Impact of COVID-19: research note on tourism and hospitality sectors in the epicenter of Wuhan and Hubei Province, China

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Abstract

Purpose – The purpose of this paper is to present initial findings from a vulnerability assessment based on the perceptions of practitioners working in four tourism and hospitality sectors in Wuhan and Hubei Province, namely, cruise lines, hotels, travel agencies and touristic attractions.

Design/methodology/approach – The research note focuses on the coronavirus (COVID-19) outbreak from January to March 2020. Using the destination sustainability framework and an "interpretation" mixed methods research design, the authors analyze phone interviews (n = 151) and subsequent online surveys (n = 370) to assess sector-specific perceptions of exposure, sensitivity and system adaptiveness.

Findings – Overall, findings paint a grim picture of each sector in the short-term. All respondents reported an immediate economic loss due to COVID-19, as well as recovery concerns and uncertainties. Immediate actions for addressing these issues centered on internal cost control and governmental subsidies, while anticipated next steps focused on product adjustment, a transformation of business structures and seeking governmental guidance and policies in restoring market confidence. Findings also allude to future strategies/directions.

Research limitations/implications – This study is limited in its focus on practitioner views in the immediate COVID-19 outbreak. Implications highlight a crucial strategic dependence of each sector on effective government/managerial communication and support, with smaller, local businesses needing particular attention in crisis situations.

Originality/value – To the authors' knowledge, this research note is the first comprehensive study presenting vital information pertaining to the impact of COVID-19 on tourism and hospitality businesses from a large group of business leaders in the site of the initial outbreak (i.e. Wuhan and Hubei Province). With the highly infectious COVID-19 representing an ongoing threat for populations worldwide, this paper hopes this research note provides valuable insights for practitioners in other vulnerable regions, as well as for researchers examining strategies for resilience against this and future disasters.

Keywords Vulnerability, Sensitivity, Tourism industries, COVID-19, Impact of pandemics, System adaptiveness

Paper type Research paper

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Introduction

In early 2020, the coronavirus (COVID-19) pandemic emerged at a time when global business leaders were, perhaps, more worried about extreme weather events than the infectious disease (World Economic Forum, 2020). Reported as an outbreak of atypical pneumonia in December 2019 and of little concern to much of the world at first, the novel coronavirus had brought multiple economic sectors to a halt within months in Wuhan, China and beyond (Hubei Health Commission, 2020). In Wuhan, a strict city lockdown was implemented on January 23, 2020, causing new confirmed cases to drop from their peak at around 4,000 per day to near 0 in about two months' time, with only several dozen new cases per day being reported at the time of writing. Given the significant drop in new confirmed cases, Wuhan lifted the lockdown policies in April 2020 and began recovery efforts.

Caused by a newly discovered coronavirus, COVID-19 spreads primarily from person to person through small droplets from the nose or mouth, which are expelled when a person with COVID-19 coughs, sneezes or speaks. COVID-19 continues affecting many countries globally (World Health Organization, 2020), with ongoing and significant ramifications for labor-intensive industries such as tourism and hospitality. While tourism researchers and practitioners around the world appear increasingly interested in assessing destination vulnerabilities to pandemics like COVID-19, however, few have been able to access vital information pertaining to tourism and COVID-19 from practitioners themselves operating in the site of the initial outbreak (i.e. Wuhan and Hubei Province). Such information may not immediately contribute to understanding destination sustainability or resilience in a theoretical sense, but it may undergird theory-building efforts in future studies while providing practical context, lessons and strategies for tourism and hospitality businesses seeking to address COVID-19 and future pandemics.

In view of these potentialities, the purpose of this research note is to present initial findings from a vulnerability assessment based on the perceptions of practitioners working in four tourism and hospitality sectors in Hubei Province, namely, cruise lines, hotels, travel agencies and touristic attractions. The research note focuses on the COVID-19 outbreak from January to March 2020, adopting an interpretation mixed methods design based on phone interviews (n = 151) and online surveys (n = 370) involving key industry leaders (Golicic and Davis, 2012). The remainder of the document is organized as follows. The next several sections present the research framework, study site and methods. Preliminary findings then highlight different characteristics of vulnerability by industry, organized in terms of exposure, sensitivity and system adaptiveness. By considering broader implications of this initial assessment, the research note closes with implications for tourism practitioners and researchers seeking to understand and mitigate vulnerability to disease-related disasters like COVID-19.

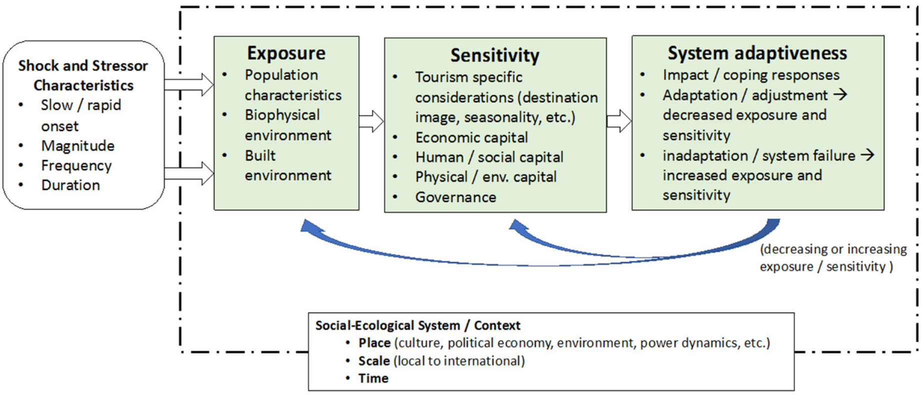
Research framework: resilience, vulnerability and tourism

Zolli and Healy (2012) define resilience as "the capacity of a system, enterprise or person to maintain its core purpose and integrity in the face of dramatically changed circumstances" (p. 7). Researchers suggest that for any system, including those in which tourism and hospitality businesses operate, this capacity remains strongly linked to the system's overall vulnerability to a particular disaster or crisis event (Manyena, 2006; Tsao and Ni, 2016). As a result, assessing tourism system vulnerability can help inform measures of destination or sector resilience and sustainability, and vice-versa.

Tourism studies have already emerged providing big-picture considerations of COVID-19's relationship with businesses, travelers, destinations and national or transnational relations. Baum and Hai (2020), for example, offer a salient assessment of how responses to COVID-19 in destinations around the world appear to have infringed upon or at the very least influenced, human rights in relation to tourism and hospitality. On the one hand, they assess the negative social ramifications of border closings, suspended consumer protections, stay-at-home or (for individuals who were abroad) return-home orders, heightened racism toward visitors in certain areas and other COVID-19-induced shifts in global tourism activity. On the other, they suggest that restricted mobilities (and rights) may actually be generating some benefits in terms of reduced human trafficking and less environmental degradation. In another recent study, Jiang and Wen (2020) call for new perspectives on hospitality management and marketing in view of the COVID-19 pandemic. Their ideas highlight something of a silver lining, as well, in considering ways the pandemic may be altering strategies and research related to hospitality, artificial intelligence, hotel hygiene/cleanliness and the health-care sector. Additionally, Cheer (2020) proposes that the pandemic's transformative effects may generate new opportunities to re-envision tourism systems and enhance human flourishing.

Such studies suggest the scope and rationale associated with analyzes of COVID-19, tourism and hospitality remain multi-faceted. Calgaro *et al.* (2014) highlight a crucial question underscoring the potential scope and rationale for analyzes of destination vulnerability, in particular. They ask: "so what can be done to prepare and fortify destination communities in times of risk and uncertainty?" (p. 342). In response, they present a holistic destination sustainability framework (DSF) which outlines ways destinations may reduce vulnerability to shocks and stressors like COVID-19.

Calgaro *et al.*'s (2014) DSF focuses on three critical areas in assessing tourism system vulnerability, namely, exposure, sensitivity and system adaptiveness. Building on Turner *et al.*'s (2003) seminal framework and others, the DSF highlights additional system-wide characteristics (e.g. place, scale, time and shock/stressor characteristics) and guides the methodology, analysis and orientation of results and implications in the current research note (Figure 1). Here, exposure refers to the extent of contact and connection a system has with a shock or stressor such as the location of a hotel in relation to an earthquake. Sensitivity describes a system's preparedness not only to defend itself against destabilizing events but also to the extent of impact based on levels of exposure. System adaptiveness refers to a system's ability to prepare for, survive and recover from (or transform through)



Source: Adapted from Calgaro *et al.* (2014)

Figure 1.
The DSF

destabilizing events. This capacity is grounded in strategies crucial for addressing system vulnerabilities before, during and after a particular stressor or shock is introduced to the system.

Study site – Wuhan and Hubei Province

Hubei Province is located in central China, with 17 major cities and a population of about 59 million (Hubei Province Government, 2020). This research note focuses on perceived COVID-19 impacts among tourism and hospitality businesses based in key tourism destinations throughout Hubei Province. These destinations include the cities of Wuhan and Yichang, as well as other important sites (Figure 2).

Wuhan city is the capital of Hubei Province with 12 million inhabitants. It is a major high-speed rail hub in China (Wuhan Government, 2020). In addition to domestic flights, Wuhan's airport has opened 63 international flight routes on 5 continents. The city also houses over 1 million university students and tens of thousands of overseas students. Yichang city (population about 4.06 million) is a destination famous for the Three Gorges Dam and cruise lines. Other destinations considered here such as Shennongjia and Wudang (both UNESCO World Heritage Sites), are famous for their distinct mountainscapes, wildlife and minority/ethnic cultures.

Contextualizing sectoral vulnerabilities to COVID-19 requires a timeline of key events. First, however, it is important to note that China's 2020 Spring Festival/New Year holiday went from January 24 to February 8 – a vacation period usually accompanied by a high level of travel and tourism activities in China but missed due to COVID-19. Table 1 presents a

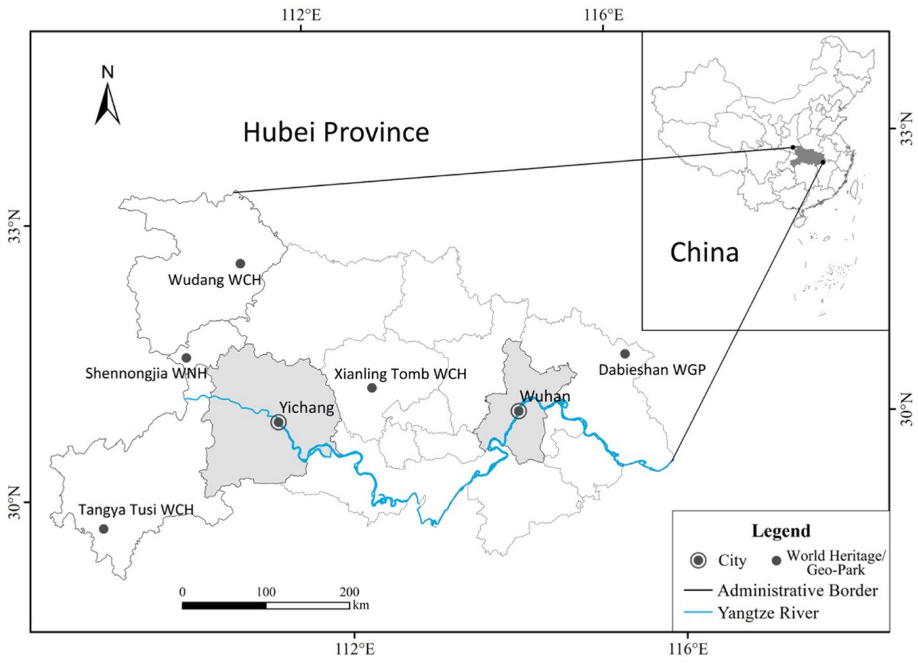


Figure 2.
Wuhan, Yichang and other study sites

Source: Authors

Table 1. Response timeline characterizing COVID-19 impacts in the first epicenter

Date(s)	Event
Dec 2019–Jan 2020	Novel coronavirus identified, confirmed by the World Health Organization
Jan 22	Wuhan Culture and Tourism Bureau suspends entertainment and travel activities in Wuhan city; travel agencies required to issue refunds to travelers; all touristic attractions and hotels closed; conversion of some hotels into "islands of resilience" and other buildings (e.g. museums) into temporary hospitals
Jan 23 (around 2 am)	Wuhan Government announces total city shutdown; nobody allowed into/out of Wuhan; all residents need to stay home; all factories, schools and public transportation are closed; local government and communities responsible for procuring/distributing household necessities and arranging transportation for residents with special needs; personal vehicles not allowed on the roads
Jan 24–March 17	About 42,000 health-care professionals are sent from all over China to Hubei Province (mostly to Wuhan) to offer urgent medical help
Feb 18	Travel agencies in Hubei Province receive 80% of their quality assurance deposit refunded by the Ministry of Culture and Tourism of China (described in the sensitivity section of results)
March 10	Hubei Province begins the recovery process by re-opening factories and production, but not yet in Wuhan
March 17	Hubei Province enters a rehabilitation phase and the 42,000 health-care professionals begin leaving Wuhan
March 20	Wuhan begins the recovery process by re-opening factories and production
March 27	Hubei Culture and Tourism Bureau issue Hubei Province tourism recovery guidelines
April 1	Some cities in Hubei (e.g. Yichang city) begin reopening touristic spots, excluding Wuhan city
April 8	Lockdown of Wuhan city officially ends

Source: Hubei Health Commission (2020) brief timeline of early events characterizing the initial outbreak in Wuhan and, subsequently, Hubei Province (Hubei Health Commission, 2020).

Methods

The current research note highlights preliminary findings from a larger study supported by the Hubei Culture and Tourism Bureau identifying COVID-19 recovery strategies. The authors received responses from a wide range of industry leaders in Hubei Province, made possible primarily through the corresponding author's work in the past five years conducting annual tourism surveys for the Hubei Culture and Tourism Bureau. Due to the novelty and fast development of the COVID-19 situation, the authors followed recommendations from Golicic and Davis (2012) in choosing an appropriate research design. In situations where the phenomenon of interest is new, complex and unclear, they suggest a qualitative approach collecting field data can be a starting point to gain a detailed description of the phenomenon. If researchers are expected to further explain findings from the qualitative data, a secondary quantitative study is recommended to explain or confirm findings in the primary qualitative study. This approach is referred to as an "interpretation" mixed methods research design (Golicic and Davis, 2012).

Thus, drawing upon the vulnerability-resilience and tourism literature, the authors conducted qualitative phone interviews (n = 151) from February 13 to March 20 with industry practitioners as the main method to assess sector-specific perceptions of exposure, sensitivity, and system adaptiveness. Participants included general managers (79.5%) or owners (20.5%) and each interview lasted about 35 to 50 min. To obtain more details regarding certain interview themes and to support subsequent suggestions, quantitative online surveys (n = 370) were also used. The expected completion time of the online survey was about 10 min and they were distributed on February 28. The number of returned surveys represented a 95% completion rate.

To achieve a representative sample, the authors identified top-ranked businesses in four sectors using the official tourism business indices provided by the Hubei Culture and Tourism Bureau. These indices are published on the Bureau's official website. The selected businesses included travel agencies qualified to operate international businesses (n = 28); four- and five-star ranked hotel companies (n = 39) and economy hotel chains (n = 33); four-A and five-A ranked touristic attractions (n = 41) (five As is the highest official designation for touristic attractions); and top cruise lines based on market share (n = 10). Table 2 provides detailed respondent profiles, and interview protocols and survey instruments are provided in Appendix . The authors recorded and transcribed each interview to generate qualitative data. The theory-driven analysis was used to conceptualize and describe key interview themes using the DSF categories selected a priori (i.e. exposure, sensitivity and system adaptiveness) (Namey *et al.*, 2007; Decrop, 2004). Quantitative survey data were analyzed through descriptive statistics.

It is important to recognize that this research note considers, but does not emphasize, data characterizing Hubei's tourism system at large. Rather, preliminary findings emphasize researcher interpretations of participants' perceived vulnerability to COVID-19 (Dredge and Jenkins, 2011; Higgins-Desbiolles *et al.*, 2014). These findings are presented below as illustrative examples rather than exhaustive descriptions (Pastras and Bramwell, 2013), organized in terms of exposure, sensitivity and system adaptiveness.

Variable	Interviews (n = 151)	Surveys (n = 370)
Respondent gender		
Female	37 (24.5%)	63 (17.0%)
Male	114 (75.5%)	307 (83.0%)
Respondent age		
Average	50	51
Respondent position		
Senior Manager	N/A	243 (65.7%)
General Manager	120 (79.5%)	79 (21.3%)
Owner	31 (20.5%)	48 (13.0%)
Industry category		
Cruise line	10 (6.6%)	37 (10.0%)
Hotel	72 (47.7%)	166 (44.9%)
Travel agency	28 (18.5%)	84 (22.7%)
Attraction	41 (27.2%)	83 (22.4%)
Business location		
Wuhan	57 (37.7%)	185 (50.0%)
Yichang	49 (32.5%)	90 (24.3%)
Other areas	45 (29.8%)	95 (25.7%)
Business scale (annual revenue)		
>100m RMB[a]	62 (41.1%)	115 (31.1%)
50–100m RMB	54 (35.8%)	138 (37.3%)
<50m RMB	35 (23.1%)	117 (31.6%)

Note: [a]RMB 100m = ~US$14m

Table 2. Sample profile

Results

Exposure

Respondent perceptions of sector-specific exposure to COVID-19 centered on population characteristics, the biophysical environment and the built environment (Calgaro *et al.*, 2014). Interviews and surveys suggested that tourism and hospitality businesses throughout Hubei Province faced high (but varied) levels of exposure to COVID-19 in the immediate aftermath of the initial outbreak, with more than half of all respondents expressing concerns of bankruptcy by May or June 2020.

For travel agencies throughout Hubei Province, respondents often tied exposure to geographic considerations. They lamented that, by encouraging interactions across regions and people groups, their industry was the first ordered to close. Respondents also suggested that exposure was higher for companies offering trips outside Hubei Province. For example, a general manager of a large Wuhan-based travel agency suggested her business was more exposed to COVID-19 due to linkages with international destinations:

> On January 22, the Wuhan Culture and Tourism Bureau requested that we stop all group tours and give full refunds to all tourists without condition. Since it is the peak season of the Spring Festival, we've refunded more than 100 tours to Japan, Southeast Asia, Australia and elsewhere. Because flight and lodging reservations are overseas, cancellation resulted in our losses. The direct loss was more than 10m RMB (1.4m USD).

For the hotel industry, respondents commonly referred to exposure in terms of population characteristics and the built environment, with a particular focus on the quantity and characteristics of their properties. Specifically, many hotel managers and owners described exposure by relating the location or number of properties under their control (i.e. exposure) to the cost of rent or property maintenance. In addition, with more than a million college students from all over China and the world studying in Wuhan, many respondents highlighted their sector's contact with and reliance on, this important demographic. Because Wuhan was placed on lockdown during students' winter break and the spring semester was effectively canceled, hotels suffered significant losses tied to this market.

For touristic attractions throughout the province, respondents viewed exposure partially in relation to population characteristics (e.g. reliance on student travelers), but primarily in terms of the biophysical environment. With clear ties to seasonality-sensitivity, respondents suggested that elevation and colder weather left many attractions less exposed to travel-related impacts of the initial COVID-19 outbreak. The general manager of a UNESCO World Heritage Site near Yichang, known as Shennongjia National Park, stated:

> We are not affected much by the pandemic. The average altitude of Shennongjia is about 1,700 meters and most of the attractions are above 2,500 meters. So normally we are closed from the end of October to March, with a limited number of skiers coming. A majority of our business revenue is from July-August and in October.

Finally, for Yangtze River cruise lines based in Hubei Province, respondents commonly drew attention to the small, confined spaces on cruise ships in which employees and customers interact for days or weeks. They also highlighted dependence upon two crucial populations which they felt left their sector more exposed to COVID-19. The first group included customers arriving from outside of Hubei or from outside of China, and the second group included seniors. Respondents suggested these groups represented not only pivotal markets for their respective businesses but also populations with which increased contact equated to increased industry exposure to COVID-19.

Sensitivity

Assessing sector-specific sensitivity to COVID-19 requires identifying impacts of the initial outbreak, as well as understanding how certain factors shape the extent of that impact. Here, results incorporate both by centering on respondent views of COVID-19 impacts and their relation to tourism-specific considerations (e.g. destination image, seasonality, etc.) and various forms of capital (Calgaro *et al.*, 2014). In terms of overall impacts, interviews and surveys suggested that respondent views differed by sector in terms of their hope of recovery. A majority of respondents from touristic attractions (79.2%) held positive prospects on recovery, often because of prevalent state ownership and support. This was followed by travel agencies (47.6%), cruise lines (30.0%) and hotels (24.4%). Low confidence among hotels appeared largely tied to high property rent costs and lost revenue from the university student market, as they will not be allowed to return to school until after summer.

For travel agencies reflecting on the immediate aftermath of the initial outbreak, respondents suggested their sensitivity was influenced greatly by government regulations. Considering the nature of their business (e.g. transporting people to various destinations in confined spaces), the Culture and Tourism Bureau ordered this industry to shut down and to issue full refunds to all customers soon after the initial outbreak. Not all travel agencies were equally sensitive to the initial outbreak, however. For example, owners and managers of larger travel agencies with a stronger cash flow suggested they were more likely to weather the loss from cancellations. Additionally, some respondents found a silver lining amid growing losses when the government refunded a special "quality deposit" to those businesses (a deposit normally made to the government to ensure product quality, but forfeited if the business does not maintain certain standards). One interviewee stated:

> Due to the extent of the pandemic overseas, we estimate that international tours will not resume in the next 2 years [. . .] Up to now, our travel agency has not resumed work. The only benefit is that the [National] Ministry of Culture and Tourism returned 80% of our quality deposit at the end of February.

Much like travel agencies, hotels throughout Hubei Province were shut down shortly after the outbreak began. Respondents described their sensitivity to COVID-19 also in terms of governance. Governance pertains both to government action and to sector-specific policies and managerial dynamics, including business insurance or disclaimers used in contracts. For example, the rental contracts with property owners were not clear regarding rental payment during this unique period, and many of the small-medium hotels never purchased business closure insurance or incidental insurance. More broadly, different kinds of hotels in China are governed differently. Star-ranked hotels are monitored by regional culture and tourism bureaus, but budget (non-star-ranked) hotels are monitored by commerce departments, leaving hotels with less government support more sensitive to disasters like COVID-19. Respondents suggested this led to a lack of oversight in developing sanitation standards or emergency management policies. An interviewee stated:

> We have 104 hotels in Hubei province, and rent is problematic [. . .] We need to discuss possible rent exemption and unclear terms about uncontrollable factors in our rental contracts with all property owners [. . .] In addition, to recover after the epidemic, we don't know which government department to talk to. Culture and tourism bureaus only manage star-ranked hotels, and subsidy policies from those bureaus don't cover us.

From a governance perspective, it is worth noting that many hotels were required by the government to be used as overflow quarantine facilities or housing (e.g. for the 42,000 emergency health-care workers arriving in Wuhan from all over China between January 24 and March 17). While these hotels received some compensation from the government, they reported a significant loss due to the cost of sanitizing and replacing beddings and amenities. One CEO and Vice President of a large development firm stated:

> We have 591 hotels in Hubei Province in 17 cities. We took the initiative to offer our 218 hotels in Wuhan to the government to accommodate suspected patients and health-care workers. As of now, we haven't discussed room rates or compensation (with the government). We expect to receive additional standards and policies from the government after the pandemic [. . .].

For touristic attractions throughout the Province, respondents drew attention to human capital as a key element influencing their sensitivity to COVID-19. This was strongly linked to governance, however, for the simple fact that the top attractions throughout Hubei are at least partially owned and managed by the state. Many of the staff and administrators for these attractions are long-term employees in the state system, whose jobs and salaries are more or less guaranteed even when attractions are closed. As a result, they reported relatively low sensitivity to COVID-19. A director of a major attraction stated:

> The Wudang Mountain management committee is a state-owned unit managed by the government. More than 2,000 employees are official employees and many managers are government officials. During the epidemic, salaries need to stay the same and no layoffs are allowed. The epidemic didn't have a strong impact on the attraction and employees, (because) local treasury departments will subsidize salaries.

Finally, for the Yangtze River cruise lines based in Hubei Province, respondents emphasized their significant reliance on economic capital and financial institutions. To be sure, high debt was commonly reported among cruise line managers and owners. For example, the cost of building the highest-end (4-star) cruise ship in China runs 14 to 28m USD and 30–70% of the cost is commonly financed. Many respondents suggested their cruise line was likely to go bankrupt due to the impact of COVID-19 on their ability to pay these debts.

In addition, most of the cruise lines are privately owned, which can be a disadvantage in China when seeking governmental subsidies or financial underwriting from banks. Interestingly, while cruise lines in this study interact significantly with tourism industry attractions, travel agencies, restaurants and lodging businesses along the Yangtze River, they fall under the jurisdiction of Hubei's transportation department. Thus, many respondents lamented the fact that vital tourism recovery measures (e.g. financial support initiated by the Culture and Tourism Bureau) did not apply to their cruise line business.

System adaptiveness

Assessing sector-specific adaptiveness to COVID-19 considered respondent strategies for addressing COVID-19. The preliminary findings presented here emphasize both immediate actions already taken as well as anticipated next steps. In terms of how they addressed the immediate impacts of COVID-19, tourism and hospitality businesses throughout Hubei Province shared notable commonalities. As might be expected, cutting costs represented the most common short-term strategy, with cutting salaries representing the primary cost-reduction strategy for travel agencies (49%) and cruise lines (38.1%). The most common strategy for hotels was suspending their rental payments (35.5%) and the most common strategy for attractions was suspending payments to the banks (37.5%).

In terms of anticipated next steps in addressing COVID-19, strategies differed considerably between sectors. For travel agencies, many respondents planned to replace inter-provincial or international tours (and marketing dollars) with a stronger emphasis on in-province experiences. Plans for such in-province tours varied by business but included things such as car trips, nature tours, rural tours or camping in open spaces within several hours' driving distance from cities. Travel agency strategies also suggested that two government actions were vital to their recovery:

(1) The lifting of domestic and international travel restrictions and
(2) The issuing of summer tourism vouchers for local residents.

For hotels, mitigating exposure for clients emerged as the most crucial consideration. This included the rapid development of no-contact, automated check-in/out processes; transforming central air conditioning (AC) systems into individual AC units in each room; and (for newer hotel properties) improving natural airflow by building out rooms with larger windows. Another common theme among hoteliers revealed significant dependence on the broader socio-political system. In particular, many tied their survival to near-future efforts by the provincial government to market Hubei and restore its destination image (important to assuage fears of Hubei not only for international clientele but also for Chinese people from other provinces; New Straits Times, 2020).

For touristic attractions throughout Hubei, the government quickly issued new disinfection requirements and operation capacity limitations. As a result, a principle strategy for many respondents included expediting online ticketing systems development, as well as transforming off-line sales mechanisms into online platforms. The head of a Wuhan-based attraction said:

> We expect a lasting negative impact from May onward. This is because the Bureau now requires us to operate at a maximum of 30% of capacity, with online admission purchases and advanced reservations. Thus, we need to upgrade and improve our smart tourism system.

Many tourist attraction respondents also hoped the government would keep summer vacation in July and August for students rather than impose a summer semester to make up for the missed spring semester. Additionally, many touristic attractions anticipated government-issued guides outlining return-to-work policies and new workplace sanitation/safety standards.

Finally, reported next steps for Yangtze River cruise lines included a shift in emphasis from international to domestic clientele; shortening longer (three- to five-day) cruises to just one-day; and holding on-ship activities in open, less crowded spaces. Maintaining the usual July to August summer vacation was also important to respondents in this sector. The general manager of a major cruise line stated:

> [Our company] stopped six cruises during the epidemic. One cruise will resume operation on March 31st, with short half-day trips. Due to new capacity requirements. . .we will only open up activities on the deck. Cruise lines in Chongqing and Wuhan all plan to only host activities on deck. . .Because the epidemic is spreading worldwide. . . all cruise lines in Hubei with international tourists will change 3–5 days trips into 1–2 days trips focusing on domestic clientele.

Conclusions

This study provides a preliminary assessment of tourism and hospitality vulnerability in the immediate aftermath of the COVID-19 epicenter in Wuhan and Hubei Province, China. Analysis of interviews with industry leaders, augmented by analysis of subsequent surveys issued to the same sample, provided insights into sector-specific vulnerability for travel agencies, hotels, touristic attractions and cruise lines. Overall, interviews and surveys painted a grim picture of these industries in the short-term. All respondents reported an immediate economic loss due to COVID-19, as well as recovery concerns and uncertainties. Immediate actions for addressing these issues centered on internal cost control and governmental subsidies, while anticipated next steps focused on product adjustment, the transformation of business structures and seeking governmental guidance and policies in restoring market confidence.

Theoretical and practical implications

These preliminary findings hold broader implications for tourism practitioners and researchers. First, findings highlight the intricate linkages characterizing tourism and governmental and managerial systems. These linkages shape tourism vulnerabilities to pandemics like COVID-19 not only in terms of exposure and sensitivity but also in terms of practitioner strategies and overall system adaptiveness. In a practical sense, strategies for addressing customer needs in a post-COVID world will certainly require ongoing service innovations grounded in sustainable practices, the success of which fully "depends on proper processes and administrative structures" (Horng *et al.*, 2018, p. 456). In a theoretical sense, practitioner views in the current study highlight a crucial strategic dependence on effective government communication and support in crisis situations. This relates to Jessop's (2008) strategic-relational approach which can help explain ways tourism businesses make decisions within certain socio-political contexts and even crises events like COVID-19 (Pastras and Bramwell, 2013). Future vulnerability studies may, thus, benefit from combining Jessop's work and the DSF to compare tourism practitioner strategies under different crises events, as well as under Chinese and other socio-political systems.

Second, preliminary findings in this study suggest that larger corporations, international chains and state-owned businesses in Hubei are less vulnerable to pandemics like COVID-19 than private, small-medium sized, local businesses. This suggests that, with the support and resources of government, larger companies in China may be more likely to survive and drive out their competitors, potentially damaging unique brand identities for small businesses and, by extension, for entire destinations. This highlights a practical need for providing additional support for smaller, local businesses in light of observable socioeconomic disparities. Meriting further study is whether and how such disparities might unfold under pandemics like COVID-19, given the litany of COVID-related concerns recently described by Baum and Hai (2020).

Research limitations

Several limitations to this research note are worth mentioning. First, vulnerability here is interpreted through a snapshot of perspectives from tourism destinations and business leaders in relation to COVID-19 impacts. Additional perspectives (e.g. from tourists and residents) are required to offer a more holistic picture of destination vulnerabilities. Second, while the authors used the DSF to prepare phone interview and survey questions, they were unable to validate these instruments before contacting respondents. Follow-up studies are, thus, needed to evaluate interview and survey designs alongside practitioner perceptions and strategies beyond the initial outbreak. A particular challenge to address pertains to the muddled characteristics of travel-related exposure versus sensitivity as *perceived* by individuals from the respective sectors considered here. Third, tourism system vulnerabilities are characterized by evolving, complex relations influencing ways multiple sectors at different geographic scales prepare for, experience and respond to disaster-induced change. To better understand these processes and escape the "fallacy of misplaced rationalism" (McKercher, 2018; Sheaffer, 2008), a more critical, longer-term analysis of recovery and transformation is required.

In closing, vulnerability to COVID-19 remains significant for people-centered businesses such as cruise lines, travel agencies, hotels and attractions throughout Wuhan city and Hubei Province. During the course of this study, the authors witnessed how COVID-19 became an ongoing threat to populations worldwide. As tourism and hospitality industries are inherently global businesses serving travelers from all over the world, we hope this research note provides valuable insights for practitioners in other vulnerable regions as well as for researchers examining strategies for resilience against this and future disasters.

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Appendix

Interview protocol

Part 1. Participant and company Information

1.1. Name______________ Company_________
1.2. Please briefly describe your company, such as years operated, number of employees, peak and off seasons, financing situations, etc. before COVID-19.

Part 2. Exposure

2.1. How is COVID-19 impacting you and your company right now? How do you anticipate it impacting you in the future?

2.2. During your career, do you remember other disasters such as floods, earthquake, and/or SARS, etc.? How did the impact/loss then compare with COVID-19?

2.3. Do you think there are some special risks of exposure to potential disasters for your business compared with other industries?

Part 3. Sensitivity

3.1. How do you evaluate the early official warning messages for COVID-19? (If participants suggested negative feedback on official warning systems, ask question 4.1 in next part)

3.2. Can you provide your company's / site's information in relation to average visitation and income by week, month, year? (over the last five years?). Follow-up: In view of COVID-19, how are tourist numbers decreasing and how long will the impact last?

3.3. Can you describe your personal and company / site access to and use of financial loans and disaster insurance?

3.4. Can you describe your company / site insurance plan?

3.5. Is your company / site managed privately, by association, or by government? Please evaluate their function during COVID-19.

3.6. During the early period of COVID-19, how did you get information and prepare to protect your employees and customers?

Part 4. Adaptive Capacity / Resilience

4.1. (If participants suggested negative feedback on official warning systems in answering 3.1) What are the desired approaches to provide better early warnings for events like COVID-19 in the future?

4.2. How long do you think it will take to recover the losses from decreased tourism?

4.3. What immediate emergency responses are you taking or will you take in response to COVID-19?

4.4. What approaches will you undertake in the near future to counteract negative COVID-19 impacts?

4.5. How will your company / site change to better predict and prepare for similar events that may strike in the future?

4.6. Considering long term responses to COVID-19, what strategies do you recommend…

- …for your company?
- …for government?

Part 5. Personal Information

1. Gender

2. Age

3. How long have you been with this company? ________ years

4. Education level

5. Suggestions for further research：

(*continued*)

Online survey structure

Part 1: Enterprise Information

1. a. In which city is your enterprise located?
   b. To which industry does your enterprise belong?
2. a. Basic financial data for year of 2019 (Total revenue and number of customers hosted).
   b. Which months represent peak season for your enterprise?
   c. Which months represent off-season for your enterprise?
3. For your enterprise, what percentage of overall costs is represented by each of the following (rent, labor, finance, other)?
4. Employee information (Number of salaried employees and number of hourly-pay employees).
5. Are commercial loans used in the operation of your business?
6. On a scale from 1 (Not at all) to 7 (very strong), how do you feel about the impact/loss of the coronavirus on your company?
7. During which month in 2020 do you anticipate your company will go bankrupt if this coronavirus continues? a. What have you done to address these risks? (salary cut, defer loan payment, layoff, defer rent payment, etc.)
   b. Among the measures taken to address these risks, which one do you think is the most important?
8. Among the policies that the government can adopt to support the industry (rent reduction, defer bank payments, tax refund, tax exemption), on a scale from 1 to 7, how much do you support each policy?
9. In terms of government's follow-up policies to restore market confidence (summer vacation, business recovery guidelines, public safety and sanitation standards, discounts for medical professionals), how much do you support each policy?
10. When do you estimate your enterprise will be fully recovered (month, year)?

Part 2: Personal Information

1. Gender

2. Age

3. How long have you been with this company

4. Your position

5. Please offer any further comments or suggestions.

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