



Cambridge Risk Framework

Profile of a Macro-Catastrophe Threat Type

Political Violence

Social Unrest

Centre for
Risk Studies

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Social Unrest

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Abstract

Social unrest represents a range of different expressions of popular dissent, ranging from peaceful protest to armed insurrection. In non-democracies social unrest can escalate into full-scale rebellion to overthrow the regime. In democracies, social unrest is tempered by the process of routine plebiscites, to ensure that the government rules through popular consent – social unrest becomes the mechanism of the disenfranchised or those who perceive strong social injustice that cannot or will not be addressed by the political structure. Inequality and deprivation are powerful drivers of social unrest. Causes can be characterized into structural, proximate, and triggers. Case studies demonstrate how these causes have driven social unrest in historical precedents. The potential hot-spots of future social unrest are reviewed across Europe and United States. An intensity scale is proposed for measuring the severity of civil disorder as a means of developing scenarios for stress testing.

Keywords: social unrest; civil disorder; rebellion; mob rule; geopolitical conflict

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1 Overview of the Threat

1.1 Definitions

Social unrest represents a spectrum of expressions of dissent, ranging from peaceful protest to armed insurrection.

For clarification purposes we define the various terms for social unrest as follows:

1.1.1 Social unrest

Social unrest is activities of dissent by sectors of the population to challenge the established authorities. Social unrest encompasses a range of behaviors aimed at expressing dissatisfaction with current circumstances, services, or treatment. It uses peaceful methods of protest such as anti-establishment commentary, media campaigns, and petitions. It includes marches, protest actions, civil disobedience, civil resistance and non-violent resistance.

Social unrest can escalate into civil disorder.

1.1.2 Civil disorder

Civil disorder, also known as civil unrest or civil strife, is a broad term that is used by law enforcement to describe activities by a group of people that cross the boundary of illegality, such as causing disturbances, preventing people going about their legitimate business, or causing damage. Civil disorder is collective action which challenges established public law and order, and is typically a symptom of, and a form of protest against, major socio-political problems. The severity of the action coincides with public expression of displeasure. Examples of civil disorder include illegal parades, sit-ins, and obstructions, riots, arson, sabotage, looting, and other forms of crime.

Civil disorder is typically not well-organized and may not have formal leadership or explicit aims or objectives. Mobs are typically not armed but may find missiles to throw, start fires, or improvise clubs and other weapons to challenge the authorities and forces of law and order.

1.1.3 Mob rule

Mob rule is a term for an extreme form of civil disorder where law enforcement cannot be maintained and authorities are unable to restore control for a period of time or in a particular geographical area. Law enforcement tactics are typically to contain civil disorder, to prevent it spreading, and to await its natural dissipation, rather than attempting to quell it through force or to escalate it by confronting the activists. Where law enforcement is suspended, mob rule can entail systematic destruction and looting, targeting of minorities or figures of hatred, and may result in bodily harm to sectors of the population.

An outbreak of civil disorder can escalate and attract or adopt leadership to become organized, to formulate aims and objectives, and potentially become equipped with weaponry to escalate into rebellion.

1.1.4 Rebellion

Rebellion is the most extreme form of civil disorder involving uprising, or insurrection, as a refusal of obedience to the established authorities. Rebellion includes the organized objective of the overthrow of the ruling regime. Rebellion that is resisted by the authorities develops into civil war.

Table 1. Levels of Social Unrest

	Social Unrest	Civil Disorder	Mob Rule	Rebellion
	Peaceful protest	Unarmed mob violence	Unarmed mob violence with no law enforcement	Armed organized insurrection
Level description	Demonstrations, sit-ins, non-violent protests	Crosses boundary of illegality: Riots, looting, arson	Systematic destruction aimed at targets of hatred	Civil War, Sectarian Violence
Examples	Peaceful anti-capitalist protests, Occupy Wall Street campaign US (2012)	London Riots (2011), Bombay Riots (1992-3), Bread Riots France (1788)	Paris Riots (2005); Rodney King Riots (1992)	Arab Spring (including civil war in Libya & Syria); French Revolution 1789, France 1848
Drivers	Infringement of civil rights, government policies, economic conditions, unfairness	Economic disparity; unemployment; food price hikes; austerity driven cuts	Racial/ethnic tensions, religious tensions; Lack of food or water	Sectarian violence, elite factionalism, wide scale unrest
Characteristics	Generally peaceful and isolated in character	High potential for contagion and for damage	Law enforcement forced to withdraw. Temporary	Often protracted conflict with the potential to spark regional conflagration
Destructiveness	Disruptive to activities. No physical damage.	Property directly targeted, cars damaged, arson	Systematic looting and destruction. Specific groups being targeted. Death and injury.	Large scale physical and infrastructure damage. High death toll. Massacres

1.2 Social Unrest and Civil Disorder

Civil disorder occurs when social, economic and political stresses accumulate and are released as an episode of social unrest, sparked by a trigger factor. Civil disorder has the potential for far reaching social, political and economic consequences - notable examples include unrest in France 1789 that led to revolution, urban race riots in the 1960s which changed the American political landscape and uprisings against Communism in eastern European states which precipitated the disintegration of the Soviet Union. The scale of the threat that civil disorder poses is dependent upon its type, duration and the likelihood of its escalation. At the lower end it can result in non-violent demonstrations or sit ins that are swiftly dispersed or quickly withdraw, all the way through to potential civil war, and in most extreme cases, spill over into neighbouring states, potentially resulting in regional instability- as seen in the Arab Spring. Resulting threats to commercial interests can be largely correlated with the scale and intensity of the disorder. However, it is important to note that different variants of disorder have particular patterns and features which bear different implications for commercial interests. Broadly speaking, threats to commercial interests can be indirect, for example short-term disruption of services and labour supply, or direct, in the cases of arson and looting. This monograph focuses primarily on social unrest in democracies, although it discusses social unrest in autocracies.

2 Causes

The causes of civil disorder can be structured into three broad categories: structural, proximate and triggers, each of which can be further categorised along political, economic and social lines. However, it is important to note that these causes operate within a system (society) that is highly complex (both open and increasingly intricate and interdependent), and as such their relationships do not adhere to strict causal rules. Thus, the causes of social unrest should always be seen as both multivariate and non-uniform.

Structural causes engender changes in material conditions and as such can be seen as systemic. Proximate causes are the political and institutional factors that mediate the impact of structural causes. Lastly, trigger causes are those that are most immediate in their relation to episodes of unrest. Prior to an episode of civil disorder, structural, proximate and trigger causes concatenate in a casual chain, and are separated most visibly by their temporal characteristics. While trigger events are important to understand as the catalysts for episodes of disorder, they themselves are often arbitrary. More instructive is to focus on the dynamics between variables at a more antecedent level (structural and proximate) which create an environment susceptible for civil disorder (in itself increasing the probability of there being a trigger event).

The second related consideration is the conditions and interactions that cause episodes of civil disorder to escalate or de-escalate. The following section will present an overview of the different categories of causes alongside the mechanisms that determine the probability of intensity and scale for episodes of disorder.

2.1 Structural Causes

2.1.1 Relative Deprivation

Relative deprivation is generally felt by populations at sub-national level, by one societal group in comparison with another and can be related to their economic or social well-being. Considered historically, perceived disadvantage or discrimination relating to competition for economic resources and opportunity is often a primary cause for civil disorder. This becomes an increasingly pertinent factor during periods of economic volatility. Recent episodes of disorder in Europe over the past few years have seen deprivation being cited as a key driver (London riots, Stockholm riots and Greek Riots). 'Horizontal inequality' is a parallel phenomenon, relating more specifically to deprivation along ethnic or religious lines, which is often a greater concern in low and middle-income countries. There is a significant body of literature on the relationship between horizontal inequality and the onset of conflict.

2.1.2 Demographic Pressures

Migration: Changing migration patterns (rural to urban/south to north) leads to increased strains on infrastructure (healthcare, job availability, living space etc.), in turn causing tension, discrimination and unrest. While rural to urban migration is a phenomenon that is occurring at a faster pace in developing countries, migration into more developed countries from less developed countries that has been poorly managed has adversely affected developed countries. For example, the riots and other outbreaks of civil disorder that occurred in France during November 2005 is generally attributed to feelings of economic marginalization by Muslim immigrant populations in French cities, with particularly high unemployment rates among young Islamic men.

Large youth population 'youth bulges': Gary Fuller and Forrest R. Pitts (as well as political scientists such as Jack Goldstone) maintain that a nation's level of political unrest, i.e. its vulnerability to riot, war or regime change, is directly associated with the percentage of 15-24 year olds in its population. In their view, communities with more than 20% of individuals in this age group run the greatest risk

of more frequent and more intense political instability. They describe the phenomena as the "youth bulge theory", where the "bulge" refers to the fattening of the population pyramid just before the base of the youngest age groups. Coincidentally, the authors introduced the hypothesis in a paper about uprisings in South Korea, and they note that the percentage of 15-24 year olds in Seoul in 1980, 1985, and 1990 was 24.4, 21.3, and 20.0%. The Arab spring in 2011 – and specifically, civil war in Egypt and Syria and Libya – evidences empirically how economic contraction combined with Youth Bulge is highly conducive in producing civil unrest.

2.1.3 Youth unemployment

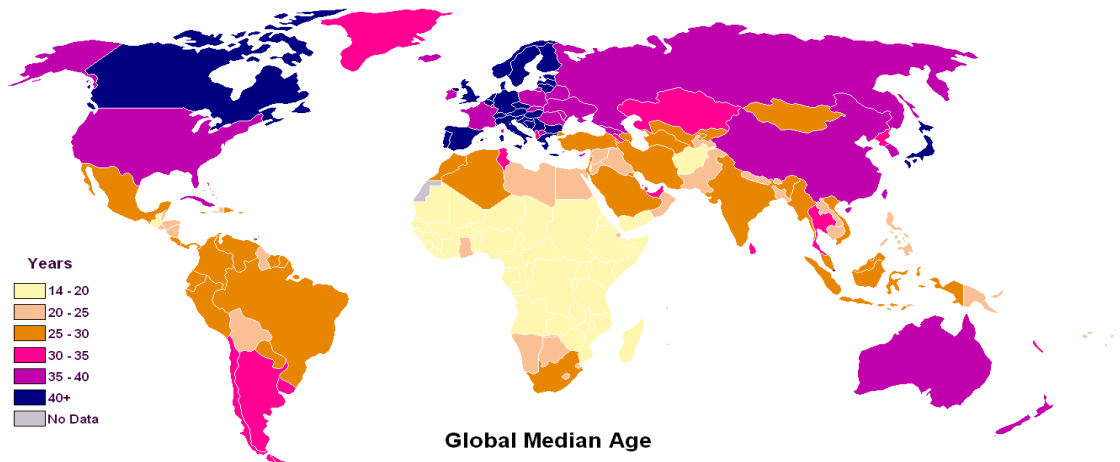


Figure 2. Global Median Age (Source CIA Factbook)

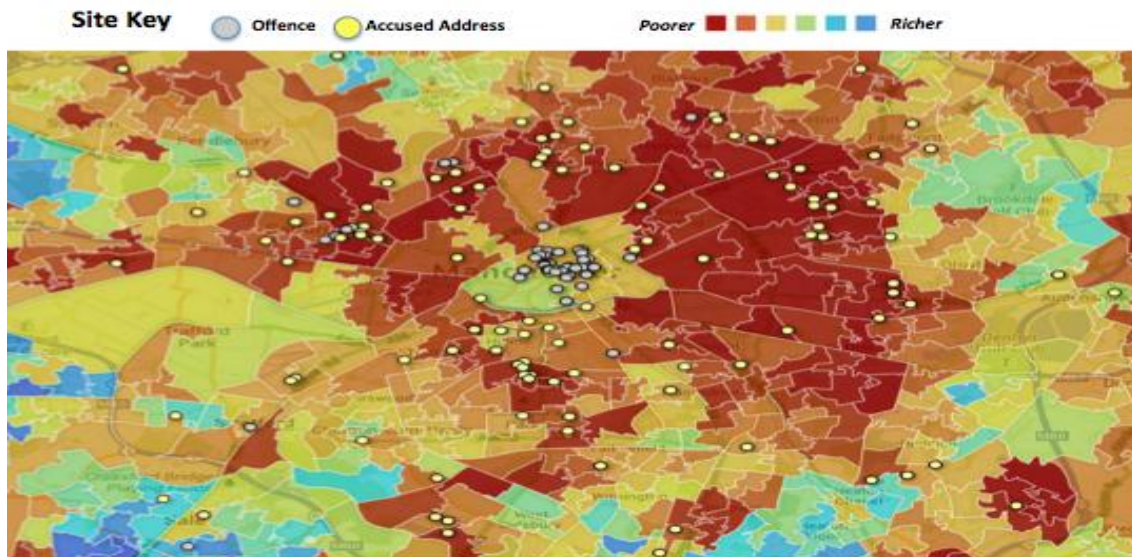


Figure 3. Mapping the riots in Manchester

2.2 Proximate Causes

2.2.1 Austerity measures by a government

Austerity policies, inaugurated by governments, and operationalized in terms of welfare cuts and taxation increases are causally related to civil disorder. Anti-austerity protests have become

commonplace in high-income countries since the 2008 financial crisis and subsequent recession, with the European continent particularly affected, owing to the sovereign debt crisis. Comparable historical precedents can be found in the interwar years, in instances when governments responded to economic crises with the tightening of budgets, maintenance of free trade and adherence to the gold standard, regardless of the effect on wages and living standards. Examples include Heinrich Brüning's response to Germany's 1923 hyperinflation, which provoked uprisings from across the political spectrum and the Invergordan Mutiny by British sailors in 1931, a protest against wage reductions by the National Government. Such policies not only contributed to the internal polarisation of political opinion, but can be found at the root of interstate conflict in the Second World War. When civil unrest occurs as a result of austerity, episodes often begin as peaceful protest, organised to express grievances relating to austerity which are perceived to be too extreme, unilateral in nature or disproportionately affecting the poorer sections of society.

2.2.2 Negative food price shocks

Studies demonstrate correlations between food prices and incidences of civil unrest, most notably the IMF 'Hunger Index'.

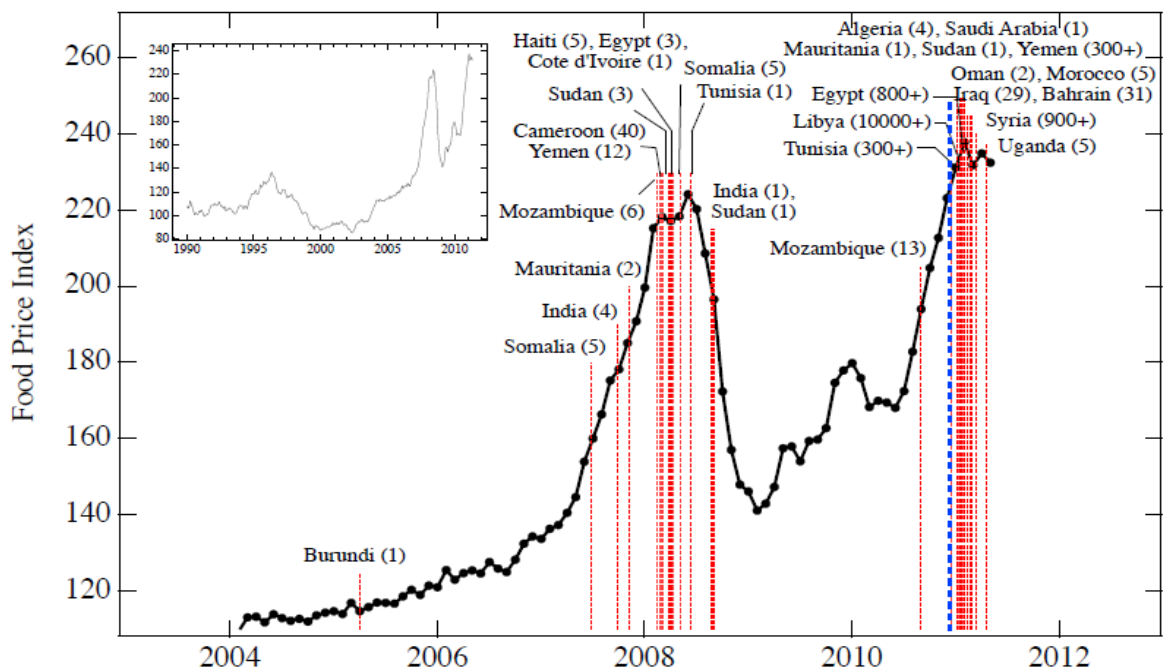


Figure 4. Food riots related to FAO Food Price Index January 2004 to May 2011

In Figure 4, red dashed vertical lines correspond to beginning dates of food riots and protests associated with the major recent unrest in North Africa and the Middle East. The overall death toll is reported in parentheses. Blue vertical line indicates the date, December 13, 2010, on which authors submitted a report to the U.S. government, warning of the link between food prices, social unrest and political instability.

In a paper that studied global food prices and intra-state stability in 120 countries during the 1970-2007 period, Arezki and Brückner find that, that on average, a one standard deviation increase in the food price index increased the number of anti-government demonstrations and riots by about 0.01 standard deviations for low income countries.

Relative rather than absolute deprivation remains crucial; Arezki and Brückner also note that higher food prices resulted in significant increases in the Gini coefficients of low income countries. In a study of the relationship between food shortages and civil unrest, a clear correlation can be found in the case of the last two global food price crises: 2007-08 and 2010-11 (see below). The same cannot be said for developed countries, where there was no significant correlation found between hikes in food prices and incidents of civil unrest, probably owing to the welfare structures in such countries.

2.2.3 Discrimination based upon race and ethnicity

Discrimination towards an individual or group based upon their race or ethnicity is a common trigger of civil disorder. This can be seen in the cases of the race riots of the 1960s in the US, the 1981 Brixton riot in the UK (Birmingham) and the French (Paris) riots in 2005. Discrimination can either be structural, in the cases of employment and access to education, or direct, for example institutional discrimination at state level. Often an expression of such discrimination will spark such civil disorder, for example, the assault of Rodney King by LAPD officers, in the case of the Los Angeles Race Riots in 1992, or the heavy use of 'sus laws' – a stop and search law that led to accusations of racial profiling by the British police -- which preceded the Brixton riots in 1981. While ethnic discrimination is less prevalent in democratically governed countries with electoral mechanisms to provide fair representation across different ethnic groups, countries with rigid and brittle representation systems may either directly or indirectly cause discrimination to occur.

2.2.4 Oppression of Civil Rights

The oppression of civil rights within a population can generate friction and unrest amongst persecuted groups. For example, the Civil Rights campaign in the 1960s in the US led to widespread civil disobedience, which at times escalated into civil disorder. In countries where there is an authoritarian regime the oppression of civil rights may be in fact a way to suppress civil disorder- essentially through fear and intimidation. However, authoritarian governments may be particularly vulnerable if there is a large ground swell of anti-government support and/or the loss of military support- as demonstrated during the Egyptian revolution and the fall of Mubarak.

2.3 Trigger Causes

2.3.1 Police Brutality

Police harassment and brutality has often been a trigger for civil disorder. Notable examples include: Paris Riots of 2005 (perceived police harassment in the suburbs), London Riots of 2011 (shooting of Mark Duggan), LA Riots of 1992 (assault of Rodney King) and 1967 Detroit riot (police raid of the Blind Pig bar). In addition, police brutality can also extend riots and protests, escalating them into more serious and prolonged movements where the government and related agents become targets.

2.3.2 Environmental Catastrophes

The disruption of public life occurring in the wake of a natural disaster can produce opportunities for looting and other forms of civil disorder. This can be explained by the temporary breakdown of law and order and the calculation that goods risk being destroyed and are thus 'fair game'. Nevertheless, social scientists have found that civil disorder following a catastrophe is rare, referring to a post-disaster myth. Notable instances when such catastrophes have been met with civil disorder – Hurricane Katrina, 2005 (approximately 1,833 killed, \$108bn of damage) and the Cairo earthquake, 1992 (magnitude 5.8, causing 545 deaths, injuring 6,512 and making 50,000 people homeless) -- can be attributed to their accentuation of underlying deprivation experienced by a section of the population and also the perception of an inadequate response by the government. Environmental causes also feed into other causes of social disorder; for instance increases in food prices driven by droughts and

floods are cited as a key motivation of those involved in the initial protests that spiraled into the Arab Spring.

2.3.3 Political Events

Political Scandals have the potential to serve as a trigger factor for unrest and disorder. Specifically, disputed/flawed elections can result in large numbers being mobilized in opposition. Political parties have in their possession the ideological, material and logistical resources to mobilize populations quickly and therefore can inaugurate highly targeted civil movements. For instance, the aftermath of the 2004 Ukrainian presidential election, which were disputed on lines of corruption, ultimately led to what is now dubbed the 'orange revolution', where sustained civil disobedience led to the elections being re-run.

2.3.4 Public events

Public events by their nature draw large crowds and as such have the potential to escalate into unrest and disorder. Particular public events have a higher propensity for such unrest, including strikes and sporting occasions. For example, May 1968 saw student occupation protests which were followed by strikes that led into a wider period of sustained civil unrest. While North America has experienced a number of sport related riots, notable examples include the 2010 riots in San Francisco instigated by Giants fans who set mattresses on fire, attacked police and vandalized buildings, while similar riots have been carried out by fans in Philadelphia in 2008 (after the Phillies won the World Series) and Los Angeles in 2010 (after the Lakers won the NBA championship).

3 Theory

Civil disorder can usually be classified as a social movement and as such it can be seen to follow a rough trajectory through four stages; emergence, coalescence, bureaucratization and decline. There are a number of important drivers at each stage:

Emergence (Stage 1): Grievance

Coalescence (Stage 2): Availability of organisational capacity

Bureaucratization (Stage 3): Resources and opportunities for mobilising people

Decline (Stage 4): Sufficient frustration to legitimize violence

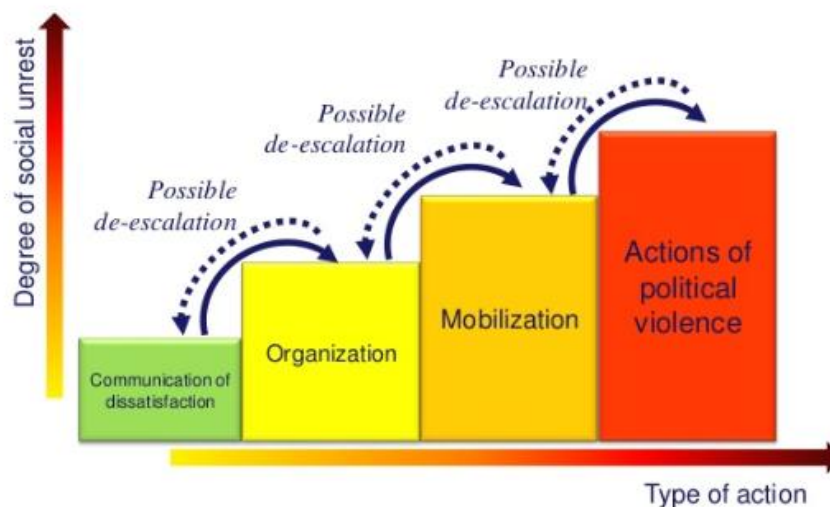


Figure 5. Stages of escalation for social unrest

These drivers are mediated by a number of factors and mechanisms, the explanation of these theories are mapped out below:

3.1 Threshold distribution

The 'riot threshold' theory rests on the behavioural economic principle that human beings are rational actors striving for utility maximisation. As such, according to the riot threshold model, different individuals have different 'thresholds' at which point their cost-benefit analysis alters and the individual determines that they have more to gain by joining the riot than by not participating. Costs included the risk of injury and private penalty, whilst benefits go beyond material gains that may be made through looting, to the perceived 'emotional' benefits of participation. Thus, a riot is started by the actions of an 'instigator', who has a threshold of zero and spreads according to the thresholds of other individuals. For example, a square with 100 people, with a perfectly uniform distribution of thresholds (based on existing number of participants in the riot), would see 100 people cumulatively join the riot, however, if just one person was missing within that 100, then that mass would not be reached. Such a theory provides an explanation as to how disorder may transition from grievances to actual protest, as well as accounting for the divergent way in which riots and protests may escalate. In large scale civil wars, the last individuals to defect from a collapsing regime are the ones who have the most to gain materially from it; equally, the initial inaugurators or first movers of regime contestation have the least to lose – they are often without jobs, homes and have prison records.

An offshoot of the threshold distribution model is the multiple equilibrium theory, which has been used to explain the London riots of 2011 where there was a 'jump' from low to high-crime equilibrium for a brief period. The multiple equilibrium theory provides an explanation as to how grievances transition into more sustained protests through the shift to a high crime equilibrium (at which point certain behaviour can be acceptable), before a robust police response alters the cost-benefit analysis, subsequently restoring a low-crime equilibrium.

To understand how disorder develops it is important to grasp the ways in which thresholds for actors may be lowered:

- Socio-economic inequality: Low levels of social and economic prospects may encourage participants to join an episode of disorder because of frustration at their situation. For example, an independent commission into the London riots found that disorder was fuelled by youths not having a "stake in society".
- Chance of success: As an episode of disorder continues the likelihood of it failing or succeeding may alter the thresholds for those who are not yet engaged. For instance, during the Arab Spring protestors in Egypt who did not support anti-Mubarak protests may have faced consequences after the fall of the Mubarak regime. This is a particularly pertinent concern amongst politically driven episodes of disorder.
- Response of authorities: Depending on the intensity of the response by authorities, thresholds may be increased or lowered. For example, a particularly harsh crackdown may deter further participants from joining.

3.2 Political Opportunity

Theories of political opportunity postulate that the characteristics of a particular political context are critical in determining the formation, growth and outcome of episodes of disorder - being particularly relevant to the organisation and mobilisation of disorder. These political structures are "consistent – but not necessarily formal or permanent – dimensions of the political environment that provide incentives for people to undertake collective action by affecting their expectations for success or failure."

There are several institutional factors that represent a “political opportunity” for social and protest movements: increase in political pluralism, decline in repression, power struggles between elites, political instability, and openness to political participation. These features, and their changes over time, shape not only the movements’ strategy and likelihood of success, but also the very claims they are advancing. An excellent example of these dynamics lies in Eisinger’s explanation of why some American cities witnessed extensive riots during the late 1960s. This study focused on the openness of urban governments to more conventional means of making claims. By inviting conventional means of participation to redress grievances, Eisinger found some cities preempted protest, while the others were largely affected by rioting. In Europe we currently see how the multileveled decision-making system of the EU has opened new political opportunities for protests to develop. From a causal perspective, the lack of citizens’ representation at the EU institutional level, particularly the powerful Commission, has triggered protests all over the continent. The lack of – or perceived lack of – democratic legitimacy of the austerity policies implemented under the aegis of the EU institutions constitutes one of the main causes of the anti-austerity protests that have been sweeping Europe since 2009.

3.3 Social Media

Social media – the creation and dissemination of user-generated content via internet applications– has dramatically altered long-established methods of social movement organisation and mobilisation. Use of social networking sites is low-cost and, perhaps most importantly, allows transnational communication. The role of social media has been seen as integral in episodes of disorder, including the Arab Spring, Turkey, the London Riots and Spanish *indignados* movement. Censoring such websites as a method of quelling civil disorder has previously proved ineffective, as seen during the protests in Turkey in 2013, where blocks to Facebook and Twitter were circumvented using encryption software and ‘virtual private networks’ (VPNs).

It would appear that social media’s value for those engaged in civil disorder lies less with its use as a means to call individuals to action, but more with its facility to transmit information instantaneously and at a low cost. A study of anti-austerity movements, Spanish *indignados*, Greek *aganaktismenoi* and *Occupy* movements in the US and the UK, which collected posts on the social networking site Twitter – ‘tweets’ – for a period of two weeks when each movement was at its most active, found that a small number included calls to action, with the transfer of information relating to the cause being the predominant feature.

The study cites theories of information cascades, where individuals make decisions on the basis of their observations of other peoples’ actions, rather than their own private knowledge. ‘Trending’ topics on sites such as Twitter and the ‘hashtag’ function facilitate such information cascades. Crucially, social media allows information to be passed beyond a person’s social circle, allowing the transmission of information from grassroots level, where previously traditional media outlets were relied upon.

There are instances of social networks being used strategically to coordinate protesters. The Sukey mobile application appeared in January 2011, when high volumes of students in Britain took to the streets to protest against a proposed tuition fee hike. The app was designed to facilitate peaceful protest and counteract ‘kettling’, a tactic of controlling large crowds, where police contain demonstrators in a limited space using large cordons of officers. The app crowd sourced information from social media platforms, such as Twitter and Facebook, as well as traditional news outlets. Protesters could then access real time displays of the movements of police forces and demonstrators and adjust their decision-making accordingly. Such technologies are a success due to their ability to address the information-imbalance between police and protesters.

4 Consequences

This section will focus on the consequences of civil disorder for episodes of medium intensity (i.e. riots and protests). These consequences of civil disorder can be divided into three categories: Direct short term, indirect short term, and long-term consequences

4.1 Direct Short Term Losses

4.1.1 Damage to property

Direct damage can be triggered in a number of ways during episodes of civil disorder, but most commonly it is caused by looting and arson. In general, looting is mostly carried out in stores with street front displays in downtown areas, or with major shop window displays, or high visibility within the zone of civil disorder. More specifically, outlets that are particularly at risk are:

- Retail outlets of general products needed by refugees in a post-disaster environment (Supermarkets, grocery and food stores, drug stores, clothing, shoes, gas stations)
- Retail outlets of luxury, high-value or non-essential products (shopping malls, electronics, liquor stores, jewelry).
- Office and service buildings, warehouses, storage, restaurants.

Arson, on the other hand is a more destructive variant of looting, resulting in the setting fire to buildings and cars – causing spectacle and focus for the civil disorder. Cars are often attacked as relatively easy targets to destroy. During the Stockholm riots in 2013 100 cars were burned in one night in the suburb of Husby while in the 2005 French riots, some 10,000 cars were damaged, over 6,000 of them burnt. Burning cars are used as barricades and road blocks. Destruction to buildings is a common expression of a mob's anger. Breaking windows is a common low-intensity expression of destructive will while setting a building on fire is a more extreme way of expressing destruction. In the 1992 LA Race Riots, 377 buildings were completely destroyed across the six days of rioting mostly commercial shop units.

Buildings that are targeted in arson attacks tend to be:

- Symbols of authority (police stations, courthouses, federal or local administrative buildings). For example during unrest in Greece administrative offices in the Eastern Macedonia and Thrace were attacked with Molotov cocktails.
- Symbols of government services (schools, hospitals, fire stations, administrative offices), during the 2005 Parisian riots schools in the neighborhood of Grigny were targeted.
- Commercial businesses, particularly those of different racial/ethnic ownership targeted by the mob, or representative of wealth or unequal commercial opportunity. The London Riots driven by feelings of inequality over 8,000 shops, restaurants and pubs were targeted. During the 1992 LA Riots numerous Korean shops were targeted due to rising tensions surrounding their recent arrival.
- Homes owned by different race/ethnicity targeted by the mob. Studies have shown arson attacks consistently targeted non-indigenous ethnic groups during unrest post the 2007 disputed election in Kenya, while the 2012 Rakhine State riots in Myanmar saw Muslim households targeted in arson attacks.

4.1.2 Loss of life

Episodes of disorder have – very occasionally – resulted in a large number of fatalities: the U.S. Race Riots of the late 19th and early 20th centuries sometimes developed into near-wars between crowds of

opposing races, including reports of mass casualty attacks, for example in the Tulsa City Oklahoma riot of 1921 in which there were even reports of private airplanes dropping homemade bombs on fleeing crowds. Civil disorder that escalates into more protracted unrest, especially revolution and civil war carries the potential for a much higher number of casualties. The Egyptian Revolution of 2011 led to 846 casualties while Syria's descent into civil war has seen 100,000 casualties (at the last estimate) and is ongoing. However, medium level civil disorder is not directly focused on mass murder, so compared with the numbers of people involved; death tolls in civil disturbance tend to be moderate. Generally the numbers of injuries are much higher – tending to be in the thousands during widespread and prolonged episodes of civil unrest. The injuries are generally minor, cuts, bruises, beatings and being hit by projectiles, and are incurred by both civilians and authorities.

Although as civil disorder is often uncontrolled it can often lead to accidental deaths and injury from crowd stampedes or being trapped in burning or hazardous environments. Crowd action in hazardous and fearful conditions have contributed to high death tolls, for example 363 died in Saudi Arabia during a crowd panic during a haj in January 2006, and nearly 650 people died in a stampede, panicked by rumours of a suicide bomber, on a bridge across the Tigris River in Baghdad, Iraq in August 2005. In confined spaces like a sports stadium, there are many incidents of crowd stampedes causing mass casualties, the worst being in 1989 when 93 people died in a crowd stampede in the poorly controlled Hillsborough soccer stadium in Sheffield, UK. The potential for a high casualty incident in a civil disorder resulting from a crowd stampede, particularly in a confined space (like a refugee center or sports arenas) should not be underestimated.

Direct short term damage has ramifications for insurance losses. Both looting and arson trigger significant claims however life and health insurance claims are likely to be lower. This is not only because deaths and injury are less likely but also due to the demographics of the rioting crowd itself, where most of the casualties are likely to occur, is typically of lower income, socially disadvantaged segment of the population (and possibly with a high proportion of unemployment) – i.e. likely to have low penetration of life insurance or private health insurance that would result in significant claims to insurance companies. Thus, life and health losses are likely to be low.

In addition there are likely to be workers compensation losses that result from injury to employees in their workplace caused by mob action. Injuries to working people are most likely in those deployed because of the civil disorder who then become the focus of mob anger – such as police, firemen, emergency workers, and government officials. Workers are potentially at risk if their building is attacked. Additionally workers traveling in the course of their job could be accidentally caught in the disorder, for example lorry drivers (a lorry driver was pulled from his cab and severely injured in the 1992 LA riots), delivery men, business travelers and others. In general however workers compensation losses are generally likely to be low, but could under rare circumstances escalate to be significant.

4.2 Indirect Loss

Disruption of productive/business activities, subsequent fall in the productivity of labour and capital, drop in tourism.

During episodes of civil disorder generally a 'no-go zone' is created, and businesses within this vicinity are often reluctant to continue commercial activity. Thus business interruption claims may be made from undamaged businesses that would otherwise be functioning apart from the fear of injury and difficulty of access.

In the circumstance of civil disorder following a natural catastrophe, it is probable that damage is extensive, and that buildings are abandoned as a result of damage, failure of utilities and services, and other hazards related to the destruction. It is the abandoned buildings –the absence of occupants to

deter opportunists– that is generally associated with the occurrence of looting, arson and other attributes of civil disorder. The business interruption is likely to be near total in these areas as a result of the physical damage, and any business interruption resulting from the civil disorder itself (i.e. functioning businesses caught within a civil disturbance that then suspend operations) will be marginal.

Broadly speaking, either commercial/private property or government property is targeted during protests and riots. This can result in dramatic variation in the business interruption costs incurred through civil disorder. For example, the London riots of 2011 were markedly targeted at commercial interests, specifically retail and manufacturing. Figures from a poll carried out by the British Retail Consortium suggest that British retailers lost upward of 30,000 hours due to the riots, the equivalent of 1,250 days. This contrasts with the targets of violent protest in Stockholm in early 2013 where the media noted the lack of damage to retailers, with a greater focus on municipal buildings and cars. Nevertheless what is harder to gauge is the cost in business interruption that is not a result of physical damage; as such costs are generally not reimbursed by insurers, determining such figures is difficult.

4.2.1 No official exclusion zone

Unlike other natural disasters or scene of crime there may be no official civil exclusion zone where police lines seal off an area, so insurance companies may have some discretion about business interruption claims arising from civil disorder. In many cases, the civil disorder activity could be spread diffusely across an entire city, and the threat and fear of disorder could cause large numbers of businesses to close temporarily. For example during the London riots many shops preemptively closed to avoid attack, even before unrest had spread to that part of the city.

4.2.2 Fluid area of civil disorder

Official policy with a civil disorder is usually containment – for example long-established LAPD tactics is that a full-force response is required, and the opening hours of a riot are critical[1]. A large presence of police officers surrounds the crowd (allowing an escape gap for the crowd to disperse peacefully) to contain the violence within a distinct geographical area and to prevent it spreading further afield. Crowd control however is a fluid process, with field commanders changing police positions and dynamically interacting with reports of where rioting is occurring. The total zone over which the police and crowd interact could be fairly large, change over several days and police are likely to err on the side of caution, making the civil exclusion zone larger than any area being physically attacked. In low intensity actions, there may be no distinct geographical focus to the civil disorder – looting could be occurring over a wide area of a city and arson attacks could be sporadic.

4.2.3 Duration of civil disorder

Police containment policy is usually one of patience and allowing the crowd anger to subside naturally, rather than confrontation. This means that the duration of civil disturbance could be prolonged. However, this is tempered somewhat by the regime type. More autocratic states are more likely to take a harder line in stamping down on dissent, often with brutality. Generally, in most of the recorded precedents, the period of civil disorder peaks over a period of several days. However, there are several cases of recurrent episodes of violence over a longer period, for example each night for several weeks.

4.3 Long-term losses

Uncertainty caused by civil disorder bringing into question future economic policy, property rights and rule of law. Damage of reputation. Areas affected more likely to experience rioting in the future.

Reoccurrence of riots encourage feedback loops by which drivers unrest can be reinforced, leaving an area particularly susceptible to rioting in the future, e.g. Clichy-sous-Bois, Paris. Attempts to quantify the long term economic impact of civil disorder have been made in the case of the Rodney King riots; Matheson and Baade calculate that in the 10 years after the riots, a continued loss of taxable sales was translated into a cumulative loss of at least \$3.8 billion in taxable sales and over \$125 million in direct sales tax revenue losses. Crucially, the events had a long-lasting impact upon economic performance far past direct damage caused during the riots.

Furthermore, the incidence of civil disorder in a neighborhood acts as a deterrent to the setting up of new businesses, due to perceived susceptibility of future unrest that could affect profits. Rioting also has a significant impact on residential property prices; a study of property values following various 1960s race riots suggest that the riots caused a 10 percent decline in the total value of black-owned property in cities where disorder occurred. Interestingly, this decline in house prices was not isolated to only the areas directly affected by rioting. Reputation costs are also significant, yet difficult to quantify. Businesses, which rely on tourism, can suffer losses which will vary in magnitude according to the nature and extent of civil disorder.

5 History

There are various groups who have engaged in civil disorder in historical episodes.

Group	Agenda	Nature of protest	Type of protest
Anti-War	Moderate	Non-Violent	Anti-Government
Farmers	Moderate	Non-Violent	Anti-Government
Leaderless	Moderate	Non-Violent	Anti-Government
Moderate Political	Moderate	Non-Violent	Anti-Government
Students	Moderate	Non-Violent	Anti-Government
Union Members	Moderate	Non-Violent	Anti-Government
Women	Moderate	Non-Violent	Anti-Government
Environmentalists	Strong	Non-Violent	Anti-Government
Ethnic Groups & Minorities	Strong	Violent	Ethnic, Race, Religion/Sectarian
Sports Fans	Strong	Violent	Other
Urban Lower Classes	Strong	Violent	Urban
Far Left Groups	Strong	Non-Violent	Anti-Government
Anarchist	Extreme	Violent	Anti-Government
Anonymous	Extreme	Non-Violent	Anti-Government
Anti-Capitalist	Extreme	Violent	Anti-Government
Far Right Groups	Extreme	Violent	
Organised Crime Gangs	Extreme	Violent	Ethnic, Race, Religion/Sectarian
Religious Groups	Extreme	Violent	Religious

Figure 6. Actors of civil disorder and their characteristics

5.1 Case Study 1: UK Riots 2011

In the summer of 2011 the U.K saw a period of sustained urban riots spread across its major cities, including London, Manchester, Birmingham, Liverpool and Bristol. Riots began in response to the shooting of Mark Duggan in Tottenham but soon spread. The riots were highly destructive in nature and comprised numerous incidents of both looting and arson, with a particular focus on commercial outlets and properties.

Events began after a protest was organised by friends and relatives of Duggan to protest the killing, and started out peacefully on August 6 at the Broadwater Farm estate, ending up at Tottenham police station. However, violence broke out after a sixteen-year-old girl threw a bottle at police officers, who allegedly injured her in response, provoking wider violence and ultimately beginning the unrest which would cascade into widespread rioting.

5.1.1 Underlying Causes

While the shooting of Mark Duggan can be seen as the trigger event, numerous theories emerged in the aftermath of the riots to explain its structural causes, ranging from fractured families, absent fathers to social media and rap music. The 'Reading the Riots' report identified a number of structural drivers behind the unrest, finding that the majority of rioters experienced inequality and deprivation in their everyday lives- analysis of court records suggest that 59% of rioters came from the most deprived 20% of areas in the UK, while the Department for Education and the Ministry of Justice found that among young rioters 64% came from the poorest fifth of areas- and only 3% came from the richest fifth. The wider backdrop of the recession can be seen to have created a number of proximate causes for the riots, with rioters identifying key grievances as the increase in tuition fees, the closure of youth services, the scrapping of the education maintenance allowance, as well as widespread anger and frustration due to strained relations with the Police, with 85% identifying policing as an 'important' component in the cause of the riots.

5.1.2 Geography & Response

During the riots themselves, opportunism, truces between gangs alongside social media and instant messaging saw widespread contagion of the unrest. Figure 6 shows the concentration of rioting across London, with particular intensity in the most deprived boroughs (Lambeth, Southwark, Hackney, Tottenham and Croydon). Further analysis found within London that 90% of incidents took place within a 5-minute walk of both an established town centre and a large post-war housing estate.

During the unrest itself the police were often criticised for failing to respond in adequate time to protect property- the Riots, Communities and Victims Panel found that a lack of confidence in the police response to the initial riots 'encouraged people to test reactions in other areas'. Computer simulations of the potential impact of early response by authorities on the severity of the incident highlights how disorder may have been better contained with a quicker, more efficient and robust response.

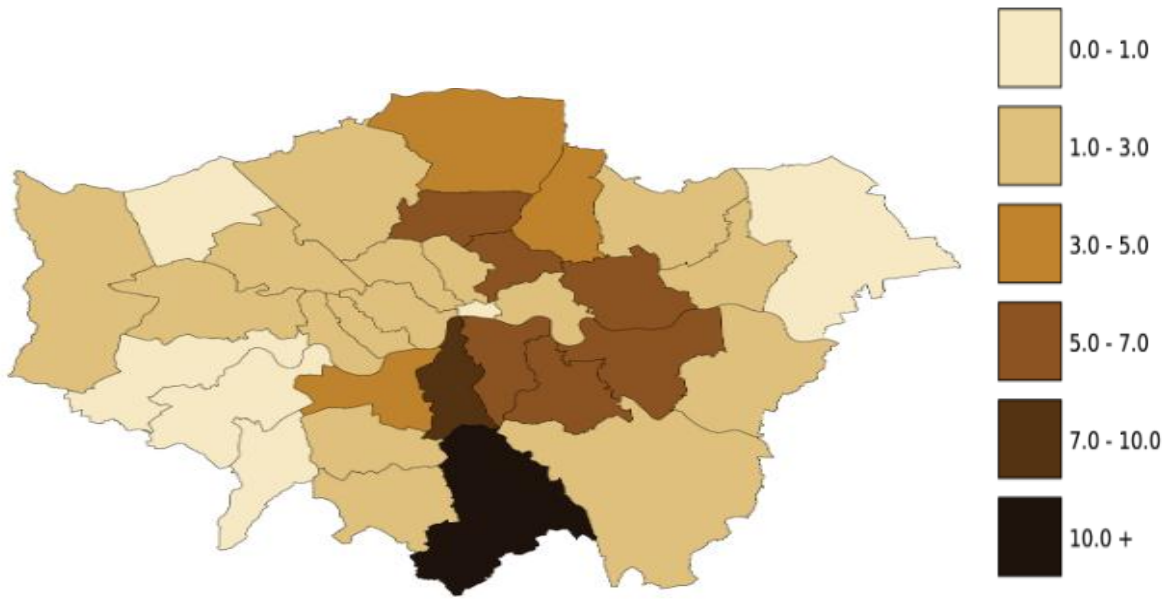


Figure 7. Concentration of rioters across London boroughs (%)

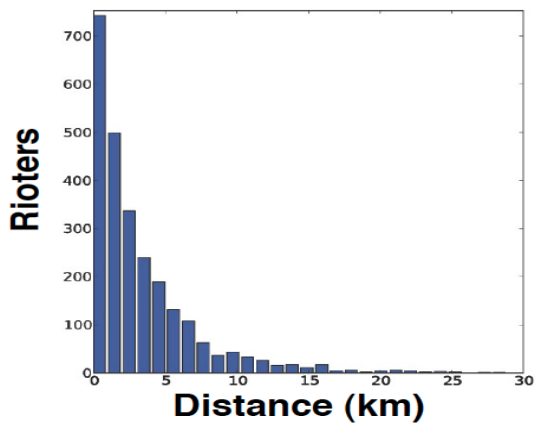


Figure 8. Number of rioters against distance from post war housing estates and shopping centres

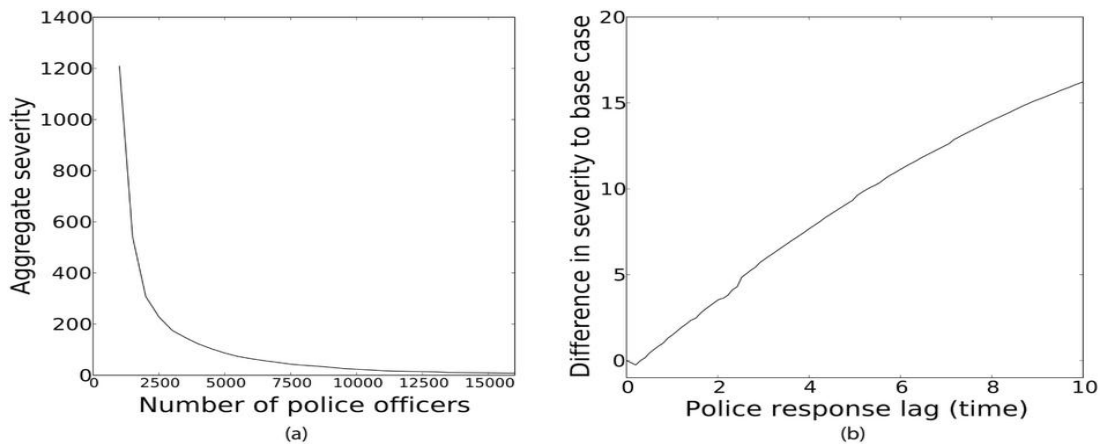


Figure 9. Simulation of police response (time and size) on severity of incident

5.1.3 Damage

In the ten police regions most impacted by the rioting a total of 5,112 crimes related to civil disturbance were recorded. The most affected region was that of the metropolitan police, responsible for greater London with 68% of the total. Other forces impacted by rioting were Greater Manchester (11%), West midlands (10%) and Merseyside (4%) Other police forces recorded less than 100 crimes each in their jurisdictional areas. Policing costs throughout the UK were £133 Million, with £74 million of this being allocated to disturbances in London.

Since the home office does not define looting, the most common variety of crime reported during the august 2011 disturbances was 'acquisitive' in nature, particularly burglary, attempted burglary, robbery, and theft. Acquisitive events comprised around 50% of all recorded offences. Crime related to property damage/destruction was the second most common type of offence. Damage to buildings, property and vehicles accounted for a further 36% of recorded crime related to the riots nationally. Violent crime was far less common comprising only 7% of offences. In the Greater Manchester, West midlands and Metropolitan police districts (which recorded some 90% of all riot related crime) acquisitive incidents were more common than those related to criminal damage. In all other areas crimes of property damage were more prevalent.

In terms of the focus of crime, 51% involved commercial premises, vehicle related incidents comprised 19%, while attacks on individuals including robbery and assault accounted for 13% of the total. Despite their exposure to the riots crimes against police made up only 6% of the total of those related to the disturbances of 2011 (see Fig 10 & 11).

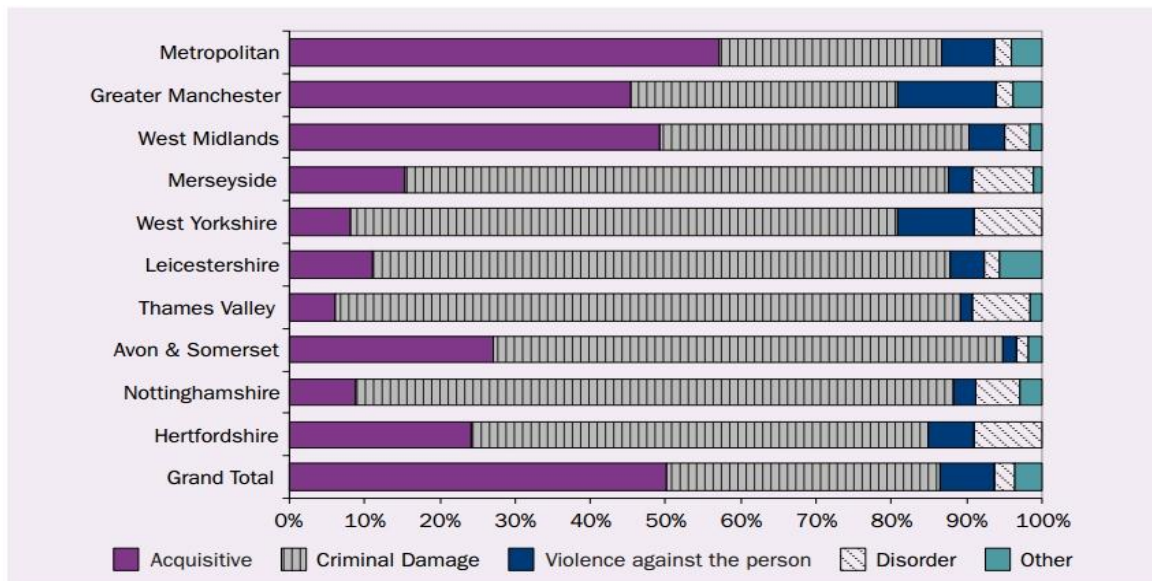


Figure 10. Disorder related recorded crimes by offence category, by police force area

The composition of crimes is further reflected in arrest statistics, with 41% alone coming from burglary related incidents and almost a quarter related to public disturbances and disorder. As of August 2012 more than 1200 people have been tried for offences related to the riots of 2011, with the average sentence being 16.8 months for those found guilty, this equating to more than 1800 years of prison time in aggregate. Given that the average cost of holding a prisoner for one year in the UK is £39,600, should even half the sentence terms be completed, a rough estimate suggests an additional cost of almost £36 million to the UK Government.

An appraisal of the commercial outlets attacked shows that 61% were retailers; of this 13% were restaurants, bars or food outlets, 12% electrical suppliers and 10% clothing and apparel businesses (figure 12). Losses to property were initially estimated at more than £100 million, with a more accurate

figure emerging several months later of up to £300 million in damage to trade in the retail sector. The final 'bill' for property damage/destruction, loss of commercial trade and policing was estimated at between £250-500 million by the Riots Communities and Victims Panel.

One report found that as many as 48,404 business premises were impacted adversely by the riots, as well as at least 28 town centres or commercial districts faced problems emanating from the disturbances. Of 16 major retail companies (accounting for 75% of UK retail sales) they witnessed 889 outlets attacked, with 7,500 trading hours lost between them. While initially businesses and their insurance providers will carry the financial burden, a peculiarity of British law (The 1886 Riot Damages Act) means that large reimbursements may be sought from the police forces in riot afflicted areas, meaning a further cost to the UK Taxpayer. In the weeks following the riots the London's metropolitan police had more than 3,800 claims for damage reimbursement made against it.

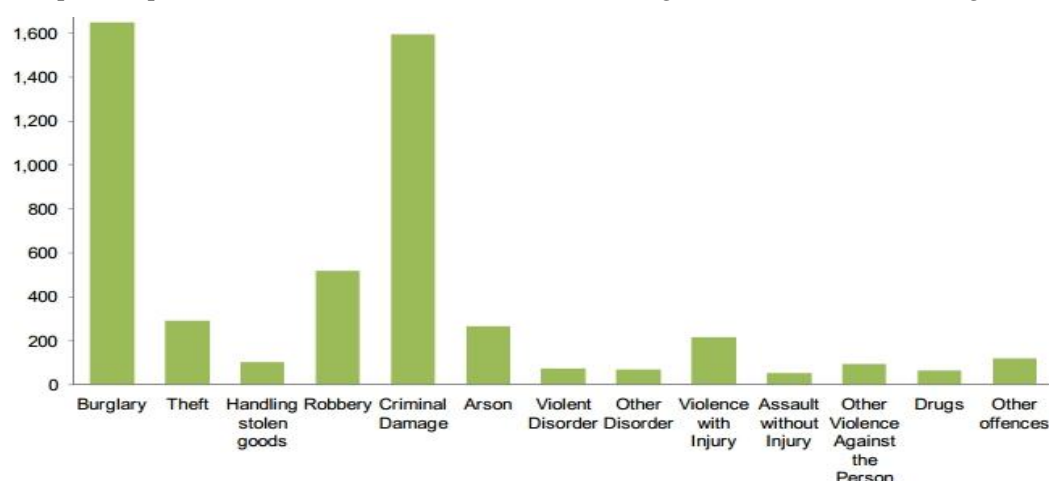


Figure 11. Recorded crimes during the UK Riots

Type of Premises	Numbers	Percentages
Retail (Total)	1,385	61
Electrical	265	12
Clothing	233	10
Small independent retailers	213	9
Supermarket	181	8
Jewelers	93	4
Other retail	400	18
Services (Total)	893	39
Restaurants and cafes	219	10
Financial	101	4
Gambling	152	7
Public house	61	3
Hair and beauty salon	65	3
Service station	42	2
Other business premises	253	11

Total	2,278
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Figure 12. Breakdown of premises attacked during UK Riots

5.2 Case Study 2: France 2005

Low intensity unrest had been simmering in French cities throughout most of the summer and into the fall of 2005. In early November, more intense rioting began in the suburbs of Paris following an incident on October 27 when two Muslim teenagers were electrocuted in a power substation while trying to evade a police checkpoint.

Riots initially began in the suburbs of Paris, beginning in the northwestern suburb of Aulnay-sous-Bois and the town of Clichy-sous-Bois. By November 6 rioting was reported in 300 French towns and cities, with notable riots in Toulouse, Lille, Lyon, Strasbourg and Marseilles. Riots were also reported in other countries: Several cars were burned in Brussels, where the E.U. is headquartered, and half a dozen in Berlin. Rioters targeted schools, hospitals, buses and cars, leaving a wake of extensive material destruction that prompted authorities to declare a state of emergency and impose curfews. Local businesses also suffered damage to premises and occasional firebombing. It rapidly grew into a wave of arson attacks and nightly clashes between rioters armed with firebombs and police retaliating with tear gas. In Paris police banned the sale of gasoline in cans. Crowds stoned buses, fire engines and police, with policemen suffering minor injuries from the projectiles. Police arrested more than 4,500 people during the two weeks of violence.

5.2.1 Underlying Causes

Most analysts suggested that the underlying discontent arose from racial attitudes in French society that have marginalized the children and grandchildren of North African immigrants. Jeffrey Reitz, a University of Toronto sociology professor suggests that long-established ghettos in French cities have perpetuated the isolation of immigrants from French society and that when industrial jobs disappeared second generation immigrants couldn't make the switch to the service economy. Unemployment rates among Muslim young males in France are exceptionally high – reaching 60% in the 20-24-age range. Bernard Salanié, an economist concluded “the cost of the minimum wage, combined with a rigid education system that has not found a good way to accommodate the needs of the children of immigrants, is the main culprit.” As such many immigrant communities were marked by socio-economic deprivation, inter-generational unemployment as well as wider political marginalisation.

5.2.2 Geography & Response

The riots were concentrated in areas termed "Zones Urbaines Sensibles" (ZUS). These are areas with high concentrations of immigrants and ethnic minorities, very high overall unemployment rates (25% vs. 14%–10% in France) and exceptionally high youth unemployment rates (40% vs. 27%–20% in France). Clichy-sous-Bois, where the riots erupted, for example is predominantly a ZUS. About a third of the Clichéens are foreigners (9,300) but many others are likely to be second-generation immigrants, unrecorded as such in French census figures. Of its 28,200 inhabitants of all ages, only 9,000 have a job, 5,000 of which are outside Clichy-sous-Bois itself. About 2,000 work in the public sector—high by American standards, but close to the French average; 4,900 work in private services, 1,200 in manufacturing.

Government response to the unrest was robust. At the local level several municipalities imposed curfews, on those under 18. In Paris public meetings likely to escalate into rioting were banned, and eventually this was extended to beyond those gatherings believed obviously related to violence. The legislature passed emergency regulations that stood in effect until mid 2006 (originally drafted in the 1950s during the Algerian war) in order to deal with the conflict. More ominously calls from a number

of relatively credible sources that the military be employed to deal with rioters were also heard among the French political establishment and public. Meanwhile the chief of the Paris police banned the transport and purchase of petrol in cans, to stem the use of arson and Molotov cocktails against the police and public amenities. Lastly self-censorship of news reports by public television stations was voluntarily employed by their editors so as not to further inflame riots.



Figure 13. Areas of rioting in Clichy-sous-Bois, Paris

5.2.3 Damage

In total more than 200 public buildings were set alight and 10,000 cars damaged. The damage peaked with an estimated 3,000 vehicles torched in Paris and other French cities over the weekend of November 5 and 6, but continued at several hundreds of cars per night (617 on Tuesday 8, 482 on Wednesday 9).

Public transport was attacked in many cities, with both rail and bus services being fire bombed on occasion. Staff and passengers were subject to assault with a number being burned after the use of petrol bombs by rioters. In other incidents innocent bystanders and police officials were both set on fire or attacked with acid, by mid November 130 police security personnel had been injured, some of whom had been shot. However, casualties remained minimal, with only one confirmed death, a 61-year-old man who died of injuries sustained when he was attacked while trying to extinguish a fire in trash bin.

Some public infrastructure particularly waste units, schools and police facilities suffered extensive damage in riot-affected areas. Educational establishments in particular saw damage with more than a dozen subjected to arson, these included crèches, primary and secondary level institutions. The symbols of the state and local government including town halls were also subjects for attack, seen as symbolic targets by rioters in much the way police facilities were.

Commercial enterprises set alight during the rioting comprised car showrooms, shopping centres, post offices and a textile factory, which in the latter case needed some 100 fire personnel to extinguish the blaze. In comparison to the London riots of 2011 looting was less an issue due to the urban

geography of French cities. Many disenfranchised areas (those most at risk of riots) are poorly provisioned with retail outlets, thus those involved in violence had less opportunities for theft.

By mid November more than 500 municipalities were impacted to at least a minor degree by the violence of 2005. Thousands of arrests had ensued while The French Federation of Insurance Companies (FFSA) estimated total insurance claims from the riots at at €200m (approx \$200m), including €20 million (\$20m) in claims for the 6,600 cars that were torched, €70 million (\$70m) for public property and €100 million (\$100m) for damage to shops and businesses (Annual losses from fire damage in France average €7 million euros). The EU provided a grant to the French government of 50 Million Euros to aid in reconstruction efforts. Uncertainty over the period also contributed to falls in the Euro (losing around 5 cents versus the dollar over the crisis period) and some slight instability in the French stock market.

5.3 Case Study 3: Anti-Capitalist/Occupy Movement

5.3.1 Anti-Capitalist Protests

Anti-capitalist protests are difficult to classify in a uniform way, as both their participants and course can vary quite significantly. Furthermore, because the movement is ideologically driven the subsequent episodes of disorder are not necessarily discrete events, but rather can be protracted episodes with periodic flash points.

These protests are often comprised of disparate groups- as far ranging as those concerned with social justice, workers' rights, women's rights, environmentalism or political critique of the financial system. While such groups may be united in their criticism/desire for change of the capitalist system- they do have divergent tactics and goals, and thus any protest may have various components with no unified goal. However, in terms of targets they often revolve around major international events, such as summits held by political organisations and bodies such as the World Trade Organisation (WTO), World Bank, G8 and G20.

While gatherings related to the sub-issues of the broader anti-capitalist movement may occur outside of this context, the largest and most disruptive protests have been repeatedly seen in relation to them. Though satellite protests often occur in areas removed from the event itself, these ancillary gatherings tend to be smaller and more muted.

The outbreak of aggression at such protests is difficult to forecast. For example the 2001 EU summit in Gothenburg saw severe disturbances while protests at the World Bank meeting the following year were low-key and peaceful. In the Swedish case, costs ran to millions of krona in damage and compensation, while both socially and politically the reverberations of the violence were long lasting for Sweden, and the city of Gothenburg in particular.

While many anti-capitalist protests pass off without disturbance or widespread violence, on occasion these marches have descended into violence and disruption. Damage caused by violent anti-capitalist action ranges from the minor (graffiti, petty vandalism) to the highly destructive, including arson and assault. Targets of such attack have in the past tended to be symbolic and accessible, most particularly branded retail outlets or those supplying luxury goods. The premises of multinational companies, particularly those associated with a particular brand of capitalism (those claimed to be less socially responsible), such as McDonalds or Starbucks, tend to face a greater risk due to their high profile. Additionally, banks as the public face of the much maligned finance industry are at similar risk. Such a trend was observed during the 2009 London G20 protests wherein a number of such premises were attacked. Despite the prevalence of vandalism being concentrated on large high profile retailers, small independent outlets may too become victims of property damage. The 2010 G20 protests in Toronto give credence to this, as several dozen independent retailers were attacked during the sporadic violence that occurred there. This may be a consequence of the indiscriminate nature of attacks once

they escalate beyond a minor level, and the fact that anti-capitalist protestors are often strangers to the urban environment thus less discriminatory.

5.3.2 Damages

Due to the varying nature of such protests the damages across such events is not uniform. For instance protests at the G20 in April cost £7.2 million in additional policing, as well as £400,000 paid out in subsequent damages and legal damages to those mistreated or wrongly arrested. However protests at the Alberta G8 summit of 2002, are estimated to have cost CAN \$200 million. After violent protests caused damage during the Summit of the Americas in Quebec City in 2001, the Canadian federal government announced a \$2 million fund to compensate merchants, residents and non-profit organizations for damages. Similar costs arose in Toronto in 2010 when one window repair firm reported a CAN\$ 750,000 dollar increase in repairs following the G20 meeting. The 1999 WTO protests in Seattle led to widespread damage and disruption, with an estimated \$3 million worth of damages to property, while later estimates estimated the total cost of the riot at \$20 million once business interruption was factored in.

5.3.3 Occupy Movement

Post the financial crash perhaps the most prominent strand of the anti-capitalist movement has been the 'Occupy Movement', originally conceived as the 'Occupy Wall Street' movement in New York in September 2011. The 'Occupy' movement has developed a global character, and has seen similar protests in countries as far ranging as Armenia to South Africa.

In contrast to the large one day rallies that have marked the anti-capitalist movement over the last 20 years, the occupy movement which is also critical of certain aspects of the neo-liberal system as well as austerity, has sought to establish semi-permanent campsites in core business areas and town centres. The occupy movement has been almost completely peaceful in nature and in most instances sought to build a working rapport with local stakeholders and commercial interests in proximity to their encampments. The negative impacts of the occupy locations seem mostly to stem from their disruption to normal foot traffic, and the fact that they may dissuade customers from frequenting nearby businesses. The occupy Wall Street camp has been accused of damaging trade in lower Manhattan by certain business owners.

The London occupy movement encamped itself around St. Paul's Cathedral and in various other locations in central London further demonstrates the potential for business interruption. The occupy movement in London did little to actively disrupt commercial activities within the square mile, with the exception that St. Paul's Cathedral, the site of the protest itself. The Cathedral seen a drop in visitors and tourists thus a decline of £16,000 per day in donations and revenue; an estimated cost over the eight months of protest approaching £3.9 million. This was a passive symptom of the site of the encampment rather than a decision of the protesters, although for the Cathedral the loss was significant. The occupy movement in London did little to disturb other commercial activities within the square mile, mainly due to the private ownership of land within the city and the urban geography of the immediate area. More damaging to commerce was the closure of private thoroughfares by corporate landlords to pre-empt occupation related activities.

It could be argued in this case that excessive reaction by landowners to the threat of occupation, was more detrimental to trade than the campsite itself. The City of London police meanwhile spent £1.06 million in ensuring security during the protest camp's eight month lifetime. With large slices of this expenditure concentrated on legal fees (£120,000) and safety monitoring duties (£28,000)[10] this in contrast to the crowd control duties of other protests discussed above. The City police authority spent £525,257 to move officers from other duties and £386,434 in expenses such as overtime. The small and passive nature of the protest no doubt reduced police overheads, in this case.

The Occupy movement was also responsible for organising 'Bank Transfer Day'. This was a day in which people were encouraged to shift their accounts from established banks to credit unions. On November 5 alone it is estimated that 40,000 people joined credit unions, moving \$80 million in account funds.

5.4 Case Study 4: Greek Austerity Protests

Greece has seen simmering unrest since its bailout by the EU and IMF- as dissatisfaction has grown at the stringent austerity measures imposed. The Greek case demonstrates how underlying social, political and economic conditions can lead to continued unrest, which has the potential to flare into more serious episodes sporadically. The trigger in Greece for such unrest to escalate into more serious violence can be identified as political developments related to austerity measures, for instance more serious disorder in February 2012 was precipitated by the passing of austerity measures. The Greek case is particularly notable as a number of other European countries are facing similar austerity measures coupled with disillusionment with the political elite.

5.4.1 Underlying Causes

Greece's accumulation of sovereign debt meant that it was particularly hard hit by the post crash recession and subsequent austerity measures. The downgrading of Greek government debt to junk bond status in 2010 resulted in Greece turning to the EU and the IMF and agreeing a €110 billion bailout- however the conditions of the bailout were largely opposed by the Greek population.

On May 5th initial protestors gathered by the Greek parliament, the largest gathering since the fall of the military regime in 1974. Arson was again observed against commercial interests, with three bank workers dying in one such event. Despite the protests however austerity measures as demanded in exchange for a EU bailout package were passed through the parliament. The focus of the protests revolved around banks and political symbols such as party offices rather commercial targets, as was seen during the looting which characterised the 2008 disorder in Greece. Protests on a smaller scale continued for the remainder of 2010, in opposition to austerity protocols.

May 2011 saw the re-emergence of large-scale protests, which would continue over the summer months. These gatherings were unique in that for the first time since the Greek return to democracy that large demonstrations were organised without the leadership of political groups or trade unions, an indication of the populace's feelings of contempt toward the prevailing political order. However, there were also widespread strikes by the larger Greek unions. Workers including sanitation employees, doctors, taxi drivers and air traffic controllers have all undertaken their own particular activities to display their dissatisfaction with current socio-political problems. The May 2011 protests were in general peaceful affairs, a contrast with earlier gatherings, however by June more outbreaks of hostility were again beginning to be witnessed as protesters started to clash with police once more. The use of crowd suppressant strategies like rubber bullets and tear gas, often inflamed already heightened tensions, these police actions were deemed brutal by independent observers.

Protests in February of 2012 again initially began peacefully, however they escalated into violence with 45 buildings destroyed by arson across the city of Athens. As a result of these fires a total of 170 businesses had their operations disrupted, including 17 banks, 5 department stores and 70 clothing shops. Again police attempted to use crowd suppressant tactics to quell the violence. The Greek ESEE did not that several of the damaged commercial venues were unlikely to reopen due to the damage incurred, while the Athens Chamber of Commerce and Industry put initial estimates of the damage at tens of millions of euros. The commercial focus of targets in 2012 highlights that anti-austerity protests can potentially have significant implications for business damage and interruption.

5.5 Case Study 5: Los Angeles Riots 1992

The 1992 Los Angeles riots were sparked on April 29, 1992 when four white police officers - accused in a videotaped beating of black motorist Rodney King - were acquitted by a mostly white jury. The riots began in the evening after the verdict was given, peaked in intensity over the next two days, and continued for several days after. In terms of participation, thousands of citizens of Los Angeles, composed mainly of young black and Latino males, joined in mass acts of destruction and lawlessness - including looting, arson and murder. The riots were instigated because of perceived - on the part of black and Latino groups - racial inequality and injustice

5.5.1 Underlying causes

In structural terms, the eruption of violence arose primarily from the changing demographics and ethnic composition of South Los Angeles. The racial makeup of historically black neighborhoods altered as Hispanics took up residency and Koreans bought formerly black-owned liquor and small grocery stores. According to census data, in the historically black areas affected by the riots, the Hispanic population increased 119% over the decade leading up to the violence. This produced resource competition between different ethnicities in the labor force and small enterprise racial animosity – for example, the 1980s saw downtown Los Angeles' businesses fire most of their black-dominated janitorial staffs and replace them with Latino immigrants earning half the wages paid to their unionized black predecessors. As a result of increased economic competition, racial identities increasingly became activated as a generic frame of identity leading to entrenched spatial polarization and segregation between different ethnicities. In addition to the immediate trigger of the Rodney King verdict, there were other factors cited as reasons for the unrest, including the extremely high unemployment among residents of South Los Angeles, which had been hit very hard by the nationwide recession. Short term economic contraction then served to exacerbate competitive tensions between ethnic groups. The long-standing perception that the LAPD displayed racial bias and used excessive force also fuelled violence and prolonged the duration of violence after the initial trigger.

5.5.2 Geography and Response

Riots began in South Los Angeles and disseminated into central and eastern areas. However, structural damage occurred throughout the City of Los Angeles, and only the Santa Monica Mountains and sections of foothills in the north-most areas of the San Fernando Valley were exempt from the riots' damage. Broadly speaking, the distribution of structural building damage and crime was correlated with the geography of ethnic neighborhoods and levels of poverty. For example, structural damage to buildings occurred in neighborhoods that had high degrees of vacated buildings and vandalism. Rioters also preferred not to travel, and tended to riot in their own neighborhood rather in different neighborhoods. Figure 14 shows the distribution of structural damage in Los Angeles.

Initially arsonists struck in Watts neighborhood in South Los Angeles and then moved progressively into other areas of the city, targeting unguarded businesses. Looters smashed windows and threw Molotov cocktails to start fires. Cars were torched to block intersections; others were carjacked and their drivers beaten. Violence was ad hoc, decentralized and spontaneous rather than strategic and surgical - and not designed to achieve a predetermined goal.

Mitigation and containment efforts were hampered by violent attacks and murders on rescue personnel and police. Emergency services were surprised by the ferocity, scale and prolongation of the attacks and the violence displayed towards emergency personnel, and were unable to respond effectively in the short term. Over the first two days stores were openly looted and fires burned untreated as fire officials refused to send firemen into personal danger. Riots continued in Los Angeles for 5 days after the initial outbreak until the California National Guard, support by federal troops, began to control the situation.

About 10,000 people were arrested: 42% African-American, 44% Hispanic, 9% white, and 2% other. These numbers are proportional to the number of residents in the areas of Los Angeles where the events occurred, although they are not proportional to the racial make-up of Los Angeles as a whole. Stores owned by Korean and other Asian immigrants were widely targeted. Despite the race riot image the event retains, much of the looting and violence was done by young men, black, Hispanic, and white, and much of the looting was opportunistic theft of luxury goods. Criminals also opportunistically used the chaos as a vehicle for their own benefit and thereby extended the breadth of participation.

5.5.3 Damages

Estimates of the number of lives lost during the unrest vary between 50 and 60, with as many as 2,000 persons injured. Estimates of the material damage vary between about \$800 million and \$1 billion. Approximately 3,600 fires were set, destroying 1,100 buildings, with fire calls coming once every minute at some points. The focus of the crime was directed at commercial properties (1050 damaged) as opposed to residential ones (98 damaged). In particular, rioters – composing of over 80 of total commercial building types damaged, most frequently targeted retail units, gas stations, and restaurants. The total physical damage to all buildings was valued at \$446, and 377 buildings were completely destroyed.

Many entertainment and sports events were postponed, relocated from LA or cancelled, including a key basketball playoff game postponed and relocated, baseball fixtures postponed, horse racing events cancelled, and a Latino community carnival called off.

Level of damage	Number of buildings
Number of buildings destroyed	377
Number of buildings severely damaged	222
Number of buildings damaged	1120
Commercial	1050
Residential	98
Commercial Building Type	Number of buildings damaged
Retail	764
Restaurants	70
Gas Stations	58
Office	57
Manufacturing	17
Warehouses	11
Public Garages	10
Private Garages	7
Hotel	5
Church	5
Theatre	2
Public Office	2

Residential Type	Number of buildings damaged
Single Family Dwelling	29
Duplex	7
Apartment	29
Other	20

Figure 14. Summary statistics of building damage during LA Riots

5.5.4 Riots in other cities

Contagion occurred and smaller pockets of unrest were also triggered in other United States cities. San Francisco police arrested 1,400 rioters in the downtown area and established a curfew. The Nevada National Guard was deployed to Las Vegas and 200 people were arrested. Seattle was hit by overnight mobs of up to 100 people rampaging through business districts. New York experienced racial beatings, a mob looting a shopping mall, and another at Madison Square Garden. Hundreds of protesters confronted police in Atlanta. Minor incidents were reported in Tampa, Pittsburgh, Birmingham, and Omaha.

6 Magnitude Scale

Here we have focused on those events that typically affect developed countries, so for example we have ignored Food Riots even though the potential for escalation and impact is large if the conditions are right. It is also important to recognise that whilst these categories are useful for identifying the features and risks of a protest/riot, these events can often escalate into and/or trigger other categories of protest/riot. Similarly, whilst each event is usually a combination of both greed (economic) and grievance (social, ethnic, identity, etc.) factors, there is one main driving/trigger factor with the other providing the underlying causes (structural / proximate) that enabled the riot/protest to take place.

Anti-Government protests tend to be 'greed' driven in the trigger, and typically are non-violent. Whilst they don't always start with the support of the whole country, the protests can easily escalate and find mass support. If the protests escalate and stick to a focused agenda it can enact real change in government. If the legitimacy of the government can be called into question and protests are sustained there is a chance for revolution. As protests escalate there is a greater chance for violence to be used by fringe groups, such as anti-capitalists or anarchists.

Urban / Race riots tend to be grievance driven, with the trigger almost always being some form of police brutality. Both Urban and Race riots are very closely intertwined for multiple reasons, but mainly because the demographics for each so closely overlap. The poor and uneducated inner-city youth that engage in urban riots happen to also be from underprivileged minorities. For this reason Urban Riots typically evolve out of a Race protest and as both escalate they often feature characteristics of both. They are often violent and occur in underprivileged neighborhoods. As a result they don't garner mass appeal and are limited in their escalation. Occasionally the police can lose control of a situation where whole neighborhoods are engulfed in lawlessness. If it reaches these scenarios there can be a very high cost to government.

Ethnic / Religious protests are always grievance driven and negative, if not outwardly violent. As with the Urban / Race riots these won't garner the support of the masses, and are very unlikely to have a major impact upon business. It often results in a very sporadic but sustained campaign of

protests and violence, but very occasionally this can carry a high cost to business - such as the 1996 Manchester Bombing by the IRA which carried a price tag of £700m to insurance companies. In very exceptional circumstances ethnic and religious protests can escalate into full on conflicts, such as genocide. Often it is developing countries with less stable institutions that face these challenges.

	Magnitude 1	Magnitude 2	Magnitude 3
Anti-Government			
<i>Methods of Protest</i>	Marches, Demos	General Strike, Mass Government Protests	Civil Unrest, Long-Lasting Movements
<i>Duration</i>	1 off event, 1 day	2 days - 3 weeks	3 weeks +
<i>Cost</i>	£10k - £100k	£100k - £50m	£50m - £1bn+
<i>Scale</i>	Open Square, Street	City, National	National, Regional, Global
<i>Impact To Business</i>	Indirect: disrupts business temporally, no long-lasting effects	Direct & Indirect: Prolonged disruption to service, potential for physical damage if violent	Direct & Indirect: Can force change in government or business operations
<i>Examples</i>	London Student Protests, Anti-War Demos	Anti-Austerity Greece, Brazil & Turkey Protests, G20 Protests	Egyptian Revolution, Occupy Wall Street
Urban / Race			
<i>Methods of Protest</i>	Marches, Campaigns	Riots, Looting, Arson, Vandalism	Full Scale Riot, Localised Anarchy
<i>Duration</i>	1 off event, 1 day	2 – 7 days	1 – 2 weeks
<i>Cost</i>	£10k - £100k	£100k - £100m	£100m - £500m+
<i>Scale</i>	Open Square, Street	Neighborhood	City
<i>Impact To Business</i>	Indirect: Minimal Business Impact, Localised one-off events.	Direct: Lots of physical damage/loss to buildings and vehicles	Direct & Indirect: Large-scale disruption to business, both physical and disruption. Often Martial law is imposed
<i>Examples</i>	Trayvon Martin and Mark Duggan marches	Brixton Riots	Los Angeles Riots, London Riots, Paris Riots
Ethnic / Religious			
<i>Methods of Protest</i>	Marches, One-off Attacks	Sustained campaign of attacks: Arson, Violence	Full Scale Ethnic Conflict & Violence
<i>Duration</i>	1 off event, 1 day	2 days – 12 months	1 month – 12 months
<i>Cost</i>	£10k - £100k	£100k - £300m	£300m - £1bn+
<i>Scale</i>	Very Localised	Neighborhood, City	National
<i>Impact To Business</i>	Negligible business impact, possible vandalism	Direct: Sporadic loss to building and vehicle damage. Can be quite large depending on attack	Direct & Indirect: Serious impact to business as it escalates to full on conflict (potential for genocide).
<i>Examples</i>	BNP and EDL marches	1996 Manchester Bombing (IRA)	Islamist Insurgency in Nigeria, Sunni-Shia

7 Characteristics of Civil Disorder

7.1 Looting

Looting on some scale – often minor – seems to occur after a disaster when civil authority is diminished, distracted or withdrawn from an area, for example after an evacuation. It is often opportunistic, the apparent lapse in authority enabling willing persons to thief with impunity.

7.1.1 Looting is the most common form of civil disorder

Looting appears to be the most common form of civil disorder, and can occur in even isolated occurrences or by a single individual acting alone – and as such may be indistinguishable from burglary.

However, the incidence of looting can rapidly increase with mob action. Looting has been reported as having a cascade effect through a group of people as one person believes that his contribution to the crime is lessened because someone else is looting. People may also believe that if the goods are not stolen, then they will simply be wasted (particularly if the area is badly damaged or continues to be threatened by fire or pollution) and so justify their act as a lesser of two evils. Finally, a looter may believe that if he doesn't steal the property, it will simply be stolen by someone else and he will gain nothing from his obedience.

Some looters have been observed to be from outside the area being looted. However, looters appear to be generally locals and victims of the disaster, and as such, may have lost a lot of their own property. This further encourages them to steal as it is reducing the negative impact of the disaster.

In the central areas where rioting begins, looters may plunder their own neighbourhoods, but as civil disorder widens to other areas, looters move further afield.

In extreme circumstances looting may be the only way for a person to procure necessities for themselves and their dependents. Many see this as an act of survival rather than taking advantage of unfortunate events. Looting can be carried out by many individuals for essentials for survival as well as those who exploit the emergency to get free luxuries.

In some circumstances, the maintaining of essential services requires 'looting' to be carried out by the authorities: for example, during the Hurricane Katrina disaster, police helped doctors to break into abandoned drug stores to requisition essential medical supplies for nearby hospitals.

The procurement of necessities by individuals or the authorities still causes loss to the building owner, and would result in an insurance claim, so may be considered as looting for the purposes of insurance loss assessment.

7.1.2 Higher risk occupancies for looting risk

The types of buildings that tend to be targeted in looting attacks include:

- Retail outlets of general products needed by refugees in a post-disaster environment (Supermarkets, grocery and food stores, drug stores, clothing, shoes, gas stations)
- Retail outlets of luxury, high-value or non-essential products (shopping malls, electronics, liquor stores, jewelry).
- Office and service buildings, warehouses, storage, restaurants.

In general, looting is mostly carried out in stores with street front displays in downtown areas, or with major shop window displays, or high visibility within the zone of civil disorder.

7.1.3 Insurance loss from looting

Looting is the theft of goods from buildings. In the course of breaking into buildings, criminal damage occurs to buildings, such as smashing windows, breaking doors and forcing locks. Further damage is often caused to fixtures and fittings inside the building. At an extreme, the looters may also set fire to the building – considered as arson, below.

Building contents

The loss of building contents can be fairly extensive when looters invade a property. Retail operations can lose large amounts of stock, potentially reaching a total loss of contents. Office buildings may be ransacked by mobs, with extensive damage to furniture, equipment and fixtures.

For an individual property that is looted, loss ratios for contents of up to 100% can be assumed.

Building structure

For a building structure that is looted, but not set on fire, damage of tens of thousands of dollars may be caused – entailing loss ratios of up to 10%. Average loss ratios of 1-5% have been assumed.

Business interruption

A building that is looted but not set on fire will potentially have some additional time requirement to repair any damage, clean up and restock lost contents before business can be resumed.

7.2 Arson and Criminal Damage

In more severe civil disruptions, a riot – a social eruption that is highly emotional, violent, and undirected – can become a mob – a highly emotional crowd that pursues a violent or destructive goal. Setting fire to buildings and cars is a common form of destructive expression – causing spectacle and focus for the civil disorder. As distinct from looting, where the motive is often need or acquisitive, the motive for arson and criminal damage is destruction as a means of drawing attention to a situation or political grievance.

7.2.1 Burning Cars

Cars are often attacked as relatively easy targets to destroy. In the 2005 French riots, some 10,000 cars were damaged, over 6,000 of them burnt. Burning cars are used as barricades and road blocks.

7.2.2 Burning Buildings

Destruction to buildings is a common expression of a mob's anger. Breaking windows is a common low-intensity expression of destructive will. Setting a building on fire is a more extreme way of expressing destruction. Buildings are often set of fire using a petrol bomb – a bottle of gasoline and a burning rag fuse – which is an efficient way of igniting and spreading fire rapidly in a building using simple street weapons.

Buildings that are targeted in arson attacks tend to be

- Symbols of authority (police stations, court houses, federal or local administrative buildings)
- Symbols of government services (schools, hospitals, fire stations)
- Commercial businesses, particularly those of different racial ownership targeted by the mob, or representative of wealth or unequal commercial opportunity.
- Car showrooms
- Homes owned by different race targeted by the mob

There is also a lot of randomness and general, untargeted destruction.

7.2.3 Insurance loss from arson

Building structure and contents

An arson attack on a building during a period of civil disorder usually results in extensive loss to contents and to the structure: internal fire suppression systems are likely to be out of order (particularly after a natural disaster where water supplies may be compromised) and more importantly, fire crews are usually unable to attend the fire if civil disorder is continuing and posing a threat of injury to personnel representing authority. Fire personnel and engines, as symbols of the authorities, are commonly attacked in civil disorder and fire chiefs are reluctant to expose their personnel to danger, preferring to let fires burn.

Losses from arson attacks during civil disorder cause larger losses than comparable accidental fires in normal times. It is not uncommon for a building subjected to an arson attack to suffer 100% loss. An average loss for a building structure suffering an arson attack is assumed to be [70]%. Average contents loss is assumed to be [90]%.

Business interruption

Buildings that suffer an arson attack can similarly expect to have extensive periods of business interruption as a result of the damage. Average BI loss for a building suffering an arson attack is assumed to be 95% of the period of cover.

Auto

Auto lines could suffer a high level of loss, depending on the incident rate (number of cars destroyed or damaged relative to the total population of cars in the area).

7.3 Human injuries

Mob violence is often directed against authority and government (such as the police and military forces sent to restore order), other races, people with better economic opportunities and many others. People who represent these and other figures of hatred can suffer physical harm. Mobs shoot firearms, beat and attack groups of people, drag drivers from their cars, throw stones and projectiles, and use firebombs.

7.3.1 Mass murder intent is rare

Extreme examples in the past suggest that murderous mobs have – very occasionally – attempted to kill large numbers of other people: the U.S. Race Riots of the late 19th and early 20th centuries sometimes developed into near-wars between crowds of opposing races, including reports of mass casualty attacks, for example in the Tulsa City Oklahoma riot of 1921 in which there were even reports of private airplanes dropping homemade bombs on fleeing crowds. It is difficult to envisage this kind of action occurring in modern Western crowds, but cannot be completely ruled out.

7.3.2 Moderate death tolls and large numbers of minor injuries

The point of the rioting is usually not directly focused on mass murder, so compared with the numbers of people involved; death tolls in civil disturbance tend to be moderate. The death tolls in the precedent examples are all in the tens of people. However the numbers of injuries are much higher – tending to be in the thousands during widespread and prolonged episodes of civil unrest. The injuries are generally minor, cuts, bruises, beatings and being hit by projectiles.

7.3.3 Potential for accidental mass casualty

Mob violence is also uncontrolled and can lead to accidental deaths and injury from crowd stampedes or being trapped in burning or hazardous environments. Crowd action in hazardous and fearful conditions have contributed to high death tolls, for example 363 died in Saudi Arabia during a crowd panic during a haj in January 2006, and nearly 650 people died in a stampede, panicked by rumours of a suicide bomber, on a bridge across the Tigris River in Baghdad, Iraq in August 2005. In confined spaces like a sports stadium, there are many incidents of crowd stampedes causing mass casualties, the worst being in 1989 when 93 people died in a crowd stampede in the poorly controlled Hillsborough soccer stadium in Sheffield, UK. The potential for a high casualty incident in a civil disorder resulting from a crowd stampede, particularly in a confined space (like a refugee center for example) should not be underestimated. However, precedents suggest this would be limited to a few hundreds.

7.3.4 Insurance losses

Life and Health insurance

In most circumstances of civil disorder it appears that the total the numbers of deaths will be moderately low, and the injuries minor. The number of people who would be insured for death or personal injury is likely to be even lower. The demographics of the rioting crowd itself, where most of the casualties are likely to occur, is typically of lower income, socially disadvantaged and possibly with a high proportion of unemployment – i.e. likely to have low penetration of life insurance or private health insurance that would result in significant claims to insurance companies. Life and health losses are likely to be low.

Workers Compensation

Workers compensation losses would result from injury to employees in their workplace caused by mob action. Injuries to working people are most likely in those deployed because of the civil disorder who then become the focus of mob anger – such as police, firemen, emergency workers, and government officials. Workers could be injured in their workplace if it were attacked, for example in businesses, government buildings, schools, hospitals etc. that are firebombed while occupied. If a large number of senior executives were trapped and injured in a firebombed building, then workers compensation losses could become significant.

Workers traveling in the course of their job could be accidentally caught in the disorder, for example lorry drivers (a lorry driver was pulled from his cab and severely injured in the 1992 LA riots), delivery men, business travelers and others.

In general however, the deaths and injuries to people at work are likely to be only a small subset of the total numbers of people killed and injured overall. Workers compensation losses are generally likely to be low, but could under rare circumstances escalate to be significant.

7.4 Business interruption

A civil disturbance creates a no-go zone in which business owners are usually reluctant to continue commercial activity – they don't want to expose their employees to harm and there may be police barricades or other official restrictions on access. BI claims may be made from undamaged businesses that would otherwise be functioning apart from the fear of injury and difficulty of access.

7.4.1 In a natural catastrophe businesses may not be functioning anyway

In the circumstance of civil disorder following a natural catastrophe, it is probable that damage is extensive, and that buildings are abandoned as a result of damage, failure of utilities and services, and other hazards related to the destruction. It is the abandoned buildings – the absence of occupants to

deter opportunists – that is generally associated with the occurrence of looting, arson and other attributes of civil disorder. The business interruption is likely to be near total in these areas as a result of the physical damage, and any BI resulting from the civil disorder itself (i.e. functioning businesses caught within a civil disturbance that then suspend operations) will be marginal.

However, it is also possible that civil disorder caused by abandonment and failures of emergency response could spill over to cause civil disorder in other locations (and from precedent examples it could occur in other cities and even other countries) that have not been damaged by the catastrophe.

7.4.2 No official exclusion zone

Unlike other natural disasters or scene of crime there may be no official civil exclusion zone where police lines seal off an area, so insurance companies may have some discretion about business interruption claims arising from civil disorder. In many cases, the civil disorder activity could be spread diffusely across an entire city, and the threat and fear of disorder could cause large numbers of businesses to close temporarily.

7.4.3 Fluid area of civil disorder

Official policy with a civil disorder is usually containment – for example long-established LAPD tactics is that a full-force response is required, and the opening hours of a riot are critical. A large presence of police officers surrounds the crowd (allowing an escape gap for the crowd to disperse peacefully) to contain the violence within a distinct geographical area and to prevent it spreading further afield. Crowd control however is a fluid process, with field commanders changing police positions and dynamically interacting with reports of where rioting is occurring. The total zone over which the police and crowd interact could be fairly large, change over several days and police are likely to err on the side of caution, making the civil exclusion zone larger than any area being physically attacked.

In low intensity actions, there may be no distinct geographical focus to the civil disorder – looting could be occurring over a wide area of a city and arson attacks could be sporadic.

7.4.4 Length periods during which civil disorder remains possible

Police containment policy is usually one of patience and allowing the crowd anger to subside naturally, rather than forced confrontation. This means that the duration of civil disturbance could be prolonged. In most of the recorded precedents, the period of civil disorder peaks over a period of several days. There are several cases of recurrent episodes of violence over a longer period, for example each night for several weeks.

7.4.5 Insurance losses

Commercial BI

For a specific event footprint of a large catastrophe where destruction and emergency response failures leads to civil disorder, the destruction is likely to be such that BI losses are severe resulting from the physical damage. Any additional BI losses from civil disorder can be assumed marginal.

However, there is potential loss to an insurer's books for BI (and other causes) resulting from civil disorder in other cities unaffected by the disaster that could potentially become significant.

This is not modeled in this exercise but is an important component of an insurer's considerations for civil disorder loss.

Event Cancellation

Periods of civil disorder have in the past commonly caused cancellation of major sporting events, carnivals, conferences, corporate events, and public gatherings, resulting in claims for cancellation

insurance. Again, it is likely that the scale of physical destruction from a large natural catastrophe event would be sufficient to cause cancellation without the civil disorder, so the civil disorder is unlikely to be the primary cause of cancellation. However there may be events that would otherwise have gone ahead if the civil disorder had not occurred.

8 Sector Vulnerability

Three different types of civil disorder, with damage type ordered according to likelihood.

Sector	Urban/Race Riot		Anti-Capitalist/ Austerity Riot		Political Riot	
	<i>Targeting</i>	<i>Damage</i>	<i>Targeting</i>	<i>Damage</i>	<i>Targeting</i>	<i>Damage</i>
Retail	High	Looting, arson, BI	High	Looting, arson, BI	Medium	Looting, arson, BI
Transport	High	Arson, BI	Medium	Arson, BI	High	Arson, BI
Manufacturing	Low	Looting, Arson, BI	Low	Looting, Arson, BI	Low	Looting, Arson, BI
Energy	Low	Arson	Low	Arson	Low	Arson
Financial	Low	Arson	High	Arson	Low	Arson
Public Sector	Medium	Looting, Arson	High	Looting, Arson	High	Looting, Arson
Insurance	Medium	N/A	Low-Med	N/A	Low-Med	N/A

Table 16 Vulnerability of different economic sectors in various types of civil disorder

9 Geography of Threat

Threat assessment for particular countries in 2014.

9.1 Europe



Figure 16. Civil Disorder Threat Assessment for Europe 2014

9.1.1 United Kingdom

Continued austerity measures and latent inequality mean the possibility of unrest cannot be ruled out, specifically anti-capitalist protests and urban riots. Since the onset of the recession the UK has seen student protests in response to coalition policy, the growth of UK Uncut and Occupy London (who occupied St. Paul's) as well as the London riots. Liverpool, Manchester and Birmingham all have had previous episodes of disorder driven by acute poverty, racial tensions and police harassment/brutality. A survey carried out a year after the riots found that 40% believed relations between youth and the police had not improved and 27% believed they could happen again. This in part, is informed by continuing strained relations between certain communities and the police, but also underlying deprivation- estimates suggest as many as 30 million people in the UK are suffering to some degree for financial insecurity.

While unrest driven by student and anti-capitalist groups is likely to have a lower impact upon businesses, limited to protests and picketing, unrest driven by poverty and deteriorating relations with the authorities (urban unrest) is more likely to spiral to contain incidents of looting and arson.

In addition Northern Ireland continues have a high probability of unrest, in the form of sectarian unrest. Continued tension between unionists and nationalists has the potential to flare into wider unrest, often triggered by events such as the 12th of July Parades. Such protests are likely to be

different in nature to those in the rest of the U.K. being less likely to concentrate on commercial targets, but rather revolve around clashes with police and security forces.

9.1.2 France

There is a moderate possibility of unrest in France, where urban poverty against the backdrop of the recession creates potentially a volatile environment. Similar to the U.K disorder is most likely to be either urban riots or anti-capitalist protests. Paris has seen large-scale riots and protests in recent years, most notably 2005 and 2007, especially amongst those of North and West African origin. Post riot surveys found that racially diverse estates in Clichy-sous-Bois (the main area of unrest) still faced over 40% unemployment for under-25s. In addition, other studies have found that French citizens with immigrant parents were more likely to be unemployed, perform worse at school, and face higher levels of discrimination than faced by other French citizens. Unrest is likely to be concentrated in Paris (especially in the arrondissements suffering from deprivation such as Clichy-sous-Bois) and will have the potential to escalate to include both looting and arson. There is a smaller risk of unrest in other major urban centres, notably Marseille and Lyon.

9.1.3 Spain

Spain has seen an increase in austerity driven protests since 2011 and the rise of the “indignados”. Continued recession, austerity measures and high youth unemployment (now standing at a record 56.1%) has meant increasing poverty, disposable household income has dropped by almost 10% since 2008 and it is now estimated that 21.8% of Spaniards live in relative poverty- and as such the risk of unrest remains. The Spanish protests remained largely peaceful without escalating and it is likely any future protests would be in a similar fashion, mainly comprised of picketing and protesting. Unrest is most likely to be concentrated in Madrid and other urban centres.

9.1.4 Portugal

Similar to Spain, Portugal has been particularly hard hit by the recession. High unemployment and a stagnating economy have seen disruptive protests in response; such as the grounding of all 160 TAP (the national airline) carriers in March 2012. These protests have been directed at austerity measures and haven't showed signs that they are likely to develop into more violent protest (looting or rioting).

9.1.5 Greece

The possibility of unrest in Greece continues to be high. Six years of recession and over three years of particularly harsh austerity measures have seen continued protest and unrest amongst the population, as well as the radicalization of the political terrain. The emergence and growth of the far right group Golden Dawn has the potential to exacerbate tensions between political and social groups. Its capacity to mobilise large numbers further increases the probability of disorder. Anti-austerity, anti-capitalist, political violence and urban riots are all possible.

9.1.6 Turkey

Turkey experienced a disruptive 2013 as growing unease around the erosion of secularism in Turkey escalated into sustained protest triggered by protests against development of Istanbul's Taskim Gezi Park. As Erdogan continues to push a conservative agenda we could see friction with leftist groups and others, with a low-moderate threat of unrest. A repeat of the heavy-handed tactics employed by the police could serve as another trigger. Turkish protests are likely to be in Istanbul with a focus on civil disobedience against the political system rather than destruction or damage.

9.1.7 Scandinavia

Riots in May 2013 highlighted those Scandinavian countries with growing inequality face the risk of unrest and disorder. Over the past decade Sweden has seen one of the fastest and largest growths in

inequality among OECD countries, and without these issues being addressed the threat of future unrest cannot be ruled out. While most other Scandinavian countries currently have less acute levels of inequality and thus a lower risk of disorder, there are exceptions, Denmark for example now has 7.9% of its population below the poverty line- up from 4% in 2001.

9.1.8 Italy

Political turmoil alongside continued recession, with youth unemployment standing at 40% (increasing by over 30% in 2012), means there remains a moderate threat of disorder, most likely in the form of anti-austerity protests.

9.2 United States

The US faces a number of trends and issues that have in the past prompted occurrences of civil disturbance. The chief risk factors for the outbreak of civil disorder are deprivation and social segregation, demographic change, and urban decay.

9.2.1 Baltimore, MD

The Baltimore riots of 1968 lasted a week and resulted in the National Guard being deployed to quell the unrest. The trigger was the assassination of Martin Luther King, Jr. The rioting mainly broke out in the black ghettos, with most of the damage being done in the rioters own neighborhoods. The black communities in the city were vastly underserved and had higher crime and unemployment rates.

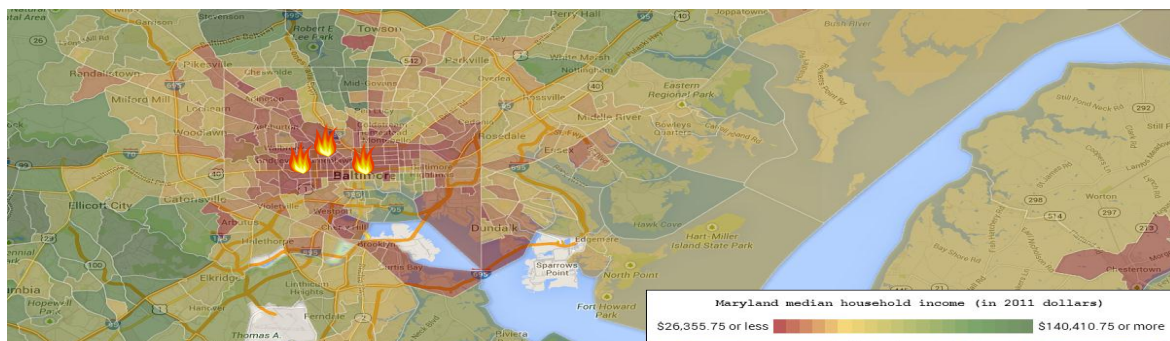


Figure 23 Incidents of rioting in Baltimore mapped against poverty

9.2.2 Cincinnati, MD

The 2001 Cincinnati riots were the largest unrest in the US since the 1992 LA riots. They were triggered by the shooting of a black male by a white police officer. This incident had followed a pattern of fatalities of black males in police custody. The riots took place in the Over-the-Rhine and Downtown districts, which were both underserved and littered with vacant buildings.

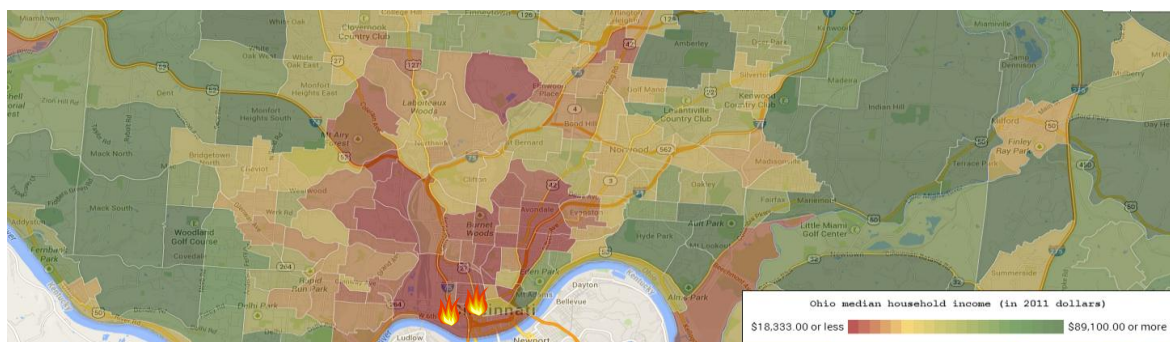


Figure 24 Incidents of rioting in Cincinnati mapped against poverty

9.2.3 Detroit, MI

The Detroit riots of 1967 are also known as the 12th Street Riots. During the early 60's the city suffered from insufficient housing due to the rapidly expanding population. By 1967 12th St. had a population density twice the city average.

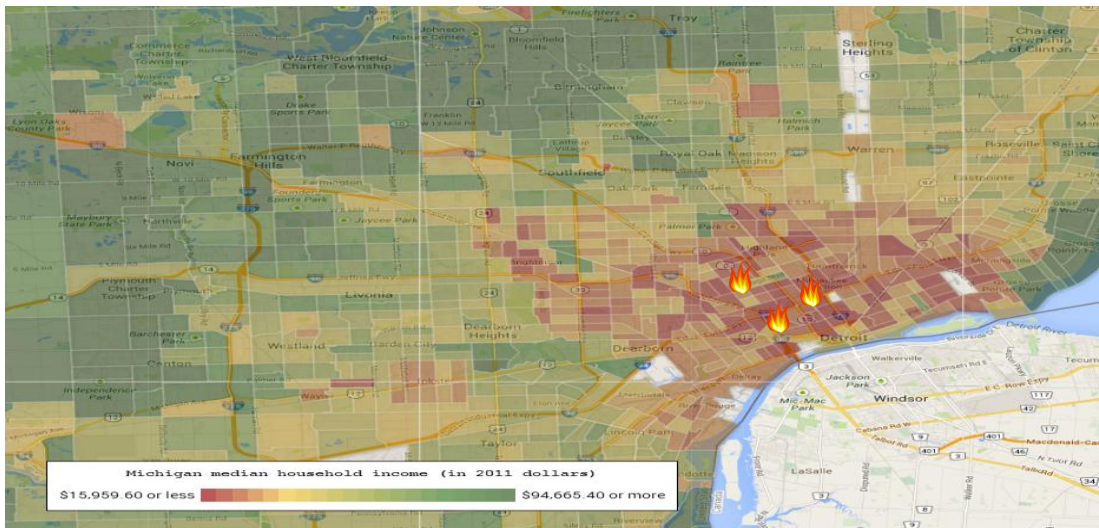


Figure 25 Incidents of rioting in Detroit mapped against poverty

9.2.4 Los Angeles, CA

The 1992 Los Angeles Riots were the largest since the civil rights unrest in the 60's and most deadly since New York's 1863 Draft Riots. They began in South Central, an area known for its level of deprivation and urban decay. The decline of the manufacturing base in the 70s had resulted in rising levels of unemployment, and in combination with the rapidly changing demographics and rising gang/street crime, the area was left vulnerable to an outbreak of civil disorder.

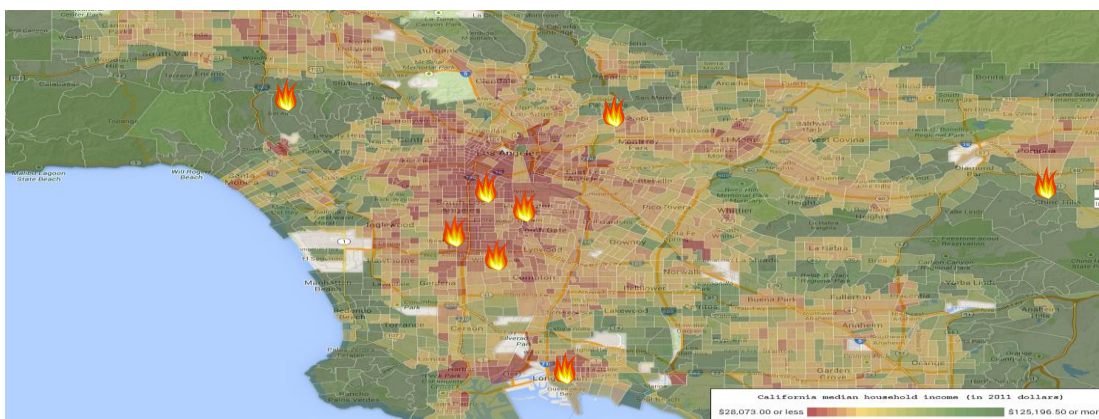


Figure 26. Incidents of rioting in Los Angeles mapped against poverty

9.2.5 Chicago, IL

The 1968 Chicago riots were triggered by the assassination of Dr. Martin Luther King, Jr. The riots started in a black ghetto on the West side and eventually consumed a 28 block space along West Madison St. The major neighborhoods hit were Lawndale, Austin and the Woodlawn.

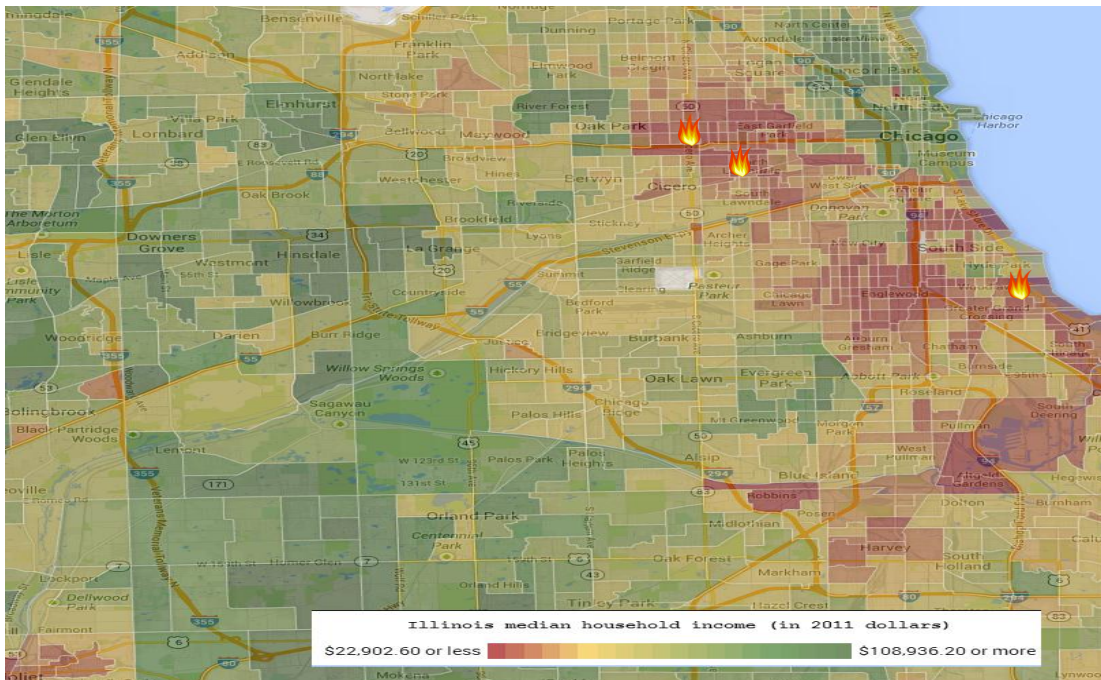


Figure 27 Incidents of rioting in Chicago mapped against poverty

9.2.6 Anti-Capitalist/Occupy Movement

The US has also seen the Occupy movement spread widely, most notably in New York, Boston, Oakland, Seattle, Washington D.C, San Francisco and St. Louis. These cities could see continued protest, although on a smaller scale with less disruption to businesses and the authorities.



Figure 28. Geography of social unrest hazard for the US

9.2.7 Demographics

With changing demographics since the 1950s the US and its urban centres have become gradually larger and more racially diverse. However several metropolitan cities still suffer from deprivation and segregation, despite declines in the national average.

Cities at Risk	Pop. ('000s)	Violent Crime (per 100k)	Property Crime (per 100k)	Murders (per 100k)	State GDP per Capita	Unemployment Rate (state) 2013
Chicago, IL	2,700	1,061	4,373	15.9	15/51	9.2
Cleveland, OH	397	1,366	6,376	18.6	33/51	7.3
Oklahoma, OK	586	871	5,819	9.9	32/51	5.3
Milwaukee, WI	597	999	4,977	14.2	29/51	6.7
Detroit, MI	713	2,137	6,143	48.2	42/51	9.0
Los Angeles, CA	3,837	522	2,249	7.7	12/51	8.9
Wichita, KS	384	766	5,056	6.5	28/51	5.9
Dayton, OH	141	956	5,876	23.3	33/51	7.3
Kansas City, MO	461	1,199	5,535	23.4	37/51	7.2
Waterloo, IA	68	519	3,139	4.4	19/51	4.9
Reference Cities						
New York, NY	8,211	623	1,710	6.3	7/51	
Houston, TX	2,143	874	6,053	9.2	24/51	
Seattle, WA	618	1,037	5,142	3.2	10/51	7.0

Figure 17. U.S. Cities in order of those with most segregation

It is notable that cities with the highest levels of segregation are often poorer than their more integrated counterparts and experience higher levels of crime. Racial/ethnic imbalances between races in terms of economic opportunities, municipal spending on local facilities or treatment by the state - in particular security force personnel- can easily lead to a charged atmosphere ripe for unrest. Those cities that have particularly pronounced racial enclaves can be judged to have a higher risk of civil disturbance.



Figure 19. Mapping of racial concentrations in different neighborhoods in Detroit: Blue (Caucasian), Green (African-American) and Red (Asian)

9.2.8 Immigration

Areas in the US that have high immigration are also potentially at a higher risk of unrest. This can in part be explained by the fact immigrant groups tend to have higher birth rates, which subsequently creates a high proportion of 16-24 year olds (a youth bulge), who are generally more likely to be involved in disorder and disturbances. Youth bulges are likely to have a higher propensity for disorder exacerbated by other socio-economic factors such as environmental stresses, unemployment, economic decline and rapid (often unplanned) urbanisation.

In the southern US states we see a number of these trends. For example, New Mexico and Texas both have substantial parts of their population under 18, 25% and 27% respectively- while states bordering Mexico are beginning to experience environmental stresses around water scarcity. Furthermore, a number of southern states have enacted aggressive anti-immigrant laws. Most notably Arizona has passed the Arizona SB 1070 act- which increases the potential for immigrant communities to feel isolated and marginalized from society. Florida, Nevada and New Mexico all run a moderate risk of unrest due to their high levels of immigrant populations coupled with underlying socio-economic issues, while Arizona can be seen to be at a slightly higher risk, as repressive laws there (and events which stem from it) may act as a trigger factor.

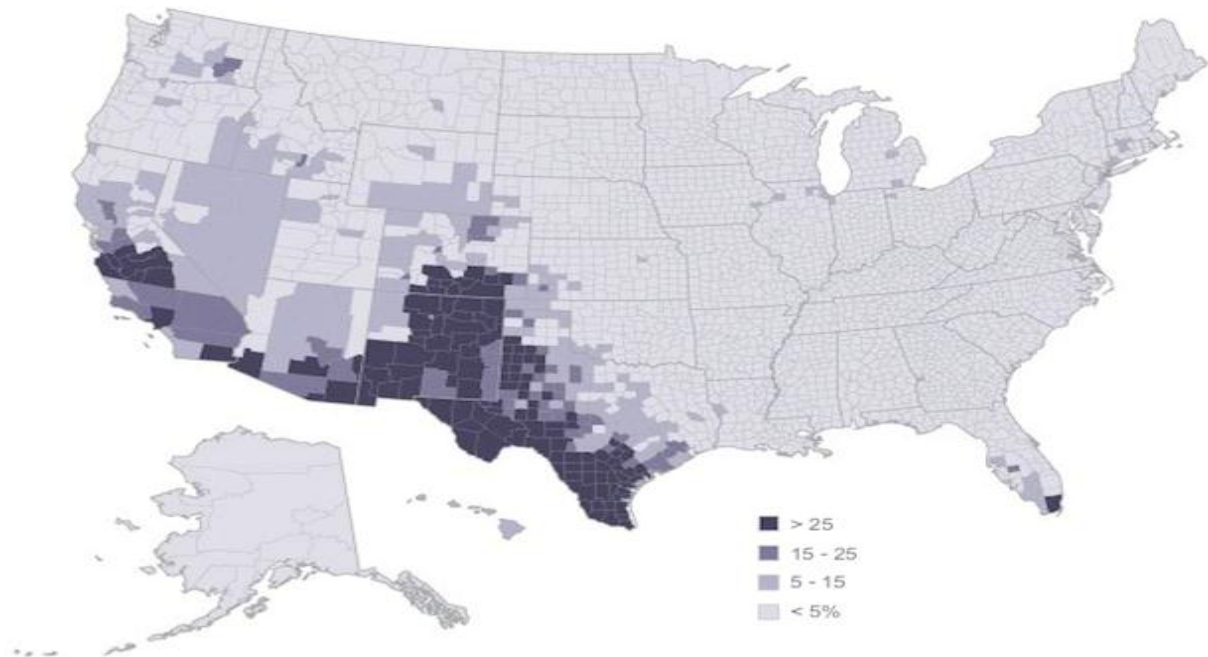


Figure 20. Hispanic population growth (%) in US 1980 - 2010

9.2.9 Economic Stagnation, Poverty and Inequality

Economic stagnation in the wake of the 2007 financial crash has adversely affected a number of large US towns and cities, which may have long-term implications for stability. The downturn in tax revenues (often acquired from business activities related to sales, construction and finance) has forced some municipal governments into bankruptcy or receivership. Long standing debt obligations such as pensions, increases in the number of those that are unemployed (and now claiming municipal welfare), and the failure of infrastructural projects, since 2007 have badly damaged the economies of many US cities. While some such as Detroit had previously experienced decades of decline, others such as Stockton California witnessed a more rapid collapse due to the unfurling of the housing boom. A reliance on debt financed construction has been the cause of much economic hardship for several southern states in the US, particularly Florida, Nevada, New Mexico, and Arizona. Northern

states have tended to prove more resilient in the face of the downturn, insulated by their generally more diverse economic output.

As a result of city governments being unable to meet their obligations, they have in several circumstances been forced to curtail or halt municipal services. The reduction in spending on welfare, education, social activities, and security has been detrimental to those localities, often creating flight of municipal workers, their services and subsequent spending power. In Detroit, (which in July 2013 filed for the largest municipal US bankruptcy in history), has an emergency call out response time of almost one hour, five times longer than the US national average.

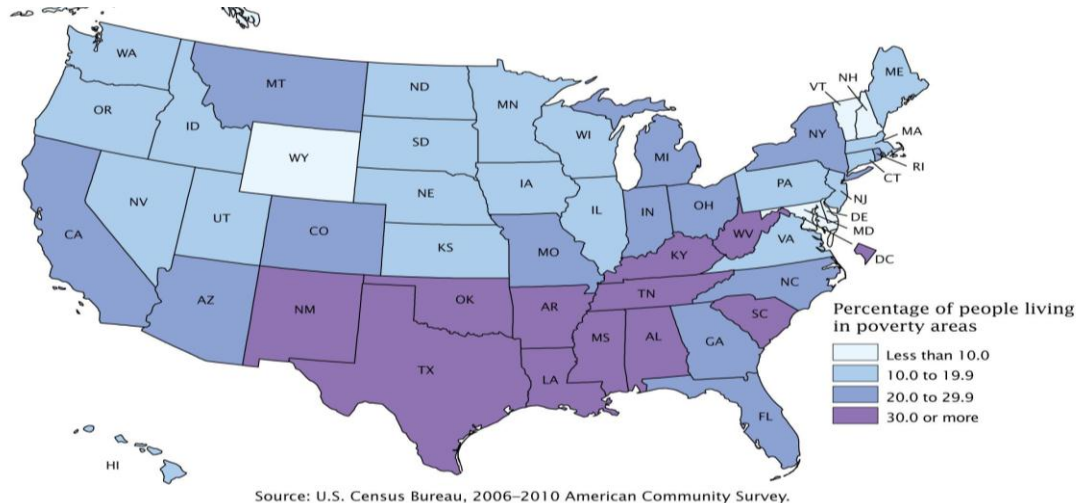


Figure 21 Percentage of people living in poverty areas by state: 2006-2010

It is reasonable to forecast that those cities that have experienced long-term damage to their civic and public amenities face a higher risk of unrest in the future, as a lack of policing, education and civic facilities are likely to exacerbate frustrations within communities. There have already been instances, for example, moves to cut the salaries, benefits packages, and collective bargaining rights of government employees in Wisconsin, had political ramifications within the state. Municipal and state workers staged strikes, sit-ins and sought to change the administration of the then governor Walker. Further protest could well be seen should other state governments attempt such policies. A potentially serious outcome of the financial problems impacting US cities such as Stockton, San Bernardino and Detroit is that the pension entitlement of their current and former employees could be cut. Pensioners as a politically lobby have traditionally been a powerful force in US politics and would likely be aggrieved by such a scenario, sparking potential protests and unrest.

An offshoot stemming from inequality in the US is its anti-capitalist movement, and the parallel occupy movement. The 'Occupy Wall Street' movement, from its starting point in New York City, has spread across a number of major cities in the US. While these protests have been peaceful in nature, certain instances have been large enough to cause some minor disruption (either to business directly or through additional policing being needed). Most notable instances include; New York, Washington D.C, Boston, Oregon, Seattle, St. Louis and Wisconsin.

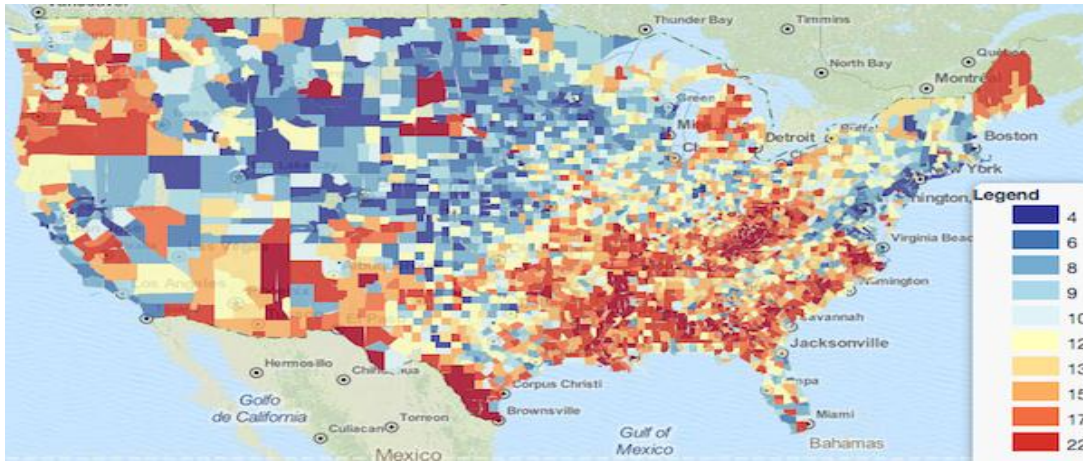


Figure 22 Percent of population on food stamps (2010)

9.2.10 Urban Decay

A corollary of poverty in the U.S. is urban decay. Since the 1970s many U.S. cities have seen their city centres abandoned by the wealthier segments of the population. The flight of both human and capital can lead to municipal neglect, as seen in cities such as Detroit and Baltimore, creating the potential for large ghettos, even in downtown areas.

Such decline generally leads to increased poverty and segregation and can feed into wider tensions within a city. The Los Angeles Riots of 1992, while triggered by the beating of Rodney King happened against a backdrop of urban decay. Cities experiencing acute urban decline such as Detroit are at particular risk of unrest. Below we take a look at some of the most deprived neighborhoods in cities that have experienced large episodes of civil disorder. The maps show income levels in 2011 US dollars (red highlighting the most deprived areas and green showing the most affluent areas), and the icon shows where previous riots and protests have occurred. Each of these can be seen to have potential for unrest if a substantial trigger event were to occur, and it is likely that the rioting would be concentrated in the most deprived areas.

10 Intensity Scale for Civil Disorder

10.1 High Intensity Civil Disorder

High intensity civil disorder is characterized by a large mob gathering in a distinct geographical area, usually an area of social deprivation, and likely to be the home neighborhood of the rioting crowd itself. The high intensity is caused by a very aggrieved mob (the trigger incidents and underlying causative factors are severe) and highly confrontational police tactics, likely confining the mob to a specific geographical area. The crowd protests through violent attacks on police, any passers-by or people not from the neighborhood. The geographical zone is contained by very large numbers of police and military personnel, but can expand or change over a period of hours and days. Attacks are made on a high proportion of the commercial properties in that zone, initially looting and then more severe arson attacks.

Looting incidence: 20 to 50% of all commercial properties are looted.

Arson incidence: Over 10% (and possibly as high as 25%) of all commercial properties burned

Auto loss: Over 10% of all cars parked within the zone are attacked and most are burned

Duration: Likely to be of a few days duration, and could recur during subsequent night after quiet daytimes. Authorities unlikely to tolerate civil disorder extending for many

days, but occasional flare-ups and incidents could endanger business confidence for several weeks.

BI: If the zone is not already abandoned because of high levels of damage, then all commercial properties would be closed for three to four weeks.

Casualty rates: A death toll of up to several hundreds could be recorded, mostly within the crowd itself, but a small proportion of deaths from police and military, and from bystanders, targets of the crowd's hatred or workers in the area.

Many thousands of light injuries are recorded, the large majority in the crowd itself. A small number of severe injuries occur.

10.2 Moderate Intensity Civil Disorder

Moderate intensity civil disorder is characterized by sporadic gatherings and rioting and more diffuse incidence over a larger geographical area. Small and localized crowds gather, make attacks and then disperse when confronted with police or military presence. Mobs may convene on specific targets, such as commercial areas or neighborhoods of different race. The geographical area is likely to include larger downtown areas where mobs travel from their homes to loot and protest.

Looting incidence: 1 to 10% of all commercial properties are looted.

Arson incidence: Up to one in 1,000 of commercial properties burned

Auto loss: Less than one in 1,000 of cars parked within the zone are attacked

Duration: Could be of lengthy duration for many days or weeks, and likely to recur during subsequent night after quiet daytimes.

BI: If the zone is not already abandoned because of high levels of damage, then a proportion of commercial properties may see suspended operations out of fear of staff injury over a period of several weeks. Sports and other events are likely to be cancelled.

Casualty rates: Very few people killed - death toll of tens of people.

Many hundreds of light injuries are recorded, the large majority in the crowd itself. A small number of severe injuries occur.

10.3 Low Intensity Civil Disorder

A low intensity civil disorder would be characterized mainly by looting. It has no real geographical focus – could extent across a whole metropolitan area.

Looting incidence: One per 1000 to one per 10,000 of commercial properties are looted.

Arson incidence: Less than 1 per 100,000 commercial properties

Auto loss: Less than one in 100,000 of cars parked within the zone are attacked

Duration: Could be short duration (1-3 days) or lower incidence rates for a longer period.

BI: Incidence rates are generally too low to merit businesses closing and submitting BI claims. Sports and other events could still be cancelled.

Casualty rates: Negligible.

11 References

- Almer, Christian and Laurent-Lucchetti, Jeremy and Oechslin, Manuel, Income Shocks and Social Unrest: Theory and Evidence (December 19, 2011). Available at SSRN: <http://ssrn.com/abstract=1952606> or <http://dx.doi.org/10.2139/ssrn.1952606>
- Aon, 2005, 'Life business fuels growth in French market', Risk Bulletin, p.12, 9 Feb 2006 http://www.aonhealthcare.ie/pdf/aon_risk_bulletin_090206.pdf#search=%22FFSA%20Riots%20insurance%20loss%22 Arezki, Rabah, and Markus Bruckner. Food prices and Political Instability. International Monetary Fund Working Paper, 2011.
- Associated Press, 2012, 'Greeks Clean Up Damage After Riots Engulf Athens' [Online] Ap via Business Insider, New York, retrieved from: <http://www.businessinsider.com/greeks-clean-up-the-streets-of-athens-after-riots-2012-2#ixzz2gbZIUHlv> (September 2013)
- Auf der Heide, E.; O'Leary M., 2004, 'Common Misconceptions about Disasters: Panic, the "Disaster Syndrome," and Looting'; *The First 72 Hours: A Community Approach to Disaster*

- Preparedness*; Lincoln (Nebraska), iUniverse Publishing.
http://www.iuniverse.com/bookstore/book_detail.asp?&isbn=0-595-31084-2
- Barsky, L., 2004, 'Looting in Disasters', Presentation, University of Delaware Disaster Research Center.
<http://robb9000.home.comcast.net/LootinginDisasters.ppt>
- Barsky, L.; Trainor, J.; Torres, M.; 2006, 'Disaster Realities in the Aftermath of Hurricane Katrina: Revisiting the Looting Myth', Quick Response Research Report 184. Boulder, CO: University of Colorado Natural Hazards Center.
<http://www.colorado.edu/hazards/qr/qr184/qr184.html>
- BBC NEWS, 2012 'France court overturns Clichy police verdict' [Online] The BBC, London, Retrieved from: <http://www.bbc.co.uk/news/world-europe-20158386> (September 2013)
- BBC NEWS, 2012 'France court overturns Clichy police verdict' [Online] The BBC, London, Retrieved from: <http://www.bbc.co.uk/news/world-europe-20158386> (September 2013)
- BBC NEWS, 2013, 'Detroit becomes largest US city to file for bankruptcy' [Online] BBC News, London, retrieved from: <http://www.bbc.co.uk/news/world-us-canada-23369573> (September 2013)
- Berman, G. 2011, 'The August 2011 riots: a statistical summary - Commons Library Standard Note' [Online] Parliament Standard notes SN06099 2011, retrieved from: <http://www.parliament.uk/briefing-papers/SN06099> (September 2013)
- Brian, J. 2011, 'Occupy London' start camp in Finsbury Square' [Online] BBC News, London, Retrieved from: <http://www.bbc.co.uk/news/uk-england-london-15415296> (September 2013)
- Carter, H. Dodd, V. Laville, S. 'England riots to cost taxpayers at least £133m in policing and compensation'. [Online] The Guardian, London 2011, retrieved from <http://www.theguardian.com/uk/2011/sep/06/england-riots-cost-taxpayers-compensation> (September 2013)
- CBC News Online, 2005, 'France Riots: Understanding the violence', INDEPTH: November 14, 2005
http://www.cbc.ca/news/background/paris_riots/
- CNN, 2005, Relief workers confront 'urban warfare': Violence disrupts evacuation, rescue efforts in New Orleans. Friday, September 2, 2005.
<http://edition.cnn.com/2005/WEATHER/09/01/katrina.impact/index.html>
- Cozens, C. 2005 'French TV boss admits censoring riot coverage' [Online] The Guardian, London, Retrieved from: <http://www.theguardian.com/media/2005/nov/10/france.tvnews> (September 2013)
- Davis T.P. Fry, H.M. Bishop, S.R. & Wilson, A.G. 2012 'Figure: The effect on severity of modifying (a) the number of police officers, and (b) their response lag in A mathematical model of the London riots and their policing' [Online] in Scientific Reports, Volume:3, Article number: 1303, February 2013, retrieved from: http://www.nature.com/srep/2013/130221/srep01303/fig_tab/srep01303_F5.html (September 2013)
- DiPasquale., D, and Edward L. Glaeser. "The Los Angeles riot and the economics of urban unrest." *Journal of Urban Economics* 43.1 (1998): 52-78
- Delacourt, S. Rider, D. 2010, 'Pressure builds on Ottawa for compensation' [Online] The Toronto Star Newspaper, Toronto, Retrieved from:

- http://www.thestar.com/news/gta/2010/06/29/pressure_builds_on_ottawa_for_compensation.html (September 2013)
- England Riots: Was Poverty a Factor? The Guardian. 6 Dec 2011 (1 Sep 2013). Available at: <http://www.theguardian.com/news/datablog/2011/aug/16/riots-poverty-map-suspects>
- Euronews, 2008, 'Greek shop owners count cost of riots' [Online] Euronews, Paris, France, retrieved from: <http://www.euronews.com/2008/12/12/greek-shop-owners-count-cost-of-riots>
- European Central Bank - Historical exchange rates 'USD/EUR rate' [Online] ECB, Bonn, Retrieved Online: <http://www.ecb.europa.eu/stats/exchange/eurofxref/html/eurofxref-graph-usd.en.html> (September 2013)
- Ethnos, 2011 'Ο Μάης του Facebook και με ομπρέλες' [Online] Ethnos, Athens, Greece, retrieved from: <http://www.ethnos.gr/article.asp%3Fcatid%3D22768%26subid%3D2%26pubid%3D63092999&usg=ALkJrhjXLt3m6q-bYzsHux0M-TG4f7OIC> (September 2013)
- Falksohn, R. Hüetlin, T. Leick R. Smolczyk, A. & Traufetter, G. 2005 'Rioting in France: What's Wrong with Europe?' [Online] Der Spiegel, Berlin, retrieved from: <http://www.spiegel.de/international/spiegel/rioting-in-france-what-s-wrong-with-europe-a-383623.html> (September 2013)
- Fearon, James D., and David D. Laitin. "Ethnicity, insurgency, and civil war." *American political science review* 97.1 (2003): 75-90
- Featherstone, L., 2005, 'Race to the Bottom: Slow Katrina evacuation fits pattern of injustice during crises'; *Grist Magazine*, 08 Sep 2005.
<http://www.grist.org/news/maindish/2005/09/08/featherstone-katrina/>
- Fender, John 'A general equilibrium model of crime and punishment' *Journal of Economic Behaviour & Organization* 39 (1999) 437-453
- Fergany, E.A.; Sawda S. (2009). "Estimation of Ground Motion at Damaged Area During 1992 Cairo Earthquake Using Empirical Green's Function". *Seismological Research Letters* 80 (1): 81-88
- Frances, F. 2011. *Horizontal Inequalities as a Cause of Conflict: A Review of CRISE Findings*, World Bank Development Report 2011
- Fry, H. "A Mathematical Model of the London Riots and Their Policing." *Scientific Reports* 3, 2013
- Fuller, Gary, and Forrest R. Pitts. "Youth cohorts and political unrest in South Korea." *Political Geography Quarterly* 9.1 (1990): 9-22
- Florida, R. 2011 'Map of the Day: America's Poverty Belt' [Online] The Atlantic: Cities, Washington DC, USA, retrieved from: <http://www.theatlanticcities.com/jobs-and-economy/2011/12/americas-new-poverty-belt/677/> (October 2013)
- Goodale, G. 2011, 'Small-Business Owners Tell Occupy Wall Street: You're Hurting the 99 Percent' [Online] Christian Science Monitor via ABC news, New York, retrieved from: <http://abcnews.go.com/Politics/small-business-owners-occupy-wall-street-hurting-99/story?id=14926462> (September 2013)
- Governor's Office of Emergency Services, 1990, *Law Enforcement Operations Report: Loma Prieta Earthquake*. Sacramento: State of California, Governor's Office of Emergency Services, Law Enforcement Division.

- Greeley, A..W., 1906, *Earthquake in California, April 18, 1906: Special Report of Maj. Gen. Adolphus W. Greeley, U.S.A., Commanding*, The Pacific Division, San Francisco, Cal., July 30, 1906; California State Military Department; The California State Military Museum.
<http://www.militarymuseum.org/Greely.html>
- Groden, C. 2013, 'The Wages of Bankruptcy: Stockton's Cautionary Tale for Detroit' [Online] Time Magazine, NY, USA, retrieved from: <http://nation.time.com/2013/07/25/the-wages-of-bankruptcy-stocktons-cautionary-tale-for-detroit/>(October 2013)
- Hansen, G., Condon, E., 1989, *Denial of Disaster: The Untold Story and Photographs of the San Francisco Earthquake and Fire of 1906*, Cameron and Company, San Francisco.
- Henegan, T. 2007 'Why we don't call them "Muslim riots" in Paris suburbs' [Online] Reuters, New York Retrieved from: <http://blogs.reuters.com/faithworld/2007/11/29/why-we-dont-call-them-muslim-riots-in-paris-suburbs/> (September 2013)
- Henely, J. 2011 'Striking parallels between UK riots and France 2005 unrest' [Online] The guardian, London, retrieved from: <http://www.theguardian.com/uk/2011/aug/14/uk-riots-france-2005-parallels> (September 2013)
- Henely, J. 2005. 'Disabled woman set on fire as Paris riots spread' [Online] The Guardian,London 2005, retrieved from: <http://www.theguardian.com/world/2005/nov/05/france.jonhenley> (September 2013)
- Henrik Urdel & Jennifer Dabbs Sciubba, Demography and Conflict: How Population Pressure and Youth Bulge Affect the Risk of CivilWar, Environmental Change and Security Program, Woodrow Wilson International Center for Scholars, March 5, 2007, available http://www.wilsoncenter.org/index.cfm?event_id=219250&fuseaction=topics.event_summary&topic_id=1413
- Hollinger, P., 2005, 'Sarkozy counts cost and unveils plans to stop unrest', FT.com, November 28 2005. <https://registration.ft.com/registration/barrier?referer=http://www.google.co.uk/search?hl=en&q=France+Riots+Damage+Cost&meta=&location=http%3A//www.ft.com/cms/s/05cf9d70-604a-11da-a3a6-0000779e2340.html>
- Home Affairs Committee, 2009 'Eighth Report Policing of the G20 Protests - session 08/09' [Online] Uk Parliament, Home Affairs Committee, London, retrieved from: <http://www.publications.parliament.uk/pa/cm200809/cmselect/cmhaff/418/41802.htm> (September 2013)
- Home Office, October 2011 'An overview of recorded crimes and arrests resulting from disorder events in august 2011', retrieved from: <https://www.gov.uk/government/publications/an-overview-of-recorded-crimes-and-arrests-resulting-from-disorder-events-in-august-2011> (September 2013)
- Jackson, Ross. *Occupy World Street: A global roadmap for radical economic and political reform*. Devon: Green Books 2012
- Jargowsky, P.A. & Park, Y. 2008 'Cause or Consequence? Suburbanization and Crime in U.S Metropolitan Areas' [Online] National Poverty Center Working Paper Series 08-012 , National Poverty Centre, University of Michigan, Michigan , USA, retrieved from: http://npc.umich.edu/publications/u/working_paper08-12.pdf (October 2013)
- Javier Alcántar-Toledo and Yannis P. Venieris. "The Budget, Growth and Sociopolitical Instability." *European Journal of Political Economy* (forthcoming 2013)
- Imai, K., and Weinstein, Jeremy. "Measuring the Economic Impact of Civil War." *CID Working Paper* No. 51, June 2000

- Kotkin, J. 2010, 'The Changing Demographics of America' [Online] The Smithsonian Magazine, NY, USA, retrieved from: <http://www.smithsonianmag.com/specialsections/40th-anniversary/The-Changing-Demographics-of-America.html> (October 2013)
- Knabb, Richard D; Rhome, Jamie R.; Brown, Daniel P (August 10, 2006). "Tropical Cyclone Report: Hurricane Katrina: 23-30 August 2005" National Hurricane Center; The deadliest, and most expensive United States tropical cyclones from 1851 to 2010 (and other frequently requested Hurricane facts). *National Climatic Data Center, National Hurricane Center*. National Oceanic and Atmospheric Administration
- Lagi, Marco, Karla Bertrand, and Yaneer Bar-Yam, The Food Crises and Political Instability in North Africa and the Middle East, arXiv:1108.2455v1 [physics.soc-ph] (2011
<http://arxiv.org/pdf/1108.2455v1>)
- LAPD, 2006, 'Crowd management and riot suppression: the work of the Mounted Unit, SWAT and other departments', The Los Angeles Police Department.
http://www.lapdonline.org/inside_the_lapd/content_basic_view/6347
- Le Monde avec AFP, 2005 'Le Conseil d'Etat refuse de suspendre l'état d'urgence' [Online] Le monde/AFP, Paris, retrieved from: http://www.lemonde.fr/societe/article/2005/12/09/le-conseil-d-etat-refuse-de-suspendre-l-etat-d-urgence_719688_3224.html (September 2013)
- Lewis, Paul. Reading the Riots: *Investigating England's summer of disorder*. London: Guardian/LSE 2011
- Marshall, Monty G., and Keith Jagers. "Polity IV project: Political regime characteristics and transitions, 1800-2002." (2002)
- McKinsey & Company, 2002, *Improving NYPD emergency preparedness and response*. New York: New York City Police Department.
- MSNBC, 2005, 'Chirac addresses social biases as fuel for rioting: French president admits 'undeniable problems' in poor neighborhoods', Nov. 10, 2005
<http://www.msnbc.msn.com/id/9891709/>
- Moore H.E., 1958. *Tornados Over Texas: A Study of Waco and San Angelo in Disaster*. University of Texas Press, Austin.
- McPhail, Clark. "Civil disorder participation: A critical examination of recent research." *American Sociological Review* (1971): 1058-1073
- Nossiter, A.,; 2006, 'Venerable Church Burns in New Orleans', New York Times, June 28, 2006.
<http://travel2.nytimes.com/2006/06/28/us/28fires.html?n=Top%2FFeatures%2FTravel%2FDestinations%2FUnited%20States%2FLouisiana%2FNew%20Orleans>
- Novak, C.A.; 1995, *The Years Of Controversy: The Los Angeles Police Commission 1991-1993*, (45 pages) ISBN 1-884614-09-04.
- Oklahoma City Document Management Team, 1996. *Murrah Rescue and Recovery Operation: Final Report to the Mayor and City Council*.
- Pierre, R.E.; and Gerhart, A.; 2005, 'News of Pandemonium May Have Slowed Aid: Unsubstantiated Reports of Violence Were Confirmed by Some Officials, Spread by News Media', Washington Post, October 5, 2005.
http://www.washingtonpost.com/wp-dyn/content/article/2005/10/04/AR2005100401525_pf.html

- Police Foundation, 1994, *Civil Disorder: What Do We Know? How Should We Prepare?* (1994); Proceedings of the Police Foundation conference, (166 pages) ISBN 1-884614-03-5
- Porter, B.; and Dunn, M.; 1984, *The Miami Riot of 1980*; D.C. Heath and Company, Lexington, Massachusetts.
- Reuters, Paris France, via Latin American Herald Tribune, 2005 'French Riots were not Organised' [Online] Latin American Herald Tribune, Caracas, Retrieved from: <http://laht.com/article.asp?CategoryId=12395&ArticleId=207770> (September 2013)
- Rosenbaum, S.H.; 2001, *Investigation of the Cincinnati Police Division into the Civil Disorder April 2001*. October 23, 2001.
<http://www.usdoj.gov/crt/split/cincita.htm>
- Salanié, B., 2005, 'The Riots in France: An Economist's View', The Riots in France, Social Science Research Council,
<http://riotsfrance.ssrc.org/Salanie/>
- Schurink, W.J., 1990, 'Victimization: Nature and Trends'. *Human Sciences Research Council*. p 416
- Scrivener, L. 2010, 'Angry merchants ask: Why did G20 protesters attack us?' [Online] Toronto Star Newspaper, Toronto, retrieved from: http://www.thestar.com/news/gta/g20/2010/07/02/angry_merchants_ask_why_did_g20_protesters_attack_us.html (September 2013)
- Seattle Police Department, 2000, 'The Seattle Police Department After Action Report: World Trade Organization Ministerial Conference Seattle, Washington November 29 - December 3, 1999' [Online] Washington, USA 2000, retrieved from: <http://stpaul.gov/DocumentCenter/Home/View/7388> (September 2013)
- Selwat, W. 2013, 'Detroit's Bankruptcy Reveals Dysfunction Common in Cities' [Online], Bloomberg-Businessweek, NY, USA, retrieved from: <http://www.bloomberg.com/news/2013-07-22/detroit-s-bankruptcy-reveals-dysfunction-common-in-cities.html> (October 2013)
- Shor, F., 2001, 'Floods, Riots, and Other "Natural" Disasters'; April 21, 2001; Common Dreams; <http://www.commondreams.org/views01/0421-02.htm>
- Simpson, J. 2005 'Will France's curfews work?' [Online] BBC News, London, retrieved from: <http://news.bbc.co.uk/1/hi/world/europe/4419430.stm> (September 2013)
- Shor, F., 2001, 'Floods, Riots, and Other "Natural" Disasters'; April 21, 2001; Common Dreams; <http://www.commondreams.org/views01/0421-02.htm>
- Spillane, C. 2012, 'Occupy London Movement at St. Paul's Cathedral Cost \$1.7 Million' [Online] Bloomberg-Business week, New York, retrieved from: <http://www.businessweek.com/news/2012-04-23/occupy-london-movement-at-st-dot-paul-s-cathedral-cost-1-dot-7-million> (September 2013)
- Stirckland, P. 2010 'Should we build more prisons?' in Key issues for the new parliament 2010, UK parliament 2010 [online] retrieved from: http://www.parliament.uk/documents/commons/lib/research/key_issues/Key%20Issues%20Should%20we%20build%20more%20prisons.pdf (september 2013)
- Taylor, A, and Cessen Keith. *Occupy: Scenes from Occupied America*. London: Verso, 2011
- Tugwell, P. 2012, 'Rioters Set Fire to 45 Buildings in Athens Austerity Protest' [Online] Bloomberg-Businessweek, New York, retrieved from:

<http://www.businessweek.com/news/2012-02-14/rioters-set-fire-to-45-buildings-in-athens-austerity-protest.html> (September 2013)

UNDP, 2004, *Reducing Disaster Risk: A Challenge For Development*, United Nations Development Programme, Bureau for Crisis Prevention and Recovery

www.undp.org/bcpr

Urdal, Henrik. "A clash of generations? Youth bulges and political violence." *International Studies Quarterly* 50.3 (2006): 607-629

Van Gelder, Sarah. *This changes everything: occupy Wall Street and the 99% movement*. San Francisco: Berrett-Koehler Publishers, 2011

Walker, D.; 2005, 'Radio captures the horror, exhaustion', New Orleans Times-Picayune, Wednesday, August 31, 2005.

http://www.nola.com/newslogs/breakingtp/index.ssf?/mtlogs/nola_Times-Picayune/archives/2005_08.html

Webster, W.; William, H., et al., 1992, *The City In Crisis: A Report By The Special Advisor To The Board Of Police Commissioners On The Civil Disorder In Los Angeles*, two-volume set (450 pages) ISBN 1-884614-05-1.

Welch, M.; 2005, 'They Shoot Helicopters, Don't They?: How journalists spread rumors during Katrina'. Reasononline, December 2005.

<http://www.reason.com/0512/co.mw.they.shtml>

Wikipedia, 2005, 'Tulsa Race Riot of 1921'. http://en.wikipedia.org/wiki/Tulsa_Race_Riot_of_1921

Yassin, J.O., 2005, 'Demonizing the Victims of Katrina: Coverage painted hurricane survivors as looters, snipers and rapists'; FAIR Fairness & Accuracy in Reporting; November/December 2005.

<http://www.fair.org/index.php?page=2793>