Conflict and Development: Evidence from the Democratic Republic of the Congo*

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Abstract

This paper examines how conflict and local insecurity have influenced household-level economic conditions across the Democratic Republic of the Congo. Using micro-level, geo-referenced data and instrumental variable methods, I find strong evidence of a negative impact of conflict on household durable ownership and living conditions. The findings are very similar when different specifications and variables are considered. The results illustrate how political economy factors systematically influence economic development. Further, the findings highlight the need for a better understanding of the incentives facing different political actors across the region.

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1 Introduction

In the wake of the Rwandan genocide in 1994, the Democratic Republic of the Congo (DRC) experienced two devastating civil wars. The 2nd civil war in particular was associated with the deaths of many civilians, widespread internal displacement, severe human rights abuses, and the destruction of infrastructure, homes, and physical and human capital.[1] During the civil wars, schools and hospitals were attacked by rebel groups and capital assets were expropriated by armed groups and government troops (Global Witness, 2009; OHCHR, 2010). In the eastern province of North Kivu, over the course of three years following the Rwandan genocide, it is estimated that up to 80 percent of the livestock were pillaged by rebel groups (OHCHR, 2010). Civil conflict and attacks on civilians continue to date, particularly in the eastern and northeastern provinces of the country.

While a number of studies have discussed some of the economic consequences of conflict in the DRC (Nzongola-Ntalaja, 2002; Nest et al., 2006; Turner, 2007; Global Witness, 2009; Prunier, 2009; OHCHR, 2010; Autesserre, 2010, Stearns, 2011), to date there has not been a systematic empirical analysis of the impact of conflict on economic conditions across the country. This paper expands the literature on the topic by examining how conflict events (i.e., 'battles' or 'attacks') have influenced household-level measures of durable ownership and living conditions. More generally, this paper assesses the importance of local and regional political economy factors for economic development. It is well-acknowledged that the rule of law and security of person and property are crucial for economic growth and development (Haggard and Tiede, 2011). Yet few papers explicitly focus on the implications of local and regional variation in the support for the rule of law or the security of person and property for household-level economic outcomes.

[1] Most of these civilian deaths were related to malnutrition, public health crises, and general economic decline (Turner, 2007). The International Rescue Committee (IRC, 2004) estimates a death toll of nearly 3.8 million for the second civil war alone, though this estimate is the subject of debate (Human Security Report Project [2010]).

While there is an extensive literature on the country-level institutional determinants of economic growth and development (see, among others, Acemoglu, Johnson, and Robinson, 2001; Rodrik et al., 2004; Acemoglu and Johnson, 2005; Haggard and Tiede, 2011), there is also a fast-growing literature on the local and regional political economy of microeconomic outcomes. Recent studies of the microeconomic consequences of conflict, for instance, address the impact of conflict and political instability on human capital accumulation (Akresh and de Walque, 2010; Shemyakina, 2011; Chamarbagwala and Morn, 2011), local institutions (Bellows and Miguel, 2006; 2009), political participation (Blattman, 2009; Kyle, 2010), labor market outcomes (Kondylis, 2010), and health outcomes (Bundervoet, Verwimp, and Akresh, 2009; Akresh, Verwimp, and Bundervoet, 2011; Akresh, Bhalotra, Leone, and Osili, 2011; Minoiu and Shemyakina, 2012).

The importance of understanding the implications of conflict and insecurity for development cannot be understated. While the impact of conflict on development in the DRC may appear straightforward—Collier et al. (2003), for instance, refer to civil war as 'development in reverse'—there is reason to believe the empirical relationship between conflict events and economic conditions may be somewhat ambiguous. Consider that Hegre, Østend, and Raleigh (2009) find that the conflict events that took place during the 1989-2002 Liberian civil war occurred more frequently in relatively wealthier areas of the country, a result that is consistent with the results of Collier and Hoeffler (2004) which suggest that 'rebel opportunity' partially explains why civil war occurs. Blattman and Miguel (2010) also point out that while the correlation between low per capita incomes and the onset of conflict is one of the strongest in the empirical literature on conflict, it is highly likely that the relationship between the two moves in both directions: low incomes may set the underlying conditions that increase the likelihood of conflict (perhaps because of weak state capacity, as argued by Fearon and Laitin, 2003, or because of rebel opportunity, as argued by Collier and Hoeffler, 2004), yet conflict is also associated with the destruction of resources, loss of life, and

widespread displacement.[2] These studies suggest that OLS estimates of the impact of conflict on development in the DRC may be biased and inconsistent.

To shed light on the impact of conflict and local insecurity on economic conditions across the DRC, I combine household-level data on durable ownership and living conditions from the 2007 Demographic and Health Surveys (DHS) with disaggregated and geo-referenced conflict data from the Armed Conflict and Location Event Dataset (ACLED). Because conflict events were not randomly assigned across the country, I use the variation in distances between DHS cluster locations (the latitude and longitude coordinates at which surveys were administered) and Goma, a city along the DRC-Rwanda border, as an instrument for conflict exposure. This instrument accounts for the fact that conflict events have been much more prevalent in the eastern and northeastern provinces of the country. Accounting for the distribution and intensity of conflict events across the country helps to isolate the effect of conflict on development in the DRC, yet this approach is not without its limitations. In Section 6, I discuss different strategies for identifying the relationship between conflict and development.

I find that the conflict events that have taken place in the DRC have had a significant negative impact on household-level economic outcomes. Violent political activity is associated with strong reductions in durable ownership and household living conditions. These results are similar when different specifications and variable definitions and sources are considered. The findings illustrate the importance of understanding the incentives faced by different political actors (e.g. governments, rebel organizations, local militias, citizens, etc.) in 'weak' and 'fragile' states.

The remainder of this paper proceeds as follows. Section 2 discusses the recent economic and political history of the DRC. Section 3 describes the data and Section 4 presents the

[2] Do and Iyer (2010) also examine violent conflict in Nepal, finding an association between high levels of poverty and conflict intensity.

identification strategy. Section 5 presents the results while Section 6 assesses their robustness to alternative specifications, variable definitions, and variable sources. Section 7 concludes.

2 Recent History

In this section, I present an overview of the recent political and economic history of the DRC. To be certain, the extraction-oriented institutions that were established under King Leopold II, the country's history of colonial rule by Belgium, and post-independence political instability played substantive roles in shaping the political and economic status quo we observe today. Yet I focus primarily on the most recent political and economic history of the DRC in order to establish the context for the empirical analysis in the following sections.

Prior to the overthrow of President Mobutu Sese Seko's regime (which lasted from 1965-1997), the economic and political status quo in the DRC (then Zaire) was characterized by weak constraints on executive authority, endemic corruption and extensive patronage networks, hyperinflation, low agricultural and industrial productivity, and weak state financial capacity (Prunier, 2009). Mobutu's rule was associated with sharp economic decline and the deterioration of state institutions.

In the early 1990s, Mobutu's regime and patronage network declined rapidly, particularly when Cold War-era economic and military aid from the United States came to a near stop.[3] Land disputes and conflicts related to citizenship rights (which resulted from legal changes in Kinshasa) erupted during this time period, particularly in the eastern provinces of the country (Autesserre, 2010). The expropriation of household durables also began during this time period. Autesserre

[3] Remarkably, almost all U.S. economic and military aid to Zaire came to a stop at the end of the Cold War. Over the previous decade, the U.S. had provided Mobutu with hundreds of millions of dollars in economic and military aid (close to $991 million in the 1980s alone). No longer useful geopolitically toward the end of the Cold War, the United States even imposed sanctions on Mobutu's regime to induce democratization. Mobutu responded accordingly, holding the first multiparty elections in the country in the early 1990s.

(2010: 56) describes how "instead of paying his armed forces, Mobutu encouraged them to remunerate themselves through looting the scapegoats' properties—in addition to conducting clandestine trade and attacking humanitarian aid assets." The ineffectiveness of the state was particularly evident in the eastern provinces of the DRC. Prior to his regime's collapse, in the 1980s Mobutu cut expenditures on public goods (e.g. health care, education, and infrastructure) in the region, although tax rates remained high (Autesserre, 2010: 70).[4]

During this period of economic and institutional decline in Zaire, the Rwandan genocide took place in the spring of 1994. The genocide—perpetrated by *génocidaires* like the Interahamwe, the Hutu Power organization, and members of the former Forces Armées Rwandaises (FAR)—took the lives of more than 800,000 Tutsis and moderate Hutus. The Rwandan Patriotic Front (RPF) invaded from Uganda to seize the Rwandan capital, Kigali, and to stop the genocide. Many of the *génocidaires* took cover in refugee camps alongside more than one million refugees from Rwanda (and Burundi) that were situated in the eastern provinces of the DRC along the DRC-Rwanda border. In September 1996, General Kagame of Rwanda sent a force supported by the Rwandan Patriotic Army (RPA) (formerly the RPF) into Zaire with the intent of neutralizing the *génocidaires*. The RPA did so in conjunction with the Uganda People's Defense Force (UPDF) and other political organizations, which eventually led to the formation of the Alliance des Forces Démocratiques pour la Libération du Congo-Zaïre (AFDL).

Yet along with the desire to counter the *génocidaires,* there was also a broader goal of overthrowing Mobutu's regime, mainly because of his reticence in countering armed groups that took refuge in some parts of the country. Prior to the invasion, the heads of state from Angola, Eritrea, Ethiopia, Rwanda, Uganda, and Zimbabwe were involved in plans for regime change (Prunier, 2009: 67). As Laurent-Désiré Kabila, the leader of the AFDL, marched across Zaire from

[4] This is one of the motivations for using 'education in years' as a control variable in selected specifications below.

the east, Mobutu and his top officers fled the country. Kabila arrived in Kinshasa on May 20, 1997, ending the first civil war, and sought to establish political control over the capital. Kabila subsequently renamed the country from Zaire to the Democratic Republic of the Congo.

However, political alliances quickly changed. Kabila was no longer willing to attack the *génocidaires* and other groups Uganda and Rwanda perceived as threats. With Uganda and Rwanda no longer in support of Kabila, they sent troops, arms, and money into Zaire with the intent of toppling Kabila's regime. Rebels backed by the RPA commandeered a cargo plane in Goma and flew to the Atlantic Coast to launch a military campaign (Nest et al., 2006: 25).[5] With the splintering of rebel groups, the development of new alliances (e.g. many Interahamwe and ex-FAR troops jointed the Forces Démocratiques de Libération du Rwanda [FDLR] and Uganda backed the Mouvement de Libération du Congo [MLC] and a faction of the RCD [different than the faction supported by Rwanda]) and the involvement of neighboring countries such as Angola, Chad, Eritrea, Namibia, Rwanda, Sudan, Uganda, and Zimbabwe, the second civil war continued until mid-2003, when the Transitional Government in Kinshasa (the 'Government of National Unity and Transition') was established after a series of peace agreements and negotiations.[6] The Transitional Government was comprised of some of the most powerful political groups, including Kabila's former government and rebel movements-turned-political parties (e.g. the Ugandan-allied MLC, Mai Mai militias, and different Ugandan- and Rwandan-backed factions of the Rassemblement Congolais pour la Démocratie [RCD], etc.) (Autesserre, 2010). The second civil war left a devastating death toll, with millions of casualties resulting mainly from malnutrition, public health crises, and generally poor living standards (IRC, 2004).

[5] This explains why some of the conflict events took place near the DRC's capital, Kinshasa (see below).
[6] Prior to the establishment of the Transitional Government, Kabila was assassinated by his bodyguard. His son, Joseph Kabila, subsequently took over political power.

While the transition to the new government occurred almost a decade ago, various armed groups, local militias, and the Congolese national army (FARDC) are still fighting in the eastern provinces of the DRC. Many armed groups continue to abuse citizens in these provinces, charging 'taxes,' engaging in atrocious human rights abuses and rapes, and expropriating household assets and consumer durables.[7]

The conflict events that continue to take place in the eastern provinces appear to center on disputes over natural, mineral, and land resources, though both the fundamental and proximate causes of the conflict events are complex and the source of considerable debate (Stearns, 2011). Nest et al. (2006: 12-13) contend that the conflict events that have taken place in the country are mainly due to the weakness of the state, military, financial, and logistic interventions from neighboring countries, ethnic political violence, regime survival, and contests for control over natural and mineral resources.[8] They hold that the structural conditions for conflict are ultimately rooted in the weak political and legal institutions first established under Belgian colonial rule. Along with seeking to maintain political power through 'divide-and-rule' strategies, "the DRC state and individual officials also sought to systematically extract revenue for private and institutional purposes" and "it is under these conditions that ethnic and regional grievances and conflicts over access to natural resources have long flourished" (Nest et al., 2006: 13).

Yet the conflict events may also be rooted in local political agendas and incentives. Autesserre (2010) argues that these factors have influenced the conflict dynamics of the civil wars and the current civil unrest in the eastern provinces of the country. As Autesserre (2010: 8) notes that, "these [local] agendas pitted villagers, traditional chiefs, community chiefs, or ethnic leaders

[7] As succinctly described by Autesserre (2010: 4), "throughout the transition, unremitting clashes between various armed groups and militias, frequent massacres of civilians, massive population displacements, and appalling human rights violations, including widespread sexual violence, persisted in the provinces of North Kivu, South Kivu, North Katanga, and in Oriental Province's Ituri district."

[8] The civil wars in the DRC involved up to *fourteen* foreign armies at different time periods (Autesserre, 2010: 2).

against one another over the distribution of land, the exploitation of local mining sites, the appointment to local administrative and traditional positions of authority, the collection of local taxes, and the relative social status of specific groups and individuals." Garrett and Seay (2011: 85) argue that "the primary basis of conflict in the Kivu provinces is longstanding tension over ethnicity, citizenship rights and land rights, which are in turn related to grievances over access to resources such as land, and over legitimacy and power. Conflict dynamics also include the marginalization of eastern DRC borderland areas from the capital Kinshasa, which are themselves symptomatic of broader governance failures in the DRC."

It is crucial to understand which factors matter most for the continuation of conflict and attacks on civilians in the eastern and northeastern provinces of the country, particularly considering that contemporary policy measures are formulated on the basis of this understanding. In what follows, I put forth an instrumental variable regression approach to endogenize the locations of violent political activity across the country and then, in turn, examine how conflict and local insecurity have influenced household-level durable ownership and living conditions.[9]

3 Data

To examine the microeconomic consequences of conflict, I combine disaggregated and geo-referenced conflict event data from the Armed Conflict and Location Event Dataset (ACLED) with household-level data on durable ownership and living conditions from the 2007 cross sectional Demographic and Health Survey (DHS) for the DRC.

The Centre for the Study of Civil War (CSCW) at the Peace Research Institute Oslo (PRIO) has developed the Armed Conflict and Location Event Dataset (ACLED), which provides

[9] The relationship may be most evident in the eastern provinces of the Kivus and Oriental Province, where "more than 80% of the inhabitants of these places consider their living conditions to be the same as or worse than during the wars" (Autesserre, 2010: 4).

information on each specific conflict event for the DRC. The ACLED contains information on the exact dates, locations (at the latitude and longitude coordinate), and additional characteristics of conflict events during the first and second civil wars (data from 1997 to 2004) as well as the current conflict events that have taken place largely in the eastern provinces of the DRC (from 2004 until 2007 for the analysis here). These events were recorded on the basis of reports from war zones, humanitarian agencies, and other research publications.[10] Figure 2 presents a graphical depiction of the geographic distribution and intensity of conflict events across the DRC.

The Demographic and Health Survey (DHS) program (also known as MEASURE DHS) was initially established by USAID in 1984. The DHS surveys provide nationally representative individual- and household-level data on a range of socio-economic and health conditions for a number of countries across the developing world. Surveys are implemented in each country by ICF Macro in collaboration with the relevant administrative organizations in participating countries.[11] Because the DHS surveys are primarily designed with the goal of collecting information on marriage, fertility, family planning, reproductive health, child health, and HIV/AIDS, women of reproductive age (15-49) are the primary focus of the DHS surveys. Yet the primary survey data are recoded in a number of formats, including household-level and individual-level recode files.

In the DRC, surveys were administered at 300 cluster locations across the country.[12] Each cluster location has a unique latitude and longitude coordinate assigned to it. In order to ensure the

[10] To be certain, there is likely to be a degree of measurement error in the ACLED data, particularly considering that the conflict events are recorded on the basis of reports and news media. Other potential limitations of these data are discussed below.

[11] USAID provides financial support for many of the surveys, though other countries receive funding from donors like UNICEF, UNFPA, and the World Bank (Rutstein and Royas, 2006).

[12] In order to isolate the impact of conflict on household-level wealth, I only use the data points that have latitude and longitude coordinates, which include 2,990 of 2,999 conflict events and 8,679 out of 8,886 household-level observations. There are 3,959 conflict events in total in the ACLED file for the DRC, yet I only consider those conflict events that took place prior to 2007 in order to match these data with the household-level economic information. I confirmed with ICF Macro that the DHS clusters for the 2007 DRC survey that were missing geo-markers were not missing this information because of security concerns in these areas. The latitude and longitude coordinates for these 7 clusters (out of 300) were not able to be verified due to errors from the GPS receivers (e.g., satellite acquisition errors). The omission of these specific clusters will not introduce any bias into the results.

confidentiality of survey respondents, MEASURE DHS randomly displaces the GPS latitude/longitude coordinate positions for all of their surveys. Specifically, for each urban cluster, they ensure a minimum of 0 and maximum of 2 kilometers of positional error. For each rural cluster, there is a minimum of 0 and maximum of 5 kilometers of positional error. Some of the rural clusters that are easily identifiable (about 1% of the total) are displaced up to 10 kilometers. To develop household-level economic data for use in this paper, I employ the household-level recode file for the DRC and combine it with latitude and longitude coordinates for each DHS cluster. [13] The data are representative at the national level, for residents in both rural and urban areas, and in all eleven provinces of the country (Kinshasa, Bas-Congo, Bandundu, Équateur, Orientale, Nord-Kivu, Sud-Kivu, Maniema, Katanga, Kasaï Oriental, and Kasaï Occidental).

'Conflict exposure' is the key explanatory variable of interest in this paper. I construct various measures of 'conflict exposure' based on the number of conflict events occurring within set distances (200 km, 100 km, and 50 km) of DHS cluster locations. These distances are chosen not only because of the sheer size of the country (see summary statistics in Table 1 and Table 4) but also because the latitude and longitude coordinates are not at the individual household level but at the DHS cluster locations.[14] Further, because of the random displacement of GPS latitude and longitude coordinate positions in the DHS GPS file, it is necessary to use a broad radius around DHS cluster

[13] In an earlier version of the paper, I used the individual recode file for this analysis. However, the household recode file has much richer information about household-level durable ownership and living conditions than the individual recode file. Further, by using the household-level recode file, the results will be representative of all households across the DRC, rather than all women, who are represented in the individual-level recode file. The household level recode file used in this analysis as well as the GPS data are available (with prior approval) at the DHS site, http://www.measuredhs.com.

[14] To calculate measures of conflict exposure, I first convert the latitude and longitude coordinates of both the DHS micro-level wealth data and the ACLED disaggregated conflict data from degrees to radians. This entails multiplying each latitude and longitude coordinate by $\frac{2\pi}{360}$. I then take the differences between latitude and longitude coordinates for the DHS and ACLED data and calculate the Haversine formula for the central angle for a distance measure: $A = \sin\left(\frac{\Delta Lat}{2}\right)^2 + \cos(Lat_{ACLED}) * \cos(Lat_{DHS}) * \sin\left(\frac{\Delta Long}{2}\right)^2$. I then calculate $2 * atan2\left(sqrt(A), sqrt(1-A)\right)$ and then multiply this figure by the earth's radius in kilometers (6371 km) to derive the final distance measure. To ensure that this method is accurately capturing cluster-level conflict exposure, I have also calculated measures of conflict exposure using the ArcGIS buffer command, where I created 200km, 100km, and 50km buffers around the DHS cluster locations and counted the number of conflict events that took place within each buffer zone.

locations to capture the degree to which these cluster locations were exposed to violent political activity. These measures of conflict exposure should sufficiently capture the effects of local and regional violent political activity, local insecurity, poor rule of law, and the direct impact of the conflict events (i.e., 'battles' or 'attacks') themselves.

Because micro-level measures of income or consumption expenditures are not available for the DRC, I use the DHS micro-data to create a simple wealth index that is the sum of a variety of binary indicator variables which are each given equal weight. These indicators include information about whether the household has the following:

- Television ownership
- Refrigerator ownership
- Motor transport ownership (i.e., either a car, truck, motorcycle, or scooter)
- Telephone ownership
- Household electricity
- Radio ownership
- Bicycle ownership
- Cement floor in the household
- Improved water source in the household
- Mobile phone ownership
- Ownership of a grill or heater
- Ownership of chairs
- Ownership of beds
- Ownership of lamps
- Ownership of a stove or cooker
- Ownership of hoes
- Access to a flush toilet or ventilated improved pit latrine

An improved water source is defined here as water that is piped into a dwelling, yard, or plot, water that is accessible through a public tap or standpipe, water that is from a tube well, water that is from a protected well in a dwelling, yard, or plot, water that is from a protected public well, water that is

from a protected spring, or the use of bottled water. All other sources of water are coded as a '0' (e.g. unprotected spring water, river water, etc.).[15]

While this wealth index is by no means a perfect indicator of economic development, it does allow for a relatively more tractable interpretation of how conflict exposure influences household-level durable ownership and living conditions than using the DHS wealth index (which is created via principal components analysis). Figure 4 presents a graphical depiction of the distribution of household-level 'wealth' across the DRC. In Section 6, I use the DHS wealth index to show that the results are robust to using either measure of the dependent variable.[16]

I include a number of control variables in the regressions below, including age of the household head, indicators for whether the household is located in the capital or a large city, a small city, or a town, and the altitude of DHS cluster locations. To be sure, some of these control variables may be partially related to conflict exposure. Finding entirely exogenous control variables in this context is a challenging task. Many of the standard control variables used in development studies (e.g., human capital accumulation) will be at least partially endogenous to conflict exposure (see, for instance, Akresh and de Walque, 2008; Chamarbagwala and Moran, 2011).

In some of the regressions below, I include the education of the household head (in years) in order to assess whether controlling for this variable influences the results. Arguably, education (in years) is a good proxy for the historical distribution of expenditures on public goods and public services (like education) by the state and non-state actors (e.g., churches or NGOs). This variable may therefore capture some of the regional factors that influence household-level durable ownership

[15] While some argue that a principal components analysis (PCA) approach is the best method for determining weights for the components of the wealth index (e.g. Filmer and Pritchett, 2001), it is difficult to interpret changes in the PCA wealth index relative to the wealth index constructed here. In the robustness checks below, I use the original DHS wealth index to ensure that the results are not driven by the way my wealth index was created or weighted.
[16] The correlation between my wealth index and the original DHS wealth index is 0.8577.

and living conditions, therefore decreasing the likelihood of biasing the instrumental variable estimates.

4 Identification Strategy

Because of the potential for selection bias, estimates from ordinary least squares regressions will likely be biased and inconsistent. To illustrate why this may be the case, consider that rebel groups, local militias, and Congolese troops seek political control over different areas. Rebel groups would prospectively be attracted to (a) centers of political power (e.g. provincial/national capitals), (b) natural, mineral, and land resources, or (c) areas where the durables of the local populations easily appropriated. Provincial capitals have larger markets, public goods and services (e.g. schools, hospitals, sanitation, piped water, etc.) and therefore likely improved measures of durable ownership and living conditions. At the household level as well, relatively wealthier households will likely attract attacks from rebel groups for the purposes of durable appropriation.[17] Expropriation appears to be almost systematic, with "nearly all soldiers thus extort[ing] the local residents, stealing all kinds of valuables, such as money or mobile phones in urban areas and harvests or cattle in rural areas. Along with stealing, they often beat, jailed, raped, tortured, or killed those who refused to comply" (Autesserre, 2010: 56). In this sense, there will be a significant degree of reverse causation and a non-random assignment of conflict events when assessing the relationship between wealth and conflict exposure.

I report the estimates from baseline OLS regressions in Table 2. The estimates suggest that there is a positive and statistically significant relationship between wealth and conflict exposure. Yet, as suggested above, the OLS estimates are likely biased and inconsistent. This is further confirmed

[17] As described by Autesserre (2010: 55), "each armed group used violence to deter villagers from supporting some other faction, or to punish them for having done so…all soldiers, in all components, preyed on local villages to make up for receiving little or no income."

by a Hausman test for the baseline specification (Table 3, first model) (χ^2=570.03, Prob>χ^2 = 0.000).

Because conflict events were not randomly assigned across the country, I use the variation in distances between DHS cluster locations and Goma, a city along the DRC-Rwanda border, as an instrument for conflict exposure. The provinces near Goma have experienced a disproportionate amount of conflict events and this instrumental variables strategy is intended to account for the distribution of conflict events across the country.[18] One could interpret this clustering of conflict events along the DRC-Rwanda and DRC-Uganda borders as being a result of the 'spillover' of the Rwandan genocide in addition to localized disputes. Another plausible interpretation of the clustering of conflict events is because of the region's distance from Kinshasa, though so too are many other regions of the country (e.g., Lubumbashi). It is perhaps more likely that the Congolese government does not exercise control over these provinces because of state weakness and the strength of rebel forces in these regions, which, as discussed by Nest et al. (2006), may be the result of a number of political and economic factors.

A good instrumental variable is exogenous, is highly correlated with the endogenous variable of interest, and is uncorrelated with other unobservable influences of the dependent variable. With high distance radii (200 km), the correlation between conflict exposure and the distance instrument is high (-0.6424 for the correlation between distances from Goma and conflict exposure; -0.6830 when only those recent conflict events in the eastern provinces are considered), though for low distance radii (e.g. 50 km), the correlation is not as strong (-0.1721), mainly because the conflict events taking place near Kinshasa are, in effect, weighted more heavily (see Figure 4 for a graphical depiction).

[18] The use of a distance-based instrument has precedent in the empirical literature on conflict and development. Akresh and de Walque (2010) exploit the variation in distances between Ugandan provincial capitals and the Uganda-Rwanda border as an instrument for war intensity in the context of the Rwandan genocide. I employ a similar strategy, endogenously determining the intensity of conflict exposure across the country on the basis of distances between DHS cluster locations and Goma.

There are plausible scenarios in which the exclusion restriction may not be met (e.g. differential provision of public goods across geographic areas), though this is difficult to assess in practice. The identification strategy employed in this paper implicitly assumes that the instrumental variable only influences household-level wealth through its effects on conflict exposure, conditional on the set of included covariates (e.g. rural/urban differences, age, etc.). One way I control for the historical distribution of expenditures on public goods (e.g. public spending on education) is to include education (in years) as an explanatory variable. As stated above, I do not interpret the coefficient estimate on this variable as representing something causal—it is merely a control variable. But this control variable should help to capture the effects of the distance from the border or other previous policy factors so that the interpretation of the coefficient on conflict exposure can be seen as representing something causal. Because the equation below is exactly identified, I do not conduct a Sargan-Hansen test. I report the first stage results for the Angrist-Pischke multivariate F test of excluded instruments in the results tables below.

For the baseline IV specification, I model differences in micro-level wealth across the country as a function of conflict exposure, while instrumenting for conflict exposure using the distances between DHS clusters and Goma:

$$\text{exposure}_i = \alpha_1 + \mathbf{x}_i'\beta + \delta\mathbf{dist}_i + \varepsilon_{i1} \quad (1.1)$$

$$\text{wealth}_i = \alpha_2 + \mathbf{x}_i'\gamma + \eta\mathbf{exposure}_i + \varepsilon_{i2} \quad (1.2)$$

For the first stage regression, exposure_i is the conflict exposure of individual *i*. Using IV/2SLS, this dependent variable is regressed on a vector of individual-level covariates ($\mathbf{x}_i$) and the distances between DHS clusters and Goma (dist_i), in addition to the individual-level error term, ε_{i1}.[19] For the second-stage regression, wealth_i is regressed on individual level covariates ($\mathbf{x}_i$) and the measure of

[19] All first stage results are available from the author upon request.

exposure, (exposure_i) as well as the individual-level error term, ε_{i2}. IV regressions are conducted using the 'ivreg2' package in Stata (Baum et al., 2010).

There are likely to be unobservable factors that influence micro-level measures of durable ownership and living conditions that are systematically correlated over space. I therefore estimate the IV regression models using cluster-robust variance estimates.[20] This strategy results in smaller, more conservative t-statistics, but the standard errors are more robust to potential heteroskedasticity and intra-cluster correlation.

4.1 Potential Limitations

It is plausible that the impact of violent conflict on economic development may be underestimated. While the DHS is a nationally representative survey, the conflicts in the DRC—particularly the second civil war—led to targeted attacks on the civilian population, significant loss of life, and widespread internal displacement. Those who have been most exposed to conflict events over time (i.e. those killed directly or indirectly by conflict, those whose homes were completely looted or destroyed, etc.) will not be represented in the DHS sample, particularly considering that the civil wars resulted in the internal displacement of nearly 2 million Congolese citizens (Autesserre, 2010: 5). There may be mortality-related selection bias and this would lead to bias in the estimated coefficient for 'conflict exposure.' It is also important to bear in mind that the conflict events in the DRC may have increased investment risk or the capacity of the state at the country level such that the effects of conflict exposure may not appear to have any effect on micro-level wealth.

One potential limitation of using conflict exposure as a measure of the damage caused by conflict events in the DRC is that the history of conflict events in particular areas is only a proxy for the magnitude of damage to physical capital, infrastructure, and individual dwellings in particular

[20] The formula for the cluster-robust error variance-covariance estimator can be found in Baum (2006: 139).

regions. A single conflict event may actually have as similar an impact as two conflict events (in terms of deaths, damage to capital or infrastructure, etc.), for instance, but they are assigned different values in the conflict exposure data. Also, one single conflict event in an area may have led to the death of a family member, displacement and public health issues in a small community, or severe psychological trauma, which are incidents that may seriously hamper durable ownership and living conditions. This may prove to be a source of measurement error in the instrumental variables regressions. Nevertheless, the ACLED data can serve as a good proxy for the overall level of violent political activity, local insecurity, weak rule of law, and other political economy factors that systematically affect economic development.

Since economies can bounce back in the wake of conflict (Davis and Weinstein, 2002; Brakman et al., 2004; Miguel and Roland, 2011), finding evidence of no effect of conflict on development is not implausible. As noted by Autesserre (2010: 4), after the two civil wars, political transition, and international diplomatic and humanitarian interventions, many families returned home, rebuilt their homes, and engaged in local markets. However, conflict events were still taking place in the eastern and northeastern provinces at the time of writing, which suggests that there will likely be evidence of a negative effect when conflict events in the eastern provinces are considered separately (below).

With the available data, I cannot be certain whether household-level economic outcomes are not caused by conflict exposure in another region or even another country. High degrees of conflict exposure elsewhere may have led to relocations to areas in the DRC that are relatively safer, a factor that would be associated with less precision in estimating the effects of conflict exposure on economic outcomes. Yet, if anything, this would produce a positive bias if the relationship between conflict exposure and economic outcomes were negative, as these individuals would likely self-select into areas that were relatively more secure. Transient citizens or visitors will have been exposed to

less conflict exposure when surveyed, but will also have worse economic outcomes due to relocation. For these individuals, this would imply that the relationship between durable ownership and living standards is not as negatively related to my measure of conflict exposure, putting upward bias on the estimates.

5 Results

The results from the baseline instrumental variable regressions are presented in Table 3. In the first column, a measure of conflict exposure that accounts for conflict events that have taken place within a 200 km distance radius of DHS cluster locations is used as the key explanatory variable of interest. The estimates suggest that the mean cluster-level exposure to conflict events within 200 km (about 230 conflict events) is associated with about a 14.6 percent decrease in the wealth index.[21] This negative coefficient estimate contrasts sharply with OLS estimates that do not account for the potential for reverse causation and a non-random assignment of conflict events. Similarly, the average cluster-level exposure to conflict events within 100 km (about 99 conflict events) is associated with about a 16.5 percent decrease in the wealth index. Lastly, for the mean cluster-level exposure to conflict events within 50 km (about 51 conflict events) is associated with a 27.4 percent decrease in the wealth index. For the first-stage regression results for the first specification (Column 1), the Angrist-Pischke multivariate F test of excluded instruments is 97.77 and I can therefore reject the null hypothesis of weak identification given Stock-Yogo critical values (16.38 for 10% maximal IV size).

As discussed above, the historical distribution of public spending on schools and hospitals across countries may be one of the factors that violate the exclusion restriction of the IV approach. In other words, household-level wealth may be related to 'distance from Goma' in other ways than

[21] The wealth index has a mean of 5.021814.

the impact of distance from the DRC-Rwanda border on conflict exposure. Including education (in years) may be one way to control for this confounding influence. When I control for education (in years), the magnitude of the coefficient on conflict exposure is somewhat less. Column 4 of Table 3 presents the baseline results where distance from Goma is used as an instrument for the number of conflict events within a 200 km distance. The coefficient estimate is -0.00248, which, at a mean level of cluster-level conflict exposure of about 230 recorded incidents results in a reduction of the wealth index by 11.3 percent.

6 Robustness Checks

6.1 Cluster-level Control Variables

One of the limitations of the results in Table 3 is that there are no cluster-level covariates in the regression models. In this section, I incorporate cluster-level control variables on the locations of mining sites, roads, and airports. By doing so, I am able to test the robustness of the baseline results by controlling for some of the geographical and economic environmental factors that may influence household-level economic conditions, conflict events, or both.

Data on the locations of mining concessions across the DRC come from the International Peace Information Service (IPIS) in Antwerp, Belgium.[22] The data are official and public data from the DRC's Cadastre Minier (CaMi). I specifically focus on mining concessions where the companies involved have been granted an exploitation permit, a tailings processing permit, a small-scale mining exploitation permit, or a permanent quarry exploitation authorization. These activities should sufficiently capture mining activity (rather than general exploration permits or applications for exploration and/or exploitation permits). In order to match the mining data with the household-level wealth and conflict data, I only use those mining sites for which the company or corporation

[22] This map is available at http://www.ipisresearch.be/mine-concessions-drc.php

had their concession granted to them by the government prior to 2007.[23] I then calculate the total sizes of the shapefile areas for the mining sites within specified distances of DHS cluster locations. This calculation will capture the relative magnitude of mining activity within certain vicinities of the DHS clusters.

Information on the locations and lengths of primary and secondary roads comes from the roads shapefile from the African Development Bank Group.[24] I calculate the total length of roads within specific distances of DHS cluster locations in order to control for road density and other geographic attributes of DHS cluster locations. Information about the location of paved, IATA-coded airports across the country is drawn from Air Broker Center International AB.[25] Lastly, I use shapefiles on administrative boundaries for the DRC from FAO's Africover.[26]

Using these three cluster-level control variables, I find very similar results regarding the impact of conflict on household-level durable ownership and living conditions (Table 5). The coefficient estimates are only slightly smaller while they remain highly statistically significant. I find strong evidence that airports are positively associated with household-level durable ownership and living conditions, though the direction of causation in this situation is uncertain since the locations of airports may reflect population density and the clustering of wealth, rather than causing greater access to international markets or trade networks. Nevertheless, the locations of airports should serve as a decent proxy for historical pockets of wealth across the country, which may make inference of the impact of conflict on development more precise. Further, the locations of airports may also influence the location of conflict events, as discussed in Section 2. Indeed, there is a strong

[23] The data on granted mining concessions run from April 1994 to the end of 2006 (for this analysis).
[24] The shapefile is available at http://www.infrastructureafrica.org/documents/type/arcgis-shape-files/congo-dr
[25] I thank Tilman Brück at DIW Berlin for suggesting the use of airports as a control variable. The data on airports across the DRC are available at http://www.aircraft-charter-world.com/airports/africa/congodr.htm. I only geo-code airports that have paved runways and IATA codes. While it would be interesting to geo-code all of the airports that are listed on this site, I could only visually confirm the locations of all of the paved, IATA-coded airports through Google Earth. This provided a natural guideline for which airports to include in the analysis.
[26] The shapefile for administrative boundaries for the DRC is available at http://www.africover.org/.

conditional correlation between the number of airports that are within specified cluster radii and the number of conflict events to which a cluster has been exposed. As for their first stage influences on cluster-level conflict exposure, I don't find consistent evidence that mining sites are associated with conflict events.

6.2 Different Measure of Household-level Wealth

Another potential critique of the results in section 5 is that household-level wealth may be poorly measured by the simple index of durable ownership and living conditions. In this subsection, I therefore consider using the original DHS wealth index as the dependent variable. This strategy allows for the use of a more comprehensive measure of household-level wealth but has the disadvantage of making the coefficient interpretation somewhat more challenging.

Using the original DHS wealth index as the dependent variable, I find very similar results (Presented in Table 6). Conflict exposure has a negative and significant impact on household-level wealth and the magnitude of this effect is comparable to the estimates in the earlier regression results. One of the initial reasons for using this index was its difficulty in interpreting the estimated coefficients of the explanatory and control variables. Nonetheless, the relative magnitudes, absolute magnitudes, and signs of the estimated coefficients—as well as their statistical significance—are remarkably similar to the prior results. These results also hold when using the latitude coordinate and longitude coordinate of DHS cluster locations as separate instruments for conflict exposure (various distance radii).

6.3 Different Instruments

One of the potential limitations of using the distance from Goma as an instrumental variable for conflict exposure is that distance from Goma may influence household durable ownership and living

conditions in other ways than its direct influence on conflict exposure. For instance, distance from Goma may capture the influence of Congolese-Rwandese trade routes or the historical provision of public goods. In this sense, the distance from Goma may very well influence household living standards in other ways. Because 'distance from Goma' is the only instrument used in the regressions above, I cannot report over identification statistics to test whether the null of instrument validity should be rejected.

In this section, I therefore explore using different instruments for conflict exposure. Instead of using distance from Goma as the sole instrument, I use the latitude coordinate and the longitude coordinate at which DHS clusters are located as instruments for cluster-region conflict exposure. These instruments are not as strongly associated with conflict exposure as the variable that captures the distances between DHS cluster locations and Goma, yet this strategy does have the advantage of allowing for the calculation of over identification statistics. Further, this approach accomplishes a similar task (albeit imperfectly) of accounting for the non-random assignment of conflict events across the country. An increase in either the latitude or longitude coordinate at which the DHS survey is located (from the average coordinates) are associated with an increase in conflict exposure. This is because, for a number of reasons discussed above, the conflict events have taken place at a much higher rate in the eastern provinces of the country. These instrumental variables regressions are modeled as follows:

(1.3) $$\text{exposure}_i = \alpha_1 + \mathbf{x}_i'\beta + \mathbf{Z}_i'\gamma + \varepsilon_{i1}$$

(1.4) $$\text{wealth}_i = \alpha_2 + \mathbf{x}_i'\gamma + \eta\mathbf{exposure}_i + \varepsilon_{i2}$$

In 1.3, $\mathbf{Z_i}$ is the vector of the latitude and longitude coordinates for the DHS cluster locations and all the other variables are the same as in 1.1 and 1.2. One potential critique of the earlier instrumental variables approach could be that the instrument, distance from Goma, may influence the dependent variable, wealth, independent of its effects on the key explanatory variable, conflict exposure. While

the validity of these instruments cannot be proven, I can now report the over identification tests (Hansen J statistic) from the instrumental variables regressions that use the DHS cluster location latitude and longitude coordinate to test whether the null of instrument validity should be rejected.

The estimates from the IV regressions using latitude and longitude coordinates of DHS cluster locations as separate instruments for conflict exposure are presented in Table 7. By and large, the coefficient estimates remain unchanged, although these aren't as strong of instruments as 'distance from Goma' (in terms of the first stage F-test of instrument exclusion and their first stage statistical significance). I cannot reject the null hypothesis of instrument validity in any of the specifications and the p-value for the Hansen J over identification statistic is quite high. In Table 8, I report similar results from the instrumental variables regressions that use the DHS cluster latitude and longitude coordinates as instruments, along with the original DHS wealth index.

6.4 Splitting the Wealth Index into Two Components

It is also interesting to tease out what specific economic impacts the civil wars and conflict events have had. In Tables 9 and 10, I split the wealth index into two different measures: one wealth index that measures relatively more "liquid" household durables or assets and another that measures more "illiquid" household durables or assets. Specifically, I define the liquid asset index as a simple additive measure of the following indicators:

- Television
- Radio
- Bicycle
- Mobile phone
- Motor transport (car, truck, motorcycle, or scooter)
- Chairs
- Lamps
- Hoes

I define the 'illiquid' durables or measures of living conditions as an addition of the following indicators:

- Electricity
- Cement floor
- Improved water source
- Refrigerator
- Telephone
- Improved toilet
- Beds
- Stove/cooker
- Grill/heater

By and large, I find similar results when splitting the wealth index into its 'liquid' and 'illiquid' components. This suggests that both household-level durable ownership and household-level living conditions have been affected by conflict and local insecurity.

6.5 New Data on Conflict Events

The Uppsala Conflict Data Program (UCDP) recently released the Georeferenced Events Dataset (GED) (Sundberg, Lindgren, and Padskocimaite, 2010; Melander and Sundberg, 2011). Much like the ACLED, the GED provides georeferenced, disaggregated information on conflict events. Unlike the ACLED, however, the GED covers a time period from 1989 onwards and has different guidelines for how conflict events are defined and recorded. Because the ACLED may have been developed with some degree of measurement error (Eck, 2012), it is important to assess whether this influences the core results in this paper.[27]

For the purposes of this paper, I will use the GED to demonstrate that regardless of how conflict events across the DRC are defined and coded, I find similar results regarding the impact of conflict and local insecurity on household-level economic conditions across the country. Again, I use the ACLED and GED conflict events datasets mainly as proxies for local and regional conflict

[27] While it is beyond the scope of this paper to compare and contrast the GED and ACLED, interested readers can find an article-length comparison of the two datasets in Eck (2012).

exposure, so the individual events and how they are coded and defined are of less concern than the local and regional aggregated conflict exposure measures.

I created 200 km, 100 km, and 50 km buffers around DHS cluster locations and then considered how many conflict events were contained within each buffer zone. Remarkably, in doing so I find correlations of the ACLED and GED conflict exposure measures of 0.9761 for a 200 km radius, 0.9405 for a 100 km radius, and 0.9245 for a 50 km radius. These correlations suggest that both measures of conflict exposure are essentially capturing the same effects and both therefore measures serve as reasonable proxies for local conflict exposure and local insecurity. This is surprising considering that the two datasets have different temporal dimensions—the GED has a longer time frame than the ACLED—and there are more events coded in the ACLED than in the GED. Results are presented in Table 11, showing very similar relative magnitudes of the impact of conflict and local insecurity on household-level durable ownership and living conditions.

6.6 Different Measure of Conflict Exposure

In addition to differentiating measures of conflict exposure on the basis of three different distances (200 km, 100 km, and 50 km), in this section I split measures of conflict exposure along temporal dimensions. Since there are distinct periods of conflict in the DRC (the first and second civil wars and current conflict events in the eastern provinces), I explore how different conflict periods matter for durable ownership and living conditions. Defined here, the split between the two conflicts takes place on January 1, 2004, with all conflict events in the DRC taking place on or after this day referred to as conflict events during the 'Kivu crisis' and all events taking place before this day referred to as the first and second civil war period. In structuring the specifications in such a way, I can better understand the different effects of conflict exposure at different times of the conflict.

Another way I check the robustness of the baseline results is to differentiate conflict exposure on the basis of different conflict events. The ACLED project categorizes each conflict event as being (1) a battle in which the government regains territory, (2) a battle in which there is no change of territory, (3) a battle in which rebels overtake territory, (4) the establishment of a rebel headquarters or base, (5) non-violent activity by a conflict actor, (6) a non-violent transfer of territory, (7) riots or protests, and (8) violence against civilians. I explore whether differentiating these conflict events on the basis of civilian impact has an influence on the results. To do so, I create a measure of civilian impact, where the variable is coded as a '1' if the conflict events pertain to situations 1, 2, 3, 4, or 8. The other events receive a '0'. This will test the robustness of the results by excluding conflict events that likely have less of an impact on the civilian population.

The results of the robustness checks are presented in Tables 12 and 13. Table 12 presents the results from constraining conflict exposure to those events taking place during the first and second civil wars that have had a civilian impact. The conflict exposure coefficients are negative, fairly large in magnitude, and vary in statistical significance. In two of the specifications, the correlations between conflict exposure and the latitude and longitude coordinate instruments are relatively low (though still highly statistically significant), which implies these may not be the strongest of instruments (i.e., the F test statistic is just less than 10). When I use the number of conflict events taking place after the beginning of 2004 for my measure of conflict exposure (with various distance radii), the coefficient estimates for conflict exposure are negative, large, and still vary in statistical significance on the basis of how conflict exposure is constructed. These results are also largely robust to differentiating the sample of conflict events for whether specific conflict events have had an impact on the civilian population.

6.7 Distance from Kinshasa

One additional way to test the robustness of the results is to include distance from Kinshasa as a control variable. It is plausible that distance from Kinshasa could influence household-level economic conditions because (a) wealth is simply less further from the capital, perhaps because of the historical distribution of spending on public services or because of a withdrawal of support during the latter stages of the Mobutu regime or (b) the government does not exercise territorial control over the eastern and northeastern provinces of the country and, as such, the levels of conflict will be more. I include this variable in the regression analyses. For some of the specifications, the coefficient estimates for conflict exposure are no longer statistically significant, though they remain so when using the distance measures of 100 km and 50 km (see Table 14). I don't find much evidence of a strong impact on household-level wealth of being far or close to Kinshasa, perhaps because I control for a number of cluster-level factors that influence wealth (like the locations of roads and airports).

7 Conclusion and Discussion

Civil war is 'development in reverse' (Collier et al., 2003) and nowhere has this been more evident than in the Democratic Republic of the Congo. The evidence put forth in this paper suggests that the conflict events that have taken place across the DRC have had a significant negative impact on household-level durable ownership and living conditions.[28] This finding is consistent with many of the qualitative reports on the topic and gives an empirical contribution to the literature. More

[28] This finding highlights the economic consequence of civil war in the DRC, yet this is only one of the consequences. As described by Autesserre (2010: 2), as a result of civil war, "an estimated one thousand civilians die every day, mostly due to malnutrition and diseases that could be easily prevented if the Congo's already weak economic and social structures had not collapsed during the conflict…81% [of those living in the eastern provinces] had to flee their homes, more than half experienced the violent death of family members or friends, more than a third were abducted for at least a week, and 16% were subject to sexual violence, usually repeatedly."

broadly, the results illustrate how local political incentives and political agendas generate significant economic externalities for the population at large.

While the results are fairly intuitive, there are a number of limitations to this study that should be noted. First, the instrumental variable strategy employed in this paper makes the assumption that the instruments (the distances between DHS cluster locations and Goma, and the latitude and longitude coordinates of the DHS cluster locations) only influence household-level economic conditions through their impact on cluster-level conflict exposure. It is plausible, however, that other historical or economic factors can also affect economic conditions through this distance channel. Second, while the data used in this paper are novel for the DRC, they are still measured with an amount of imprecision that should be considered. Lastly, more research must be conducted on the role of the mineral sector in affecting the location of violence across the country. The findings regarding the role of the mineral sector in influencing both conflict events and household-level economic conditions should be viewed as suggestive rather than definitive. Ultimately, until more data are available for the DRC, there are still a number of things we simply do not know about the causes and consequences of conflict across the country.

Generally, the results of this paper suggest there are two important areas of research that must be better developed. First, while differences in meta-level institutional and political factors partly explain cross-country variation in economic performance (see, e.g., Acemoglu, Johnson, and Robinson, 2001), local political economy factors (e.g. the decisions and appropriative actions of rebel groups, government troops, etc.) also have strong implications for local economic development. Development economists must turn their attention towards understanding the local political processes by which economic outcomes are influenced.[29] Second, more research is needed on the topics of conflict resolution, state building, and post-conflict economic reconstruction,

[29] To be sure, local political economy factors are likely to be related to national-level political institutions or regional protection and enforcement of property rights.

especially in the DRC. To date, only a handful of studies have addressed the political economy of these processes. Coyne (2008) analyzes the political economy of state-building efforts, highlighting how issues of local incentives and local knowledge will prevent most externally-planned state-building efforts from being successful. Autesserre (2010) assesses why international peace-building efforts in the DRC have largely been ineffective, pointing to a systematic lack of attention to local political economy issues. In essence, there are a number of constraints on what those involved in peace-building efforts can accomplish. Finding alternative mechanisms for conflict resolution is therefore crucial.

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Figure 1: Map of the Democratic Republic of the Congo (DRC)

Source: United Nations, Department of Field Support, Cartographic Section, Map No. 4007, Revision 10, July 2011

Figure 2: Distribution (By Quintile) of Conflict Events
Source: ACLED

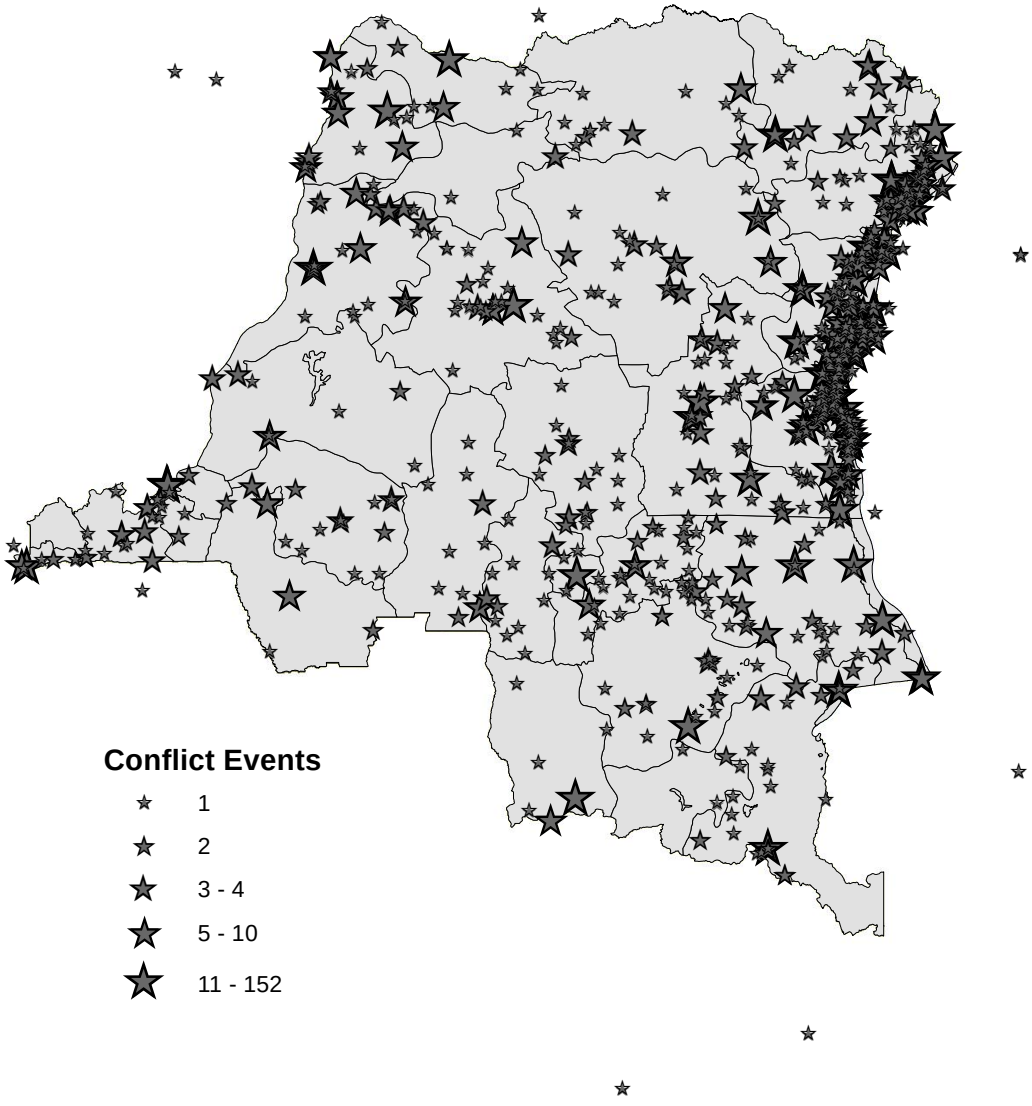


Figure 3: Distribution (By Quintile) of Conflict Events
Source: UCDP GED

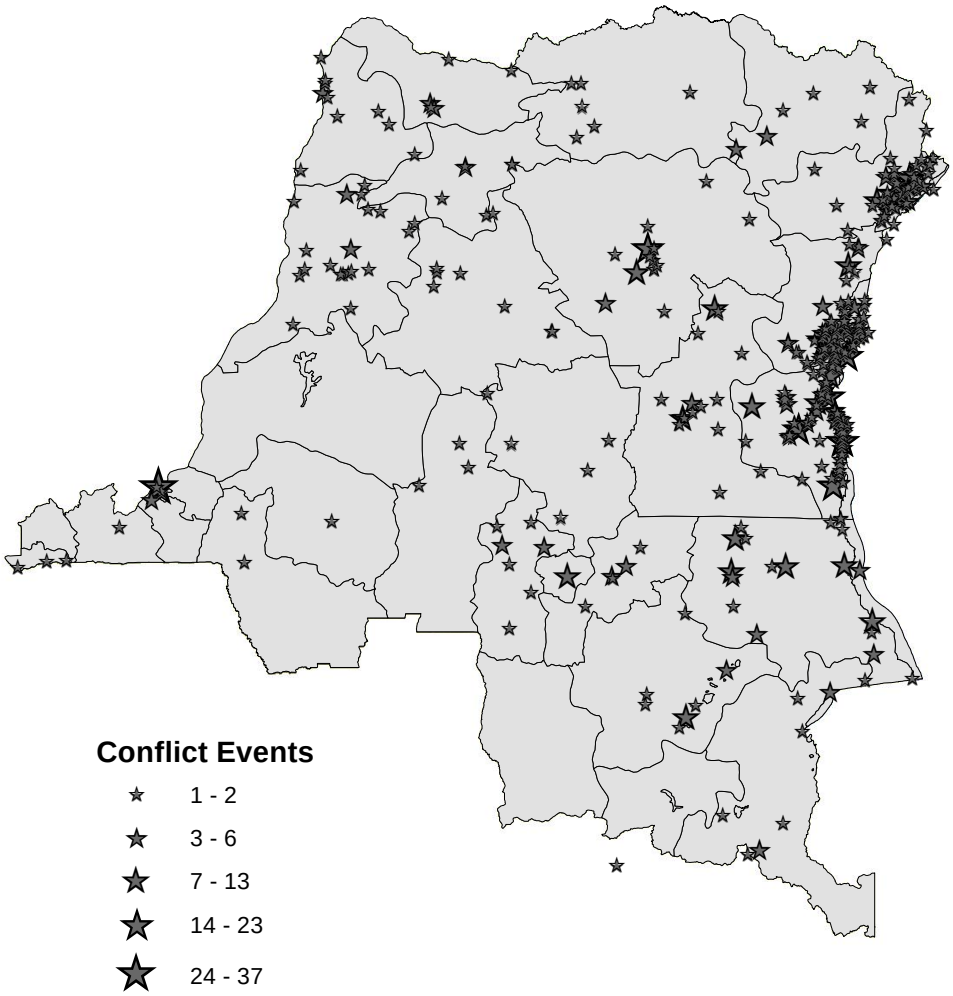


Figure 4: Distribution (By Quintile) of Cluster-level Average Household-level Wealth
Source: Demographic and Health Surveys (DHS)

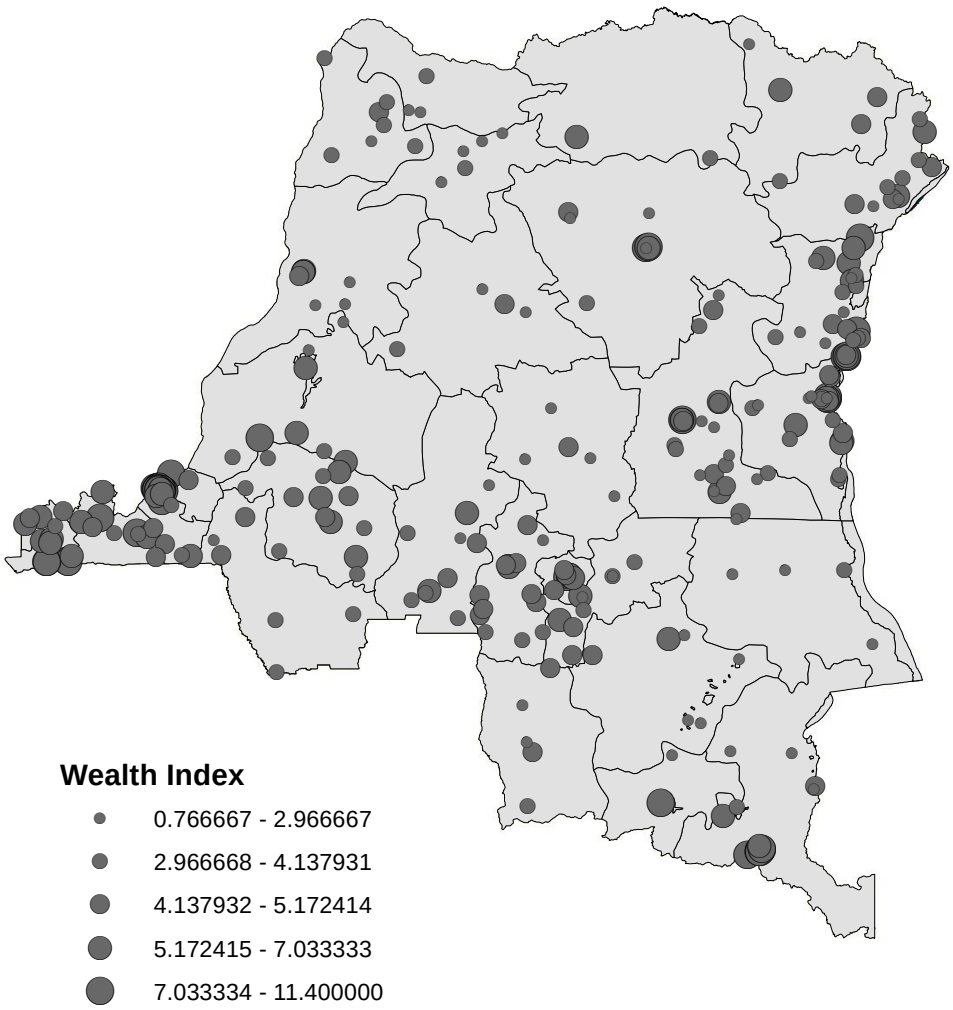


Figure 5: Distribution (By Quintile) of Cluster-level Average Household-level Wealth
Source: Demographic and Health Surveys (DHS)

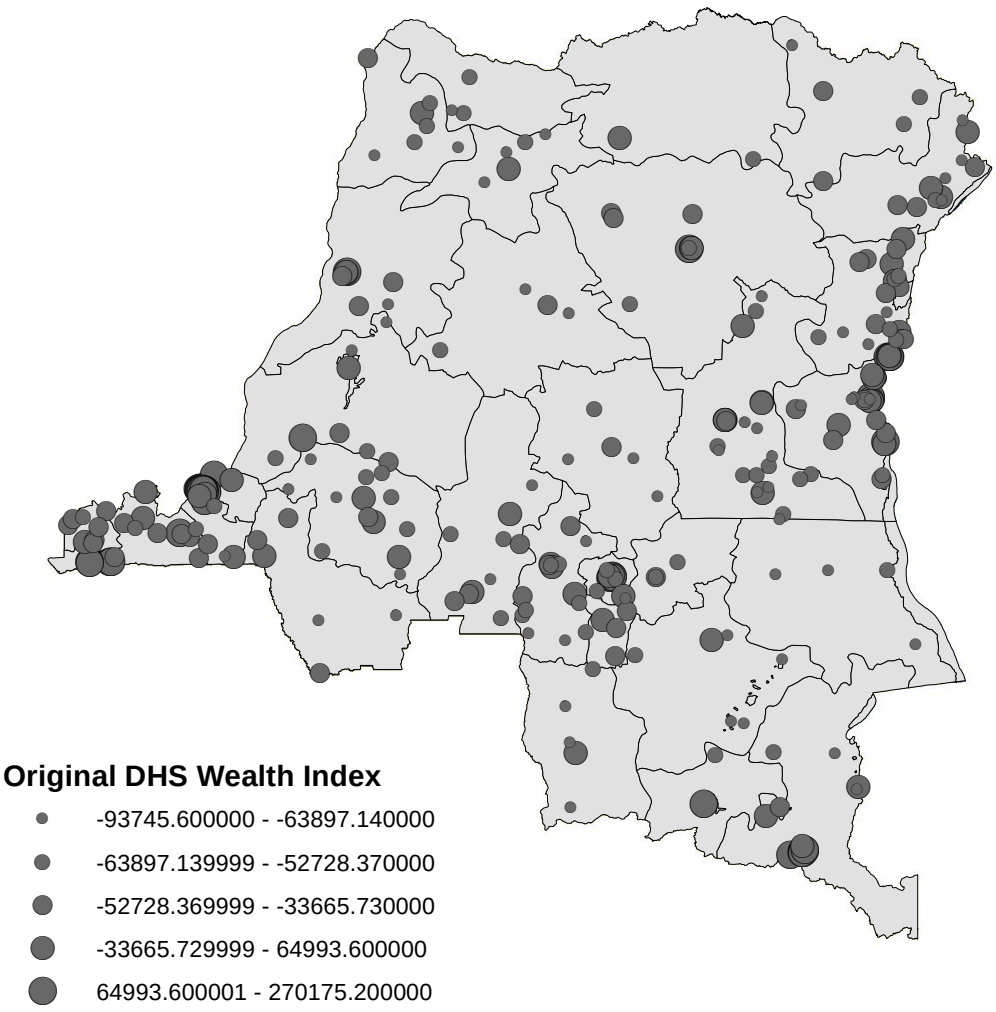
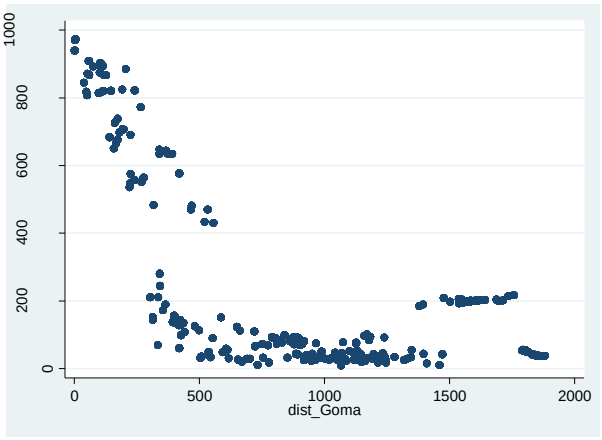
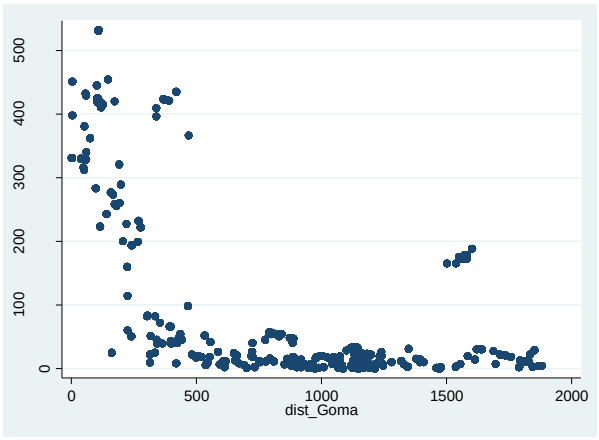


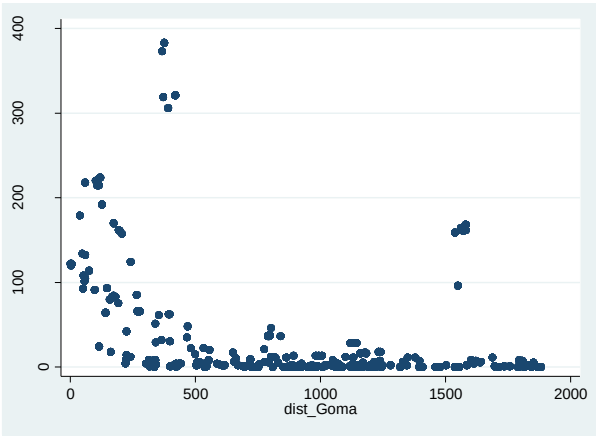
Figure 6: Scatterplots of Conflict Exposure and Distance from Goma
Source: ACLED



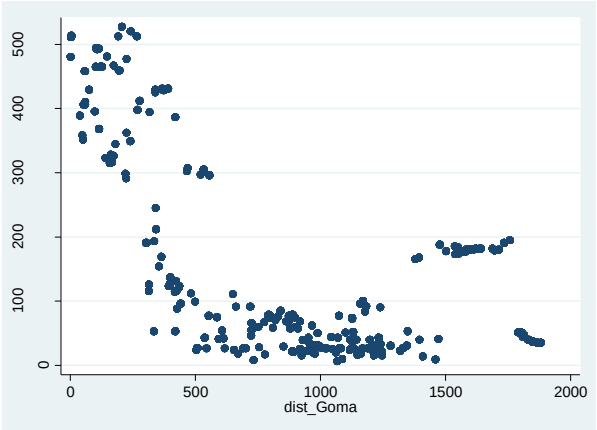
Conflict exposure within 200 km

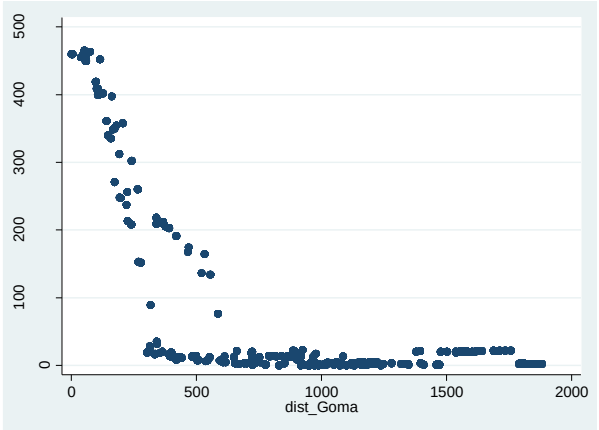


Conflict Exposure within 100 km



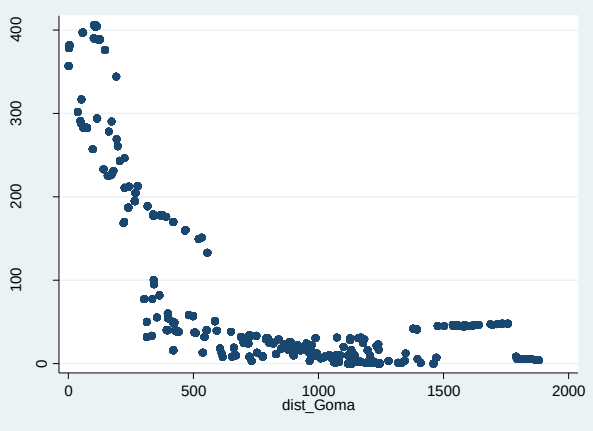
Conflict Exposure within 50 km



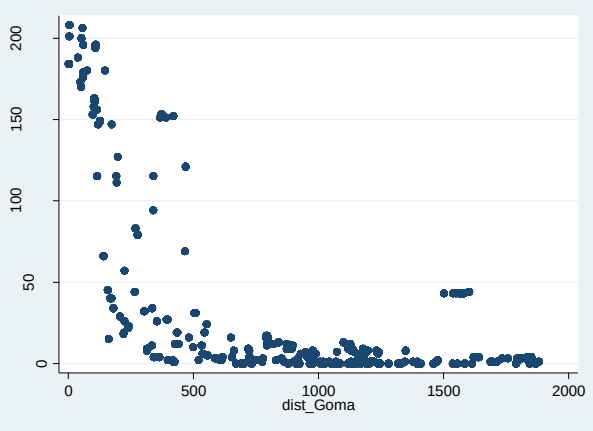


Conflict exposure within 200 km, first and second civil wars and conflicts in the eastern provinces, respectively

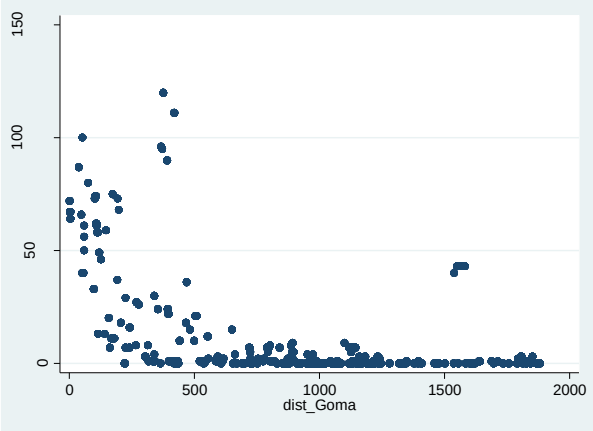
Figure 7: Scatterplots of Conflict Exposure and Distance from Goma
Source: UCDP-GED



Conflict exposure within 200 km



Conflict Exposure within 100 km



Conflict Exposure within 50 km

Table 1: Summary Statistics

	# Obs.	Mean	Std. Dev.	Min	Max
Wealth Index	8435	5.021814	2.93794	0	16
Television	8435	.1481921	.3553113	0	1
Refrigerator	8435	.0456432	.2087224	0	1
Motor Transport	8435	.0284529	.1662726	0	1
Telephone	8435	.0054535	.0736503	0	1
Electricity	8435	.165738	.3718673	0	1
Radio	8435	.4519265	.4977131	0	1
Bicycle	8435	.2162418	.4117055	0	1
Cement Floor	8435	.2061648	.4045742	0	1
Improved Water Source	8435	.4704209	.4991539	0	1
Mobile Phone	8435	.2256076	.4180066	0	1
Grill/Heater	8435	.0994665	.2993051	0	1
Chairs	8435	.7346769	.4415313	0	1
Beds	8435	.7882632	.4085635	0	1
Lamps	8435	.6628334	.4727703	0	1
Stove/Cooker	8435	.0266746	.1611401	0	1
Hoes	8435	.6701838	.4701741	0	1
Improved Toilet	8435	.0758743	.2648126	0	1
Number in Household	8435	5.433432	3.011624	1	28
Capital or Large City	8435	.25738	.4372164	0	1
Small City	8435	.0235922	.1517838	0	1
Town	8435	.1353883	.3421581	0	1
Countryside	8435	.5836396	.492984	0	1
Altitude (ln)	8435	6.420025	.7063543	3.044523	8.188967
Education (in years) of HHH	8435	6.704327	4.766502	0	18
Percent of HH with Under 5	8435	.1881321	.178953	0	.8
Male HHH	8435	.7892116	.4078926	0	1
Age of HHH	8435	42.98791	14.35795	13	95
Conflict Exposure – 200 km	8435	229.5911	279.8332	8	973
Conflict Exposure – 100 km	8435	98.68085	131.8801	0	532
Conflict Exposure – 50 km	8435	51.0735	76.17543	0	383
Distance from Goma	8435	906.0282	529.551	1.32598	1881.164

Table 2: OLS Results

	(1)	(2)	(3)	(4)	(5)	(6)
Conflict	0.00090**	0.00247***	0.00595***	0.00125***	0.00314***	0.00667***
	(0.00035)	(0.00065)	(0.00125)	(0.00032)	(0.00057)	(0.00109)
HH Members	0.14149***	0.14003***	0.13744***	0.11664***	0.11472***	0.11253***
	(0.01157)	(0.01138)	(0.01116)	(0.01051)	(0.01035)	(0.01030)
Capital or Large City	4.11022***	3.97926***	3.71392***	3.27473***	3.10524***	2.84368***
	(0.23477)	(0.23160)	(0.23928)	(0.21225)	(0.20832)	(0.21400)
Small City	3.71381***	3.71121***	3.71308***	3.18176***	3.15017***	3.12971***
	(0.80835)	(0.80886)	(0.80363)	(0.67663)	(0.67479)	(0.66981)
Town	1.93346***	1.96764***	1.93023***	1.49202***	1.52718***	1.47954***
	(0.24578)	(0.24629)	(0.24837)	(0.22966)	(0.23090)	(0.23458)
Altitude (log)	-0.40726***	-0.41235***	-0.35701***	-0.34545***	-0.33346***	-0.24915**
	(0.13895)	(0.13517)	(0.12755)	(0.13017)	(0.12468)	(0.11790)
Fraction of HH Under 5	-1.24682***	-1.21971***	-1.16433***	-1.03280***	-1.00246***	-0.95462***
	(0.17352)	(0.17044)	(0.16963)	(0.16112)	(0.15819)	(0.15926)
Male HHH	0.71364***	0.71933***	0.71751***	0.06828	0.07147	0.07814
	(0.06745)	(0.06747)	(0.06694)	(0.07782)	(0.07769)	(0.07682)
Age of HHH	0.00051	0.00066	0.00029	0.01437***	0.01455***	0.01379***
	(0.00219)	(0.00216)	(0.00216)	(0.00228)	(0.00226)	(0.00228)
Education of HHH				0.18442***	0.18547***	0.18258***
				(0.01089)	(0.01087)	(0.01080)
Distance Radius	200 km	100 km	50 km	200 km	100 km	50 km
Households	8435	8435	8435	8435	8435	8435

Clustered standard errors (clustered at the DHS cluster location) in parentheses. Statistical significance is indicated as follows: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The dependent variable is individual-level wealth. Specifications (1) and (3) use a measure of conflict exposure that counts all conflict events that have taken place within a 200 km radius. Specifications (2) and (4) are for 100 km radii and Specifications (3) and (6) 50 km radii, respectively. A constant term is included in each specification but is not reported.

Table 3: Instrumental Variable Regression Results

	(1)	(2)	(3)	(4)	(5)	(6)
Conflict	-0.00319***	-0.00839***	-0.02699***	-0.00248***	-0.00656***	-0.02124***
	(0.00067)	(0.00186)	(0.00783)	(0.00060)	(0.00167)	(0.00675)
HH Members	0.14444***	0.14931***	0.16344***	0.12334***	0.12761***	0.13916***
	(0.01386)	(0.01493)	(0.02055)	(0.01218)	(0.01293)	(0.01691)
Capital or Large City	4.19459***	4.63727***	6.01144***	3.48676***	3.84819***	4.94547***
	(0.26929)	(0.32213)	(0.73527)	(0.24310)	(0.29192)	(0.63887)
Small City	2.75155***	2.79034***	2.54384***	2.40344***	2.44117***	2.25423***
	(0.75344)	(0.74814)	(0.76848)	(0.64749)	(0.64684)	(0.66168)
Town	1.70802***	1.59880***	1.67325***	1.36131***	1.28319***	1.34814***
	(0.31430)	(0.32918)	(0.45885)	(0.29213)	(0.30217)	(0.39650)
Altitude (log)	0.28353	0.27935	0.20704	0.26548	0.26259	0.20602
	(0.18923)	(0.18198)	(0.19860)	(0.17369)	(0.16888)	(0.17920)
Fraction of HH Under 5	-1.45415***	-1.53989***	-1.87396***	-1.25407***	-1.32541***	-1.59262***
	(0.21421)	(0.23899)	(0.35008)	(0.19818)	(0.21834)	(0.30739)
Male HHH	0.69835***	0.67948***	0.67744***	0.15973*	0.15639*	0.16532
	(0.07554)	(0.07926)	(0.09646)	(0.08284)	(0.08619)	(0.10431)
Age of HHH	-0.00289	-0.00330	-0.00265	0.00906***	0.00849***	0.00876***
	(0.00249)	(0.00269)	(0.00338)	(0.00244)	(0.00260)	(0.00317)
Education of HHH				0.15436***	0.15109***	0.14804***
				(0.01192)	(0.01275)	(0.01622)
Distance Radius	200 km	100 km	50 km	200 km	100 km	50 km
Households	8435	8435	8435	8435	8435	8435
F test of excluded instruments	97.77	72.23	21.89	96.02	71.32	22.08
2nd Stage F statistic	63.59	51.72	27.87	75.94	62.51	37.18
Distance from Goma (1st Stage)	-.3342609***	-.1271951***	-.0395232***	-.3309605***	-.1251811***	-.0386808***
	(.033805)	(.0149666)	(.0084476)	(.0337752)	(.0148227)	(.0082323)

Clustered standard errors (clustered at the DHS cluster location) in parentheses. Statistical significance is indicated as follows: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The dependent variable is individual-level wealth. Specifications (1) and (3) use a measure of conflict exposure that counts all conflict events that have taken place within a 200 km radius. Specifications (2) and (4) are for 100 km radii and Specifications (3) and (6) 50 km radii.. The 1st stage F-test statistic is the F-test of excluded instruments. The 2nd stage F-test statistic is the overall F-test for the 2nd stage. A constant term is included but not reported.

Table 4: Summary Statistics - Robustness Checks

	# Obs.	Mean	Std. Dev.	Min	Max
Airports (200 km)	8435	1.300771	.759256	0	3
Airports (100 km)	8435	.6570243	.7433821	0	2
Airports (50 km)	8435	.4713693	.6978944	0	2
Mining – SF Area (200 km)	8435	.1803309	.234341	0	.9290972
Mining – SF Area (100 km)	8435	.0602926	.1138374	0	.5072917
Mining – SF Area (50 km)	8435	.0163952	.0365602	0	.2383333
Total Road Length (200 km)	8435	2138.083	574.4519	786.4307	3586.059
Total Road Length (100 km)	8435	763.8113	231.5467	0	1535.314
Total Road Length (50 km)	8435	336.9962	156.438	0	734.8842
Original DHS Wealth Index	8435	3.189212	100165.6	-107521	345191
Wealth Index - Liquid	8435	3.138115	1.655543	0	8
Wealth Index - Illiquid	8435	1.883699	1.693944	0	9
DHS Cluster Latitude	8435	-3.689572	3.48932	-11.7621	4.640158
DHS Cluster Longitude	8435	22.56878	5.36442	12.61893	30.96663
Conflict – GED (200 km)	8435	77.65975	110.132	0	406
Conflict – GED (100 km)	8435	33.98814	53.78902	0	208
Conflict – GED (50 km)	8435	16.51879	24.80985	0	120
Conflict – Wars+Civ (200 km)	8435	116.6333	129.0029	5	470
Conflict – Wars+Civ (100 km)	8435	47.59312	63.11589	0	292
Conflict – Wars+Civ (50 km)	8435	23.34215	39.01607	0	253
Conflict – Wars+Civ (200 km)	8435	64.76574	121.7141	0	411
Conflict – Wars+Civ (100 km)	8435	28.28477	60.14331	0	255
Conflict – Wars+Civ (50 km)	8435	12.46663	26.89498	0	124
Distance from Kinshasa	8435	911.8457	572.2951	.5452207	1903.349

Table 5: IV Results – Cluster-level Control Variables

	(1)	(2)	(3)	(4)	(5)	(6)
Conflict	-0.00327***	-0.00748***	-0.02165***	-0.00239***	-0.00575***	-0.01701***
	(0.00083)	(0.00177)	(0.00589)	(0.00076)	(0.00164)	(0.00540)
HH Members	0.14954***	0.13795***	0.13271***	0.12738***	0.11841***	0.11437***
	(0.01339)	(0.01376)	(0.01572)	(0.01168)	(0.01210)	(0.01370)
Capital or Large City	3.55043***	3.17756***	1.52753**	2.88101***	2.63048***	1.23631**
	(0.26294)	(0.37564)	(0.66782)	(0.23455)	(0.33709)	(0.57677)
Small City	2.57419***	2.85622***	2.27233***	2.22814***	2.51433***	2.03346***
	(0.89098)	(0.74745)	(0.77289)	(0.75206)	(0.65823)	(0.69370)
Town	1.67407***	1.68722***	1.81935***	1.31482***	1.36806***	1.48453***
	(0.27645)	(0.31573)	(0.38279)	(0.25413)	(0.29074)	(0.33886)
Altitude (log)	0.29078*	0.31722*	0.45236**	0.27319*	0.29628*	0.41592**
	(0.16984)	(0.18509)	(0.21518)	(0.15418)	(0.17375)	(0.19775)
Fraction of HH Under 5	-1.30852***	-1.30840***	-1.33813***	-1.09784***	-1.12754***	-1.15591***
	(0.19206)	(0.20265)	(0.22213)	(0.17610)	(0.18953)	(0.20337)
Male HHH	0.68827***	0.70330***	0.72377***	0.11860	0.18757**	0.22677***
	(0.07321)	(0.07382)	(0.07654)	(0.07965)	(0.08237)	(0.08751)
Age of HHH	-0.00210	-0.00293	-0.00222	0.01056***	0.00859***	0.00863***
	(0.00224)	(0.00223)	(0.00268)	(0.00223)	(0.00222)	(0.00254)
Airports	0.94749***	1.32818***	3.35875***	0.81884***	1.12350***	2.81113***
	(0.16933)	(0.28280)	(0.69671)	(0.15124)	(0.25798)	(0.63489)
Mining Sites	0.52967	-2.37437***	-5.20907	0.34647	-2.15177***	-4.69903
	(0.66158)	(0.86309)	(3.56405)	(0.60393)	(0.76142)	(3.13621)
Road Length	-0.00111***	0.00002	-0.00002	-0.00102***	0.00001	0.00008
	(0.00027)	(0.00047)	(0.00078)	(0.00025)	(0.00043)	(0.00070)
Education of HHH				0.16325***	0.14781***	0.14158***
				(0.01149)	(0.01200)	(0.01337)
Distance Radius	200 km	100 km	50 km	200 km	100 km	50 km
Households	8435	8435	8435	8435	8435	8435
F test of excluded instruments	94.07	87.51	38.68	93.05	85.39	37.35
2nd Stage F statistic	60.11	55.31	52.63	75.01	68.43	68.60
Distance from Goma (1st Stage)	-.3045628***	-.1318439***	-.045394***	-.30364***	-.1291978***	-.0440591***
	(.0314015)	(.0140939)	(.0072993)	(.0314783)	(.0139811)	(.0072088)

Clustered standard errors (clustered at the DHS cluster location) in parentheses. Statistical significance is indicated as follows: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The dependent variable is individual-level wealth. Specifications (1) and (3) use a measure of conflict exposure that counts all conflict events that have taken place within a 200 km radius. Specifications (2) and (4) are for 100 km radii and Specifications (3) and (6) 50 km radii. The Hansen J over identification statistic reported above is the Chi-square p-value for the over identification statistic. A constant term is included in each specification but is not reported.

Table 6: IV Results – DHS Wealth Index

	(1)	(2)	(3)	(4)	(5)	(6)
Conflict	-88.67***	-189.14***	-464.17***	-62.13***	-137.24**	-324.16**
	(24.34)	(58.08)	(175.59)	(21.66)	(53.60)	(160.24)
HH Members	2647.15***	2279.97***	2063.28***	1981.07***	1695.63***	1509.81***
	(433.78)	(438.00)	(443.56)	(368.45)	(375.01)	(377.47)
Capital or Large City	156401.98***	133491.15***	86417.09***	136273.57***	117125.29***	77625.69***
	(10577.93)	(14847.54)	(22417.62)	(9915.46)	(13835.52)	(19896.51)
Small City	109743.49***	120695.63***	108322.18***	99338.36***	110467.93***	101110.88***
	(35603.25)	(33047.65)	(32539.67)	(31482.17)	(30237.14)	(30094.90)
Town	46398.72***	47347.82***	51860.52***	35596.71***	37800.14***	41752.67***
	(9199.89)	(10246.80)	(11117.09)	(8310.41)	(9277.57)	(9683.31)
Altitude (log)	1775.22	2610.70	5721.73	1246.14	1984.11	4621.56
	(4996.68)	(5619.77)	(6296.50)	(4530.12)	(5269.91)	(5746.98)
Under 5 Fraction	-38882.45***	-36821.65***	-36375.38***	-32547.42***	-31411.32***	-30874.35***
	(5858.00)	(5950.19)	(6315.57)	(5256.61)	(5443.64)	(5685.59)
Male HHH	8809.40***	9274.83***	10104.44***	-8319.77***	-6153.32***	-4899.20**
	(1967.56)	(1906.74)	(1900.10)	(2400.96)	(2364.08)	(2317.35)
Age of HHH	-227.85***	-242.38***	-237.04***	152.82**	102.31	90.74
	(67.93)	(65.68)	(76.86)	(68.04)	(68.16)	(72.90)
Airports	27921.81***	47389.20***	99381.69***	24053.44***	41266.26***	82849.79***
	(5875.50)	(10397.38)	(22202.04)	(5297.99)	(9555.16)	(20079.74)
Mining Sites	24831.38	-61220.26**	-137125.73	19322.68	-54561.31**	-121728.28
	(19193.36)	(30580.44)	(126713.16)	(17097.14)	(27370.09)	(113739.90)
Road Length	-36.83***	-31.96**	-37.17	-34.19***	-32.02**	-34.21
	(8.60)	(15.84)	(23.50)	(7.87)	(14.58)	(21.06)
Education of HHH				4908.59***	4421.85***	4274.16***
				(412.56)	(414.67)	(398.45)
Distance Radius	200 km	100 km	50 km	200 km	100 km	50 km
Households	8435	8435	8435	8435	8435	8435
F test of excluded instruments	94.07	87.51	38.68	93.05	85.39	37.35
2nd Stage F statistic	41.36	46.25	52.73	53.35	57.51	67.87
Distance from Goma	-.3045628***	-.1318439***	-.045394***	-.30364***	-.1291978***	-.0440591***
(1st Stage)	(.0314015)	(.0140939)	(.0072993)	(.0314783)	(.0139811)	(.0072088)

Clustered standard errors (clustered at the DHS cluster location) in parentheses. Statistical significance is indicated as follows: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The dependent variable is the original DHS wealth index. Specifications (1) and (3) use a measure of conflict exposure that counts all conflict events that have taken place within a 200 km radius. Specifications (2) and (4) are for 100 km radii and Specifications (3) and (6) 50 km radii. A constant term is included in each specification but is not reported.

Table 7: IV Results – Latitude and Longitude Coordinates as Instruments

	(1)	(2)	(3)	(4)	(5)	(6)
Conflict	-0.00390***	-0.00767***	-0.02102***	-0.00287***	-0.00552***	-0.01541***
	(0.00099)	(0.00190)	(0.00611)	(0.00089)	(0.00174)	(0.00541)
HH Members	0.15013***	0.13795***	0.13279***	0.12812***	0.11830***	0.11425***
	(0.01377)	(0.01382)	(0.01556)	(0.01193)	(0.01202)	(0.01330)
Capital or Large City	3.49392***	3.16623***	1.56811**	2.84840***	2.64047***	1.32930**
	(0.27871)	(0.38054)	(0.64821)	(0.24685)	(0.33646)	(0.55222)
Small City	2.42295***	2.83974***	2.30503***	2.12102***	2.53149***	2.10829***
	(0.93531)	(0.75511)	(0.77666)	(0.78816)	(0.66514)	(0.68968)
Town	1.63771***	1.68161***	1.82228***	1.29286***	1.37272***	1.48561***
	(0.28643)	(0.31554)	(0.37554)	(0.26172)	(0.28708)	(0.32594)
Altitude (log)	0.35468*	0.32843*	0.43632**	0.32069*	0.28312	0.37644**
	(0.19024)	(0.19189)	(0.21265)	(0.16891)	(0.17557)	(0.19000)
Under 5 Fraction	-1.33012***	-1.31195***	-1.33261***	-1.11670***	-1.12235***	-1.13928***
	(0.19816)	(0.20235)	(0.21663)	(0.18075)	(0.18706)	(0.19578)
Male HHH	0.68228***	0.70305***	0.72368***	0.12199	0.18485**	0.21765***
	(0.07576)	(0.07428)	(0.07599)	(0.08011)	(0.08012)	(0.08170)
Age of HHH	-0.00236	-0.00300	-0.00217	0.01019***	0.00874***	0.00896***
	(0.00229)	(0.00225)	(0.00265)	(0.00225)	(0.00222)	(0.00245)
Airports	1.03673***	1.34788***	3.29071***	0.88662***	1.09939***	2.63665***
	(0.18742)	(0.29438)	(0.69227)	(0.16614)	(0.26517)	(0.61706)
Mining Sites	0.88626	-2.36562***	-5.20809	0.61275	-2.16064***	-4.68752
	(0.74263)	(0.87145)	(3.52354)	(0.66979)	(0.75503)	(3.03376)
Road Length	-0.00126***	0.00001	-0.00003	-0.00113***	0.00002	0.00005
	(0.00030)	(0.00047)	(0.00077)	(0.00027)	(0.00043)	(0.00067)
Education of HHH				0.16101***	0.14868***	0.14412***
				(0.01157)	(0.01156)	(0.01245)
Distance Radius	200 km	100 km	50 km	200 km	100 km	50 km
N	8435	8435	8435	8435	8435	8435
F test of excluded instruments	36.05	33.63	13.14	35.47	32.44	12.61
2nd Stage F statistic	58.43	54.98	55.31	72.10	69.49	72.06
Latitude (1st Stage)	19.89203***	8.384329***	3.374864***	19.8031***	8.197676***	3.282344***
	(3.418461)	(1.650629)	(.8923943)	(3.415786)	(1.642414)	(.8838805)
Longitude (1st Stage)	13.8576***	8.465902***	2.700826***	13.75094***	8.276596***	2.605566***
	(2.986874)	(1.341741)	(.7702219)	(2.998203)	(1.339882)	(.7670316)
Hansen J – P-value	0.7934	0.8725	0.5032	0.9247	0.8597	0.5108

Clustered standard errors (clustered at the DHS cluster location) in parentheses. Statistical significance is indicated as follows: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The dependent variable is the original DHS wealth index. Specifications (1) and (3) use a measure of conflict exposure that counts all conflict events that have taken place within a 200 km radius. Specifications (2) and (4) are for 100 km radii and Specifications (3) and (6) 50 km radii. A constant term is included in each specification but is not reported.

Table 8: IV Results – Latitude and Longitude Coordinates as Instruments/DHS Wealth

	(1)	(2)	(3)	(4)	(5)	(6)
Conflict	-120.18***	-229.72***	-563.81***	-89.51***	-167.46***	-403.09**
	(31.75)	(63.61)	(187.78)	(28.37)	(58.09)	(167.81)
HH Members	2676.69***	2281.07***	2049.80***	2023.53***	1711.57***	1515.86***
	(454.68)	(453.07)	(469.73)	(385.71)	(386.28)	(396.31)
Capital or Large City	153571.94***	131028.33***	79989.87***	134402.87***	115796.99***	73054.93***
	(11323.21)	(15702.58)	(24673.46)	(10555.45)	(14482.37)	(21981.81)
Small City	102169.17***	117115.47***	103144.51***	93193.79***	108185.15***	97432.51***
	(37034.89)	(33177.99)	(33028.28)	(32727.01)	(30441.44)	(30554.80)
Town	44578.05***	46128.67***	51396.25***	34337.01***	37180.12***	41699.21***
	(9669.73)	(10647.00)	(11813.34)	(8739.02)	(9589.86)	(10261.68)
Altitude (log)	4975.00	5045.72	8262.72	3970.84	3733.45	6562.27
	(5853.41)	(6118.86)	(6860.40)	(5221.47)	(5626.34)	(6174.38)
Under 5 Fraction	-39963.94***	-37593.52***	-37249.64***	-33629.50***	-32101.04***	-31691.71***
	(6181.09)	(6132.80)	(6444.07)	(5536.28)	(5567.41)	(5745.06)
Male HHH	8509.73***	9220.22***	10118.26***	-8125.26***	-5791.95**	-4450.55**
	(2086.27)	(1979.55)	(1960.41)	(2438.69)	(2354.75)	(2226.34)
Age of HHH	-241.13***	-257.72***	-245.76***	131.61*	82.45	74.61
	(71.35)	(68.21)	(79.52)	(69.63)	(69.09)	(72.07)
Airports	32391.00***	51670.93***	110156.90***	27940.99***	44472.54***	91426.10***
	(6803.85)	(11291.37)	(24340.56)	(6147.93)	(10341.63)	(22020.86)
Mining Sites	42689.42*	-59319.97*	-137280.54	34596.18*	-53381.56*	-122294.34
	(22873.22)	(32093.81)	(132946.06)	(20441.96)	(28542.66)	(118753.13)
Road Length	-44.21***	-32.84**	-35.08	-40.51***	-32.65**	-32.73
	(9.99)	(16.44)	(24.94)	(9.04)	(15.02)	(22.20)
Education of HHH				4780.10***	4307.13***	4149.31***
				(407.98)	(410.32)	(386.08)
Distance Radius	200 km	100 km	50 km	200 km	100 km	50 km
Households	8435	8435	8435	8435	8435	8435
F test of excluded instruments	36.05	33.63	13.14	35.47	32.44	12.61
2nd Stage F statistic	39.39	44.40	51.24	49.47	54.87	64.53
Latitude (1st Stage)	19.89203***	8.384329***	3.374864***	19.8031***	8.197676***	3.282344***
	(3.418461)	(1.650629)	(.8923943)	(3.415786)	(1.642414)	(.8838805)
Longitude (1st Stage)	13.8576***	8.465902***	2.700826***	13.75094***	8.276596***	2.605566***
	(2.986874)	(1.341741)	(.7702219)	(2.998203)	(1.339882)	(.7670316)
Hansen J – P-value	0.3960	0.1798	0.3440	0.2551	0.1431	0.2571

Clustered standard errors (clustered at the DHS cluster location) in parentheses. Statistical significance is indicated as follows: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The dependent variable is the original DHS wealth index. Specifications (1) and (3) use a measure of conflict exposure that counts all conflict events that have taken place within a 200 km radius. Specifications (2) and (4) are for 100 km radii and Specifications (3) and (6) 50 km radii. A constant term is included in each specification but is not reported.

Table 9: IV Results – Latitude and Longitude Coordinates as Instruments/ "Liquid"

	(1)	(2)	(3)	(4)	(5)	(6)
Conflict	-0.00206***	-0.00399***	-0.01201***	-0.00147***	-0.00272***	-0.00867***
	(0.00057)	(0.00103)	(0.00351)	(0.00053)	(0.00097)	(0.00314)
HH Members	0.10568***	0.10075***	0.10002***	0.09314***	0.08912***	0.08900***
	(0.00803)	(0.00795)	(0.00916)	(0.00728)	(0.00719)	(0.00802)
Capital or Large City	1.22976***	1.29553***	0.60655**	0.86196***	0.98446***	0.46492**
	(0.12548)	(0.15366)	(0.27865)	(0.11197)	(0.13449)	(0.22693)
Small City	0.96937**	1.15399***	0.86689***	0.79737***	0.97162***	0.75021***
	(0.38108)	(0.25498)	(0.30866)	(0.30599)	(0.21183)	(0.26367)
Town	0.91681***	0.93525***	0.99118***	0.72032***	0.75250***	0.79116***
	(0.16728)	(0.17150)	(0.20945)	(0.15289)	(0.15552)	(0.17995)
Altitude (log)	0.26675**	0.24253**	0.29934**	0.24736**	0.21572**	0.26365**
	(0.11498)	(0.10754)	(0.11787)	(0.10457)	(0.09982)	(0.10687)
Under 5 Fraction	-0.68881***	-0.70566***	-0.73426***	-0.56720***	-0.59348***	-0.61935***
	(0.12013)	(0.12228)	(0.12945)	(0.11409)	(0.11672)	(0.12053)
Male HHH	0.58246***	0.59294***	0.59826***	0.26320***	0.28634***	0.29757***
	(0.04943)	(0.04869)	(0.05077)	(0.05171)	(0.05258)	(0.05479)
Age of HHH	-0.00048	-0.00086	-0.00024	0.00667***	0.00608***	0.00638***
	(0.00137)	(0.00134)	(0.00150)	(0.00135)	(0.00133)	(0.00144)
Airports	0.44579***	0.44736***	1.39671***	0.36023***	0.30034**	1.00762***
	(0.10002)	(0.13358)	(0.34561)	(0.09133)	(0.12342)	(0.31063)
Mining Sites	0.36095	-1.24577***	-3.17861**	0.20499	-1.12450***	-2.86928**
	(0.44053)	(0.40071)	(1.56705)	(0.40693)	(0.34725)	(1.31977)
Road Length	-0.00051***	0.00053**	0.00043	-0.00044***	0.00054***	0.00048
	(0.00017)	(0.00022)	(0.00040)	(0.00016)	(0.00020)	(0.00035)
Education of HHH				0.09174***	0.08797***	0.08564***
				(0.00668)	(0.00663)	(0.00755)
Distance Radius	200 km	100 km	50 km	200 km	100 km	50 km
Households	8435	8435	8435	8435	8435	8435
F test of excluded instruments	36.05	33.63	13.14	35.47	32.44	12.61
2nd Stage F statistic	73.05	69.74	61.75	91.95	87.93	78.86
Latitude (1st Stage)	19.89203***	8.384329***	3.374864***	19.8031***	8.197676***	3.282344***
	(3.418461)	(1.650629)	(.8923943)	(3.415786)	(1.642414)	(.8838805)
Longitude (1st Stage)	13.8576***	8.465902***	2.700826***	13.75094***	8.276596***	2.605566***
	(2.986874)	(1.341741)	(.7702219)	(2.998203)	(1.339882)	(.7670316)
Hansen J – P-value	0.5657	0.4726	0.2458	0.6669	0.4232	0.2271

Clustered standard errors (clustered at the DHS cluster location) in parentheses. Statistical significance is indicated as follows: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The dependent variable is the original DHS wealth index. Specifications (1) and (3) use a measure of conflict exposure that counts all conflict events that have taken place within a 200 km radius. Specifications (2) and (4) are for 100 km radii and Specifications (3) and (6) 50 km radii. A constant term is included in each specification but is not reported.

Table 10: IV Results – Latitude and Longitude Coordinates as Instruments/ "Illiquid"

	(1)	(2)	(3)	(4)	(5)	(6)
Conflict	-0.00184***	-0.00368***	-0.00901***	-0.00140***	-0.00281***	-0.00673**
	(0.00055)	(0.00111)	(0.00317)	(0.00051)	(0.00105)	(0.00296)
HH Members	0.04444***	0.03720***	0.03277***	0.03498***	0.02917***	0.02525***
	(0.00794)	(0.00808)	(0.00820)	(0.00696)	(0.00713)	(0.00719)
Capital or Large City	2.26416***	1.87070***	0.96156**	1.98644***	1.65601***	0.86438**
	(0.19562)	(0.27062)	(0.41610)	(0.18359)	(0.25250)	(0.37908)
Small City	1.45358**	1.68575***	1.43813***	1.32364**	1.55988***	1.35808***
	(0.61286)	(0.53751)	(0.53513)	(0.55232)	(0.50017)	(0.50153)
Town	0.72090***	0.74636***	0.83110***	0.57254***	0.62023***	0.69446***
	(0.15058)	(0.17511)	(0.19090)	(0.14237)	(0.16490)	(0.17355)
Altitude (log)	0.08793	0.08590	0.13697	0.07333	0.06740	0.11278
	(0.10166)	(0.10874)	(0.12046)	(0.09358)	(0.10251)	(0.11198)
Under 5 Fraction	-0.64131***	-0.60629***	-0.59835***	-0.54950***	-0.52887***	-0.51993***
	(0.11451)	(0.11400)	(0.11875)	(0.10456)	(0.10547)	(0.10873)
Male HHH	0.09982**	0.11012***	0.12543***	-0.14121***	-0.10149**	-0.07993*
	(0.04000)	(0.03922)	(0.03780)	(0.04814)	(0.04714)	(0.04471)
Age of HHH	-0.00188	-0.00214*	-0.00193	0.00352***	0.00266**	0.00258*
	(0.00132)	(0.00128)	(0.00146)	(0.00134)	(0.00131)	(0.00137)
Airports	0.59094***	0.90052***	1.89400***	0.52639***	0.79905***	1.62904***
	(0.11911)	(0.19972)	(0.41749)	(0.11043)	(0.18852)	(0.39145)
Mining Sites	0.52531	-1.11985**	-2.02948	0.40776	-1.03614**	-1.81824
	(0.40254)	(0.56520)	(2.30184)	(0.37266)	(0.51965)	(2.11763)
Road Length	-0.00074***	-0.00052*	-0.00046	-0.00069***	-0.00052*	-0.00043
	(0.00017)	(0.00030)	(0.00043)	(0.00016)	(0.00028)	(0.00040)
Education of HHH				0.06926***	0.06071***	0.05849***
				(0.00764)	(0.00773)	(0.00734)
Distance Radius	200 km	100 km	50 km	200 km	100 km	50 km
Households	8435	8435	8435	8435	8435	8435
F test of excluded instruments	36.05	33.63	13.14	35.47	32.44	12.61
2nd Stage F statistic	28.52	30.23	33.82	31.69	33.57	38.16
Latitude (1st Stage)	19.89203***	8.384329***	3.374864***	19.8031***	8.197676***	3.282344***
	(3.418461)	(1.650629)	(.8923943)	(3.415786)	(1.642414)	(.8838805)
Longitude (1st Stage)	13.8576***	8.465902***	2.700826***	13.75094***	8.276596***	2.605566***
	(2.986874)	(1.341741)	(.7702219)	(2.998203)	(1.339882)	(.7670316)
Hansen J – P-value	0.9491	0.7227	0.9375	0.8307	0.7044	0.9869

Clustered standard errors (clustered at the DHS cluster location) in parentheses. Statistical significance is indicated as follows: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The dependent variable is the original DHS wealth index. Specifications (1) and (3) use a measure of conflict exposure that counts all conflict events that have taken place within a 200 km radius. Specifications (2) and (4) are for 100 km radii and Specifications (3) and (6) 50 km radii. A constant term is included in each specification but is not reported.

Table 11: IV Results – Latitude and Longitude Coordinates as Instruments/ UCDP-GED

	(1)	(2)	(3)	(4)	(5)	(6)
Conflict	-0.01008***	-0.01779***	-0.05072***	-0.00743***	-0.01283***	-0.03709***
	(0.00238)	(0.00405)	(0.01299)	(0.00219)	(0.00377)	(0.01171)
HH Members	0.15443***	0.13741***	0.13442***	0.13153***	0.11795***	0.11522***
	(0.01354)	(0.01338)	(0.01395)	(0.01179)	(0.01175)	(0.01222)
Capital or Large City	3.50074***	3.12009***	2.10048***	2.86034***	2.60797***	1.71379***
	(0.27792)	(0.36171)	(0.51335)	(0.24664)	(0.32316)	(0.44187)
Small City	2.48055***	2.87878***	2.51070***	2.16692***	2.55976***	2.25476***
	(0.92522)	(0.74914)	(0.75404)	(0.78070)	(0.65901)	(0.66845)
Town	1.60787***	1.75295***	1.86188***	1.27455***	1.42468***	1.51050***
	(0.27498)	(0.30481)	(0.33740)	(0.25249)	(0.27823)	(0.29803)
Altitude (log)	0.31534*	0.34298*	0.44701**	0.29195*	0.29411*	0.38436**
	(0.17888)	(0.19136)	(0.21193)	(0.16026)	(0.17466)	(0.18841)
Under 5 Fraction	-1.33359***	-1.28400***	-1.35066***	-1.12148***	-1.10275***	-1.15050***
	(0.19369)	(0.19060)	(0.20598)	(0.17734)	(0.17825)	(0.18856)
Male HHH	0.67451***	0.70718***	0.72255***	0.12219	0.18898**	0.21092***
	(0.07515)	(0.07079)	(0.07070)	(0.07916)	(0.07861)	(0.07897)
Age of HHH	-0.00304	-0.00319	-0.00330	0.00956***	0.00858***	0.00826***
	(0.00227)	(0.00218)	(0.00247)	(0.00224)	(0.00218)	(0.00235)
Airports	0.96286***	1.29091***	2.52004***	0.83359***	1.05955***	2.06885***
	(0.16796)	(0.26370)	(0.45371)	(0.15064)	(0.24058)	(0.40802)
Mining Sites	1.33839*	-2.12201**	-4.44490	0.94847	-1.98507***	-4.12338
	(0.78980)	(0.82385)	(3.38357)	(0.72437)	(0.72174)	(2.93097)
Road Length	-0.00121***	-0.00002	-0.00008	-0.00110***	-0.00000	0.00001
	(0.00028)	(0.00045)	(0.00067)	(0.00026)	(0.00041)	(0.00060)
Education of HHH				0.15930***	0.14834***	0.14580***
				(0.01151)	(0.01143)	(0.01180)
Distance Radius	200 km	100 km	50 km	200 km	100 km	50 km
Households	8435	8435	8435	8435	8435	8435
F test of excluded instruments	48.12	38.04	19.32	46.87	36.23	18.48
2nd Stage F statistic	62.00	64.98	63.79	74.69	79.38	80.44
Latitude (1st Stage)	7.639498***	3.211406***	1.329128***	7.582759***	3.127866***	1.296465***
	(1.190066)	(.61554)	(.3070134)	(1.187402)	(.6118135)	(.3038904)
Longitude (1st Stage)	5.435418***	3.950253***	1.197047***	5.367359***	3.865526***	1.163416***
	(1.070676)	(.6271242)	(.2820365)	(1.076918)	(.6299652)	(.2831917)
Hansen J – P-value	0.8078	0.9172	0.5953	0.9388	0.9726	0.5885

Clustered standard errors (clustered at the DHS cluster location) in parentheses. Statistical significance is indicated as follows: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The dependent variable is the original DHS wealth index. Specifications (1) and (3) use a measure of conflict exposure that counts all conflict events that have taken place within a 200 km radius. Specifications (2) and (4) are for 100 km radii and Specifications (3) and (6) 50 km radii. A constant term is included in each specification but is not reported.

Table 12: IV Results – Latitude and Longitude Coordinates as Instruments/ Wars+Civ

	(1)	(2)	(3)	(4)	(5)	(6)
Conflict	-0.00710***	-0.01446***	-0.03477***	-0.00521***	-0.01033***	-0.02544***
	(0.00178)	(0.00374)	(0.01070)	(0.00160)	(0.00334)	(0.00916)
HH Members	0.15133***	0.14062***	0.13318***	0.12896***	0.11981***	0.11421***
	(0.01328)	(0.01360)	(0.01557)	(0.01159)	(0.01184)	(0.01327)
Capital or Large City	3.53009***	3.22241***	1.74006***	2.87403***	2.67022***	1.44644***
	(0.25805)	(0.35036)	(0.54907)	(0.23298)	(0.31557)	(0.47498)
Small City	2.54568***	2.90657***	2.49391***	2.21125***	2.57310***	2.23944***
	(0.88311)	(0.75899)	(0.74387)	(0.75064)	(0.66625)	(0.66281)
Town	1.73327***	1.74408***	1.97916***	1.36251***	1.41125***	1.59431***
	(0.28138)	(0.31681)	(0.37884)	(0.25892)	(0.28628)	(0.32617)
Altitude (log)	0.28072*	0.23177	0.37543**	0.26606*	0.21322	0.33268*
	(0.16761)	(0.17152)	(0.18597)	(0.15222)	(0.15935)	(0.17002)
Under 5 Fraction	-1.33821***	-1.34056***	-1.34184***	-1.12214***	-1.13908***	-1.14335***
	(0.19260)	(0.20580)	(0.21740)	(0.17706)	(0.18900)	(0.19539)
Male HHH	0.70728***	0.71449***	0.74595***	0.13933*	0.18283**	0.22529***
	(0.07279)	(0.07311)	(0.07336)	(0.07900)	(0.07997)	(0.08133)
Age of HHH	-0.00252	-0.00293	-0.00172	0.01010***	0.00902***	0.00947***
	(0.00222)	(0.00221)	(0.00248)	(0.00220)	(0.00217)	(0.00231)
Airports	0.84216***	1.05906***	2.62914***	0.74317***	0.88824***	2.14908***
	(0.14967)	(0.23985)	(0.49759)	(0.13375)	(0.21507)	(0.44244)
Mining Sites	0.56338	-2.25896***	-7.33489**	0.37362	-2.08037***	-6.23493**
	(0.67235)	(0.84503)	(3.36067)	(0.60718)	(0.73761)	(2.92284)
Road Length	-0.00104***	0.00024	0.00020	-0.00097***	0.00018	0.00022
	(0.00025)	(0.00046)	(0.00072)	(0.00023)	(0.00042)	(0.00064)
Education of HHH				0.16130***	0.15160***	0.14659***
				(0.01130)	(0.01126)	(0.01185)
Distance Radius	200 km	100 km	50 km	200 km	100 km	50 km
N	8435	8435	8435	8435	8435	8435
F test of excluded instruments	40.76	26.60	9.68	40.42	25.96	9.52
2nd Stage F statistic	61.77	54.02	58.40	76.17	71.02	76.43
Latitude (1st Stage)	10.63107***	4.393028***	1.775085***	10.58889***	4.327561***	1.731687***
	(1.606671)	(.8610038)	(.5165944)	(1.604061)	(.8586346)	(.5102089)
Longitude (1st Stage)	7.939947***	4.535423***	1.900361***	7.889344***	4.469026***	1.855678***
	(1.42195)	(.7412775)	(.5030431)	(1.424381)	(.7400614)	(.4980616)
Hansen J – P-value	0.8541	0.8960	0.7726	0.9809	0.8784	0.7335

Clustered standard errors (clustered at the DHS cluster location) in parentheses. Statistical significance is indicated as follows: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The dependent variable is the original DHS wealth index. Specifications (1) and (3) use a measure of conflict exposure that counts all conflict events that have taken place within a 200 km radius. Specifications (2) and (4) are for 100 km radii and Specifications (3) and (6) 50 km radii. A constant term is included in each specification but is not reported.

Table 13: IV Results – Latitude and Longitude Coordinates as Instruments/ Eastern + Civ

	(1)	(2)	(3)	(4)	(5)	(6)
Conflict	-0.00923***	-0.01596***	-0.04140***	-0.00680***	-0.01158***	-0.03066***
	(0.00225)	(0.00376)	(0.01035)	(0.00206)	(0.00349)	(0.00962)
HH Members	0.14872***	0.13420***	0.13043***	0.12728***	0.11593***	0.11294***
	(0.01357)	(0.01352)	(0.01370)	(0.01183)	(0.01185)	(0.01207)
Capital or Large City	3.39292***	3.02719***	1.94398***	2.78011***	2.54875***	1.61145***
	(0.28253)	(0.37785)	(0.54227)	(0.24944)	(0.33353)	(0.46500)
Small City	2.50167***	2.91726***	2.58561***	2.18265***	2.59283***	2.31924***
	(0.93382)	(0.75597)	(0.73319)	(0.78600)	(0.66379)	(0.65350)
Town	1.59311***	1.70630***	1.72399***	1.26330***	1.39605***	1.42073***
	(0.28350)	(0.30020)	(0.32617)	(0.25849)	(0.27674)	(0.29302)
Altitude (log)	0.48244**	0.43175**	0.50858**	0.41459**	0.35924*	0.43220**
	(0.20958)	(0.21483)	(0.22282)	(0.18431)	(0.19273)	(0.19918)
Under 5 Fraction	-1.27322***	-1.22073***	-1.21882***	-1.07655***	-1.05969***	-1.05989***
	(0.19403)	(0.19016)	(0.19523)	(0.17757)	(0.17743)	(0.17908)
Male HHH	0.65937***	0.69195***	0.69955***	0.11008	0.18615**	0.21189***
	(0.07657)	(0.07333)	(0.07379)	(0.08007)	(0.08009)	(0.07990)
Age of HHH	-0.00212	-0.00284	-0.00293	0.01026***	0.00864***	0.00813***
	(0.00227)	(0.00220)	(0.00246)	(0.00224)	(0.00218)	(0.00236)
Airports	0.97692***	1.16485***	1.97697***	0.84329***	0.97164***	1.68250***
	(0.17225)	(0.24872)	(0.36933)	(0.15421)	(0.22666)	(0.33327)
Mining Sites	0.86508	-2.38890***	-1.87166	0.59712	-2.18098***	-2.22846
	(0.71509)	(0.78658)	(3.04487)	(0.64962)	(0.69852)	(2.70267)
Road Length	-0.00129***	-0.00005	0.00042	-0.00116***	-0.00002	0.00038
	(0.00030)	(0.00046)	(0.00072)	(0.00027)	(0.00041)	(0.00065)
Education of HHH				0.15959***	0.14599***	0.14067***
				(0.01168)	(0.01191)	(0.01259)
Distance Radius	200 km	100 km	50 km	200 km	100 km	50 km
Households	8435	8435	8435	8435	8435	8435
F test of excluded instruments	39.23	33.21	24.07	37.96	31.05	22.40
2nd Stage F statistic	60.90	63.69	67.22	74.67	77.89	83.57
Latitude (1st Stage)	8.087064***	3.662926***	1.620142***	8.030116***	3.545897***	1.561324***
	(1.359117)	(.6692769)	(1.620142)	(1.361984)	(.6661464)	(.3023823)
Longitude (1st Stage)	6.201769***	4.348495***	1.475403***	6.13346***	4.229803***	1.414843***
	(1.322377)	(.8226885)	(.3216525)	(1.328749)	(.8279428)	(.321932)
Hansen J – P-value	0.8849	0.9555	0.6011	0.9983	0.9981	0.5953

Clustered standard errors (clustered at the DHS cluster location) in parentheses. Statistical significance is indicated as follows: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. The dependent variable is the original DHS wealth index. Specifications (1) and (3) use a measure of conflict exposure that counts all conflict events that have taken place within a 200 km radius. Specifications (2) and (4) are for 100 km radii and Specifications (3) and (6) 50 km radii. A constant term is included in each specification but is not reported.

Table 14: IV Results – Latitude and Longitude Coordinates as Instruments/ Kinshasa

	(1)	(2)	(3)	(4)	(5)	(6)
Conflict	-0.00169	-0.00699**	-0.01661**	-0.00153	-0.00627*	-0.01517**
	(0.00113)	(0.00344)	(0.00700)	(0.00105)	(0.00329)	(0.00677)
HH Members	0.14959***	0.13830***	0.13402***	0.12762***	0.11816***	0.11454***
	(0.01234)	(0.01353)	(0.01433)	(0.01113)	(0.01222)	(0.01314)
Capital or Large City	3.53579***	3.18270***	1.81012***	2.87200***	2.62264***	1.33739**
	(0.23686)	(0.39174)	(0.68356)	(0.22252)	(0.36319)	(0.62768)
Small City	2.79853***	2.87532***	2.46658***	2.34853***	2.49141***	2.10665***
	(0.82051)	(0.76722)	(0.77830)	(0.71527)	(0.68607)	(0.71955)
Town	1.77170***	1.70255***	1.84462***	1.37124***	1.35294***	1.48906***
	(0.25023)	(0.30616)	(0.33828)	(0.23884)	(0.29237)	(0.32200)
Altitude (log)	0.31532**	0.32590*	0.42706**	0.29333**	0.29327	0.39523**
	(0.15355)	(0.18608)	(0.19431)	(0.14640)	(0.17998)	(0.18653)
Under 5 Fraction	-1.28652***	-1.30629***	-1.31308***	-1.08830***	-1.13136***	-1.14265***
	(0.18155)	(0.20107)	(0.20731)	(0.17135)	(0.19413)	(0.19922)
Male HHH	0.70402***	0.70528***	0.72704***	0.13118*	0.18706**	0.22124***
	(0.06936)	(0.07373)	(0.07292)	(0.07788)	(0.08206)	(0.08505)
Age of HHH	-0.00241	-0.00297	-0.00238	0.01027***	0.00857***	0.00878***
	(0.00208)	(0.00222)	(0.00250)	(0.00215)	(0.00231)	(0.00247)
Airports	0.66129***	1.26808***	2.78277***	0.65996***	1.18563***	2.60355***
	(0.21201)	(0.46956)	(0.86098)	(0.19960)	(0.44339)	(0.82066)
Mining Sites	0.17386	-2.30636***	-4.88065	0.17084	-2.20917***	-4.61123
	(0.65056)	(0.86343)	(3.32560)	(0.61863)	(0.79136)	(3.08131)
Road Length	-0.00086***	-0.00001	-0.00004	-0.00089***	0.00003	0.00006
	(0.00028)	(0.00046)	(0.00071)	(0.00026)	(0.00043)	(0.00067)
Distance from Kinshasa	-0.00055*	-0.00009	-0.00024	-0.00032	0.00008	-0.00006
	(0.00028)	(0.00039)	(0.00029)	(0.00025)	(0.00035)	(0.00027)
Education of HHH				0.16214***	0.14743***	0.14337***
				(0.01119)	(0.01273)	(0.01356)
Distance Radius	200 km	100 km	50 km	200 km	100 km	50 km
N	8435	8435	8435	8435	8435	8435
F test of excluded instruments	41.47	21.05	17.10	41.65	21.25	17.42
2nd Stage F statistic	64.15	52.59	55.55	76.07	61.93	68.05
Latitude (1st Stage)	23.34538***	9.262956***	3.912556***	23.20865***	9.114295***	3.836067***
	(2.90833)	(1.528895)	(.7573367)	(2.905465)	(1.512115)	(.7451316)
Longitude (1st Stage)	56.5922***	15.65976***	7.155374***	56.90603***	15.95835***	7.292282***
	(9.652096)	(4.835392)	(2.667474)	(9.613572)	(4.778126)	(2.640511)
Hansen J – P-value	0.1165	0.9876	0.8239	0.2533	0.6129	0.5029

Notes: See above table.