

## The Impact of Hurricane Katrina on Louisiana's Institutions

**Raymond J. March, Ph.D. & Veeshan Rayamajhee, Ph.D.**

October 2023

In a highly cited article published in the Journal of Economic Literature, Economist Mancur Olson argues that some nations are rich and others are poor because of their institutional heritage and structure (Olson, 1996). While many point to demography, geography, and resource endowment to explain prosperity, Olson argues these factors are secondary. Instead, institutions – the rules of the games that shape incentives – are what matter most. They interact with factors such as geography and demography to determine whether a society will flourish, stagnate, or deteriorate.

In addition to their indispensable impact on economic development and human flourishing, institutions also play a vital role in how societies are impacted by and recover from natural disasters. Much research on the relationship between institutional quality and disaster recovery finds that well-enforced property rights, adherence to the rule of law, and supportive informal institutions matter more than government assistance programs for faster and more robust recovery.

But what about the impact that natural disasters can have on our institutions? Natural disasters, especially when severe and unexpected, can tear apart much of the

fabric of civilizations. We understand that good institutions are important for post-disaster recovery. But could post-disaster environments also change a society's institutions? If so, how?

We explored these questions by examining the impact of Hurricane Katrina on Louisiana's institutions. Using a synthetic control empirical strategy and data collected from the Fraser Institute's Economic Freedom of North America Index and other sources, we show that two vital measures of formal institutions changed as a result of the disaster, whereas informal institutions remained largely unaffected.

### **What is an Institution? And a Synthetic Control?**

Following Nobel Laureate Douglass North, economists typically define institutions as the "rules of the game" a society lives under. Institutions can be broadly categorized into two types: formal or informal. Formal institutions are codified, impersonal institutions. Although democratic societies may have constitutional provisions that lay out processes to change formal institutions, they tend to be inflexible from the perspective of an individual citizen or a single community. Laws, policies, edicts, and

# Research Brief



constitutions are examples of formal institutions. On the other hand, informal institutions are, as the name would suggest, not formally codified. Often their origins tend to be unclear and they rely on community members for enforcement. The everyday traditions, norms, and customs we follow – from holding doors open, to saying “please,” to not littering at the park – constitute many of the rules we live by. These are informal institutions because there is no formal enforcement body in charge of monitoring and sanctioning violations. Informal institutions work when people believe in them and hold one another accountable through social sanctions. They are no longer effective if people find them irrelevant or do not understand them. Despite the lack of a formal enforcer, informal institutions tend to be resilient to shocks. For this reason, communities often rely on them to overcome many common problems, especially in circumstances where formal institutions collapse as a result of the shock.

Categorizations aside, formal and informal institutions have a configural nature, meaning that institutions interact with one another in a complex manner and generate diverse incentives. Moreover, formal institutions can have informal aspects and vice versa. They can complement each other in some cases, and can come into direct conflict in other cases. Both types of institutions have their strengths and weaknesses. Formal institutions allow for expedient implementation if government agencies are efficient and effective. However, they lack the knowledge of time and place and do not fully account for

local idiosyncrasies and diverse values and interests. In many situations, formal and informal institutions can clash and result in detrimental outcomes. Informal institutions, despite their limitations, are more likely to withstand the test of time and evolve to address complex social issues. They may play a vital role in reducing uncertainty and increasing social cohesion. But they may be slower to adapt to rapidly-onset changes and may even seem bizarre to outside observers. In theory, natural disasters such as hurricanes could affect both types of institutions. But the direction and magnitude of the effects are as much an empirical question as they are theoretical. Our study takes on the empirical challenge to estimate the size of the effects over time.

Any empirical assessment of institutional changes faces two hurdles. First, how do we measure institutions? Second, if chosen measures show that an institution does change, how do we interpret the change?

We measure formal institutions using the Economic Freedom of North America (EFNA) Index developed by the Fraser Institute. To quantify formal institutions, we rely on two specific measures: government employment (GE) and property tax (PT) freedom scores. A higher GE freedom score indicates a higher share of the private sector in total employment. Similarly, a higher PT freedom score means less property taxes. These measures are chosen because they are closely related to government intervention in the economy and property rights respectively, both of which are commonly

used indicators of formal institutions.

Moreover, unlike many subjective measures of formal institutions, these two indicators allow for more precise quantification and allow us to draw meaningful implications.

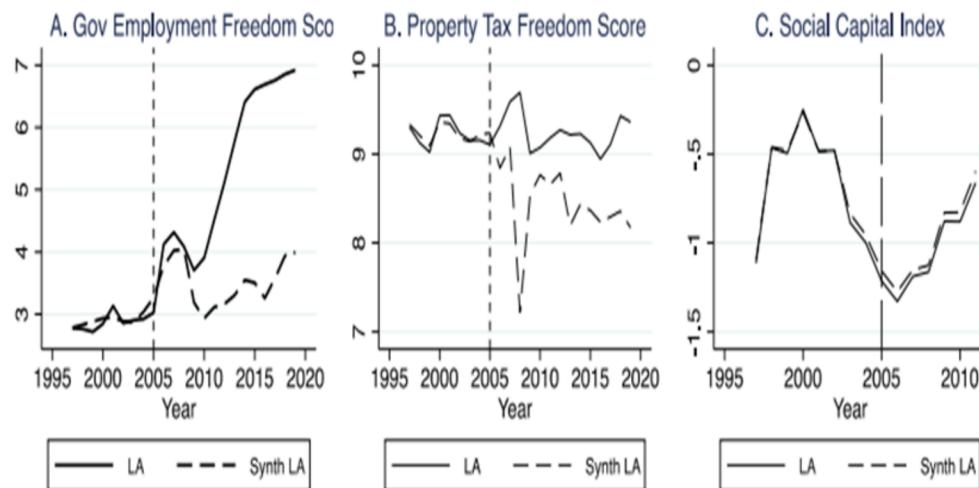
To measure informal institutions, we use the Social Capital Index data made publicly available by Daniel Hawes and coauthors (Hawes et al., 2017). While informal institutions are notoriously difficult to measure, social capital provides a reasonable proxy to capture social cohesion and cooperation. Nonetheless, readers should exercise caution in interpreting magnitudes and drawing general conclusions based on one measure of social capital, as social capital measurement is a contested topic. That said, with careful analysis, the index allows us to examine the robustness or

fragility of informal institutions.

Our empirical strategy is to create a counterfactual Louisiana and compare it to the actual Louisiana after the hurricane. The counterfactual Louisiana simulates how institutions would look had a hurricane not occurred. We rely on a method known as the synthetic control, developed by Alberto Abadie and coauthors (Abadie et al., 2010). We create a “synthetic” Louisiana, composed of weighted averages of other states based on a set of predictor variables. The idea is to use these predictors to create a synthetic state that closely matches the outcome trends of the actual state before the hurricane struck. Our confidence in the effects of the hurricane relies on how closely we are able to match the synthetic state’s pre-treatment (that is, pre-Katrina) trend with that of the real state.

## Our Findings

Findings from our synthetic control analysis corresponding to the three outcome variables (government employment freedom, property tax freedom, and social capital) are presented graphically below.



# **Research Brief**

As the graphs above show, we were able to construct a synthetic Louisiana whose outcome trends closely match those of the real Louisiana during the pre-treatment period (that is, years before the hurricane). This gives us enough confidence to suggest that the post-treatment (that is, after the hurricane) outcome trends for the synthetic state would have closely mimicked those of the actual state, if the hurricane had not struck the state. This suggests that the observed post-Katrina divergence of outcomes between the actual and synthetic states, if it exists, is due to the hurricane. In the above graphs, the solid lines represent outcomes for the actual Louisiana, whereas the dotted lines correspond to its synthetic counterfactual that did not experience the hurricane.

Results depicted in graphs A and B find a considerable gap between real Louisiana and synthetic Louisiana. Both also illustrate that actual Louisiana experienced higher economic freedom scores relative to its synthetic counterfactual. Higher economic freedom scores, as measured by the index, indicate less government employment (as a share of total employment) and less property taxes. These findings indicate that hurricane Katrina led to formal institutional change. Specifically, it increased the size of the private sector as a share of the state's total economy. And, it changed the state's property tax laws in a manner that increased property tax freedom over time. What does it mean that hurricane Katrina led to formal institutional changes in Louisiana? We can interpret these findings in a couple of ways. One interpretation is based on the

assumption that a state's ability to tax or employ its citizens is a measure of its strengths – what economists refer to as state capacity. Our results, viewed from that lens, can mean that the hurricane led to a weakening of Louisiana's state capacity. However, in the context of developed nations, that interpretation may be somewhat misleading. State capacity can expand beyond a level that is considered to be economically optimal, resulting in "institutional sclerosis" – to borrow the words of Mancur Olson. An alternative interpretation is that the state may have been forced to make a number of adjustments or corrections to cope with the aftermath of the disaster. These actions could include decreasing taxes to encourage disaster-affected businesses to restart, reorganizing state agencies to cut costs and improve efficiencies, and so on. Our chosen measures of formal institutions tell us that many of these changes continue to remain in place over fifteen years after the hurricane.

However, our results for informal institutions, shown in graph C, are different. We conduct a similar analysis using the social capital index to measure the impact of the hurricane on informal institutions. We find minimal changes in the real Louisiana after 2005, relative to the synthetic Louisiana. This suggests that social capital, while it fluctuated over time, remained robust to the shock. This is not surprising. In fact, many ethnographic and qualitative evidence from studies that examine the roles that religious and civic organizations, private businesses, and charitable organizations



played in rebuilding their communities support this finding and interpretation (Storr et al., 2015).

## Conclusion

Institutions, whether formally codified or enforced informally through norms and tradition, have tremendous impact on our social and economic lives. They determine, to a large extent, whether our society flourishes or flounders, and how well we can recover from natural disasters. But institutions themselves are subject to change, and a major natural disaster can be a catalyst. Which institutions change and how they change remains a complex question. Thus, we aim to better understand this issue by examining changes to formal and informal institutions in Louisiana following Hurricane Katrina.

Overall, our findings indicate that Hurricane Katrina affected Louisiana's formal institutions, whereas informal institutions remained largely robust. These findings are consistent with institutional theories that suggest that informal institutions are not as responsive to major shocks as formal institutions are. This is not to say that informal institutions are not adaptive. The reality is quite the contrary: they are robust precisely because they are adaptive. One way to understand our findings is that social institutions adapt without being diminished as a result of a disaster. They allow for a

greater variety of responses to disasters, help solve collective action problems, and play crucial roles for post-disaster recovery (Rayamajhee and Bohara, 2021; Shahid et al., 2022).

These findings have important implications for post-disaster policies. Policies aimed at post-disaster economic recovery should consider how they interact with and affect our social institutions. More importantly, policies that may seem effective from a purely economic or political perspective may have the unintended effect of tearing down the social fabric that is essential for recovery. Thus, it is important that policymakers consider the effects that various policies may have on religious and civic organizations, businesses, and charitable organizations and their abilities to maintain the social capital that enables community resilience. That said, we do not yet fully understand the scale and scope of how formal and informal institutions interact, and how their interaction affects economic and social outcomes. We need further research to better understand these dynamics. Hurricanes aren't going anywhere. So, to better prepare ourselves, we need to develop a better understanding of what kinds of institutions are resilient to natural shocks.

---

### Note:

This research brief is based on a paper titled "Shock Me Like a Hurricane: How Hurricane Katrina Changed Louisiana's Formal and Informal Institutions" by Veeshan Rayamajhee, Corbin Clark, and Raymond March.

---

## **References**

- Abadie, A., Diamond, A., & Hainmueller, J. (2010). Synthetic control methods for comparative case studies: Estimating the effect of California's tobacco control program. *Journal of the American statistical Association*, 105(490), 493-505.
- Hawes, D. P. (2017). Social capital, racial context, and incarcerations in the American states. *State Politics & Policy Quarterly*, 17(4), 393-417.
- Olson, M. (1996). Distinguished lecture on economics in government: big bills left on the sidewalk: why some nations are rich, and others poor. *Journal of economic perspectives*, 10(2), 3-24.
- Rayamajhee, V., & Bohara, A. K. (2021). Social capital, trust, and collective action in post-earthquake Nepal. *Natural Hazards*, 105, 1491-1519.
- Shahid, M. A., Rayamajhee, V., & Bohara, A. (2022). Does social capital help in post-disaster recovery? Evidence from the Gorkha earthquake of Nepal. *International Journal of Disaster Risk Reduction*, 82, 103359.
- Storr, N. M., Chamlee-Wright, E., & Storr, V. H. (2015). How we came back: Voices from post-Katrina New Orleans. Mercatus Center at George Mason University.

## **ABOUT THE AUTHORS**



**Raymond March, Ph.D.**, is a scholar at the Challey Institute for Global Innovation and Growth and an assistant professor of economics in the Department of Agribusiness and Applied Economics at North Dakota State University.

[raymond.j.march@ndsu.edu](mailto:raymond.j.march@ndsu.edu)



**Veeshan Rayamajhee, Ph.D.**, is a scholar at the Challey Institute for Global Innovation and Growth and an assistant professor of economics in the Department of Agribusiness and Applied Economics at North Dakota State University.

[veeshan.rayamajhee@ndsu.edu](mailto:veeshan.rayamajhee@ndsu.edu)

*The Sheila and Robert Challey Institute for Global Innovation and Growth at North Dakota State University aims to advance understanding in the areas of innovation, trade, institutions, and human potential to identify policies and solutions for the betterment of society. [ndsu.edu/challeyinstitute](http://ndsu.edu/challeyinstitute)*

*The views expressed in this paper are those of the author and do not necessarily reflect the views of the Sheila and Robert Challey Institute for Global Innovation and Growth or the views of North Dakota State University.*