00050	0.064
	(0.28)	(0.33)	(-0.03)	(0.99)
Religious Fractionalization	-0.014	-0.014	-0.018	-0.053
	(-0.73)	(-0.75)	(-0.79)	(-0.46)
Polarization	3.78	3.17	5.19	22.37
	(0.69)	(0.57)	(0.75)	(0.95)
Constant	-6.21	-6.34	-6.50	-16.21
	(-1.58)	(-1.60)	(-1.41)	(-1.11)
Census held, no identity data published (reference category)				
No census held last decade		0.34	0.96**	-1.72*
		(0.90)	(1.99)	(-1.70)
Census held, identity data published		0.57	0.58	-0.84
		(0.82)	(0.60)	(-0.68)
N	689	689	571	118
Log-likelihood	-124.72	-124.17	-89.28	-22.82

Table III: The Gates et al. Regime Duration Model

	(1) Original	(2) All regimes	(3) Semi-democracies	(4) Consistent regimes	(5) Non-polarized	(6) Polarized
Semi-democracies (reference category)						
Autocracies	1.92***	1.48***			1.43**	1.49***
	(5.81)	(3.88)			(2.29)	(3.13)
Democracies	4.12***	2.85***			3.11***	2.61***
	(8.83)	(7.65)			(4.65)	(5.68)
GDP/cap (log-transformed)	1.32***	1.15***	1.01	1.30***	1.18**	1.12*
	(5.85)	(3.00)	(0.19)	(5.80)	(2.00)	(1.88)
GDP/cap (log-transformed)^2	1.18***	1.14***	1.11**	1.16***	1.16***	1.10**
	(5.47)	(4.86)	(2.11)	(5.63)	(3.89)	(2.46)
GDP growth (lag)	1.09**	1.04	1.02	1.01	1.01	1.05
	(2.06)	(1.27)	(0.53)	(0.19)	(0.27)	(1.23)
Difference from neighbors	0.42***	0.49***	0.52	1.00***	0.34***	0.60*
	(-3.22)	(-3.20)	(-1.22)	(12.07)	(-2.96)	(-1.92)
First polity in country	1.63***	1.53***	1.07	2.04***	1.40	1.72***
	(2.57)	(3.00)	(0.23)	(5.21)	(1.33)	(3.21)
No census held last decade		0.32***	0.33***	0.33***	0.30***	0.33***
		(-12.16)	(-6.85)	(-10.18)	(-7.95)	(-9.33)
Census held, no identity data published (reference category)						
Census held, identity data published		1.13	0.72	1.40**	1.26	1.07
		(0.83)	(-1.20)	(2.15)	(1.18)	(0.33)
Ln(gamma)	-0.40***	-0.56***	-0.58***	-0.62***	-0.69***	-0.52***
	(-9.29)	(-12.38)	(-9.65)	(-10.87)	(-7.83)	(-9.84)
N	6067	6067	1218	5086	2480	3824
Log-likelihood	-792.70	-722.49	-296.84	-553.95	-298.87	-580.09