

# Culture, Economics and Recovery from Natural Disaster

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On August 29, 2005, Hurricane Katrina struck the Gulf coast, leaving a wide path of destruction across Alabama, Louisiana and Mississippi. Katrina's record storm surge and broad wind field resulted in an estimated 1,800 deaths and the greatest loss of property of any natural disaster in U. S. history, at over \$80 billion. Failure of the levee system protecting New Orleans inundated the city and resulted in an evacuation exceeding a month. *The Cultural and Political Economy of Recovery* by Emily Chamlee-Wright describes the findings of a research project undertaken by the Mercatus Center at George Mason University in the aftermath of Katrina, to investigate how communities tried to recover from such a disaster.

I discuss in this paper several of the most interesting aspects of Chamlee-Wright's book. I do not engage in a comprehensive review of the book, which is an impressive scholarly contribution. My discussion is from the point of view of a market process economist who was researching the societal impacts of severe weather since before Katrina (e. g., Sadowski and Sutter 2005). My discussion proceeds as follows. Section 2 considers the role of synchronization value in rebuilding after a disaster and the perspective this provides on the recovery process. Section 3 discusses the particular contribution of Chamlee-Wright's qualitative research project, which hopefully will start an iterative process of qualitative and quantitative research in the years to come. Section 4 considers what exactly constitutes a successful recovery, based on suggestions by natural hazards researchers that recovery should reduce vulnerability to future disasters. Section 5 turns to what I regard as Chamlee-Wright's most intriguing challenge, whether there is any role for government in recovery beyond speedily restoring its own services. Section 6 offers some concluding thoughts.

**Recovery, Coordination and Communication**

Natural disasters challenge households and businesses, which must repair damage to homes and workplaces, assuming they were fortunate enough to avoid the loss of life or limb. When a disaster affects an entire neighborhood, city, or in the case of New Orleans, metropolitan area, recovery begins to take on a strategic element, as researchers have recognized (Mileti 1999). An individual household or business can only hope to rebuild their small part of the community. The residents and businesses affected by the disaster have to more or less simultaneously make their decisions to rebuild or not. If many lack the resources or choose not to rebuild, a neighborhood or city could be a very different place than before the disaster. A household could rebuild only to find that neighbors and local businesses did not return, while a business might reopen only to find its customers and employees gone.

The value of rebuilding at one's pre-disaster location will depend on whether others rebuild and thus has a synchronization value and strategic aspect. Much of Chamlee-Wright's analysis of recover revolves around the coordination of expectations of return (see also Chamlee-Wright and Storr [2009] on this point). Figure 1 illustrates a typical household's or business's decision. The figure graphs the value of rebuilding against the proportion of community residents who rebuild. The value of rebuilding at the previous location, labeled  $V_{\text{prior}}$ , rises from A if no one else rebuilds to B if the entire community rebuilds, with the increase in value from A to B reflecting the value due to the neighbors, and which may be lost if the community does not recover. The value of rebuilding outside of the disaster area,  $V_{\text{other}}$ , does not depend on recovery and is constant at C. If the proportion of returnees exceeds T, the household will choose to rebuild in the old neighborhood, while if they do not expect recovery to at least T, they will rebuild elsewhere. The threshold T will vary across households. The exact proportion of returnees is not known when a household or business must make this decision (for at least the first returnees) and this is the crux of the strategic element of rebuilding. Rebuilding does not necessarily have to include the exact same residents or businesses as prior to the disaster. In some cases the exact identity of the returnees matters (next door neighbors who were close friends), while in other cases the identity will not be important (a business only cares about a large enough number of customers).

Even if rebuilding can involve different residents, the decision in Figure 1 creates the potential for multiple equilibria: if residents expect that most everyone will return, they will want to return, and if residents expect that others will not return, they will likely not return. Multiple equilibria in a model create a situation where politics, leadership, culture and social capital matter. The

strategic situation allows different outcomes, and thus we could easily envision how things might have turned out very differently in New Orleans East if not for the efforts of the Mary Queen of Vietnam Church (pp. 59-68). Successful recovery in a context of multiple equilibria requires residents and businesses to coordinate expectations around the return outcome; recovery might fail to occur if residents cannot assure each other that they will return. If voluntary (meaning both market and nonmarket) mechanisms cannot coordinate expectations on return, a role may exist for government to coordinate recovery. Chamlee-Wright focuses particularly on the nonmarket forms of communication which allow the coordination of expectations or otherwise signal intentions to return.

While many residents will face a situation as in Figure 1, other configurations of benefits are possible. Figure 2 displays two other possibilities for the value of rebuilding. With  $V_{\text{always}}$  the value of rebuilding at the prior location exceeds the other location regardless of community recovery, while with  $V_{\text{never}}$  the alternative location is preferred even with full community recovery. As the names suggest, these households or businesses would plan to rebuild or relocate respectively regardless of expectations of community recovery. As residents with benefits represented by  $V_{\text{never}}$  will not return, a full recovery in general will not involve the return of all status quo residents. These households or businesses might have only been in the community prior to the disaster because of status quo bias or inertia. Those who plan to rebuild regardless of expectations of return by others, exemplified perhaps by the Mary Queen of Vietnam church, can help establish expectations of recovery in a community. In addition, the Church provided assistance to early returnees, which lowered their cost of return (Chamlee-Wright and Storr 2009), which also increased the number of residents who would certainly return. If the proportion of certain returners is sufficiently high, this may push other residents above their threshold  $T$  for return, creating a bandwagon effect. Of course a lot will not necessarily remain vacant after the disaster even if the prior owner or occupant does not return as someone else may build on the lot, or a landlord may find a new tenant for a store or office building.

The coordination model of recovery does not apply to all natural disasters. Katrina represents the extreme case of community disruption, where all residents and businesses had to temporarily leave the community, and a no return equilibrium became plausible. Most disasters are much more limited in scope; a tornado or even an earthquake will typically destroy only a part of a neighborhood, leaving the surrounding city intact. Recovery in this more typical natural disaster case does not require a large number of property owners in a community to make a simultaneous rebuilding decision. And as long as the

community is thriving and the neighborhood is in a good location, other residents can be expected to buy lots where the pre-disaster residents do not rebuild. Thus even if the potential for coordination failure creates a role for government in coordinating recovery (which neither I nor Chamlee-Wright I think would accept), the argument will not apply to most natural disasters. The extreme coordination challenge should not be used to rationalize government planning in the other 99.9 percent of natural disasters.

### **The Contribution of Qualitative Research**

The research project applied qualitative research methods to examine factors affecting residents' return decisions after Katrina. Qualitative methods are particularly indispensable in understanding how subjects view the choices they must make and thus contribute to an economics of meaning (Chamlee-Wright 2011). Specifically open-ended interviews provide an appropriate way to address this research question. Multiple equilibria suggest that politics, leadership and culture may help explain when the return and recovery occurs. Qualitative analysis is critical in identifying which out of a multitude of potential factors affect recovery from the residents' subjective perspective. Only interviews will allow researchers to document how holding church services or reopening a school can coordinate expectations of return, as these represent the type of recurring details which would be missed in more theoretical or quantitative research. Of course qualitative analysis, as true of any single tool in the social scientists' tool kit, is not going to answer all of the questions regarding recovery and is particularly subject to selection bias in the Katrina case, as only returnees were on-site for interviews by the team.<sup>1</sup> Chamlee-Wright's analysis sets the stage for future quantitative analysis examining if the factors identified from the interviews can explain differences in recovery, say across neighborhoods in New Orleans or in other disasters. More systematic evidence would be important to back up the inferences drawn here. Strong community ties as exemplified by church attendance, neighborhood barbeques, or crawfish boils may have factored in decisions to return, but were the neighborhoods which recovered more than others (controlling for flood water depth and other factors) the ones with the most barbeques? Understanding recovery after disasters is an iterative process; qualitative analysis can indicate factors to explore with more systematic quantitative analyses, and the quantitative analysis then provides feedback for the next round of qualitative studies.

One striking aspect revealed by the interviews is how many returnees do not appear to have envisioned an alternative to returning and rebuilding. This

is particularly remarkable as residents evacuated for weeks after Katrina. The character of the communities might explain this. The Vietnamese community of New Orleans East was based around refugees who moved to the U.S. after 1975, many of whom probably had not lived elsewhere in the U.S. Residents of St. Bernard Parish had close extended families which would be particularly difficult to transfer to any other location. Returnees from the Lower Ninth Ward viewed New Orleans as a unique place which could not be replicated elsewhere (pp.102-5). Ehrenhalt (1996) discusses with ambivalence how a more limited view of life helped make 1950s Chicago a very different place than modern America where individual choice is ubiquitous. A limited view of life might lead residents to subjectively view their situation as like  $V_{\text{always}}$  in Figure 2, when perhaps objectively Figure 1 appears to describe their situation. If so, a limited world view helps coordinate expectations on the return and rebuild outcome. By contrast, the 18 month return rate for the affluent Lakeview neighborhood was lower than for these communities (p.58), perhaps because Lakeview residents were more able to envision a future elsewhere. It would be hard to identify a factor like this except through quantitative analysis.

### **What Constitutes Recovery?**

The definition of successful recovery is obviously relevant for assessing the recovery process in New Orleans. Chamlee-Wright adopts a natural definition of recovery as a restoration of the status quo ante, or as close to this as possible. Some scholars in the natural hazards literature take a different perspective, and argue that recovery should make communities more resilient to disasters (Burby 1998, Mileti 1999). A community might have excessive exposure to hazards, even from the perspective of residents. Vulnerability might arise because location decisions were made before the hazard was recognized (e. g., a previously unknown fault line), or because changing conditions exacerbate an existing hazard (e. g., land subsidence in southern Louisiana). In addition, some researchers argue that people ignore low probability natural disasters (Camerer and Kunreuther 1989, Mileti 1999, Meyer 2006), which might lead to excessive development in hazard prone areas. Buildings and infrastructure once built and in place cannot be moved and will not want to be abandoned recognition of the hazard. And path dependence may sustain a vulnerable community over time. Also until a disaster occurs, people may not believe the potential extent of the disaster feared by experts. For all of these reasons, rebuilding in the exact same footprint after a disaster is probably not efficient. The aftermath of a disaster represents an opportunity, and perhaps the only opportunity, to make changes to reduce the expected

costs of future disasters. Quickly restoring the status quo ante merely perpetuates the same vulnerability which produced the current disaster and would not constitute successful recovery in this view. A desire to reduce future vulnerability seems undoubtedly behind some of the delay in the rebuilding process, like New Orleans' moratorium on permits for repairs or reconstruction. The recovery planning process in New Orleans clearly morphed out of control, but the rationale of trying to reduce vulnerability is reasonable.

The flood protection in New Orleans adds to the coordination required for efficient recovery. The levees needed to be rebuilt and strengthened after the deficiencies revealed by Katrina. Combined with the subsidence of land in southern Louisiana and the expectation of a smaller population, this meant that simply strengthening the pre-disaster levee system to provide protection against a Category 4 or 5 hurricane would be (in all likelihood) inefficient. Residents would like decisions about the levee system to be made expeditiously, but engineers needed time to determine why the levees failed (van Heerden 2006). Flood maps also needed to be revised in light of subsidence, development in flood plains, and the strength of the new levees. Given these realities, speedy recovery in New Orleans East or St. Bernard Parish appears less desirable, especially if early returnees could create irresistible political pressure to protect the neighborhoods which might have been particularly vulnerable. Rebuilding the status quo could also leave residents in the same vulnerable situation as prior to Katrina. Indeed, New Orleans faced another mass evacuation prior to Hurricane Gustav in 2008 and the threat of flood from the Mississippi River in 2011. Alternatively, if New Orleans had slowly migrated over the course of the past century to Baton Rouge, the city's unique character might have been thriving there in 2005 with the danger of storm surge inundation eliminated.

### **What is the Role for Government?**

Chamlee-Wright's analysis ultimately questions whether government can beneficially direct recovery; the policy recommendations (pp. 169-73) can be read as essentially calling for government to perform its standard role in a market economy and quickly restore its services. Policy uncertainty in New Orleans created signal noise that complicated recovery (pp. 129-150). While some delay from the public sector was unavoidable (with regard to flood protection), it is unclear that extensive government involvement in post-Katrina recovery, even including the Road Home program, made residents better off. In the short term government aid was not reported by residents as a

particularly important source of assistance (Chappel et al. 2007). Poor communities still have substantial resources that can be deployed after a disaster, and the embedded social capital Chamlee-Wright documents facilitates neighbor-to-neighbor assistance. Insurance generally will be available to cover individual losses, even cover alternative living expenses for policy holders after a disaster in place of the ubiquitous FEMA trailers. And there is substantial private assistance available, including volunteers who help repairing and rebuilding homes. We seem to be witnessing, as Chamlee-Wright suggests, an expansion of government participation in disaster recovery at the expense of the voluntary sector, with the task of emergency managers evolving (quickly) before our eyes. Furthermore, as Chamlee-Wright and Storr (2010) discuss, residents's expectations of government assistance will affect their behavior. Residents who expect substantial assistance from government in recovery will prepare less and wait for the assistance to materialize. Even if the expectations prove inaccurate, expectations of extensive government relief will impair voluntary efforts. Government will need its own disaster preparedness and response planning, to ensure the continuation of its services after a disaster. While libertarians believe government undertakes more tasks than necessary, the scope or size of government is unlikely to be reduced during disaster recovery. Emergency management properly conceived would be responsible for prompt restoration of government services after a disaster. As emergency management takes on additional tasks and attempts to direct private sector response as well, the information and incentive problems which plague central planning emerge (Sobel and Leeson 2007).

Another perspective on Chamlee-Wright's challenge comes from reframing the question as, *Where are the examples of coordination failure preventing recovery after a disaster?* Or, *Where is the market failure?* Thomas Schelling is credited with raising coordination failure as a fundamental problem in recovery which market forces cannot overcome. Professor Schelling's contributions to economics are unquestioned, but the model of multiple equilibria and coordination was applied here without careful consideration of historical applications. The model on the surface appears to apply and helps enrich the discussion of recovery, as I have suggested in Section 2. Nonetheless, this does not substitute for evidence that the model does apply in at least some cases. Voluntary forces may be capable of addressing the coordination problem. Chamlee-Wright demonstrates how social learning and nonmarket communication coordinated expectations for return in the extreme case of New Orleans, except when thwarted by government policy makers. Perhaps this is the typical case in disaster recovery. The application of the coordination problem in recovery is reminiscent of how economists concluded that positive

externalities would result in inefficiency in the market for pollination services without bothering to consider if parties could in fact contract for these services (Cheung 1973). And if some natural disasters like Katrina do fit the model, most Presidentially declared disasters will fall short of the large scale, simultaneous rebuilding decision assumed in the model.

Government can certainly displace market forces in the recovery process. We may simply be witnessing today a repeat of earlier crowding out of the voluntary supply of poor relief or medical care (Beito 2002, Green 2002). The transfer of responsibility from the private to public sector however entails substantial costs. As Katrina illustrates, politicized decision-making after a disaster creates policy uncertainty and lengthens the recovery process. We cannot anticipate what the political equilibrium will be until the process plays out, and thus residents will necessarily be left in limbo. Lengthening the recovery process increases the cost of “temporary” housing. If residents cannot return quickly, they cannot take action to limit damage from rain or mold. Public sector involvement results in cost escalation due to moral hazard as well as frustration in dealing with bureaucratic rules put in place to try to limit moral hazard. Government involvement also tends to drive up wages and otherwise distort the regional economy. Perhaps the greatest cost though is the diversion of time and energy from rebuilding to politics. Chamlee-Wright documents how the New Orleans East, Broadmoor, and Lower Ninth Ward neighborhoods had to organize politically to avoid being shut out of the planning process (pp.153-167). Once forced to organize for political action, neighborhoods are likely to engage in future rent seeking, the type of growing politicization of the economy and society Mancur Olson (1982) warned about.

## Discussion and Conclusion

Decisions about the rebuilding of households, businesses, and infrastructure must be coordinated for efficient recovery. Government is typically responsible for much of this infrastructure, including streets, water and sewers in addition to flood protection. Can the political process “plan” its part of the recovery to reduce vulnerability to future disasters without displacing the voluntary sector? The answer seems unfortunately to be no. Any democratic political process for recovery will open the door for other planning considerations. Chamlee-Wright specifically mentions how endangered species protection and historic preservation regulations slowed FEMA during the recovery, but these will not be the only concerns given voice in the planning process. Other interests and goals will include unions, energy efficiency,<sup>2</sup> and sustainability more generally. Given the lack of a coherent

definition of sustainability, this essentially opens the door for all types of societal reforms; some scholars maintain that income redistribution, race relations and social justice are necessary to create disaster-resistant communities. The multiplicity of veto power is the basis of anti-commons problems (Heller 1998, Buchanan and Yoon 1999). The redesign of a community after a disaster to reduce vulnerability may be too costly to attempt if anti-commons problems cannot be avoided in the planning process.

Scholars cannot conclusively argue that government slowed recovery in New Orleans after Katrina without considering flood protection, including the pumping stations, canals, barrier islands and coastal wetlands in addition to levees. Community recovery within a background of public sector supplied flood control could fail to be even second-best efficient. Alternatively, a completely voluntary recovery for New Orleans would also entail private supply of flood protection infrastructure and flood insurance. Few people expected New Orleans to recover to its pre-Katrina population, and so owners of private levees would be unlikely to view repairing and strengthening the system as existed prior to Katrina as a wise investment. A thorough examination of flood protection was beyond the scope of Chamlee-Wright's book and cannot be undertaken here. Some relevant differences might exist. Owners of a private system should be willing to accommodate paying customers, as Entergy reestablished service for New Orleans East once there was sufficient demand (pp.155-6). But the cost of protection might be very high, especially for an isolated or otherwise difficult to protect neighborhood. And private flood insurance would cost more without the subsidies of the National Flood Insurance Program, but would be available (albeit at an even higher price) if residents did not elevate their homes above the base flood elevation. To control the cost of government subsidized insurance, buildings must be built to this elevation, which in New Orleans meant that rebuilding often had to wait for the completion of new flood maps. Nonetheless, it is far from certain that the market process would have led to significantly faster recovery give the very real difficulties involved in the stops and starts of New Orleans' politicized planning process.

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## Notes

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<sup>1</sup> The larger research project did conduct some interviews with evacuees in Houston, so I do not mean to imply the project ignored this question.

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<sup>2</sup> A May 2007 tornado damaged or destroyed virtually every building in the town of Greensburg, Kansas. In the aftermath of the tornado, the town was rebuilt to be energy efficient and “green.” For details see [http://articles.cnn.com/2009-04-29/tech/green.kansas.town\\_1\\_tornado-energy-efficient-construction-ground-source?\\_s=PM:TECH](http://articles.cnn.com/2009-04-29/tech/green.kansas.town_1_tornado-energy-efficient-construction-ground-source?_s=PM:TECH)

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Figure 1

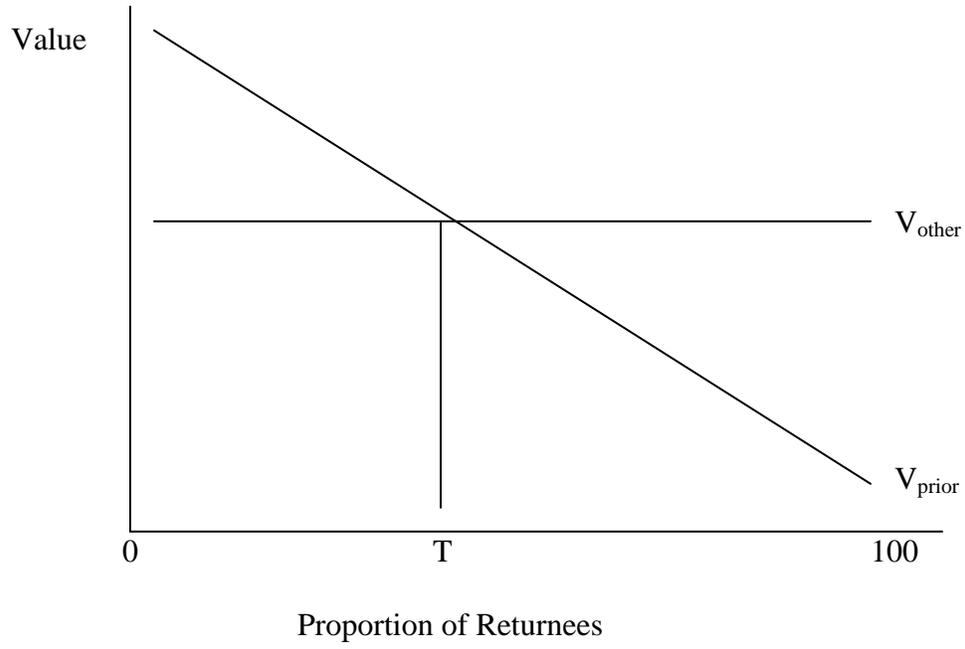


Figure 2

