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Response and Recovery after the Joplin Tornado

Lessons Applied and Lessons Learned

— ♦ —

DANIEL J. SMITH AND DANIEL SUTTER

A hardy stalk, you might say, that doesn't want to wait for the government to come help; they can solve problems today, and we appreciate whatever you're going to do, but while we're waiting for you to do that, we're cleaning up.

—Joplin resident and business owner

You're going to see something different here [from New Orleans after Katrina] because there's this resilience and this resolve where the people in this community—that we're not waiting for somebody to come do it for us. We're going to get it done, and other people are attracted to that and come alongside to help and make it happen faster.

—Joplin resident who lived in New Orleans during Hurricane Katrina

On May 22, 2011, a supercell thunderstorm spawned a tornado just east of the Missouri–Kansas state line that rapidly intensified to produce EF-5¹ damage as it tore a half-mile to three-quarter-mile-wide path of near total destruction across Joplin, Missouri. The death toll in Joplin stands at 161, making this tornado the deadliest in the United States since 1947; no tornado had claimed

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1. Tornadoes are rated on the Enhanced Fujita (EF) scale from 0 to 5 (the worst), based on the type of damage and estimated wind speeds.

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100 lives since 1953. The tornado damaged or destroyed an estimated 7,500 homes and more than 500 businesses, with property damage estimated to be \$3 billion, the highest ever for a U.S. tornado.

The inept response by federal, state, and local governments to Hurricane Katrina in 2005 shocked the nation. The public-sector responses stood in stark contrast to the private-sector responses. Charities, community organizations, businesses, and the voluntary sector provided significant assistance in the wake of the hurricane. Katrina sparked a debate about the proper roles of the public and private sector in disaster response and recovery, and the Joplin tornado provides an additional case study to inform this debate.²

Although each disaster is unique, both Katrina and Joplin resulted in destruction and death unprecedented in recent U.S. history for each respective type of disaster. The geography of the two disasters differs substantially. The damage path of the Joplin tornado was less than twenty square miles total, featuring almost total devastation in a very compact area yet leaving surrounding neighborhoods and local government intact. Katrina brought devastation and flooding across 90,000 square miles of the Gulf Coast and forced the evacuation of New Orleans for more than a month.

Joplin provides an opportunity to observe the role of the private and public sectors in a very different environment, allowing evaluation of which findings from Katrina generalize to other disasters. In addition, Joplin was devastated less than one month after a record tornado outbreak in the Southeast, including an EF-4 tornado in Tuscaloosa, Alabama, and represents a test of the voluntary sector's ability to respond to several extreme events in quick succession.

We offer a case study of the recovery efforts following the Joplin tornado with two primary objectives. First, we catalog and analyze recovery-and-response efforts from the private sector. Second, we explore how the institutional environment in Joplin contributed to the pace of recovery in contrast to how institutional factors exacerbated the impact of Katrina in New Orleans (Boettke and Smith 2010). We build on this prior research by focusing on elements of central planning and regime uncertainty in the public-sector response in Joplin as well as the mechanisms employed to coordinate private-sector responses. Response-and-recovery efforts were far more successful after Joplin than after Katrina due to the accommodating approach taken by local, state, and federal officials in the former. Rather than attempting to plan and micromanage every aspect of the recovery, Joplin officials allowed the private sector to lead the response and recovery.

This research project was based on interviews with local officials, community leaders, residents, and business owners affected by the tornado. Selection of participants

2. William Chappell and his colleagues (2007) found that after Katrina Mississippi residents ranked federal and state/local government as two of the lowest sources of assistance.

was based on purposive sampling in which initial participants were relied upon to identify others in the community who played a role in the response-and-recovery efforts and were willing to participate in interviews.³

Recovery from Natural Disasters and Lessons Learned from Katrina

Natural disasters can take a heavy toll on a community. The survivors must then pick up the pieces and rebuild their homes, businesses, churches, schools, communities, and lives. Rebuilding requires both material and emotional resources. Even full insurance coverage will not pay for all of the material losses and certainly doesn't indemnify against emotional damages. A natural disaster can exhaust savings, produce stress, and significantly impact a person's life for years.

Disaster recovery is more than just a personal challenge because many people in the community will have to rebuild. The community-level effects introduce a coordination problem for residents. One family might muster the resources to rebuild only to find that their employer relocates or goes out of business or that neighbors do not rebuild, and their street or block is a very different place after the disaster. A business might reopen only to have the slow return of residents threaten its financial viability. Whether residents or businesses will want to rebuild or reopen will depend on other residents' decisions and will thus require coordination. Economist Thomas Schelling contends that the market process cannot satisfactorily resolve the coordination problem inherent in rebuilding (quoted in Gosselin 2005). Coordination problems will be worse when an entire city must be rebuilt, as was the case after Katrina, but they can also arise at the neighborhood or block level. For example, rebuilding owner-occupied homes as rental homes can change the character of a block considerably.

Preparation, response, and recovery lessons from past disasters can reduce the toll from future disasters. Assessing how private- and public-sector efforts encourage or inhibit recovery, however, requires a definition of *recovery*. Many natural-hazard researchers argue that reducing vulnerability to future disasters should be a primary goal of recovery. Quickly repairing homes along a river is not a fully successful recovery if the community will flood again in just a few years. Disasters offer a window of opportunity to strengthen construction and change land uses to prevent a recurrence of a disaster (Platt 1998). Some scholars even argue that natural disasters represent an opportunity to improve a community through comprehensive planning. Public projects, affordable housing, and sustainable development should be made components of rebuilding the community (Mileti 1999, 30–31). The

3. Informed consent was obtained from participants following a protocol approved by the Troy University Institutional Review Board.

Intergovernmental Panel on Climate Change special report on climate extremes specifically warns against the dangers of too rapid recovery (2012, 10).

For the purposes of this paper, we define *recovery* as the restoration of the status quo. Almost all parties affected by a tornado would agree on this common goal. Alternative goals such as sustainable development, the restriction of urban sprawl, and income redistribution may not be commonly shared in disaster-stricken communities. It would be inappropriate to claim that recovery failed because a community did not implement policies that residents perhaps did not support. In addition, as compared to hurricane-prone coastal areas, in the areas where tornadoes hit, they represent a diffuse threat and thus raise no issues involving relocating buildings out of a high-risk area. Thus, restoring the status quo seems an appropriate measure of recovery. In addition, lengthening the recovery process through planning is costly. Businesses and households would incur extra costs and may choose to relocate permanently the longer it takes to rebuild (Chamlee-Wright 2008; Sutter 2008, 2011).

Many lessons have been learned from Hurricane Katrina regarding disaster response and recovery (Boettke et al. 2007). Numerous instances illustrate that government failure can compound nature's fury (Boettke and Smith 2010). Over-regulation and micromanagement can delay rebuilding and worsen coordination of recovery expectations (Chamlee-Wright and Storr 2009). Government disaster assistance has been found to entail numerous problems. First, political considerations and expediency trump recipient needs in the allocation of relief efforts (Garrett and Sobel 2003; Congleton 2006; Shughart 2006). Second, government assistance fuels political corruption, both across the United States (Leeson and Sobel 2008) and throughout the world (Escaleras and Register 2012). Peter Leeson and Russell Sobel (2007b) suggest that this corruption will always be present because protocols, refined management practices, and accountability measures will always be secondary in a disaster situation. And third, assistance can fuel moral-hazard problems, thus increasing vulnerability to losses in future disasters (Shughart 2011).

The voluntary sector, both for profit and nonprofit, contributed substantially to response and recovery after Katrina. Community organizations and churches helped overcome the coordination problems by encouraging their members to return and rebuild (Chamlee-Wright 2010). Community leaders credibly conveyed to dispersed residents the plan to return to the damaged area, and churches provided a range of club goods—excludable but nonrivalrous goods—to assist residents in returning (Chamlee-Wright and Storr 2009). Residents in New Orleans's poorer communities possessed unexpected resources, and social capital helped deploy and coordinate these resources (Chamlee-Wright 2010). For-profit businesses such as Wal-Mart and Home Depot provided needed relief and rebuilding supplies more effectively than the public sector did (Horwitz 2009). Decentralized decision making allowed store managers to use local and rapidly changing knowledge to outperform the highly bureaucratized Federal Emergency Management Agency (FEMA).

Postdisaster response and recovery are rapid and effective where a healthy institutional, social, and cultural environment exist (Boettke et al. 2007). The public sector can inhibit recovery by creating regime uncertainty or perceptions of a possible change in the institutional rules supporting an economy. Robert Higgs (1997) introduced the concept of regime uncertainty to explain the collapse of private investment during the Great Depression. The institutions of private property and free markets drive wealth creation (Gwartney, Lawson, and Hall 2011), so the potential attenuation of property rights, even if averted, can seriously undermine incentives to invest. The City of New Orleans undertook several distinct and extensive rounds of recovery planning after Katrina, creating significant regime uncertainty because residents and business owners did not know if they would be allowed to rebuild in their old locations (Chamlee-Wright 2007, 2010). The delay due to planning significantly increased the cost of the disaster and diverted residents' time, energy, and resources—which were critically needed for rebuilding—to politics.

Successful response, whether by the public or private sector, also requires the coordination of responses. Resources must be coordinated to accomplish all but the simplest tasks in a modern economy. Coordination is even more important after a disaster, when survivors need bottled water *and* ice, portable generators *and* gasoline. Coordination is the most fundamental problem any economic system must address, and the for-profit sector accomplishes it through prices and profit (Hayek 1945; Lavoie 1985). Prices provide information to market participants about desired goods and services and on how to use inputs, and profit gives participants an incentive to act on this information and achieve coordination. FEMA was unable to coordinate responses due to a lack of prices (Leeson and Sobel 2007b). Yet it must also be conceded that churches and nonprofit organizations achieve coordination by means other than prices and profit. Although important work has been done on understanding how these private-sector organizations coordinate resources (Chamlee-Wright and Myers 2008; Chamlee-Wright and Storr 2009, 2010, 2011; Chamlee-Wright 2010; Skarbek and Green 2011; E. Skarbek 2013), exactly how they balance inputs in the production of relief remains largely an open question (Horwitz 2011).

Private-Sector Response and Recovery in Joplin

Recovery and response efforts in Joplin were a combination of public and private efforts; in other words, they exhibited polycentricity (Coyné and Lemke 2011). The robust recovery in Joplin to date is due largely to federal, state, and local officials' taking a hands-off approach to the recovery. The public-sector focused on its own tasks, such as clearing debris so rebuilding could commence and reopening public schools on time for the 2011–12 school year. The private sector—including national charities, the business community, Joplin residents, and thousands of volunteers from outside of the community—made major contributions as well, similar to the private-sector responses observed following Katrina.

The Nonprofit Sector

Voluntary-sector efforts have been an enormous part of the response-and-recovery efforts in Joplin. As of November 2011, more than 92,000 registered volunteers—including 749 different church, charity, business, hospital, and school groups—had contributed more than 528,000 person-hours to the recovery process. Volunteers came from nearly every state in the United States and from as far away as Japan and removed 1.5 million cubic yards of debris, about half of the storm’s total. Individuals, churches, and community organizations supplied thousands of meals to first responders immediately after the tornado and to the volunteers who arrived later during the rebuilding phase.

The response from the voluntary sector in the immediate tornado aftermath revolved around church and business groups. As one Joplin business owner observed, “I don’t think we can say enough about the volunteers. Whether they be local people [or not]. . . . We know people who had no damage; maybe their business was closed because they had no power, the factory they worked was closed, and they went out and got a chainsaw and their pick-up, went out to some street or a friend’s house or a neighbor’s house, and started clearing and cleaning, and this part of Missouri is pretty self-sufficient. . . . Somebody joked about how everyone in Joplin must have a chainsaw.”

The American Red Cross was able to set up a shelter for survivors the evening of the tornado and a resource center closer to the damage area. In addition, it established a 1-800 number for donations, registered around 10,000 people, and had its Long-Term Recovery Committee up and running about two weeks after the tornado. The Red Cross started identifying and categorizing needs to allocate resources to the most immediate needs first and coordinated with other charitable organizations such as the Salvation Army and Catholic Charities. The Joplin YMCA provided free day care for a year for survivors, which allowed them to get back on their feet. The Red Cross brought in counselors to assist victims with emotional recovery from the tornado. One Joplin business owner and resident recalled that the “Red Cross was around here for weeks; you couldn’t hardly go down the street without them offering you something to eat.”⁴

The total amount of money donated to Joplin relief is difficult to estimate accurately because so many different organizations aided in the recovery. The Red Cross provides relief as needed after disasters and raises donations separately but estimated that it received at least \$5 million for Joplin relief. Individual contributors included celebrities such as Sheryl Crow, who donated a vintage Mercedes for auction (and the purchaser doubled the winning bid as a donation), and Angelina Jolie and Brad Pitt, who donated \$500,000, and people from around the globe donated smaller amounts.

4. Note that George Horwich (1990) and William Shughart (2011) offer more critical assessments of the role of the Red Cross in disaster relief owing to the agency’s lack of a profit motive.

Figure 1
A Tribute to Joplin's Volunteers.



Photo courtesy of Daniel Smith.

The Joplin area provided the majority of temporary housing needed by residents in the aftermath of the tornado. Between 5,000 and 7,000 households lost their homes on May 22, and local officials estimate that 98 percent of these families remained within twenty-five miles of Joplin. FEMA provided about 600 temporary housing units, so the private sector accommodated about 90 percent of displaced households. Some displaced families rented or bought available apartments or homes in the area, and others stayed with family or friends. In addition, the community also housed the vast majority of the tens of thousands of volunteers who traveled to Joplin.

Faith-based organizations played a vital role in the recovery process, as one Joplin business owner observed:

The most phenomenal thing is that there are churches from all over the United States here helping for free. The Amish specially, they've got the rotating in and out. They have crews and—not especially, but the Amish have comes to mind, but all different kind of churches. We had churches come down from Chicago that came in and bought roofing for I believe six or seven house and came in here to get the roofs and then left—that were underinsured or they had no insurance at all, and that was phenomenal. So the churches throughout the country have been absolutely phenomenal.

Samaritan's Purse, a faith-based organization specializing in disaster recovery and rebuilding, had more than 6,400 volunteers cycle through Joplin (as of January 30, 2012), completing 75 percent of work orders received. Its immediate-response teams focused on removing debris, installing tarps on damaged roofs, and taking steps to protect property, and its long-term response team is building homes for under-insured low-income homeowners.

St. Paul's United Methodist Church lost half of its building in the tornado and served as an ad hoc triage center on the evening of May 22. Medical personnel used tables in the church's children's area for emergency surgery. Because St. Paul's mission had always been to "serve the world," it became a focal point for volunteers afterward; within hours, the church set up a distribution center for donated supplies such as food, water, and generators. When volunteers started arriving, church leaders had the attitude of "just get here. We'll find a place for you to stay. We will find something for you to do. Bring a chainsaw." They attribute their ability to organize quickly to already having a director of connections prior to the storm, and they quickly hired an additional person to focus specifically on tornado recovery efforts.

College Heights Church also played an essential role in the recovery efforts. A church official recalled, "Immediately we had people showing up. And by the next morning there was a lot of things already brought to the building. And within probably two or three days the building was pretty full of things, and it had become pretty much the first functioning distribution point in the community, and others popped up real quickly. Probably that was the first one. And part of that was because Red Cross was right across the way. and my name was dropped or College Heights' name was dropped, so they started sending things over as well."

College Heights officials mapped out the disaster zone, determined if church members were safe, and evaluated their needs. The church also assisted its members' neighbors:

We know as a community that this has to be a relational recovery; it cannot be only on financial recovery or physical recovery but has to be relational in nature. And so what we did with those people we identified with, in the first two weeks we said to them, "OK, we want to help you, but you need to help your neighbors, too, so let us give you money to give to your neighbors," so they went with the church leader, and they went to their neighbors with several hundred dollars, immediately just to help their neighbors get whatever they needed, off the back and just to develop that sense of community that we're all in this together, love your neighbor as yourself. And so that was something—something that was done within the first couple of weeks and continuing.

The voluntary sector also helped in the ongoing rebuilding effort. The personnel of ABC's *Extreme Makeover: Home Edition* program built seven homes in seven days

in October 2011, a symbolic kickoff to residential rebuilding only four months after the tornado, and Habitat for Humanity built ten homes in November. Nonprofit organizations were planning on building at least one hundred more homes as of early 2012 (McKinney 2012).

Social media played an important role in coordinating relief efforts after the tornado. Both St. Paul's and College Heights used Facebook to communicate with churches outside of Joplin. Other private-sector entities in the community did so as well, adapting an initiative of the Joplin Public Schools called Bright Futures that was established prior to the tornado. Bright Futures involved community leaders in an effort to match through Facebook those students in need with people who could provide help: "We have a Facebook thing right now that if a child needs a pair of shoes, within minutes—because there's thousands of thousands of people partnered together—within minutes, whatever need the child has is met."

After the tornado, local residents established the Rebuild Joplin website based on the Bright Futures model. It helped residents, churches, businesses, volunteers, and donors coordinate and share resources. Rebuild Joplin was started with seed money from Bright Futures as well with local donations and had more than 300,000 page views within three months, about two-thirds of that traffic from people looking to donate money to help the recovery. Many of our interviewees mentioned Rebuild Joplin as having played an important coordinating role for the recovery process, showing one way in which the private sector employed decentralized knowledge to coordinate response.

The Business Community

Insurance is the core of voluntary-sector disaster recovery because insurance payments dwarf charitable contributions. And in contrast with either private or public relief after a disaster, insurance minimizes the Samaritan's dilemma. A free society requires that people prepare for potential catastrophes and not plan to rely on charity or government relief; insurance represents the most effective way to spread risk voluntarily (Horwich 1990). More important, risk-reflecting premiums encourage efficient risk mitigation prior to a disaster.

Insurance companies' quick responses following the Joplin tornado helped tornado victims—both homeowners and business owners—get immediate relief. Many insurance companies had representatives on the ground immediately and were writing advance checks to provide for disaster victims' immediate needs. These advance checks, usually less than \$5,000, allowed families, who had sometimes lost all of their possessions and even documentation, to be able to obtain shelter and nourishment. After their customers' immediate needs were attended to, insurance companies brought in adjusters to assess the damage in order to help storm victims start making plans for rebuilding. Whether a home or business was totaled or not wasn't always readily apparent, so the adjusters' speed in coming to Joplin reduced the uncertainty that residents faced in rebuilding. One local insurance agent, who sold insurance policies from several

different insurance companies—and thus acted as a representative of Joplin citizens in dealing with insurance companies—reported that in the interest of speed the companies “paid out quick, they’ve overpaid,” and that he “saw more overpayments through this process than I’ve ever seen before.” Overall, insurance payments in Joplin exceeded \$2 billion (Kennedy 2011). Insurance also paid for the rebuilding of Joplin’s public schools because the district was fully insured for its \$150 million in property damage.

The Joplin business community was hard hit by the tornado but played a significant role in the recovery. Businesses donated supplies and money to the recovery, provided their employees with volunteer opportunities, found creative ways to keep their Joplin employees on payroll if closed, and accommodated employees whose homes had been damaged. As Missouri state representative Charlie Davis expressed,

I can’t applaud the big businesses enough for what they have done. . . . Wal-Mart . . . they’re opening up November 9; it’s taken half the time to build this Wal-Mart than it normally takes to build a Wal-Mart because the construction company has been working twenty-four hours a day to get that up. They are one of the largest employers in the area. What they have done, though, is they have continued to pay all their employees even though they’re not working—since May 23 they have continued to pay. Now they’ve tried to move [these employees] into different Wal-Marts, but they’re still paying them. Home Depot, they’re doing exactly the same thing, so the large retailers have the resources because they lose one store, they have literally thousands of other stores that can make up for the loss of the one store, but they have been initiating the recovery because they have allowed their employees to continue to get paid while they’re rebuilding, and to me that’s kudos to those companies.

The Piccadilly Circus allowed its employees—and elephants—to assist in debris removal. A representative from the Ozark Community Foundation recalled, “You had said a lot of tremendous amount of resources that had been donated. It has been mainly in large businesses, people from all over the world. . . . This is so cool. Some other kids sold lemonade. They sent \$75 on that, and I point to that because I put it on my door for people to see it. They sold lemonade for Joplin for twenty-five cents a cup. How cool?”

Home Depot, Leggett & Platt Inc., PotashCorp, TAMKO Building Products, and Wal-Mart donated \$1 million each to various charitable organizations for the Joplin response-and-recovery efforts, including the American Red Cross. The Margaret Cargill Foundation, in collaboration with the Joplin Recovery Fund, the Greater Kansas City Community Foundation, and the Tulsa Community Foundation, competitively granted \$300,000 to various long-term recovery projects, including scholarships for child care, clinics, legal assistance, and school supplies. Arvest Bank offered low interest rates for reconstruction projects and worked with customers affected by the tornado to rearrange mortgages and loans payments.

Several companies assisted with in-kind donations according to their area of specialty. Proctor & Gamble's Tide Loads of Hope mobile laundry trailer provided free clothes washing and folding, and Duracell Power Relief Trailer had free batteries, flashlights, and charging stations. Georgia-Pacific donated Brawny paper towels and industrial wipes. Stanley and Black & Decker donated tools, equipment, and a tool-lending library. Arvest Bank, Coca-Cola, and Chick-fil-A provided food and drinks for volunteers. The Trans Group, a bus management and leasing company, donated three buses to the Joplin Area Catholic Schools.

Companies from across the nation organized and funded groups of volunteers made up of their employees: IBM, Starbucks, Bank of America, John Deere, GlaxoSmithKline Pharmaceutical, Pfizer, Wal-Mart, GE, UMB Financial, General Mills, Coca Cola, Kellogg, McDonalds, Gap, Sam's Club, Ford, Conoco Phillips, FIJI, Arvest Bank, and Home Depot.

Perhaps even more important, businesses aided in the recovery process by quickly making commitments to rebuild. Largely spurred on by the accommodating—rather than inhibiting—role played by the City of Joplin (see the next section, on the public-sector response in Joplin), less than four months after the tornado the Joplin Area Chamber of Commerce reported that 69 percent of the destroyed businesses had reopened or were open at a temporary location or were rebuilding. Walgreens, Chick-fil-A, Wal-Mart, and Home Depot rebuilt within eight months; Home Depot opened a large temporary tent store in the interim. These national corporations are merely representative of the overall business recovery in Joplin. By January 2012, all but 20 of the 525 businesses affected by the tornado had reopened or were in the process of reopening. Many of the 20 businesses not planning to reopen were small, with owners nearing retirement before the tornado.⁵

Many businesses reacted quickly to reopen. A Chamber of Commerce representative stated that “[b]y day three I encountered several businesses [that] already knew where they were going, and they were just trying to get things moved, and they were up very quickly. I think the first one to officially reopen was a pharmacy here in town, and that's the Medicine Shoppe; when we called to check on him, he had already relocated, reopened, and was back in business, which is an incredible kind of service.” The Medicine Shoppe reopened at a new location within a week, with all of the required permits granted within three days. The effort involved a donation of used shelving from another Medicine Shoppe franchisee that had just remodeled and a medical representative's organizing his fraternity brothers to help set up the new shop. Another franchise owner from outside of Joplin donated \$100,000 to assist three employees of the Joplin Medicine Shoppe who had lost their homes in the tornado.

Many local businesses had employees who lost loved ones or their homes in the disaster. More than 500 businesses were damaged or destroyed and had to close, at least temporarily, thus threatening employees' income. The major employers

5. It is also likely that the optimal amount of business closings following a disaster is not zero.

in Joplin affected by the tornado, Wal-Mart and St. John's Mercy Hospital, assisted the tornado victims by allowing employees to take up to eight weeks off to recover and kept employees on their payroll by allowing them to work at other locations.

The Joplin Chamber of Commerce coordinated peer-to-peer assistance between businesses, which shared space, expertise, services, and goods. It reported that “[w]hat we did see was a lot of businesses that were helping other businesses.” For example, dentists shared office space and equipment with colleagues whose offices were destroyed by the tornado, and an insurance company shared space and equipment with a construction company. Hometown Bank of Joplin allowed the St. John's Mercy Hospital's administrators to use two floors of its headquarters building.

The reopening of businesses provided tangible signs of recovery and signaled a return to normalcy for Joplin residents, as observed after Katrina. People in Joplin were excited to see “walls go up” anywhere. As a Joplin resident expressed this reaction, “[I]t's a boost when any business reopens. Chick-fil-A when it reopened—it was like Christmas around here. When the two Walgreens that were destroyed reopened, it was a big deal. Wal-Mart—would they not reopen? My personal feeling is I will celebrate when Wal-Mart reopens because, I mean, it's just one more sign that we're alive.”

The unaffected Wal-Mart in Joplin met postdisaster needs by selling non-traditional items (items it usually doesn't sell) such as lumber, Serta Mattresses, washers, dryers, and refrigerators as well as by allowing the Tide and Duracell trailers to set up in its parking lot. As the manager of this Wal-Mart recalled,

Our customers, there were people leaning on us pretty heavily because there's no place else to get supplies, to get stuff that they need. Biggest customer demands and request I've ever seen in my entire life; we rose to the occasion—that Wal-Mart put in a special person in-charge at any request that we have. I mean, I got a trailer full of lumber. Wal-Mart typically don't sell lumber, but it was the customer need because Home Depot got wiped out. So all I had to do was pick up the phone and call the guy, and within three days the Pacific was here with the trailer full of lumber. Another demand was appliances. Large appliances, typically, we don't carry large appliances. I made the phone call, and by the end of [a] week we had three semitrailers full of large appliances. Washers, dryers, refrigerators, small household appliances, coffee pots, you know, tea makers and stuff like that. Another request was for bedding. Bedding was huge. Made a phone call [and] within three days had a trailer full of mattresses. So I guess it's overwhelming, but it was huge for us and the community. I mean, I've never seen so many people that were in dire need. I think we tried to meet the need.

Coordinating the Private-Sector Response

The private sector clearly provides a substantial volume of resources for recovery from disasters. The appropriate role for the private and public sectors in disaster

response depends on whether the voluntary contributions can be put to effective use. Coordination is not perfect in postdisaster contexts, and contributions can sometimes produce little of value to recipients. Useless donations have been dubbed “the disaster after the disaster.” The Joplin relief effort witnessed some excessive and unnecessary donations: “[T]here was water on every corner stocked as high as the buildings. . . . [T]oday there’s probably enough bottled water sitting around in storage in town that I think they shipped it in truckloads, and a month ago you’d go by places that [had a] hundred cases of bottled water stacked because people shipped that in, probably more than we needed. . . . We still have a case in our backroom.” Some charitable organizations even reported selling donated clothing and put the proceeds into the relief effort.

Nonetheless, mechanisms exist to coordinate activity in the voluntary sector. Emily Skarbek and Paul Green (2011) emphasize how selection among social entrepreneurs or nonprofit organizations can improve coordination. Experience provides an important source of knowledge in disaster relief. Wal-Mart and other large retailers freeze prices immediately prior to an expected disaster and after it and so strictly speaking do not rely on prices to signal changes in demand (Horwitz 2009). Wal-Mart determines needed goods and services by assembling a large volume of quantity data using its inventory-management system for stores previously facing and experiencing disasters. Experience provides an opportunity for nonprice learning. As mentioned earlier, the undamaged Wal-Mart in Joplin supplemented this knowledge from experience with direct observation of customer needs in Joplin.

The voluntary sector also takes advantage of experience from other disasters. Although nonprofit organizations in any one community rarely face a disaster, many charitable groups are part of national organizations that aggregate the experience of local chapters to provide guidance in future disasters. Many national organizations share information and experience with each other through the National Voluntary Organizations Active in Disaster (NVOAD) coalition. The member agencies have extensive experience, both by themselves and through local branches, in responding to numerous types of disasters. NVOAD has specifically addressed issues regarding donations through the National Donations Management Strategy and volunteers through its Volunteer Management Committee.⁶ Coordination occurs without compromising the voluntary, spontaneous efforts of persons across the nation and globe.

The numerous skilled volunteers who assisted in Joplin illustrate the effectiveness of coordination. Doctors and nurses spontaneously volunteered on the evening of May 22 to assist in triage efforts. Samaritan’s Purse provided volunteers skilled in tree removal and property protection. Approximately 6,500 Samaritan’s Purse volunteers assisted more than a thousand Joplin property owners. Homeowners

6. For more on NVOAD and its member organizations, see its website at <http://www.nvoad.org/>.

without proper insurance coverage could use the services of skilled volunteer demolition teams. Nonprofit organizations also have built new homes, as detailed earlier, employing coordinated teams of skilled construction workers.

Embedded resources within the community were deployed in both Joplin and New Orleans to overcome coordination problems. Coordination problems will be less severe for local resources used locally. Social capital, channels for credible communication, and even shared narratives can be sufficient to deploy local resources locally, as discovered in research on Hurricane Katrina (Chamlee-Wright and Storr 2009, 2010, 2011; Chamlee-Wright 2010). Friedrich Hayek (1945) discusses how prices efficiently transmit economic information over long distances, over which communication is necessarily impersonal. In Joplin, personal communication such as announcements in churches, physical bulletin boards such as the Chamber of Commerce’s “Haves & Needs” wall, electronic bulletin boards such as the rebuildjoplin.org website, and social media conveyed the information needed for the channeling of local resources. Even national retailers managed to use local information, as illustrated by Wal-Mart’s selling of products that it did not normally carry for customers, such as mattresses and appliances.⁷ The wide-scale use of social media and the Internet in Joplin to direct contributions from outside of the community offers an important topic for future research.

Public-Sector Response in Joplin

Emergency management increasingly presumes that disaster recovery requires extensive governmental direction. Disasters are also seen as opportunities to change communities. As a consequence, recovery plans commonly resemble central plans. The response to and recovery from the Joplin tornado provide an example of a hands-off approach by city, state, and federal officials. As detailed earlier, the response from civil society was immense. We argue that civil society flourished precisely because the various governmental entities involved did not comprehensively plan and direct recovery efforts. The public sector focused more on restoring public services than on directing or displacing private-sector responses.

The City of Joplin: Accommodating, Not Planning Recovery

Joplin city officials unofficially waived building regulations, procedures, and local zoning laws in the immediate aftermath of the tornado. The owner of a local construction company reported that “we were having jobs complete before we had permits—so everybody from the government, from the federal government to the local government in Missouri, were saying ‘let’s go.’” Joplin officials also chose not

7. For elaboration on nonprice resource allocation after disaster, see Smith and Sutter 2012.

to mandate the installation of safe rooms—reinforced interior rooms in a home designed to provide shelter during a tornado—which increase the costs of rebuilding. Instead, officials said, “That’s up to them. . . . [O]ur position is that this is really not something we should mandate.” A city council member described the city’s philosophy:

We need to put up ways that people can get things done instead of making them jump to get them done. . . . [W]e as a city need to put that in prospective [*sic*], and we need to say to our businesses, community, and to our citizens, “If you guys want to rebuild your houses, we’ll do everything we can to make it happen.” Well, sometimes part of the problem is people who say that, it never gets down to the people that are supposed to interpret it and administrate it. And when that happens, you don’t have those—you don’t have those barriers; like that girl said, “Going to the storm was bad enough, but dealing with the city has been . . . a lot harder than going through the storm.” And I don’t want to hear that. That’s the thing that I personally don’t want to hear because that tells me that we’re not getting the message to people that administer our codes and do our enforcement and that kind of thing.

One Joplin resident explained why the city was able to accomplish this more rapid rebuilding:

[W]hen you have the magnitude of that disaster, really the old way of doing things are suspended for a while until you create . . . whatever normal is. And so, you know, for instance—that would be and it’s in the news, but obviously we had many if not the majority of churches who were housing people in their building. OK, you don’t normally do that by codes and stuff, but you do it in that sense, and so that the government was realistic enough to know, the local government was realistic to know that there is a period of time when common sense—[when] codes and laws that are emplaced to protect people are suspended for the sake of the greater good.

Regulatory and zoning compliance issues did adversely affect some business owners. A hardware store owner heard his customers complain that there was one inspector “wandering around shutting jobs down for certain things. And it didn’t seem like the inspectors knew what they were looking for. So one guy says, ‘This is OK,’ but the other guy says, ‘That’s illegal.’” A physician reported having difficulty getting architectural plans approved because when a resident went to the city hall, he or she “just saw this mountain of rolls of plans, and they had two employees that did that job because they’re not prepared.” Joplin brought in extra inspectors and

plan reviewers, so these comments might simply reflect the large volume of building activity. Most business owners did not report issues with regulatory compliance or zoning uncertainty.⁸

City officials implemented a moratorium on new residential construction for sixty days within the disaster zone, which slowed rebuilding for a while but was implemented to expedite debris removal. FEMA agreed to pay 90 percent of the residential removal costs through August 7, and the State of Missouri the other 10 percent. FEMA offers this incentive for ninety days after a disaster declaration to minimize the blight resulting from lengthy debris removal. But the Joplin tornado was added to an already-existing disaster declaration for severe storms in the state earlier in May, so Joplin did not have a full ninety days for debris removal. The artificial time limit for FEMA payment of debris removal costs was unnecessary. When one government agency or another is ultimately going to pay for the debris removal, it makes little sense to impose arbitrary moratoriums that stifle rebuilding just to shift the costs between the different government agencies. Satellites allow rapid estimation of the volume of debris after a disaster, and the time limit for FEMA payment for debris removal should be extended when debris exceeds certain thresholds.

Perhaps the biggest contrast with New Orleans was the lack of comprehensive central planning of the recovery in Joplin. On the surface, Joplin might appear to have had a similar planning process in place in that the city government, at FEMA's recommendation, created the Citizens Advisory Recovery Team (CART) to draft a long-term recovery plan. CART allowed citizens to voice concerns and offer suggestions to city officials and produced a document titled *Listening to Joplin—Next Steps*, but it was never in a position to plan the recovery. CART had only an advisory role, with no legal authority or resources to implement a plan. Representatives of the business community made up 75 percent of the committee, which was important because delays often hit the business community hardest. As one city official stated,

I think . . . some of the recommendations they're going to make won't be doable. I mean this [CART] is a think tank, and sometimes think tanks supersede reality when you think about, "Gee, I'd love to have walking trails and sidewalks, and I love to have a park in my neighborhood, and I like to have all these things that make the cities good." But the question is—I mean, are they affordable? And we, as a council, have to decide on the things are affordable. And we have to look at, at remembering that that 20 percent of our town was destroyed, but we still have responsibility to take care of the other 80 percent that wasn't, and we have a responsibility to make sure that we are good money managers.

8. David Skarbek (2008) documents that Florida had few problems allowing in out-of-state contractors after the state suffered four hurricane landfalls in 2004, echoing the experience in Joplin.

This same city official goes on,

And I think there will be some—there’d probably be some people in the CART who gets their feelings hurt because we don’t accept [all] of the things they want to do. But they don’t have the responsibility of being elected, or they don’t have the—they’re not accountable to anybody. And that’s one of the differences in—I mean, they don’t have to sit up there every Monday, not make any tough decision[s]. They only got a meeting design on what’s best for—what they think is best for the development of the city. And we have to look at the development of the whole city, not just the footprint of the storm.

The Joplin plan was very brief compared with other recovery plans, as indicated in Table 1, which reports the page length of recovery plans put out by selected communities recently affected by disasters. Joplin in practice did not have the same planning process as other disaster-stricken communities.

Table 1
Page Length of Disaster-Recovery Plans

County or City	PDF Page Lengths of Long-Term Recovery Plan Documents
Charlotte County, Florida	56
Chambers County, Mississippi	123
Galveston, Texas	147
Greensburg and Kiowa County, Kansas	86
Joplin, Missouri	
<i>Listening to Joplin</i>	19
<i>Listening to Joplin—Next Steps</i>	26
Tuscaloosa, Alabama	
<i>Tuscaloosa Forward</i> (strategic community plan)	170
<i>Generations Plan</i> (long-term infrastructure)	80

Sources: For these plans, see http://www.tbrpc.org/tampabaycatplan/pdf/resource_docs/case_studies/W_CharlotteCty_LongTermRecoveryPlan.pdf; http://www.tbrpc.org/tampabaycatplan/pdf/resource_docs/case_studies/Chambers_TX_LTRPlan.pdf; <http://www.cityofgalveston.org/documents/Galveston%20Long-Term%20Community%20Plan.pdf>; http://www.epa.gov/region7/cleanup/greensburg/pdf/GB_LTCR_PLAN_Final_HiRes070815.pdf; <http://joplinareacart.com/wp-content/uploads/2011/11/Listening-to-Joplin-Report-to-City-Council-FINAL.pdf>; <http://joplinareacart.com/wp-content/uploads/2012/01/ITF-01-05-2012-Next-Steps-downloaded-Jan-12.pdf>; <http://tuscaloosaforward.com/recovery-planning/the-plan/>; <http://tuscaloosaforward.com/documents/Tuscaloosa%20Forward%20-%20August03.pdf>.

Regime uncertainty involves subjective perceptions of possible changes in the rules of the game, changes that may not materialize. As a consequence, avoiding regime uncertainty in a given place and time can be challenging. Nonetheless, we contend that a lack of regime uncertainty explains much of the difference in recovery in Joplin versus the very slow recovery in New Orleans. The one policy that might have generated regime uncertainty in Joplin was the aforementioned sixty-day building moratorium: residents may have feared extension of the moratorium to enable central planning of recovery. Several factors argue against such an interpretation, however. First, interviews reveal no evidence of uncertainty about rebuilding. Interviewees mentioning the moratorium expressed frustration about not being able to rebuild when ready, not concern about being allowed to rebuild. Second, the moratorium applied only in the disaster zone and did not apply to commercial construction and residential repairs. If the moratorium were intended to open the door for a planning effort, it would likely have been more comprehensive. Finally, the city council took actions to signal preferences for minimal intervention in the recovery process, including lifting the moratorium as portions of the debris removal zone were cleared.

State and Federal Assistance

Missouri governor Jay Nixon issued several executive orders temporarily waiving laws and regulations to assist response and recovery. Executive Order 11-10 gave the director of the Missouri Department of Health and Senior Services and the State Board of Pharmacy the “full discretionary authority to temporarily waive or suspend the operation of any statutory or administration rule or regulation currently in place under their purview in order to best serve the interests of the public health and safety during the period of the emergency and the subsequent recovery period.” This executive order allowed pharmacists to issue prescriptions so patients could obtain a thirty-day supply of medicines. Executive Order 11-11 eliminated all motor vehicle titling and registration fees for disaster zone residents and eased the process to receive duplicate or replacement driver licenses, nondriver licenses, certificates of motor vehicle ownership, license plates, and tabs. Executive Order 11-17 established a state Resource, Recovery, and Rebuilding Center in Joplin, which housed staff from at least thirteen state departments to help residents affected by the disaster navigate bureaucratic processes.

The state informally waived other laws and regulations that might have imposed a hardship if strictly enforced. For instance, St. John’s Hospital was damaged beyond repair in the tornado and moved many of its operations to tents and modular units. This move required many layers of bureaucratic approval, but the state granted a two-year waiver to operate a psychological unit out of a wooden building. An official from St. John’s reported that the hospital was “able to get through the licensing stuff pretty quickly, and that part worked well. We were able to get the state and Medicare

and others to work very quickly with us to make sure we could keep operating in different environments.”

Freeman Hospital in Joplin was not in the tornado path and served as the main triage center for victims. A hospital representative recalled, “And everybody just came in. And by about three hours [after the tornado hit] we have 135 doctors here. And mostly are some from St. John’s, but all of a sudden people are showing up from Rogers, Arkansas, and Tulsa, Oklahoma. And one of the interesting things was that in normal situation [when] a doctor [not on staff] walks in, you’ve got to credential [him or her] in some way. But that night we needed arms and feet. And I remember about 2:30 in the morning our chief medical officer turned to me and said, ‘God, I hope all these people are doctors.’” Governor Nixon informally relaxed credentialing requirements after talking with the managers of Freeman Hospital on the evening of the tornado. The state is working to formalize the Joplin arrangement for reciprocity for health care workers after an emergency declaration.

At the federal level, FEMA played largely a subsidiary role to the civil society response. Several residents reported that FEMA officials arriving in Joplin were shocked that the streets had already been cleared and that the response-and-recovery process had already been initiated. A FEMA official was heard to ask rhetorically, “Does everybody in Joplin own a chainsaw?” In addition to standard types of assistance, as noted earlier, FEMA installed more than 600 temporary housing units in the Joplin area and paid for 90 percent of the costs of debris removal in the expedited removal zone as well as construction of temporary school facilities.

We uncovered little evidence of the obstructionist behavior by FEMA chronicled after Katrina. FEMA instead cooperated and coordinated with national charities. The FEMA Reorganization Act of 2006 passed in the wake of Katrina required the agency to cooperate with charitable and faith-based organizations. FEMA has embraced this role, particularly through NVOAD, and had a staff member in Joplin to liaise with charitable organizations.⁹

Reopening Joplin Schools

Four schools within the Joplin Public School District were destroyed in the tornado, including the district’s only high school; four other schools were damaged. The district suffered \$150 million in property damage, including the loss of athletic facilities, libraries, and buildings.

The tornado occurred an hour after the graduation ceremony for Joplin High School’s class of 2011, yet schools opened as scheduled on August 17 for the 2011–12 school year, less than ninety days later. The opening of schools marked an

9. Christopher Coyne, Russell Sobel, and Peter Leeson (2007), however, argue that the FEMA reorganization did not change some of the fundamental limitations on federal government response (see also Leeson and Sobel 2007a; Sobel and Leeson 2007).

important component of life returning to normal for Joplin, a sentiment reflected in many of our interviews. Joplin schools were able to open on time due to the imaginative and determined efforts of School Superintendent C. J. Huff, with assistance from many in the school system, city, and state governments as well as in the private sector. Yet Huff's entrepreneurial efforts would not have been sufficient if regulations had not been suspended, relaxed, and in some cases ignored.

Superintendent Huff announced to the media within days of the tornado that the schools would open on time, even though a plan to accomplish this goal had not yet been formulated, and that even summer school would still be provided. The announcement created the expectation that schools would open on August 17, and the plan was completed in line with this expectation. The parties involved—including district staff, contractors, architects, and school board members—did not want to be responsible for disappointing the public. Many of these parties might otherwise have felt that reopening in August involved too many obstacles and thus might not have attacked the challenge with determination. The district had recently built three schools and so fortunately already had working relationships with architects and contractors in the area. Superintendent Huff took advantage of competition between contractors and architects and the lure of contracts for building permanent schools to ensure completion of construction on temporary school facilities by August 17.

The school district benefited from relaxation of regulatory burdens by city, state, and federal governments. The city approved "plans" for the temporary schools based on pencil and paper sketches instead of insisting on formal plans. Governor Nixon's executive orders exempted the district from bidding processes for contracts for the temporary facilities, avoiding a two- to four-week delay. The district inadvertently failed to comply with federal procurement regulations, which applied because FEMA paid for construction of the temporary school buildings. Finally, school board members did not use the tornado aftermath to grandstand, hold hearings, or otherwise attract attention to themselves.

School officials reported that on the first day of the school year the enrollment in Joplin schools was 98 percent of what it had been the first day of the previous year, a sign that families displaced by the tornado had stayed in the area. The commitment to reopen the schools for the new school year announced in the immediate aftermath of the tornado was undoubtedly an important contributor to this outcome. Without this assurance, families might have looked to move out of Joplin so their children's education would not be disrupted. The reopening of schools played an enormous role in solving the coordination problem Joplin residents faced in rebuilding. As one Joplin resident, a pastor of a local congregation, expressed, "[O]ne of the things that's crucial to the community is the schools opening back up on schedule. I don't think you could underestimate the power of that for a community to have its routines reestablished. The people who got that [and] pulled that off—heroes, absolute heroes. Our school superintendent—hero."

Conclusion and Findings

The aftermath of Hurricane Katrina revealed numerous cases of government failure alongside substantial contributions by the voluntary sector. Katrina sparked debate about the appropriate roles for the private and public sectors in disaster response and recovery after a decades-long trend toward greater government involvement in and central planning of disaster recovery. Recovery from the deadliest U.S. tornado in more than sixty years provides a number of important contributions to this debate.

The voluntary sector, as after Katrina, made a substantial contribution to the response in Joplin. Businesses kept employees on payroll, committed to reopening, and responded to customer needs. Charitable organizations, led by the NVOAD, have worked on improving nonprofits' response efficiency. Many high-skilled volunteers assisted in the Joplin recovery, and physical and virtual bulletin boards helped deploy the community's embedded resources. Voluntary-sector response-and-recovery efforts are notable because the Joplin tornado occurred less than one month after a historic southeastern tornado outbreak. We found no evidence of charitable organizations or national retailers lacking the resources to respond in Joplin despite the earlier disaster.

Joplin provides a model of how city and state officials can facilitate recovery by temporarily relaxing regulations, hiring extra building inspectors, waiving state procurement and bidding rules, and resisting the temptation to micromanage. Regulatory relief allowed local businesses to maintain operations and quickly recover and the Joplin Public Schools to open on time for the 2011–12 school year. Joplin also demonstrates that disaster recovery does not have to be centrally planned. The city government created a citizens board with strong business representation and merely advisory authority, thus preventing the regime uncertainty observed in New Orleans.

FEMA partnered effectively with voluntary organizations in Joplin, in contrast with the confrontational pose observed after Katrina, due to liaisons mandated in the 2006 FEMA Reorganization Act. Joplin is recovering, which should not be surprising given the typically mild effects that tornadoes have on the labor and housing markets (Simmons and Sutter 2011). Communities' natural resiliency has long been evident, as illustrated by the recoveries from the Chicago Fire of 1871 (E. Skarbek 2013) and the San Francisco Earthquake of 1906 (Vale and Campanella 2005) and even by Germany and Japan's speedy recovery after World War II (Hirshliefer 2008). John Stuart Mill observed more than 150 years ago "what has so often excited wonder, the great rapidity with which countries recover from a state of devastation; the disappearance, in a short time, of all traces of the mischief done by the earthquakes, floods, hurricanes, and the ravages of war. An enemy lays waste a country by fire and sword, and destroys or carries away nearly all the moveable wealth existing in it: all the inhabitants are ruined, and yet in a few years after, everything is much as it was before" (1848).

Disaster relief in the United States exhibits polycentricity in that numerous government agencies and private organizations participate in the process (Coyne and

Lemke 2011). The growing role of government in disaster recovery presumes the inefficiency of voluntary responses and threatens this polycentricity, but the opposite has occurred: greater government involvement has led to escalating costs, corruption, and delay in recovery. Joplin provides an example of the power of civil society to rebuild a community after disaster and of how government officials can facilitate the recovery by accommodating polycentricity.

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