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## City profile

## City resilience and recovery from COVID-19: The case of Macao

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## ABSTRACT

Due to COVID-19, Macao established a prolonged tourism lockdown for over half a year. With no COVID-19 cases for 3 months, the lockdown and resilient measures provided the ability to recover, becoming the first city globally to reopen travel borders to all of China. Using the case of Macao during a real-time pandemic crisis we develop a conceptual framework on economic resilience and tourism recovery. We propose for the first-time, destination vulnerabilities as a consequence of recovery and resilient actions. Contrary to government direction that Macao diversify beyond gaming revenues after COVID-19, our study affirms this is unlikely, as casino companies focus on recuperating revenue losses. Our theoretical assertions have wider implications as tourism cities globally look at COVID-19 exit strategies. The short-term resilient endeavors taken now by cities may have longer-term consequences on their 'reset' milieu. With the challenges of vaccination rollout, a COVID-19 exit will be prolonged further with continued economic and tourism recovery challenges for cities, giving greater significant the study's theoretical assertions.

## 1. Introduction

The COVID-19 induced collapse of the tourism industry has created dramatic impacts to global country and city economies heavily dependent on tourism, with economic growth stalling, and mass unemployment. The World Tourism Organization (UNWTO) predict a loss of between USD860 billion to USD1.2 trillion in export revenues from international tourism (Global Tourism Economy Research Centre, 2020). The catastrophic effects of COVID-19 on the tourism industry will be underestimated when considering those who provide intermediate goods and services to the industry (International Labour Organization, 2020). Between 100 and 120 million direct tourism jobs are at risk depending on the duration of restrictions and border shutdowns (World Tourism Organization (UNWTO), 2020). This massive disruption now tests destination and hospitality organizational reactions, speed, and levels of recovery, including the future outcomes from these responses to exit from the COVID-19 pandemic. Tourism has been stated as perhaps one of the last sectors to recover (Organisation for Economic Co-operation and Development (OECD), 2020).

Due to the dire economic outcomes, a COVID-19 exit strategy and recovery has become a tourism research priority (McCartney, 2020). The role of resilience to quicken destination and policy maker responses, and recovery strategies from COVID-19, has become part of this research importance (Sigala, 2020). The United Nations stated that the COVID-19

crisis was a time to rethink and reshape urban landscapes, and for a resilient, inclusive, and ecological transformation of cities (United Nations, 2020). We assert that rather than a city reset, the COVID-19 city recovery process could be narrowly focused on economic revival given the dramatic financial fallout to cities.

In the case of Macao, the city used in this study, there are limited industry alternatives to tourism, or ability to disperse possible economic risk. From 73 cities globally, 4.4% of GDP was from travel and tourism (World Travel and Tourism Council (WTTTC), 2020). Famous tourism and entertainment cities such as Las Vegas and Orlando produce 27.4% and 19.8% of GDP respectively from tourism. At 50.3% of GDP from tourism, Macao leads the world, and is number two in terms of international visitor spending with US\$36.1 billion (Table 1).

Macao's casino boom in early 2000 created a remarkable level of 'Dutch Disease', securing casino economic dominance (Sheng & Tsui, 2009). Over 85% of taxation to the Macao authorities is now from casino revenues (Macao Statistics and Census Department, 2020a). Our study makes a key contribution to the body of knowledge on tourism destination resilience and ability to 'bounce back' and position for tourism recovery during a real-time pandemic. The theoretical framework developed using the context of Macao could be applied to those cities globally now pursuing tourism economic recovery post-COVID-19 - and to crucially build a resilience framework against future pandemics and crises.

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**Table 1**  
Economic impact of cities from tourism 2018 – Top 10 (WTTTC, 2020).

Direct tourism contribution to city GDP			International visitor spending US\$ billion		
1	<b>Macao</b>	<b>50.3%</b>	1	Hong Kong	43.9
2	Cancún	46.8%	2	<b>Macao</b>	<b>36.1</b>
3	Marrakech	30.6%	3	Dubai	27.9
4	Las Vegas	27.4%	4	Bangkok	23.4
5	Orlando	19.8%	5	Tokyo	21.7
6	Dubrovnik	17.8%	6	New York	21.0
7	Dubai	11.5%	7	Singapore	19.9
8	Bangkok	10.6%	8	Shenzhen	19.5
9	Antalya	10.1%	9	London	17.5
10	Miami	9.2%	10	Miami	17.0

### 1.1. COVID-19 lockdown and containment priority – the case of Macao

Macao was one of the first city's globally to go into a lockdown outside Mainland China to stem the spread of COVID-19 (McCartney, 2020). The Macao Government Tourism Office announced in mid-January to expect 1.13 million visitors for Chinese New Year (GGRA-sia, 2020a). The first case of COVID-19 was recorded in Macao a few days later. Chinese New Year celebrations were cancelled and visitation plummeted in the midst of a city wide lockdown. Mainland Chinese travel to Macao resumed nationwide in September 2020. The border restrictions resulted in no COVID-19 cases for 130 consecutive days prior to the commencement of the travel corridor with China (Government Information Bureau of the Macao SAR, 2020).

The study principally examines Macao's ability to be resilient intra-pandemic (i.e. during the pandemic), and to implement wide-ranging economic contributions and stimulus incentives to the community throughout lockdown. As is common in the tourism and hospitality resilience literature, we adopt resilience as the ability to absorb the shock of a crisis, recover, and bounce back (Lew, 2014; Sydnor-Bouso et al., 2011). Resilience for Macao would be the ability for the casino industry to recover and generate pre-COVID-19 gaming revenues from the return of Chinese gamblers.

Our study is organized as follows. First we explain resilience and the concept of 'bouncing back' from a tourism and hospitality crisis. Second, we highlight Macao as a case study to amplify economic resilience intra-pandemic through substantial government fiscals reserves accumulated from casino taxation. Third, we examine the resilience literature to provide for the first time a conceptual tourism resilience and recovery framework. Fourth, we define how Macao's fits within this framework, the financial environment being a key takeaway in our analysis to providing a pathway to city resilience and recovery. This conceptual framework could be applied to tourism cities globally examining COVID-19 resilience and recovery. Finally, we provide recommendations for a future research agenda on destination tourism resilient policy and practice. Macao's diversification beyond gaming is a direction stressed by the leadership of the Chinese Government (Wu & Master, 2017). Our framework asserts that currently, recovery for Macao may have limited divergence from a casino-based economy.

## 2. Destination resilience and 'bouncing back' during COVID-19

Despite assumptions from the hospitality and aviation industries of recovery being over a year during SARS in 2003, it was only a few months when upturn occurred, causing the industries to reverse cost-cutting measures (Pine & McKercher, 2004). Following the experience of SARS, there were stark warnings of a future pandemic of greater consequences to tourism, and the need to prepare formal planning and recovery possibilities for the tourism and hospitality industry (Tew et al., 2008). In reviewing published literature on tourism risk, crisis and disaster management, only 5% focused on 'resilience' (Ritchie & Jiang, 2019). Beyond understanding the 'if' and 'how', destinations recovery

from a crisis, Ritchie and Jiang (2019) advocated that future research on resilience should not only investigate capabilities to emerge from a crisis, but also responses to create future resilience.

Disasters have been shown to be highly disruptive, unpredictable and inevitable, with dramatic consequences to the tourism industry (Fili-monau & Coteau, 2020). The COVID-19 zoonotic pandemic has generated fear, anxiety and mental health concerns in the midst of rumors and misinformation (Kumar & Nayar, 2020). Destinations grapple with the decision and likely consequences to reopening to tourism with ongoing COVID-19 cases. Even as COVID-19 vaccinations starts, community immunity could require around two-thirds of the population to be vaccinated (Burger & Kelland, 2020). Bilateral deals between wealthier countries have secured preordered quantities of vaccines to cover their entire populations, while developing countries have limited access (McKenzie, 2020). Our study is timely, advancing the city resilience debate 'intrapandemic', particularly at a time where the disparities to COVID-19 universal vaccination of global city populations indicate that recovery will be further prolonged.

### 2.1. COVID-19 exit. Resilience and recovery, and the case of Macao

Macao is the world's largest casino economy (McCartney, 2019). By April 2020, compared to April 2019, visitation and casino revenues had dropped by 99.7% and 96.8% respectively (Table 2). Consequently, Macao's GDP plummeted by 58% by mid-2020 (Macao Statistics and Census Department, 2020b). In 2019, Mainland Chinese represented 27.9 million (71%) of visitation to the city (Macao Statistics and Census Department, 2020a). With a cross-border travel corridor with China, over half-a-million Chinese visited Macao in October (Table 2), and US \$909 million in gaming revenues were generated (Macao Gaming Inspection Department, 2020). Macao's tourism and casino industry had restarted.

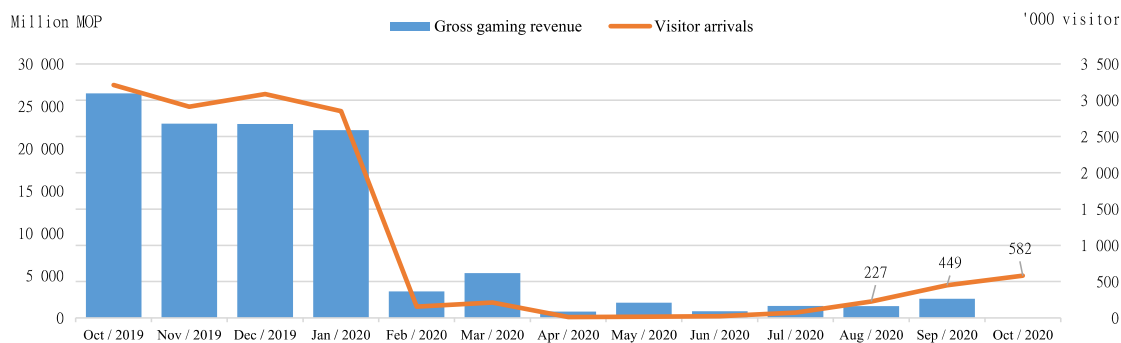
Macao remained resilient throughout lockdown due to the significant taxes paid by the casino industry, providing substantial government fiscal reserves. The gaming industry incurred considerable costs daily to remain open, relying on their own equity and cost mitigating measures. The daily estimated expenses for Macao's six casino concessions were - Sands China US\$4.3 million; Galaxy Entertainment Group US\$2.9 million; Wynn Macau US\$2.6 million; Melco Resorts US\$2.2 million; MGM China US\$1.6 million, and SJM US\$1.3 million (GGRAsia, 2020b).

An economic perspective of resilience is cited in the tourism literature (Jones & Wynn, 2019). It is through economic resilience that social and community resilience emerges (Kwok et al., 2016). An economic resilience framework is proposed based on existing literature, and advanced within Macao's setting. Some tourism literature has included resilience conceptual frameworks (Brown et al., 2018; Sydnor-Bouso et al., 2011). This line of conceptual research stops short in explaining the longer-term consequences of destination resilient responses. We submit that Macao's recovery phase is creating future vulnerabilities for a city increasingly reliant on gaming revenues and casino development. Research at the beginning of COVID-19 outbreaks in Macao acknowledged the possibility of limited economic diversification in a recovery scenario, due to the crucial importance of gambling to the city (Liu et al., 2020). The relative absence of policy and public consultation in Macao throughout COVID-19, and the government's top-down approach to virus containment is unlikely to create a diversified economy. The casino operator losses and investor priorities provide impetus to prioritise gaming revenues upon reopening (McCartney, 2020). Such a resolution contends with the growing mandate emphasized during the COVID-19 outbreak from both the Chinese and Macao authorities to diversify the tourism economy beyond casino revenues (McCartney, 2020).

We move the tourism resilience literature forward from definition, to providing insight on resilience in practice and examining possible outcomes during an ongoing pandemic. The conceptual framework describes the determinants of tourism resilience and recovery. We emulate Macao's response to this framework, identifying indicators for other

**Table 2**

Macao gross gaming revenues and visitor arrivals, October 2019–October 2020 (Macao Statistics and Census Department, 2020b).



(MOP8=US\$1)

destinations to integrate resilience and recovery measures during COVID-19 and future tourism crises. The economic urgency for city recovery from COVID-19 may mean a proper cost-benefit analysis is eluded. As we find for Macao, the question arises whether the recovery direction and outcome was optimum, or expedient, thereby denying an apposite city reset agenda. A similar query should be considered by cities globally.

### 3. Concept of tourism resilience and bouncing back

Organizational resilience has been cited as flourishing long-term, with ‘the ability of an organization to anticipate, prepare for, respond and adapt to incremental change and sudden disruptions in order to survive and prosper’ (Denyer, 2017, p. 5). In discussing the concept of resilience within hospitality, Brown et al. (2017) comment that ‘to jump back’ from the Latin root *resiliere* may mean a return to the previous state and therefore similar vulnerabilities. Such a scenario of falling back to previous tourism practices has been supported due to the important generation and redistribution of financial resources from the industry. While there will be some short-term minor adjustments, ‘in the long term, hardly any significant changes are to be expected, with the following justification: (1) travel is determined by habitual behavior; if these habits are not fundamentally changed, travel will not change significantly’ (Association of Scientific Experts in Tourism, 2020).

#### 3.1. Theoretical background to tourism resilience

Resilience research emerged in the 1960s and 1970s, examining social-ecological resilience linking community responses and the natural environment (Wilson, 2015). The concept of resilience in tourism and hospitality is more recent and has been examined from a number of perspectives. These have included: business and organizational vulnerability (Annarelli & Nonino, 2016); impact and disruption to hospitality operations (Brown et al., 2018); environmental and ecology sustainability (Biggs et al., 2012) and resilience to climate change (Dogru et al., 2019); community resilience and the importance of involving and connecting with local community knowledge through a ‘bottom-up’ approach to build destination resilience (Kwok et al., 2016); and employee resilience and human capital (Clark & Bailey, 2018). The consequences to the tourism destination post-crisis from resilient actions have been overlooked in the literature.

Acknowledging that there can be tremendous impacts on hospitality jobs and social costs when a natural disaster occurs, Sydnor-Bouso et al. (2011, p. 196) advocated to seek out those factors that could bring resilience to the industry: ‘The natural laws governing the evolution of any disaster are arguably often more art than science; nonetheless,

understanding the consequences of disasters in order of minimizing their debilitating effects is important if we are to develop resiliency’. There is scant empirical research though to verify disaster recovery frameworks, and from this to build an understanding of building future resilience (Ritchie & Jiang, 2019), including a lack of understanding in resilience studies on the level of governance and tourism networks required when comparing a slow change process (e.g. climate change), and one that prompts more immediate action (Luthe & Wyss, 2014) - in this case a pandemic.

Gianluca and David (2015) highlight the danger of cascading disasters, an extreme event where a subsequent and sequence of interconnected failures presence several vulnerabilities. Each single effect within the cascade should be considered autonomous, isolated, and addressed with risk reduction actions (Gianluca & David, 2015). The COVID-19 pandemic has cascaded, causing failure throughout the hospitality sector. In countries with pre-existing serious socio-economic crises including high unemployment, inflation, recession, mounting external debt and high level of poverty, COVID-19 becomes a ‘crisis embedded in another crisis’ (Visacovsky & Zenobi, 2020, p. 1).

The notion of resilience has been conceptualized more commonly within an economic framework. The concept includes business environment (i.e. entrepreneurship, debt structure, diversity v. specialization), governance arrangements (i.e. policies and regulations), financial arrangements (i.e. loans, equity markets), and labour market conditions (i.e. skilled workforce, mobility, alternative job alternatives) (Martin & Sunley, 2015). We adapt and explain this conceptual framework within a tourism landscape using the existing literature on tourism resilience.

Kwok et al. (2016) advocated that economic resilience would be fundamental in creating social resilience. This included the provision of emergency funds to keep local businesses afloat, and provide for livelihood concerns, as well as an equitable distribution or access to resources. This resonates with our examination on Macao’s resilience, and the economic framework in Fig. 1, where it was the availability of considerable fiscal reserves and provision of multiple cash subsidies to sustain in the lockdown, and thereby aid recovery.

#### 3.2. Labour market and community conditions

A key component of Martin and Sunley’s (2015) resilience framework is labour market conditions, employment opportunities, and workforce skills. OECD (2020) has stated that COVID-19 is first and foremost a humanitarian crisis, which caused a global economic crisis. In addition to the public health treat, the International Labour Organisation warns of the long-term severe economic and social disruption from COVID-19 in the Asia and Pacific tourism sector. As many as 15.3 million jobs have been impacted by the pandemic through shortened

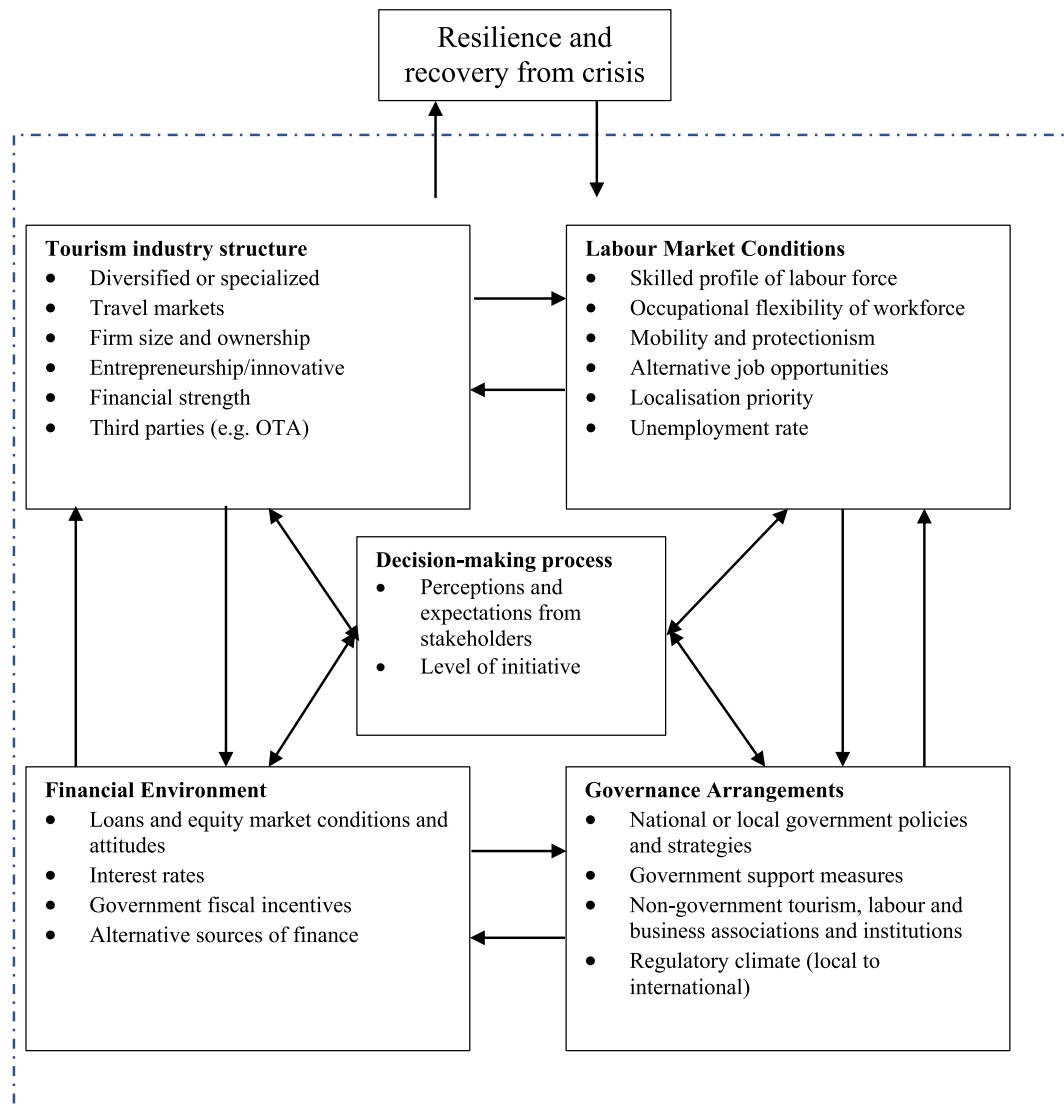


Fig. 1. Determinants of economic resilience and tourism recovery. (Adapted from Martin & Sunley, 2015).

hours, extended partial paid or unpaid leave, or complete job loss (International Labour Organisation, 2020). There are further jobs losses from those who indirectly relied on tourism.

Strengthening community cohesion, social networks, and connection to community space have been recommended as key policy measures in a crisis (Aldrich & Meyer, 2015). Aldrich and Meyer (2015) also underscore the importance of investing in social capital, community cohesion and neighbourhood ties in a crisis, placing greater priority on these than what is normally a physical infrastructure focused recovery.

### 3.3. Tourism industry structure

There is anecdotal evidence that larger international brand and managed hotel organizations, such as chain hotels, dealt with the response to SARS better than smaller ones (Tew et al., 2008). SMEs have been especially vulnerable and less resilient due to their size and costs associated with ongoing COVID-19 prevention initiatives (OECD, 2020). Estimates from 17 countries (14 from the EU) predict up to 12% of SMEs could fail by the end of 2020, mostly those in food, accommodation, retail, arts and entertainment. A strong fiscal response was advocated to address the real threat of a 'second wave of business failures' (Gourinchas, 2020).

The intervention of government to provide funding during a crisis will be a crucial step to tourism recovery (Cioccio & Michael, 2007). The UK's aviation industry, the third largest in the world, is predicted to lose over GBP200 billion in 2020, as fixed costs associated with maintaining airlines and airports remain, negatively impacting suppliers and those reliant on fleet renewal (UK Parliament, 2020). The permanent or temporary closure of tourism and hospitality infrastructure during COVID-19 may only delay a reactivation and 'bounce back'.

### 3.4. Financial environment

By April, around 96% of worldwide destinations had introduced travel restrictions, ranging from complete or partial closed borders (43%), travel bans from certain destinations (21%), and suspending international flights completely or partially (27%) (UNWTO, 2020b). This may lead to a loss of at least one third of US\$1.5 trillion tourism receipts generated globally (UNWTO, 2020b). The scale of costs to the global economy associated with even a contained COVID-19 outbreak are predicted to be dramatic, particularly in developing economies where health care systems are especially stressed (McKibbin & Fernando, 2020). Resilience and transformation from a crisis require financial capacity building among private and public stakeholders

(Restemeyer et al., 2015). Given the dramatic revenue losses and unprecedented job losses from COVID-19, significant financial support measures have been advocated to help the hospitality industry recover (Dube et al., 2020).

### 3.5. Governance arrangements

An effective and proactive response to a crisis is linked to a strong decentralized governance structure by the principal tourism stakeholders (Çakar, 2018). Government policies and access to funding will influence the ability and rate of recovery from a crisis. Banks and treasuries have had a critical role during the initial stages of the COVID-19 outbreak to ensure economies continued to function (McKibbin & Fernando, 2020).

Stakeholder collaboration and sharing of knowledge and access to resources has been advocated to prepare for, and recover, from a crisis (Jiang & Ritchie, 2017). Given the vulnerability of Caribbean destinations to natural disasters, disaster resilience strategies were suggested to identify vulnerabilities and potential hazards (Filimonau & De Coteau, 2019). Government will play a crucial role in consolidating a crisis response programme to determine what crises are likely; what innovative actions are taken; how to share access and share resources; and private and public sector collaboration structure.

## 4. Macao's resilient responses

### 4.1. Labour market conditions

Maintaining social stability is a Macao Government key directive, reiterated by the authorities during COVID-19 (Macao News, 2020a). Localisation and resident job protection is embedded in this social stability. The Macao Gaming Inspection Bureau, a government authority overseeing the gaming industry, stated that “maintaining social responsibility is one of the priorities of the Macao SAR Government. In this difficult period, companies should make every effort to ensure the employment of employees and maintain a stable labor market” (cited in Blaschke, 2020). There are approximately 26,000 casino dealers employed in Macao, an occupation exclusively for Macao residents, and making up 1 in every 14 people working in Macao (Green, 2019). There are 122,600 imported workers from a total labour force of 401,900 (see Table 3). Hotels and restaurants employ almost 53,000 of the total labour force (Macao Labour Affairs Bureau, 2020). In the first half of 2020, Macao's unemployment rate only increased to 3.5%.

### 4.2. Macao financial environment

Due to the massive amounts of liquidity, casinos are one of the most resilient hospitality services within tourism (McCartney, 2017). Casino hotels have been found to have higher liquidity, solvency and profitability conditions than commercial hotels companies (Ryu & Jang, 2004). Securing annual fiscal surpluses to government coffers through the heightened financial liquidity performance of the casino sector placed Macao in a unique position to be economically resilient to the COVID-19 outbreak.

Macao has constantly kept a surplus balance in public accounts (see Table 4). In 2019, the annual surplus was US\$6.425billion, 39% of total

**Table 3**  
Macao Labour Statistics – 2019Q3 to 2020Q2 (Macao Labour Affairs Bureau, 2020).

	2019Q3	2019Q4	2020Q1	2020Q2
Total employed	387,100	389,800	397,400	401,900
Locals employed	281,100	281,600	288,600	279,300
Locals unemployed	7300 (2.5%)	6700 (2.3%)	8500 (2.9%)	9776 (3.5%)

government revenues, with gaming taxation contributing 84% to government revenues.

Through casino tourism, Macao has accumulated substantial fiscal and foreign reserves, representing 121% and 40% of GDP respectively. The city has zero public debt (International Monetary Fund, 2019). Macao's financial reserves reached US\$72.3 billion in 2019 (Macao News, 2020b). With US\$122,489 GDP per capita in 2018, Macao was placed second richest in the world (Menezes, 2018).

Announced in February 2020, Macao prepared US\$4.8billion in cash aid, financial stimulus packages and tax breaks for individuals and small businesses. Table 5 illustrates some of the key measures for residents, including exemptions on paying utility bills, e-vouchers, and tax rebates. Some measures are a continuation of previous benefits, with additional cash assistance during COVID-19 such as additional health vouchers.

In July 2020, the Macao Government Tourist Office spent over US\$35 million to assist local travel agencies to organize package tours for local residents (GGRAsia, 2020c). Free for returning residents, by the end of March, the government had paid over US\$6 million for quarantine hotel rooms for the mandated 14-day stay for those entering the city (Macao News, 2020c). The Macao Government also signed an agreement with the World Health Organisation to purchase 1.4 million doses of COVID-19 vaccines, being two doses per person (Macao News, 2020d).

Fiscal reserves from the taxation of tourism activities (in this case, casinos) provided an adequate fund to provide cash aid, incentives, and domestic tourism activities in Macao. Local unemployment was prevented due to Macao Government's politico-administrative stance throughout COVID-19.

### 4.3. Macao Governance

As a top-down administration, Macao's authorities are able to exert leverage over the private sector, and particularly the gaming industry (Wan & Pinheiro, 2014). This governance approach was apparent during COVID-19. The government affirmed the ability under law to seize hotels in emergencies, and that the provision of hotel rooms was a test for the gaming operators on their corporate social responsibility, an issue that could be included in the public tendering of future casino licenses (Wong, 2020). Macao's casino licenses will expire in 2022 signaling the start of a global casino tendering process.

Macao's rapid casino growth trajectory and top-down approach to governance has meant there has been limited public consultation (Wan & Pinheiro, 2014), although greater public and private collaboration is suggested for a more effective COVID-19 exit strategy (McCartney, 2020).

### 4.4. Tourism industry structure

Following the view that after COVID-19, “rather than a ‘rethink’ on tourism, the immense economic fallout to Macao's casino industry will mean a focus on Macao's core casino business and Chinese travel markets. Likewise, the city's tourism and destination marketing authorities would resume their *modus operandi* prior to coronavirus” (McCartney, 2020, p. 7). Macao tourism development literature frequently cites the importance of diversification as part of the city's sustainable development, and a progress spearheaded by the tourism authorities (Pang et al., 2019; Wan & Li, 2013).

Macao's tourism authorities have had limited progression on diversification due to the governance model (Wan & Pinheiro, 2014). The MICE (meetings, incentive travel, conventions, exhibitions) industry has been advocated by the Macao and China authorities as a tourism market to develop. Yet the dominance of the casino industry and the financial benefits that the tourism and hospitality private sector derive from supporting the gaming sector, means limited progress is made in MICE development or other tourism segments (McCartney, 2008). Macao's tourism authorities have advocated using the city's cultural and

**Table 4**

Macao Public Accounts, 2010–2019 (Macao Statistics and Census Department, 2020a) in US\$ million.

	2012	2013	2014	2015	2016	2017	2018	2019
Total government revenues	16,187	21,994	20,233	14,514	13,813	15,796	17,664	16,688
Gaming tax revenue	14,172	16,798	17,089	11,197	10,547	12,480	14,189	14,089
Total government expenditure	7092	6424	8385	10,094	10,329	10,163	10,379	10,262
Balance (surplus)	9095	15,570	11,848	4420	3484	5633	7285	6425

**Table 5**

Cash benefits to Macao residents (KPMG, 2020).

Type of cash aid and incentives	Amount
Health vouchers	US\$75 per resident (amounting to 0.09 of GDP)
Utility bills	Exemption from paying water and electricity utility bills in March, April and May
Vehicle tax	Rebate for each resident vehicle
Personal income tax	Rebate up to 70% for 2018 fiscal year, up to US\$2500. Expected to impact 170,000 employees
Personal income tax starting point	To raise the starting point from 25% of salary, to 30%. Expected to impact 180,000 employees.
E-vouchers handouts	US\$375 per resident (May to July), US\$625 per resident (August to December)

historical legacy as key messaging and attraction attributes. Macao has been promoted as a UNESCO Creative City of Gastronomy since 2017 (Yu & Sun, 2019).

In terms of the city's balance sheet, the casino industry provided substantial economic backing and resilience when the COVID-19 outbreak occurred. The reliance and wealth created from gaming meant limited economic alternatives have been created, an over-emphasis and vulnerability forewarned by McCartney and Nadkarni (2003).

## 5. Discussion

### 5.1. Building destination resilience from COVID-19 - lessons learnt?

While a focus on Macao, the implications for tourism cities are far reaching. Governments were warned but unprepared for a high-impact, low probability crisis such as a pandemic spreading from animals to humans (Economist, 2020). When COVID-19 started to spread this revealed the lack of preparation and bureaucratic capacity to roll out practical recovery plans (Economist, 2020). The fallout to the tourism industry has been devastating with destinations now tasked to present a COVID-19 exit and tourism recovery strategy.

Addressing the immediate business challenges of survival and recovery from COVID-19, policy makers have been encouraged to learn from this crisis in order to build in greater destination resilience for future shocks (OECD, 2020). Lessons from SARS meant that Macao reacted swiftly with a city lockdown as the first cases of COVID-19 were reported in the city. As one of the cities worse affected by SARS, the Singapore authorities developed a national pandemic preparedness plan and risk assessment, and building pandemic infrastructure such as the National Centre for Infectious Diseases (NCID) (Prime Minister's Office of the Singapore Government, 2011).

Resilience planning and preparedness will impact the speed to recover and in restoring confidence to consumers (Voltes-Dorta et al., 2017). The Hong Kong Government had a crisis recovery plan implemented during SARS, bringing visitors back, while being sensitive in the city's marketing approach to the crisis that had just occurred (Malhotra & Venkatesh, 2009). In mapping the panic and fear that SARS brought to the hotel industry in Hong Kong and in the absence of a medical cure for the SARS virus, Chien and Law (2003) recommended hygiene and personal protective measures including surgical masks and screening – such measures remained fairly unchanged in Macao's response to COVID-19.

## 6. Conceptual implications

We took a conceptual model on resilience and recovery from the literature and adapted for destination recovery with a real-time global pandemic. Examining Macao's resilience from a prolonged lockdown, we showed that immediate action and significant fiscal reserves were crucial in creating the ability to withstand the lockdown. The Macao Government provided multiple fiscal incentives for the community. Macao's top-down governance approach meant that the lockdown and mandatory preventative measures against COVID-19, and economic support measures, were all quickly introduced.

The conceptual framework shows that governance, the tourism industry structure, and labour can influence recovery, but does not show the recovery to which state. 'Bouncing back' for Macao means increased casino reliance as the city exits COVID-19 restrictions. Cities can apply the conceptual framework to investigate recovery, and the possible outcomes. In examining each of the framework determinants, we justified Macao's reset as a return to gaming reliance. The outcomes and recovery state could differ. The milieu of a city post COVID-19 will be directed by decisions made with the various determinants. COVID-19 has been referred to as a humanitarian crisis (OECD, 2020). As highlighted in the framework, re-examining city labour conditions would influence city resilience and recovery outcome. These include pragmatic responses to public health, unemployment, workforce mobility, skills training, as well as localization and migrant labour priorities.

The tourism industry structure will determine the tourism outlook of the city post COVID-19, with factors such as travel source markets, tourism products available for travelers, and third-party tourism industry suppliers. Recovery for Macao rested on re-establishing travel links with China. The debate on city crisis tourism recovery should include those enterprises that would have greatest liquidity resilience – for Macao, these are the casino companies.

The urgency for Macao to restart gaming and tourism revenues implies a bouncing back to a gaming industry focus. Another key contribution from our study shows that the dramatic economic fallout will mean limited adjustment to the tourism industry structure. Cities will have an eagerness to prioritise revenues, possibly relegating any vision of a tourism reset or rethink.

While the framework demonstrates that resilience and recovery is possible, it does not show what qualifies as a recovery phase, requiring further investigation. COVID-19 has underscored the importance of building in resilience to future pandemics and crises to minimize city economy fallout. The vaccine rollout is already exacerbating global inequalities with many poorer nations having limited access to the vaccine (Smith, 2020). What is evident is that there will be greater disparity in the ability of cities to recover – some may require more financial assistance to recover (GTERC, 2020).

## 7. Practical and policy-making implications

Given prolonged hospitality shutdowns, the core concern is on business survival while at the same time learning lessons from the COVID-19 crisis to build future resilience. 'While the focus in recent months has rightly been on protecting workers and visitors, and supporting business survival, policy makers are also considering the longer term implications of the crisis on the sector, and the structural transformation which will be needed to build a stronger, more sustainable

and resilient tourism economy in the future' (OECD, 2020). Epidemiologists modelers agree that COVID-19 is here to stay, although with several unknowns and possible scenarios such as annual surges in COVID-19 infections, immunity responses, the introduction of a vaccine, as well as actions through social mixing, behavioural changes, and human compliance (Scudellari, 2020).

Tourism destinations have looked to resilience building after the fact, to the new reality of the impact of COVID-19. This study presented the economic environment as the key antecedent to city revival. Each city would need to investigate recovery and vulnerability scenarios based on the multiple variables in the model. Advancing resilience building in tourism, we made the following observations from our study:

- *Fiscal surpluses are key in tourism destination resilience.* The conceptual framework shows that governance, labour considerations, and the tourism industry structure are part of resilience and recovery. These factors will rely on fiscal reserves to sustain.
- *One size does not fit all.* Casinos and gaming revenues elevated Macao to the world's leading casino destination. As indicated by McCartney (2017, p. 196), 'a key lesson on Asian casino resilience is firmly nestled around acquiring and maintaining a Chinese high-net-worth-individual market, with individuals who feel confident and secure in their gaming environment'. Macao's success is export driven with over 70% of visitation from China. This increasing reliance on a single source visitor market has made Macao vulnerable in recovery.
- *Social and well-being concerns from COVID-19.* Beyond the economics, there will be social impacts. Unknown is the psychosocial effect of COVID-19 on Macao's community and the longer-term mental health and well-being effects (Li et al., 2020) - many who work in the tourism and hospitality industry. The resilience level of how the community responds to the disruption caused by the lockdown and stress caused could influence city resilience.
- *Travel corridors are pragmatic measures to establish recovery from the pandemic.* China reestablished its IVS programme first with Macao. This involved the sharing of traveler data to permit cross border entry and exit.
- *East to West recovery comparison.* Asia's crisis preparation based on SARS shows a cultural difference between the West and East on issues such as cognitive dissonance (Prime Minister's Office of the Singapore Government, 2011). A case in point has been a ubiquitous wearing of masks in Macao since the first COVID-19 case was recorded in the city in January. The authorities immediately started a city-wide mask selling programme (10 masks for US\$1) controlled through a centralized computer system. Over 100 million had been sold by mid-2020 (Macao News, 2020e). Destinations globally will recover and some relapse from COVID-19 differently due to human compliance and behaviour (Scudellari, 2020).
- *Tourism industry structure collaboration and diversification.* Public and private sector collaboration and a diversification of tourism activities and wider travel markets are advocated to build resilience post COVID-19 (UNWTO, 2020a). The framework suggests synthesized recovery responses.
- *Recovery vulnerabilities.* The urgency to stem the dramatic financial and employment losses to the tourism industry may mean recovering to a pre-COVID-19 position. Rather than an opportunity to address previous vulnerabilities, the recovery process will be primarily revenue and profit seeking.

## 8. Future research

Another pandemic will occur and COVID-19 will continue to impact the global tourism industry for some time. With limited discussion in the tourism literature on city resilience and recovery from a pandemic, this real-time destination case study is an important first step to address 'how to' recover. The study suggests the financial environment, tourism industry structure, labour market conditions, and governance

arrangements as factors impacting destination resilience and recovery. Future tourism city research could examine the level of influence and importance of each factor in this recovery, when one action stops, and another starts, including the uncertainty to which condition the city will recovery into. Each city can examine the determinants to develop possible outcome scenarios and consequences, together with the hurdles to generate resilience, and the factors that prompt resilience buy-in.

Crisis response literature cites the importance of planning ahead, and to integrate tourism and hospitality stakeholder collaboration. Future research could examine collaboration best practices and resource sharing in creating a crisis response framework, and in particular those enterprises that provide greater economic resilience. COVID-19 responses globally have shown resilience and tourism recovery will differ through the actions of human behaviour, government policy, and several clinical unknowns about the actual virus. Macao with no reported cases of COVID-19 for over 3 months became the first city outside China to have the IVS programme reinstated. Comparative research could be taken globally to seek out best practice to navigate tourism recovery while COVID-19 still persists.

## CRedit authorship contribution statement

**Glenn McCartney:** Conceptualization, Writing - Original draft preparation. **Matthew Liu:** Validation, Writing - Reviewing and Editing. **Jose Pinto:** Writing - Reviewing and Editing.

## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## References

- Aldrich, D. P., & Meyer, M. A. (2015). Social capital and community resilience. *American Behavioral Scientist*, 59(2), 254–269.
- Annarelli, A., & Nonino, F. (2016). Strategic and operational management of organizational resilience: Current state of research and future directions. *Omega*, 62, 1–18.
- Association of Scientific Experts in Tourism. (2020). (Immediate) future of tourism in the wake of relaxing SARS-CoV-2 shutdowns. May 10, 2020 [https://www.aiest.org/fileadmin/ablage/dokumente/Covid-Reports/Report\\_20200510\\_Tourism\\_Future.pdf](https://www.aiest.org/fileadmin/ablage/dokumente/Covid-Reports/Report_20200510_Tourism_Future.pdf).
- Biggs, D., Hall, C. M., & Stoeckl, N. (2012). The resilience of formal and informal tourism enterprises to disasters: Reef tourism in Phuket, Thailand. *Journal of Sustainable Tourism*, 20(5), 645–665.
- Blaschke, B. (2020). "Top 5" junket re-hires 200 laid-off staff after DICJ sends warning letter to Macau gaming operators. March, 3, 2020 <https://www.asgam.com/index.php/2020/03/05/top-5-junket-re-hires-200-laid-off-staff-after-dicj-sends-warning-letter-to-macau-gaming-operators/>.
- Brown, N. A., Orchiston, C., Rovins, J. E., Feldmann-Jensen, S., & Johnston, D. (2018). An integrative framework for investigating disaster resilience within the hotel sector. *Journal of Hospitality and Tourism Management*, 36, 67–75.
- Brown, N. A., Rovins, J. E., Feldmann-Jensen, S., Orchiston, C., & Johnston, D. (2017). Exploring disaster resilience within the hotel sector: A systematic review of literature. *International Journal of Disaster Risk Reduction*, 22, 362–370.
- Burger, L., & Kelland, K. (2020). Analysis: Can first COVID-19 vaccines bring herd immunity? Experts have doubts. November 18, 2020 <https://www.reuters.com/article/us-health-coronavirus-immunity-analysis/analysis-can-first-covid-19-vaccines-bring-herd-immunity-experts-have-doubts-idINKBN27Y124>.
- Çakar, K. (2018). Critical success factors for tourist destination governance in times of crisis: A case study of Antalya, Turkey. *Journal of Travel & Tourism Marketing*, 35(6), 786–802.
- Chien, G. C. L., & Law, R. (2003). The impact of the severe acute respiratory syndrome on hotels: A case study of Hong Kong. *International Journal of Hospitality Management*, 22(3), 327–332.
- Giocchio, L., & Michael, E. J. (2007). Hazard or disaster: Tourism management for the inevitable in Northeast Victoria. *Tourism Management*, 28(1), 1–11.
- Clark, J., & Bailey, D. (2018). Labour, work and regional resilience. *Regional Studies*, 52(6), 741–744.
- Denyer, D. (2017). *Organizational resilience: A summary of academic evidence, business insights and new thinking*. BSI and Cranfield School of Management.
- Dogru, T., Marchio, E. A., & Suess, C. (2019). Climate change: Vulnerability and resilience of tourism and the entire economy. *Tourism Management*, 72, 292–305.
- Dube, K., Nhamo, G., & Chikodzi, D. (2020). COVID-19 cripples global restaurant and hospitality industry. *Current Issues in Tourism*, 0(0), 1–4. <https://doi.org/10.1080/13683500.2020.1773416>.



- Economist. (2020). Politicians ignore far-out risks: They need to up their game. June 6, 2020 <https://www.economist.com/leaders/2020/06/25/politicians-ignore-far-out-risks-they-need-to-up-their-game>.
- Filimonau, V., & De Coteau, D. (2019). Tourism resilience in the context of integrated destination and disaster management (DM2). *International Journal of Tourism Research*, 22(2), 202–222.
- Filimonau, V., & Coteau, D. D. (2020). Tourism resilience in the context of integrated destination and disaster management (DM2). *International Journal of Tourism Research*, 22(2), 202–222.
- GGRAsia. (2020a). Macau could see visitor tally decline in 2020: MGTO. January 15, 2020 <http://www.ggrasia.com/macau-could-see-visitor-tally-decline-in-2020-mgto/>.
- GGRAsia. (2020b). Macau casino 2Q costs down from 1Q: Morgan Stanley. July 6, 2020 <https://www.ggrasia.com/macau-casino-2q-costs-down-from-1q-morgan-stanley/>.
- GGRAsia. (2020c). Macau to pay US\$35mln to send locals on tours across city. July 16, 2020 <https://www.GGRAsia.com/macau-to-pay-us35mln-to-send-locals-on-tours-across-city/>.
- Gianluca, P., & David, A. (2015). Critical infrastructure, panarchies and the vulnerability paths of cascading disasters. *Natural Hazards*, 82, 175–192.
- Global Tourism Economy Research Centre. (2020). *UNWTO/GTERC Asia tourism trends – 2020 edition*. Madrid: UNWTO. <https://doi.org/10.18111/9789284422258>.
- Gourinchas, P. (2020). Public hearing on the COVID. June 15, 2020 [https://www.europa.europa.eu/cmsdata/208986/Speech\\_Gourinchas.pdf](https://www.europa.europa.eu/cmsdata/208986/Speech_Gourinchas.pdf).
- Government Information Bureau of the Macao SAR. (2020). Resumption of Macao travel scheme for mainland residents boosts post-COVID-19 economic recovery. August 12, 2020 [https://news.gov.mo/detail/en/N20HL7ynw5?category=Central\\_Government\\_and\\_Macao\\_SAR](https://news.gov.mo/detail/en/N20HL7ynw5?category=Central_Government_and_Macao_SAR).
- Green, D. (2019). Impressive achievements but still room for improvement. December 6, 2019 <https://agbrief.com/intelligence-article/impressive-achievements-but-still-room-for-improvement/>.
- International Labour Organisation. (2020). COVID-19 and the tourism sector. June 18, 2020 [http://www.ilo.org/sector/Resources/publications/WCMS\\_741468/lang-en/index.htm](http://www.ilo.org/sector/Resources/publications/WCMS_741468/lang-en/index.htm).
- International Monetary Fund. (2019). People's Republic of China—Macao special administrative region: 2019 article IV consultation discussions—press release; staff report; and statement by the executive director for Macao SAR - country report 19/123. May 6, 2020 <https://www.imf.org/en/Publications/CR/Issues/2019/05/06/Peoples-Republic-of-China-Macao-Special-Administrative-Region-2019-Article-IV-Consultation-46867>.
- Jiang, Y., & Ritchie, B. W. (2017). Disaster collaboration in tourism: Motives, impediments and success factors. *Journal of Hospitality and Tourism Management*, 31, 70–82.
- Jones, P., & Wynn, M. G. (2019). The circular economy, natural capital and resilience in tourism and hospitality. *International Journal of Contemporary Hospitality Management*, 31(6), 2544–2563.
- KPMG. (2020). Macao SAR, China. Government and institution measures in response to COVID-19. April 29, 2020 <https://home.kpmg/xx/en/home/insights/2020/04/macau-sar-china-government-and-institution-measures-in-response-to-covid.html>.
- Kumar, A., & Nayar, K. R. (2020). COVID 19 and its mental health consequences. *Journal of Mental Health*, 1–2. <https://doi.org/10.1080/09638237.2020.1757052>.
- Kwok, A. H., Doyle, E. E. H., Becker, J., Johnston, D., & Paton, D. (2016). What is “social resilience”? Perspectives of disaster researchers, emergency management practitioners, and policymakers in New Zealand. *International Journal of Disaster Risk Reduction*, 19, 197–211.
- Lew, A. A. (2014). Scale, change and resilience in community tourism planning. *Tourism Geographies*, 16(1), 14–22.
- Li, W., Yang, Y., Liu, Z.-H., Zhao, Y.-J., Zhang, Q., Zhang, L., ... Xiang, Y.-T. (2020). Progression of mental health services during the COVID-19 outbreak in China. *International Journal of Biological Sciences*, 16(10), 1732–1738.
- Liu, M. T., Dong, S., Chang, S. K. P., & Tan, F. (2020). Macau gambling industry's quick V-shape rebound from 2014 to 2019. *Asia Pacific Journal of Marketing and Logistics*. <https://doi.org/10.1108/APJML-08-2019-0489>.
- Luthe, T., & Wyss, R. (2014). Assessing and planning resilience in tourism. *Tourism Management*, 44, 161–163.
- Macao Gaming Inspection Department. (2020). Monthly gross revenue from games of fortune. [http://www.dicj.gov.mo/web/en/information/DadosEstat\\_mensal/2020/index.html](http://www.dicj.gov.mo/web/en/information/DadosEstat_mensal/2020/index.html).
- Macao Labour Affairs Bureau. (2020). Statistics on labour force. [https://www.dsal.gov.mo/download/pdf/en/statistic/nrworker/A1/A1\\_2020\\_04.pdf](https://www.dsal.gov.mo/download/pdf/en/statistic/nrworker/A1/A1_2020_04.pdf).
- Macao Statistics and Census Department. (2020a). Macao in figures 2020. Principal indicators. [https://www.dsec.gov.mo/getAttachment/19c634de-4f83-4c21-8d48-993c3fc51c17/E\\_MN\\_PUB\\_2020\\_Y.aspx](https://www.dsec.gov.mo/getAttachment/19c634de-4f83-4c21-8d48-993c3fc51c17/E_MN_PUB_2020_Y.aspx).
- Macao Statistics and Census Department. (2020b). Macao social and economic digest (October 2020/no. 19). [https://www.dsec.gov.mo/getAttachment/2229eccb-8c70-4516-95cf-b47206994b0a/e\\_ssem\\_fr\\_2020\\_m19.aspx](https://www.dsec.gov.mo/getAttachment/2229eccb-8c70-4516-95cf-b47206994b0a/e_ssem_fr_2020_m19.aspx).
- Macao News. (2020a). Ho thanks workers for role in social stability amid COVID-19 crisis. May 1, 2020 <https://macaunews.mo/ho-thanks-workers-for-role-in-social-stability-amid-covid-19-crisis/>.
- Macao News. (2020b). Macau's financial reserves gain 5.6% in 2019. February 26, 2020 <https://macaunews.mo/macaus-financial-reserves-gain-5-6-in-2019/>.
- Macao News. (2020c). Government spends over MOP 50 million on “quarantine hotels”. April 7, 2020 <https://macaunews.mo/government-spends-over-mop-50-million-on-quarantine-hotels/>.
- Macao News. (2020d). Macau to buy 1.4 million doses of COVID-19 vaccines for whole population. September 22, 2020 <https://macaunews.mo/macau-to-buy-1-4-million-doses-of-covid-19-vaccines-for-whole-population/>.
- Macao News. (2020e). Over 100 million “government masks” sold in Macao. July 13, 2020 <https://macaunews.mo/over-100-million-government-masks-sold-in-macao/>.
- Malhotra, R., & Venkatesh, U. (2009). Pre-crisis period planning: Lessons for hospitality and tourism. *Worldwide Hospitality and Tourism Themes*, 1(1), 66–74.
- Martin, R., & Sunley, P. (2015). On the notion of regional economic resilience: Conceptualization and explanation. *Journal of Economic Geography*, 15(1), 1–42.
- McCartney, G. (2008). The CAT (casino tourism) and the MICE (meetings, incentives, conventions, exhibitions): Key development considerations for the convention and exhibition industry in Macao. *Journal of Convention & Event Tourism*, 9(4), 293–308.
- McCartney, G. (2020). The impact of the coronavirus outbreak on Macao. From tourism lockdown to tourism recovery. *Current Issues in Tourism*, 1–10. <https://doi.org/10.1080/13683500.2020.1762549>.
- McCartney, G., & Nadkarni, S. (2003). Heritage versus gaming: Odds on winning a piece of the tourist pie. In *Proceedings of the 2nd DeHaan tourism management conference*. Nottingham University Business School.
- McCartney, G. J. (2017). Betting on casino tourism resilience: A case study of casino expansion in Macao and the Asia region. In R. W. Butler (Ed.), *Tourism and Resilience* (pp. 195–205). CAB International.
- McCartney, G. (2019). Securing Chinese mass market visitation to Cotai's Integrated Resorts (IRs). Determinants of gaming and non-gaming attributes that influence IR selection. *Tourism and Hospitality Research*, 20(3), 317–330.
- McKenzie, D. (2020). Despite promises of solidarity on Covid-19, rich countries are snapping up the supply of promising vaccines. December 13, 2020 <https://edition.cnn.com/2020/12/13/world/coronavirus-vaccine-developing-world-intl/index.html>.
- McKibbin, W. J., & Fernando, R. (2020). The global macroeconomic impacts of COVID-19: Seven scenarios. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3547729>.
- Menezes, J. P. (2018). 2020—Macao slated to be richest place in the world. August 7, 2018 <https://www.macaubusiness.com/2020-macao-slated-to-be-richest-place-in-the-world/>.
- Organisation for Economic Co-operation and Development (OECD). (2020). Tourism policy responses to the coronavirus (COVID-19). <https://www.oecd.org/coronavirus/policy-responses/tourism-policy-responses-to-the-coronavirus-covid-19-6466aa20/>.
- Pang, L., Law, R., & Fong, D. K. C. (2019). Mainland Chinese visitors' perceptions of Macau as a travel destination. *Journal of China Tourism Research*, 1–24. <https://doi.org/10.1080/19388160.2019.1699883>.
- Pine, R., & McKercher, B. (2004). The impact of SARS on Hong Kong's tourism industry. *International Journal of Contemporary Hospitality Management*, 16(2), 139–143.
- Prime Minister's Office of the Singapore Government. (2011). Conversations for the Future: Singapore's experiences with strategic planning (1988–2011). <https://www.csf.gov.sg/files/media-centre/publications/conversations-for-the-future.pdf>.
- Restemeyer, B., Woltjer, J., & Brink, M.v.d. (2015). A strategy-based framework for assessing the flood resilience of cities – A Hamburg case study. *Planning Theory & Practice*, 16(1), 45–62.
- Ritchie, B. W., & Jiang, Y. (2019). A review of research on tourism risk, crisis and disaster management: Launching the annals of tourism research curated collection on tourism risk, crisis and disaster management. *Annals of Tourism Research*, 79, 102812. <https://doi.org/10.1016/j.annals.2019.102812>.
- Ryu, K., & Jang, S. (2004). Performance measurement through cash flow ratios and traditional ratios: A comparison of commercial and casino hotel companies. *The Journal of Hospitality Financial Management*, 12(1), 15–25.
- Scudellari, M. (2020). How the pandemic might play out in 2021 and beyond. *Nature*, 584(7819), 22–25.
- Sheng, L., & Tsui, Y. (2009). Casino boom and local politics: The city of Macao. *Cities*, 26(2), 67–73.
- Sigala, M. (2020). Tourism and COVID-19: Impacts and implications for advancing and resetting industry and research. *Journal of Business Research*, 117, 312–321.
- Smith, A. (2020). COVID-19 vaccines are being hoarded by rich countries – Poor ones are missing out. December 16, 2020 <https://www.nbcnews.com/news/world/covid-19-vaccines-are-being-hoarded-rich-countries-poor-ones-n1251351>.
- Sydnor-Bousoo, S., Stafford, K., Tews, M., & Adler, H. (2011). Toward a resilience model for the hospitality & tourism industry. *Journal of Human Resources in Hospitality & Tourism*, 10(2), 195–217.
- Tew, P. J., Lu, Z., Tolomiczenko, G., & Gellatly, J. (2008). SARS: Lessons in strategic planning for hoteliers and destination marketers. *International Journal of Contemporary Hospitality Management*, 20(3), 332–346.
- UK Parliament. (2020). Government support and intervention. <https://publications.parliament.uk/pa/cm5801/cmselect/cmtrans/268/26807.htm>.
- United Nations. (2020). COVID-19 in an urban world. July 2020 <https://www.un.org/en/coronavirus/covid-19-urban-world>.
- Visacovsky, S. E., & Zenobi, D. S. (2020). When a crisis is embedded in another crisis. *Social Anthropology*. <https://doi.org/10.1111/1469-8676.12836>.
- Voltes-Dorta, A., Rodríguez-Déniz, H., & Suau-Sánchez, P. (2017). Passenger recovery after an airport closure at tourist destinations: A case study of Palma de Mallorca airport. *Tourism Management*, 59(C), 449–466.
- Wan, P. Y. K., & Pinheiro, F. V. (2014). Macau's tourism planning approach and its shortcomings: A case study. *International Journal of Hospitality & Tourism Administration*, 15(1), 78–102.
- Wan, Y. K. P., & Li, X. (2013). Sustainability of tourism development in Macao, China. *International Journal of Tourism Research*, 15(1), 52–65.
- Wilson, G. A. (2015). Community resilience and social memory. *Environmental Values*, 24(2), 227–257.
- Wong, J. K. C. (2020). Macau chief executive says COVID-19 an “exam” for gaming concessionaires' CSR contribution. March, 24, 2020 <https://www.asgam.com/index>.

- [php/2020/03/24/macau-chief-executive-says-covid-19-an-exam-for-gaming-concessionaires-csr-contribution/](#).
- World Tourism Organization (UNWTO). (2020a). UNWTO releases a COVID-19 technical assistance package for tourism recovery. May 12, 2020 <https://www.unwto.org/news/unwto-releases-a-covid-19-technical-assistance-package-for-tourism-recovery>.
- World Tourism Organization (UNWTO). (2020b). *UNWTO world tourism barometer, May 2020 – Special focus on the impact of COVID-19*. Madrid: UNWTO. <https://doi.org/10.18111/9789284421930>.
- World Travel & Tourism Council (WTTC). (2020). Key highlights – economic impact of cities 2019. <https://wttc.org/Research/Economic-Impact>.
- Wu, V., & Master, F. (2017). Top China official urges economic diversification for Macau gaming hub. May 8, 2017 <https://www.reuters.com/article/us-macau-china-economy-idUSKBN1840JD>.
- Yu, C.-E., & Sun, R. S. (2019). The role of Instagram in the UNESCO's creative city of gastronomy: A case study of Macau. *Tourism Management*, 75, 257–268.