The Infrastructure of Violence?
Investigating Variation in the Intensity of Civil Conflict in Sub-Saharan Africa

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Abstract

Although a number of studies have offered explanations for the onset of civil conflict, comparatively little attention has been paid to investigating variations in its intensity. This research evaluates the plausibility of the proposition that roads, which Herbst (2000) has described as the 'sinews' of state power, and urban centres, which Mumford (1938) identifies as the points "of maximum concentration for the power and culture of a community" (pg. 3) condition the intensity of civil conflict in sub-Saharan Africa. Because roads facilitate the projection of military and administrative force, they are often construed as strategic targets and assets. Urban centres are strategically significant because they host the technical and social systems required for belligerents to sustain war efforts. They have therefore become "both the target of, and the theatre for, distinctive forms of warfare." (Coward, 2009, pg. 401) Furthermore, urban centres are often the sites of high population densities, and thus leave more people susceptible to violent conflict. By adopting a cross-case and within-case research design, which makes use of both congruence testing and process tracing, this study investigates the causal mechanisms through which roads and levels of urbanisation condition the intensity of civil conflict in sub-Saharan Africa.

Contents

Introduction:

The *causes* - whether political, economic or social – of civil conflict have been well-addressed by numerous quantitative and qualitative studies. Two particularly influential explanations for the onset of civil conflict have been offered by Fearon & Laitin (2003) and Collier (2003). Collier (2003) has pointed to the high incidence of civil conflict in "countries with poor and declining economies" that rely on "natural resources for… …a large proportion of national income", and has inferred that "...every year that their dismal economic conditions persist increases the odds that their societies will fall into armed conflict." (pg. 1) Fearon & Laitin (2003) on the other hand, have argued that the incidence of civil conflict is explained best by conditions that favour insurgency, including financially and bureaucratically weak states, rough terrain and large populations. Other studies have focused on the significance of other factors such as religious cleavages, ethnic fractionalisation and political repression in predicting the onset of civil conflict. (Elbadawi, Sambanis, 2002; Ellingsen, 2000)

In stark contrast to the substantial literature that sets out to determine the *causes* of civil conflict, very few studies have sought to explain variations in its intensity. A few regression-based quantitative studies (i.e. Lacina, 2006 ; Lujala, 2009) have taken steps to assess the causal weight of factors such as state capacity, state design and the presence of 'lootable' resources in influencing the intensity of conflict, but they rely heavily on aggregate data, and whilst they may be useful for establishing *potential* causal effects, they are do not shed light on the mechanisms through which broad and contentious concepts such as 'state capacity' might condition the intensity of civil conflict. It is the purpose following research to help fill this gap in the existing literature and offer a modest contribution to debates surrounding the dynamics of civil conflict, by exploring the association between road density, levels of urbanisation, and the intensity of civil conflict in sub-Saharan Africa. Though immediate geographical focus of the research is confined to Africa, due consideration will is accorded to the potential 'reach' of the findings.

The Study of Civil Conflict in Africa and Beyond: The Research Problem

Since 1945, it has become evident that the most significant violent threats to peoples' livelihoods have emanated from conflict within states, and not between them. As Lacina & Gleditsch (2005) have pointed out, "civil war has been the dominant form of conflict for several decades." (pg. 157) However, in a trend that may be reflective of the subject's euro-centric outlook[1], scholars of international relations and security have until recently devoted comparatively little attention to civil conflict, focusing instead on issues such as of nuclear deterrence, the ramifications of hypothetical wars between 'great powers' and the 'democratic peace'. (Souaré, 2006) Since the end of the Cold War however, there has been renewed interest in the subject of civil conflict. Some (i.e. Kaldor, 1999) have pointed to an apparent qualitative and quantitative transformation in the nature of civil warfare, and have attributed this to the pressures of globalisation that have fomented a breakdown in state authority, which, in turn, has engendered both the privatisation of the means of violence and a clash between exclusivist and globalist political identities. In contrast, Smith (2005) has argued that "viscous civil wars sustained by identity politics, supported by diasporas and waged by paramilitary gangs with a sideline in pecuniary crime have rumbled on from one decade to the next". (pg. 48) He goes on to assert that,

> "…the prosaic reality is that there has been no mass appreciation of the level of ethno-nationalist intrastate warfare except in the first decade of the post-Cold War era in Eastern Europe. For this to inspire exhortations about the appearance of 'new wars' is itself an indication of the Eurocentric mindset of much contemporary security studies." (pg. 48)

The dearth of scholarship on to civil conflict is evidenced by the simple fact that most mainstream theories of international relations and security prove inadequate to the task of guiding research on the subject. As Souaré (2006) has argued,

> "…theories and concepts of war that have been developed over the decades are mostly about *interstate* conflicts. Even now, the mainstream academic security studies community continues to focus on the causes of war in the interstate system. In

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[1] Buzan and Little (2001), for example, have alluded to a "strong tendency to assume that the model established in seventeenth century Europe should define what the international system is for all times and places." (pg. 25)

prominent security studies journals, articles on interstate wars… …vastly outnumber those on *intrastate* wars." (pg. 2)

Despite this preoccupation with interstate conflicts, recently a number of studies have sought to investigate the prevalence of civil conflict in general, and in Africa in particular. Regarding the onset of civil conflict in general, the arguments of Fearon & Laitin (2003) and Collier (2003) outlined above remain perhaps the most compelling and widely cited. With regard to Africa in particular, several explanations have been advanced to explain the widespread civil conflict to which several postcolonial states fell victim. The allegation that African civil wars are caused by ethnic heterogeneity has been convincingly repudiated by Ake (1993), Mueller (2000) and Mamdani (2001), who argue that the widespread assumption of primordial ethnic antagonisms is fundamentally flawed. For Mamdani (2001), civil conflict in Africa is best explained by the "poisoned colonial legacy and the nativist nationalist project that failed to transcend it", and the crisis of citizenship which this fostered. Similarly, Davidson (1993) has argued that the incidence of civil conflict in Africa can be partially attributed to the alien character of the nation-state that was imposed upon the continent during the colonial era. On the other hand, Atzili (2006) and Clapham (1996) have highlighted the significance of the decision by independent African leaders to maintain and respect colonial boundaries. For example, Atzili (2006) has argued that this decision, which effectively removed the threat of inter-state territorial competition, created disincentives for African political elites to build effective security forces, which in turn fostered the opportunities for violent resistance to the state.

Historical accounts of post-colonial Africa have also provided insights into the roots of civil conflict. A common trajectory of inquiry focuses on the dissipation of the initial optimism following independence when it became apparent that the development strategies adopted by African governments were, for the most part, failing to deliver. (Young, 1983) The result, as Ake (1993) has observed, was that as "disappointed expectations turned into opposition, the post-colonial state became more violently repressive and gradually drifted towards political monolithism." (pg. 4) As African states succumbed to military coups, economic mismanagement and political despotism, populations became increasingly mired in poverty, epidemics and civil violence. (Nugent, 2004)

A surprisingly common feature of much of the social science literature on civil conflict is a tendency to focus almost exclusively on the "social and political factors that are thought to effect the onset or termination of civil wars", at the expense of their military details. (Kalyvas, 2005, pg. 89) The consequence of this particular oversight is that social scientists have

> "…made a mistake that mirrors another well-known error, namely the reduction of civil wars (and wars in general) to the exhaustive treatment of their military details… …As a result, the study of war has been marginalised and relegated to specialised… …case studies, while the politics of civil wars are often treated as if they were no different from regular politics during times of peace…" (Kalyvas, 2005, pg. 89)

In other words, the dynamics of warfare, and the patterns of violence that civil wars generally entail have been relatively neglected by social scientists. One result of this oversight is that very few studies have sought to explain variations in the *intensity* of civil conflict. As one of the measurable aspects of the dynamics of civil conflict, the study of intensity is significant owing to its importance in "structuring politics, altering the social and economic environment, shaping individual and collective incentives and defining who the relevant political actors are….". (Kalyvas, 2005, pg. 89) The research problem that this study seeks to address concerns differences in the intensity of African civil wars, which display considerable variation. To cite one example, while the 1989-1996 civil war in Liberia is estimated to have resulted in 23,300 battle deaths, the 1998-2991 war in the Democratic Republic of Congo saw an estimated 145,000 battle deaths. (Lacina, Gleditsch, 2005)

Before examining the alternative explanations and the theoretical underpinnings of the study, it is necessary to explain the focus on Africa. Firstly, post-colonial African states have proven particularly susceptible to civil conflict. As Straus (2012) has observed, "about 30 countries in sub-Saharan Africa – or around 65 percent of all states in the region – have experienced an armed conflict since independence." (pg. 183) Secondly, there is good reason to suspect that civil conflict in Africa is qualitatively different from that found elsewhere, owing to the fact that African states are "at the bottom of any conventional ordering of global power, importance and prestige." (Clapham, 1996, pg. 3) These considerations justify the focus on a class of states that present, in their own right, an interesting and valid 'empirical universe' from which new theories or hypothesis may be generated. It should be pointed out that I do not

endeavour to 'exoticise' the study of Africa, nor do I wish to promote a form of African exceptionalism. Rather, I seek to acknowledge the fact that westerners have often "thought it necessary to seek in that continent [Africa] confirmation of the theories we employ most readily in the analysis of our own societies" (Chabal, 2009, pg. 16), and to demonstrate that we may also look to Africa for the evidence required to generate new theories which may allow us to arrive at a more comprehensive understanding of social phenomena.

Alternative Explanations

Comparatively few studies have offered explanations for variations in the intensity of civil conflict. Lacina's (2006) article, "Explaining the Severity of Civil Wars", is a notable exception, in which she observes that "state capacity, regime type, and ethnic and religious diversity may determine ability or willingness to initiate a civil conflict", and resolves to "discuss the potential of each of these variables to predict conflict severity." (pg. 280) Her findings are ambiguous, indicating that whilst 'state strength' and ethnic/religious heterogeneity do not account for variations in 'severity', ethnic homogeneity and foreign assistance are strong predictors, whilst democratic states tend to experience less severe civil conflicts.

Though these findings may represent a useful first step towards probing the possible conditioners of the intensity of civil conflict, they suffer from a number of shortcomings. Firstly, Lacina's (2006) 'state strength' variable is measured as a combination of GDP per capita and 'military quality'. The use of GDP per capita as an indicator of state strength is questionable, given that several states with relatively high GDP levels also display low indicators of human development, state capacity and military capability. A pertinent example is provided by Equatorial Guinea, which, as of 2011, had a GDP per capita f $28,287 (higher than Russia's -$13,270), but an army of only 1,320 military personnel, 4 'combat capable' aircraft and 8 helicopters. (IISS, 2012) Perhaps more importantly however, while Lacina's (2006) article does provide a rough analysis of the causal weight of some interesting variables, the results say very little about the mechanisms through which the variables operate.

Lujala (2009) has sought to explore the association between the presence of natural resources and the severity of civil conflicts. In examining the proposition that gemstone mining, drug cultivation and hydrocarbon exploration may condition the intensity of violence, the study finds that whilst drug cultivation is associated with less severe conflicts, gemstone mining and hydrocarbon extraction is associated with more severe conflicts. While this explanation does further our overall understanding of variations in the intensity of civil conflicts, it says little about those instances in which competition over access to resources is not a prominent consideration.

The objective of this research is to complement these findings, by investigating the potential conditioning influence of road density and urbanisation on the intensity of

civil conflict in sub-Saharan Africa. Particular attention is accorded not to assessing the causal 'weight' of the relevant variables, but instead to elucidating the causal mechanisms through which they interact.

Theoretical Framework & Variables

The theoretical underpinnings of this research are premised upon two middle-range theories, as outlined by Fearon & Laitin (2003) and Herbst (2000). Fearon & Laitin's (2003) central assertion is that the incidence of civil conflicts is best predicted by the prevalence of conditions which favour insurgency, including weak states, rough terrain and large populations. Herbst (2000), on the other hand, has developed a theory of states and power in Africa, in which he argues that the "fundamental problem facing state-builders in Africa – be they pre-colonial kings, colonial governors, or presidents in the independent era – has been to project authority over inhospitable territories that contain relatively low densities of people." (pg. 11)

In developing the theoretical framework of the research, the principle implications of the two theories have been synthesised so as to identify the variables which may condition the intensity of civil conflict in Africa. Both theories have as their central focus the state and its associated capacities and deficiencies. While Fearon & Laitin (2003) draw attention to bureaucratic and financial weakness in accounting for the onset of civil conflict, Herbst (2000) details the implications of national design, demographics and infrastructure on African states' capacities to project power. In light of these theoretical moorings, the following observations serve to inform the research:

1. State capacity, which influences the onset of civil conflict, may also influence the intensity of civil conflict.
2. State capacity is a complex concept, and is not reducible to GDP per capita or calculations of military strength.
3. Infrastructure, levels of urbanisation and other elements of national design are strong conditioners of state capacity in Africa.

These observations provide the context for the central question of the research; *in what ways do road density and levels of urbanisation influence the intensity of civil conflict in sub-Saharan Africa?*

The dependent variable of interest is thus the average intensity of civil conflict, which is measured as the average number of soldier and civilian battle deaths per year. Lacina and Gleditsch (2005) have remarked upon the utility of this indicator of conflict intensity;

> "Measuring battle deaths answers the question of how many people were killed in military operations during a war and, therefore, it is the best measure of the scale, scope and nature of the military engagement that has taken place." (pg. 148)

The two independent variables of the research are road density and levels of urbanisation. Road density is measured as the average kilometres of paved roads per square kilometre of territory, and urbanisation is measured both as the number of urban settlements with populations over 20,000 and the number of such settlements divided by the overall surface area of the country in question. The objective of this operation is to provide an indication of the urban/rural ratio, and to give a rough estimate of how much hinterland each urban area 'serves'.

Theoretical Significance of Variables & Causal Logic

This research essentially conceives of road density and urbanisation, both crucial aspects of infrastructural development, as fairly reliable indicators of state capacity, reach and 'presence'. Their importance in enabling the state to discharge its various functions renders them militarily significant targets/assets for several reasons.

Regarding road density, Herbst (2000), has referred to roads as the "sinews of power" (pg. 84), and has emphasised the importance of roads in facilitating African states in their broadcasting of power:

> "Precolonial leaders… …who needed to physically extend their power were obsessed with roads as were early colonial leaders… …Those [contemporary] leaders in Africa – such as Laurent Kabila [former President of the Democratic Republic of Congo], successor to Mobutu – who are desperately concerned about their ability to broadcast power have also identified road construction as one of their most important priorities." (pg. 161)

The 'obsession' with roads in this instance may be attributed partially to their strategic significance as a facilitator of warfare and sate control. Roads play a crucial role in facilitating a state's capacity to broadcast its administrative and military power, and are therefore construed as significant military targets or assets by the belligerents. For example, the veteran guerrilla commander and theorist Guevara (1961) has noted that,

> "One of the weakest points of the enemy is transportation by road and railroad. It is virtually impossible to maintain a vigil yard by yard over a transport line, a road or a railroad. At any point a considerable amount of explosive charge can be planted that will make the road impassable; or by exploding it at the moment a vehicle passes, a considerable loss in lives and material to the enemy is caused at the same time that the road is cut." (pg. 7)

The significance of roads as a strategic target during guerrilla and counter-insurgency campaigns is attested to by Sidaway (1992), who noted in a study of the civil war in Mozambique that "most of the railways and roads are destroyed or regularly attacked." (pg. 240) Furthermore, Raleigh & Hegre (2009), in a geographically disaggregated analysis of civil war, found that "conflict events are… …75% less likely to happen in squares with no roads or only informal roads than in squares with primary roads", and that "civil war events are most frequent in the accessible squares containing primary

roads and high population considerations." (pg. 234) Given the importance of roads as both a facilitator of combat and a strategic target or asset, it is likely that road density will have a considerable bearing on the intensity of civil conflict, as belligerents are compelled to target them, fight for them and control them.

The second independent variable to be investigated is urbanisation, which may condition the intensity of civil conflict for the following reasons. Firstly, levels of urbanisation (when measured in terms the total number of urban centres) may serve as one indicator of a state's 'reach'; that is, of its capacity to "get a handle on its subjects and their environment." (Scott, 1998, pg.2) As Lewis Mumford (1938) has pointed out,

> "The city, as one finds it in history, is the point of maximum concentration for the power and culture of a community. It is the place where the diffused rays of many separate beams of life fall into focus, with gains in both social effectiveness and significance. The city is the form and symbol of an integrated social relationship: it is the seat of the temple, the market, the hall of justice, the academy of learning. Here in the city the goods of civilisation are multiplied and manifold: here is where human experience is transformed into viable signs, symbols, patterns of conduct, and systems of order." (pg. 3)

In cruder terms, the urban centre is a prominent feature of both civilization and statehood. It follows, that during times of civil conflict, cities have become "both the target of, and the theatre for, distinctive forms of warfare that are shaping its spatial, political and economic forms." (Coward, 2009, pg. 401) The relevance of cities within the context of civil conflict is supported by former Ugandan rebel-leader and current President Yoweri Museveni's remarks concerning his strategy of 'peoples' war', when he pointed to the importance of "fighting positional warfare for [the] control of towns". (Museveni, 1981, pg. 5) An important aspect of the relationship between urban centres and warfare has been summarised by Coward (2009);
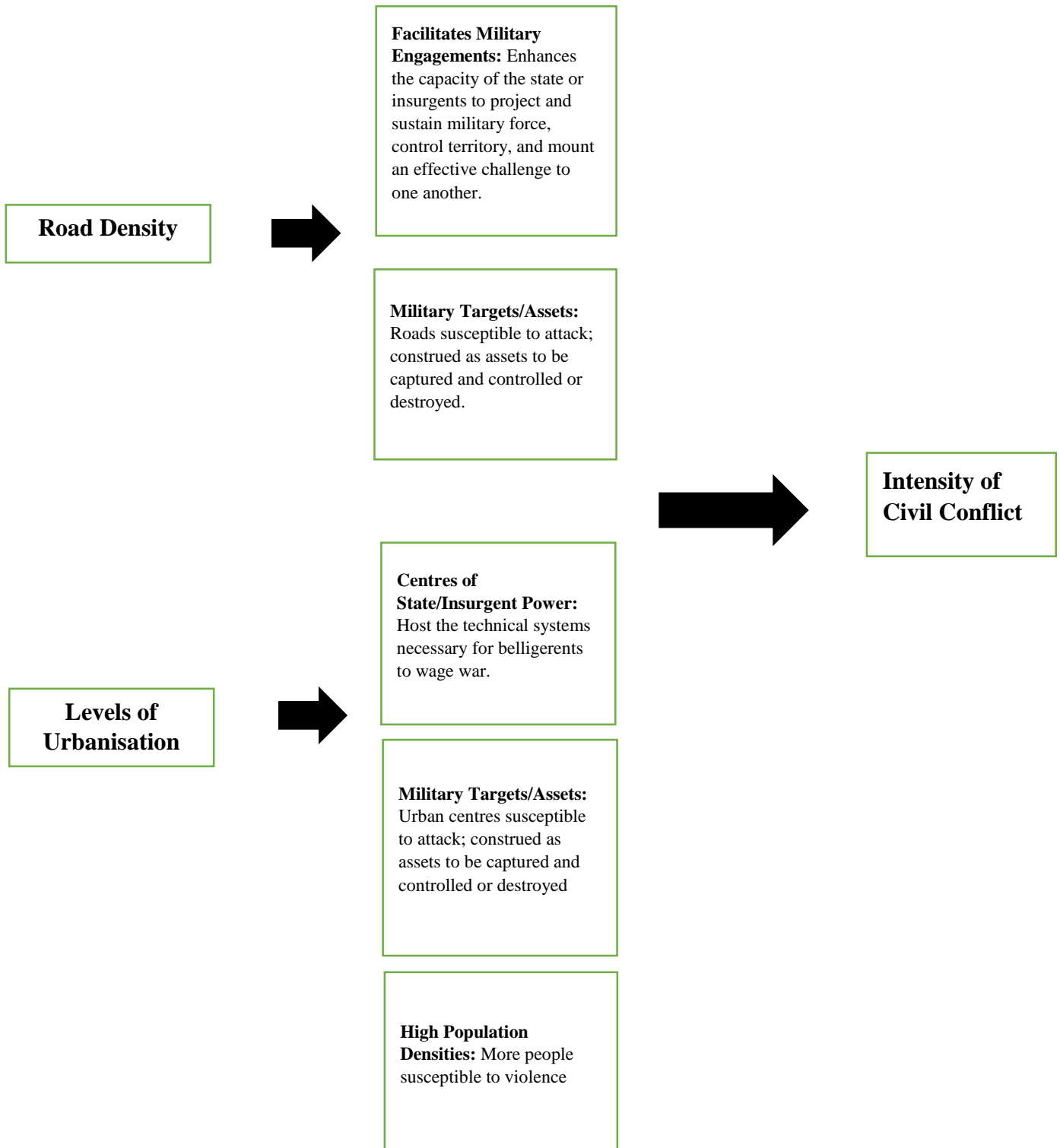
> "At the heart of the posited relationship between the city and warfare is the propensity for forms of organised violence to target critical infrastructure. Generally speaking, critical infrastructure comprises the technical systems that underpin the ways of life specific to the contemporary metropolis." (pg. 401)

Furthermore, as Herbst (2000) has argued, the control of prominent urban areas has been the key requirement for African governments to be accorded international legitimacy, regardless the actual administrative presence of the state across the territory

it purports to control. For example, "large countries such as Ethiopia, Zaire, and Angola at various times did lose control of parts of their territories to opponents but the international community always recognized whoever controlled Addis, Kinshasa, and Luanda as the unquestioned leaders of those territories." (Herbst, 2000, pg. 110) The ultimate strategic objective of rebel groups seeking state power has thus often been the capture of the capital city. (Nugent, 2004) The capture of other cities may serve to facilitate this ultimate goal, in part because they host the "technical systems that… …[are] necessary for the enemy to continue to wage war. Undermining the enemy's capacity to deliver communications, intelligence, personnel, munitions and other supplies to the battlefield… …[is] an important tactical means for realising strategic aims in modern warfare." (Coward, 2009, g. 402) Lastly, urban settlements are often the sites of high population densities. During civil conflicts, such areas may be more susceptible to casualties simply due to high concentrations of people. Like roads therefore, cities have become an important facilitator and strategic target of contemporary civil conflict. They are thus likely to have a bearing on the intensity of civil conflict, as belligerents fight for the control of them, or target them deliberately in order to weaken their opponents.

Together, the two variables constitute what I have termed the "infrastructure of violence", because of their potential bearing on the intensity of civil conflict. The causal logic of the following research is represented graphically below:

Graphical Representation of Causal Logic

Road Density →	**Facilitates Military Engagements:** Enhances the capacity of the state or insurgents to project and sustain military force, control territory, and mount an effective challenge to one another.	
	Military Targets/Assets: Roads susceptible to attack; construed as assets to be captured and controlled or destroyed.	→ **Intensity of Civil Conflict**
Levels of Urbanisation →	**Centres of State/Insurgent Power:** Host the technical systems necessary for belligerents to wage war.	
	Military Targets/Assets: Urban centres susceptible to attack; construed as assets to be captured and controlled or destroyed	
	High Population Densities: More people susceptible to violence	

Methodology

This investigation is best described as a 'plausibility probe', defined by George & Bennett (2005) as a preliminary study on "relatively untested theories and hypotheses to determine whether more intensive and laborious testing is warranted". (pg. 75) It is also heuristic, insofar as it identifies new variables, hypotheses and causal propositions. (ibid)

In order to evaluate the plausibility of the arguments outlined above, the investigation combines a comparative overview of four cases with a more in-depth examination of two cases. The unit of investigation is the nation-state, and the four cases selected for investigation are Chad, Uganda, Nigeria and Sudan. These cases have been selected due to the substantial variation they display on the independent variables. The study entails a cross-case examination between the four cases, and detailed within-case examinations of Uganda and Chad.

The specific methodological tools which are applied to assess the validity of the argument are congruence testing and process tracing. Congruence testing refers to a method of qualitative analysis in which the capacity of a theoretical argument to explain an empirical outcome is assessed. Simply put, after ascertaining the values of the relevant variables on each case, the plausibility of the theory is evaluated based on the degree to which the empirically observed outcome is consistent with the theory's prediction. If congruence is observed, then there are grounds to suspect that causal mechanisms may be at work. It is clear that congruence testing is a very 'soft' methodological tool, which suffers from numerous limitations, including its incapacity to identify spurious relationships, causal depth or priority.

It is in light of these limitations, that it is important to go a step further than simply observing co-variation in a bid to draw valid causal inferences. In order to address the limitations of congruence testing, the investigation also employs 'process tracing' in its examination of the cases of Chad and Uganda. Process tracing refers to a method through which intervening causal processes can be identified by searching for and analysing relevant empirical data and observations. Charles Tilly (1997) has observed that process tracing may be used to construct "relevant, verifiable causal stories resting in differing chains of cause-effect relations whose efficacy can be demonstrated independently of those stories." (quoted in George & Bennet, 2005, pg.

205) In many respects, process tracing resembles historical narrative, albeit one which embeds an "analytical explanation couched in theoretical variables that have been identified in the research design." (ibid, pg. 225)

It is worth restating here that the objective of this research is not to test specific hypothesis, but rather to assess the validity of a given theoretical argument and to explore the causal mechanisms upon which it may be grounded. Furthermore, the research advances no definitive claim of a full 'explanation' of the dependent variable under investigation. Equifinality is a fairly inevitable aspect of the social world, and there is little doubt that other combinations of variables influence the intensity of civil conflict in Africa. The purpose of the research is to contribute to the literature on the civil conflict so that we may, at some point, arrive at a more comprehensive understanding of the subject. To reiterate, the objective of this research is modest; it does not contend that identified independent variables are the *sole* conditioners of conflict intensity, nor does it assert that they are the most important. Rather, it sets out to explore in what ways, and under what circumstances they are relevant.

Cross Country Comparison

Country	Average Road Density 1963[1]	Average Road Density 1997[2]	Number of Urban Centres (20,000 + inhabitants)[3]	Urban/Rural Ratio:[4] (Area/No. of Urban Centres)	Total Battle Deaths (Low Estimate)[5]	Average Intensity of Civil Conflict[6]
Chad	**0.03 km/sq.km**	**0.03 km/sq.km**	**10[7]**	**1 urban centre per 128,400 sq.km**	**9,585 deaths**	**Average 416.7 death per year**
Uganda	**0.08 km/sq.km**	**0.13 km/sq.km**	**16[8]**	**1 urban centre per 14, 439.9 sq.km**	**79,141 deaths**	**Average 2,826.5 deaths per year**
Sudan	**0.00 km/sq.km**	**0.01 km/sq. km**	**29[9]**	**1 urban centre per 64,189 sq.km**	**22,287 deaths**	**Average 928.6 deaths per year**
Nigeria	**0.08 km/sq.km**	**0.21 km/sq.km**	**143[10]**	**1 urban centre per 6,460 sq.km**	**47,000 deaths**	**Average 11,750 deaths per year**

[1]. Source: Herbst, J. (2000) *States and Power in Africa: Comparative Lessons in Authority and Control*, Princeton University Press, Princeton, New Jersey, pgs. 162-163

[2] Source: Ibid

[3] Source: http://www.citypopulation.de/Chad.html ; http://www.citypopulation.de/Uganda-Cities.html ; http://www.citypopulation.de/Sudan.html ; http://www.citypopulation.de/Nigeria-Cities.html#Stadt_alpha : accessed 20/08/2013

[4] Source: Country Surface Area: https://www.cia.gov/library/publications/the-world-factbook/geos/cd.html ; https://www.cia.gov/library/publications/the-world-factbook/geos/ug.html ; https://www.cia.gov/library/publications/the-world-factbook/geos/su.html accessed 20/08/2013.

[5] PRIO, (2006) *Battle Deaths Dataset* 3.0 – available at http://www.prio.no/Data/Armed-Conflict/Battle-Deaths/ ; accessed 11/06/201. NB. Years considered exclude both those in which external armies were involved and those in which no battle deaths were recorded: Chad: 1966-2008 (excluding: 1969,70, 71, 72, 73, 74, 75, 78, 80, 81, 83, 84, 85, 86, 87, 88, 95, 96, 2003, 2004) 23 years of civil conflict without external involvement : Uganda: 1971 – 2007 (excluding: 1973, 75, 79, 80, 81, 93, 2005) 28 years of civil conflict without external involvement… etc. Sudan: 1983-2006; 24 years; Nigeria: 1967-1970; 4 years.

[6] Source: ibid

[7] 1993 data

[8] 1991 data

[9] 1993 data

[10] 1991 data (Urban centres with populations over 40,000)

The data presented above displays observations for six variables. Measurements for road density are provided for both 1963 and 1997, to cover to the fullest extent possible the time period in question and to convey the relatively minimal levels of infrastructural development that have been undertaken since independence.[1] Owing to a lack of reliable alternative resources, the number of urban centres is measured using data collected in the early 1990s. Africa is a rapidly urbanising continent (Cheru, 2002), and this trend would no doubt be reflected in data collected both before and after this specific period. However, because African cities have grown, but not necessarily multiplied, it is assumed that though the overall numbers of urban centres may have increased in each case, it is unlikely that the magnitude of the disparities between cases will have altered much since the 1960s. Therefore, the measurements gathered in the 1990s provide a comparative perspective on the number of urban centres among the cases in question. The urban/rural ratio variable is designed to convey the level of urbanisation in relation to the size of the country in question. Chad, for example, appears overwhelmingly rural when we consider the country's vast surface area. By way of contrast, Uganda's modest measurement of only 16 urban centres appears more substantial in light of its comparatively small area. The result is that whilst Chad registers only one urban centre for every 128,400 square kilometres of territory, Uganda registers one urban centre for every 14,439.9 square kilometres of territory. The total battle deaths variable reveals the overall number of deaths directly attributable to battle events during the time periods in question. These time periods vary considerably from case to case; for example, whilst the data for Nigeria covers only four years, the data on Chad covers a full 23 years. To compensate for this variation, the average number of battle deaths per year of conflict is provided, thereby serving as a more reliable indicator of conflict intensity.

The above data does suggest that there is a positive association between the independent variables and the dependent variables. Specifically, the countries with higher road densities and higher urban/rural ratios registered greater intensities of civil conflict. Given the limited number of cases, and the omission of numerous other factors with a potential bearing on conflict intensity, it is not possible to accurately specify the

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[1] There is little doubt that the data would have benefitted from additional measurements of road density during both intervening and later years. However, such data, which has been collected by the Geneva-based International Road Federation, can only be accessed at great finnancial cost, and is therefore beyond the scope of this research.

nature of the relationship, nor is it possible to assess the causal weight, or depth of the individual independent variables. However, the co-variation observed between the independent and dependent variables does suggest that a causal relationship may be present. Therefore, one significant implication of the data is that is confirms the *plausibility* of the theoretical argument defined above, thereby suggesting that it merits further testing and investigation using more rigorous methodological techniques and richer data. Having established the plausibility of the argument, I now turn to a more in-depth examination of two of the cases (Uganda and Chad) in order to corroborate the findings and to elucidate the causal mechanisms through which the identified variables interact.

Uganda & Chad

Uganda's postcolonial history has been marked by civil conflict and political instability. A mere two years after obtaining independence from Britain, events in Uganda began to foreshadow the violence which would plague the country in subsequent decades. In April 1964,

> "a contingent of the Ugandan Special Force… …invaded… …a suburb of the capital Kampala, and shot and killed several dozen people and injured about twice that number…. ….From that date… …Uganda's uniformed forces learnt the lesson that they could literally get away with murder, and anything else besides, and that lesson is one that they did not forget." (Karugire, 2003, pg. 2)

Since 1964, Uganda has experienced two coups' d'état, an invasion by neighbouring Tanzania, six years of civil war which culminated in the capture of power by a rebel army, and numerous and continuing armed challenges to the authority of the state. (Mutibwa, 1992; Kasozi, 1994) It comes as little surprise therefore, that Uganda has "gained the reputation of being one of Africa's most violent and politically troubled countries". (Ofcansky, 1996, pg. 1)

Civil conflict in Uganda is notable for its relatively high level of intensity. Between 1971 and 2007, civil conflict in Uganda has resulted in at least 79,141 battle-related deaths. (PRIO, 2006) Here, I focus on the 1980-1986 civil war and the armed resistance to the government which followed.

Though the 1980-1986 civil war in Uganda was characterised by the presence of a plethora of rebel groups, the primary protagonists of the conflict were the Government of Uganda and the National Resistance Army (NRA), which was formed by Yoweri Museveni following national elections in 1980 which were widely perceived as fraudulent. The ostensible aim of the NRA, which originally consisted of only 27 guerrilla fighters, was to remove a "repugnant" system of government. However, according to Mutibwa (1992) a strategy of "conventional war, involving regular units facing each other in straight battles, with identifiable front-lines and large-scale modern equipment such as aircraft artillery and rockets was beyond the capacity and the intentions of the NRM/NRA fighters at the time." (pg. 156) They therefore adopted a strategy which Museveni (1981) has described as a 'peoples' war'.

The strategic value of roads, particularly as a military target, was evident during the initial stages of the war. When the NRA first commenced military operations on the 6th of February, 1981, it adopted a strategic position to the north of the capital Kampala, in between the two main roads leading to the north of the country. From here the NRA was able to avoid "pitched battles with the UNLA [Uganda National Liberation Army]: instead, he [Museveni] attacked trains, buses, lorries and convoys of coffee trucks to weaken the government's control over the country's infrastructure." (Ofcansky, 1996, pg. 53-54) The rationale behind such a strategy was highlighted by Museveni in 1981;

> "The guerrilla forces concentrate on disruption of communication networks, the economy, the enemy administrative structure and the spy networks… ..the more important considerations are the preservation and expansion of our forces by avoiding unnecessary casualties, and destroying the enemy's means of making war namely, his weaponry, his troops and their fighting morale, his economy, his physical infrastructure and his international credibility." (pg. 4-5)

This rationale also transformed towns and villages into military targets and the focus of several strategic operations by both the government and the NRA. As the theoretical argument advanced by Coward (2009) would predict, the NRA attacked towns and villages largely because they hosted the technical and social systems necessary for their adversaries to make war. As Kasozi (1994) observed, "between February and June 1981, the NRM's strategy was to conduct sharp, short, precise and effective operations against government posts to capture arms, train and recruit fighters, and politicize the population. Enemy vehicles were ambushed, police stations attacked, and strategic roads mined." (pg. 171)

The state responded to this strategy in kind, with the launch of 'Operation Bonanza' in which government "troops destroyed small towns, villages and farms and killed or displaced hundreds of thousands of civilians." (Ofcansky, 1996, pg. 55) Kasozi (1994) has observed that "detachments of security forces would be sent into an areas suspected of harbouring anti-government guerrillas or having utilitarian material the forces wanted. During these operations soldiers often killed civilians, looted property, raped and vandalised at will." (pg. 147)

The strategies adopted by both the NRA and the state reveal the importance of roads and urban centres as strategic assets and targets in the conduct of insurgency and counterinsurgency warfare. Whilst insurgent attacks on roads and urban centres served

the purpose of gradually weakening the state's war making machine, the state's targeting of urban settlements was geared towards reducing the capacity of the NRA to launch a successful 'peoples' war'. Of central importance was the geographical location of the civil war, which took place largely in an area north of the capital which came to be known as the Luwero Triangle. This geographical area is host to Uganda's largest ethnic group (the Baganda) and has significant concentrations of both roads and urban centres. (Ofcansky, 1996) As Kasozi (1994) has noted, the destruction meted out to the infrastructure of the Luwero during the war was palpable;

> "That Luwero was indeed the "killing fields" of Uganda is evident from the skeletons, the roofless houses, unkempt roads, and destroyed schools found in the area from 1986, after the NRM victory." (pg. 185)

The civil conflict of 1981-1986 was the most intense that Uganda has ever witnessed, resulting in at least 72,000 battle deaths, a full 91% of all the battle deaths which have been recorded in Uganda since independence. (PRIO, 2006) By contrast, the civil conflict which has taken place in the north of the country from the 1990s onwards has resulted in only 3,771 battle deaths[1]. (ibid) This may be partially attributed to the north's status as the most remote and undeveloped region of the country. Museveni's (1997) frustration with his army's inability to effectively address armed challenges to the government in the north is evident in his observations that the insurgents "kept to the bush and away from the main roads", intermittently attacking the "townships of the north". (pg. 177) This strategy, which was not entirely dissimilar to that pursued by the NRA in the 1980s, ensured that;

> "…in the north… …it was not so easy, for every time we attacked them, they would go back to the bush and because of our poor mobility, we could not quickly re-establish contact with them." (pg. 178)

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[1] It is important to note that this figure does not reflect the true human cost of the civil conflict in Northern Uganda. The conflict, according to Tripp (2010) "resulted in the further marginalisation of an already disaffected population in the war-torn districts. By 1996, 2 miliion northerners were internally displaced, and 1.5 million of them were residing in camps in eighteen districts…. The government had moved them into the camps in the 1980s, often by force, claiming that it wanted to protect them from LRA attacks and abductions. About 25,000 children and adults had been abducted, and thousands of children were forced to walk to urban areas at night for safety." (pg. 32)

Chad's postcolonial trajectory has been similarly unfortunate. Following independence from the "inertia" of French colonial rule in 1960, political and social life in Chad has been characterised "disintegration", "chaos" and the "collapse of central authority". (Decalo, 1980, pg. 491) The country, which is sometimes disparagingly referred to as the 'dead heart of Africa', "neither a nation, nor in many respects a viable state" (ibid), has languished for decades in what appears to be a perpetual condition of violence, which by 1986 had produced "a capital city in shambles, an infrastructure thoroughly inadequate for the tasks of rehabilitation and national reconstruction, and anywhere from 100,000 to 200,000 refugees living in neighboring states." (Lemarchand, 1986, pg. 27)

The development of Chad beyond the immediate confines of the capital N'Djamena and some areas of the south of the country has been forestalled by a series of insurgencies which have defined the postcolonial history of the territory. In sharp contrast to the case of Uganda however, the actual intensity of civil conflict in Chad has been comparatively light, with only 9,585 battle deaths over 23 years. (PRIO, 2006) Below I argue that the relatively 'mild' pace of civil conflict in Chad may be partially attributed to the country's extraordinarily sparse road network and low levels of urbanisation.

The first of Chad's insurgencies commenced just six years after independence, with the formation of the Front for the National Liberation of Chad (FROLINAT). According to Nolutshungu (1996), the fact that the Chadian central government exercised very little control over the territory's vast desert hinterland in the north and northeast made armed rebellion fairly inevitable;

> "Within five years of the state's creation, dictatorship was complete and a 'national liberation' movement was challenging it. It is doubtful that the government of Tombalbaye [the country's first postcolonial president] ever enjoyed any real authority over most of the rural areas of the north…. …Even before the FROLINAT rebellion took hold, the Chadian state was in disarray, never having been able to fulfill the routine tasks of government over large areas of the national territory." (pg. 56)

As Herbst (2000) has noted, roads and urban centers are necessary for the projection of state power over large and sparsely populated territories. In Chad, the road network barely extends beyond the capital N'Djamena, which in turn is the country's only significant urban center. This has largely precluded the exercise of state control over most of the

territory. Accordingly, several insurgent groups which have developed in Chad have taken advantage of the state's lack of effective control, basing themselves in the northern Borkou and Tibesti prefectures. According to Mays (2002),

> "This was the area of Chad over which the government had managed to exert the least amount of control…. …The area contains few towns and the sparse population tends to be nomadic or semi-nomadic. The territory has poor infrastructure, including few roads. The region is arid, rough and even mountainous in areas." (pg. 131-132)

The substantial military challenge of subduing rebellions in this area was highlighted by the French, whom various governments of Chad have been periodically compelled to call upon for assistance. According to one French General, control of the areas was militarily impossible, the best alternative being to "draw a line below it and leave them [the inhabitants] to their stones. We can never subdue them." (quoted in Nolutshungu, 1996, pg. 63)

Chad's expansive and featureless territory often meant that without external military assistance, both the state and the insurgents which opposed it found it impossible to sustain an effective military challenge to one another. Although Buijtenhuijs (2001) argued that "the vast desert areas of the BET [Borkou-Enned-Tibesti] are well suited to guerilla warfare" (pg. 153), FROLINAT and other insurgent groups were unable to take advantage of the country's geography to challenge the state without significant external assistance. Noluthshungu (1996) has observed that the "vast distances between the various military theatres", which were "difficult to traverse physically" and linked by "poor communication" facilitated a "retreat from the original universalist national consciousness". (pg. 97-98) In the two instances in which rebel groups did manage to seize 'control' of Chad (in 1982 and 1990), they could not have done so without significant external backing. (Nolutshungu, 1996)

It is challenging to identify the genuine focus of Chadian insurgencies, with the distinction between revolutionary activity and armed banditry often blurred. Whilst the professed aim of armed insurrections was invariably control of the state, in reality there was very little 'state' to control beyond the capital city. Nolutshungu (1996) has pointed out that "it has been said of Chad, with some acerbity, that it is *un pays d'avenir qui le sera toujours*" (a country of the future that will stay that way)." (pg. 99) And indeed, the constant political turmoil to which the country has been subjected since independence has

precluded the development of the "structures of economic production and exchange to create the infrastructure of effective and durable revolutionary [or state] mobilization." (ibid, pg. 99) With hardly any roads, and very few towns to fight over, insurgency and 'state control' have largely degenerated into ineffectual power-sharing agreements, banditry and warlordism. When meaningful military engagements did take place, they were mainly confined to the capital and other urban outposts, which were few and far between. It is particularly telling that some of the most intense years of civil conflict in Chad were 1970 (791 battle deaths) 1982 (791 battle deaths) and 1990 (1000 battle deaths), the years when battles were fought for the control of the capital, N'Djamena. (PRIO, 2006, Nolutshungu, 1996, Mays, 2002) Otherwise, the only times that belligerent factions in Chad mounted genuinely meaningful military challenges to one another were when external forces (usually French and Libyan) were co-opted by various factions into deploying substantial military hardware. (Nolutshungu, 1996) When external support was absent, the lack of transport and urban infrastructure, and the reduction in state presence that this entailed, prevented both the insurgents and the state from extending control beyond their immediate centers of power, thereby substantially reducing the overall intensity of the conflict.

Conclusion

The above suggests that whilst Uganda has experienced periodic conflagrations of fairly intense civil conflict, Chad has languished for decades under the burden of a seemingly interminable and largely ineffective series of insurgencies. The relatively high concentration of roads and urban centers in Uganda, and their comparative dearth in Chad, may have influenced this outcome. Perhaps most significantly, civil conflict in Uganda was confined during its most intense periods to areas of the country with some of the highest levels of infrastructural development, while in Chad, insurgency in Chad has, for the most part, been set against the backdrop of the Sahara desert, a largely road-less, sparsely inhabited stretch of territory, "difficult because it is barren, mostly waterless, and usually hostile, but above all because it is so vast." (Wright, 1989, pg. 1) Such conditions do not favour the establishment of what I have termed the "infrastructure of violence."

Most importantly, the above seems to corroborate the earlier findings which suggest an association between road density and urbanization and the intensity of civil conflict. Having confirmed the plausibility of the argument advanced, this research has laid the groundwork for future investigations into the subject. In so doing, it has contributed to the literature on civil conflict, by focusing on a dynamic which has been relatively overlooked. Having said that, it is crucial to acknowledge the limitations of the research design, which is unable to assess with any certainty the nature or depth of the causal effects at work. Instead, the main achievement of the research has been to posit a new theoretical argument and establish its plausibility, thereby advancing new explanations which can be strengthened, corroborated and challenged by further investigation.

To say with any certainty whether or not the argument may be generalised beyond Africa (or even beyond the cases in question) would require further empirical investigation. However it is worth pointing out that this research and its results do not claim to offer any blanket explanation for variations in the intensity of civil conflict. As the Ugandan historian Samwiri .Karugire (2003) once said,

> "This is largely because I believe that such explanations do not exist and, when they appear to exist, they are misleading. African problems, particularly political ones, stem from sources so diverse that it is fruitless to seek blanket explanations on a continental scale." (pg. 2)

As with all social phenomena, no single factor or combination of factors, can fully account for the variations in the intensity of civil conflict in sub-saharan Africa. However, if it remains the task of social science to search for convincing explanations for social outcomes, one method through which this goal may be advanced involves investigating the processes through which certain factors influence, or condition, varying outcomes. This research suggests that roads and urban centres, which are useful indicators of state capacity because they are fundamental to the projection of state power in Africa, influence the intensity of civil conflict. They do so because they facilitate the projection of military and administrative power, and when controlled, enhance the capacity of belligerents to mount effective challenges to one another. They are therefore construed as strategic assets and targets to be fought over, controlled or destroyed. Furthermore, urban centres often entail high population concentrations, potentially putting more people in harm's way. It is difficult to predict whether these findings would be equally applicable to states beyond Africa, especially in light of the fact that levels of infrastructural development in Africa are so low. It may certainly be the case that once these indicators reach a certain point, they cease to be a significant conditioner of conflict intensity. The findings of Fearon & Laitin (2003) suggest that the onset of conflict is less likely in the face of 'stronger' states. A particularly troublesome point which this research reveals is that 'stronger' (at least in terms of infrastructure) states may be prone to more intense civil conflict. If so, the very conditions which make civil wars less likely, may also make them more deadly when they do occur. In this sense, the infrastructure so necessary for states to maintain peace and internal cohesion, becomes the infrastructure of violence when states are torn apart by civil conflict.

References

Ake, C. (1993) *What is the Problem of Ethnicity in Africa? ; Transformation,* Vol. 22, 1993, pp. 1-14

Atzili, B. (2006) *When Good Fences Make Bad Neighbours: Fixed Borders, State Weakness and International Conflict, International Security,* Vol. 31, No. 3, pp 139-173

Buijtenhuijs, R. (2001) *The Chadian Tebu: Contemporary Nomads who Conquered a State; Africa,* Vol. 71, No. 1, pp. 149-161

Buzan, B., Little, R. (2001) *Why International Relations has Failed as an Intellectual Project and What to do About it ; Journal of International Studies,* Vol. 30, No. 19, pp. 19-39

Chabal, P. (2009) *Africa: The Politics of Suffering and Smiling,* University of KwaZulu Natal Press, South Africa

Cheru, F. (2002) *African Renaissance: Roadmaps to the Challenge of Globalization,* Zed Books

CIA World Fact Book (2013) https://www.cia.gov/library/publications/the-world-factbook.html - accessed 20/08/2013

City Population (2013) http://www.citypopulation.de – accessed, 20/08/2013

Clapham, C. (1996) *Africa and the International System: The Politics of State Survival,* Cambridge University Press

Collier, P. (2003) *The Market for Civil War ; Foreign Policy* – available at: http://www.foreignpolicy.com/articles/2003/05/01/the_market_for_civil_war?print=yes &hidecomments=yes&page=full, accessed, 17/2/12

Coward, M. (2009) *Network-Centric Violence, Critical Infrastructure and the Urbanization of Security ; Security Dialogue,* Vol. 40, No. 4-5, August/October 2009, pp. 399-418

Davidson, B. (1993) *The Black Man's Burden: Africa and the Curse of the Nation State,* Three Rivers Press

Decalo, S. (1980) *Chad: The Roots of Centre-Periphery Strife,* in *African Affairs,* Vol. 79, No. 317 (October 1980) pp. 490-509

Elbadawi, I.A., Sambanis, N. (2002) *How much war will we see? Explaining the Prevalence of Civil War, The Journal of Conflict Resolution,* Vol. 46, No. 3, pp. 307-334

Ellingsen, T. (2000) *Colourful Community or Ethnic Witches Brew?, Journal of Conflict Resolution,* Vol. 44, No. 2, pp 228-249

Fearon, J.D., Laitin, D.D. (2003) *Ethnicity, Insurgency and Civil War, American Political Science Review,* 97, 1, 2003, pp. 75-90

George, A.L., Bennett, A. (2005) *Case Studies and Theory Development in the Social Sciences,* MIT Press, Cambridge, USA

Guevara E. (1961) *Guerrilla Warfare; available at* http://shtfinfo.com/shtffiles/books_and_reading/Guerrilla_Warfare.pdf - accessed 14/08/2013

Herbst, J. (2000) *States and Power in Africa: Comparative Lessons in Authority and Control,* Princeton University Press

IISS (The International Institute for Strategic Studies (2012) *The Military Balance 2012,* Routledge, London, UK

Kaldor, M. (1999) *New and Old Wars: Organized Violence in a Global Era,* Polity Press, Oxford

Kalyvas, S. N. (2005) *Warfare in Civil Wars,* in Duyvesteyn, I., Angstrom, J. (2005) *Rethinking the Nature of War*, Frank Cass Publishers, New York – London

Karugire, S.R, (2003) *Roots of Instability in Uganda,* Fountain Publishers, Kampala

Kasozi, A.B. (1994) *The Social Origins of Violence in Uganda,* Fountain Publishers, Kampala

Lacina, B. & Gleditsch N. P. (2005) *Monitoring Trends in Global Combat: A New Dataset of Battle Deaths, European Journal of Population,* 2005, 21, pp. 145-166

Lacina, B. (2006) *Explaining the Severity of Civil Wars, The Journal of Conflict Resolution,* Vol. 50, No.2 (Apr. 2006) pp. 276-289

Lemarchand, R. (1986) *Chad: The Misadventures of the North-South Dialectic,* in *African Studies Review,* Vol. 29, No. 3 (September 1986) pp. 27-41

Mamdani, M. (2001) *Saviours and Survivors: Darfur, Politics and the War on Terror,* Pantheon Books, New York

Mays, T. M. (2002) *Africa's First Peacekeeping Operation: The OAU in Chad, 1981-1982,* Praeger Publishers, London

Mueller, J. (2000) *The Banality of "Ethnic War", International Security,* 25, 1, (Summer 2000), pp. 42-70

Mumford, L (1938) *The Culture of Cities*, Secker and Warburg, London

Museveni, Y. (1981) *Why We Fought a Protracted People's War* in Sembuya, S. (2009) *Museveni's Greatest Speeches,* Beaver Sands Press, Kampala

Museveni, Y. (1997) *Sowing the Mustard Seed: The Struggle for Freedom and Democracy in Uganda,* Macmillian Press, Oxford

Mutibwa, P. (1992) *Uganda Since Independence: A Story of Unfulfilled Hopes*, Hirst & Company Publishers, London

Nolutshungu, S. (1996) *Limits of Anarchy: Intervention and State Formation in Chad,* University Press of Virginia

Nugent, P. (2004) *Africa Since Independence,* Palgrave-MacMillian Press

Ofcansky, T.P. (1996) *Uganda: Tarnished Pearl of Africa,* Westview Press

PRIO, (2006) *Battle Deaths Dataset* 3.0 – available at http://www.prio.no/Data/Armed-Conflict/Battle-Deaths/ ; accessed 11/06/201

Raleigh, C., Hegre, H. (2009) *Population size, Concentration and Civil War: A Geographically Disaggregated Analysis* ; *Political Geography,* Vol. 28, pp. 224-238

Scott, J. (1998) *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed,* Yale University Press

Sidaway, J. D. (1992) *Mozambique: destabilization, state, society and space* ; *Political Geography,* Vol. 11, No. 3, pp. 239-258

Smith, M. (2005) *Strategy in an age of 'low intensity' warfare: Why Clausewitz is still more relevant than his critics* in Duyvesteyn, I., Angstrom, J. (2005) *Rethinking the Nature of War*, Frank Cass Publishers, New York – London

Souaré, I. K. (2006) *Civil Wars and Coups d'état in West Africa,* University Press of America

Straus S. (2012) *Wars Do End! Changing Patterns of Political Violence in Sub-Saharan Africa, African Affairs,* 111/443, pp. 179-201

Tripp, A.M. (2010) *Museveni's Uganda: Paradoxes of Power in a Hybrid Regime,* Lynne Rienner Publishers, London

Wright, J. (1989) *Libya, Chad and the Central Sahara,* Hurst & Company, London

Young, C. (1983) *Ideology and Development in Africa,* Council on Foreign Relations, USA