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COVID-19
 Viewpoint

Disaster Resiliency of U.S. Local Governments: Insights to Strengthen Local Response and Recovery from the COVID-19 Pandemic

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Abstract: *This research presents implications of the global pandemic for local government resiliency in the United States. The authors explore insights from local government officials and managers on the front lines of response and recovery efforts to the biological natural disaster. Findings from the latest nationwide survey of U.S. local governments regarding their preparedness for weather-related natural disasters also inform responses to the current crisis. Results indicate that local governments are innovating and taking strategic actions to fight the virus, even as COVID-19 has exposed social inequities that are exacerbated as the virus spreads. Survey findings of disaster readiness of local governments to weather-related disasters shows that small, resource-poor governments will not be able to respond well and social inequities will grow. Policy strategies at all levels of government must recognize and account for these inequities as threat of this virus subsides, to support stronger, more effective readiness for the next biological catastrophe.*

The U.S. federal government declared a public health emergency on January 27, 2020, in response to the COVID-19 pandemic. Since then, multiple federal agencies, state health departments, and research hospitals have been working closely together on disease surveillance, contact tracing, testing, and treatment of coronavirus infections (U.S. Department of Health and Human Services 2020). The federal government’s economic response to the crisis has been massive. The Coronavirus Aid, Relief, and Economic Security (CARES) Act (H.R. 748), for example, provided more than \$2 trillion in fast, direct economic assistance to individuals, families, small businesses, hospitals, and state and local governments (U.S. Department of the Treasury 2020). Funding initiatives continue to be developed at the federal level to funnel resources down the intergovernmental system to stop the spread of the virus and to reopen the nation’s economy.

elections, natural resources, public safety, courts, housing—the list goes on (Council of State Governments 2020). Governors have leapfrogged presidential edicts to partner with neighbor states, creating regional coalitions to develop and implement strongly coordinated, focused strategies to share medical supplies, protect vulnerable populations, and reopen the economy (Strauss 2020). State fiscal responses are herculean. Legislatures have appropriated funds for COVID-19 pandemic-related expenses, including telehealth services, unemployment benefits, and workforce protections for residents in quarantine or isolation (NCSL 2020).

Local governments, as direct service providers to local individuals and communities and as first responders in times of disaster, have grappled with COVID-19 pandemic responses on the ground at an unprecedented scale, despite sometimes immediate and major disruptions to their budgets (Reutter 2020). In the face of truly catastrophic circumstances, many local government managers have stepped up and, rather significantly, provided leadership, calming guidance, and strategic vision to support continued provision of essential services for their residents, even as the public health crisis intensified and spread. In New York City, for example, local government managers worked to put 6,000 homeless individuals, some of whom tested positive for COVID-19, into local hotels to mitigate the crisis in homeless shelters (Connelly 2020). In Baltimore, Maryland, the city established a diaper delivery service to distribute 500,000 diapers to nearly

State governments have coordinated major responses within and across their borders to battle the COVID-19 pandemic as well. Governors in all states have activated U.S. Army and Air National Guards to provide critical interventions, including staffing statewide call centers and supplying additional face masks and test kits as the pandemic intensifies across states (Willingham 2020). The list of executive orders issued by governors in response to the virus is breathtaking—including for allocation and inventory of personal protective equipment, management of utilities, and emergency protocols covering virtually every state function, such as education, employment,

10,000 vulnerable young children over a two-month period (City of Baltimore 2020). In Albany, Georgia, city officials held daily press briefings to inform the public about progress regarding COVID-19 and initiated a grassroots effort, #MaskUpAlbany, to encourage face masks, even before the U.S. Centers for Disease Control and Prevention (CDC) adopted the recommendation (WALB 2020). Tulsa, Oklahoma, and Dallas, Texas, are also notable examples of local governments that are providing soft loans to local businesses and cash assistance to families to mitigate the impact of the crisis in their communities (City of Tulsa 2020; City of Dallas 2020).

The COVID-19 pandemic has tested government emergency preparedness efforts around the world and at all levels, perhaps most especially at the local government level. Many local governments have become adept at managing natural weather-related disasters, as severe winter weather, hurricanes, and flooding become more frequent occurrences that instigate a network of emergency response and recovery efforts. In the case of these types of disasters, the intergovernmental system approach in the United States is federal support, state coordination, and local response in the aftermath of an event. As disasters occur, savvy local officials communicate up the chain—to the governor, congressional representatives and senators—to garner a presidential declaration of disaster in order to be able to apply for and receive federal recovery funding. Importantly, localities must tally losses after disaster abates and account for such losses to federal and state governments before relief is forthcoming.

With COVID-19, however, local governments have been hit by a catastrophe that does not square easily within the framework of weather-related natural disasters. In the case of a weather-related catastrophe, the event occurs and ends, first responders engage, damages are surveyed, and then cleanup advances the recovery phase. While these types of disasters can occur across a wide swath of territory, covering multiple jurisdictions, the damage sites are visible and, once the event concludes, have borders. Thomas Reeves, community and media relations officer of Modesto, California, explained why a pandemic is different from other natural disasters his community is familiar with, such as wildfires:

We will face two or more crises at the same time by this summer [2020]. With a fire, you know where it is and you can stay away from it, you can watch boundaries move, but for most people, the fire is avoidable, usually fast moving and short lived and you can see where it is. With this situation [pandemic], it is invisible and slow-moving, and we are all at risk, no one is immune, and it is everywhere. (Alliance for Innovation 2020)

A pandemic can strike across borders, at any time, and it is unseen—in the case of COVID-19 and without universal testing, carriers of the virus may exhibit no symptoms, adhere to preventive guidelines, but still spread it to others. Viral hot spots may loosen stay-at-home restrictions as confirmed cases and deaths diminish, only to experience a resurgence in its spread later. The CDC warning of a second wave of the novel coronavirus in conjunction with the start of the flu season in late fall 2020 attests to the insidious nature of this biological natural disaster (Sun 2020).

Another distinction between these types of natural disasters regards the movement of government fiscal support, how it is secured,

and where it lands. In the COVID-19 pandemic, there has been an exceptional flow of funds coming from the federal government with declarations of need after the fact or not necessary at all. The purpose of the funds was to support the front lines of health care—so that hospitals and health care workers can treat those physically affected by the virus. But also, federal funding sent to individuals, made available to private businesses, and allocated for all sorts of government functions such as transportation and housing was meant to keep the economy going, if limply. Local officials' reactions to the no- (or few-) strings-attached money went both ways. Sharon Candler, grants manager for Gwinnett County, Georgia, explained that the county received \$163 million in federal dollars that must be spent by the end of the year. Along with funding a cornucopia of social needs (food, housing, and child care), the money will be used for programs that have not been high priority in the past—reducing homelessness and food insecurity. According to Candler, these federal funds provide “the flexibility to address what we need to address.” Neighboring Cobb County, Georgia, commission chair Mike Boyce, however, expressed dismay that the federal government has left the choice to local governments. “When you do that, you open it up to the political process and then it gets kind of noisy” (Estep and Lutz 2020). At the other end of the spectrum, local governments with under 500,000 in population have been dependent on the generosity of governors to shift federal CARES Act funds downward. Alternatively, as noted earlier, in the case of weather-related disasters, local governments must account to the federal government, their state and insurance providers regarding damages and their costs first before the monetary aid arrives.

This research explores insights from local government officials and managers currently at the frontlines of response and recovery efforts to the biological natural disaster. We also study results from the latest nationwide survey of U.S. local governments regarding their preparedness for weather-related natural disasters. Findings indicate that local governments are innovating and taking strategic actions to fight the virus. Examples abound of public officials and managers engaging and steering proactive, nimble actions espoused by New Public Management in conjunction with collaborative efforts promoted by New Public Service (Denhardt and Denhardt 2000). In fact, this crisis has nudged governments not only to generate “new packages of routines and processes” characteristic of agile governance but to do so by breaking up and reforming traditional work groups and structures (Mergel, Ganapati, and Whitford 2020). Such actions are occurring, in light of or in spite of the fact that COVID-19 has exposed social inequities that have been exacerbated as the virus spreads and takes hold of localities (Duhigg 2020; Jacobson 2020; Nania 2020).

On the other hand, survey findings of disaster readiness of local governments to weather-related disasters show that small and resource-poor governments will not be able to respond well, if at all, and social inequities will grow. Management and policy strategies at all levels of government need to recognize and account for these inequities, keeping the public value of social equity at the forefront of actions to support stronger, more effective readiness for the next biological catastrophe. The article concludes with action strategies that can be engaged by local governments to navigate more effectively during and following the biological natural disaster that is COVID-19.

Research Methods

We have been conducting exploratory research over the last two years regarding U.S. local government fiscal resiliency in the event of a natural, weather-related disaster. The research assesses local governments' past experiences and current preparation efforts for these types of disasters through surveys, interviews, government document searches, and academic research. In September 2019, we partnered with the International City/County Management Association (ICMA) to conduct a survey of the natural disaster preparedness capacity of U.S. local governments, given the recommended best practices on natural disaster preparedness outlined by the Federal Emergency Management Agency (FEMA). Survey questions asked about the adequacy of financial resources to support response and recovery efforts, familiarity with protocols for obtaining state and federal disaster relief resources, existence of mutual aid agreements to share services, support

agreements with nearby governments and other entities, and disaster-related services and technologies in existence, such as emergency operations facilities and geographic information tracking systems.

With the advent of the COVID-19 pandemic, however, our work pivoted to examine how localities are managing through a biological disaster. We first went back to the U.S. federal government's national disaster response system and plan, to understand whether plans vary for different types of disasters. Tables 1 and 2 present these plans. Within a broader system of national disaster response (table 1) is embedded a robust system for responding to pandemics (table 2). The national disaster response system, generally, is designed to be bottom-up, from local to state governments and the federal government, but in the case of a pandemic, the response system more closely ascribes to a top-down approach.

Table 1 The National Disaster Response System in the United States

Core instruments and frameworks for national emergency response

(a) *The National Incident Management System*

- (i) It outlines a common approach to managing incidents or emergencies regardless of their size, scope, complexity, or cause.
- (ii) It provides a standardized but flexible incident management structure that emphasizes command and coordination among all stakeholders, as well as resource management and communication and information management.

(b) *National Response Framework*

- (i) It provides the core emergency management guidance on how the nation should respond to all types of incidents.
- (ii) It defines roles, responsibilities, and actions for federal departments and agencies to coordinate support for state and local governments.
- (iii) It also gives structures and procedures on how governments at all levels should work in unity with the nonprofit and private sectors in response to emergencies.
- (iv) The key components of the response framework are: "engaged partnership, tiered response, scalable, flexible, and adaptable operational capabilities, unity of effort through unified command, and readiness to act" (U.S. Department of Homeland Security 2019, 5).

Core instruments for pandemic response under the national emergency response framework

(a) *The Public Health Security and Bioterrorism Preparedness and Response Act of 2002*

- (i) It is designed to enhance the nation's ability to prevent, prepare for, and respond to public health emergencies and to provide effective assistance to state and local governments in the event of a public health emergency.

(b) *National Strategy for Pandemic Influenza*

- (i) It develops a broad strategy for responding to pandemics based on multiple federal statutes and regulations in place to manage incidents and emergencies.
 - (ii) It frames pandemic response based on three main pillars: "preparedness and communication, surveillance and detection; and response and containment" (Department of Homeland Security 2019, 16).
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Sources: CDC (2014); FEMA (2017); Homeland Security Council (2006); U.S. Department of Homeland Security (2019).

Table 2 Roles, Responsibilities, and Actions of Stakeholders in a National Pandemic Response

(a) *Federal government*

- (i) Federal response to a pandemic is a coordinated effort across multiple departments and agencies, including the Department of Health and Human Services, Department of Homeland Security, Department of Defense, Department of Veterans Affairs, and Department of Labor.
- (ii) The federal government will undertake surveillance and monitoring of the progress of the pandemic on a national and international scale, and support and sponsor the development and production of medical interventions.
- (iii) It will also support the response and mitigation efforts of state and local governments in a variety of ways, including deployment of personnel and expertise, and provision of material and equipment, diagnostic services and testing, and funding for related response activities.

(b) *State and local governments*

- (i) State and local governments are primarily responsible for detecting and responding to pandemics and implementing countermeasures to mitigate the human, social, and economic consequences of the pandemic.
- (ii) They will coordinate their response efforts with federal departments and agencies, and when needed, request for and distribute emergency supplies and medical interventions from national stockpiles to areas of need within their communities.
- (iii) They will work to enhance communication between their public health departments and private sector partners engaged in the response to a pandemic.

(c) *Nonprofit and private sectors*

- (i) The nonprofit and private sectors will be an integral part of the national response to a pandemic.
- (ii) They will leverage their resources and expertise in multiple areas, including public health (e.g., health care facilities and clinical laboratories), economic development, and community planning to support local, state, and national efforts to mitigate the pandemic.
- (iii) Businesses, corporations, and community and religious organizations will continue with the essential functions and services needed to sustain lifeline community needs.

(d) *Individuals and families*

- (i) Individuals and families will support state and local government efforts to contain the pandemic, including stay-at-home orders, social distancing protocols, self-isolation procedures, and travel.
 - (ii) Individuals will also support community response efforts through volunteerism and performance of civic and humanitarian duties.
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Sources: Homeland Security Council (2006); U.S. Department of Homeland Security (2019).

After assessing these plans, we began to solicit insights from local government managers currently dealing with the COVID-19 pandemic who have previously managed weather-related natural disasters. Thus far, we have received comments by email or telephone from local government managers in Albany, Georgia; Athens, Georgia; Bay County, Florida; and, Huntsville, Alabama. In addition to this ongoing study effort, we have collected an assortment of webinars and online conferences that include interviews of or presentations by local government managers provided by professional groups such as the American Society for Public Administration (ASPA), the ICMA, and the U.S. Conference of Mayors. The research also includes exploration of multiple media outlets, including newspapers, newscast interviews, and podcasts to understand how local government managers are conducting their work given COVID-19.

Local Government Managers: Managing “on the Fly”

Our data indicate that the COVID-19 pandemic is like other disasters in pushing local governments to both rescue and recover, as well as to continue with business as usual. According to Dayton, Ohio, mayor Nan Whaley, in a discussion about the current crisis and other types of disasters,

[In 2019,] our city was rocked by a series of completely unexpected events—a KKK rally, a series of mass tornadoes, and a mass shooting that claimed nine lives... Now while 2019 in Dayton was certainly an anomaly, it can also serve as a microcosm of what nearly every city in the country is going through today. Mayors must both try to lead their community through difficult and sometimes tragic times while also making sure there are sufficient resources to do the basic business of local government—picking up the trash, responding to medical emergencies, and keeping the economy moving. (U.S. Conference of Mayors 2020)

Also, while actions to manage a weather-related disaster may not be exactly the same as those necessary for a pandemic, building capacity and learning from experience square with both. City Manager Sharon Subadan of Albany, Georgia, an early hot spot of the COVID-19 pandemic in the state, told us that her government “had four presidentially-declared disasters (not including the pandemic) since 2017. We are practically experts at responding to tornadoes, straight-line winds, and hurricanes. The most significant difference [from the pandemic] is that there is an established ‘playbook’ for those responses.” Still, past disaster management efforts can provide support to local officials in certain ways. For example, having relationships with regional, state, and federal agencies, cooperative agreements, and communications frameworks across jurisdictions can save time when any type of disaster hits. The city administrator of Huntsville, Alabama, John Hamilton, explained to us the importance of groundwork necessary for effective disaster management: “If you are meeting your regional partners or state and federal partners for the first time after disaster strikes, you are too late. Spend time developing relationships and partnerships throughout your region as a matter of regular routine so you are ready when the event strikes.”

Managers throughout government must be ready to act quickly and decisively—to reorganize, repurpose, reposition, and rebudget

“on the fly.” Michael Jacobson, deputy director of the King County, Washington, Office of Performance, Strategy, and Budget, talked about going into the office on Sunday, March 1, 2020, and being given a one-minute briefing on his new assignment in the Community Mitigation Branch of the Health and Area Command—COVID-19 Response. He recalled instantaneously working to change messaging, change people, and change processes, conducting organizational triage during a health crisis. His command immediately started on communications—providing for the fielding of questions online by the public in 30 languages and creating a bot—something the county had considered but not instituted before the pandemic. Jacobson articulated immediate actions of his group:

- Relaying how people and communities can slow virus transmission
- Communicating nonpharmaceutical interventions
- Addressing cultural and language issues by hiring “community navigators” from specific language and ethnic communities for translating all communications forms and formats
- Creating a two-way form of communication
- Conducting regular webinars, technical assistance, and outreach
- Establishing a Pandemic Community Advisory Board (ASPA 2020)

Jacobson’s work was successful in “flattening the curve,” producing guidance in partnership with CDC, finding personal protective equipment for child care facilities, creating a small business grant program, and making additional funding proposals for federal funds. Yet, he explained that the social inequities of the crisis cannot be overlooked, as its spread “disproportionately impacts low-income communities of color as well as indigenous, immigrant and refugee populations” (Jacobson 2020). Jacobson determined that much of the success of the command’s actions was attributable to the fact that “in King County, social equity has been an important tenet of many of our decisions for responding to this pandemic.” His command’s efforts going forward include assessing working conditions physically in terms of what work can remain online and what must be conducted face-to-face, examining work spaces for changes to accommodate social distancing for service delivery, considering new services and programs needed, implementing budgetary limitations, and contemplating silver linings. Silver linings are those changes made in response to COVID-19 that worked, including a reduced jail population, increased homeless housing and motel occupancy, rapid acceptance of telemedicine, normalizing of teleworking, and an uptick in online service delivery that can be maintained and even increased (ASPA 2020).

Reeves of Modesto echoed Jacobson’s call for managers to lead, be decisive, and take instant actions, describing the role of public information officer as rising to the top and grabbing firm rein to manage frequent communications from multiple sources in a pandemic:

It is absolutely critical that any city’s or county’s public information officer is tied to the hip to the city manager because in this crisis the lead communicator has to hear firsthand what the jurisdiction is doing... The mayor’s message should be of hope and encouragement while the manager can detail what

is being done and what to do... There's always going to be a place for a media source to simply give out the bad news—here are the number of cases, number of deaths, how it's spreading. Then, the City can take on role of comforter. I would advise someone new to this field, first and foremost, that the lead communicator in a crisis must be identified and all power in creating, approving and getting the message out is with this lead communicator. Or, if you are not that person, be closely aligned with that person. Be the expert, follow your education and training, trust it and rely on it, and work with passion and strength, make sure you are aligned with the messaging. (Alliance for Innovation 2020)

The assistant city manager of Lone Tree, Colorado, Austin Good, emphasized necessary communication strategies with employees, too—setting deadlines, speaking of actions that can be taken, supporting experimentation, and congratulating employees on being adaptable. He explained the need to “redirect [employee] passion instead of shutting down ideas” (ICMA 2020). Good provided an example of rewording for more effective messaging to employees as encouragement (see figure 1).

With the onset of the COVID-19 pandemic, Lone Tree quickly reorganized staff into recovery initiatives covering core services, public health and safety, communications, economic resilience, and recovery. Employees helped leverage public support to start collaborative projects recognizing community champions, providing thanks to first responders and health care workers, supporting restaurants, initiating food and meal delivery, and making masks. Good emphasizes that regular communication with the public is vital (ICMA 2020). The communications mantra most local officials are chanting is that lack of information is just as bad as misinformation.

Online capacity came to Athens/Clarke County, Georgia, through “unplanned” innovation. Chief Financial Officer David Boyd told us,

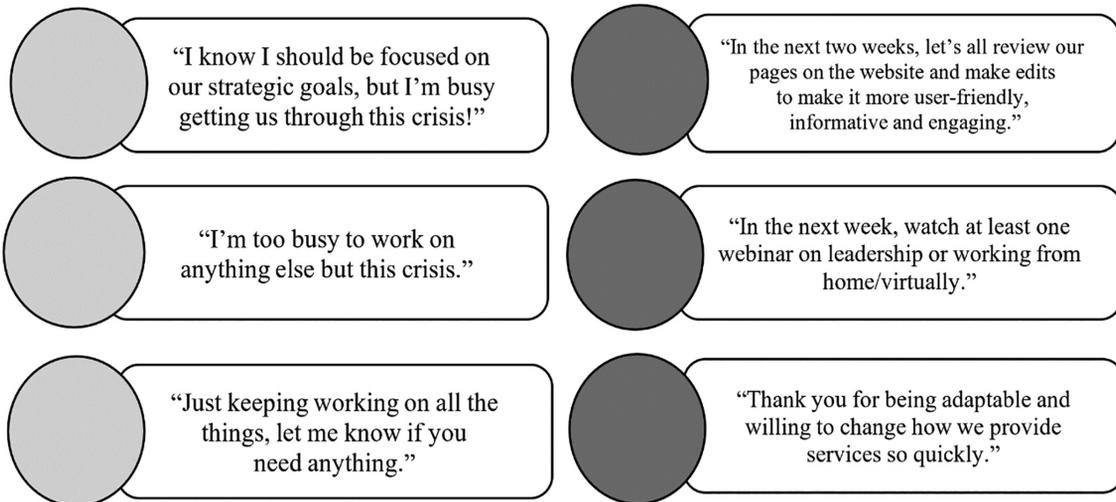
A couple of years ago, not really planning for any sort of disaster, we saw where technology was going, and instead of replacing desktop computers, we replaced with laptops and docking stations. This was so that when our employees went out and gave presentations or met with people, they had access to all the same information through their laptop. It just so happens that this worked out for us—we have VOIP and VPNs and are prepared for any distant work that has allowed a shift from in-office to home working. So, we haven't missed a beat in that regard. Now, there are things that must be done manually, so some folks have to be in the office, but we can deposit funds, conduct accounting and budgeting, and many of our functions, in-office or not. We sort of planned ahead without really planning ahead.

Carrie Mathes, procurement manager for Orange County, Florida, served as chorus to these public servants. She talked about developing and implementing a telework program over a weekend, deployed March 23, 2020, and impacting 27 of 34 staff, transitioning processes into a completely electronic environment. Her team converted a paper procurement system into a virtual one seemingly overnight, with all solicitations, bid openings and selection of vendors conducted online—a first virtual public opening was conducted April 29, 2020. Mathes noted that her department had been contemplating online procurement processes, but the crisis pressed practically instant conversion and the department will not be returning to a paper process (ASPA 2020).

Pandemic Scrambles Local Finances and Budgetary Decisions

Early revenue collection data and revenue loss estimates illustrate the depth of fiscal shock that is possible from COVID-19. A survey of local governments conducted in early April 2020 showed uncertainty around the fiscal effects of COVID-19 but widespread expectations of budget shortfalls (Maher, Hoang, and Hindery 2020). The depth of fiscal shock became more apparent

Communication matters



Source: ICMA (2020, slide 17).

Figure 1 Lone Tree, Colorado Assistant City Manager Strategies for Communicating to Employees.

with each passing month. For example, New York counties experienced a 26 percent decline in county sales tax collection statewide during the first four weeks of lockdown (New York State Association of Counties 2020). Los Angeles County projected a 50 percent to 75 percent decrease in sales tax revenue from March 2020 to the end of the fiscal year in June (Descant 2020). Georgia local governments stand to lose an estimated \$317 million to \$553 million in sales tax revenue (Bluestone and Buschman 2020). In North Carolina, estimates show the possibility of a 43 percent to 79 percent increase in counties deemed “fiscally stressed” or “very stressed” depending on the severity of sales tax revenue decline in fiscal year 2021 (McDonald and Larson 2020). An aggregate estimate of local government income and sales tax revenue loss was \$11.6 billion for fiscal year 2020 and between \$2.7 billion and \$20.3 billion for fiscal year 2021, according to one analysis by the Federal Reserve Bank of Cleveland (Whitaker 2020).

Given such tremendous fiscal shock, it is no surprise that local government financial decisions made in the current crisis mirror and are further amplified from those engaged for other types of disasters. The district manager of Pueblo West Metro District in Colorado, Nina Vetter, recounted short-term budget options that every manager considers—across-the-board cuts, deferred maintenance, a hiring freeze, and three months’ wait for things to cool down. But the COVID-19 pandemic has put government actions on steroids. Vetter discussed the requirement to rethink core services and contemplate if services stopped during the crisis that were not adding value are worth bringing back. She emphasized that change in her district spans employee reassignments to building restructuring to accommodate social distancing for employees and the public (ICMA 2020).

In our interviews, we learned from Albany manager Subadan that the most considerable difference to finances in a pandemic “is that our expenses associated with the COVID-19 crisis are much less than a natural disaster, but our revenue losses are much higher. And our revenue losses are not reimbursable.” Also, county manager of Bay County, Florida, Bob Majka, claimed that “midterm and long-term revenue sources should run the same impact and recovery time line, 12 to 36 months or more, as a hurricane. The variables that will impact the time line are dependent on the amount of dislocation of businesses and residents, and the pace of infrastructure restoration and reconstruction.”

City administrator of Baraboo, Wisconsin, Kennie Downing, discussed pivots made by small cities during the crisis to support economic recovery. This city tapped into tax improvement district funds and undesignated economic development funds, creating a \$250,000 small business emergency loan program targeted to for-profit businesses with 25 employees or fewer. They are making \$5,000 loans available to businesses to use for mortgages, leases, payroll, or whatever is needed to stay afloat. Businesses must be current with all city bills and not in bankruptcy, and those securing loans will not be charged interest, with notes due in July 2021. Since the program started, the city has received 15 applications and approved 14, with all transactions taking place online. Downing explained that they are working on a similar plan for nonprofits (ICMA 2020). As businesses and restaurants reopen in the State of Florida, City Manager Norton Bonaparte of Sanford pressed

economic development by reviewing local ordinances of public spaces, specifically lifting limits on how far restaurants can leech into these spaces to accommodate returning customers and offer social distancing at the same time (ASPA 2020).

In the end, the ability of local governments to continue to pay for regular services will be more challenging than paying for pandemic response. The U.S. Conference of Mayors (2020) has a “Fiscal Pain” tracker to compile revenue and budget effects of the COVID-19 pandemic on cities. The tracker captures immediate and projected revenue losses and budgetary reactions including, furloughs, hiring freezes, deferment of capital projects and service restrictions. Examples are stark, with cities evidencing vast reductions in public safety and emergency services, among others taking a hit. The federal government provided funds to reimburse local governments for pandemic costs but did not provide funds to counter revenue losses, at least in the first rounds of stimulus. Thus, the disaster costs should not cripple local governments, but the long-term revenue fallout from the pandemic coupled with the need to fund regular, ongoing services will be a primary and perhaps overwhelming strain.

Managing Weather-Related Natural Disasters Informs Managing a Pandemic

Local governments have innovated, repurposed, and applied lessons from past disasters; however, the ability of local governments to undertake those efforts varies significantly. This research highlights the foregoing management strategies for the purpose of learning as the COVID-19 pandemic continues, but we fully recognize that learning without capacity cannot spread. Capacity takes two paths here—underlying resource capacity of a local government and pandemic-impacted capacity. For example, one local government may be resource poor prior to the pandemic and struggle to respond given the underlying resource constraints. Another local government may be resource rich prior to the pandemic but then particularly hard-hit by the pandemic based on the local economy. Some communities may fall into both capacity gaps—resource poor before the pandemic and particularly damaged because of the pandemic.

This section examines key findings from the latest national survey on weather-related natural disaster preparedness to inform policy strategies that could help spur agility and innovation across local governments during the COVID-19 pandemic. The survey, conducted in partnership with ICMA and distributed by email to chief administrative officials in a sample of 4,932 local governments, realized a response rate of 18 percent (901 responses).

Weather-related natural disaster preparedness, emergency response, and subsequent economic recovery require that local governments have critical mechanisms in place before a disastrous event. Preparations include adequate financial resources available to support relief and recovery efforts, an up-to-date disaster plan that lays out roles and responsibilities of government employees and other external stakeholders, familiarity with protocols for securing state and federal disaster relief resources, mutual aid agreements to share services and lend support with neighboring jurisdictions, and specific services and technologies such as emergency operations centers, offsite information systems, and backup data storage for key government records (FEMA 2017; U.S. Department of Homeland Security 2019). Importantly, government employees should be familiar with the

disaster plan, and protocols should be consistently practiced. Relevant partners and the public, at large, should be aware of their local government’s disaster plan, too. These critical mechanisms are essential for achieving an effective response to and recovery from a pandemic, too. The existence of any of these preparations can promote nimbleness for local managers to take actions to combat the virus.

Tables 3 and 4 present a list of selected survey questions engaged in the survey regarding U.S. local government resiliency in the event of a weather-related disaster. Most of the responding governments have experienced a federally declared disaster in the past five years and expressed familiarity with state and federal disaster relief application protocols. More than 60 percent indicated having financial resources available that support relief and recovery efforts (general fund reserves or unrestricted funds, insurance, departmental funds, or contingency/emergency funds). At least two-thirds have services and technologies for disaster recovery efforts (backup data storage for key records, emergency operations center, detailed GIS map of community assets, or offsite information systems). These governments are likely to have a number of plans and agreements in place to account for a disastrous event—hazard mitigation plan, continuity of operations plan, or standalone disaster recovery plan, predisaster contracts for emergency management and debris removal and public safety and public works mutual aid agreements with neighboring jurisdictions. Further testament to groundwork relationship building, more than half have established formal partnerships with local nonprofit, community, and/or religious organizations to be activated after a disaster. A majority (at least 54 percent) have conducted a capital asset vulnerability assessment. Alternatively, 61 percent of local governments have not implemented any disaster training exercises to prepare for disaster.

To understand variation across governments, we analyzed survey responses using item response theory (IRT). IRT modeling uses a collection of items or questions in a survey to measure an unobservable latent trait and analyzes how each individual item, or group of items, relates to the latent trait (Birnbaum 1968; de Ayala 2009). We are able to characterize survey respondents given where they fall on the latent trait. The results yield a measure of natural disaster preparedness as a latent trait; this trait is comprised of seven items from the survey (tables 3 and 4) and is scaled on a continuum from 0 to 7. The analysis differentiates local governments based on their latent trait measure across other variables such as fiscal capacity.

Our major finding from the IRT modeling is that local governments with less fiscal capacity tend to be less ready for disasters. Local governments of stronger fiscal capacity (annual budget exceeding \$100 million) achieve a higher score (4.8 out of 7) on the disaster preparedness scale, whereas local governments of smaller fiscal capacity (annual budget less than \$100 million) achieve a lower score (3.1 out of 7) on the disaster preparedness scale. This speaks to the social inequity implications of these types of disasters—major natural disasters make the poorer, poorer, if not the rich, richer. In addition to less readiness, poor communities often suffer most heavily from disasters for several reasons—they do not have the capacity to apply for aid, are not prepared with the data needed that costs out property inventory and assets lost, or even if they do have the data, tallied costs do not reach federal minimal levels to be funded. For example, Murray County, Georgia, suffered damages from a tornado in April 2020, but FEMA explained that no support would be forthcoming. Approximately 254 homes were affected by the tornado and 62 were destroyed, mostly mobile homes. According to County

Table 3 Latent Trait Questions on Resources, Protocols, Accounting, and Training, Items 1–4

(1) In the event of a major disaster, indicate if any of the resources below are available to support relief and recovery efforts in your jurisdiction:	
General fund reserves or unrestricted funds	80.8
Insurance	75.7
Departmental funds	62.8
Contingency or emergency funds	53.2
Debt/borrowing	40.2
Other	22.1
No resources identified	4.0
(2) In the event of a major disaster, is your local government familiar with protocols for securing state and federal disaster relief resources?	
Yes (have applied for these resources in the past five years)	58.3
Yes (although, have not applied for resources in the past five years)	36.1
No	3.7
Don’t know	1.8
(3) Has your local government undertaken (or is it in the process of undertaking) any of the following types of assessments?	
<i>Financial accounting/valuation of all capital assets vulnerable to a major disaster</i>	
Yes (or in process)	69.0
No	31.0
<i>Risk analysis to determine which facilities or critical assets/features of the community (e.g., major employers/industries, housing stock) are most vulnerable to a major disaster</i>	
Yes (or in process)	62.8
No	37.2
<i>Review of your community’s recovery capacity, i.e., the financial, human, organizational resources available to support recovery and restoration after a disaster</i>	
Yes (or in process)	54.7
No	45.3
(4) Has your local government implemented any disaster training exercises that included postdisaster economic and community recovery and restoration scenarios?	
Yes	38.6
No	61.4

Source: ICMA Local Government Disaster Resiliency and Recovery Survey (2019). Amounts are expressed as a percentage of the total. The total number of respondents is 902, but the number of respondents differs for each survey question.

Table 4 Latent Trait Questions on Contracts, Mutual Aid, and Technology, Items 5–7**(5) Does your jurisdiction have any of the following predisaster contracts in place to support postdisaster recovery and restoration?***Emergency management*

Yes	70.7
No	29.3

Debris management

Yes	50.6
No	49.4

Temporary housing (e.g., hotels, dormitory space)

Yes	24.6
No	75.4

(6) Mutual aid is an agreement to share services and lend support between jurisdictions, typically in times of crisis. Which types of mutual aid agreements does your community have in place with neighboring jurisdictions?*Public safety (police, fire, EMS)*

Yes	98.0
No	2.0

Public works

Yes	61.4
No	38.6

Animal control

Yes	46.2
No	53.8

(7) Does your local government have any of the following services and technologies for use during postdisaster recovery?*Backup data storage for key local government records*

Yes	94.4
No	5.6

Emergency operations center

Yes	88.2
No	11.8

Detailed GIS map of community assets

Yes	73.6
No	26.4

Offsite or hardened information systems

Yes	68.5
No	31.5

Source: ICMA Local Government Disaster Resiliency and Recovery Survey (2019). Amounts are expressed as a percentage of the total. The total number of respondents is 902, but the number of respondents differs for each survey question.

Commissioner Greg Hogan, “the dollar amount [of damages] just didn’t add up.” FEMA advised the government that “the value of the damaged property in the county did not reach the minimal \$7 million to qualify for federal relief funds” (Oliver 2020).

While these findings about emergency preparedness are specific to weather-related events, the findings can also provide policy insights for dealing with the current biological disaster, the coronavirus pandemic. That is, localities must prepare because there is no reliable calvary. In talking of small local governments being left behind, Assistant City Manager Good from Lone Tree bemoaned,

[Your city will] get lost in the shuffle if you are small, less than 25,000 people. The smaller you are, the harder it is to get that money. Rattle your saber and make a lot of noise [to get federal relief funds]. The reality for the time being, there is no one coming to save us. We have to figure it out. A community our size is struggling. (ICMA 2020)

Importantly, “the coronavirus pandemic has taught cities that bigger bureaucracies are not all that reliable” [to help] (Beyer 2020). Pittsburgh, Pennsylvania, mayor Bill Peduto portends a bleak future for these governments:

If we don’t invest in [the economically vulnerable regions], it is putting the final nail in the coffin. It is saying to an area of

America that we don’t have the capacity to help you. Stress is always like this. Areas that are vulnerable will break. (U.S. Conference of Mayors 2020)

Discussion and Conclusion

The fiscal fallout from disasters is mind-boggling. Natural, biological, and man-made disasters (such as a train wreck or ransomware attack) are costly and can quickly overwhelm local governments’ ability and capacity to function. Globally, direct economic losses from just natural disasters alone from 1998 to 2017 amounted to US\$3 trillion, with the United States suffering the greatest economic losses of any other country, at \$945 billion (CRED and UNISDR 2018). According to a recent estimate by the Asian Development Bank, the economic cost from the COVID-19 pandemic may top \$4 trillion (Alegado 2020). The U.S. economy is expected to take a hit reaching almost a quarter of the \$4 trillion total at \$973 billion (Perryman 2020).

Local governments have met these challenges with leadership and tenacity, learning from each other and from past disasters. Our survey research with the ICMA points to learning on the part of local governments that have managed prior disasters and robust preparedness on a number of fronts for weather-related disasters. Vital in this current crisis, leaders and staff of these governments exhibit the values of agile governing that require strongest attention to people over process; operational digitized systems over antiquated

paper trails; collaborative, not adversarial problem-solving across sectors; and nimbleness of response in the face of faulty, inadequate, old, or no plans (Mergel, Ganipati, and Whitford 2020).

Ultimately, agile governing calls for the celebration of small wins gained from action rather than avoidance of failure from inaction. COVID-19 has pushed local officials to engage an agile-adaptive approach to management that requires decisiveness and relatively quick actions that have led to greater efficiencies of operations, more participation by employees and the public in determining and conducting necessary work, and improved government transparency (Moon 2020).

This research also highlights the critical need for officials in governments of least capacity, most especially, to become expert in initiating and perpetuating collaborations, especially those that enhance community benefits or collaboration for community benefits (Min, Lee, and Yang 2020). Our findings indicate that local officials in these communities are up to the task—by virtue of their agile actions evidenced and given recognition of the social inequities that COVID-19 and responses to it have exposed. Collaboration for community benefits requires boundary spanning and inclusiveness—carrying out public purposes by engaging a wide net of participants—public, private and nonprofit. Such collaboration is not only mutually beneficial to contributing parties but supports the public good (Min, Lee, and Yang 2020). Given problems created by the current crisis and with the inevitability of future ones to come, small town government officials must push actions that foster a mind-set that extends such a “whole of community” benefit approach.

Nonetheless, even in the face of local governments’ rather extraordinary actions to date to combat effects of COVID-19, these governments, and particularly those with limited capacity, require substantial assistance from state and federal governments when confronted with disasters of this scale. Even prior to the pandemic, local governments across the nation faced dire threats from more frequent and severe weather-related disasters. The pandemic has unearthed real social inequities that exist and can be exacerbated with each subsequent disaster experienced. Policy makers must devise a fiscal support system that recognizes these social inequities that prevent preparation, mitigation, and recovery capacity and are intensified with every disaster. Additionally, going forward, the policy arena needs fiscal thinkers to be in climate change and disaster-related conversations—bringing the full cost to bear of these events on communities and making the case for greater intervention to prevent such catastrophes. In sum, this research highlights points of evidence for practice necessary to strengthen local government response and recovery from the coronavirus pandemic:

- Government managers must continue with agile governing actions—to lead and motivate, communicate clearly and effectively, collect intelligence, act decisively, and keep adapting and innovating.
- Local governments must collaborate for community benefits—by creating, maintaining, and expanding networks and shared learning with neighboring jurisdictions to strengthen partnerships that advance whole of community response and recovery.
- Federal and state fiscal support to local governments should consider and address fiscal disparities and social inequities

across these governments—special attention should be given to small local governments of limited capacity.

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