

Micro-, Small-, and Medium-sized Enterprises Facing Complex Events: Natural Hazard Recovery During a Pandemic

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Abstract Small and medium-sized enterprises in areas vulnerable to natural disasters and other extreme weather events (EWEs) are particularly noteworthy in the context of COVID-19. There were at least 18 major natural disaster declarations made between March 13, 2020 when the Federal State of Emergency for the COVID-19 pandemic was declared. These events likely impacted MSMEs' ability to open and adjust to pandemic circumstances. A U.S. Department of Commerce survey conducted in late summer 2020 was the first in a longitudinal study of business resilience in the face of complex events that arise from COVID-19 impacts in addition to other stressors and shocks experienced by U.S. businesses. This paper presents a survey-based longitudinal research approach to study the impact of COVID-19 on SMEs and a subset thereof that had experienced a natural disaster or EWE pre- or during the COVID-19 transmission period. Initial findings from over 1300 MSMEs are presented and implications are notes.

Keywords: business resilience, complex events, planning, mitigation, adaptation, Micro-, Small-, and Medium-sized Enterprises

1 Extended Abstract

Small and medium-sized enterprises (SMEs) make up 44 % of U.S. economic activities and are the lifeline for many local economies, employing 59 million people in 2018 (SBA, 2019). In the wake of the Coronavirus disease 2019 (COVID-19) pandemic, SMEs are greatly impacted through supply and demand-side difficulties, such as limiting customer interactions, employee availability, as well as larger supply chain issues. The numbers are quickly evolving, but early predictions estimate 15 000 retail store closures and 3 million jobs lost (Dua et al., 2020) with minority and immigrant-owned businesses disproportionately affected (Fairlie, 2020). As COVID-19 conditions persist, the chances are high that populations around the U.S. and the world will experience natural disasters (e.g., heat waves, floods, hurricanes, fire, and drought) during the period of virus transmission and into the period of recovery (e.g., Phillips et al., 2020). Multi-hazards that manifest as complex events from the concurrent pandemic and natural disasters are an important area of study.

The impacts of COVID-19 will affect the ability of practitioners and communities to prepare for, cope with, and respond to natural disasters, including EWEs. In particular, in many ways COVID-19 may amplify or exacerbate risks to SMEs associated with a wide range of natural hazard types, as well as affect SMEs owner/managers' option set of practical strategies to mitigate associated risks. Complex events can result from multiple hazards, often through a complex combination of both natural and human-made causes. Pescaroli and Alexander (2018) propose a holistic framework that highlights the complementarities of four risk types (i.e., compound, interacting, interconnected and cascading risks). Herein, we are interested in

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complex events precipitated by compound and/or cascading risks; we take concurrent risks to be a subset of compound risks. Operating in a multi-risk environment with slow- and rapid-onset disasters, persistent stressors, and economic shocks requires taking a whole-system approach to analyzing complex events that arise from compound and/or cascading risks.

Small and medium-sized enterprises in areas vulnerable to natural disasters and other extreme weather events (EWEs) are particularly noteworthy in the context of COVID-19. There were at least 18 major natural disaster declarations made between March 13, 2020 when the Federal State of Emergency for the COVID-19 pandemic was declared. These events likely impacted MSMEs' ability to open and adjust to pandemic circumstances. Furthermore, continued stressors on African-American-, Latinx-, Asian-, immigrant- and female-owned businesses may account for why they have been disproportionately impacted by COVID-19 (Fairlie, 2020; Fairlie & Robb, 2007). At the time of writing the researchers were not aware of any U.S. survey-based research with a focus on the experiences of SMEs dealing with complex events that arise from concurrent risks of natural hazards and pandemic conditions to date.

This paper presents a survey-based longitudinal research approach to study the impact of COVID-19 on SMEs and a subset thereof that had experienced a natural disaster or EWE pre- or during the COVID-19 transmission period. The survey also gauges the concern that such events may affect SMEs as the effects of COVID-19 persist in the future and during a future recovery phase. The presented survey was conducted online and combines closed- and open-ended questions to document: 1. the novel resilience-based mitigation actions employed during the COVID-19 pandemic by SMEs, 2. challenges in implementing resilience-based mitigation actions, 3. use of past strategies and approaches to provide assistance to the current situation, and 4. Planned resilience actions and strategies. As such, the questions are framed specific to COVID-19 pandemic conditions; however, many are generalizable to SMEs facing compound risks that may create complex events.

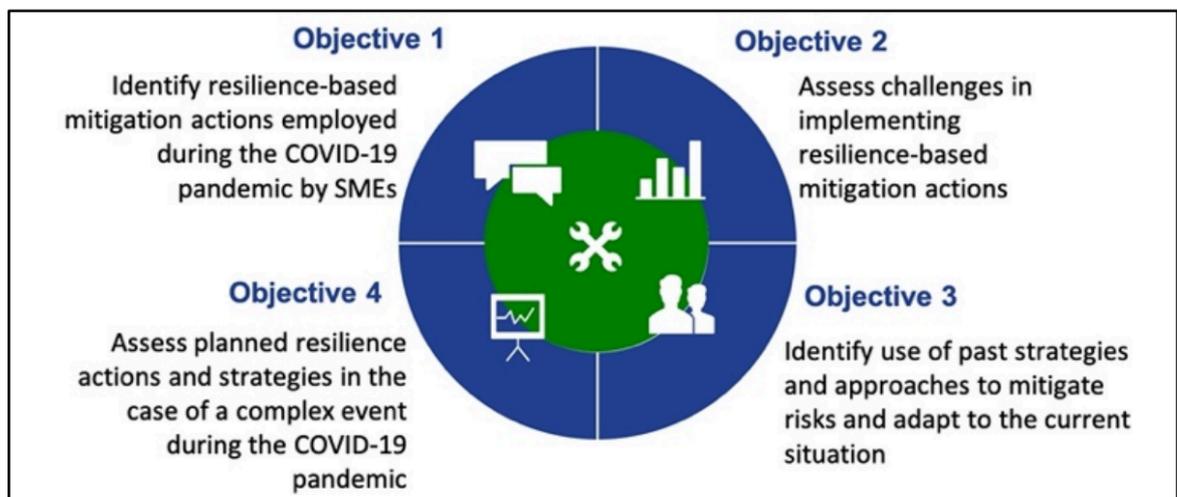


Fig. 1. Identified research objectives in the context of SME Complex Event Resilience.

2 Methods and Data

A U.S. Department of Commerce survey conducted in late summer 2020 was the first in a longitudinal study of business resilience in the face of complex events that arise from COVID-19 impacts in addition to other stressors and shocks experienced by U.S. businesses. Details of the survey methodology are outlined

in Helgeson et al. (2020a) and initial results across the survey of 1374 SME owners and managers nationally are reported in Helgeson et al. (2020b). The lessons learned from the survey, which included closed and open-ended questions, are intended to be relevant to SME owners and managers; these lessons learned are also intended to assist entities that provide guidance to SMEs on: 1. Mitigation planning for natural disasters during a pandemic situation and 2. Disaster readiness strategies to cope with the disruptions from a pandemic situation.

The survey instrument asked respondents how COVID-19 impacted their SME and how the SME has adapted; about the SME's experience with natural disasters and resilience planning; and elicited beliefs about the future. The survey was conducted online through direct emails, at the invitation of partner networks, and through social media posts.

3 Initial Analysis and Key Findings

Initial findings from over 1300 MSMEs indicate that of the sample surveyed:

- 29 % have already experienced a natural disaster during the pandemic.
- 76 % implemented some adaptation/coping strategies during the COVID-19 pandemic.
- 66 % implemented natural disaster resilience planning in the past (pre-COVID-19), of which 23 % note use of natural disaster resilience actions to address COVID-19.
- 72 % are concerned about future complex events in the context of COVID-19, of which 31 % identify their concern as arising from natural disaster(s) during a pandemic.

Four categories of resources and information are identified by respondents as areas that could help them address complex event risks arising from natural disasters during the COVID-19 pandemic: 1. Assistance navigating deep uncertainty, 2. Clear, detailed information and training, 3. Assistance with personal protective equipment (PPE) and other equipment, and 4. Access to financial assistance and financial information.



Fig. 2. Identified categories of SMEs' expressed needs.

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