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Urban Youth Bulges and Social Disorder

An Empirical Study of Asian and Sub-Saharan African Cities

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Abstract

By 2050, two-thirds of the world's population will live in cities, and the greatest growth in urban populations will take place in the least developed countries. This presents many governments with considerable challenges related to urban governance and the provision of services and opportunities to a burgeoning urban population. Among the concerns is that large youth bulges in urban centers could be a source of political instability and violence. Here, we assess this claim empirically using newly collected data on city-level urban social disorder, ranging from non-violent actions, such as demonstrations and strikes, to violent political actions, such as riots, terrorism, and armed conflict. The dataset covers 55 major cities in Asia and Sub-Saharan Africa for 1960–2006. The study also utilizes a new United Nations Population Division dataset on urban populations by age and sex. The study further considers factors that could condition the effect of age structure, in particular the level of informal employment, economic growth, education, and gender imbalances. The analysis finds that large male youth bulges aged 15–24 are not generally associated with increased risks of either violent or non-violent social disturbance. Furthermore, the proxy measures of "youth exclusion" do not seem to increase the risk that large urban male youth bulges are associated with either form of disturbance. However, several other factors that may be associated with higher levels of youth exclusion—notably absence of democratic institutions, low economic growth, and low levels of secondary educational attainment—are significantly and robustly associated with increasing levels of urban social disturbance.

This paper—a product of the Post Conflict & Social Development Unit, Africa Region, with support from the Trust Fund for Environmentally and Socially Sustainable Development and the Norwegian Ministry of Foreign Affairs—is part of a larger effort to build a solid body of theoretical and applied research on the links between youth exclusion and political violence. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at henriku@prio.no and krihoe@prio.no.

Urban Youth Bulges and Social Disorder: An Empirical Study of Asian and Sub-Saharan African Cities[1]

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1. Introduction

According to UN projections, the year 2008 marks a milestone in that more than half of the world population now lives in cities (UN, 2008a). This trend will continue unabated over the next decades. By 2050, two-thirds of the world's population will be urban dwellers and virtually all population growth in this period, a total increase of around 3 billion people, will take place in cities around the world. Although cities in developed countries will also continue to grow over the next decades, less developed countries will experience the most rapid urban growth. In particular, this pertains to Africa and Asia where rural households still account for around 60 percent of the total population, but are expected to drop to 35-40 percent by 2050. In Asia alone, the absolute increase in urban population is projected to be 1.8 billion, in Africa 0.9 billion (UN, 2008a: 1).

Strong urban growth creates considerable challenges for governments in terms of managing urban development sustainably, and providing for housing, electricity, water supply, health care, education and jobs. These challenges are widely acknowledged by developing country governments, and 78 percent of African and 71 percent of Asian governments state that they have implemented policies to reduce migrant flows to large cities (UN, 2008a: 12). In many developing countries urban centers offer better social and economic opportunities for young people than rural areas do. But if governments fail to provide opportunities and services to a growing urban population, increased grievances may arise, fuelling protest and possibly also political violence. A particular security concern has been that disenfranchised and economically and socially excluded urban youth may engage in violent activities, whether 'criminal' or 'political'. Youth often constitute a disproportionately large part of rural-to-urban migrants, and in countries with young populations, strong urbanization could lead to an extraordinary crowding of youth in urban centers. This could lead to pressures in the labor market or educational institutions that could cause grievances. Goldstone (1991; 2002) observes that historically, the coincidence of youth bulges with rapid urbanization, especially in the context of unemployment and poverty, has been an important contributor to political violence.

Previous research has found that on the aggregate national level, large youth cohorts are statistically associated with an increase in risk of outbreak of low-intensity conflict (Urdal, 2006). On the other hand, and despite much concern for the ills of urbanization, rapid urban growth rates do not appear to correlate with political violence (Homer-Dixon, 1999: 155). If anything, high urbanization rates appear to be associated with lower levels of violent conflict (Urdal, 2005; 2008). These results reflect the observation that most armed conflicts take place in peripheral and often rural areas (Buhaug & Rød, 2006; Sommers, 2006; Buhaug, Cederman & Rød, 2008). Urban slum areas are rarely the location of conventional violent political conflicts between organized armed groups.

Acknowledging the lower relevance of urbanization and urban social and economic conditions for conventional armed conflicts, this study addresses the issue of youth and urbanization from a different angle than most previous quantitative studies. It focuses on how urbanization and patterns of social and economic exclusion affect social disorder in urban centers with a high concentration of youth. It utilizes a newly collected event dataset of urban social disturbance covering 55 major cities in 49 Asian and African countries for the 1960-2006 period. The data are compiled from electronic news reports in the Keesing's Record of World Events, and involves both non-violent events like peaceful demonstrations and protests, as well as violent events like riots and organized armed conflict. The analysis addresses the importance of urban

age and gender structure in the context of crucial intervening factors like poverty, democracy, education, employment and urban population growth.

This study, which we believe is the first cross-sectional time-series study to address political instability and violence at the city level, is a correlational and exploratory exercise aimed at trying to identify potential statistical relationships for further study. The current analysis is considerably restricted by the availability of reliable time-series data on the city level. The only major source to compare city-specific social and economic indicators, the UN Habitat's Global Urban Observatory, only provides data from two collection efforts conducted in 1993 and 1998. Although the database covers around 200 cities, only 24 of the cities included in this analysis are represented both years[2]. Certain indicators were also not collected in both rounds. Due to the lack of city-specific data, we have had to rely on age structure data for the entire urban population at the national level. Similarly, for political, economic and education variables we have used national-level data. These limitations illustrate the need for additional collection of comparable city-specific data in a situation where the monitoring of urban development becomes ever more important, and call for considerable caution in the interpretation of the results. Keeping this in mind, the current study suggests that increasing congregation of young males in urban centers may not affect the risk of social disorder, whether nonviolent or violent. Furthermore, contextual factors such as low secondary education levels, expansions in tertiary education, high levels of informal employment, male gender imbalances, and low economic growth do not appear to affect the relationship between large urban youth bulges and social disturbance. Among the factors that clearly do correlate with social disturbance are regime type, economic growth, ongoing armed conflict, and prior disturbance.

2. Theoretical framework

Over the past decade, much of the developing world has experienced a significant mortality decline, while fertility typically has remained high for some time. These changes, broadly referred to as the 'demographic transition', have greatly affected age structures and produced youthful populations, or 'youth bulges', in many countries. Often, great shifts in the age structure overall has led to particularly strong increases in urban youth populations due to migration of young people from rural areas into cities in search of education and jobs (Lee, 1966; McKenzie, 2008; Homer-Dixon, 1999: 157). Sometimes, age selection in migration can be considerable given that young people are more likely to have higher future earning potential and also less likely to have investments in a family or other local interests which would prevent them from moving (Lundborg, 1991).

The literature on youth bulges and political violence has in particular focused on spontaneous and low-intensity disturbance and violence similar to what we may expect to find in urban settings. Youth bulges arguably provide both opportunities and motives for social disturbance and political violence. According to what is generally referred to as the 'opportunity perspective', engagement in political violence is seen as a rational economic calculation of potential benefits over expected costs. The presence of relatively large youth cohorts is a factor that generally can be argued to reduce the opportunity cost of young persons (Collier, 2000: 94;

[2] A total of 42 cities are represented in either 1993 or 1998.

Machunovich 2000: 236). Specifically, social or economic marginalization might prevent the accumulation of human capital and wealth and increase competition for employment, thereby reducing the 'alternative cost' to engaging in violence (Collier, 2000; Collier & Hoeffler, 2000). Where some form of benefit exists that exceeds expected costs of participating, the risk of disturbance and violence increases. While low-intensity social disturbance events may offer relatively small economic benefits, they might involve rents like looting, protection money and ransoms. On the other side, the cost of participation may also be quite small.

Another strain of the literature focuses on how youth bulges may provide motives for political violence. Large youth cohorts have been argued to be particularly likely to provide motivation for violence if they face unemployment, expansions in higher education with limited employment opportunities, lack of political openness, and crowding in urban centers (Moller, 1968; Choucri, 1974; Braungart, 1984; Huntington 1996; Goldstone, 1991; 2001; Cincotta et al., 2003). Hence, youth engage in violence as a means to redress economic, political or social inequalities and perceived grievances. Homer-Dixon (1999: 157) claims that 'young urban populations, especially unemployed young men, are easier to mobilize for radical political ends; and young populations generate enormous demands for the provision of social resources like education and jobs'. Further, in urban areas where young men have lost touch with their families and rural support networks, gangs or armed groups may offer camaraderie and support as an alternative to a family unit (Stavrou et al., 2000).

Previously, Fearon & Laitin (2003) and Collier & Hoeffler (2004) have not found any support for the youth bulge hypothesis in cross-national studies of civil war, while Esty et al. (1998) found a statistical relationship between youth bulges and ethnic conflict, and Urdal (2006; 2008) reports statistically significant effects of youth bulges on low-intensity political violence. Hoelscher (2008), in what may be the first city-level time-series study of urban insecurity, finds that national-level youth bulges are statistically associated with higher homicide rates in cities. While we do not propose that young urban age structures necessarily lead to increased disturbance and violence, forms of exclusion that may pertain especially to large youth cohorts, such as depressing effects on young male employment rates and wages (see e.g. Korenman & Neumark, 1997; Machunovich, 2003) are not necessarily well captured by existing data sources. Hence, assuming that large urban youth cohorts are more likely to experience economic and social exclusion, we propose that generally:

H_1: Large urban youth bulges are associated with higher levels of urban social disorder.

2.1 Economic exclusion and unemployment

When overurbanization combines with underdevelopment, and where job creation and economic growth can't keep up with urban growth, violence and instability may arguably arise (Goldstone, 2002: 10). Youth unemployment is a significant problem in much of the developing world. The inability to find gainful employment limits young people's income and skill development. Early age unemployment can negatively affect future earnings and increase the likelihood of later joblessness (e.g. see ILO, 1998, 2004; Mroz & Savage, 2001). Further it appears that urban youth often face far higher unemployment than the general population. This is particularly evident in Sub Saharan Africa, where, for example, Ethiopia's urban youth unemployment is 37.5% compared with the overall 8.1% unemployment rate (Brewer, 2004: 4). Similarly, 56.8%

of Namibia's 15-19 year old urban youth are unemployed compared to 24.2% of rural youth and 19.5% of the general working age population overall (Kayenze et al, 2000: 7).

A challenge when assessing the level of economic exclusion among young people across countries and time is the lack of relevant indicators. Youth unemployment rates are provided by the ILO only as estimates on the regional level, lacking good and comparable country-level data (ILO, 2008). In addition to using indicators of underemployment, measured as unemployment rates and employment in the informal sector, we also assume that overall changes in income per capita is a proxy that to some extent captures changes in employment opportunities among young people:

> H_2: The lower prospects for employment, the greater the effect of large urban youth bulges on urban social disorder.
>
> H_3: The lower per capita growth in income, the greater the effect of large urban youth bulges on urban social disorder.

2.2 Education

Generally, higher education is a factor that should be expected to reduce the likelihood that young people engage in political violence, due to higher opportunity cost (Collier & Hoeffler, 2004). This argument may pertain in particular to the recruitment to rebel organizations. Young men with low education and low prospects for employment are more susceptible to joining a rebel group as a way to generate a livelihood. Interestingly, Oyefusi (2008) finds that while educated youth in the Niger Delta were generally more politically mobilized and more aggrieved, uneducated youth were more likely to be willing to participate in armed struggle for local resource control. This is also supported by Barker & Ricardo (2005). Furthermore, low education levels are generally associated with higher risks of armed conflict (Thyne, 2006; Barakat & Urdal, 2008).

But it has also been suggested that high unemployment among educated youth is one of the most destabilizing and potentially violent socio-political phenomena in any regime (Choucri, 1974: 73; Braungart, 1984: 16; Goldstone, 2001; Winckler, 2002: 635). In countries in the Middle East and North Africa (MENA), many Islamic movements that challenged authoritarian governments in the 1990s were fueled by large educated youth cohorts entering the labor markets during a period of weak economic conditions (Yousef, 2003: 23). In many countries it has also been observed that educated youth experience higher unemployment rates than uneducated youth. In the 1990s, for example, MENA had the world's highest youth unemployment rates, yet the expansion of education had little impact on reducing this. In Morocco and Algeria, unemployment rates among higher educated youth have been as high as 70% (World Bank, 2008: 220). But there is also an issue of mismatch between the skills that students obtain and the demands of the labor market in MENA. Here higher education is largely seen as a way to secure public sector employment, a legacy from large-scale public employment schemes. The education system does not, however, stimulate the development of skills that are in demand in the growing private sector, such as independent and critical thinking (Salehi-Isfahani and Dhillon, 2008; World Bank, 2008). The expansion of tertiary education without the ability for graduates to be absorbed in to the labour force has been argued to have a radicalizing effect and aid recruitment

for militant organizations (Lia, 2005: 145–146). Similar grievances promoting educated youth to engage in political violence have been anecdotally reported in Kenya (Kahl 1998:103), Thailand (Xenos 2004:28), and Sri Lanka (Braungart 1984:14–15).

> H_4: The lower the level of education, the greater the effect of large urban youth bulges on urban social disorder.

> H_5: The stronger the increases in youth with higher education, the greater the effect of large urban youth bulges on urban social disorder.

2.3 Gender imbalance

Gender selection in migration can lead to gender imbalances in urban youth populations. In many countries, rural to urban migration has traditionally been dominated by young male labor migrants, often engaged in seasonal, circular migration. It has been suggested that the male selectivity in migration may be due to greater returns to migrating for males. The urban to rural wage gap is generally greater for males than for females, and as a result the observable gains to migrating to cities are greater for males (Agesa & Agesa, 1999). At the same time, high fertility levels have traditionally contributed to limit mobility for women (Brokerhoff & Eu, 1993). However, in more recent decades there has been a greater recognition of the 'feminisation of migration' (Castles & Miller, 1998), and in some developing countries the propensity to migrate is now greater for young women than for young men. Some scholars have argued that male surpluses create competition for marriage and jobs between young unattached males, increasing the risks for instability and violence (Mesquida & Wiener, 1996; Hudson & den Boer, 2004).

> H_6: The greater the number of young urban males over young urban females, the greater the effect of large urban youth bulges on urban social disorder.

3. Research design and model

The study covers 55 major cities, 23 in Sub-Saharan Africa and 32 in Central and East Asia, in 49 different countries for the 1960-2006 period. The temporal-spatial domain is determined by a new dataset on urban social disorder compiled from electronic news reports in the 'Keesing's Record of World Events' (KRWE). The data collection builds on a similar project developed for the State Failure Task Force (Marshall, 2001). All electronic searches were done manually by human coders, using a specific search algorithm containing terms associated with political violence and disturbance (see Urdal, 2008b). Each returned report was then screened individually to determine relevance. For all events that were deemed relevant, the following information was coded: name of country and city; type of event; day, month and year for the beginning and the end of an event; actor(s) and target(s); number of participants and number of deaths; location of event. Type of event was chosen from a pre-defined list of 12 categories, while no pre-defined categories were developed for actors and targets. Given the sometimes limited information provided by the news reports, a set of coding rules were developed to determine whether an event should be included in the dataset. First, it was established whether the event took place within the bounds of the city in question. Events were generally included if the location was

reported as having happened 1) in the city itself, or in a location clearly defined as part of the city; 2) in the 'suburbs' or 'outskirts' of the city in question; 3) near or in a central government building when coding a national capital; 4) at a location that the coders were able to locate as being within the city (for instance a specific palace or monument). Second, events that according to the report appeared to have a purely criminal, non-political motive were excluded, although in some cases it was not possible to establish firmly whether an event was of political or criminal character. Third, it was necessary to develop procedures to distinguish between discrete events in a series of related disturbance. Events were coded as discrete events if (in decreasing order of importance): 1) it was possible to distinguish between different actors and targets; 2) events took place in different locations; 3) reported motives for the events were clearly different. As a rule of thumb, at least two of these criteria had to be met before an event was coded as a separate event. However, if a report clearly identified different actors and/or targets, events were coded separately. Furthermore, the time period within which a series of events happened determined whether events were coded as discrete. If a series of events involving the same actors and targets happened within a short period of time, this would normally be coded as one event (typically several bombs against government targets happening within few days). If events involving the same actors and targets are spaced by at least seven days, they would normally be coded as different events.

While news reports in the KRWE do not cover all relevant social disturbance events, we assume that the levels of social disturbance reported are representative for trends between cities and across time. However, there are potentially important biases in such event data. First, strong and autocratic regimes may to some degree succeed in censoring information about disturbance events. On the other hand, they are also likely to be relatively successful in preventing disturbance events from happening; distinguishing between bias and regime effect is inherently difficult.[3] A second potential bias may arise from the fact that certain geographic areas are better covered by the media than others. Events happening in countries that are low on the international agenda may be less likely to be reported than similar events in countries of high political and economic strategic importance. Finally, a third bias may arise from improvements in communications technology over time and increasing international presence in more locations generally, which could lead to a time trend bias. These time trends may also vary geographically, as certain regions may wane in economic or geopolitical importance over time, while others wax.

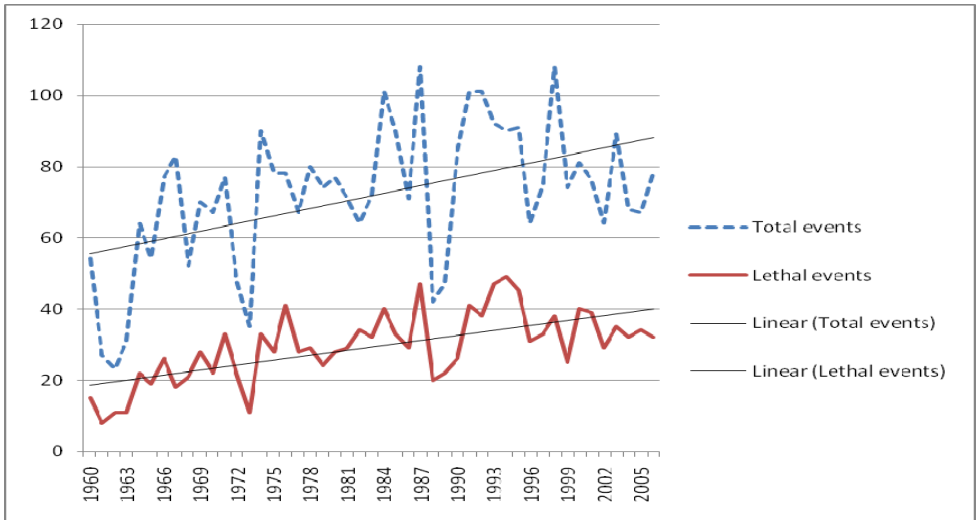
The dataset covers different forms of both violent and non-violent politically motivated disorder, including demonstrations, rioting, terrorism and armed conflict. To the extent that information in the news sources allow, each event is coded with precise date and location, and casualties. Here, we use two count measures of urban social disorder aggregated to the annual level for each city. We separate between *lethal events,* including only those events reported to have resulted in at least one death, while *non-lethal events* include only those events where no deaths were reported. While we assume that most non-lethal events are also *non-violent* events, we cannot rule out that for some events, deaths that did occur were never reported in news sources.

There are a total of 3,375 events coded, of which 1,378 (40.8 per cent) are reported to have led to fatalities. When added together we can see that, over time, there has been an increasing trend, both in the number of total events and in the number of lethal events, albeit

[3] Pyongyang, North Korea, has been excluded from this dataset since it represents an extreme case in point.

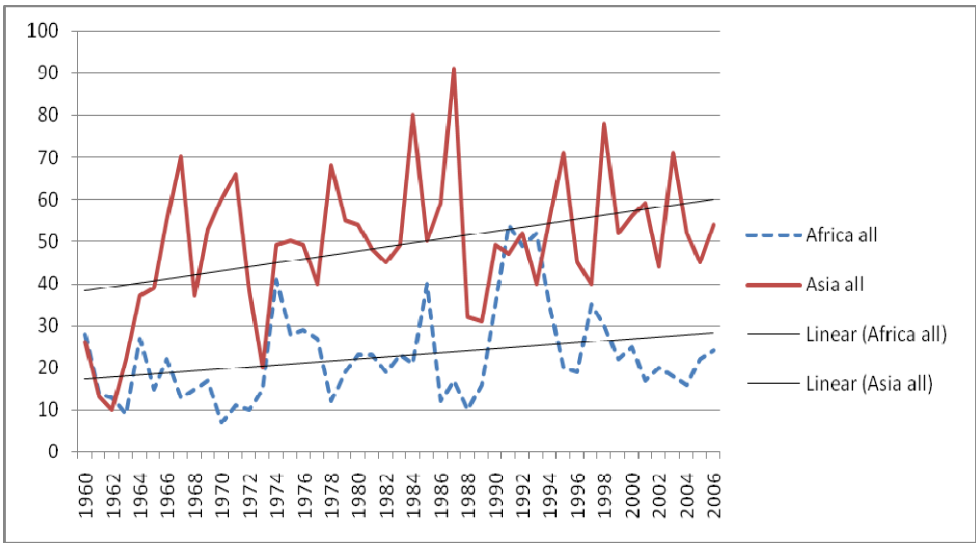
with very considerable variation from one year to the next (Figure 1). As can be seen from the linear trends, the total number of events has been rising more rapidly than the number of lethal events. This could be a consequence of better reporting, where, over time, less serious events are reported to a greater extent in the media.

Figure 1 Trends in all and lethal events, 1960-2006



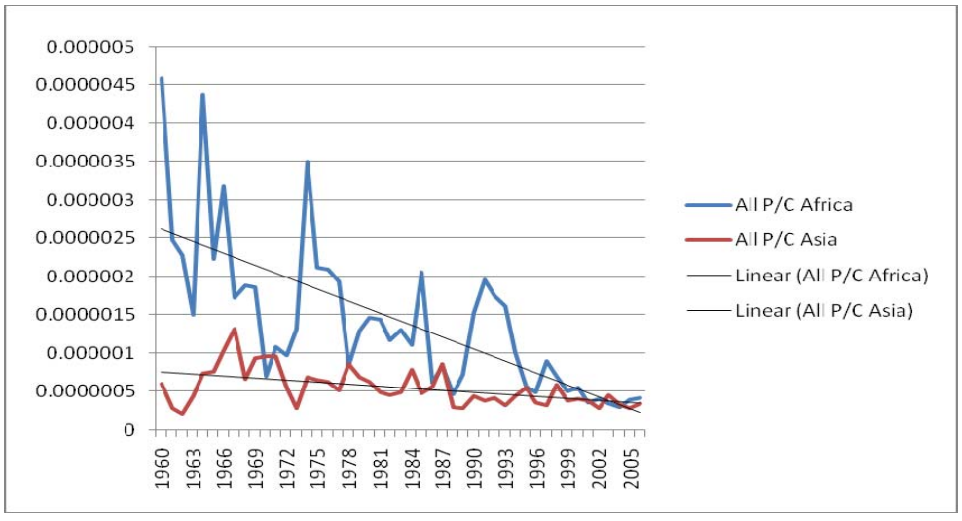
When separating African and Asian events, Africa is trailing behind in absolute numbers, partly because there are fewer African cities coded (Figure 2). If we consider the time-trends, it is clear that over time the increase in reported events has been greater for Asian than for African cities, as illustrated by the steeper Asian linear trend line. For the entire period 1960-2006, 72 social disturbance events were reported for the average Asian city, against 46 reported events for the average Sub-Sahara African city.

Figure 2 Trends in all events by region, 1960-2006



If we consider instead the relationship between city population size and urban social disorder events (Figure 3), we get an idea about trends in 'per capita' disturbance. If more people living in cities would automatically mean more disturbances we would expect to see a stable, horizontal per capita trend over time. However, Figure 3 shows a clearly declining trend, and especially so for Sub-Saharan Africa, indicating that the growth in urban populations has been much greater than the growth in social disorder events.

Figure 3 Trends in per capita events by region, 1960-2006



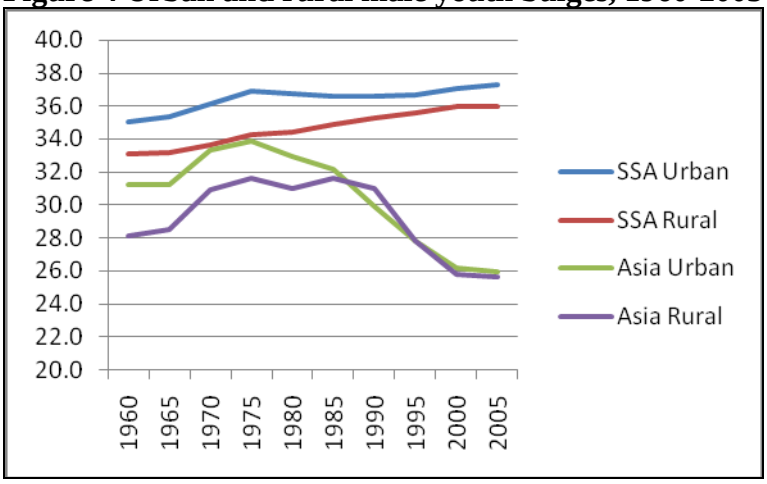
We use negative binomial regression to analyze both event count measures. This approach was chosen due to the skewed distribution of events with a few high-violence observations and a majority of relatively peaceful ones. The unit of analysis is city-year, and the models are run with a *lagged dependent variable* to account for the fact that observations over time for the same city are not independent, and with *city fixed effects* to account for unobserved city-specific factors. 33.9 per cent of all city-years have coded one or more non-lethal events, while for 25.2 of the city-years, there are at least one violent event coded.

The main explanatory variable is the relative size of young males in the male urban adult population. Estimates for rural and urban populations by gender and age for all countries in the world have recently been made available by the United Nations Population Division (UN, 2008b). The estimates are disaggregated into 5 year age groups covering each 5 year period from 1950 to 2005.

From this data source, we calculate two measures, *urban male youth bulges* and *urban male youth growth*. The former is defined as the urban male population aged 15-24 year olds as a percentage of the urban male population of 15 years and above, and measures the 'youthfulness' of the urban adult male population. Urban male youth growth is defined as a ratio measuring the number of 15-24 year old males in one five-year period compared to the number of 15-24 year old males in the previous five-year period. Hence, this is an indicator of how rapid the youth population is growing.

Because there are often both age and gender selection in rural to urban migration, one might expect to see biases in urban populations both in age and gender composition. Figure 4 shows this trend. In Sub Saharan Africa 15-24 year old males consistently comprise a greater percentage of the population than in rural areas. Asian countries however have shown both a decline in the relative size of both rural and urban youth populations.

Figure 4 Urban and rural male youth bulges, 1960-2005



A particular concern for this project has been whether the country-level estimates for the entire urban populations reasonably reflect the age and gender composition of the specific cities included in the empirical analysis. As a starting point for assessing the relevance, we compared

the estimates for total population size for each city with the corresponding estimate for the total urban population of that country from the UN data. The discrepancy between city population size and total urban population was largest for the two most populous countries, China and India. Beijing made up only 2.2 percent of the 2005 urban population in China, while New Delhi, Mumbai and Calcutta together accounted for about 13 percent of the urban Indian population. Generally, Sub-Saharan African cities make up a greater share of their country's total urban population compared to Asian cities. Of the 54 cities for which there are corresponding country estimates[4], 22 of the cities have populations that exceed 30 percent of total urban population in 2005, while 30 cities make up 20 percent or more. In most cases, the cities included in this analysis accounted for a larger share of total urban population in previous decades. To try to reduce possible biases caused by actual differences in age and gender structures between total urban population and that of the cities in question, we also ran models excluding the cities that accounted for the lowest shares of total urban population.[5]

Measures for five contextual factors used to construct interaction variables with urban male youth bulges were compiled. National-level estimates for *secondary educational attainment* levels for 20-24 year-old males and *expansion in tertiary education* for males aged 20-29 were taken from Barakat & Urdal (2008). Data on *informal unemployment* measures the share of population employed in the informal sector on the city level, and originate from the UN Habitat's (2008) Global Urban Observatory. We assume that higher levels of informal employment reflect lower economic opportunities in the formal economy. The database provides estimates for two points in time only, 1993 and 1998. The 1993 estimates were assigned to the 1990-1995 period, while the 1998 estimate was assigned to years from 1996 through 2000. Data on *urban male youth bias* comes from UN (2008b), while *annual economic growth rates* are calculated based on real GDP per capita estimates provided by Gleditsch (2002). All interaction variables were centered on their means.

We further added the following control variables: *level of development* measured by real GDP per capita (Gleditsch, 2002), *regime type* (Marshall & Jaggers, 2000), *city population size* (UN, annual, see Appendix C for variable construction), and *ongoing armed conflict* (Gleditsch et al., 2002). More details on coding and sources are provided in Appendix C.

A major caveat about the present study is the general low availability of relevant and comparable time-series data on the city level. The use of national-level aggregate measures raises the issue of whether these are valid as indicators of city-level conditions. Furthermore, there are quality and coverage issues with the UN Habitat's (2008) Global Urban Observatory (GUO) data. The GUO provides a total of 20 key indicators related to social, economic, environmental and governance issues, for a total of about 200 cities. However, only two rounds of data collection have been completed by the UN Habitat (1993 and 1998), while the results from a third round have yet to be made available. Even for the two data points that have been made public, not all cities and all indicators are covered in both rounds. Unemployment rates, for instance, are only available for the 1998 round.[6] The informal unemployment data that we have

[4] The UN does not provide data for Taiwan (Taipei).
[5] In addition to the mentioned Chinese and Indian cities, we also excluded Lhasa and Islamabad.
[6] The very limited coverage of this variable unfortunately proved to make it impossible to use for the current study. We also considered other GUO variables, in particular slum indicators and tenure status that could potentially proxy economic exclusion, but none of the alternative indicators were found to be sufficiently helpful.

included are also of somewhat questionable reliability. There is insufficient information provided on the sources and estimation techniques used to arrive at figures for the size of the informal sector, and for certain cities, there are very significant changes between the two observations. One example is Colombo, Sri Lanka, where informal employment levels are measured at 19 percent in 1993, and 69 per cent in 1998.

Finally, there is an issue of potential endogeneity related to the use of the economic growth variable. While it is a highly plausible scenario that economic decline and economic shocks are related to social urban disorder, and conversely that high economic growth may contribute to quell urban disorder, it is also plausible that serious episodes of disorder may have a negative impact on economic growth rates. The most serious episodes of disorder in the dataset are related to armed conflicts, and to account for the impact that conflict may have on economic productivity we are controlling for ongoing armed conflict in the empirical models. This should at least partly mediate the problem of endogeneity. While the lagging of explanatory variables is a common way to reduce endogeneity problems, there are no compelling theoretical reasons for doing so in this case as economic growth in one year is less likely to be associated with urban social disorder the year after. The possible two-way relationship between economic growth and urban social disorder calls for additional caution in interpreting this beyond providing a correlational association.

4. Results

Table 1 displays the results from the basic model including the measures for urban male youth bulges and urban male youth bias, and control variables. We have separated the analysis into lethal and non-lethal events, as the two types of events seem to be associated with slightly different patterns and because combined models did not provide important additional insights. The sign for urban male youth bulges is positive for lethal events (Model 1), but clearly statistically insignificant, while negatively associated with nonlethal events (Model 2). While the latter relationship is also statistically insignificant, the greater Z score indicates that the relationship is statistically more robust.[7] Urban male youth bias is very clearly not statistically associated with levels of urban social disorder in any of the models in Table 1, nor in any later models. When considering the growth in urban male youth populations (Models 3 and 4), the term is negative and statistically insignificant, but again with relatively high Z scores. Hence, the overall finding from the basic models is that urban youth bulges and growth in urban youth populations appear to be associated with lower levels of disturbance rather than higher.

Among the control variables, the size of city population is consistently positively associated with disorder, although statistically significant only in Model 1. While also statistically insignificant, higher income levels are associated with less lethal events, but more non-lethal events, while higher economic growth rates are consistently and clearly statistically associated with lower levels of disturbance. Semi-autocratic governments appear to have higher levels of both lethal and nonlethal disturbance events than autocracies and democracies. Furthermore, and expectedly, ongoing armed conflicts and the lagged dependent variable

[7] Given the exploratory nature of this project we will also be commenting upon the relative strengths of relationships that fail to achieve conventional levels of statistical significance.

measuring the number of disorder events in the previous year are consistently and strongly associated with higher levels of urban social disorder.

The four models were also run on the reduced sample excluding Islamabad and cities in China and India,[8] and in separate runs without controls for armed conflict and prior social disorder. None of these alternative models produced discernable changes in the main results.

Table 1 Basic Models

Explanatory Variables	**Model 1**	**Model 2**	**Model 3**	**Model 4**
	Lethal events	**Nonlethal Events**	**Lethal events**	**Nonlethal events**
Urban male youth bulges β z	0.005 (0.28)	-0.023 (-1.58)		
Urban male youth growth			-0.381 (-1.58)	-0.255 (-1.15)
Urban male youth bias	-0.057 (-0.12)	0.030 (0.08)	0.271 (0.51)	-0.125 (-0.28)
City pop	0.005** (2.11)	0.003 (1.47)	0.003 (1.33)	0.002 (1.11)
Real gdp pc	-0.027 (-0.75)	0.027 (1.24)	-0.049 (-1.40)	0.029 (1.41)
Real gdp per capita growth	-0.018*** (-2.49)	-0.010* (-1.77)	-0.019*** (-3.31)	-0.012** (-2.15)
Regime type	0.005 (0.49)	0.015* (1.85)	0.009 (0.90)	0.019** (2.44)
Regime squared	-0.011*** (-5.61)	-0.007*** (-4.65)	-0.010*** (-5.40)	-0.007*** (-4.09)
Missing regime data	0.092 (0.39)	-0.033 (-0.12)	0.096 (0.41)	-0.030 (-0.11)
Ongoing armed conflict	0.543*** (5.08)	0.221** (2.31)	0.553*** (5.12)	0.204** (3.41)
Lagged dependent	0.101*** (6.39)	0.090*** (8.86)	0.096*** (6.02)	0.090*** (8.77)
Constant	-0.352 (-0.39)	0.504 (0.71)	0.055 (0.08)	0.206 (0.35)
N No. of cities Log Likelihood	2,042 50 -1540.00	2,089 52 -2006.96	1,883 50 -1458.98	1,930 52 -1884.63

* Sign at 0.1 ** Sign at 0.05 ***Sign at 0.01.

In Table 2, the same four models are run separately for Sub-Sahara African cities. The models largely reproduce the results from Table 1, but there are some notable differences. In Model 5, urban male youth bulges are significantly and positively associated with higher levels of lethal events. However, the *growth* in urban youth populations is associated with significantly lower

[8] This was done to see if the results changed if we excluded the cities for which the city population only made up a very small share of the total urban population. The rationale for doing this was to reduce potential bias from using national-level age structure data rather than city-level.

levels of both lethal and nonlethal events. This difference between level and change may suggest that while pressures associated with large urban youth bulges may be associated with higher levels of lethal disturbance in Sub-Sahara African cities, young people in SSA generally migrate towards the urban centers that provide opportunities. Hence, growth in urban youth populations may primarily reflect where economic opportunities are most promising. Income levels, economic growth, democracy, armed conflict and prior disorder have similar effects for the SSA countries as for the entire sample.

Table 2 Sub-Saharan Africa

Explanatory Variables	**Model 5**	**Model 6**	**Model 7**	**Model 8**
	Lethal events	**Nonlethal events**	**Lethal events**	**Nonlethal events**
Urban male youth bulges β z	0.088** (2.06)	-0.027 (0.96)		
Urban male youth growth			-1.425** (-2.12)	-1.319** (-2.13)
Urban male youth bias	0.434 (0.53)	-0.083 (-0.11)	1.209 (1.42)	0.233 (0.31)
City pop	0.004 (0.65)	-0.001 (-0.13)	0.007 (1.08)	-0.002 (-0.33)
Real gdp pc	0.020 (0.21)	0.191** (1.98)	-0.099 (-1.14)	0.210** (2.31)
Real gdp per capita growth	-0.023*** (-2.71)	-0.014* (-1.65)	-0.022*** (-2.60)	-0.013 (-1.59)
Regime type	0.023 (1.34)	-0.010 (-0.55)	0.013 (0.72)	-0.012 (-0.73)
Regime squared	-0.013*** (-3.86)	-0.011*** (-3.70)	-0.013*** (-3.85)	-0.010*** (-3.38)
Missing regime data	-0.038 (-0.05)	-0.733 (-0.78)	-0.736 (-0.83)	-0.832 (-0.86)
Ongoing armed conflict	0.438*** (2.67)	0.261* (1.67)	0.432*** (2.60)	0.246 (1.60)
Lagged dependent	0.096*** (3.08)	0.115*** (3.53)	0.092*** (2.90)	0.110*** (3.34)
Constant	-3.748** (-2.15)	0.571 (0.46)	0.602 (0.53)	0.889 (0.88)
N	872	872	872	872
No. of cities	23	23	23	23
Log Likelihood	-615.67	-732.24	-615.56	-730.30

* Sign at 0.1 ** Sign at 0.05 ***Sign at 0.01.

The first three interaction models are presented in Table 3. Neither secondary educational attainment, expansion in tertiary education, nor high levels of informal employment interact with large urban male youth bulges to increase the level of social disturbance. The closest in terms of statistical significance levels, is that the interaction between urban youth and expansion in tertiary education is positively associated with higher levels of nonlethal events (Model 12). Interestingly, higher levels of secondary educational attainment are clearly associated with lower

levels of lethal events. The pacifying effect of secondary education also holds when the interaction term is excluded from the model. Income and education are often considered to both measure pacifying aspects of 'development', but similar to what has been found for armed conflict (Barakat & Urdal, 2008), educational attainment seems to curb political violence beyond the effect of income. Expansion in tertiary education, on the other hand, does not appear to affect levels of social disturbance when entered separately.

Table 3 Interaction Models

Explanatory Variables	**Model 9**	**Model 10**	**Model 11**	**Model 12**	**Model 13**	**Model 14**
	Lethal events	**Nonlethal events**	**Lethal events**	**Nonlethal events**	**Lethal events**	**Nonlethal events**
Urban male youth bulges	β z	-0.015 (-0.49)	-0.050** (-2.34)	-0.040 (-1.21)	-0.060*** (-2.76)	-0.062 (-0.81)	-0.038 (-0.81)
Secondary education (inv)		-1.687*** (-2.66)	0.054 (0.10)				
Urban yb* secondary (inv)		-0.068 (-0.75)	-0.055 (-0.89)				
Expansion tertiary ed.				1.842 (0.45)	3.049 (1.00)		
Urban yb* exp. tertiary ed.				0.113 (0.17)	0.406 (1.29)		
Informal employment						-0.326 (-0.32)	1.920** (2.11)
Urban yb* informal empl.						-0.135 (-0.67)	0.163 (0.97)
City pop		-0.009** (-2.12)	0.002 (0.64)	-0.001 (-0.17)	0.001 (0.22)	0.001 (0.13)	0.004 (0.71)
Real gdp pc		-0.033 (-0.59)	0.050 (1.51)	-0.067 (-0.97)	0.028 (0.81)	-0.172 (-0.54)	0.120 (1.05)
Real gdp per capita growth		-0.032*** (-3.34)	-0.018** (-2.06)	-0.027*** (-2.68)	-0.020** (-2.18)	-0.030* (-1.69)	-0.036** (-2.41)
Regime type		0.003 (0.28)	0.012 (1.20)	0.005 (0.45)	0.013 (1.27)	0.026 (0.88)	-0.028 (-1.27)
Regime squared		-0.008*** (-3.05)	-0.010*** (-4.84)	-0.010*** (-3.58)	-0.013*** (-5.48)	-0.015** (-1.99)	-0.004 (-0.68)
Missing regime data		-0.364 (-0.63)	-1.420* (-1.93)	-0.420 (-0.72)	-0.990 (-1.32)		
Ongoing armed conflict		0.446*** (3.21)	0.091 (0.75)	0.388*** (2.73)	0.077 (0.62)	0.418 (1.36)	0.222 (0.82)
Lagged dependent		0.080*** (3.57)	0.075*** (5.75)	0.067*** (2.79)	0.069*** (4.98)	-0.011 (-0.15)	0.009 (0.20)
Constant		0.377 (1.28)	0.034 (0.15)	0.328 (1.02)	0.314 (1.35)	1.417 (1.19)	-0.267 (-0.49)
N		1,209	1,278	1,096	1,160	268	301
No. of cities		40	43	40	43	27	30
Log Likelihood		-921.14	-1236.28	-842.88	-1126.98	-206.00	-289.15

* Sign at 0.1 ** Sign at 0.05 ***Sign at 0.01. Interaction and constitutive terms are centered on their means. Secondary education has been inverted so that a high value on the interaction term reflects high urban youth bulges and low secondary educational attainment.

The last two interaction variables are presented in Table 4. The economic growth variable has been inverted to create an interaction term where a high value indicate large youth bulges and low economic growth, expected to be associated with higher levels of disturbance. However, neither urban male bias nor low economic growth appears to influence the relationship between urban male youth bulges and disturbance in the expected direction. On the contrary, the interaction term between youth and economic growth is negative and statistically significant at the 10% confidence level.

Table 4 Interaction Models

Explanatory Variables	**Model 15**	**Model 16**	**Model 17**	**Model 18**
	Lethal events	**Nonlethal events**	**Lethal events**	**Nonlethal events**
Urban male youth bulges β_z	0.001 (0.07)	-0.022 (-1.51)	0.005 (0.27)	-0.025* (-1.74)
Urban male youth bias	0.223** (2.09)	-0.051 (-0.61)		
Urban yb* male bias	-0.366 (-0.74)	0.075 (0.19)		
Economic growth (inv), $_{t-1}$			0.017** (2.51)	0.013** (2.26)
Urban yb* ec growth (inv) , $_{t-1}$			0.001 (0.48)	-0.002* (-1.66)
City pop	0.005** (1.96)	0.003 (1.49)	0.005** (2.16)	0.003* (1.65)
Real gdp pc	-0.037 (-1.03)	0.029 (1.32)	-0.028 (-0.77)	0.025 (1.14)
Real gdp per capita growth	-0.018*** (-3.15)	-0.010* (-1.79)		
Regime type	0.005 (0.48)	0.015* (1.86)	0.005 (0.47)	0.014* (1.74)
Regime squared	-0.011*** (-5.84)	-0.007*** (-4.60)	-0.011*** (-5.60)	-0.008*** (-4.77)
Missing regime data	0.134 (0.56)	-0.062 (-0.22)	0.092 (0.39)	-0.041 (-0.15)
Ongoing armed conflict	0.572*** (5.30)	0.216** (2.24)	0.542*** (5.08)	0.220** (2.31)
Lagged dependent	0.100*** (6.37)	0.090*** (8.84)	0.101*** (6.43)	0.089*** (8.92)
Constant	-0.175 (-0.97)	-0.277* (-1.95)	-0.261 (-1.51)	-0.273** (-1.99)
N No. of cities Log Likelihood	2,042 50 -1537.77	2,089 52 -2006.78	2,041 50 -1539.71	2,088 52 -2005.23

* Sign at 0.1 ** Sign at 0.05 *** Sign at 0.01. Interaction and constitutive terms are centered on their means. Economic growth has been inverted so that a high value on the interaction term reflects high urban youth bulges and low economic growth.

5. Discussion

Issues of urban governance and urban insecurities have received increasing attention with the rapid urbanization rates in many developing countries. Many governments also perceive rapid urban growth as problematic and have implemented measures to curb urban growth rates. This paper addresses one of the emerging urban security concerns, whether large young male populations congregating in urban centers may contribute to political instability and violence, here generally referred to as 'social disorder'. While large young male populations in urban centers are often perceived as a potential source of instability and violence in the context of high levels of economic, social and political exclusion, urban centers may also offer better economic opportunities for young people compared to rural areas. Hence, under some conditions, the migration of young people from the countryside to cities could contribute to reduce overall youth exclusion, and should not necessarily be expected to increase levels of urban social disorder.

This paper offers an empirical analysis into the relationships between urban male youth bulges, youth exclusion, and social disorder. The analysis contributes to the recent move towards geographically disaggregated analysis in quantitative studies of political violence by investigating these relationships at the city-level. We are utilizing a new dataset on social disturbance events for 55 large urban centers in Asia and Sub-Saharan Africa for the 1960-2006 period, and combine these in a time-series analysis with data on the city or urban level as well as national-level indicators. To the best of our knowledge, this is the first quantitative analysis of political instability and violence looking only at cities, and given the lack of comparable studies, the results should be interpreted with some caution. Taken together, the empirical investigation concludes that large urban male youth bulges do not seem to generally increase levels of social disorder in large cities in Asia and Sub-Saharan Africa. Most importantly, large urban male youth bulges do not seem to equate high levels of youth frustration and exclusion. Hence, the extent of youth exclusion may not primarily be a product of the relative number of youth in cities. However, a relationship that in particular calls for a more detailed analysis, is that when we only look at the cities in Sub-Saharan Africa, *growth* in the youth population aged 15-24 is associated with a significantly lower risk of social disturbance, while higher *levels* of young males in the adult male population is associated with more lethal events. This may suggest that rural to urban migration of youth is particularly high in periods and places where opportunities for urban jobs and education are good, so that urban youth growth rates is really an indicator of relatively low youth exclusion.

Furthermore, large urban male youth populations do not seem to increase the risk of disturbance more even in the context of low secondary education opportunities, or after the expansion of tertiary education that could cause a rapid increase in the number of highly educated youth with limited employment opportunities. Similarly, also in the context of high levels of informal employment, low economic growth, or gender imbalances in the urban youth population, large urban male youth bulges appear to be unrelated to social disorder. However, while there is no strong statistical relationship between urban youth bulges and social disorder, even in the context of unfavorable conditions, several other factors that may greatly affect opportunities for youth are significantly contributing to explain where and when social disorder events take place. First, semi-democratic regimes experience more social disturbance events, presumably due to a lack of institutional arrangements that allow people to voice their grievances nonviolently at the same time as such regimes generally lack the capacity to effectively suppress dissent (see also Hegre et al. 2001). Recruitment opportunities to political positions may in many

contexts at least partly take a generational form, excluding large youth groups from political participation. Second, low economic growth is consistently increasing the risk of social disturbance. While low economic growth may reduce economic opportunities across broad age segments, periods of economic downturn that limit new job creation are likely to affect youth more strongly since they have just entered the labor market. Third, low secondary education levels among young males aged 20-24 are also strongly associated with higher levels of disturbance, whether or not large urban male youth bulges are present. Low education levels may signal low government responsiveness to the needs of young people, and low economic opportunities in the modern sectors.

The current study represents a first correlational, exploratory investigation of patterns of urban social disorder, with a particular focus on the significance of age structure and contextual factors. The study is severely restricted by the lack of high-reliability city-level indicators of youth exclusion. Given the increasing attention paid to issues of urban governance and urban youth populations, improved city-level data is crucial in order to be able to monitor urban development generally and youth exclusion in particular. The lack of a clear statistical association in the current study should not discourage efforts to include youth in development strategies. Some of the general relationships uncovered suggest that youth exclusion may be a factor in urban social disorder, even in the absence of extraordinarily large urban youth bulges.

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APPENDIX A: CITIES COVERED, EVENT COUNT

City	Country	No. events	No. fatal	% fatal
Abidjan	Ivory Coast	47	19	40
Accra	Ghana	30	9	30
Addis Ababa	Ethiopia	71	42	59
Almaty	Kazakhstan	8	3	38
Antananarivo	Malagsy Republic	27	12	44
Ashgabad	Turkmenistan	2	1	50
Astana	Kazakhstan	0	0	-
Bamako	Mali	15	5	33
Bangkok	Thailand	61	15	25
Bejing	China	105	10	10
Bishkek	Kyrgyz Republic	17	4	24
Brazzaville	Congo	38	27	71
Calcutta	India	72	35	49
Colombo	Sri Lanka	93	63	68
Conakry	Guinea	22	9	41
Dakar	Senegal	18	7	39
Dar es Salaam	Tanzania	9	4	44
Dhaka	Bangladesh	130	43	33
Dushanbe	Tajikistan	26	14	54
Hanoi	Dem. Rep. of Vietnam	29	22	76
Harare	Zimbabwe	89	29	33
Islamabad	Pakistan	47	16	34
Jakarta	Indonesia	120	30	25
Johannesburg	South Africa	124	47	38
Kabul	Afghanistan	202	132	65
Kampala	Uganda	53	34	64
Karachi	Pakistan	194	121	62
Kathmandu	Nepal	66	23	35
Khartoum	Sudan	58	19	33
Kinshasa	Zaire	78	27	35
Kuala Lumpur	Malaysia	28	8	29
Lagos	Nigeria	66	32	48
Lhasa	China	15	4	27
Lomé	Togo	39	18	46
Luanda	Angola	37	18	49
Lusaka	Zambia	36	16	44
Manila	Philippines	142	52	37
Maputo	Mozambique	29	14	48
Mogadishu	Somalia	95	61	64
Mumbai	India	49	16	33

Nairobi	Kenya	56	16	29
New Delhi	India	152	45	30
Niamey	Niger	23	7	30
Phnom Penh	Cambodia	69	33	48
Rangoon	Burma	45	15	33
Saigon/Ho Chi Minh C	Dem. Rep. of Vietnam	149	62	42
Seoul	South Korea	129	18	14
Singapore	Singapore	0	0	-
Taipei	Republic of China	28	1	4
Tashkent	Uzbekistan	14	5	36
Teheran	Iran	219	93	42
Tokyo	Japan	51	7	14
Ulan Bator	Mongolia	14	0	0
Vientiane	Laos	30	11	37
Yaoundé	Cameroun	9	4	44
Total		**3375**	**1378**	**41**

Appendix B Descriptive statistics

Variable	**Obs**	**Mean**	**Std. Dev.**	**Min**	**Max**
All events	2575	1.31068	2.627883	0	38
Lethal events	2575	0.5351456	1.359671	0	15
Non-lethal ev.	2575	0.775534	1.734097	0	25
Urban youth b.	2512	34.84697	5.33239	13.89807	51.30927
Gender bias	2512	1.074789	0.1322951	0.7107648	1.924871
Population	2575	22.05392	29.58622	.3003	163.6808
Real gdp pc	2525	3.136006	4.016039	.33209	29.43377
Real gdp pc gr.	2438	1.939579	6.718567	-53.11781	107.5341
Regime type	2521	-2.212217	6.232832	-10	10
Regime squared	2521	43.7267	27.00837	0	100
Missing regime	2521	0.0154701	0.1234373	0	1
Ongoing conflict	2521	0.2788576	0.4485263	0	1
Informal empl.	378	0.4203246	0.2233196	0	0.8
Secondary ed	1386	0.519446	0.2805326	0.0224091	0.9959601
Expansion tert.	1246	0.00879	0.02412	-0.0187816	0.2567919

Appendix C: Coding of city population

For each city year from 1960 to 2006, *United Nations Demographic Yearbooks* were consulted. These sources provide population information for capital cities and those over with over 100,000 residents, and are drawn primarily from national census data, but also include estimates and measurements from sub-national bodies. As with all disaggregated measurements, there are issues measuring between cities using different methodologies to determine city size and what constitutes a city's geographic bounds. The UN Demographic Yearbooks (UNDYB) where possible provide measures of both City Proper (i.e. the Metropolitan Area) and the Urban Agglomeration. Here these are defined as:

City proper is a large locality with legally fixed boundaries and an administratively recognized urban status which is usually characterized by some form of local government.

Urban agglomeration has been defined as comprising the city proper and also the suburban fringe or thickly settled territory living outside of, but adjacent to, the city boundaries.

The UNDYB data has been supplemented by two online sources of urban population measurement: The World Gazzetteer (WG) (www.world-gazetteer.com) and City Population (CP) (www.citypopulation.de). These sites provide census and estimate data as well as that provided by other less verifiable sources. Each data point has been coded according to which source it was derived from, namely:

1. UNDYB, relevant year (1960-2006), City Proper
2. UNDYB, relevant year (1960-2006), Urban Agglomeration
3. World Gazzetteer, relevant year (1960-2006), City Proper
4. World Gazzetteer, relevant year (1960-2006), Urban Agglomeration
5. City Population, relevant year (1960-2006), City Proper
6. City Population, relevant year (1960-2006), Urban Agglomeration

Variable Construction:
Due to the greater scope, and likely reliability of UN data over other online population sources, priority was given to UNDYB census data. Where these values were missing, WG and CP sites were consulted. Encouragingly, the data provided by these two sites very often conferred with values for UNDYB data, indicating they are drawn from similar data sources and may at least provide some similar level of valid measurement of urban population. When constructing the dataset, we gathered data on city size which would reflect the area which incidents of urban violence/protest would be recorded, and which best reflect the size and scale of the city. In many cases, the metropolitan area would certainly underestimate the size of the area and population which would be reported for. A good example of this is Manila. In many cases also, estimates for urban agglomeration would overreport the area and population, such as in Tokyo, whose agglomeration with Yokohama stands at around 37 million, considerably larger than the 12 million in the Tokyo agglomeration. For some cities measures of the metropolitan area and urban agglomeration from different sources were used. This was done to increase the number of

observations but only when there was a high degree of consistency regarding population size and growth rate.

Coding of city population size was done based on the year the observation was reported for. Missing values were replaced by the nearest previously available observation. For example, if no data was available between 1975 and 1978, the 1974 (last available) figure would be used for 1975 through 1977, with the next available figure (1978) then used. If no data was available for the base year 1960, then the closest year prior or following 1960 was used. For example, if a data point was available for 1959 and 1965, the 1959 value was used from 1960 and onwards to the next data point, here 1965. If the data points were 1955 and 1961, the 1961 value was used from 1960, 1961 and on to the next available data point. This method of coding means no population figures calculated from growth rates between available values were inserted. This means population size figures will shift in years with reported observations only. Hence, we avoid making potentially flawed assumptions about rates of growth in urban areas.