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**Better Understanding Disasters by Better Using History:
Systematically Using the Historical Record as One Way to Advance Research
into Disasters**

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This paper argues that the understanding of causes and effects of hazards and shocks could be furthered by making more explicit and systematic use of the historical record, that is, by using 'the past' as a laboratory to test hypotheses in a careful way. History lends itself towards this end because of the opportunity it offers to identify distinct and divergent social structures existing very close to one another on a regional level and the possibility this creates of making comparisons between societal responses to shocks spatially and chronologically. Furthermore, the basic richness of the historical record itself enables us to make a long-term reconstruction of the social, economic and cultural impact of hazards and shocks simply not possible in contemporary disaster studies material.

Key words: Institutions, History, Methodology, Comparative, Disasters

I. Introduction

Originally scholarly research into disasters and disruptive environmental changes was largely the preserve of the natural sciences. Given the great advancements in the sciences from the second half of the twentieth century, it was logical that ideas about the 'vulnerability' of societies or their levels of exposure to 'risk' would be more dictated by our knowledge of natural phenomena. In the 1970s and 1980s, it was likely that if someone was talking about a 'vulnerable society' in the face of a potential earthquake, they were referring to 'seismic risk' – the likelihood of an earthquake actually happening in close geographic proximity to the society in question (Cardona

2004, p. 41). Disciplines such as geography, geophysics, physical and urban planning, economics, and environmental management all combined to create a technocratic applied-science approach to disasters.

Over the past half a century, however, in a process picking up speed in recent years, the field of disaster studies has evolved from natural sciences roots – moving forward from a platform set by the pioneers of disaster sociology – Russell Dynes (see 1975) and Henry Quarantelli (see 1987). One key point made is that environmental hazards and the disasters they can create are not simply ‘natural events’, but social, cultural and political processes that test the capacity of society to organise itself, limit destabilisation, and move onto a stage of recovery (more recently: Blaikie et al. 1994/2004; Pelling 2012; Tierney 2007). These kinds of crises are now seen as ‘nature-induced’ rather than ‘natural’ per se (Pfister 2009, pp. 18-9). In a way the term ‘shock’ or ‘hazard’ more appropriately describes the natural act itself, but ‘disaster’ now refers to the net impact of the shock (Cohen and Werker 2008, p. 796). Essentially, an ‘intense natural event’ is not a synonym of disaster, and risk cannot be understood exclusively as the chance occurrence of a natural phenomenon (Cardona 2004). Even those disasters resulting from hazards that human societies are powerless to prevent, such as the movement of tectonic plates, seismic activity and resulting earthquakes, are now seen as partially ‘endogenous’: the consequences of such events being dictated by the arrangement of societies that they come into contact with.

In understanding the occurrence and consequential impact of disasters, attention has come to focus more on the qualities and strengths of the particular societies that they strike. Some of the studies that employ this perspective are looking for these qualities mainly in the fields of technology and physical infrastructure. In doing so, they often implicitly attach great importance to the availability of wealth and material resources, since these enable a society to create technology, and employ it in order to cope with hazards (see technocratic approaches in Clark 1989; El-Sabh and Murty 1988). Still persistent today in a wide scholarly literature is a simple notion that ‘more wealth is equal to lesser vulnerability’ in the face of hazards. Slowly and incrementally, however, this assumption has to some extent been undermined in recent years – if not fully. It is becoming increasingly evident that material aspects are not always decisive for allowing a society to protect itself in the short term nor for aiding recovery in the long term, and certainly not exclusively so. Various recent examples, including Hurricane Katrina in 2005 and the tsunami at Fukushima in 2011, show that technology and wealth on their own are not sufficient to prepare for hazardous events, to buffer their impact or react adequately. These recent disasters took place in the wealthiest and technologically most advanced societies in the world - though admittedly not their most advanced parts - yet they proved unable to respond effectively (Squires and Hartman 2006). Trust in technology as the prime solution is waning (Pelling 2012); technological solutions have even been said to increase risks, as demonstrated by the growing number of technology-induced disasters, possibly as an inherent feature of the modern, technological society (pioneering work by Beck 1992; 1999). Also, merely pumping physical and financial resources into developing or underdeveloped countries or regions at risk from hazards has now been shown to produce very mixed results, not necessarily

enhancing long-term prospects for recovery. Indeed, more and more literature is coming to the conclusion that the failures of outside capital investment to promote sustainable results is connected to the institutions mediating the effective implementation of this finance – sometimes providing local incentives inimical to the intended outcome (Gibson et al. 2005).

Following these insights, social scientists increasingly suggest that technical knowledge, technology and economic resources are not necessarily the key factors for enhancing societal resilience, but rather more important is the institutional and cultural framework that channels their use (see the pioneering research of Ostrom 1990; also Ahn and Ostrom 2008, p. 89). One classic example of a related approach is the work of Nobel Prize-winning development economist Amartya Sen (1988), who in focusing on the 1943 famine in Bengal, argued that mass starvation was not mainly due to basic lack of food or problems in food production (direct entitlement), but instead to distorted institutional systems of access or ‘entitlement’ to food (trade entitlement failure), and their distributional effects, with food being drained from those areas and people who needed the food most but were unable to pay for it. Likewise, sociologists, active in environmental sociology for instance, and geographers have pointed to the crucial role of institutional systems in coping with hazards and preventing disaster, or in finding responses to hazards in the short and long run, or a society’s inability to do so (Blaikie et al. 1994/2004; Tierney 2007). These systems include, of course, informal institutions, such as cultural values, preferences and norms, not formally enshrined in law. It is clear that these informal institutions can play a crucial role in responses to disasters, either aiding recovery or blocking it (Rivera 2014).

Ultimately, the intuitive notion that wealth, material resources, or technology are the decisive factors protecting people from environmental hazards has been increasingly refined, and sometimes replaced, by the awareness that the intrinsic arrangement of society and the institutional channels through which wealth, knowledge and technology are employed are also significant, perhaps even crucial (Hilhorst 2013, pp. 9-11). As suggested by Quarantelli, ‘disasters are overt manifestations of latent social vulnerabilities, basically of weaknesses in social structures or social systems’ (2005, p. 345). Following these cues, and inspired by the input of economics and sociology, research on disasters is now more than ever emphasizing the role of human decision-making and formal and informal institutions in the capacity of certain societies to show resilience in the face of disasters.

Still, despite these potentially fruitful developments, further progress has not been as rapid as one might expect. As observed by Kathleen Tierney back in 2007, disaster research is currently in a static position despite obvious increasing academic and popular interest in the study of disasters. Essentially the problem at the moment is that there is a large amount of literature leaning towards the descriptive rather than the analytical level – an applied or practical focus rather than embedded within any kind of theoretical innovation (Tierney 2007, p. 503). Persistent concern over direct policy implications can mean that there is a lack of theoretical rigour, which sometimes fails to match up with the standards of other social sciences. Further, where we do have theoretical models for societal vulnerability, whether emphasizing social networks or

capital and trust (Aldrich 2012), inequality, poverty, and disadvantage in the political economy (Tierney et al. 2004), social-ecology and the capacity for societies to transform natural environments (Turner et al. 2003), the capacity for collective action (Ostrom 1990), entitlements and the efficiency of relief institutions (Rivera 2014; Sen 1988), adaptation to climate change (Füssel 2007), or incongruities between institutions and the environment (Cernea 1997), there is scarcely any consensus on the validity of any one of them. In part, this is because of disciplinary fragmentation, and because disaster research deals with such a wide diversity of types of shocks and disasters that occur in very different settings and domains of society, and possibly also because the issue may lead into polemical or even ideologically-driven terrain. But another cause of the lack of consensus, as we suggest through the course of this article, is the lack of apparatus set-up for convincingly testing such models empirically.

In this article, and partly building on observations already made in recent disaster literature, we highlight the contribution history can make to better enable us to build and test coherent theoretical frameworks relating to the differential impact of hazards and shocks upon societies. In the second section of the article, we suggest a number of methods and approaches which could be more explicitly considered to create a fertile setting for the production of empirically testable theoretical frameworks. In turn we highlight the importance of broadening our approach to take in institutions not specifically geared to preventing or mitigating disasters and to consider these institutions not in isolation but within their very specific and oft-diverse social contexts. Also, we stress the necessity of formulating clear hypotheses that are empirically testable rather than based on intuitive reasoning, and how this can be facilitated by changes to the comparative method currently employed. In the third section of the paper, we suggest that one way of achieving these adaptations to methodology or general approach to our study of the differential impact of hazards and shocks on societies is to take a step away from contemporary events and issues and instead find a rich and fertile setting for building testable hypotheses and cohesive theoretical frameworks through the use of history. We argue that a historical approach allows us to employ our knowledge of distinct and diverging social structures within – geographically small - regions over the very long-run and offers the possibility to create comparisons not just between regions but also chronologically, in the process limiting independent variables. This approach also explicitly recognises the impact of historical path dependency on contemporary developments. More generally, the basic richness of the historical record itself enables us to make a long-term reconstruction of the social, economic and cultural impact of hazards and shocks simply not possible in contemporary disaster studies material. Therefore, disaster studies, we argue, could benefit from making more explicit and systematic use of the historical record: using ‘the past’ as a ‘laboratory’ to test ideas with relevance to the present. However, we also note there are some obstacles to this happening in practice – many of which having roots in the state of the field of history at present.

II. Enhancing Theoretical Rigour in the Investigation of Disasters: Some Avenues for Change of Approach and Methodology

II.a. Social Contextualization of Relevant Institutions

It is now clearly recognized that institutions are important in both protecting societies in the face of hazards and encouraging (or hindering) societal recovery after the event. A wealth of literature, particularly from the ‘Disaster Research Center’ based at the University of Delaware, has noted the role played by ‘official’ disaster management organisations. In recent years, however, the picture in the disaster literature has been sometimes usefully broadened to also include the role of “non-direct” institutions: that is, those institutions that exist in societies, regardless of the presence of hazards or not. These include socio-political structures, and various forms of economic organisation, and also informal institutions, including cultural values and norms, and the associated networks (Aguirre et al. 1995; Bolin and Stanford 1998). The latter play a big part in the ‘unofficial’ responses to disaster such as coordination of search and rescue efforts by relatives, neighbours and friends of those afflicted (Aguirre and El-Tawil 2010). Their efforts are formed and crystallised through relationships forged in the context of households and families, neighbourhoods, religious communities, and shared membership of associations and clubs, cultivated outside the direct domain of disasters, but vital in the rescue operations (Aldrich and Meyer 2014). One recent book has firmly argued for the importance of ‘social capital’ in the capacity for communities to recover – even more important than economic resources (Aldrich 2012), while other recent work has noted that ‘resilience can be forged and sustained through community engagement in activities concerned with identifying and dealing with local issues even if they have little or nothing to do with hazard readiness per se’ (Ross 2014, p. 16). Rather than protective measures being ‘imposed’ from above or outside, some of this literature puts strong emphasis on local community-level, collective risk-reduction measures – with high levels of participation down the social hierarchy (Lavell 2008). Essentially ‘ordinary people’ and ‘emergent groups’ have played vital roles in different cases of disaster recovery (Quarantelli 1996; Voorhees 2008). In fact this is an area in which great progress has been made in recent years – particularly in the interrelation between culture and value systems and the ‘informal’ or ‘unofficial’ responses of society to hazards that are produced. Essentially it has been stressed by various recent works that social capital creates a certain level of trust, and this (in general) can create favourable resiliency outcomes in the face of severe shocks. As well as this kind of cohesion from the bottom-up, we must also note that trust can also be fostered in the perception of the efficiency and legitimacy of political institutions operating from above – sometimes complementing and sometimes conflicting with the trust established from below (Han, Hu, and Nigg 2011).

As a result of this recent literature, we now know that responses to disasters always take form within a broader context of institutions, many of which have nothing to do with the hazards per se but still significantly shape the direction of a response. In that

respect a potential path forward for disaster research is to start more explicitly from the basic premise that institutions specifically needed to organise the exchange, allocation and use of essential resources are not always formed as the automatic and logical response of societies to threats such as environmental hazards. Frequently in fact, they serve other functions, often well outside the realm of hazards. That is to say, for example, that particular types of commodity markets or alignments in factor markets (in land, labour, credit, and capital) are not specifically formed to prevent or combat disasters, but it is clear that their arrangement influences the coping capacity of societies and more specifically the long-term economic response (Bankoff 2003a). These institutions serve multifarious goals and are not necessarily set up or oriented towards enhancing societal resilience.

A focus on the entire institutional framework does not mean, however, that we should simply attempt to compare different ‘types’ of institutional systems and decide which are inherently ‘better’ or ‘worse’ in leading societies towards resilience and recovery. That is to say we should, for instance, not be led down the path of suggesting that institutions connected to ‘free market’ conditions are ‘better’ than institutions connected to a strong regulatory arm of the state, or vice-versa. Recent literature, for example, has used a comparison of the 1906 San Francisco Earthquake and the 1876 Chicago Fire to assert that privatised disaster recovery was better than a centralised response – in the process making a politicised or ideological statement about the ineffectiveness of the modern Hurricane Katrina response (Schaeffer and Kashdan 2010). Likewise, former US Republican presidential candidate Ron Paul suggested that ‘the key to sound environmental policy is respect for private property rights. The strict enforcement of property rights corrects environmental wrongs while increasing the cost of polluting’ (cited in Thoen and Van Bavel 2013, p. 28). This essentialist argument has in some cases found support in some neo-classical economic academic literature where it is suggested private property rights could work towards internalising ‘external’ environmental costs – providing an incentive for maintaining and protecting the environment and preventing hazards in those places where the property is situated (Tietenberg 1994/2006). Yet this does not really appear to square with other literature suggesting that failed disaster recovery in underdeveloped countries has been caused by inadequate attention paid to local embedded social structures quite different to the ‘norms’ of the post-industrial modernised West and its approval of private property rights (van Leeuwen 2001). Indeed, that private and exclusive property rights are not the only way to achieve societal resilience has been suggested by the work of Nobel Prize-winning scholar Elinor Ostrom, who argues that in some social contexts, collective property regimes and common pool resources could provide an effective institutional framework for societal resilience to hazards and environmental degradation (1990). In fact a pool of very recent literature has put forward an almost overwhelmingly positive role for collective property regimes in helping raise environmental and societal sustainability and limiting risks for historical, contemporary and future communities in both the developed and underdeveloped world (De Moor 2012; Poteete, Janssen and Ostrom 2010; Rodgers et al. 2011). At the same time, it would be unwise to assume that collective property regimes always have positive

effects on resilience, as they can also be shaped according to the interests of more powerful groups and elites (De Keyzer 2013), just like all institutions (see below, this section).

All this suggests that the state, market, collective institutions, households and property rights, do not *per se* have an intrinsic value in mitigating hazards, but only ‘make sense’ or are ‘rational’ by being embedded within very particular societal contexts. It is, therefore, not just necessary to orient our focus even more closely towards indirect institutional arrangements rather than only the direct ‘disaster-focused’ measures, legislation and institutions, but also to consider the value of these arrangements of institutions in light of their very specific contextual conditions. The latter should include an assessment of the different kinds of social groups who control the direction, performance, functioning and participation of these indirect institutional arrangements. Too often the responses to hazards and disasters, or the functioning of disaster-related institutions, are seen in isolation from the social context in which these are operating. This is a pity because we have been told from the earliest Quarantelli literature that social structures matter for resilience outcomes. Accordingly a comparison of different social structures in the face of disasters would allow us to tease out and clarify some of the causal mechanisms that allow societies to cope while others fail. In the disciplines of history, political economics, and sociology, we are frequently told that the negotiated interests and preferences of certain social interest groups (some more powerful than others) tend to dictate the effectiveness of institutions to deal with episodes of exogenous crisis (Nee and Ingram 1998; Ogilvie 2007). Furthermore, it has been suggested that exposure, resistance and resilience are all shaped by various interest groups’ access to property rights, resources, and assets (Bankoff 2003b, p. 3; Blaikie et al. 1994/2004; Oliver-Smith 1999).

However, this point has sometimes been lost in the disaster studies literature, many studies lamenting the poor functioning of institutions to protect ‘the vulnerable’ in the face of disasters, and yet little appreciation of the fact that institutions do not necessarily change to the betterment of wider society (for example emphasis on adaptive institutions in Boyd and Folke 2011). The transformation of institutions does not always work towards the highest level of economic ‘rationality’ or societal resilience (in the face of hazards for example), but evolves instead towards the needs of restricted interest groups with the most bargaining power and resources necessary to subsidise costly campaigns to change and adapt them (Ensminger 1996). The choices of one powerful individual can prejudice the welfare of the wider group (Oliver-Smith 1999, p. 26). In some cases institutions are configured for a less rational or sustainable purpose, simply because the costs are either too high to make structural adaptations to them (Tilly 1998), or are dominated by groups with other interests in mind.

These social interest groups are not the same everywhere across time and space – thus showing the incentive for systematic comparisons, since they allow us to analyse the divergent effects of social structure. One recent disaster studies essay thus missed the point entirely when suggesting that the reason why ‘disaster research does not lend itself well to comparative research is, among other things, the variability in ‘community characteristics’ (Tierney, Lindell, and Perry 2001, p. 71). This is incorrect: the

variability in societal characteristics should be the starting point for comparative research into disasters. This would also allow us to test some of the assumptions on this point. For instance, several studies from a historical angle suggest that social equality, or a ‘balance’ between individuals and social groups, could be most conducive to generating the institutional arrangements that enhance the resilience of a society (Thoen and Van Bavel 2013). Looking at water management boards in late-medieval Coastal Flanders, Tim Soens has shown how these increasingly operated independently of the village community and became dominated by wealthy landowners as an instrument for defending their own interests (2013). Since large landowners increasingly were absentee living in cities, they were mostly interested in short-term gains and less in long-term sustainability. This resulted in declining investments in water management and growing vulnerability of fragile coastal lands to storm floods. In a negative feedback cycle, occurring in the fifteenth and sixteenth centuries, water management institutions were undermined, making storm floods ever more disastrous, eroding the viability of peasant landholding and causing peasants to abandon their land, resulting in further inequality and vulnerability.

Elsewhere, by comparing a number of different rural societies in Western Europe from the Middle Ages up to the nineteenth century, Daniel Curtis has demonstrated the impact of social context upon the effectiveness of institutions in coping with periods of crisis. According to this author, equitable distributions of both power (assessed qualitatively through packages of access rights, jurisdictions, and obligations) and property (assessed quantitatively) were underlying conditions in pre-industrial societies that gave ‘favourable’ institutions the chance to emerge, with high rates of participation down the social hierarchy, allowing people the freedom to choose their own fate – not necessarily reliant on one coping strategy but with the capacity to combine many different ones in search of optimum resilience (Curtis 2014, 269-72). In this work, by recourse to comparative case study analysis of a number of distinctive regional societies, it is shown that the same institutions employed in two different areas did not necessarily lead to equivalent levels of protection in the face of exogenous shocks. Institutions also take their effectiveness from the social context in which they are embedded.

The issue of social contextualization is also vital to understand and explain the degree of resilience of different groups or categories of people within a community vis-à-vis hazards and shocks. Consider, for instance, the hypothetical case of people who are confronted with a similar hazard and who are equally poor, in real income, but possess very different positions in relation to the means of production. That is to say a landless agricultural labourer, a sharecropper (a tenant farmer providing a share of surplus to the owner in exchange for capital investments and use rights), and a small landowning peasant. They can be equally impoverished, but that does not mean their ‘vulnerability’ in the face of an exogenous crisis is exactly the same, and more to the point not equally vulnerable to the same risks. That is to say a flood or earthquake may affect the poor small farmer the most – his own investment and property is most exposed. Small peasants, past and present, often did not have the resources to buffer exceptional losses, leading to increased chances of abandonment or expropriation from more powerful groups. Yet a regional harvest failure or disruption to trade network or

route through warfare may end up affecting the poor agricultural labourer the most if prices become unstable, due to higher reliance on market provisioning (Galloway 1988). Elsewhere, the poor sharecropper may be less exposed than the small peasant farmer to loss of capital goods and property, and may be more protected from the market unpredictability than the landless labourer, but then again the poor sharecropper's higher vulnerability may come from not being able to choose their own 'sustainability path' – instead being more at the whim of the decisions of the actual owner of the enterprise, frequently dictating the what, when, where and how of the production and distribution process. As explained from this hypothetical situation, poverty and vulnerability may be connected yet not always causally – the ways in which poverty contributes to vulnerability must be tested systematically in different social contexts (Cardona 2004). Furthermore, simply emphasizing how underdeveloped societies are vulnerable to hazards because of their impoverished living conditions or weak warning systems is meaningless in that many underdeveloped societies will remain underdeveloped and poor for a long time to come. As is increasingly done in research into disasters, rather than focusing on 'poverty' per se, we should look more to resilience in spite of persistence in poverty: a greater appreciation of the different institutional and societal settings in which poverty is played out – the different 'ways' in which people can be poor.

II.b. The Formulation of Testable Hypotheses

In the current literature on hazards and shocks, and the explanation of the differing degrees of resilience of societies confronted with them, intuitively logical arguments and assumed links between processes play a large role. We highlight here some of the main intuitive arguments that come forward from a broad survey of a number of typical works, but show how they could be elaborated more fully into testable hypotheses. One consistent claim made in the disaster studies literature over the past 20 years, for instance, has been that the poorer segments of society have been more vulnerable to environmental hazards than the privileged and wealthy (Blaikie et al. 1994/2004, pp. 46-61), and also disasters are said to be more severe in poorer countries (Kahn 2005; Strömberg 2007).

Not so long ago, this kind of idea was pushed forward in a fairly polemical book by Ted Steinberg, who argued that natural disasters in American history (a) hit impoverished people harder than the wealthy, and (b) could have had their destructive effects reduced if society had been arranged more equitably (Steinberg 2000; also Fothergill and Peek 2004). Thus to demonstrate this point further, the failure to maintain levees around the city of New Orleans before Hurricane Katrina has been explained through distortions in the US political system: powerful interest groups with no electoral incentive to make necessary investments in a city with a large proportion of African American residents (roughly 60% of the population in 2010), and large proportions of poor households (Shughart 2006).

A consensus emerged that a disproportionate number of people victimised by Katrina had been extremely disadvantaged even before the storm (Simo 2008, p. 309). In other literature, the rural and urban poor are seen to ‘put themselves’ in greater danger by pressures on available living space, as suggested in the context of twentieth-century population increases in El Salvador and crowds of people on the hazardous low-lying *barrancas* or gullies (Sheets 2004, p. 119).

Yet the problem remains that many of these cases are presented as statements rather than empirically tested hypotheses. In various examples we see poor and marginalized groups struggling to maintain an existence after terrible environmental shocks. This should lead us towards two obvious research questions: to what extent are poorer societies more vulnerable in the face of hazards than wealthier societies, and to what extent are more inequitable societies more vulnerable in the face of hazards than equitable societies (accounting of course for all the different ways in which inequality can be measured)?

Some limited attention has begun to more systematically address the first research question on the scale of comparing nations (Kahn 2005). Yet, in many instances, the issue becomes confused by the comparison of different types of disaster with different magnitudes and scales (Chou et al. 2004). Thus the factor of ‘wealth’ as a significant component of societal resilience becomes lost within a host of other factors that may or may not have significant causal effects, either endogenous or exogenous.

Poor countries may be more ‘vulnerable’ than rich countries, but any such test on the effects of wealth is always limited by the fact that the same poor countries identified in many of the studies are also simply in more ‘hazardous’ geographical or geological environments. Thus there is always some confusion – is it wealth, or is it geography? This multi-causality requires us to develop a systematic analysis in order to arrive at meaningful insights. It also requires us to think more carefully about how we set up our comparative experiments or case studies, as explained in more depth in the next section.

The second research question suggested about the effects of (in)equity has received little systematic attention. Even in those studies suggesting that the disruptive effects of disasters were worse on the poor than the rich of a particular society – as expressed in statements like ‘vulnerability is the degree to which different social classes are differentially at risk’ - the actual mechanisms behind an ‘equitable’ or ‘inequitable’ society’s capacity to cope with crisis remain obscure (Susman, O’Keefe and Wisner 1984). What is it precisely about inequality that makes a society less able to cope? How does this social and economic inequality impact on the creation and implementation of protective or risk-avoidant institutions? As one can see then, there are issues with causality, creating further problems.

Of course, poverty can play a role in increasing vulnerability, as has been demonstrated in a wealth of laudable literature too numerous to cite in full here. Untested, however, poverty ultimately becomes almost a synonym of vulnerability, and this in turn creates an uncritical conception in Western discourse of, for example, a global south as a disease ridden, inhospitable place – poverty stricken and disaster prone in equal measure (Bankoff 2001). Recent literature has indeed iterated the likelihood of ‘poor people’ living in essentially ‘disaster-prone’ areas of the world (Kim 2012), but

the reasons why this is the case are likely diverse and only starting to be subject to rigorous empirical testing (Boustan, Kahn, and Rhode 2012).

The relation between economic inequality and disasters can also be approached from the opposite direction – that is not focusing on equality/inequality as a decisive factor dictating the impact of disasters, but instead possible realignments of equality/inequality as a logical consequence of disasters. Essentially, to what extent do environmental hazards and shocks create more inequality within societies – a significant question given recent strong calls for placing distribution back into the mainstream of economic and sociological research (Piketty 2014). Poor people may indeed be more vulnerable to hazards, but hazards can at the same time produce more poor people (Delica-Willison and Willison 2013, p. 147-8), creating new opportunities for private enclosure, speculation, and concentration of ownership.

Perhaps surprisingly, in the traditional historical disciplines this actually has had some attention even as far back as the 1960s (Herlihy 1967). Here, it has been suggested that the impact of the Black Death in fourteenth-century Tuscany had an egalitarian effect on property and wealth distribution in the short term, resulting from mass mortality and incessant fragmentation of patrimonies due to the prevailing system of partible inheritance among sons. These initial egalitarian effects were reversed over the medium- and long term by speculation and hoarding due to new conditions in the housing and land market – former peasant property eventually falling into the hands of rich urban investors and powerful urban institutions (also: Curtis 2012).

These kinds of issues have also been brought up in contemporary literature, for example by Michael Cernea (e.g. 1997) in his work on the effects of forced displacement after severe environmental shocks such as drought and flooding. He shows by way of abstract modelling that in the process of uprooting and resettlement, previous institutional arrangements become fundamentally altered, dictating new dynamics for people's access and control over property and resources. Post-disaster settlement policies and practices, it is said, frequently intensify inequality and marginalisation through indiscriminate cost-benefit analyses unreceptive to social context (Cernea and McDowell 2000).

Even though Cernea's work is well received in disaster research (Collins 2009, pp. 109-10), it is clear that this avenue of research is only in its incipient stages. Where there is work on the redistributive impact of disasters, it often does not go into causal mechanisms behind this process, but instead provides us with little more than a table of statistics, often at a highly macro level (Yamamura 2013). Other scholars have noted that disasters 'create both winners and losers' and 'this is not random', but still all this amounts to is a number of unexplained descriptive examples (Scanlon 1988, p. 47). Although the harsher impact on the poor of society is frequently emphasized, there is very little evidence of the distributional consequences of disaster events in the long term (Noy and Karim 2013, pp. 17-8).

When we turn to history again, it is known that terrible events such as harvest failures certainly led to redistributive processes in the short term, as observed for early fourteenth-century England (Campbell 1984, pp. 110-8), and that this was often connected to the volatile and unpredictable functioning of land markets. Yet also more

lasting effects have been recorded. For example, their financial buffers ensured that the wealthy were usually well-placed to limit the potential dangers of significant shocks, and to ride crisis periods, thus not being forced to sell land or goods out of necessity in contrast to the poor (Galloway 1988). This has indeed been demonstrated for medieval England in the ‘crisis’ period of the early fourteenth century, when the functioning of land markets in a context of rising food prices and growing distress led to social polarization in landholding (Bekar and Reed 2013; Campbell 1984), leaving indelible marks on inequality in the long-term distribution of resources.

However, more research along the lines presented above necessitates some methodological changes that are not often entertained in present studies on disasters. One change in particular would be to start to compare societies that experienced a terrible shock such as an earthquake or flood with nearby societies that managed to escape it. This kind of approach has rarely been performed systematically (one early exception is Clifford 1956).

It is only through this comparative route that we can understand how disasters impact on social and economic inequality over the short- and long term, by placing the trends in direct relation to those societies fortunate enough to escape the same severe shocks (a way forward touched upon in Blaikie et al. 1994/2004, p.66). In any case, limiting research to very extreme disasters creates a risk that we narrow the focus to event characteristics rather than structural variables as the mechanisms of resistance and adaptability (Vanhaute and Lambrecht 2011). As seen in the following section, part of this problem is linked to an absence of effective apparatus to conduct systematic comparative research projects.

II.c. The Extension of Systematic Comparative Research

One way of empirically testing what are essentially intuitively logical hypotheses is to use systematic comparative research. At the moment, however, there is either a lack of explicitly comparative approaches, or more frequently there are problems and inconsistencies with the comparative method taken. Too often the research undertaken is a one-off experiment on individual episodes of crisis (as argued in Bankoff 2003b; Lübken and Mauch 2011). It is unfair to say that there have been no comparisons made – there clearly have. But the point made here is that these are often comparisons that have some methodological flaws. Indeed, papers have already made calls and recognised the need for ‘more comparisons’ in disaster studies, but do not go that much beyond that point to talk about their methodological implementation (McEntire and Mathis 2007).

One of the main problems we identify is that frequently the comparisons that are made in disaster studies create confusion with dependent and independent variables, because they compare not only different types of societies or different chronological periods, but also disasters of different scales or magnitudes – sometimes even different types of disasters themselves. This is quite problematic when it comes to teasing out causal mechanisms. In his discussion of social science concepts and comparative methods, Giovanni Sartori has already noted that ‘If two entities are similar in

everything, in all their characteristics, then they are the same entity. If, on the other hand, two entities are different in every respect, then their comparison is nonsensical' (Sartori 1991, p. 246). Disaster studies scholars have to work more on reducing the number of variables – one of the most important components of successful comparative research (Collier 1991).

Thus for example, one interesting article in the *IJMED* tries to systematically compare two floods occurring in 1993 and 1994 in two countries – Northwest Italy and the US Midwest (Marincioni 2001). In conclusion the author suggests that the divergent 'human responses' to the floods were connected to essential differences between the afflicted societies in terms of 'socio-political traditions and organization' and 'levels of integration within communities'.

Marincioni may be correct here, but his argument is overshadowed by the fact that we are never sure what impact the differing magnitude and scale of the respective floods had on societal responses, and it becomes difficult to separate factors at the local or national level. What could have been more illuminating is to compare responses of different localities, each possessing their own social characteristics, within either the US Midwest or Northwest Italy on the micro or meso level. This would limit the possible independent variables, but would also work in practice, given that certainly historically (Thoen 2004), but also for the modern-day (to a lesser extent), communities and societies separated by a few kilometres can have entirely different social structures – particularly rural societies.

Ultimately for disaster studies scholars, both historical and contemporary, the region in most cases is the appropriate unit of comparison. Only if the number of variables is limited and the relevant variable to be investigated is actually found at the national level, as in national legislation, can the nation state be the relevant unit for investigation. Otherwise the focus on the nation state as a unit of comparison is unsuitable, while 'Transatlantic' comparative perspectives are even more unsuitable for identifying crucial variables (Lübken 2010; Lübken and Mauch 2004). But even in regions not so geographically distant from one another, there is still the tendency to compare two or more different episodes of disaster – creating confusion over variables (Olson and Gawronski 2003).

Fortunately in recent years there have been some signs that a more explicit and systematic form of comparative research for disasters is emerging, with a potentially fruitful and careful way of comparing case studies. One good example of this is the contrasting 'historical social contexts' behind the divergent vulnerabilities presented for two nearby cities in Texas (Norris-Raynbird 2005). In this case the 'physical vulnerability' or exposure to the chances of exogenous shock, including hurricanes and storm surges, are quite similar for both cities, but the socio-political background of the two settlements is quite different – allowing a clearer view on the important variables. The same clarity of methodological setup can be seen in a recent exploration into how four Newfoundland communities each dealt with 88 flights carrying around 12,000 people, which were re-routed and forced to land in Canada in the wake of the 9/11 attack on the World Trade Center in New York (Scanlon 2012). The added value of this kind of approach is that four communities with parallel plans faced the same emergency

at the same time on the same day, providing unique opportunities for comparative study and isolation of local endogenous variables.

III. Bringing Historical Depth into the Picture

One of the ways to get around the three problems identified in the previous section of lack of social contextualisation, untested descriptive statements and lack of systematic comparisons is to make better use of history, which we argue in this section, allows us to open up a new ‘laboratory’ to carefully setup comparative experiments and test hypotheses. Leading scholars such as Uwe Lübken and Greg Bankoff have already suggested that making use of the past is a useful way of approaching the social construction of disaster vulnerability (Bankoff 2004; Lübken 2007, p. 6). Practices going back centuries can crystallise into institutions, including cultural values, which sometimes become difficult to shift – especially highlighted when faced with new circumstances brought on by exogenous shocks (Dietz, Rycroft and Stern 1989; ‘t Hart 1993).

Yet disaster studies scholars have been particularly slow to take advantage of all that history brings. The subjects of predominant focus tend to be modern or contemporary: historical literature exists, of course, but it is outweighed by the explicitly ‘current’ literature. Indeed, the journal ‘*Disasters*’ has been established since 1977, producing four issues a year, and yet in the back catalogue, there is but a handful of articles devoted to disasters before the twentieth century. In the well-established ‘*International Journal of Mass Emergencies and Disasters*’ it is also much the same, while the situation is even worse in newer forums such as the ‘*International Journal of Risk Reduction*’.

Just scouring websites for significant disaster studies departments in universities across the world, such as the Centre for Disaster Studies at James Cook University (Australia) or the Disaster Studies Group at Wageningen (Netherlands), it seems there is much interdisciplinary work with insights from sociology, law, anthropology, environmental sciences, demography, geography, economics, and development economics, but little use of history. Telling is perhaps also that the overview “Disciplines, Disasters and Emergency Management” (McEntire 2007) lists the potential contributions of all above disciplines, and adds media studies, psychology and public administration, while history is still absent.

This lack of historical input, due not only to some reluctance in disaster studies but also to the current state of the discipline of history as seen below, is frustrating. First of all, because a number of path-breaking publications have shown that some contemporary disasters have had their deep causes in in historical processes: the impact of the terrible earthquake in Peru in 1970, for example, has been linked to Spanish colonial practices over 500 years ago (Oliver-Smith 1999). Extreme destruction and misery were as much a product of this area’s long historical roots of underdevelopment as they were of the earthquake itself. The vulnerable large concentrated towns that came to be almost entirely destroyed were the long-term remnants of Spanish subjugation of the indigenous population in the sixteenth century.

Spanish colonisers forcibly moved rural peasants out of their traditional dispersed habitation patterns, where they had found a complex socio-economic balance in this difficult environment and were able to spread and buffer risks, into these central agglomerations. Any kinds of collective institutions (formal or informal), redistributive systems and personal reciprocity required to reduce the impact of severe shocks had long been eroded by the installation of hacienda-based modes of exploitation worked by mass ranks of marginalised Indian serfs.

Similarly the recent devastating earthquake that struck Haiti in 2010, killing approximately 250,000 people, has been linked to a pre-existing state of societal vulnerability inherited from very particular paths taken far back in the beginning of the nineteenth century (Frankema and Masé 2014). A skewed relationship between state and society, epitomised by frequent patterns of violence and peasant resistance and revolt, led to a vicious circle of reduced rent extraction opportunities, poorly consolidated political power, and ultimately a dearth of growth-enhancing and protective public and private institutions – the absence of which was keenly felt when the earthquake manifested itself in 2010, causing untold misery. Institutional arrangements far back in time explicitly affected the post-shock recovery (or rather hindered it). Many of the poor peasants actually did not have the legal documents to prove ownership of their ruined lands, many of which dated back to the division of the French colonial plantations in the early 1800s (Lundahl 2013). The consequences of insecurity over property registration led to widespread loss of peasant landownership, with many of the very poor unsure as to best prove their entitlement.

A second point is that long-term analysis is impossible without historical research. Whereas the short- or even medium-term impact of hazards and shocks can be measured by casualties, damage to capital goods, destruction of agricultural land or housing or levels of social conflict, the long-term responses and consequences of disasters are hard to assess by such measures alone. For example, we know that events such as Hurricane Katrina or Fukushima Tsunami caused terrible short-term damage, disruption and misery – that much is clear – but the actual long-term structural consequences of these disasters for society and economy will not become apparent for some time (Emel Ganapati, Cheng and Ganapati, 2013, p. 100).

Thus the advantages of investing in research on, for example, the sixteenth-century storm surges on the North Sea coasts or the spread of *rinderpest* in Southern Africa in the late nineteenth century, is that these past societies can be used as a ready-made ‘laboratory’ for investigating disasters, with their advantage over the literature on present-day calamities being that actual social, economic and cultural consequences over the long term can be discerned – in these cited cases exacerbating polarisation in the distribution of economic resources. It thus offers the laboratory for long-run analysis at the macro-level that the social sciences, including disaster studies, otherwise would not possess.

The benefit of history is precisely and simply the very presence of the historical record, even if data are sometimes patchy or hard to penetrate. The vast amounts of literature from ‘traditional’ historians regarding the cultural legacy of the Black Death (see the path-breaking Cohn 2002; 2007a), and its capacity to shape and crystallise

significant social and economic divergences between regions over the long term is indicative of what the more explicit and systematic use of the past can offer us as disaster scholars (Cohn 2007b; Pamuk 2007).

Scholars focusing more on contemporary disasters have been overly pessimistic of what the historical record can bring with a little ingenuity and innovation (see the negative comments made in Benson 2003; Blaikie et al. 1994/2004, p. 66). In the case of the Black Death, scholars have shown us not just the problems of recovery for societies 5, 10 or 20 years after the event, but how these events can shape the fates and directions of societies even centuries down the line – resulting in continental or global economic divergences seen today (Allen 2001).

Elsewhere, others have instead pointed to plagues in the seventeenth-century as being substantial shapers of divergent patterns of human social and economic development – apparently helping crystallise an economic reversal of fortune between Northwest Europe and the Mediterranean (Alfani 2013). On this point it must also be noted that some disaster studies scholars have a very narrow definition of what defines ‘long term’ – some literature on rural wages in Brazil even suggesting that 5-10 years constitutes a long-term response (Mueller and Osgood 2009), while a very recent paper looking at the mental health impact of Hurricane Katrina three years after the event apparently constituted a ‘long-term pattern’ (Adeola and Picou 2014). This of course ties us back to the problems mentioned in the introductory phases of this paper where it is shown that disaster studies often display a preoccupation with the immediate policy implications – and less with placing the disaster and recovery into a perspective over the course of human development – the kinds of helicopter view necessary for producing coherent and testable theoretical frameworks.

Another benefit of an explicit use of the past is the relative ease in which comparative projects (of the type identified above) can be set up. What was suggested in the previous section was that disaster research could benefit not only from the simple need for ‘more comparisons’, but from particular types of comparisons where the exposure to the one exogenous shock stays constant while the comparison is executed across a number of different societies with distinctive social structures – thereby limiting confusion between exogenous and endogenous variables.

In the pre-industrial period these kinds of projects can, with some care, thought and attention, be easily set up because we are now well aware of the fact that on a regional level, small societies which were very close to each other (separated by just tens of kilometres) could have very divergent social structures, economic and agricultural organisation, micro-demographic regimes, and tenurial complexity (Curtis 2014; Epstein 1991; Thoen 2004; Van Bavel 2010). Ultimately very different societies close to each other and exposed to the same exogenous pressure can be identified, and this is something far easier to find in the historical context than for the twenty-first century – particularly in the ‘developed’ world.

Indeed, while regions of Japan or Italy, as just two areas of the world which have suffered strong exogenous shocks in recent years, historically possessed very extreme levels of regional diversity in social structures, these have disappeared or at least become less sharp over the second half of the nineteenth- and twentieth centuries under

the homogenising forces of modern commerce, the nation state, growing transport and better communication. Diversity in social structures still exists in the contemporary world, but is exhibited less frequently on the micro-regional level – the kind of level necessary to ensure similar exposure to geographically limited environmental shocks.

A further benefit quite inherent to the practice of history is the fact that new kinds of comparison can take place – opportunities not available to those studying contemporary developments. In particular one opportunity that historians can take advantage of is the possibility to make comparisons across long-term chronologies. The benefits for those wishing to undertake comparative research into resilience and vulnerability of societies in the face of environmental hazards are especially clear. What has been shown in historical disaster research in recent years is that small regions not only had very distinctive social structures, but these social structures could undergo rapid and sharp (or slow) transformations over certain periods (Van Bavel 2010).

Thus a distinctive society identified for a region in the thirteenth century, may some 300 years later still be distinctive, but exhibit a totally different social structure. The coastal societies of Flanders in the sixteenth century, with its large-scale, commercial agriculture on lease farms, retained very little of the social, economic and political characteristics of the peasant coastal societies of Flanders in the thirteenth century. And in that way, two ‘different’ societies can be compared in their interaction with strong shocks, but removing the problem of comparing two or more different regions with different inherent environmental features. Naturally this kind of chronological comparison can only take place in those circumstances where the exogenous shocks are fairly recurrent and of a similar magnitude over time – such as the North Sea area storm surges that occurred across the long term of the late Middle Ages and early modern period (Soens 2013).

Unfortunately, although we argue for many real benefits that history can provide for the study of disasters, we must also recognise that there are a number of shortcomings in the traditional historical disciplines acting as a formidable barrier to overcome. Indeed, historians themselves have not been able to fully contribute to important works on, for example, the chronological background of disasters, because new ideas concerning ‘resilience’ and ‘vulnerability’ have not properly filtered on through to elements of the traditional historical discipline yet (Lübken and Mauch 2011, p. 4; Schenk 2007).

Historians’ low propensity to engage in socially relevant questions long taken on in a broad range of social science disciplines has similarly been identified on the themes of collective action and common pool resources: two subjects intrinsically tied to concepts of vulnerability, resilience and risk management (De Moor 2012, pp. 287-8). Thus, even though the history of disasters is now developing into a thriving sub-field of history, the work still tends to be descriptive in nature and most historical studies continue to treat disasters as separate events (Lübken and Mauch 2011).

Scholars like Gerrit Jasper Schenk and others are in the course of remedying this in one important aspect, namely the perception of disasters and the way cultures cope with them, building on the pioneering historical work on human need for reassurance by Jean Delumeau, for instance (Schenk 2007). This specific topic is where historical

disaster research has made most progress in recent years and has worked most systematically. However, historical research looking not at perception but at causes of disasters, and trying to find underlying patterns and understand why some societies are successful in preventing disaster or recovering quickly, and others are not, has been much more limited.

The discipline of history has thus, up to now, not been able to sufficiently contribute to the social sciences, and to the field of disaster studies more specifically; something which can be understood in the light of the regrettable move by the traditional historical profession away from the social sciences (Van Bavel 2014, pp. 2-3). Now it seems that historians are more convinced than ever that history in itself cannot be used to establish regularities, patterns, let alone laws, and to identify these through comparative analysis, for instance (Evans 1997/2012, pp. 129-60). It seems that the one thing that the historian fears more than anything is to be accused of being ‘deterministic’, and despite being famously dismissed by the Annales School back in the 1960s (as described in Stone 1979), ‘events’ and the ‘narrative approach’ have made a revival in the mainstream of the historical discipline (Burke 1985/1996), perhaps only challenged by a post-structuralist school offering up the past as an ‘undecidable infinity of possible truths’ (Vaughan-Williams 2005, p. 129).

This, as a result, has made it difficult to incorporate historical methods and evidence into coherent theoretical modelling and frameworks, the sad state of affairs summarized in the following statement: ‘political [and social] scientists are more likely to look to the past as a way of supporting or discrediting theoretical hypotheses, while historians are more likely to be interested in past events for their own sake. [...] [F]or the historian, the goal of theory building and testing is secondary – the past interests for itself’ (Elman and Elman 2001, p. 7).

Ultimately, the lacklustre contribution from history can be iterated further by the fact that the same imperfections in the comparative method for research into contemporary disasters has even been found in the bulk of literature focusing on ‘historical disasters’. One good example is the recent literature produced on the earthquake and tsunami that hit Lisbon in 1755, whereby it is suggested that the city and surrounding rural hinterlands responded favourably to the terrible events which unfolded (Aguirre 2012; Pereira 2009).

Although of course the short-term impact was serious with high casualties and destruction of capital goods, the long-term structural economic reform was apparently positive – lessening Portuguese reliance on trade with Britain and weakening ecclesiastical and aristocratic grip on power and property. This supports a controversial idea that disasters can be a ‘force for good’ and can in turn lead to significant socio-political reforms, as seen in the commercial development after the Great Fire of Hamburg in 1842 or the urban reinvigoration after the 1944 earthquake in Argentina (Healey 2011, pp. 296-8; Shubert 2012).

Non-historical disaster studies scholars, who frequently believe that this work is the finest example of disasters being placed within their ‘historical context’ (and these pieces are admittedly highly innovative and well reconstructed), often view such literature positively (see the review of Russell Dyne’s book on the Lisbon Earthquake

in; Stallings 2006, p. 223). Yet such praise must be qualified because just like the contemporary literature, this research has the main weakness of not being placed within an adequate comparative framework, and thus we have nothing to judge so-called 'positive recovery' against. A similar lack of comparative perspective has been found elsewhere on other earthquakes.

Coping strategies and societal responses have been researched skilfully but in isolation for the earthquakes in Carinthia in 1348 (Rohr 2003), eastern Sicily in 1693 (Condorelli 2012), and San Francisco in 1906 (Odell and Weidenmier 2007). More exceptionally, some studies are aimed at comparison (Akasoy 2007; Parrinello 2012), yet ultimately these suffer from the methodological problems already mentioned in section II.c. in that they compare simultaneously different societies and different earthquakes. A more fruitful approach would be to take the 1693 earthquake in Eastern Sicily (for example), and compare the responses between the numerous disparate types of rural societies already identified on the east of the island (Epstein 1991), or to take the earthquake and tsunami that hit Lisbon and surrounding regions in 1755 and compare societies with very different social structures: the large latifundist estates typical of the Alentejo south of Lisbon compared with the small peasant communities found further to the north of the city, for example (Santos and Serrão 2013, pp. 485-6). Thus ultimately, the incorporation of chronology into the disaster studies literature is not just a one-way process: it also requires fundamental changes in the attitude, philosophy, and approach of historians working on hazards and shocks.

IV. Conclusion: Using History as a Laboratory

Ultimately the way forward offered in this paper to enhance theoretical rigour of research on disasters is based around three interrelated facets: a proper regard for a broad range of institutional arrangements within their specific social context and social interest groups involved, greater clarity in the formation of testable hypotheses, and the greater use and adaptations made to the setup of comparative studies and experiments. In particular, we argue that we should be looking to move away from comparing disasters per se, but comparing a number of different societies' experiences with one shock – in the process limiting the number of independent variables as far as possible.

The most effective way of working towards all three of these facets, we argue, is by making a greater use of the historical record. History not only offers a helicopter view, but more importantly, it enables us to test hypotheses in a careful way, as it should be one of the main laboratories of the social sciences, including disaster studies. The explicit benefits of the past for incorporating the above-mentioned facets aimed at improving the theoretical rigour of research into disasters includes a greater clarity and awareness of very distinct and divergent social structures existing very close to one another on a regional level, the possibility of making comparisons between societal responses to shocks spatially and chronologically, a recognition of the impact of historical path dependency on contemporary developments, and finally and most simply the basic richness of the historical record itself allowing for long-term

reconstructions of the social, economic and cultural consequences of hazards and shocks, which is impossible with a narrow focus on contemporary disasters. The most effective way of working towards this historicised angle should be to more explicitly include historians within disaster studies departments and faculties, but also for historians to more closely align themselves with other social sciences – actively employing and interacting with new sociological methodologies.

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References

- Adeola, F., and S.J. Picou. 2014. ‘Social Capital and the Mental Health Impacts of Hurricane Katrina: Assessing Long-Term Patterns of Psychosocial Distress.’ *International Journal of Mass Emergencies and Disasters* 32 (1): 121-56.
- Aguirre, B.E. 2012. “Better Disaster Statistics: The Lisbon Earthquake.” *Journal of Interdisciplinary History* 43 (1): 27-42.
- Aguirre, B.E., M. Diaz-Murillo, T.A. Glass, D. Wenger, and G. Vigo. 1995. “The Social Organization of Search and Rescue: Evidence from the Guadalajara Gasoline Explosion.” *International Journal of Mass Emergencies and Disasters* 13 (1): 67-92.
- Aguirre, B.E., and S. El-Tawil. 2010. “Search and Rescue in Collapsed Structures: Engineering and Social Science Aspects.” *Disasters* 34 (4): 1084-101.
- Ahn, T., and E. Ostrom. 2008. “Social Capital and Collective Action.” pp. 70-100 in *The Handbook of Social Capital*, edited by D. Castiglione, J. van Deth, and G. Wolleb. New York: OUP.
- Akasoy, A. 2007. “Islamic Attitudes to Disasters in the Middle Ages: A Comparison of Earthquakes and Plagues.” *The Medieval History Journal* 10 (1-2): 387-410.
- Aldrich, D.P. 2012. *Building Resilience: Social Capital in Post-Disaster Recovery*. Chicago IL: University of Chicago Press.
- Aldrich, D.P. and M. Meyer. 2015. “Social Capital and Community Resilience.” *American Behavioral Scientist* 59 (2): 254-69.
- Alfani, G. 2013. “Plague in Seventeenth-Century Europe and the Decline of Italy: An Epidemiological Hypothesis.” *European Review of Economic History* 17 (4): 408-30.
- Allen, R. 2001. “The Great Divergence in European Wages and Prices from the Middle Ages to the First World War.” *Explorations in Economic History* 38 (4): 411-47.
- Bankoff, G. 2001. “Rendering the World Unsafe: ‘Vulnerability’ as Western Discourse.” *Disasters* 25 (1): 19-35.

- . 2003a. "Constructing Vulnerability: The Historical, Natural and Social Generation of Flooding in Metropolitan Manila." *Disasters* 27 (3): 15-28.
- . 2003b. *Cultures of Disaster: Society and Natural Hazard in the Philippines*. London: Routledge.
- . 2004. "Time is of the Essence: Disasters, Vulnerability and History." *International Journal of Mass Emergencies and Disasters* 22 (3): 23-42.
- Bankoff, G., G. Frerks and D. Hilhorst. eds. 2004. *Mapping Vulnerability: Disasters, Development and People*. London: Earthscan.
- Bavel, B. van. 2010. *Manors and Markets: Economy and Society in the Low Countries, 500-1600*. Oxford: OUP.
- . 2015. "History as a Laboratory to Better Understand the Formation of Institutions." *Journal of Institutional Economics* 11 (1): 69-91.
- Beck, U. 1992. *Risk Society: Towards a New Modernity*. London: Sage Publications.
- . 1999. *World Risk Society*. Cambridge: Blackwell.
- Bekar, C., and C. Reed. 2013. "Land Markets and Inequality: Evidence from Medieval England." *European Review of Economic History* 17 (3): 294-317.
- Benson, C. 2003. "Macroeconomic Concepts of Vulnerability: Dynamics, Complexity and Public Policy." pp. 159-73 in *Mapping Vulnerability: Disasters, Development and People*, edited by G. Bankoff, G. Frerks, and D. Hilhorst. London: Earthscan.
- Blaikie, P., T. Cannon, I. Davis, and B. Wisner. 1994/2004. *At Risk: Natural Hazards, People's Vulnerability, and Disasters*. London: Routledge.
- Bolin, R., and L. Stanford. 1998. "The Northridge Earthquake: Community-Based Approaches." *Disasters* 22 (1): 21-38.
- Boustan, L.P., M.E. Kahn, and P.W. Rhode. 2012. "Moving to Higher Ground: Migration Response to Natural Disasters in the Early Twentieth Century." *American Economic Review* 102 (3): 238-44.
- Boyd, E., and C. Folke. 2011. *Adapting Institutions: Governance, Complexity, and Social-Ecological Resilience*. Cambridge: CUP.
- Burke, P. 1985/1996. "History." pp. 364-75 in *The Social Science Encyclopedia*, edited by A. Kuper, and J. Kuper. Abingdon: Routledge.
- Campbell, B. 1984. "Population Pressure, Inheritance, and the Land Market in a Fourteenth-Century Peasant Community." pp. 87-134 in *Land, Kinship and Life-Cycle*, edited by R. Smith. Cambridge: CUP.
- Cardona, O. 2004. "The Need for Rethinking the Concepts of Vulnerability and Risk from a Holistic Perspective: A Necessary Review and Criticism for Effective Risk Management." pp. 37-51 in *Mapping Vulnerability: Disasters, Development and People*, edited by G. Bankoff, G. Frerks and D. Hilhorst. London: Earthscan.
- Cernea, M.M. 1997. "The Risks and Reconstruction Model for Resettling Displaced Populations." *World Development* 25 (10): 1569-88.
- Cernea, M.M., and C. McDowell, eds. 2000. *Risks and Reconstruction: Experiences of Resettlers and Refugees*. Washington: World Bank Publications.
- Chou, J., N. Huang, H. Lee, L. Tsai, S. Chen, and H. Chang. 2004. "Who is at Risk of Death in an Earthquake?" *American Journal of Epidemiology* 160 (7): 688-95.
- Clark, W.C. 1989. "Managing Planet Earth." *Scientific American* 262: 46-57.

- Clifford, R.A. 1956. *The Rio Grande Flood: A Comparative Study of Border Communities in Disaster*. Washington: National Research Council.
- Cohen, C., and E.D. Werker. 2008. "The Political Economy of 'Natural' Disasters." *Journal of Conflict Resolution* 52 (6): 795-819.
- Cohn, S.K. 2002. *The Black Death Transformed: Disease and Culture in Early Renaissance Europe*. Oxford: OUP.
- . 2007a. "The Black Death and the Burning of the Jews." *Past and Present* 196 (1): 3-36.
- . 2007b. "After the Black Death: Labour Legislation and Attitudes towards Labour in Late-Medieval Western Europe." *Economic History Review* 60 (3): 457-85.
- Collier, D. 1991. "The Comparative Method: Two Decades of Change." pp. 7-31 in *Comparative Political Dynamics: Global Research Perspectives*, edited by D. Rustow, and K.P. Erickson. New York: Harper Collins.
- Collins, A.E. 2009. *Disaster and Development*. Routledge: New York.
- Condorelli, S. 2012. *U tirrimotu ranni. Lectures du tremblement de terre de Sicilie de 1693*. Catania: Opera Prima.
- Curtis, D. 2012. "Florence and its Hinterlands in the Late Middle Ages: Contrasting Fortunes in the Tuscan Countryside, 1300-1500." *Journal of Medieval History* 38 (4): 472-99.
- . 2014. *Coping with Crisis: The Resilience and Vulnerability of Pre-Industrial Settlements*. Farnham: Ashgate.
- De Keyzer, M. 2013. "The Impact of Different Distributions of Power on Access Rights to the Common Wastelands: The Campine, Brecklands, and Geest Compared." *Journal of Institutional Economics* 9 (4): 517-42.
- Delica-Willison, Z., and R. Willison. 2013. "Vulnerability Reduction: A Task for Vulnerable People Themselves." pp. 145-58 in *Mapping Vulnerability: Disasters, Development and People*, edited by G. Bankoff, G. Frerks, and D. Hilhorst. London: Earthscan Publications.
- De Moor, T. 2012. "What Do We Have in Common? A Comparative Framework for Old and New Literature on the Commons." *International Review of Social History* 57 (2): 269-90.
- Dietz, T., P. Stern., and R. Rycroft. 1989. "Definitions of Conflict and the Legitimation of Resources: The Case of Environmental Risk." *Sociological Forum* 4 (1): 47-70.
- Dynes, R. 1975. "The comparative study of disaster: A social organizational approach." *Mass Emergencies* 1 (1): 21-31.
- Elman, C., and M.F. Elman. 2001. "Negotiating International History and Politics." pp. 1-36 in *Bridges and Boundaries*, edited by C. Elman and M.F. Elman. Cambridge MA: MIT Press.
- El-Sabh, M., and T. Murty. 1988. *Natural and Man-Made Hazards*. Dordrecht: Kluwer.
- Emel Ganapati, N., S. Cheng, and S. Ganapati. 2013. "Resilient Rural Communities: Housing Recovery Patterns Following Hurricane Katrina." pp. 99-120 in *Disaster Resiliency: Interdisciplinary Perspectives*, edited by N. Kapucu, C. Hawkins, and F. Rivera. New York: Routledge.

- Ensminger, J. 1996. *Making a Market: The Institutional Transformation of an African Society*. Cambridge: CUP.
- Epstein, S. 1991. *An Island for Itself: Economic Development and Social Change in Late Medieval Sicily*. Cambridge: CUP.
- Evans, R.J. 1997/2012. 'Causation in History.' pp. 129-60 in *In Defence of History*. London: Granta.
- Fothergill, A., and L.A. Peek. 2004. "Poverty and Disasters in the United States: A Review of the Sociological Literature." *Natural Hazards* 32 (1): 89-110.
- Frankema, E., and A. Masé. 2014. "An Island Drifting Apart: Why Haiti is Mired in Poverty While the Dominican Republic Forges Ahead." *Journal of International Development* 26 (1): 128-48.
- Füssel, H.M. 2007. "Vulnerability: A Generally Applicable Conceptual Framework for Climate Change Research." *Global Environmental Change* 17 (2): 155-67.
- Galloway, P. 1988. "Basic Patterns in Annual Variations in Fertility, Nuptiality, Mortality, and Prices in Pre-Industrial Europe." *Population Studies* 42 (2): 275-303.
- Gibson, C.C., K. Andersson, E. Ostrom, and S. Shivakumar. *The Samaritan's Dilemma: The Political Economy of Development Aid*. Oxford: Oxford University Press.
- Han, Z., X. Hu, and J. Nigg. 2011. "How Does Disaster Relief Works Affect the Trust in Local Government? A Study of the Wenchuan Earthquake." *Risk, Hazards and Crisis in Public Policy* 2 (4): 1-20.
- 't Hart, P. 1993. "Symbols, Rituals and Power: The Lost Dimensions of Crisis Management." *Journal of Contingencies and Crisis Management* 1 (1): 36-50.
- Healey, M.A. 2011. *The Ruins of the New Argentina: Peronism and the Remaking of San Juan after the 1944 Earthquake*. Durham NC: Duke UP.
- Herlihy, D. 1967. *Medieval and Renaissance Pistoia*. New Haven: Yale UP.
- Hilhorst, D. 2013. "Disaster, Conflict and Societies in Crises: Everyday Politics of Crisis Response." pp. 9-11 in *Disaster, Conflict and Societies in Crises: Everyday Politics of Crisis Response*, edited by D. Hilhorst. London: Routledge.
- Kahn, M. 2005. "The Death Toll from Natural Disasters: The Role of Income, Geography, and Institutions." *Review of Economics and Statistics* 87 (2): 271-84.
- Kim, N. 2012. "How Much More Exposed are the Poor to Natural Disasters? Global and Regional Measurement." *Disasters* 36 (2): 195-211.
- Lavell, A. 2008. "Relationships between Local and Community Disaster Risk Management & Poverty Reduction: A Preliminary Exploration." *ISDR Global Assessment Report on Disaster Risk Reduction*: 1-61.
- Leeuwen, M. van, "Rwanda's Imidugudu Programme and Earlier Experiments with Villagisation and Resettlement in East Africa." *Journal of Modern African Studies* 39 (4): 623-44.
- Lübken, U. 2007. "Chasing a Ghost? Environmental Change and Migration in Historical Perspective." *Global Environment* 9-10: 1-17.
- . 2010. "'Poor Dumb Brutes' or 'Friends in Need'? Animals and River Floods in Modern Germany and the United States." pp. 246-63 in *Beastly Natures: Human-*

- Animal Relations at the Crossroads of Cultural and Environmental History*, edited by D. Brantz. Charlottesville: University of Virginia Press.
- Lübken, U., and C. Mauch. 2004. "Natural Disasters in Transatlantic Perspective: River Floods in German and U.S. History." *GHI Bulletin* 35: 99-111.
- . 2011. "Uncertain Environments: Natural Hazards, Risk and Insurance in Historical Perspective." *Environment and History* 17 (1): 1-12.
- Lundahl, M. 2013. *The Political Economy of Disaster: Destitution, Plunder and Disaster in Haiti*. New York: Routledge.
- Marincioni, F. 2001. "A Cross-Cultural Analysis of Natural Disaster Response: The Northwest Italy Floods of 1994 Compared to the U.S. Midwest Floods of 1993." *International Journal of Mass Emergencies and Disasters* 19 (2): 209-39.
- McEntire, D.A., ed. 2007. *Disciplines, Disasters and Emergency Management: The Convergence and Divergence of Concepts, Issues and Trends from the Research Literature*. Springfield: Charles C. Thomas.
- McEntire, D.A., and S. Mathis. 2007. "Comparative Politics and Disasters: Assessing Substantive and Methodological Contributions." Pp. 178-95 in *Disciplines, Disasters and Emergency Management: The Convergence and Divergence of Concepts, Issues and Trends from the Research Literature*, edited by D. McEntire. Springfield IL: Charles C. Thomas.
- Mueller, V.A., and D.E. Osgood. 2009. "Long-term Impacts of Droughts on Labour Markets in Developing Countries: Evidence from Brazil." *Journal of Development Studies* 45 (10): 1651-62.
- Nee, V., and P. Ingram. 1998. "Embeddedness and Beyond: Institutions, Exchange and Social Structure." pp. 19-45 in *The New Institutionalism in Sociology*, edited by M. Brinton and V. Nee. New York: Russell Sage Foundation.
- Norris-Raynbird, C. 2005. "A Mitigation Tale of Two Texas Cities." *International Journal of Mass Emergencies and Disasters* 23 (2): 37-73.
- Noy, I., and A. Karim. 2013. "Poverty, Inequality and Natural Disasters – A Survey." *Victoria University of Wellington: School of Economics and Finance Working Paper Series* 2974: 1-38.
- Odell, K., and M. Weidenmier. 2007. "Real Shock, Monetary Aftershock: The 1906 San Francisco Earthquake and the Panic of 1907." *Journal of Economic History* 64 (4): 1002-27.
- Ogilvie, S. 2007. "'Whatever Is, Is Right?' Economic Institutions in Pre-Industrial Europe." *Economic History Review* 60 (4): 649-84.
- Oliver-Smith, A. 1999. "What is a Disaster?," pp. 18-34 in *The Angry Earth: Disasters in Anthropological Perspective*, edited by A. Oliver-Smith, and S. Hoffman. New York: Routledge.
- . 1999. "Peru's Five-Hundred Year Earthquake: Vulnerability in Historical Context." pp. 74-88 in *The Angry Earth: Disasters in Anthropological Perspective*, edited by A. Oliver-Smith, and S. Hoffman. New York: Routledge.
- Olson R.S., and V. Gawronski. 2003. "Disasters as Critical Junctures? Managua, Nicaragua 1972 and Mexico City 1985." *International Journal of Mass Emergencies and Disasters* 21 (1): 5-35.

- Ostrom, E. 1990. *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge: CUP.
- Pamuk, S. 2007. "The Black Death and the Origins of the 'Great Divergence' across Europe, 1300-1600." *European Review of Economic History* 11 (3): 289-317.
- Parrinello, G. 2012. "Post-Disaster Migrations and Returns in Sicily: The 1908 Messina Earthquake and the 1968 Belice Valley Earthquake." *Global Environment* 9: 27-49.
- Pelling, M. 2003/2012. *The Vulnerability of Cities: Natural Disasters and Social Resilience*. New York: Earthscan.
- Pereira, A. 2009. "The Opportunity of a Disaster: The Economic Impact of the 1755 Lisbon Earthquake." *Journal of Economic History* 69 (2): 466-99.
- Pfister, C. 2009. "Learning from Nature-Induced Disasters: Theoretical Considerations and Case Studies from Western Europe." pp. 17-40 in *Natural Disasters, Cultural Responses: Case Studies towards a Global Environmental History*, edited by C. Mauch, and C. Pfister. Plymouth: Lexington Books.
- Piketty, T. 2014. *Capital In The Twenty-First Century*. Cambridge MA: Harvard UP.
- Poteete, A., M. Janssen, and E. Ostrom. 2010. *Working Together: Collective Action, the Commons, and Multiple Methods in Practice*. Princeton: Princeton UP.
- Quarantelli, E.L. 1987. "Disaster Studies: An Analysis of the Social Historical Factors Affecting the Development of Research in the Area." *International Journal of Mass Emergencies and Disasters* 5: 285-310.
- . 1996. "Emergent Behaviors and Groups in the Crisis Time of Disasters." pp. 47-68 in *Individuality and Social Control: Essays in Honor of Tamotsu Shibutani*, edited by K. Kwan. JAI Press: Greenwich.
- . 2005. "A Social Science Research Agenda for the Disasters of the 21st Century: Theoretical, Methodological, and Empirical Issues and their Professional Implementation." pp. 325-95 in *What is a Disaster? New Answers to Old Questions*, edited by R. Perry, and E. Quarantelli. Bloomington: Xlibris.
- Rivera, J.D. 2014. "Resistance to Change: Understanding Why Disaster Response and Recovery Institutions are Set in their Ways." *Journal of Critical Incident Analysis* 4 (1): 44-65.
- Rodgers C.P., E.A. Straughton, A. Winchester, and M. Pieraccini, eds. 2011. *Contested Common Land. Environmental Governance, Past and Present*. London: Earthscan.
- Rohr, C. 2003. "Man and Natural Disaster in the Late Middle Ages: The Earthquake in Carinthia and Northern Italy on 25 January 1348 and its Perception." *Environment and History* 9 (2): 127-49.
- Ross, A.D. 2014. *Local Disaster Resilience: Administrative and Political Perspectives*. New York: Routledge.
- Santos, R., and J.V. Serrão. 2013. "Property Rights, Social Appropriations and Economic Outcomes: Agrarian Contracts in Southern Portugal in the Late-Eighteenth Century." pp. 475-94 in *Property Rights, Land Markets, and Economic Growth in the European Countryside (Thirteenth-Twentieth Centuries)*, edited by G. Béaur, P. Schofield, J-M. Chevet, and M.T. Pérez Picazo. Turnhout: Brepols.
- Sartori, G. 1991. "Comparing and Miscomparing." *Journal of Theoretical Politics* 3 (3): 243-57.

- Scanlon, J. 1988. "Winners and Losers: Some Thoughts about the Political Economy of Disaster." *International Journal of Mass Emergencies and Disasters* 6 (1): 47-63.
- . 2012. "Parallel Planning, Local Solutions: Four Newfoundland Airports Deal Diverted Flights after 9/11." *Journal of Contingencies and Crisis Management* 20 (3): 180-8.
- Schaeffer, E.C., and A. Kashdan. 2010. "Earth, Wind and Fire! Federalism and Incentives in Natural Disaster Response." pp. 159-84 in *The Political Economy of Hurricane Katrina and Community Rebound*, edited by E. Chamlee-Wright, and V. Storr. Northampton MA: Edward Elgar Publishing.
- Schenk, G.J. 2007. "Historical Disaster Research: State of Research, Concepts, Methods and Case Studies." *Historical Social Research*, 32 (3): 9-35.
- Sen, A. 1988. *Poverty and Famines: An Essay on Entitlement and Deprivation*. Oxford: Clarendon Press.
- Sheets, P. 2004. "Apocalypse then: Social Science Approaches to Volcanism, People and Cultures in the Zapotitán Valley, El Salvador." pp. 109-20 in *Natural Hazards in El Salvador*, edited by W. Rose, J. Bommer, D. Lopez, M. Carr, and J. Major. Boulder: Geological Society of America.
- Shubert, D. 2012. "The Great Fire of Hamburg, 1842 – from Catastrophe to Reform." pp. 212-34 in *Flammable Cities: Urban Conflagration and the Making of the Modern World*, edited by G. Bankoff, U. Lübken, and J. Sand. Madison: University of Wisconsin Press.
- Shughart, W.F. 2006. "Katrinanomics: The Politics and Economics of Disaster Relief." *Public Choice* 27 (1): 31-53.
- Simo, G. 2008. "Poverty in New Orleans: Before and After Katrina." *Vincentian Heritage Journal* 28 (2): 308-20.
- Soens, T. 2013. "Flood security in the Medieval and Early Modern North Sea Area: A Question of Entitlement?" *Environment and History* 19 (2): 209-32.
- Stallings, R.A. 2006. "Causality and 'Natural' Disasters." *Contemporary Sociology* 35 (3): 223-7.
- Steinberg, T. 2000. *Acts of God: The Unnatural History of Natural Disaster in America*. Oxford: OUP.
- Stone, L. 1979. "The Revival of Narrative." *Past and Present* 85 (1): 3-24.
- Strömberg, D. 2007. "Natural Disasters, Economic Development, and Humanitarian Aid." *Journal of Economic Perspectives* 21 (3): 199-222.
- Susman P., P. O'Keefe, and B. Wisner. 1984. "Global Disasters: A Radical Interpretation." pp. 263-83 in *Interpretations of Calamity from the Viewpoint of Human Ecology*, edited by K. Hewitt. Boston: Allen & Unwin.
- Squires G.D., and C. Hartman. 2006. *There is No Such Thing as a Natural Disaster: Race, Class and Hurricane Katrina*. Abingdon: Routledge.
- Tierney, K.J., M.K. Lindell, and R.W. Perry. 2001. *Facing the Unexpected: Disaster Preparedness and Response in the United States*. Washington DC: Joseph Henry Press.

- Thoen, E. 2004. “‘Social Agrosystems’ as an Economic Concept to Explain Regional Differences: An Essay Taking the Former County of Flanders as an Example (Middle Ages-19th Century).” pp. 47-66 in *Landholding and Land Transfer In The North Sea Area (Late Middle Ages – 19th Century)*, edited by P. Hoppenbrouwers, and B. van Bavel. Turnhout: Brepols.
- Thoen, E., and B. van Bavel. 2013. “Rural History and the Environment: A Survey of the Relationship between Property Rights, Social Structures and Sustainability of Land Use.” pp. 15-42 in *Rural Societies and Environments at Risk: Ecology, Property Rights and Social Organization in Fragile Areas (Middle Ages – Twentieth Century)*, edited by B. van Bavel, and E. Thoen. Turnhout: Brepols.
- Tierney, K. 2007. “From the Margins to the Mainstream? Disaster Research at the Crossroads.” *Annual Review of Sociology* 33 (1): 503-25.
- Tietenberg, T.T. 1994/2006. *Environmental Economics and Policy*. Boston: Pearson.
- Tilly, C. 1998. *Durable Inequality*. Berkeley CA: University of California Press.
- Turner II, B.L., R.E. Kasperson, P. Matson, J.J. McCarthy, R. Corell, L. Christensen, N. Eckley, J.X. Kasperson, A. Luers, M. Martello, C. Polsky, A. Pulsipher, and A. Schiller. 2003. “A Framework for Vulnerability Analysis in Sustainability Science.” *Proceedings of the National Academy of Sciences* 100 (14): 8074-9.
- Vaughan-Williams, N. 2005. “International Relations and the ‘Problem of History’.” *Millennium: Journal of International Studies* 34 (1) 115-36.
- Vanhaute, E., and T. Lambrecht. 2011. “Famine, Exchange Networks and the Village Community: A Comparative Analysis of the Subsistence Crises of the 1740s and the 1840s in Flanders.” *Continuity and Change* 26 (2): 155-86.
- Voorhees, W.R. 2008. “New Yorkers Respond to the World Trade Center Attack: An Anatomy of an Emergent Volunteer Organization.” *Journal of Contingencies and Crisis Management* 14 (1): 3-13.
- Yamamura, E. 2013. “Impact of Natural Disasters on Income Inequality: Analysis Using Panel Data During the Period 1965 to 2004.” *Munich Personal RePEc Archive* 45623: 1-23.