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THE URBANIZATION OF CONFLICT? PATTERNS OF ARMED CONFLICT AND PROTEST IN AFRICA

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Abstract

Is the geography of armed conflict in Africa becoming more urban? To answer this question, I link georeferenced data on the timing and location of armed conflict and protest events to continent-wide geospatial data on human settlement patterns. Comparing rates of conflict and contention in rural versus urban areas over time, I argue that, contrary to conventional wisdom, claims surrounding the 'urbanization of conflict' in Africa are premature. I find that the urbanization of conflict hypothesis only holds in North Africa, where armed conflict and protest are both increasingly urban phenomenon. In contrast, while the frequency of urban protest in sub-Saharan Africa has also increased substantially, conventional armed conflicts in rural areas have also risen over the same period. My study provides a quantitative summary of key patterns and trends in protest and conflict in Africa contributing to ongoing debates surrounding the frequency and character of violent and non-violent political contests on the continent.

THE 'URBANIZATION OF CONFLICT' HYPOTHESIS IMPLIES a fundamental transformation in the nature, manifestations, and geography of social conflict in Africa. In short, it suggests that there has been a shift from conventional forms of armed conflict fought predominantly in rural areas between state-based and organized rebel groups towards new modes of contentious action in urban areas, including riots, protests, and 'civic

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conflict'.[1] However, this claim has not been subjected to systematic quantitative analysis. Despite a few notable exceptions, existing studies have largely ignored the rural–urban geography of conflict, in part due to a lack of the requisite geospatial data.[2]

This study aims to fill this gap by quantifying the patterns and trends in armed conflict and contentious action events across Africa. Building on earlier exploratory work,[3] I analyse the location of riot, protest, and armed conflict events over the last two decades in combination with fine-grained data on human settlements. I classify events into urban, peri-urban, and rural locations and analyse trends in contentious events across the human settlement spectrum in Africa.

To classify events, I use georeferenced data from the Uppsala Conflict Data Programme Georeferenced Event Dataset (UCDP-GED)[4] and Armed Conflict Location and Event Dataset (ACLED).[5] These sources are combined with data on human settlement patterns derived from WorldPop, allowing me to distinguish between events located in urban centres, urban clusters (i.e. peri-urban areas and towns), and rural areas. I analyse trends in the frequency of conflict and protest events across distinct settlement classifications over time using descriptive statistics and regression analysis.

The descriptive findings indicate an increase in all forms of contentious action across the continent. However, despite rapid urbanization and urban growth, I do not find consistent support for the urbanization of conflict. Overall, the frequency of protests has risen sharply over the last decade. These events are predominantly urban. While armed conflict does appear to have urbanized in North Africa, it remains a predominantly rural affair south of the Sahara. My regression analysis provides further qualification to the urbanization of conflict hypothesis. Controlling for other factors, most forms of armed conflict have become more common in urban areas over time. However, this has not been matched by a concomitant decline

1. Jo Beall, Tom Goodfellow and Dennis Rodgers, 'Cities and conflict in fragile states in the developing world', *Urban Studies* 50, 15 (2013), pp. 3065–3083; Clionadh Raleigh 'Urban violence patterns across African states', *International Studies Review* 17, 1 (2015), pp. 90–106; Mary Kaldor and Saskia Sassen (eds), *Cities at war: Global insecurity and urban resistance* (Columbia University Press, New York, 2020).
2. Steven Radil, Olivier Walther, Nick Dorward and Matthew Pflaum, 'Urban-rural geographies of political violence in North and West Africa', *African Security* 16, 2–3 (2023), pp. 199–222; Nick Dorward and Sean Fox, 'Geographies of armed conflict and protest in Africa, 1997–2019', in Sam Kniknie and Karen Büscher (eds), *Rebellious riots: Entangled geographies of contention in Africa* (Brill, Leiden, 2023), pp. 23–54; Emma Elfversson and Kristine Höglund, 'Are armed conflicts becoming more urban?', *Cities* 119 (2021), p. 103356.
3. Dorward and Fox, '*Geographies of armed conflict and protest*'.
4. Ralph Sundberg and Erik Melander, 'Introducing the UCDP georeferenced event dataset', *Journal of Peace Research* 50, 4 (2013), pp. 523–532.
5. Clionadh Raleigh, Andrew Linke, Håvard Hegre and Joakim Karlsen, 'Introducing ACLED: An armed conflict location and event dataset', *Journal of Peace Research* 47, 5 (2010), pp. 651–660.

in the frequency of conflict events in rural areas. Furthermore, while the regression results do suggest an increase in the frequency of armed conflict and protest events in the most recent years, these are constant across different settlement geographies. Rather than an urbanization of conflict *per se*, my results suggest that it is becoming generally more diffuse and less geographically concentrated in certain subnational regions.

The urbanization of conflict?

The urbanization of conflict hypothesis is based on the premise that there has been a shift in the nature, geography, and manifestations of conflict in Africa and the developing world more generally.[6] For example, Jo Beall, Tom Goodfellow, and Dennis Rodgers have argued that traditional, rural-based civil wars, largely fought between the state and organized rebel groups, have given way to new modes of contentious action such as riots, protests, and 'civic' conflict taking place in predominantly urban areas.[7] On the African continent, Clionadh Raleigh similarly argues that both the frequency and share of conflict are increasing in urban areas while falling in the countryside.[8] Finally, Frederick Golooba-Mutebi and Anders Sjögren suggest that rural rebellions in Uganda have declined, giving way to the rise of urban riots, once rare in the country.[9]

Although the origins and leadership of rebellions are often found in cities, armed conflicts in Africa are typically framed as a rural phenomenon.[10] Classically, African states are understood to have a limited capacity to project power and political authority over distant rural hinterlands.[11] As such, they are characterized by a relative inability to provide infrastructure and public goods or engage in effective counter insurgency in these areas. This gives rebels a comparative advantage when operating in rural areas far from the urban-centred coercive power of the state.

6. Beall, Goodfellow, and Rogers, '*Cities and conflict*'.
7. Scott Straus, 'Wars do end! Changing patterns of political violence in sub-Saharan Africa', *African Affairs* 111, 443 (2012), pp. 179–201; Beall, Goodfellow, and Rogers, '*Cities and conflict*'; Raleigh, '*Urban violence patterns*'; Frederick Golooba-Mutebi and Anders Sjögren, 'From rural rebellions to urban riots: Political competition and changing patterns of violent political revolt in Uganda', *Commonwealth and Comparative Politics* 55, 1 (2017), pp. 22–40; Kaldor and Sassen, '*Cities at war*'.
8. Raleigh, '*Urban violence patterns*'.
9. Golooba-Mutebi and Sjögren, *From rural rebellions to urban*'.
10. Thandika Mkandawire, 'The terrible toll of post-colonial "rebel movements" in Africa: Towards an explanation of the violence against the peasantry', *The Journal of Modern African Studies* 40, 2 (2002), pp. 181–215; James Fearon and David Laitin, 'Ethnicity, insurgency, and civil war', *American Political Science Review* 97, 1 (2003), pp. 75–90; Golooba-Mutebi and Sjögren, '*From rural rebellions to urban riots*'.
11. Jeffrey Herbst, *States and power in Africa: Comparative lessons in authority and control* (Princeton University Press, Princeton, NJ, 2000); Halvard Buhaug, 'Dude, where's my conflict? LSG, relative strength, and the location of civil war', *Conflict Management and Peace Science* 27, 2 (2010), pp. 107–128.

There is some empirical support for this broad characterization. Civil wars, particularly secessionist conflicts, are more likely to occur far from a nation's capital and are typically longer in duration.[12] However, several studies also find that armed conflicts cluster around strategically important areas that are distinctly urban in character, including places with high population densities, good infrastructure, and where politically excluded but socially relevant groups live.[13] This suggests that the geography of armed conflict may shift between rural and urban locations as the strategic interests and balance of power between state and non-state actors changes over time and space.

Several authors have noted a decline in the frequency and severity of rural-based armed conflicts in Africa between the 1990s and mid-late 2000s.[14] A range of domestic and geopolitical factors have been advanced to explain this trend. Some authors cite the emergence of competitive multiparty elections, which provide previously excluded groups with non-violent channels through which to pursue collective goals and pressure governments.[15] Others note that local elites and former rebel leaders now enjoy greater participation in national political life through various peace agreements and power-sharing mechanisms.[16] There has been a marked decline in international support for rebel groups since the end of the Cold War and an increase in emphasis on the external mediation of armed conflicts through UN peacekeeping and intervention by African institutions, including the African Union and ECOWAS.[17] Collectively, these factors may have reduced grievances and improved the counter-insurgency capabilities of African regimes.[18]

Nevertheless, some African regimes have adopted policies that mitigate the risk of rural armed conflict and rebellion but create conditions

12. Halvard Buhaug and Päivi Lujala, 'Accounting for scale: Measuring geography in quantitative studies of civil war', *Political Geography* 24, 4 (2005), pp. 399–418; Halvard Buhaug and Jan Ketil Rød, 'Local determinants of African civil wars, 1970–2001', *Political Geography* 25, 3 (2006), pp. 315–335; Halvard Buhaug, Scott Gates and Päivi Lujala, 'Geography, rebel capability, and the duration of civil conflict', *Journal of Conflict Resolution* 53, 4 (2009), pp. 544–69.
13. Buhaug and Rød, 'Local determinants'; Clionadh Raleigh and Håvard Hegre, 'Population size, concentration, and civil war. A geographically disaggregated analysis', *Political Geography* 28, 4 (2009), pp. 224–238.
14. Straus, '*Wars do end!*'; Raleigh, '*Urban violence patterns*'.
15. Raleigh, '*Urban violence patterns*'; Nic Cheeseman, *Democracy in Africa: Successes, failures, and the struggle for political reform* (Cambridge University Press, Cambridge, 2015); Golooba-Mutebi and Sjögren, '*From rural rebellions to urban riots*'.
16. Clionadh Raleigh and Daniel Wigmore-Shepherd, 'Elite coalitions and power balance across African regimes: Introducing the African cabinet and political elite data project (ACPED)', *Ethnopolitics* 21, 1 (2022), pp. 22–47.
17. Straus, '*Wars do end!*', 196–197.
18. For example, the case of Uganda cited in Golooba-Mutebi and Sjögren, '*From rural rebellions to urban riots*'.

favourable to the formulation of urban grievances. The process of partial democratization—with elections that are not entirely free or fair—has reduced rural grievances but disenfranchised urban residents, contributing to widespread urban poverty and political exclusion.[19] This has been compounded by a widespread failure to provide security, welfare, and employment in urban areas.[20]

Furthermore, the nature of cities prevents collective action on a scale characteristic of rural armed conflicts (e.g. mobilization of large ethno-regional groups in ethnically homogenous areas against the state) but is conducive to the manifestation of grievances through other forms of collective action, including demonstrations, protests, and riots.[21] As a result, states face fewer large-scale security challenges in rural areas but more diffuse challenges in urban areas.

Against this backdrop, and in a context of rapid urbanization, conflicts are believed to increasingly manifest in cities as social violence, protests, and riots.[22] The process of urbanization itself, often seen as inherently conflictual, is connected to these trends.[23] However, urbanization and conflict share a complex and intimate relationship. Cities are seen not only as the passive locations of violence and armed conflict, but also as places that are active in its production and transformation, as well as being fundamentally transformed by it.[24]

The greater social proximity associated with more urbanized societies implies that actors will face lower space-time constraints on collective action, which may, in turn, lower the coordination costs associated with organizing a protest. Urbanization may also exacerbate existing challenges associated with providing basic public goods and services in urban areas, and bring antagonistic social groups, such as the rich and poor, into closer proximity, emphasizing relative inequalities and fuelling grievances.[25]

19. Clionadh Raleigh, 'Political hierarchies and landscapes of conflict across Africa' *Political Geography* 42 (2014), pp. 92–103; Raleigh, '*Urban violence patterns*', 96.
20. Beall, Goodfellow and Rogers, '*Cities and conflict*', 3069.
21. Kaldor and Sassen, '*Cities at war*'.
22. Straus, '*Wars do end!*'; Beall, Goodfellow and Rogers, '*Cities and conflict*'; Raleigh, '*Urban violence patterns*'; Golooba-Mutebi and Sjögren, '*From rural rebellions to urban riots*'.
23. Kristian Hoelscher, Nick Dorward, Sean Fox, Taibat Lawanson, Jeffrey Paller and Melanie Phillips, 'Urbanization and political change in Africa', *African Affairs* 122, 488 (2023), pp. 353–376.
24. Karen Büscher, 'African cities and violent conflict: The urban dimension of conflict and post conflict dynamics in Central and Eastern Africa', *Journal of Eastern African Studies* 12, 2 (2018), pp. 193–210; Kaldor and Sassen, '*Cities at war*'.
25. Halvard Buhaug and Henrik Urdal, 'An urbanization bomb? Population growth and social disorder in cities', *Global Environmental Change* 23, 1 (2013), pp. 1–10; Theodora-Ismene Gizelis, Steve Pickering and Henrik Urdal, 'Conflict on the urban fringe: Urbanization, environmental stress, and urban unrest in Africa', *Political Geography* 86 (2021), p. 102357; Nick Dorward and Sean Fox, 'Population pressure, political institutions, and protests: A multilevel analysis of protest events in African cities', *Political Geography* 99 (2022), p. 102762; Emma Elfversson, Kristine Höglund, Angela Muvumba Sellström and

Large urban populations, particularly those comprising disaffected youths, may represent favourable recruitment pools for social movements and protest actions.[26] Higher levels of urbanization may also increase the strategic significance of urban areas to armed groups, thereby increasing the probability that they will be the targets of violence.[27] In short, rapid urban population growth is thought to create social strain and increased competition for resources.[28]

Yet empirical studies have failed to find convincing evidence linking either levels of urbanization or rates of urban population growth to increased contentious action. In part, this may be due to a lack of data. Only recently have relatively high-resolution human settlement data become available and integrated with conflict data. Indeed, a recent study disaggregating protest events into urban and peri-urban areas provides tentative evidence for a link between urban population growth and protest, specifically in peri-urban areas.[29] This is consistent with broader literature characterizing peri-urban areas in Africa as facing the most acute challenges regarding environmental degradation, demographic pressure, and service provision.[30]

While the evidence on the causes of urban conflict and civil unrest remains unclear, others have questioned the very premise that urban conflict has increased. For example, a recent analysis of global trends in armed conflict between 1989 and 2017 found an overall reduction in the share of fatalities from armed conflict in cities.[31] Furthermore, a recent analysis of the geography of armed conflict in Africa shows that, while urban conflicts and protests have become more common in urban areas in North Africa, this has not been the case in sub-Saharan Africa.[32] The authors show that, while frequency of urban riots and protests has risen between 1997 and 2019, rural conflict involving state and non-state actors has also risen over the same interval. However, the study does not control for

Camille Pellerin, 'Contesting the growing city? Forms of urban growth and consequences for communal violence', *Political Geography* 100 (2023), p. 102810.

26. Henrik Urdal, 'A clash of generations? Youth bulges and political violence', *International Studies Quarterly* 50, 3 (2006), pp. 607–629; Henrik Urdal and Kristian Hoelscher, 'Explaining urban social disorder and violence: An empirical study of event data from Asian and sub-Saharan African cities', *International Interactions* 38, 4 (2012), pp. 512–528; Ashira Menashe-Oren, 'Migrant-based youth bulges and social conflict in urban sub-Saharan Africa', *Demographic Research* 42 (2020), pp. 57–98.
27. Raleigh, '*Urban violence patterns*'.
28. Buhaug and Urdal, '*An urbanization bomb?*'; Gizelis, Pickering and Urdal, '*Conflict on the urban fringe*'; Dorward and Fox, '*Population, politics, protests*'; Elfversson et al., '*Contesting the growing city?*'.
29. Gizelis, Pickering and Urdal, '*Conflict on the urban fringe*'.
30. Theodore Trefon, *Hinges and fringes: Conceptualising the peri-urban in Central Africa*, in Francesca Locatelli and Paul Nugent (eds), *African Cities: Competing claims on urban spaces* (Brill, Leiden, 2009), pp. 15–35.
31. Elfversson and Höglund, '*Becoming more urban*?'.
32. Dorward and Fox, '*Geographies of armed conflict and protest*'.

changes in levels of population, urbanization, democratization, and economic development, all of which are causally related to these trends and could confound our interpretation of them. As a result, existing evidence is somewhat mixed, calling for further research that robustly controls for competing explanations.

In the African context, the urbanization of conflict hypothesis rests partly on the claim that rural armed conflicts have declined across the continent while new forms of contentious action, including riots and protests, have been on the rise in urban areas. If this is true, I would expect to see a decline in the total number of armed conflict events occurring in rural areas. I would also expect a concomitant rise in the overall rate of riots and protests and for these events to be concentrated in urban areas. Furthermore, if there was an urbanization of conflict, I would also expect to see a rise in the relative share of events taking place in urban areas.

Data and method

A greater emphasis on spatial and temporal disaggregation in conflict studies has led to the increased availability of fine-grained, event-level conflict data.[33] Events data breakdown episodes of conflict, typically measured at the country-year, into various event types based on the actors involved and the nature of their interactions. The interactions between actors are assigned a date and location within the country where they occurred.

The dependent variables used in this study count the frequency of armed conflict and contentious events recorded in distinct geographical contexts. The urbanization of conflict hypothesis is primarily concerned with where conflict happens (rural versus urban areas) and the distinct forms in which it manifests (i.e. state-based, non-state, one-sided, riots, and protests). Given this, event counts are preferred over alternative operationalizations including, for example, fatality counts which measure the severity of conflict. The severity of conflict becomes a secondary property when considering the urbanization of conflict, although fatalities are causally linked to the forms of violence being expressed.

To measure armed conflict events, I use the UCDP-GED, an event-level version of the UCDP-PRIO family of datasets that record country-year statistics on armed conflicts.[34] GED adopts UCDP's conceptually concise definition of armed conflict as a 'contested incompatibility that concerns government and/or territory where the use of armed force between two

33. Thomas Bernauer and Nils Petter Gleditsch, 'New event data in conflict research', *International Interactions* 38, 4 (2012), pp. 375–381; Kristian Skrede Gleditsch, Nils W. Metternich and Andrea Ruggeri, 'Data and progress in peace and conflict research', *Journal of Peace Research* 51, 2 (2014), pp. 301–314.
34. Sundberg and Melander, '*Introducing the GED*'.

parties, of which at least one is the government of a state, results in at least 25 battle-related deaths in one calendar year.'[35] To be included in the dataset, an event must form a part of broader armed conflict, based on the definition above and be associated with at least one battle-related fatality.[36] These events are categorized into state-based events (between two organized actors, one of which is the state), non-state events (taking place between two organized actors, neither of which is the state), and one-sided acts of violence (perpetrated against unarmed civilians by state or non-state armed groups).[37]

The one-sided violence category complicates my analysis because it overlaps to some degree with my conceptual definition of protest (see further) whenever states use repression against protesting citizens. For example, in the 2020 Lekki Toll Gate shooting, the Nigerian military opened fire on protesters at an #EndSARS demonstration in Lagos, killing at least a dozen people. The event is recorded in the GED as an instance of one-sided violence and in the ACLED protest category as a case of the excessive use of force against protestors. As I am unable to address the extent of this overlap, I exclude one-sided violence events from my descriptive analysis. The final dataset therefore includes only state-based and non-state events between 1997 and 2022, yielding a dataset of 40,997 unique events within armed conflict.

My study is limited to this comparatively short period by the coverage of the GED and ACLED datasets, which represent relatively recent contributions to the analysis of conflict and protest. However, many of the processes underpinning the urbanization of conflict hypothesis, including democratization and 'modernization', take place over longer periods of time. As a result, the generalizability of this analysis is limited to this period and the geographic scope of the available data.

To identify patterns and trends in other forms of contentious action, I draw upon data from ACLED.[38] ACLED incorporates a wider range of event types than GED, including violent and non-violent demonstrations, which are labelled as riots and protests, respectively. Protest is a form of contentious politics in which actors make direct claims of an authority and seek to affect political processes.[39] They are often differentiated from other institutionalized or constitutional modes of political participation, such as voting.

35. *Ibid.*
36. *Ibid.*
37. *Ibid.*
38. Raleigh, Linke, Hegre and Karlson, '*Introducing ACLED*'.
39. Charles Tilly and Sidney Tarrow, *Contentious politics* (Oxford University Press, Oxford, 2015).

While non-violent protests are often distinguished from violent ones,[40] I reject a strict dichotomy here for two reasons. First, these are inherently political categories, meaning that the classification of an event may be more reflective of the attitudes of the observer than any empirical regularity.[41] Second, the conceptual lines between violent and non-violent protests can become blurred. There may be little or no difference in the causal processes bringing a group of demonstrators to a given place on a given day to make a specific claim in a peaceful protest versus the counterfactual case in which violence occurs. Thus, for the purposes of this research, I consider riots and protests as highly interrelated forms of non-institutional political participation[42] and measure them by combining events from the riot and protest categories from ACLED. This yields a dataset of 269,999 unique events.

ACLED also records events similar to—and in some cases overlapping with—those included within the GED, raising the question of why I use GED instead of sticking to a single data source. My reasons are 2-fold: first, when it comes to armed conflict, the GED offers greater conceptual clarity than ACLED, giving me greater confidence that the events I study are indeed instances of the same concept—armed conflict. Specifically, ACLED's less stringent inclusion criteria and lack of fatality threshold makes it difficult to know exactly what is and is not included in the data.[43] Second, analysis suggests that the precision of GED's geolocation is greater than that of ACLED.[44]

To link these events to human settlement patterns, I use geospatial population estimates from WorldPop—a gridded population dataset that models subnational population counts from official population statistics to a high-resolution 1 km^2 grid.[45] WorldPop reliably outperforms other gridded population datasets in estimating human settlement patterns subnationally.[46]

40. Erica Chenoweth and Maria Stephan, *Why civil resistance works: The strategic logic of nonviolent conflict*' (Columbia University Press, New York, 2011).
41. Steven Wilkinson, 'Riots', *Annual Review of Political Science* 12, 1 (2009), pp. 329–343; Charles Tilly, 'European violence and collective action since 1700', *Social Research* 53, 1 (1986), pp. 159–184.
42. I test the validity of this position by estimating separate models on the riot and protest categories in the regression analysis. The results are largely similar to the main results presented below.
43. Kristine Eck, 'In data we trust? A comparison of UCDP GED and ACLED conflict events datasets' *Cooperation and Conflict* 47, 1 (2012), pp. 124–141.
44. Eck, '*In data we trust*'; Leila Demarest and Arnim Langer, 'The study of violence and social unrest in Africa: A comparative analysis of three conflict event datasets', *African Affairs*, 117, 467 (2018), pp. 310–325; Leila Demarest and Arnim Langer, 'How events enter (or not) data sets: The pitfalls and guidelines of using newspapers in the study of conflict', *Sociological Methods & Research* 51, 2 (2022), pp. 632–666.
45. See <https://www.worldpop.org/> (2 March 2023).
46. Monika Kuffer, Maxwell Owusu, Lorraine Oliveira, Richard Sliuzas and Frank van Rijn, 'The missing millions in maps: Exploring causes of uncertainties in global gridded population datasets', *ISPRS International Journal of Geo-Information* 11, 7 (2022), pp. 1–18.

As such, using this data represents a clear improvement upon my earlier work, which used less reliable data, such as the Global Human Settlement Layer Settlement Model (GHSL-SMOD), to measure rural-urban settlement patterns.[47] However, as WorldPop does not identify individual cities or urban areas, I applied the Degree of Urbanization (DEGURBA) classification schema to define settlement classifications based on population density.[48] Under DEGURBA, cells with a population greater than 1,500 people are defined as urban centres, those with populations between 300 and 1,499 are defined as urban clusters (or peri-urban areas), and those with populations less than 300 are rural.[49]

To build the dataset, the coordinates of the GED and ACLED events are projected over the settlement grid and assigned settlement classifications based on the attributes of the cell in which they are located. While WorldPop provides yearly estimates, I use data at 5-year intervals for 2000, 2005, 2010, 2015, 2020 to minimize computation. This is defensible given that population change is a comparatively slow-moving process. As such, the settlement classifications are taken from the closest WorldPop file to the year in which the event occurred. Furthermore, there is a difference between the spatial resolution of WorldPop and the precision of the geocoding in the ACLED and GED events. While the settlement data are highly accurate, precise to the 1 km^2 resolution, the conflict data are comparatively less so.[50] One solution could be to use coarser data for the settlement classifications. However, aggregating urban cells to a 50 km^2 or 10 km^2 grid would lead the urban cells to be drowned out by the more numerous rural ones and inflate the estimates of rural events. To partially reduce this precision gap, I include only GED and ACLED events with the most precise geocoding (corresponding to precision codes <4 in the GED and <3 in ACLED) meaning that the event can be attributed at least to a specific second-order administrative unit. The resulting sample represents

47. Dorward and Fox, '*Geographies of armed conflict and protest*'.
48. Lewis Dijkstra, Aneta Florczyk, Sergio Freire, Thomas Kemper, Michele Melchiorri, Martino Pesaresi and Marcello Schiavina, 'Applying the degree of urbanisation to the globe: A new harmonised definition reveals a different picture of global urbanisation', *Journal of Urban Economics* 125 (2021), p. 103312.
49. There are debates as to whether the population density threshold for classifying urban clusters is too low (Alejandro Blei and Shlomo Angel 'Global monitoring with the atlas of urban expansion', in Xiaojun Yang (ed), '*Urban remote sensing: Monitoring, synthesis and modeling in the urban environment*' (Wiley, Hoboken, NJ, 2021), pp. 247–282; Nick Dorward, Sean Fox, Thomas Statham and Levi Wolf, 'A spatial-demographic analysis of Africa's emerging urban geography', *Environment & Urbanization* 35, 2 (2023), pp. 310–327.) Arguably, it makes sense for low-density urban conurbations (e.g. the wider Lagos and Onitsha-Owerri conurbations in Nigeria); however, the concern primarily surrounds the classification of high-density agricultural land as urban, as in countries such as Rwanda (Dorward et al., '*Africa's emerging urban geography*').
50. Nils Weidmann, 'On the accuracy of media-based conflict event data', *Journal of Conflict Resolution* 59, 6 (2015), pp. 1129–1149.

87 percent of all events from the GED dataset and 98 percent of ACLED events.[51]

Trends in armed conflict and protest: a continental perspective

Figure 1a shows the relative change in the number of armed conflict events and fatalities across Africa for each year between 1998 and 2022 using 1997 as the index year (1997 = 100). The number of conflict events recorded has risen substantially over the last decade with the frequency of conflict in 2022 approximately four times greater than what it was in any year preceding 2010.

However, while there has been an increase in the number of armed conflict events, they have become less deadly: there has been a noticeable decline in the overall number of recorded fatalities in the last two decades. The severity of armed conflict—measured by total fatalities and fatalities per event—has also waned. The number of fatalities per event in 2019 was substantially below the levels reported in 1997—falling from a mean of ∼26 fatalities per event between 1997 and 2001 to ∼6 between 2018 and 2022. This trend is consistent with the global decline in battle-related deaths reported elsewhere.[52]

Figure 1b shows a sharp rise in the annual number of protests since 2010. The steep increases in events between 2010–2011, 2012–2013, and 2018–2019 were driven primarily by related events in several North African countries (Egypt, Algeria, Sudan, Tunisia, Libya, and Morocco), and a handful of countries in sub-Saharan Africa (Nigeria, South Africa, Kenya, and Ethiopia).

The number of fatalities resulting from protest remains comparatively low in absolute terms and has declined. Event severity has fallen from a mean of ∼14 between 1997 and 2001 to ∼1 between 2018 and 2022. However, Figure 1b suggests that the overall number of fatalities associated with events is starting to creep up, driven primarily by events in Nigeria, Egypt, Libya, and Sudan. Despite these trends, armed conflicts still account for most conflict-related fatalities on the African continent. It remains to be seen whether the elevated levels of armed conflict and protest represent a new norm or a passing trend.

Armed conflict and protest across the rural–urban spectrum

I now turn my attention to the geographical distribution of these events across subregions of the continent by classifying events into rural areas,

51. Kristine Eck (Eck, '*In data we* trust') suggests that many ACLED events may have implausibly high precision codes. However, I have no means of testing this claim.
52. Elfversson and Höglund, '*Becoming more urban?*'.

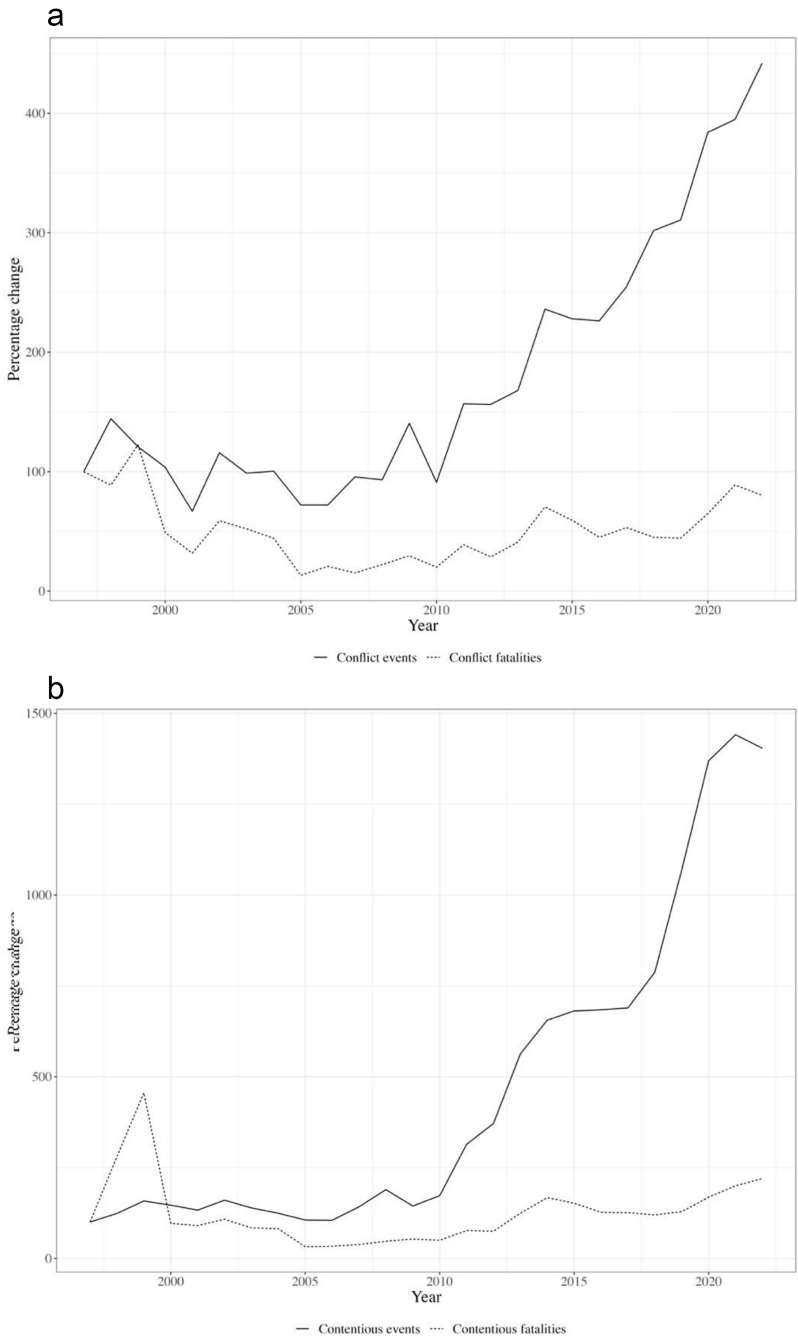

Figure 1 Armed and protest conflict in Africa, 1997–2022. (a) Armed conflict. (b) Protests.

Table 1 Armed conflict and protest events by settlement type, 1997–2022.

		Urban centre	*Urban cluster*	*Rural*
North Africa	*Conflict*	*2,155*	*1,019*	*821*
		54%	*25.5%*	*20.5%*
	Protests	*36,803*	*7,395*	*4,849*
		75%	*15%*	*10%*
sub-Saharan Africa	*Conflict*	*8,497*	*8,575*	*19,921*
		23%	*23%*	*54%*
	Protests	*89,450*	*49,533*	*81,959*
		40.5%	*22.5%*	*37%*

peri-urban clusters, and urban centres. First, as presented in Table 1, I observe divergent patterns in the location of conflict and protest events north and south of the Sahara. In North Africa, both conflicts and protests are largely an urban phenomenon. This stands in contrast to sub-Saharan Africa, where armed conflict is still concentrated primarily in rural areas.[53] As such, I disaggregate the subsequent analyses to focus on patterns and trends in North and sub-Saharan Africa separately.

Conflict and protest in North Africa

Figure 2a and b breakdown the proportion of armed conflict and protest events in North Africa by settlement type. Overall, both armed conflict and protests are primarily urban phenomena. Between 1997 and 2022, there were 3,995 instances of armed conflict recorded in the region, approximately 79.5% of which took place in urban areas (both urban clusters and centres), while just 20.5% took place in rural areas. While low-density urban clusters accounted for a substantial proportion of events up to 2010, there has since been a marked shift towards higher-density urban centres. In contrast, the share of protest events taking place within each settlement type has remained relatively stable over time. Of the 49,047 events recorded, 90 percent took place within urban areas (mostly the higher-density urban centres), while just over 10 percent were recorded in rural areas.

While event counts vary over time, two important trends stand out. First, there has been a notable uptick in the average annual number of violent events since 2010. Second, this increase has been concentrated in cities. These trends coincide with the reduction of rural armed conflict events in Sudan from around 2015, the onset of the 'Arab Spring' in 2010, and the ongoing and highly urbanized conflict between rival factions for control of

53. Radil, Walter, Dorward and Pflaum, '*Urban-rural geographies*'.

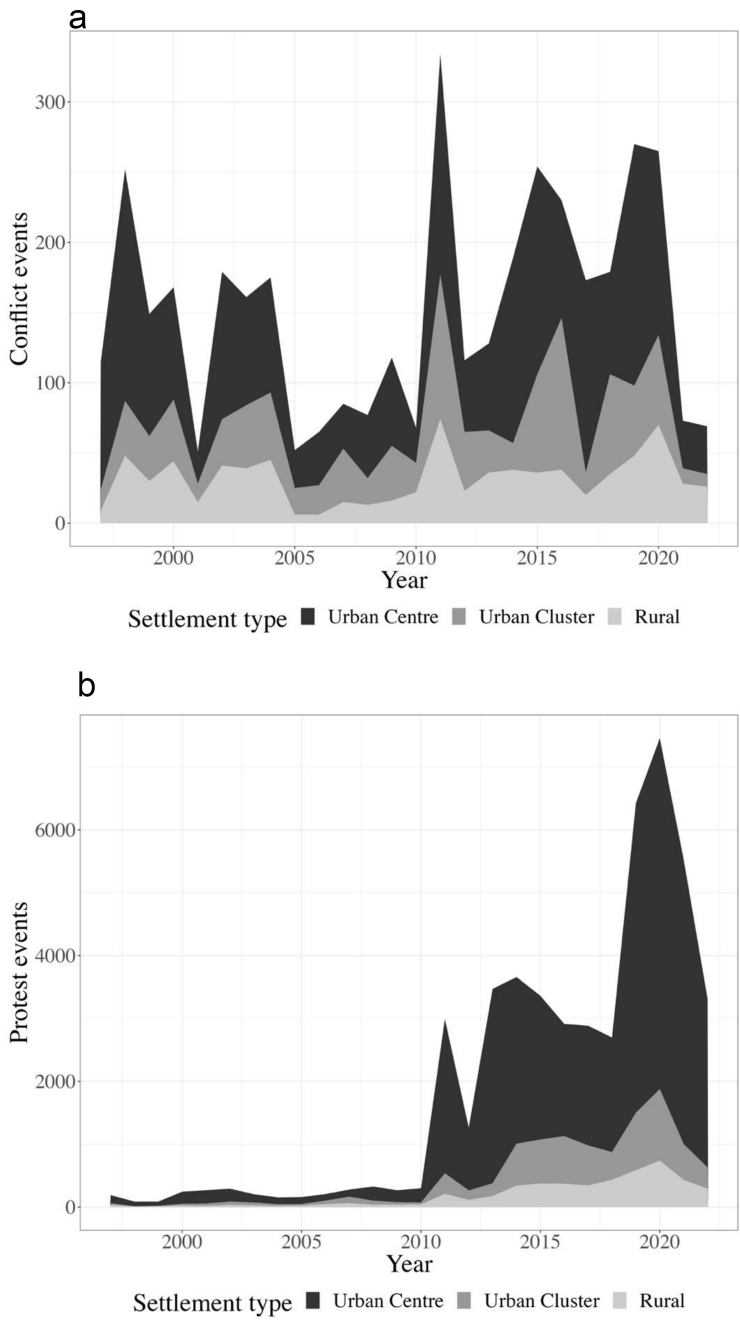

Figure 2 Area plots of armed conflict and protest events in North Africa by settlement type. (a) Armed conflict events. (b) Protest events.

the Libyan state following the ejection from office, and subsequent death, of Colonel Gaddafi.

Conflict and protest in sub-Saharan Africa

Turning to sub-Saharan Africa, Figure 3a and b breakdown the proportion of conflict and contentious events by settlement type for the whole study period. Unlike North Africa, most armed conflict events have occurred in rural areas (54 percent of the 36,993 recorded events). Nevertheless, a substantial proportion of events occurred in urban clusters (23 percent) and urban centres (23 percent). For the most part, there has not been any substantial change in the geography of these violent events over time. In stark contrast to armed conflicts, the overwhelming majority of the 220,942 protests recorded occurred in urban centres and clusters (63 percent). While the distribution of armed conflict events across the distinct settlement types has remained relatively constant over time, an increasingly large share take place in rural areas.

Figure 3a shows a substantial increase in armed conflict from around 2008, which was primarily driven by events in rural areas. The numbers of events in urban clusters and centres have also risen from around 2006 but at a much slower rate. Figure 3b shows a similar increase in protests and riots, particularly after 2010, but this increase has been heavily concentrated in urban centres. Again, these trends are driven by a handful of countries. Conflicts in Nigeria, South Sudan, Mali, DRC, Central African Republic, Cameroon, and most recently Ethiopia, account for much of the increase in events. For example, the insurgencies in Mali and northern Nigeria are mostly concentrated in rural areas and the Anglophone crisis in Cameroon has taken place in mostly rural areas of the Northwest and Southwest regions of the country.

There have also been some noticeable declines in the number of armed conflict events. For example, the termination of the civil wars in Angola and Sierra Leone, and the ebbing of conflicts in Uganda and Burundi, account for the declines in rural violence observed in the early years of the study period. The degree to which these developments represent temporary fluctuations as opposed to long-term trends remains to be seen.

Turning to protest, Nigeria and South Africa are the main countries driving the positive trends in the incidence of both rural and urban protest. Furthermore, Ethiopia has experienced increased levels of protest in both rural areas and urban centres, while Kenya has experienced a rise in the rates of riots and protests primarily in urban centres.

This descriptive analysis provides some qualified support for the urbanization of conflict thesis. Both north and south of the Sahara, rates of protest

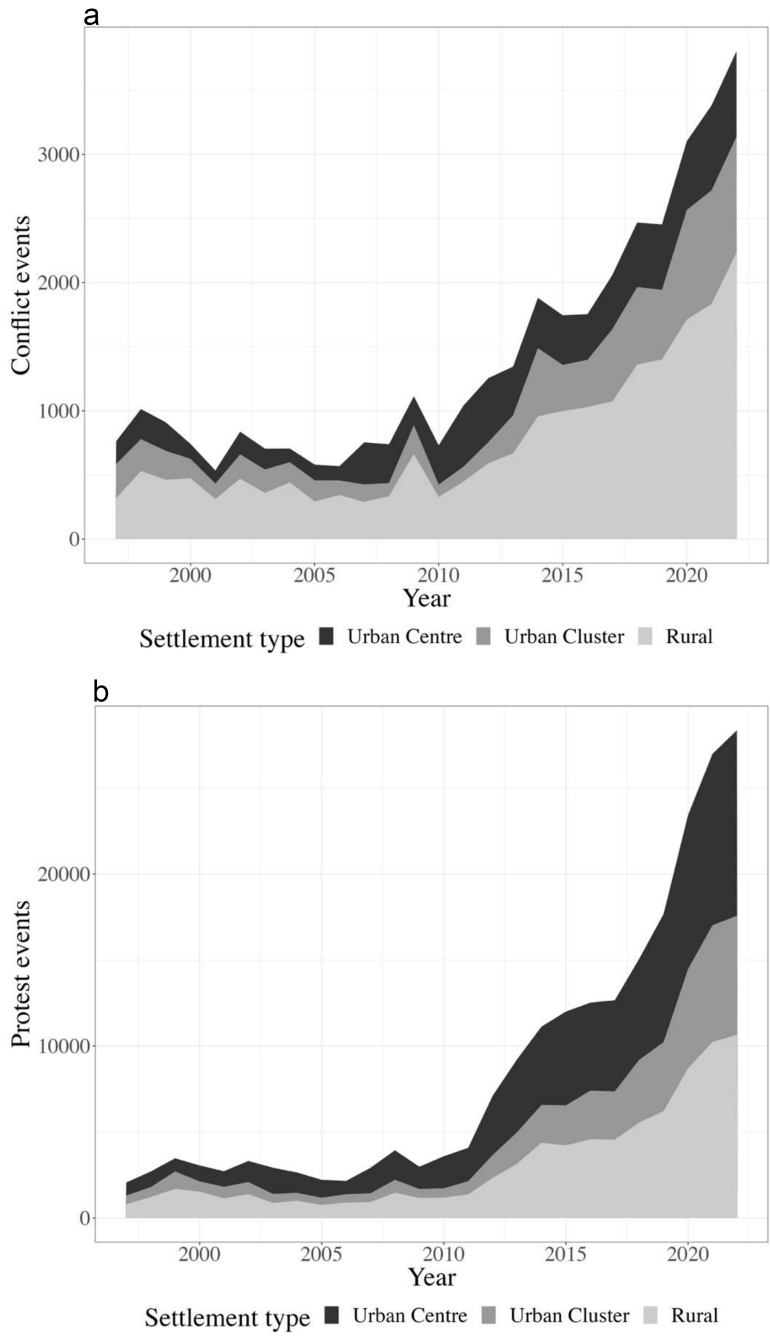

Figure 3 Area plots of conflict and protest events in sub-Saharan Africa by settlement type. (a) Armed conflict events. (b) Protest events.

have increased substantially over the last two decades. Protest has historically been a predominantly urban phenomenon and continues to be so today. Furthermore, armed conflict in North Africa is predominantly urban in character and has increasingly shifted from low-density urban clusters to higher-density urban centres. I also observe a decline in the severity of armed conflict—measured as the overall number of fatalities and fatalities per event—across the continent.

This support for the urbanization of conflict hypothesis is qualified, however, by the finding that the frequency of armed conflict in sub-Saharan Africa appears to have been rising sharply over the last 10 years. Despite claims to the contrary (and in contrast to North Africa), armed conflict remains predominantly rural south of the Sahara. It is also important to note that these underlying trends hold when I omit the most conflict- and protest-prone countries, ensuring that the patterns and trends discussed earlier are not driven by extreme cases.

Regression analysis

The descriptive findings above provide mixed evidence with respect to the urbanization of conflict hypothesis. On the one hand, the frequency of both conflict and protest events has risen in urban areas. On the other, this has been matched by a concomitant rise in rural events. Furthermore, simply bivariate relationships can be misleading, as omitted variables may confound the apparent relationship. For example, the incidence in urban conflict and protest could be explained by an increase in urbanization or population. As such, return to regression analysis. I fit a series of regression models that allow me to control for several alternative explanations underpinning the trends identified. The first set of negative binomial models estimate the count of conflict and protest events located in different settlement geographies. The second set of ordinary least squares (OLS) estimate the share of conflict and contentious events occurring in urban areas. Despite the concerns surrounding the conceptual porosity of event typologies discussed above, I have chosen to disaggregate the different types of conflict (state-based, non-state, one-sided) and protests (riots and protests) in this analysis to improve the granularity and richness of the discussion.[54] I aggregated conflict and protest events to the country-year for each type of event and settlement geography, creating a panel dataset covering every African country between 1997 and 2022.[55] Urban shares were

54. Given the emphasis placed upon the distinction between riots and protests above I have chosen to present models using the combine riot and protest category in Appendix D. These models do not change the results.

55. In aggregating contentious events to the national level, I make a necessary abstraction to analyse the broader geography of conflict over the study period. However, this approach

constructed by summing the event counts for urban centres and clusters and dividing the result by the total sum of all events for a given country year.

The main independent variable is a time trend that is equal to 1 in 1997 and 26 in 2022. I also include a quadratic term to account for the non-linear trends evident in Figures 2 and 3. I include controls for several time-varying factors that could plausibly influence the frequency of events over time. First, I control for the level of urbanization and rate of urban population growth, which allow me to distinguish fundamental changes in the intensity and geography of contentious action from the empirical reality of larger urban populations. The level of urbanization is measured as the proportion of a country's total population living in urban areas taken from the World Bank Development Indicators (WBDI). Urban population growth is a ratio measuring the annual rate of change in the level of urbanization.

I also include controls for the total population, the nature of a country's political–institutional context, and income level, all of which vary over time and are robustly correlated with conflict and other contentious outcomes. Population data are the log-transformed United Nations total population estimates taken from the WBDI. Political institutions are measured using the Varieties of Democracy (V-Dem) polyarchy index, which is a measure of electoral competition. Income level is measured as the log-transformed gross domestic product (GDP) per capita in current US dollars taken from the WBDI. This is a non-exhaustive list of time-varying controls that capture the major secular trends that would challenge my interpretation of the time trend parameter. Country-fixed effects are used to control for other, unobserved factors causing variation in where conflict and protest events are located including, for example, the inherent differences between countries in North and sub-Saharan Africa. Descriptive statistics are shown in Appendix A.

Another major challenge to the interpretation of this parameter would be media reporting bias. As discussed earlier, both the GED and ACLED draw upon public information, including media reports, to code events. There are reasons to believe that reporting of events will have increased over time due to improved connectivity, such as the internet and cell/smartphone coverage.[56] This may be particularly salient with respect to rural events that were previously underreported. An increase in rural reporting could therefore mask a relative increase in urban events.

reduces the unique processes within and between individual conflicts that do not necessarily conform to national borders and may be highly contingent in origin and dynamics. Nevertheless, this approach provides a valuable backdrop to those contextually rich studies of individual conflicts and analysis of the distinct causal and divers of urban conflict at different spatial scales.

56. Elfversson and Höglund, '*Becoming more urban?*', p. 5.

To address this concern, similar studies have included measures of internet or cell phone usage taken from the WBDI.[57] However, there are theoretical reasons for believing that these variables are not valid proxies for media reporting. Increased cell phone connectivity is likely to enable protest and political violence by facilitating mobilization and collective action.[58] These arguments plausibly extend to internet coverage, so I do not include these variables as controls in the models. The log-transformed internet usage variable is highly correlated with the time trend ($r = 0.83$), meaning that including both variables in the model would result in severe multicollinearity. As internet usage has increased monotonically over time, I cannot parse out the effect of the time trend variable on event counts from possible reporting bias—even if internet usage were a valid proxy—and cannot rule out that the regression results may be influenced by reporting bias.[59]

Table 2 presents the results of negative binomial models estimating variation in the frequency of distinct types of armed conflict events. The results are also disaggregated by settlement type, allowing me to assess whether the frequency of violence has increased over time within each context.

Looking at state-based conflict in Models 1–3, the time trend coefficients are negative across urban centres and urban clusters, albeit not statistically significantly so. The coefficient for rural areas is positive and not statistically significant. These results indicate an overall decline in the frequency of state-based conflict in urban centres and peri-urban areas, albeit not a significant one, and a rise in rural conflict. These results suggest that, once background factors are considered, there has been no linear urbanization of state-based conflict. Indeed, the opposite seems to be the case.

However, the quadratic time trend terms are weakly positive and statistically significant across all three models, indicating a non-linear relationship. This means that, while the overall trend is negative, the frequency of state-based conflict has more recently increased across urban, peri-urban, and rural areas. This is consistent with the graphical evidence presented in Figures 2a and 3a and does not provide strong evidence for an urbanization

57. *Ibid.*
58. Marco Manacorda and Andrea Tesei, 'Liberation technology: Mobile phones and political mobilization in Africa', *Econometrica* 88, 2 (2020), pp.533–567. Jan Pierskalla and Florian Hollenbach, 'Technology and Collective Action: The effect of cell phone coverage on political violence in Africa', *American Political Science Review* 107, 2 (2013), pp. 207–224.
59. Analysis has shown that reporting of fatalities by the media is less prone to this form of bias (Weidmann, 'On the accuracy.'), raising the possibility of robustness checks on fatality counts. However, as discussed earlier, modelling fatalities is somewhat different from modelling event counts since the former is a measure of conflict severity whereas the latter is a measure of conflict intensity. These are different, albeit related, properties of armed conflict and I would not necessarily expect models fitted on to these distinct outcomes to behave similarly. As such, modelling fatality counts doesn't provide a valid robustness check of the urbanisation of conflict hypothesis. Nevertheless, results of a reanalysis using fatality counts are presented in Appendix C.

Table 2 Negative binomial estimates of conflict events by type of violence.

	Dependent variable								
	State-based			*Non-state*			*One-sided*		
	Urban centre (1)	*Urban cluster* (2)	*Rural* (3)	*Urban centre* (4)	*Urban cluster* (5)	*Rural* (6)	*Urban centre* (7)	*Urban cluster* (8)	*Rural* (9)
Time trend	−0.031	−0.016	0.037	0.141*	0.127*	0.132**	−0.023	0.014	0.095*
	(0.054)	(0.046)	(0.039)	(0.057)	(0.063)	(0.046)	(0.057)	(0.050)	(0.044)
Time trend^2	0.005***	0.006***	0.005***	0.002	0.001	0.001	0.001	0.004**	0.003*
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
Urbanization	−0.002	0.112***	0.031	−0.023	−0.102*	0.088**	0.040	0.084*	0.036
	(0.033)	(0.030)	(0.026)	(0.039)	(0.048)	(0.032)	(0.034)	(0.035)	(0.030)
Urban growth	−0.189***	−0.054	−0.200***	0.096	−0.027	0.107*	−0.059	0.124**	−0.219***
	(0.057)	(0.047)	(0.051)	(0.072)	(0.074)	(0.052)	(0.066)	(0.041)	(0.057)
Pop (log)	−0.888	−2.904**	−2.240***	−6.073***	−0.344	−4.885***	2.113	−2.797**	−2.722***
	(1.236)	(0.885)	(0.635)	(1.469)	(1.537)	(1.027)	(1.475)	(1.064)	(0.774)
Polyarchy	−0.745	−0.645	−1.888**	0.765	0.069	0.113	−5.176***	−2.936**	−3.500***
	(0.923)	(0.878)	(0.716)	(1.029)	(1.123)	(0.861)	(1.011)	(0.960)	(0.818)
GDP (log)	−0.265	−1.115***	−0.897***	0.149	−0.432	−0.125	−0.583**	−0.319	−0.692***
	(0.214)	(0.211)	(0.167)	(0.210)	(0.244)	(0.171)	(0.204)	(0.222)	(0.187)
Observations	1,225	1,225	1,225	1,225	1,225	1,225	1,225	1,225	1,225
Log Likelihood	−2,564.766	−2,207.323	−3,641.516	−913.262	−812.766	−1,218.246	−1,980.113	−1,955.873	−3,115.629
Akaike Inf. Crit.	5,241.531	4,526.647	7,395.031	1,938.523	1,737.531	2,548.493	4,072.227	4,023.746	6,343.258

Note:
*$P < 0.05$.;
**$P < 0.01$.;
***$P < 0.001$.

of conflict. Instead, it suggests a rise in conflict across rural, peri-urban, and urban areas.

Turning to non-state conflict events in Models 4–6, the time trend coefficients are positive and statistically significant across all three models, suggesting that non-state conflict is rising across all settlement geographies. Furthermore, the quadratic terms are comparatively weak and not statistically significant, ruling out significant non-linearity.

Turning to one-sided conflict events in Models 7 through 9, the time trend coefficient for events in urban centres is negative and insignificant, and the quadratic term is weakly positive and insignificant. The coefficient is weakly positive and insignificant for the urban cluster model whilst the quadratic term is positive and significant, suggesting a nonlinear relationship where more recent years are associated with significantly higher levels of one-sided conflict. Similarly, the time trend and quadratic terms for rural events are both positive and significant, suggesting that rural one-sided violence has been rising over time and that this trend is becoming stronger.

Overall, these results do not provide strong evidence for the urbanization of conflict in Africa. State-based conflicts and one-sided violence have generally *declined* in urban centres and peri-urban areas during the study period, although there is some evidence that this trend is becoming weaker and may reverse. However, this is offset by the significant increase in events in rural areas, which challenges the notion that conflict is urbanizing. Furthermore, whilst the increase in the intensity of non-state conflict in both urban centres and clusters is consistent with the urbanization of conflict, this has not been offset by a decline in rural conflict, which has seen a concomitant rise.

Table 3 presents the results of negative binomial models estimating the frequency of riot and protest events across the distinct settlement geographies. Starting with riots in Models 10 to 12, the time trend coefficient is positive and statistically significant across all models, indicating that the frequency of riots has increased across all settlement geographies. Furthermore, the quadratic term for the urban cluster model is significant and positive, indicating that riots in these peri-urban areas are increasing with greater intensity in the latter years of the study period.

Turning to protest events, I find strong statistical evidence for a positive time trend across all three models, indicating increases in the frequency of protests across all settlement geographies. Furthermore, the quadratic terms in each model are significant suggesting that this increase is nonlinear in form.

The models in Tables 2 and 3 have addressed changes in the frequency of conflict and contentious events taking place in rural, peri-urban, and urban

Table 3 Negative binomial estimates of protest events by category.

	Dependent variable:					
	Riots			*Protests*		
	Urban centre (1)	*Urban cluster* (2)	*Rural* (3)	*Urban centre* (4)	*Urban cluster* (5)	*Rural* (6)
Time trend	0.095**	0.101*	0.170***	0.177***	0.174***	0.260***
	(0.034)	(0.041)	(0.040)	(0.036)	(0.048)	(0.060)
Time trend^2	0.002	0.003**	0.002	0.001	0.002	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Urbanization	−0.0002	−0.030	−0.029	0.073**	−0.043	−0.111**
	(0.023)	(0.030)	(0.029)	(0.023)	(0.030)	(0.037)
Urban growth	−0.163**	−0.058	−0.127*	−0.033	0.052	−0.010
	(0.059)	(0.062)	(0.051)	(0.061)	(0.067)	(0.061)
Pop (log)	−0.540	0.273	−0.937	−2.192**	−0.795	−1.353
	(0.780)	(0.771)	(0.617)	(0.784)	(0.921)	(1.033)
Polyarchy	0.841	0.445	1.306*	0.831	0.846	0.472
	(0.488)	(0.538)	(0.582)	(0.463)	(0.572)	(0.815)
GDP (log)	0.212	−0.024	−0.041	−0.143	0.134	−0.465*
	(0.151)	(0.185)	(0.180)	(0.147)	(0.189)	(0.221)
Observations	1,225	1,225	1,225	1,225	1,225	1,225
Log Likelihood	−4,224	−2,068	−1,782	−6,479	−2,547	−2,367.9
Akaike Inf. Crit.	8,561	4,248	3,677	1,307	5,207	4,847.9

Note:
*$P < 0.05$;
**$P < 0.01$;
***$P < 0.001$.

Table 4 OLS estimates of urban shares by conflict/protest category.

	Dependent variable: Urban share (%)				
	State-based (1)	*Non-state (2)*	*One-sided (3)*	*Riots (4)*	*Protests (5)*
Time trend	−0.010	−0.007	−0.019	0.007	0.001
	(0.011)	(0.015)	(0.013)	(0.006)	(0.005)
Time trend^2	0.00001	0.0004	−0.0002	−0.0002	−0.00001
	(0.0003)	(0.0004)	(0.0003)	(0.0002)	(0.0001)
Urbanization	−0.004	−0.025**	−0.002	0.007	0.006
	(0.006)	(0.009)	(0.008)	(0.004)	(0.003)
Urban growth	−0.014	0.007	−0.004	−0.013	0.003
	(0.008)	(0.015)	(0.011)	(0.009)	(0.006)
Pop (log)	0.139	0.074	0.880**	−0.224	−0.162
	(0.236)	(0.331)	(0.294)	(0.131)	(0.101)
Polyarchy	0.040	−0.442	−0.028	−0.134	0.001
	(0.185)	(0.261)	(0.230)	(0.103)	(0.080)
GDP (log)	0.086*	0.065	0.019	−0.006	0.023
	(0.039)	(0.050)	(0.049)	(0.030)	(0.023)
Observations	419	276	450	873	991
R^2	0.501	0.605	0.417	0.337	0.378
Adjusted R^2	0.442	0.551	0.349	0.293	0.341

Note:
*$P < 0.05$;
**$P < 0.01$;
***$P < 0.001$.

areas. However, the urbanization of conflict hypothesis would also expect there to have been an increase in the share of events occurring in urban areas relative to rural ones. Table 4 presents the results of OLS regressions modelling the share of events occurring in urban areas for the different event categories. The number of observations per model varies on account of years in the data where there were no urban and/or rural events resulting in the denominator equalling zero.

Overall, the results of these models do not provide strong evidence to support the urbanization of conflict hypothesis. While both forms of contentious collective action have become more frequent in urban centres and clusters, as would be expected, the models show that they have also increased in rural areas. The uniform rise in contentious action across the continent holds even when secular trends in democratization, urbanization, and urban growth are accounted for.

Robustness

It is worth considering a few limitations of my research design. First, the patterns and trends in armed conflict could vary across the distinct types of violence recorded by the GED. To address this concern, I supplement

this analysis by disaggregating between state-based and non-state conflict. I also include the one-sided category in the regression analysis. The distinct trends presented below tend to track one another over time, both for events and reported fatalities, apart from a large excess of fatalities from state-based conflict in 1999. When disaggregating by violence and settlement type, I observe consistent trends along each dimension. I repeat this exercise for the distinct riot and protest categories in ACLED without substantive implications for my analysis. Overall, disaggregation between violence and protest types does not change the conclusions derived from the data and gives me confidence that, as far as the analysis of event locations over time, my analysis is not sensitive to collapsing these event categories.

Second, there is a valid concern that the exclusion of events with low geographic precision could present a further source of bias. If, on the one hand, low-precision events are geocoded to a region's centroid, this could inflate the rural event count and bias against urban areas. Conversely, events attributed to a region's capital would increase bias towards urban events. Additional biases could be introduced if imprecise events are more likely to occur in rural areas with limited news coverage. If these were true, rural events could be systematically under reported, inflating the relative share of urban events. I am unable to assess the extent of these biases; however, sensitivity analysis with all ACLED and GED events shows that the results are largely unchanged by filtering out low precision events.[60]

Third, several authors have noted an urban reporting bias arising from the media sources used to code events.[61] Urban events may have higher probabilities of being reported and recorded by data collection projects because they gather more media attention due to their occurrence in more populated areas and perceived social significance relative to rural events. This would result in the count of urban events being inflated relative to rural ones. While the extent of urban reporting bias is difficult to assess, I have no reason to suspect that it has become worse over time. Conversely, the reporting of rural events may have improved with the expansion of cell phone coverage and internet access in rural areas, thereby attenuating the extent of urban bias over time.[62] Again, the extent of this bias it presently unknown, however, given the results presented below, rural conflict would either need to have been substantially more common than

60. Full results are shown in Appendix B.
61. Eck, '*In data we trust*'; Nils Weidmann, 'A closer look at reporting bias in conflict event data', *American Journal of Political Science* 60, 1 (2016), pp. 206–218; Demarest and Langer, '*Comparison of conflict event datasets*'.
62. Weidmann, '*A closer look*'; Elfversson and Höglund, '*Becoming more urban?*'.

previously thought or to have increased over time; two facts that would challenge the urbanization of conflict hypothesis. Taken together, these results corroborate the main analysis.

Conclusion

Proponents of the urbanization of conflict hypothesis argue that conflict in Africa is changing as organized armed events in rural areas give way to protest and violence in urban centres.[63] My analyses of fine-grained data on the locations of armed conflict and protests challenge this interpretation. The graphical analysis suggests that the frequency of armed conflict events has increased over the past decade, although the severity of events has declined. This is happening simultaneously across urban and peri-urban regions and rural areas. At the same time, there has been a dramatic increase in protests across the continent over the past 10–12 years. But trends vary by subregion.

The graphical analysis also suggests divergent patterns north and south of the Sahara. While there has been a clear urbanization of conflict in North Africa, in sub-Saharan Africa, armed conflict has increased while remaining predominantly rural, while protests have surged in both urban and peri-urban areas. These findings provide useful context to other studies examining the current wave of protest on the continent and lays the foundation for further investigation it its causes.[64]

Controlling for other explanations, the regression analysis shows that general trends in the frequency of state-based armed conflict have been negative across urban areas. This challenges the urbanization of conflict hypothesis but is qualified by the consistent results suggesting a non-linear relationship with respect to time. The quadratic time trend terms indicates that state-based conflict events have become more common across all three settlement geographies towards the end of the study period.

Furthermore, while trends in other forms of conflict and contentious actions are generally positive in urban areas (both urban cores and peri-urban peripheries), this has not been offset by a decline in rural areas, where the frequency of events is also rising. Overall, the frequency of conflict and contention is increasing across all settlement classes. However, as my analysis of urban violence shares has shown, this does not mark a shift in the distribution of events across these geographies. While urban violence

63. Beall, Goodfellow and Rogers, '*Cities and Conflict*'; Raleigh, '*Urban violence patterns*'; Golooba-Mutebi and Sjögren, '*From rural rebellions to urban riots*'; Kaldor and Sassen, '*Cities at war*'.
64. Lisa Mueller, *Political protest in contemporary Africa* (Cambridge: Cambridge University Press, 2018); Dorward and Fox, '*Population, politics, protests*.'

may be increasing in absolute terms, the share of violence in urban areas has not changed significantly.

The expansion of violence across all settlement categories suggests that the geography of violence is becoming more diffuse and less concentrated in certain types of subnational regions. Furthermore, the expansion of violence has been driven by events in the non-state violence, riots, and protest categories. However, the significance of the quadratic terms in Table 2 suggests that the frequencies of state-based and one-sided have also increased in recent years. The literature has typically characterized these forms of conflict as being less severe than state-based conflicts, suggesting that conflict is also becoming less intense.[65] This is consistent with the recent research that descriptively shows declining trends in fatalities and event severity on the continent concurrent to an expansion of the geography of conflict into new subnational areas.[66]

Furthermore, controlling for other trends in urbanization and urban growth demonstrates that these trends cannot be explained by the fact that more people are living in urban and peri-urban areas on the continent. Methodologically, controlling for these factors is vital to interpreting the descriptive trends identified in earlier work, which did not account for these confounders. The rapid urbanization unfolding across the continent does not imply that there will necessarily be more urban violence. Indeed, when we consider these results in relation to the fact that more Africans are now living in urban areas than ever before, cities might even be bucking the overall trend of rising violence.

This finding is relevant to broader contributions surrounding the political implications of urbanization on the continent.[67] Specifically, the finding that there has been no overall urbanization of conflict does not mean that it is not rising in some places. Further research into the causes of conflict and harmony in African cities is, therefore, vital. Analyses must be rooted in the specific context and local conditions of individual African cities[68] and should focus upon the distinct violence-generating and violence-mitigating mechanisms that link, for example, urban growth and conflict.[69] The use of fine-grained geospatial data will be essential in this endeavour.

65. Raleigh, '*Urban violence patterns*'; Raleigh, 'Political hierarchies'; Clionadh Raleigh, 'Pragmatic and promiscuous: Explaining the rise of competitive political militias across Africa', *Journal of Conflict Resolution* 65, 4 (2016), pp. 283–310.
66. Dorward and Fox, '*Geographies of armed conflict and protest*'.
67. Hoelscher et al., '*Urbanisation and political change';* Nic Cheeseman, '(Mis) understanding urban Africa: Toward a research agenda on the political impact of urbanization', *African Studies Review*, 65, 4 (2022), pp. 985–1005.
68. Hoelscher et al., '*Urbanisation and political change*'.
69. Dorward and Fox, '*Population, politics, protests*'; Elfversson et al., '*Contesting the growing city?*'.

My study also responds to calls to investigate a boarder spectrum of violence and contentious action when considering urban conflict.[70] Building upon other recent work in the field, it highlights the need to interrogate the interlinkages between distinct event types and locations.[71] Further studies should also analyse the shared factors underpinning episodes of contentious action across the rural–urban spectrum and could focus in particular on the causal interplay and temporal sequencing of protest and armed conflict events.

70. Elfversson and Höglund, '*Becoming more urban?*', p. 8.
71. Dorward and Fox, '*Geographies of armed conflict and protest*'.

Appendix A. Descriptive statistics for regression analysis

	Mean	*SD*	*Median*	*Min*	*Max*	*SE*
Urbanization (%)	*41.181*	*17.912*	*39.196*	*7.618*	*90.735*	*0.512*
Urban growth (%)	*3.699*	*1.558*	*3.743*	*−4.98*	*22.415*	*0.045*
Total population (ln)	*16.174*	*1.266*	*16.295*	*13.314*	*19.202*	*0.036*
Polyarchy	*0.379*	*0.183*	*0.333*	*0.067*	*0.784*	*0.005*
GDP (ln)	*6.901*	*1.035*	*6.689*	*4.603*	*9.896*	*0.03*

Appendix B. Sensitivity analysis on all GED and ACLED events

Table B1 Negative binomial estimates of conflict events by type of violence (all events).

	Dependent variable:								
	State-based			*Non-state*			*One-sided*		
	Urban centre (1)	*Urban cluster* (2)	*Rural* (3)	*Urban centre* (4)	*Urban cluster* (5)	*Rural* (6)	*Urban centre* (7)	*Urban cluster* (8)	*Rural* (9)
Time trend	−0.029	−0.038	0.017	0.152**	0.101	0.083*	−0.017	−0.016	0.070
	(0.054)	(0.042)	(0.038)	(0.058)	(0.061)	(0.041)	(0.057)	(0.049)	(0.041)
Time trend^2	0.005***	0.006***	0.005***	0.001	0.002	0.002*	0.001	0.005***	0.003**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
Urbanization	−0.003	0.107***	0.006	−0.019	−0.099*	0.040	0.037	0.054	0.003
	(0.032)	(0.027)	(0.024)	(0.039)	(0.047)	(0.031)	(0.034)	(0.034)	(0.027)
Urban growth	−0.187***	−0.038	−0.199***	0.093	−0.031	0.084	−0.058	0.126**	−0.222***
	(0.056)	(0.041)	(0.051)	(0.072)	(0.073)	(0.051)	(0.066)	(0.041)	(0.055)
Pop (log)	−1.022	−2.788***	−1.890**	−6.208***	−0.229	−3.583***	1.972	−2.284*	−2.077**
	(1.222)	(0.795)	(0.618)	(1.483)	(1.491)	(0.815)	(1.466)	(1.019)	(0.683)
Polyarchy	−0.644	−0.427	−1.757*	0.461	0.320	0.334	−5.051***	−2.546**	−3.176***
	(0.913)	(0.802)	(0.717)	(1.029)	(1.101)	(0.831)	(1.009)	(0.949)	(0.791)
GDP (log)	−0.278	−1.085***	−0.886***	0.131	−0.446	−0.043	−0.599**	−0.328	−0.789***
	(0.212)	(0.191)	(0.162)	(0.211)	(0.236)	(0.165)	(0.204)	(0.217)	(0.176)
Observations	1,225	1,225	1,225	1,225	1,225	1,225	1,225	1,225	1,225
Log Likelihood	−2,590.571	−2,355.784	−4,545.514	−924.555	−826.329	−1,374.457	−1,995.722	−2,049.482	−3,550.502
Akaike Inf. Crit.	5,293.142	4,823.568	9,203.027	1,961.110	1,764.658	2,860.914	4,103.443	4,210.964	7,213.004

Note:
*$P < 0.05$;
**$P < .01$;
***$P < .001$.

Table B2 Negative binomial estimates of protest events by category (all events).

	Dependent variable					
	Riots			*Protests*		
	Urban centre (1)	*Urban cluster* (2)	*Rural* (3)	*Urban centre* (4)	*Urban cluster* (5)	*Rural* (6)
Time trend	0.097**	0.104*	0.169***	0.177***	0.173***	0.260***
	(0.034)	(0.041)	(0.039)	(0.036)	(0.048)	(0.059)
Time trend^2	0.002	0.003**	0.002	0.001	0.002	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Urbanization	−0.005	−0.031	−0.032	0.072**	−0.041	−0.113**
	(0.023)	(0.030)	(0.028)	(0.023)	(0.030)	(0.037)
Urban growth	−0.157**	−0.058	−0.130**	−0.031	0.059	−0.006
	(0.060)	(0.062)	(0.050)	(0.060)	(0.067)	(0.060)
Pop (log)	−0.344	0.279	−0.929	−2.169**	−0.830	−1.443
	(0.780)	(0.771)	(0.609)	(0.781)	(0.916)	(1.030)
Polyarchy	0.825	0.439	1.306*	0.868	0.850	0.462
	(0.488)	(0.538)	(0.573)	(0.462)	(0.570)	(0.809)
GDP (log)	0.174	−0.054	−0.034	−0.140	0.130	−0.458*
	(0.150)	(0.184)	(0.177)	(0.147)	(0.188)	(0.218)
Observations	1,225	1,225	1,225	1,225	1,225	1,225
Log likelihood	−4,276.469	−2,086.775	−1,786.429	−6,524.087	−2,561.494	−2,363.251
Akaike Inf. Crit.	8,664.938	4,285.551	3,684.857	13,160.170	5,234.988	4,838.502

Note:
*$P < .05$;
**$P < .01$;
***$P < .001$.

Appendix C. Robustness checks on fatality counts

Table C1 Negative binomial estimates of conflict fatalities by type of violence.

	Dependent variable								
	State-based			*Non-state*			*One-sided*		
	Urban centre (1)	*Urban cluster* (2)	*Rural* (3)	*Urban centre* (4)	*Urban cluster* (5)	*Rural* (6)	*Urban centre* (7)	*Urban cluster* (8)	*Rural* (9)
Time trend	−0.094	−0.173***	−0.215***	0.483***	0.259***	0.132**	−0.023	−0.025	0.095*
	(0.078)	(0.051)	(0.042)	(0.072)	(0.073)	(0.046)	(0.057)	(0.070)	(0.044)
Time trend^2	0.005*	0.008***	0.011***	−0.004*	0.004*	0.001	0.001	0.007***	0.003*
	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)
Urbanization	0.036	0.085*	−0.043	−0.052	−0.075	0.088**	0.040	0.183***	0.036
	(0.047)	(0.034)	(0.026)	(0.043)	(0.045)	(0.032)	(0.034)	(0.047)	(0.030)
Urban growth	−0.165*	−0.013	−0.131*	0.007	0.041	0.107*	−0.059	0.206***	−0.219***
	(0.068)	(0.052)	(0.055)	(0.062)	(0.081)	(0.052)	(0.066)	(0.046)	(0.057)
Pop (log)	−1.678	−2.480*	−1.199*	−12.881***	−10.545***	−4.885***	2.113	−7.855***	−2.722***
	(1.802)	(0.962)	(0.596)	(1.832)	(1.782)	(1.027)	(1.475)	(1.946)	(0.774)
Polyarchy	−2.035	0.592	−0.727	−2.388*	−1.279	0.113	−5.176***	−4.814***	−3.500***
	(1.354)	(1.068)	(0.957)	(1.170)	(1.256)	(0.861)	(1.011)	(1.217)	(0.818)
GDP (log)	−0.116	−0.629**	−0.534**	−0.493*	−0.411	−0.125	−0.583**	0.204	−0.692***
	(0.293)	(0.242)	(0.196)	(0.212)	(0.222)	(0.171)	(0.204)	(0.279)	(0.187)
Observations	1,225	1,225	1,225	1,225	1,225	1,225	1,225	1,225	1,225
Log Likelihood	−2,564.766	−2,207.323	−3,641.516	−913.262	−812.766	−1,218.246	−1,980.113	−1,955.873	−3,115.629
Akaike Inf. Crit.	5,241.531	4,526.647	7,395.031	1,938.523	1,737.531	2,548.493	4,072.227	4,023.746	6,343.258

Note:
*$P < 0.05$;
**$P < 0.01$;
***$P < 0.001$.

Table C2 Negative binomial estimates of protest fatalities by category.

	Dependent variable					
	Riots			*Protests*		
	Urban centre (1)	*Urban cluster* (2)	*Rural* (3)	*Urban centre* (4)	*Urban cluster* (5)	*Rural* (6)
Time trend	0.214***	0.123	0.035	0.635	0.280**	0.125
	(0.063)	(0.065)	(0.062)	(0.471)	(0.102)	(0.093)
Time trend^2	−0.002	0.001	0.003	−0.020	−0.007**	0.001
	(0.002)	(0.002)	(0.002)	(0.011)	(0.003)	(0.003)
Urbanization	−0.147***	−0.145**	−0.027	0.123	−0.147	−0.061
	(0.039)	(0.052)	(0.051)	(0.290)	(0.085)	(0.079)
Urban growth	−0.171	−0.157	−0.068	−0.509*	−0.669***	−0.140
	(0.108)	(0.096)	(0.087)	(0.242)	(0.070)	(0.095)
Pop (log)	0.082	2.433*	−0.510	5.307	6.346**	0.213
	(1.528)	(1.213)	(0.998)	(11.751)	(2.377)	(1.400)
Polyarchy	−3.746***	−1.407	−0.292	−6.833	−7.178***	−7.429**
	(1.102)	(0.918)	(1.110)	(6.509)	(1.766)	(2.341)
GDP (log)	−0.161	0.258	0.753**	−0.498	−0.123	0.282
	(0.232)	(0.277)	(0.289)	(0.922)	(0.328)	(0.344)
Observations	1,225	1,225	1,225	1,225	1,225	1,225
Log Likelihood	−4,224	−2,068	−1,782	−6,479	−2,547	−2,367.9
Akaike Inf. Crit.	8,561	4,248	3,677	1,307	5,207	4,847.9

Note:
*$P < 0.05$;
**$P < 0.01$;
***$P < 0.001$.

Appendix D. Aggregation of riot and protest categories

Table D1 Negative binomial estimates of all protest events.

	Dependent variable: Contentious events		
	Urban centre (1)	*Urban cluster* (2)	*Rural* (3)
Time trend	0.149***	0.131***	0.217***
	(0.033)	(0.039)	(0.047)
Time trend²	0.002*	0.003**	0.001
	(0.001)	(0.001)	(0.001)
Urbanization	0.050*	−0.036	−0.087**
	(0.021)	(0.025)	(0.031)
Urban growth	−0.073	0.016	−0.047
	(0.055)	(0.057)	(0.053)
Pop (log)	−2.089**	−0.454	−1.152
	(0.721)	(0.750)	(0.789)
Polyarchy	0.727	0.625	0.698
	(0.440)	(0.495)	(0.652)
GDP (log)	−0.050	0.087	−0.311
	(0.138)	(0.163)	(0.188)
Observations	1,225	1,225	1,225
Log Likelihood	−8,046.001	−3,228.644	−2,992.839
Akaike Inf. Crit.	16,204.000	6,569.288	6,097.678

Note:
*$P < 0.05$;
**$P < 0.01$;
***$P < 0.001$.

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