

Extreme Events, Business Experiences, and Implications for Community Resiliency

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My goals

- Summarize key findings from our research -- more than a decade of longitudinal and cross-sectional study of businesses and communities that experienced extreme events
 - We focused on what differentiates those that survive from those that do not.
- And, then, relate those findings to gaining a better understanding of community resiliency and survivability.

We are grateful

- My colleague, Jim Holly, and I extend special thanks to the Public Entity Risk Institute for its generous support over the years.
- And to the National Science Foundation, for its support.
- And, not least, Michel Bruneau and our colleagues at MCEER.

About our research

- We've tracked scores of businesses and a score of local governments in more than a dozen disaster sites for more than a decade.
- We do longitudinal studies of individual businesses and communities following an extreme event -- over the long term – to learn what happens to them.

- We interviewed many of the same people in each community, year after year, to learn their experiences.
- We want to learn what went wrong so we have a better idea of what precautions make sense *before* the event and what strategies make sense *after* the event.
- It is a little bit like doing autopsies on the living.

So, what have we learned and to what extent is it relevant to community resiliency?



In a nutshell . . .

- There is only a weak relationship between the amount of physical damage a business suffers directly from the extreme event and its failure or survival.
- Some with massive damage recovery quickly.
- Some with virtually no damage never bounce back.
- It turns out that communities are a lot like that, too.

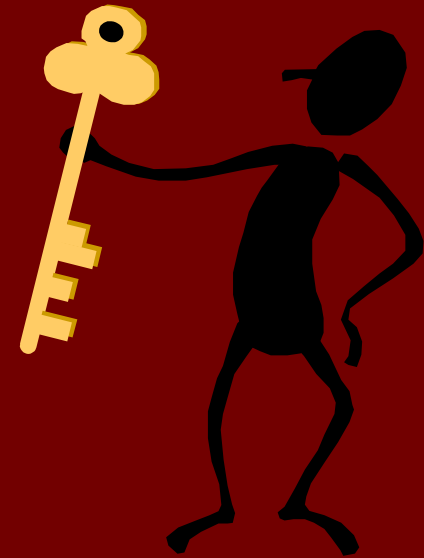
Why do businesses fail following a disaster?

- Following an extreme event, businesses fail if they lose a critical mass of customers for an extended period
- customers may move away; they may or may not be replaced
- customer priorities may change because their needs change
- customers may get what they need elsewhere if the business can't supply it when they want it
- Following that, if the owners fail to respond appropriately, they fail.

The extent to which businesses become viable in the disaster aftermath depends on

- The extent to which they can recover assets lost in the extreme event,
- the extent of adverse effects of the event on their customers and suppliers,
- their ability to adapt quickly and appropriately to the new realities of the post-event environment.

- In short, the business owners who become viable in the new context do so because they take precautions ahead of time *and* they respond quickly and appropriately to changes in the community, suppliers, and their markets.



- Businesses are much more likely to survive an extreme event if the community suffers little damage and displacement. Thus, pre-event community hazard mitigation makes a big difference to economic survival.
- Without adequate community mitigation, business owners who are viable in the aftermath are those who benefit from a combination of robustness, redundancy, rapid replacement, diversification, good engineering, good organizational design, and post-event adaptation
- All of which, when it occurs, is more often the result of serendipity than forethought.

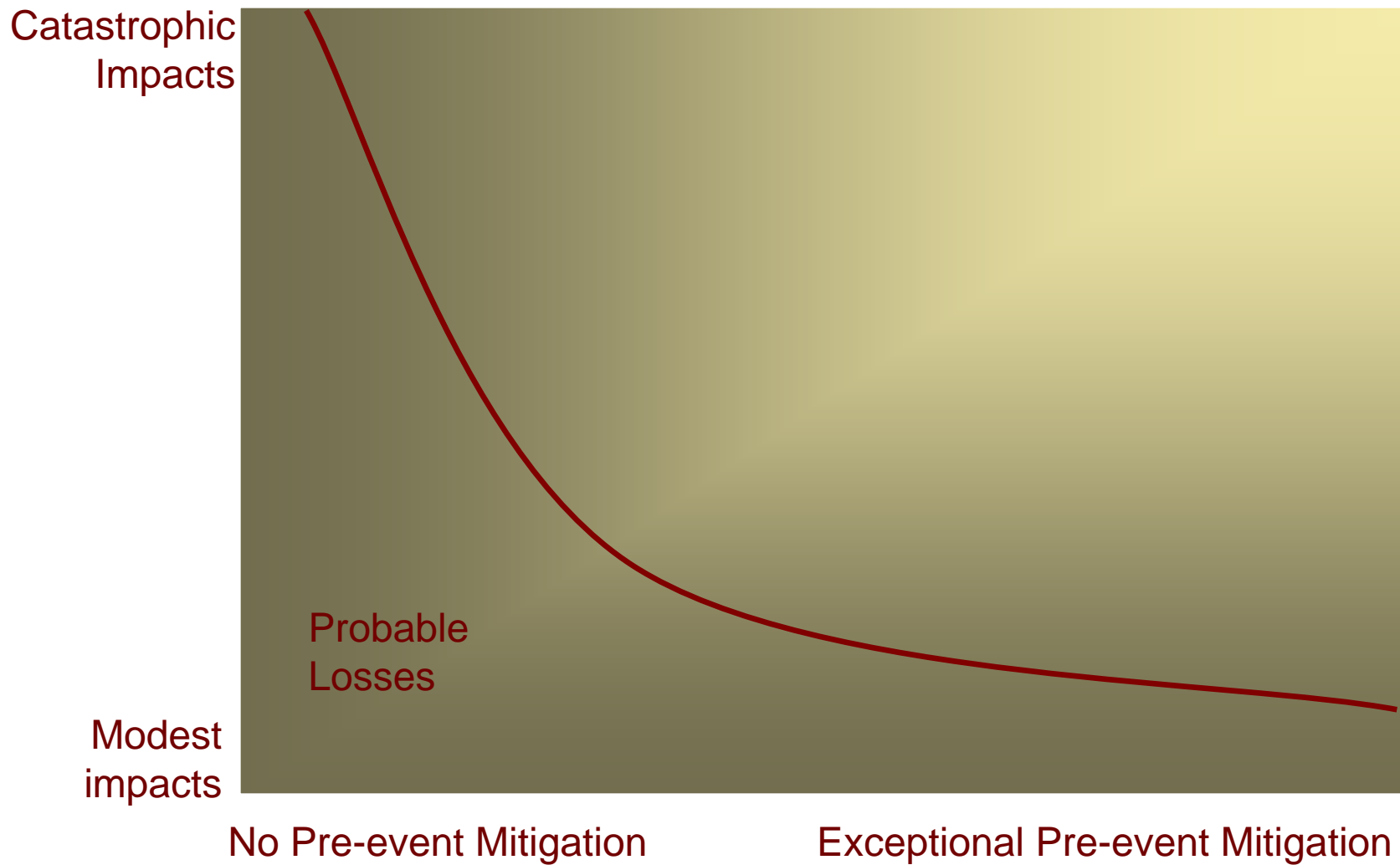


Figure 1. Hypothesized Relationship Between Mitigation and the Probable Losses from a Given Extreme Event

- Businesses get virtually no assistance from government at any level following a disaster,
- But business owners keep expecting it – presumably assuming they will be the first ones ever helped.
- SBA loans are usually based on the business's experience before the disaster and not on projections of business after the event.
- These loans often morph into albatrosses.

Some of our more broadly
applicable conclusions . . .



Community recovery is poorly understood

- Recovery, if it is defined as getting back to what was, almost never happens.
- What happens is that a new reality and a new "normal" emerge.
- "Recovery" means becoming viable within the new realities and the new context.
- Trying to restore what existed before the extreme event may actually stifle and slow the kinds of adaptation required for achieving post-event viability.
- The harsh reality: it will never be the same again.

- Injuries, deaths and damage to the built environment get most of the attention.
- But community systems comprise both individual elements and the relationships among them.
- Extreme events damage or destroy relationships within the system and between the community system and the outside world.
- “Recovery” is dependent on repairing or replacing damage to those interrelationships.

- Community recovery is substantively different from business or municipal recovery.
- Formal organizations have authoritative, “unitary” decision makers, but communities do not.
- Communities are largely self-organizing phenomena –the outcome of thousands of individual decisions made by as many actors, each of whom responds to both internal and external cues, each of which may or may not reflect reality.
- Government policy can influence how the community emerges after an extreme event, but cannot ensure what the post-event community becomes.

- We have concluded that traditional approaches to hazard mitigation are necessary but not sufficient for either business or community survival.
- We can neither anticipate all the contingencies associated with extreme events, nor could we afford to protect against all contingencies even if we knew them.
- The key is to trade off among various kinds of coping mechanisms to find an affordable balance, given our ignorance about what will happen, when it will happen, and the potential downside of doing nothing.

Our most fundamental conclusions.

Resiliency requires both pre-event mitigation and devising sensible strategies in response to the event.

- Unfortunately, I have seen relatively little really sensible pre-event mitigation.
- People seem to think they can tame huge rivers, withstand massive earthquakes, and prevent hurricanes from inflicting losses with technology.
- They can't, at least not for long.
- Or they think that inevitable extreme events will not happen to them.
- But they do.

You'd think that National recovery costs of a billion dollars a week would give us a clue that what we are doing isn't really working out.

- And, “recovery” requires a post-event strategy based on analysis -- not on pious platitudes, wishful thinking, political rhetoric, or financial fantasies.
- I haven't seen much of that either in most of the places we've studied over the years.

So, I am not particularly optimistic.

- Frankly, there will be no substantial headway on building resilient communities as long as we continue to reward Behavior A while hoping for Behavior B.

- We urge responsible behavior, but we subsidize and reward the precise behavior we want to stifle.
- Political opportunism favors giving money to those who were unprepared for predictable disasters in contrast with requiring them to take precautions or even requiring a *quid pro quo* for the millions or billions in aid.
- Not until individuals and communities are held accountable for their folly will they begin to act responsibly.

- Alas, even making suggestions to that effect is politically incorrect.
- Bravely or foolishly I tread on socially and politically dangerous ground.
- But someone has to say it.
- Nonetheless, it is worthwhile to continue our work among our unwashed brethren
- and sistren.
- Someone has to do it.

Thanks for listening anyway and
thanks for having me here.



