

COVID-19 economic policy response, resilience and tourism recovery

Luke Okafor^a, Usman Khalid^{b,*}, Sasidaran Gopalan^b

^a Faculty of Arts and Social Sciences, School of Economics, University of Nottingham Malaysia

^b Department of Innovation in Government and Society, College of Business and Economics, United Arab Emirates University (UAEU)

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ABSTRACT

This study investigates whether tourism sector recovery from the COVID-19 pandemic is influenced by only the size of the economic stimulus packages or whether a country's resilience plays a moderating influence in the underlying relationship. The results show that while economic stimulus packages help to enhance tourism recovery from the COVID-19 pandemic, it is contingent on the level of a country's resilience. For instance, amongst the less resilient countries, the impact of economic policy response on the tourism recovery is more pronounced, but the effect dissipates as countries become more resilient. These findings have important implications for policymakers, management teams, and relevant stakeholders in their effort to revive the tourism sector from the impact of the COVID-19 pandemic.

1. Introduction

It has been over two years since the COVID-19 outbreak wrought havoc on the global tourism sector. The economic "scarring" suffered by many countries across the world in the form of output losses, particularly by those that are tourism-dependent, has been rather unprecedented (International Monetary Fund, 2021). As the data from the World Travel and Tourism Council (WTTC) reveal, the contribution of the global travel and tourism sector to world output suffered a precipitous decline, with its share of global GDP halving from around 10.5% in 2019 to 5.5% in 2020, resulting in a job loss of 62 million globally (WTTC, 2021). Furthermore, the ongoing pandemic has also significantly impacted the risk perception of individuals towards global travel and changed the way tourists perceive travel and tourism (da Silva Lopes, Remoaldo, Ribeiro, & Martín-Vide, 2021; Meng et al., 2021; Zhan, Zeng, Morrison, Liang, & Coca-Stefaniak, 2022).

While studies in the extant literature have widely explored the impact of economic and financial crises as well as other types of disasters such as terrorism, conflict, and health-related shocks on the tourism sector, there is sparse literature on what factors help the tourism sector to recover after such events. The tourism sector plays a fundamental role in most economies in terms of employment generation, income creation, being a source of forex earnings, and contributing to growth (Khalid, Okafor, & Sanusi, 2021). In addition to the tourism industry, tourism-affiliated industrial sectors also contribute to the economy in terms of employment and income creation. Therefore, it is pertinent to

understand the factors that accelerate the recovery of the tourism sector from shocks such as the COVID-19 pandemic.

Despite the seemingly successful global vaccination drive, the pathway to achieving a full-fledged recovery that would come about from travel normalization seems to be ridden with uncertainties, furthering concerns of an uneven and asymmetric recovery globally. Considering the global uncertainties surrounding the resumption of cross-border travel and tourism, it is no surprise that several countries have continued to respond in a variety of ways to revive their economies. This has largely taken the form of stimulus measures designed to soften the blow inflicted by the pandemic (Elgin, Basbug, & Yalaman, 2020), despite the differing degrees of fiscal space (Gopalan & Rajan, 2020) and monetary leeway available to them. This approach has been particularly true for countries that have a significantly large tourism sector. Indeed, recent empirical studies have confirmed that the responses to tackle the adverse impacts of COVID-19 were larger and more aggressive in tourism-dependent countries relative to low tourism-dependent countries (Khalid, Okafor, & Burzynska, 2021).

While the extent to which these policy responses have aided the tourism sector to recover has not been investigated empirically, it is also pertinent to recognize the central role played by a country's inherent resilience in facilitating such recovery (Sharma, Thomas, & Paul, 2021). Although the notion of resilience is inextricably intertwined with the ability of countries to deal with uncertainties from shocks such as the COVID-19 pandemic, there is very little understanding in the current literature about the links between both resilience and crisis management

* Corresponding author at: P.O. Box No. 15551, Al Ain, United Arab Emirates.

E-mail addresses: Luke.Okafor@nottingham.edu.my (L. Okafor), usman.khalid@uae.ac.ae (U. Khalid), sasi.gopalan@uae.ac.ae (S. Gopalan).

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policies (Jiang, Ritchie, & Verreynne, 2019; Prayag, 2018). This is especially true when it comes to empirical quantitative studies examining the relationship between crisis management and resilience (Ritchie & Jiang, 2019). As a result, the extant literature is sparse when it comes to understanding if and how the level of a country's resilience moderates the underlying interplay between tourism recovery from the pandemic and economic stimulus packages.

Given that the potential moderating role of the level of resilience in influencing the impact of economic stimulus policies on tourism sector recovery from the COVID-19 pandemic for a large section of countries has not been studied in the extant literature, this study aims to fill this gap. To this end, the purpose of this study is to investigate whether the recovery of the tourism industry from the COVID-19 outbreak is influenced by only the magnitude of the economic stimulus packages or whether a country's resilience plays a moderating influence in the underlying link. Put differently, the following question is formulated to guide the study: Does the level of a country's resilience moderate the link between its tourism sector recovery from the COVID-19 pandemic and economic policy response?

We use data from 126 countries/territories for the empirical analysis. Information about the tourism sector's recovery from the COVID-19 pandemic is captured using the COVID19tourism index data developed by Yang, Altschuler, Liang, and Li (2020). Data on economic policy response come from Elgin et al. (2020), while a country's resilience is captured using the FM Global Resilience index data. We follow the extant literature in specifying the empirical model to examine the interplay between tourism recovery from the COVID-19 pandemic and economic policy response, as well as the moderating influence of resilience in the underlying nexus (see, Elgin et al., 2020; Khalid, Okafor, & Burzynska, 2021). The baseline and augmented models, as well as the alternative model specifications, are estimated using the Ordinary Least Squares (OLS) estimator while controlling for region-fixed effects.

Our primary contribution to the literature comes from an attempt to disentangle the importance of both the economic policy response of a country as well as its inherent resilience in aiding the recovery of the tourism sector from the COVID-19 pandemic. There have been no prior systematic attempts in the tourism literature that have addressed these issues, albeit the emergence of a nascent strand of qualitative and case-study based articles examining inter-related matters in the specific context of tourism recovery from the COVID-19 outbreak (see, for instance, Kuščer, Eichelberger, & Peters, 2021). By tying economic policy response and resilience to tourism recovery from the pandemic, our empirical results would also allow us to draw suitable conclusions at a cross-country level, while factoring in each country's unique characteristics.

The results show that tourism recovery is influenced by the COVID-19 economic policy response. However, the impact of economic policy response on tourism recovery is contingent on the level of resilience of a country. In particular, amongst less resilient countries, the impact of economic policy response on tourism recovery is the largest, but the effect disappears as countries become more resilient. In addition, we find that both fiscal policy response and interest rate cuts are effective in reviving the tourism sector, especially for less resilient countries, but the effect of the interest rate cut is statistically significant for a slightly larger range of resilience scores.

The implications of the findings of this study are important both from a policy as well as a tourism management perspective. From a policy perspective, the findings suggest that a more proactive approach for managing and handling any future crisis is needed, particularly in the tourism industry. This includes but is not restricted to crisis/disaster management protocols that countries can adopt when faced with an unprecedented disaster, such as the COVID-19 outbreak. From a tourism management perspective, the findings of this study highlight the need for tourism businesses to be more resilient and prepared for any adverse shocks in the future. This includes strategies to move towards digitalization of the businesses, such as the adoption of digital payment systems

or, in general, a greater presence in the online world.

The rest of the study is structured as follows. Section 2 offers a discussion of the related literature, which forms the basis for the development of empirically testable hypotheses. This section presents a succinct overview of the relevant strands of empirical literature related to both crisis management as well as resilience. Section 3 discusses the details of the empirical model and data used in the study, while section 4 explains the results as well as the robustness checks and discusses the theoretical and practical implications of the results. Section 5 concludes the study with a brief overview of the policy implications emanating from the results.

2. Related literature and hypotheses

There are two important strands of literature that are tangentially relevant to the current discussion in this study. The first pertains to the body of work that has focussed on understanding the impact of extreme events on the tourism industry. The studies that fall under this strand analyze how countries handle tourism related crises arising from extreme events that include terrorist attacks, natural disasters, as well as global or regional pandemics or epidemic events. More specifically, these studies attempt to understand the design and impact of appropriate strategies and policy responses to aid the recovery of the tourism sector to overcome those shocks. The second strand of the literature relates to the resilience-crisis management nexus.

2.1. Extreme events and the tourism sector

It has been well established that the global tourism sector is quite susceptible to different kinds of extreme events and shocks. In the last two decades, up until the COVID-19 pandemic, the tourism sector has been buffeted by various shocks in the forms of the September 11 terrorist attacks in 2001, the severe acute respiratory syndrome (SARS) outbreak in 2003, the global financial crisis of 2008–09, and the Middle East Respiratory Syndrome (MERS) outbreak in 2015.

Numerous studies have thus focused on policy responses to extreme events that resulted in tourism crises. For instance, geopolitical shocks such as domestic political instability and unrest have been shown to have negative ramifications on the tourism industry (Khan, Bibi, Lyu, Latif, & Lorenzo, 2021; Okafor & Khalid, 2021). A related body of work has focused on the impact of economic shocks such as financial crises on tourist arrivals (de Sausmarez, 2007; Khalid, Okafor, & Shafullah, 2020); health shocks arising from global and regional pandemics or epidemic events (Cooper, 2006; Gössling, Scott, & Hall, 2020); and other geographic shocks arising from natural disasters (Gurtner, 2016).

The most obvious kind of extreme event that has been well-studied in the literature comes from the impact of terrorism related events on the tourism industry (Khan et al., 2020; Kumail, Ali, Sadiq, & Khan, 2021). Focusing on South Asia, for instance, Kumail et al. (2021) empirically show the destabilizing impacts of terrorist events spanning over three decades (1980–2016) on tourism demand. The literature has also shown how terrorism can significantly dampen the positive relationship between tourism and well-being (See Khan et al. (2020) for a rich discussion).

Focusing on crisis management policies in the wake of terrorist events, Blake and Sinclair (2003) use a Computable General Equilibrium (CGE) model to analyze the effect of the September 11 terrorist attacks in the United States on tourism demand. They find that the crisis management policies, specifically the provision of sectoral subsidies adopted in the wake of the terrorist attacks, were highly effective in mitigating the negative repercussions on the tourism industry. Other studies such as Bassil, Saleh, and Anwar (2019) have also explored the relationship between terrorism and tourism demand using a case study of Lebanon, Turkey, and Israel, while Gurtner (2016) studied similar issues using a case study of Bali (Indonesia).

2.2. COVID-19 pandemic and the tourism recovery

Since the outbreak of the COVID-19 pandemic in early 2020, there appears to have been a proliferation of country specific studies that have analyzed the potential efficacy of recovery strategies adopted by different countries. For instance, focusing on Taiwan as a case study, [Yeh \(2020\)](#) examines the dynamics of the country's tourism recovery strategies from the COVID-19 pandemic. Using a series of semi-structured interviews, the study concludes that the factors instrumental in handling the pandemic successfully include open communication as well as loans extended by the government.

Focusing on Spain's recovery strategies from the COVID-19 pandemic, [Arbulú, Razumova, Rey-Maqueira, and Sastre \(2021\)](#) assess if a focus on domestic tourism in Spain can be a possible recovery strategy that would help the country make up for the losses of international tourist demand. Despite the regional variations, the results show that a renewed focus on domestic tourism by reorienting outbound tourism could yield positive and significant benefits, especially when inbound tourism is plagued by a crisis. In yet another study on Spain, [Rodríguez-Antón and Alonso-Almeida \(2020\)](#) undertake a SWOT analysis of the Spanish tourism and hospitality sector by focusing on the response and recovery strategies in the wake of the COVID-19 pandemic.

Furthermore, other single country studies that have focused on tourism crisis management in the wake of the COVID-19 pandemic include [Zhong, Sun, Law, and Li \(2021\)](#) for China, [Kaushal and Srivastava \(2021\)](#) for India, and [Pongsakornrungrasit, Pongsakornrungrasit, Kumar, and Maswongssa \(2021\)](#) for Thailand. Focusing on a representative set of seven countries spread geographically across all regions, including Australia, China, and Japan in Asia, Austria and Italy in Europe, Brazil in South America, and Israel in the Middle East, [Kreiner and Ram \(2020\)](#) undertake a qualitative comparison of the different national tourism plans in these countries to deal with the COVID-19 pandemic. Comparing their national tourism plans, the study concludes that all countries were focused on implementing short-term local solutions instead of focusing on a recovery that will be sustainable in the long-run.

In one of the most comprehensive reviews on the subject, [Ritchie and Jiang \(2019\)](#) surveyed 142 articles published over the span of about six decades (1960–2018). They find that a majority of the articles have focussed on the 'response and recovery' dimension of crisis and disaster management, relative to a focus on other stages such as 'preparedness and planning' or 'resolution and reflection' or resilience. As their meta-analysis review points out, despite the abundance of articles examining the varied policy responses aimed at the recovery of the tourism sector to crises, much of the existing literature tends to be largely country specific case studies which are also mostly qualitative in nature. This underlines the fact that there is a dearth of quantitative studies engaging in meaningful cross-country analysis.

One of the most recent studies to undertake a cross-country analysis comes from [Khalid, Okafor and Burzynska \(2021\)](#), who perform an empirical examination to assess the degree to which the size of the tourism sector influences the economic policy response to the COVID-19 pandemic. This cross-country study, with the findings based on an empirical analysis for 136 countries, reveals that the size of the economic stimulus is directly proportional to the size of the tourism sector, with countries that are heavily dependent on tourism being more aggressive in their stimulus responses.

The foregoing review of the related literature underlines the crucial importance of appropriate economic policy responses in potentially facilitating a full-fledged recovery of the tourism sector from shocks, such as the COVID-19 outbreak, yielding the following hypothesis:

Hypothesis 1. Economic stimulus packages have a positive impact on tourism recovery from the COVID-19 pandemic.

2.3. Resilience and tourism crisis management

The second strand of literature, which is nascent at best, relates to the notion of resilience in the specific context of the tourism industry. The limited number of studies that exist on tourism resilience are largely theoretical in nature, while there is a marked absence of empirical (quantitative) applications, with some exceptions.

Intertwined with tourism crisis management is the issue of resilience, albeit the scarcity of empirical work integrating resilience and tourism crisis management. There is no one universal definition of the term resilience, but broadly it has come to be understood as the ability of a system to withstand shocks and bounce back through a reorganization while essentially retaining its identity ([Walker, Holling, Carpenter, & Kinzig, 2004](#)). As [Jiang et al. \(2019\)](#) point out, while there is a lot of established research on resilience in general and in other fields like strategic management, the direct applicability to the tourism sector appears to be mostly theoretical ([Calgaro, Lloyd, & Dominey-Howes, 2014](#); [Luthe & Wyss, 2014](#); [Prayag, 2018](#); [Sharma et al., 2021](#); [Strickland-Munro, Allison, & Moore, 2010](#)).

There are only a handful of studies that draw on qualitative data to apply resilience frameworks to study specific tourism destinations. For instance, [Becken \(2013\)](#) develops a framework to assess the resilience of tourist destinations to climatic shocks and uses primary data from a tourist location in New Zealand to verify the underlying theoretical framework empirically. Focusing on Phuket (Thailand), [Biggs, Hall, and Stoeckl \(2012\)](#) compare the resilience levels of reef tourism enterprises in Phuket following the 2004 tsunami and the 2008 political crisis.

In one of the few studies to empirically assess the impact of the COVID-19 pandemic on the resilience of the leisure and hospitality sector in the US, [Khan et al. \(2021\)](#) find that the COVID-19 pandemic generated marked negative impacts in terms of employment levels, specifically in the leisure and hospitality sector. As [Prayag \(2018\)](#) reiterates, the literature applying resilience thinking in tourism is quite nascent though emerging.

With the COVID-19 pandemic bringing back the spotlight on tourism resilience, it becomes important to understand the links between a country's resilience, economic instruments to mitigate the tourism crisis, and the recovery level of the tourism industry from the pandemic. The question of interest is whether the influence of economic stimulus packages augmented by resilience on tourism recovery differs across countries. Theoretically, it is plausible to argue that when countries migrate to higher levels of resilience, their tourism sectors are potentially less likely to respond more aggressively to economic policy interventions as they may have well-designed crisis management frameworks that allow them to respond effectively to a crisis. In other words, the impact of economic policy interventions potentially facilitates a stronger tourism sector recovery only in countries with lower degrees of resilience and vice versa. To this end, we develop the following testable hypothesis:

Hypothesis 2. A higher level of resilience dampens the positive impact of economic stimulus packages on tourism recovery.

The foregoing review reveals two important gaps in the extant literature. First, despite the popularity of studies examining the economic policy responses and management to tourism crises, the scope largely remains confined to specific country cases, which are mostly qualitative in nature, limiting the ability to draw appropriate cross-country comparisons and/or recommendations. Second, specific to the COVID-19 pandemic, the issue of the efficacy of economic policy response in aiding the tourism sector recovery or the moderating influence of a country's resilience in the underlying relationship has not been explored in the extant literature. We attempt to overcome both gaps in the current study.

3. Methodology and overview of data

3.1. Empirical strategy

We follow the extant literature in specifying the empirical model to examine the association between tourism recovery from the COVID-19 pandemic and economic policy response, as well as the moderating influence of resilience in the underlying nexus (see, Elgin et al., 2020; Khalid, Okafor, & Burzynska, 2021). The general form of the model can be expressed as follows:

$$COVID19tourism\ index_i = F(CESI\ index_i, Overall\ resilience\ index_i, GHS_i, Population\ over\ 65, Total\ death\ rate, FIND) \quad (1)$$

where, *COVID19tourism index* captures the general recovery potential of the tourism sector, *F* is a function, *CESI index* is the COVID-19 economic stimulus index, *Overall resilience index* refers to FM global resilience index, and *FIND* is financial development index.

Eq. (1) posits that the *COVID19tourism index* is a function of the *CESI index*, *overall resilience index*, *global health index*, *population over 65*, *total death rate*, and the *financial development index*. The general form of the model can be expressed in a specific form. The specific form can be augmented with region specific effects, notations for parameter estimates, and the error term. Region fixed effects are included in the model to control for any unobservable characteristics at the regional level. This suggests that the empirical model—that is, the baseline model—can be specified as below:

$$COVID19tourism\ index_i = \alpha_0 + \alpha_1 CESI\ index_i + \alpha_2 Overall\ resilience\ index_i + \alpha_3 GHS_i + \alpha_4 LnPopulation\ over\ 65 + \alpha_5 Ln\ Total\ death\ rate + \alpha_6 FIND + \lambda_i + \varepsilon_i \quad (2)$$

where, *Ln* denotes the natural logarithm, λ is region fixed effects, ε is the error term, and α 's are obtained through estimations.

Furthermore, to gain deeper insights, we also estimated an alternative model specification where we used the fiscal and interest rate cut sub-indices in lieu of a *CESI index* as explanatory variables. Similarly, we also estimated an alternative model specification where we used supply chain and risk quality resilience indices instead of *overall resilience index*.

It is likely that the level of resilience in a country has a moderating impact on the influence of economic stimulus packages on tourism recovery. For instance, a country that is highly resilient is likely to have a tourism sector that is more resilient to shock, such as COVID-19 pandemic and thus may not introduce large economic stimulus packages to cushion the effect of the pandemic compared to a country that is less resilient. The general form of the alternative model for the moderating impact can be specified as follows:

$$COVID19tourism\ index_i = F(CESI\ index_i, Overall\ resilience\ index_i, CESI\ index_i \times Overall\ resilience\ index_i, GHS_i, Population\ over\ 65, Total\ death\ rate, FIND) \quad (3)$$

Eq. (3) indicates that the level of resilience in a country may have a moderating impact on the tourism recovery-economic stimulus nexus. The specific form of the empirical model—that is, the full model—for the moderating impact can be expressed as follows:

$$\begin{aligned} COVID19tourism\ index_i = & \beta_0 + \beta_1 CESI\ index_i + \beta_2 Overall\ resilience\ index_i \\ & + \beta_3 (CESI\ index_i \times Overall\ resilience\ index_i) \\ & + \beta_4 GHS_i + \beta_5 LnPopulation\ over\ 65 \\ & + \beta_6 Ln\ Total\ death\ rate + \beta_7 FIND + \lambda_i + \varepsilon_i \end{aligned} \quad (4)$$

where, β 's are parameters to be estimated. The definitions of the remaining notations are the same as Eq. (1).

Following the approach used with respect to model specification 1,

to gain deeper insights, we also estimated alternative model specifications where we interacted the *CESI index* with risk quality resilience, *CESI index* with supply chain resilience index, fiscal policy stimulus with the *overall resilience index*, interest rate cut with *overall resilience index*, fiscal policy stimulus with risk quality index, interest rate cut with risk quality index, fiscal policy stimulus with supply chain resilience index, and interest rate cut with supply chain resilience index. The base and full models, as well as the alternative model specifications, are estimated with the use of the Ordinary Least Squares (OLS) estimator with controls for region fixed effects.

3.2. Data sources

The data set employed in the analysis is a cross-section of 126 countries. Data availability dictated the number of countries used for the analysis. The analysis was performed using merged data obtained from various sources, as discussed below.

3.2.1. Dependent variable

The *COVID19tourism index* developed by Yang et al. (2020) measures the general recovery potential of the tourism industry from the COVID-19 outbreak. A number closer to 100 indicates a greater recovery of a country's tourism sector to the normal level. The *COVID19tourism index* is derived from geometric means of three sub-indices, namely the aviation index, the hotel index, and the pandemic index.¹ The dependent variable in our empirical model is the average of *COVID19tourism index* data from February 2020 to December 2020.

¹ For more details, see Tracking the tourism industry's recovery in real time: <https://sthn.temple.edu/faculty/covid19-tourism-index/>.

3.2.2. Explanatory variables

The COVID-19 Economic Stimulus Index, CESI, is one of the explanatory variables. The CESI index measures the economic policy responses of different economies aimed at countering the impact of the pandemic. In general, the economic policy responses include monetary, fiscal, as well as the balance of payment and/or exchange rate.

Data collected mainly from the IMF's COVID-19 policy tracker, 2020, are used for constructing the different sub-indices of the CESI.² Utilizing data constructed by as well as following a similar approach as Elgin et al. (2020), we used the principal component analysis (PCA) to generate the CESI index. More specifically, we combine the data on seven indicators of economic policy response provided by Elgin et al. (2020) to generate the composite index of CESI with the use of PCA. The seven indicators include fiscal policy packages, which capture all the fiscal stimulus packages as a percentage of GDP, the interest rate cut by the central bank as a percentage of the ongoing rate as of February 1st, 2020, reserve requirement, macro-financial packages as a percentage of GDP, the specific balance of payment (BoP) measures as a percentage of GDP, and two additional variables that capture other monetary policies and BoP policies introduced by the country.³ Furthermore, we also used the fiscal policy and interest rate cut sub-indices in lieu of a CESI index as explanatory variables to gain deeper insights in terms of the role of fiscal policy stimulus and interest rate cut rate in helping to promote the recovery potential of the tourism industry from the COVID-19 outbreak.

We used the FM Global Resilience index to gauge the influence of the level of resilience of a country to COVID-19 shock as well as the relative enterprise resilience of a country to turbulent occurrences (FM Global, 2020). The index is constructed with the use of 12 factors that are broadly classified into economic, risk quality, and supply chain resilience. Factors such as inherent cyber risk, exposure to natural hazards, fire risk quality, and natural hazard risk quality are captured using the risk quality resilience sub-index. The supply chain resilience sub-index is constructed with the use of factors, such as corporate governance, supply chain visibility, control of corruption, and quality of infrastructure. The economic resilience sub-index is measured using factors such as productivity, political risk, urbanization rate, and oil intensity.⁴ Additionally, we also used supply chain resilience and risk quality resilience sub-indices in place of the overall resilience index to gain sharper insights into the influence of supply chain and risk quality on the tourism recovery and economic stimulus nexus. The data for the overall resilience and the sub-indices are for the year 2020.

3.2.3. Control variables

Following related studies (Elgin et al., 2020; Khalid, Okafor, & Sanusi, 2021), we control for several variables that affect the link between tourism recovery from the COVID-19 pandemic and economic policy response. This extends to the moderating influence of resilience in the underlying nexus. These variables include population over 65, total death rate per 100,000 population, and global health security index (GHS). The data for the population over 65 is collected from the World Development Indicators and for the year 2019, World Bank (2021). The data for total death from COVID-19 are for the year 2019 and are sourced from the Ourworldindata website.⁵

Population over 65 is controlled for in order to avoid potential omitted variable bias (Khalid, Okafor, & Sanusi, 2021), as countries with a larger fraction of older people tend to devote a larger share of

resources via economic stimulus packages to alleviate the impact of the COVID-19 outbreak (Elgin et al., 2020). Similarly, the tourism sector in countries with a larger share of old people may not recover faster as older people are more vulnerable to COVID-19. Similarly, the total death rate from COVID-19 is controlled for as economies with higher death rates are more likely to allocate more resources to economic stimulus packages compared to those with a lower death rate. In addition, the tourism sector in these countries is unlikely to rebound faster from the effect of the COVID-19 crisis. The healthcare system in countries with high death rates is likely to be strained, and this could result in the imposition of strict lockdown measures (Khalid, Okafor, & Sanusi, 2021), which could impede the recovery potential of the tourism sector.

The GHS index captures the quality of health security and associated capacities for 195 economies. The data are for the year 2019 (Global Health Security, 2019). GHS is included in the model specification to account for a country's health capabilities, including but not limited to the management and prevention of epidemics and swift response to dampen the spread of epidemics of global concern. This also includes an adequate health infrastructure to treat the sick, provide adequate protection for health workers, adhere to international norms, and general risk environment and susceptibility to biological threats (Global Health Security, 2019). We expect countries with higher GHS to be better prepared to weather and lessen the effect of the COVID-19 outbreak than those with lower GHS.

We also control for the level of financial development of different economies with the use of the financial development index. The index is derived from several indices that capture how advanced financial markets and financial institutions in different countries are in the areas of efficiency, depth, and access. The overall financial development index and the sub-indices are developed for 183 countries. The data are for the

Table 1
Summary statistics.

Variable	(1) Low resilient countries	(2) High resilient countries	(3) Whole sample
COVID19tourism index	13.583 (15.794)	16.315 (16.830)	14.754 (16.237)
CESI index	0.147 (1.422)	-0.195 (1.180)	- -
Fiscal policy stimulus	6.691 (8.028)	5.138 (4.990)	6.025 (6.910)
Interest rate cut	20.981 (31.198)	23.901 (23.616)	22.232 (28.132)
Overall resilience Index	36.614 (11.395)	77.697 (13.706)	54.221 (23.876)
Risk quality resilience index	29.459 (13.962)	68.030 (22.353)	45.990 (26.265)
Supply chain resilience index	39.816 (12.974)	73.671 (13.666)	54.325 (21.395)
Global health index	40.803 (14.323)	43.407 (14.585)	41.919 (14.436)
Ln Population over 65	1.998 (0.780)	1.920 (0.744)	1.963 (0.762)
Ln total death rate	2.372 (1.987)	2.232 (2.065)	2.313 (2.013)
Financial development Index	0.351 (0.232)	0.304 (0.212)	0.331 (0.224)
Observations	72	54	126

Notes: High-resilient countries are a group of countries whose overall resilience score is greater than the average resilience score for all the countries covered in the sample, while low-resilient countries have an overall resilience score that is smaller than the average for all the countries. Ln denotes natural logarithms. Total death rate: total death rate per 100,000 population. '-' refers to the mean and standard deviation of the CESI index for the whole sample, which are '-0.000000004' and '(1.000)', respectively. Values reported without parenthesis are means, whereas values in parenthesis are standard deviations.

² We used the 13th CESI update (October 2020) by Elgin et al. (2020) in order to capture all the different types of economic support packages initiated by countries to lessen the effect of the COVID-19 outbreak.

³ For more details, see COVID-19 Economic Stimulus index: (<http://web.bou.edu.tr/elgin/COVID.htm>).

⁴ For more details, please see F.M Global Methodology (FM Global, 2020).

⁵ The dataset is accessible from <https://ourworldindata.org/grapher/covid-tests-cases-deaths>.

year 2018. For more information about the index, please see [Sviridzenka \(2016\)](#). It is likely that financially developed countries are better placed to devote a larger share of resources to economic support packages aimed at limiting the impact of the pandemic relative to economies with low level of financial development index ([Guru & Yadav, 2019](#); [Okafor, Bhattacharya, & Apergis, 2020](#)). Similarly, the tourism industry in countries with a higher level of financial development may be better placed to recover faster from the impact of the COVID-19 outbreak due to the potential availability of larger loanable funds, financial tax incentives, and public financial incentives ([Okafor et al., 2020](#)). In general, the data for different variables refer to the year 2018 or the most recent available year.

3.2.4. Summary statistics

The summary statistics for the whole sample as well as for high and low resilient countries, are presented in [Table 1](#). Preliminary evidence indicates that high resilient countries tend to experience greater recovery in their tourism sector compared to low-resilient countries, as captured by the COVID19 tourism index. In addition, highly resilient countries tend to introduce lower economic stimulus packages than low resilient economies. This indicates that, on average, high resilient countries tend to introduce lower economic stimulus and experience greater recovery in their tourism sector. This is consistent with the potential existence of the substitutability between resilience and economic policy for tourism sector recovery.

In terms of the components of CESI, high resilient countries are likely to introduce larger interest rate cuts relative to low resilient economies, while the low resilient economies tend to introduce greater fiscal stimulus. The high resilient countries also tend to be better equipped with a health care system. This may help high resilient countries to respond to health emergencies such as the COVID-19 crisis, more efficiently. In contrast, less resilient economies tend to have a lower capacity to manage such situations. This may help explain why the death rate due to COVID-19 has been lower in high resilient countries compared to low resilient countries. The correlation table and variance inflation factor results are reported in Tables S1 and S2 in the supplementary material. The correlations between the explanatory variables are not high, and the variance inflation factor test indicates that there is no serious problem of multicollinearity.

4. Results, discussion and implications

4.1. Results

[Table 2](#) provides the coefficients of the baseline model specified in Eq. (2). The model specification is designed to explain the links between tourism recovery, economic policy response, and resilience while controlling for relevant variables. In Columns 1–3, the aggregate CESI is used to capture economic policy response, while in Columns 4–6, the two major components of CESI, namely fiscal policy stimulus and interest rate cut, are used in lieu of CESI.

$$SE\left(\frac{\partial \text{COVID19tourism index}_i}{\partial \text{CESI index}_i}\right) = \sqrt{\text{var}(\hat{\beta}_1) + (\text{Overall resilience index}_i)^2 \text{var}(\hat{\beta}_3) + 2 (\text{Overall resilience index}_i) \text{cov}(\hat{\beta}_1, \hat{\beta}_3)} \quad (6)$$

The results from the baseline model indicate that CESI has a positive influence on tourism recovery, although the effect is not statistically significant. However, when we disaggregate CESI and use only fiscal policy response and monetary policy response as measured by the interest rate cut, we observe that these factors positively impact tourism recovery. In particular, the interest rate cut is more consistently statistically significant than the fiscal policy measure. As shown in [Table 2](#),

Column 4, a one percentage point increase in the fiscal stimulus is associated with an increase in the tourism recovery index by 0.41 units, albeit the effect is only significant at the 10% level. Similarly, a one percentage point decrease in interest rate cut is associated with an increase in the tourism recovery index by approximately 0.12 units.

The impact of a country's resilience on tourism recovery, on the other hand, is insignificant throughout the baseline model irrespective of whether we used the overall resilience index or the sub-components, namely risk quality resilience or supply chain resilience. Interestingly, the GHS index exerts a negative influence on the tourism recovery index.

The signs of the other co-variables are also in line with the expectation. Countries with an older population and a higher COVID-19 death rate experienced slower tourism recovery, however, the impact of these two variables is not statistically significant. Financial development, on the other hand, has a positive but statistically insignificant impact on tourism recovery.

The results reported in [Table 2](#) highlight the importance of economic policy intervention as captured by fiscal stimulus and interest rate cuts in supporting the tourism sector's recovery vis-à-vis a country's level of resilience. The results do not, however, consider the likely moderating influence of the level of resilience in a country in the underlying relationship between COVID-19 economic policy interventions and the tourism sector recovery. Thus, we estimated the model given by Eq. (4), where we included an interaction term between economic policy measures and resilience measures. The coefficients of this exercise are reported in [Table 3](#).

As depicted in [Table 3](#), the CESI has a positive and significant impact on tourism recovery in all three model specifications (see Columns 1–3). Similarly, the fiscal stimulus and interest rate cut positively impact tourism recovery, irrespective of the model specification and are statistically significant at conventional levels. However, the coefficients on economic policy variables provide an incomplete picture of the impact of economic policy on tourism recovery. To gain deeper insight, we need to look at the marginal effect of the economic policy variable on tourism recovery. This is because the marginal effect is contingent on the level of resilience of a country. The marginal effect of the economic policy variable on tourism recovery based on Eq. (4) is given by the following equation:

$$\frac{\partial \text{COVID19tourism index}_i}{\partial \text{CESI index}_i} = \hat{\beta}_1 + \hat{\beta}_3 \times \text{Overall resilience index}_i \quad (5)$$

Eq. (5) suggests that the impact of economic policy variable on tourism recovery is contingent on the value of the resilience index. This implies that interpreting the coefficient of the economic policy or the interaction term alone can lead to misleading conclusions. Moreover, while interpreting the marginal effect, it is important to remember that it is possible for the total effect to be significant, even if β_1 , β_3 or both are insignificant. This is because the standard error of the marginal effect (given by Eq. (6)) is also contingent on the value of the resilience index ([Friedrich, 1982](#)).

As evident from the above equation, the standard error of the marginal effect varies with the resilience index score. This indicates that the effect of economic policy variable on tourism recovery could be significant at some values of the resilience index score and insignificant at other values. To fully capture the marginal effect of economic policy variable at different levels of the resilience index and visualize the size of the

Table 2

The links between COVID19 tourism index, resilience, and economic policy response (base model).

Dependent variable: COVID19tourism Index						
Variable	(1)	(2)	(3)	(4)	(5)	(6)
CESI index	1.542 (1.216)	1.404 (1.230)	1.516 (1.201)			
Fiscal policy stimulus				0.408* (0.238)	0.375 (0.236)	0.402* (0.236)
Interest rate cut				0.119** (0.054)	0.116** (0.052)	0.120** (0.054)
Overall resilience index	0.055 (0.071)			0.063 (0.072)		
Risk quality resilience index		0.007 (0.066)			0.004 (0.068)	
Supply chain resilience index			0.074 (0.076)			0.083 (0.075)
Global health index	-0.226* (0.119)	-0.212* (0.116)	-0.225* (0.117)	-0.274** (0.119)	-0.255** (0.115)	-0.272** (0.115)
Ln Population over 65	-3.438 (3.478)	-3.700 (3.507)	-3.367 (3.446)	-2.992 (3.382)	-3.317 (3.434)	-2.916 (3.345)
Ln Total death rate	-0.253 (1.070)	-0.249 (1.085)	-0.200 (1.072)	-0.505 (1.123)	-0.469 (1.138)	-0.440 (1.122)
Financial development index	3.306 (7.745)	3.199 (7.787)	3.074 (7.714)	8.327 (7.685)	7.987 (7.730)	8.061 (7.612)
Constant	21.502*** (6.421)	23.965*** (6.055)	20.441*** (6.572)	14.466** (6.770)	17.737*** (6.471)	13.374* (6.767)
Region fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	114	114	114	114	114	114
R-Squared	0.086	0.080	0.090	0.131	0.123	0.135

Notes: Ln denotes natural logarithms. The values in parentheses are robust standard errors. COVID19tourism Index measures the average recovery level of the tourism industry in the year 2020 compared to normal time without COVID-19 pandemic. Significance levels at the 1%, 5%, and 10% level is expressed by ***, ** and *.

moderating effect of the resilience index, we plot the marginal effects together with the 90% confidence interval.

Figs. 1, 2, and 3 depict the marginal effects of CESI, fiscal stimulus, and interest rate cut, respectively, on tourism recovery for different levels of overall resilience, risk quality resilience, or supply chain resilience. The overall message from these Figures is that economic policy has a positive impact on tourism recovery only in economies that are less resilient.⁶ However, this pattern is more pronounced for the fiscal policy stimulus and interest rate cut as compared to the CESI.

As shown in Fig. 1, the marginal effect of CESI on tourism recovery is positive and significant at lower levels of all three resilience indices. At higher levels of resilience indices, the marginal effect becomes insignificant and even negative. For instance, the marginal effect is positive and significant for all values of the overall resilience index lower than or equal to 45. This implies that for 48 countries (number of countries having an overall resilience index lower than or equal to 45) in the sample, the effect of CESI on tourism recovery is positive and significant.

A similar pattern emerges from the marginal effect of fiscal policy stimulus on tourism recovery (see Fig. 2) and the marginal effect of the interest rate cut on tourism recovery (see Fig. 3). The marginal effects of both fiscal policy stimulus and interest rate cut are positive and significant for countries at the lower spectrum of resilience as captured by overall, risk quality, and supply chain resilience. However, the marginal effect of interest rate cuts tends to be significant for countries with slightly higher resilience scores vis-à-vis fiscal policy stimulus and CESI. This suggests that we can accept the second hypothesis of this study.

4.2. Robustness checks

We also perform a battery of sensitivity checks by using different

⁶ Marginal effect is significant if the confidence interval lines (dotted lines) do not include zero. Marginal effect is significant in all three figures at lower resilience index scores as the confidence interval does not include zero for lower values of the resilience index. Marginal effects with their standard errors for different values of resilience index are provided in Table S3.

proxies for the control variables to establish the robustness of the results. First, instead of using the financial development index, we use its sub-indices, namely the financial institutions and financial markets index, respectively (Tables S4 and S5 in the supplementary material). In general, the results are qualitatively comparable to the results presented in Table 3, with no significant differences. The country's resilience measures act as a moderator in the underlying nexus between economic policy response and tourism recovery. Moreover, the moderating influence is more pronounced when we use fiscal and monetary policy indicators to account for policy response as opposed to the CESI.

Similarly, instead of using the overall GHS index, we used two of its sub-components, namely the ability of a country to prevent the spread of pathogens and the quality of the health care system. Table S6 in the supplementary materials reports the results when we use prevention of the emergence or release of pathogens in lieu of the global health index, while Table S7 reports the results when the sufficiency and robustness of the health sector to treat the sick as well as offer protection for health workers is used in lieu of GHS index. Once again, the results remain qualitatively comparable to the ones presented in Table 3, with the impact of economic policy response on tourism recovery dissipating as the level of resilience of a country increases, as captured by the three resilience variables.

4.3. Discussion

Our results provide key insights for researchers, practitioners, and policymakers alike on the drivers of tourism sector recovery from the COVID-19 pandemic. The results reported in Table 2 suggest that the tourism sector has gained the most from monetary policy interventions compared to fiscal policy response without accounting for the role of resilience in the underlying nexus. This finding is, to some extent, consistent with the first hypothesis and the existing literature, which finds that crisis management policies are highly effective in mitigating the negative impact of various shocks—such as the COVID-19 pandemic—on the tourism industry (see, e.g., Blake & Sinclair, 2003; Zhong et al., 2021; Kaushal & Srivastava, 2021, and Pongsakornrunsilp et al., 2021).

Table 3

The recovery level of the tourism sector from COVID-19 pandemic and economic policy response: the role of countries' resilience (full model).

Dependent variable: COVID19tourism Index						
Variable	(1)	(2)	(3)	(4)	(5)	(6)
CESI index	5.561*	4.673**	5.476*			
	(3.021)	(2.309)	(3.206)			
Fiscal policy stimulus				1.136**	1.085***	1.332**
				(0.445)	(0.290)	(0.595)
Interest rate cut				0.337***	0.295***	0.351***
				(0.122)	(0.108)	(0.121)
Overall resilience index	0.038			0.247**		
	(0.072)			(0.107)		
CESI index × Overall resilience index	−0.079					
	(0.058)					
Risk quality resilience index		−0.003			0.196*	
		(0.068)			(0.104)	
CESI index × Risk quality resilience index		−0.075				
		(0.053)				
Supply chain resilience index			0.065			0.293**
			(0.075)			(0.112)
CESI index × Supply chain resilience index			−0.075			
			(0.057)			
Fiscal policy stimulus × Overall resilience index				−0.015		
				(0.010)		
Interest rate cut × Overall resilience index				−0.004*		
				(0.002)		
Fiscal policy stimulus × Risk quality resilience index					−0.019**	
					(0.008)	
Interest rate cut × Risk quality resilience index					−0.004	
					(0.002)	
Fiscal policy stimulus × Supply chain resilience index						−0.018
						(0.012)
Interest rate cut × Supply chain resilience index						−0.004*
						(0.002)
Global health index	−0.234**	−0.221**	−0.227**	−0.293**	−0.267**	−0.285**
	(0.114)	(0.111)	(0.114)	(0.120)	(0.112)	(0.115)
Ln Population over 65	−3.868	−4.128	−3.850	−2.659	−2.776	−2.839
	(3.502)	(3.520)	(3.525)	(3.432)	(3.506)	(3.409)
Ln total death rate	−0.117	−0.360	0.030	−0.602	−0.667	−0.518
	(1.106)	(1.121)	(1.103)	(1.156)	(1.207)	(1.152)
Financial development index	4.760	4.570	4.193	9.988	9.624	9.305
	(7.706)	(7.856)	(7.622)	(7.589)	(7.572)	(7.508)
Constant	21.903***	24.147***	20.585***	4.387	8.780	1.821
	(6.276)	(6.004)	(6.380)	(7.994)	(7.496)	(7.937)
Region fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	114	114	114	114	114	114
R-squared	0.105	0.101	0.106	0.175	0.172	0.179

Notes: Ln denotes natural logarithms. The values in parentheses are robust standard errors. Significance at the 1%, 5%, and 10% level is expressed by ***, **, and *.

The results in Table 2 also suggest that the role of resilience in reviving the tourism sector potentially differs across countries and its influence on tourism recovery is likely through its impact on economic stimulus packages. In addition, countries with a stronger health care system and with higher capabilities to respond to a pandemic-like event have experienced slower tourism recovery on average. One possible explanation of the negative impact could be that countries with higher GHS scores are more cautious when it comes to 'opening up' their economies, especially the tourism sector.

Results reported in Table 3 provide deeper insights regarding the relative strengths of economic policy response, the level of a country's resilience, and their joint impact in aiding tourism recovery. The results underscore the critical role of economic policy response for the recovery of the tourism sector, especially for countries that are less resilient and are less likely to be prepared to deal with a crisis, such as the COVID-19 pandemic. For instance, a recent study shows that economic policy response is more aggressive in countries that are more tourism-dependent (Khalid, Okafor, & Sanusi, 2021). The findings from the current study suggest that the need for aggressive economic stimulus is particularly relevant in less resilient countries compared to more resilient countries.

Furthermore, the impact of economic stimulus on tourism recovery is reinforced by the level of resilience of a country with possible

substitutability between resilience and economic policy response. Thus, at higher levels of resilience, the tourism sector is less likely to respond to economic policy interventions. This suggests that while the tourism sectors in more resilient countries can recover with less support from the public sector in terms of economic stimulus packages, the same is not applicable in less resilient countries.

A possible explanation for this result could be that high resilient countries have automatic stabilization policies and a well-established crisis management framework that automatically triggers a response in the event of a crisis. A case in point is Taiwan, which after the SARS outbreak in 2004, created National Health Command Center (NHCC). The NHCC is an operational command unit that coordinates efforts between central, regional, and local authorities to facilitate a timely response to a health emergency and/or crisis. As a result, the COVID-19 pandemic was managed much more efficiently by the Taiwanese government compared to any other country in the world (Wang, Ng, & Brook, 2020), especially at the initial stages of the pandemic.

4.4. Theoretical and practical implications

The theoretical implications of our findings are twofold. First, the findings of this study highlight the importance of economic policies in mitigating the adverse impact of the crisis and aiding the recovery of the

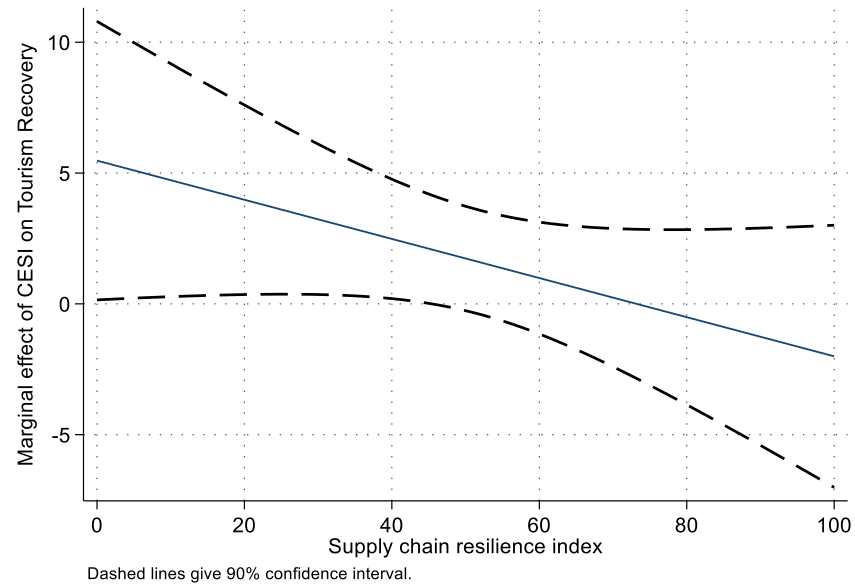
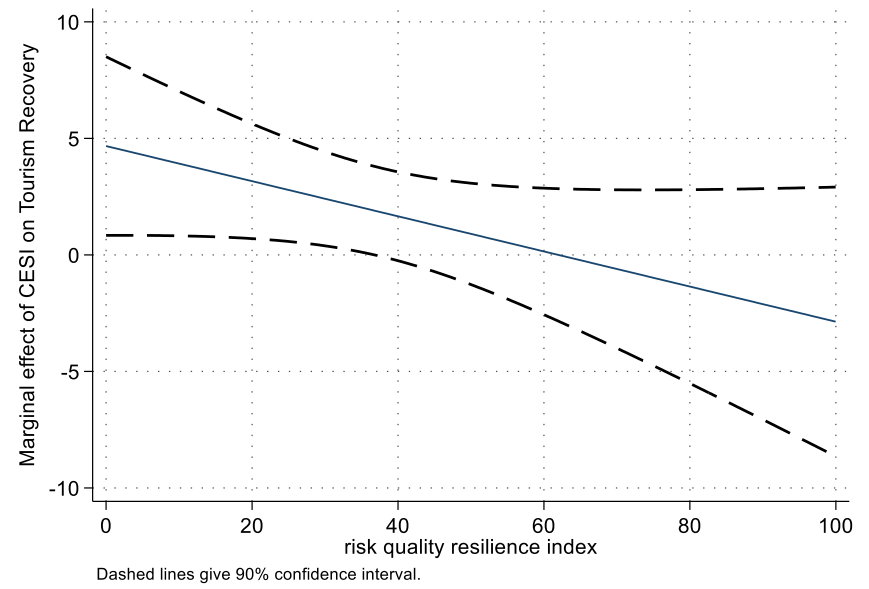
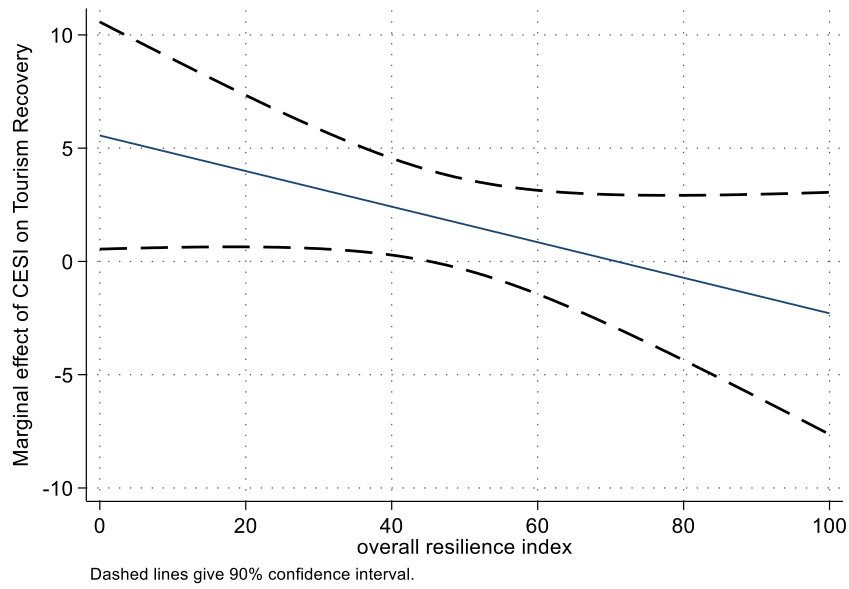


Fig. 1. Marginal effects of CESI on tourism recovery index for various values of overall, risk quality and supply chain resilience index.

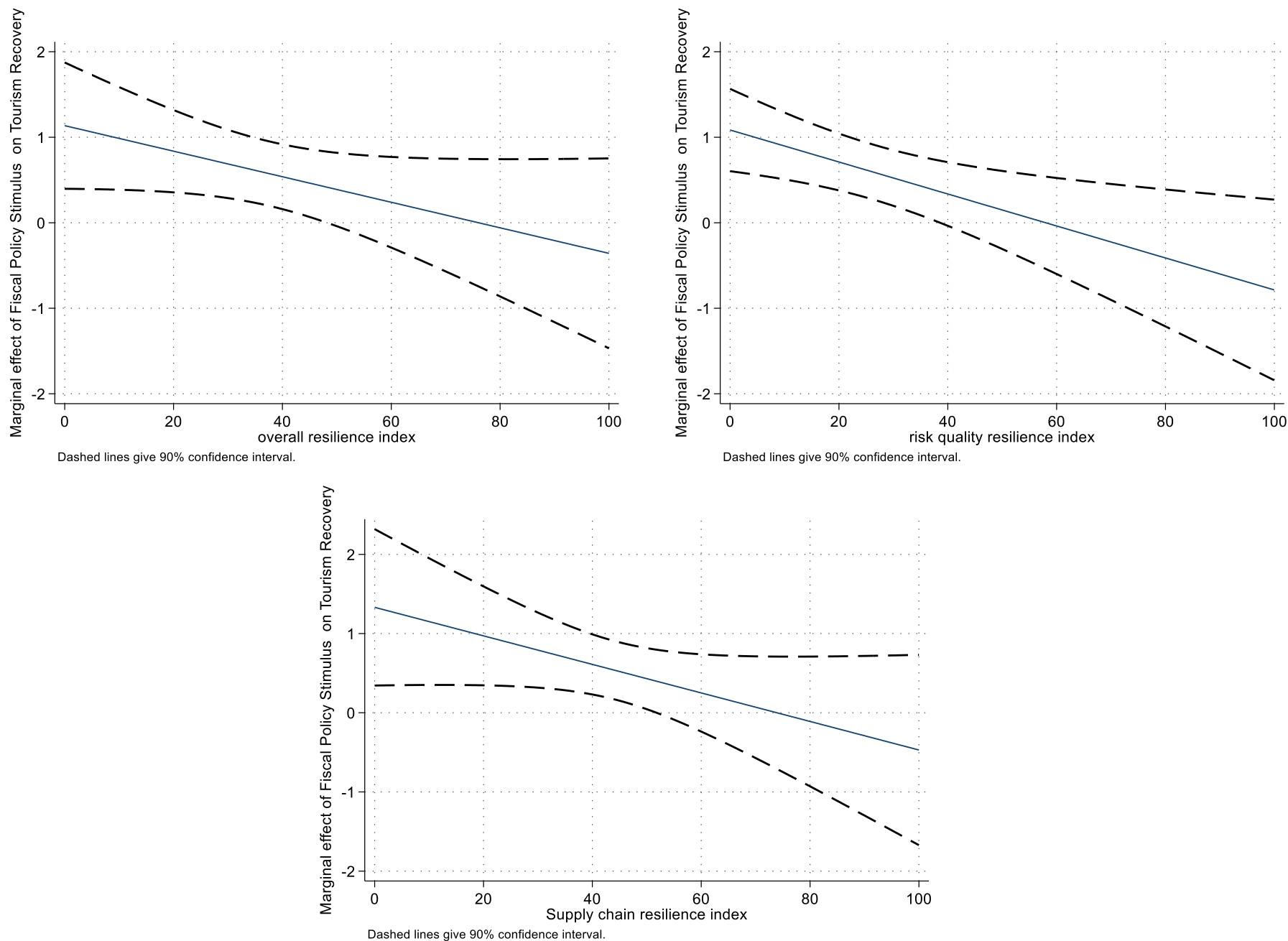


Fig. 2. Marginal effects of fiscal policy stimulus on tourism recovery index for various values of overall, risk quality and supply chain resilience index.

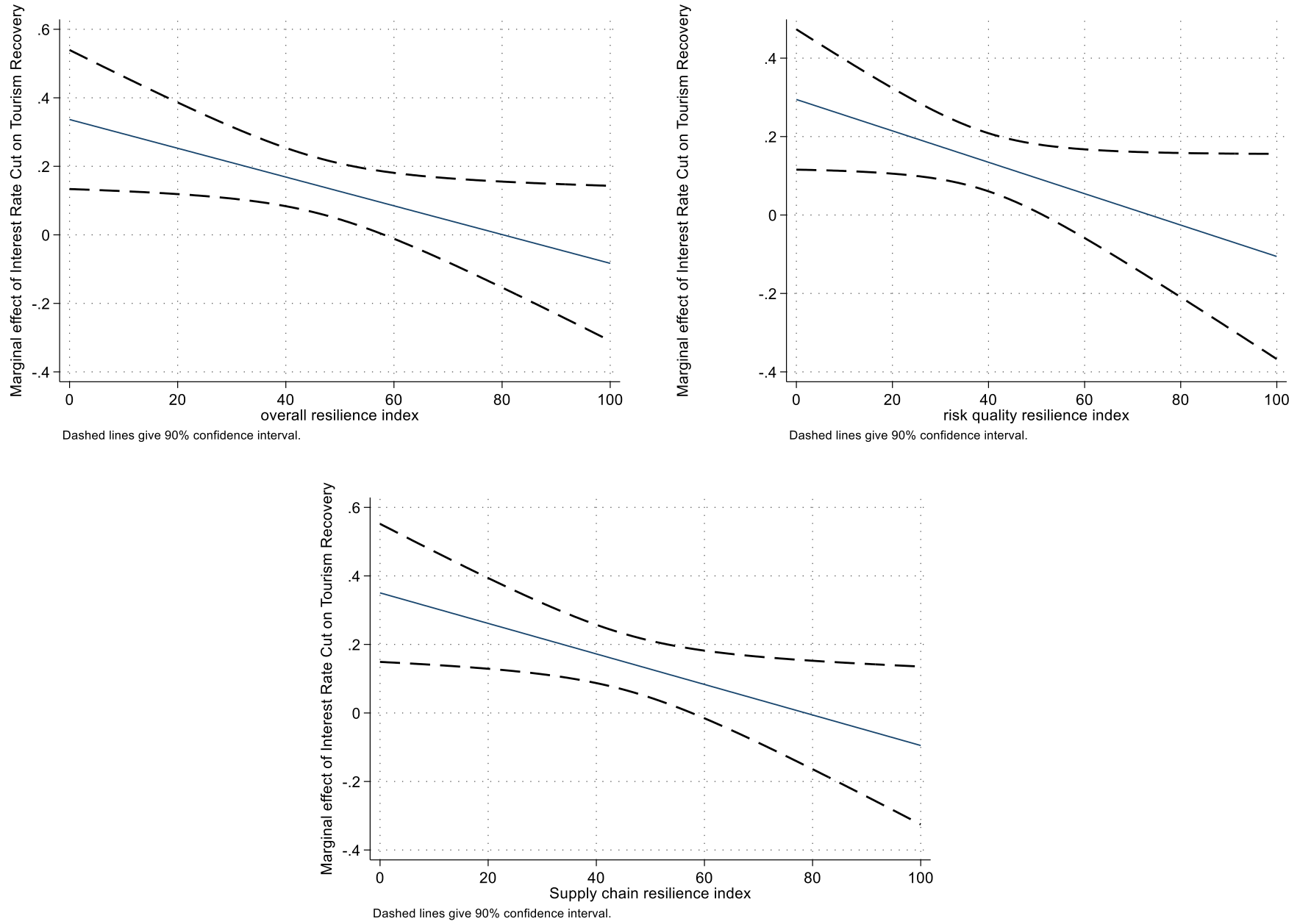


Fig. 3. Marginal effects of interest rate cut on tourism recovery index for various values of overall, risk quality and supply chain resilience index.

tourism sector. This suggests that the theoretical literature on tourism crisis management should focus more on the role of economic policies as a tool for crisis management in the tourism sector. Second, a comprehensive resilience theoretical framework is lacking in the tourism literature. Given the importance of resilience in tourism recovery after the crisis, as highlighted by our findings, there is a need to develop a tourism-specific resilience theoretical framework.

The findings of this study also offer grounds for several strategic policy agendas to aid the recovery of the tourism industry as the COVID-19 pandemic continues to wreak havoc across the world. This includes policy options for preparing for the next crisis and/or pandemic. These can be grouped under two broad themes. The first is the set of implications for tourism management pertaining to economic policy responses. The second relates to building resilience.

Focusing on the economic policy responses, countries with economic policies that are geared towards improving the liquidity of tourism businesses, especially small and medium tourism enterprises, could go a long way in mitigating the impact of the COVID-19 crisis. Furthermore, aggressive economic policy responses should be used by countries that are less resilient and not well prepared to handle the adverse shocks of the COVID-19 pandemic on the tourism industry. To ensure that stakeholders in the tourism industry benefit from economic policy responses, there has to be a push towards greater formalization of the sector, as informal enterprises may not benefit from economic stimulus packages or face greater difficulties accessing those benefits in a timely manner.

Beyond the implications relating to economic policy responses, the other key aspect of our study relates to the creation of an enabling environment for the emergence of a resilient economy, which includes developing a more elaborate crisis management strategy to respond swiftly to any future crisis, epidemic and/or pandemic event. Moreover, given that the risk perceptions of travelers have also changed due to the pandemic (da Silva Lopes et al., 2021; Zhan et al., 2022), policymakers should consider designing targeted policies aimed at attracting visitors with a relatively high-risk appetite. For instance, policies that promote tourism experiences—by providing tourists with timely and diverse travel information, value-added and brand-building promotions—can significantly help the recovery of the tourism sector.

The results of our study provide some practical implications for tourism management and policy on the resilience front as well. As our empirical results have highlighted, countries with greater risk and supply-chain-related resilience are better placed to handle similar future shocks. This reinforces the need for countries to have a systematic policy focus dedicated towards building resilience. To this end, the policy design of such countries with significant tourism dependence should be aligned with resilience thinking which in turn requires the identification of the determining factors that help to promote resilience building in tourism management.

An emerging body of theoretical articles in tourism management (see, for instance, Sharma et al., 2021) has provided the contours of a resilience-based framework that would enable a rebound of the tourism industry from the COVID-19 outbreak. Two specific attributes stand out in this theoretical discussion. First is a focus on encouraging domestic tourism. In light of the international travel restrictions and the prevailing uncertainty about travel normalization, countries could revive the tourism sector by focusing on encouraging domestic tourism. To some extent, our empirical results in this study lend indicative support to this proposition as one of the components of the COVID-19 tourism index pertains to the mobility index, which encompasses elements of domestic tourism.

The second attribute that has been featured in the theoretical discussion on resilience relates to a harder push towards achieving greater digitalization of the tourism industry. This could potentially include the digital transformation of the tourism sector as one of the ways of enhancing resilience in the tourism industry, such as devoting more resources to digital presence, such as in-room technologies for entertainment and destination e-shopping. A recent study by Okafor, Khalid,

and Gama (2022) has confirmed that economies that are more digitized tend to be more resilient as they introduce smaller COVID-19 economic stimulus packages.

Countries could also do well by resorting to non-traditional policy tools like encouraging digital financial inclusion to promote tourism. In fact, there has been anecdotal evidence that suggests that outbound tourists from China are more likely to use digital channels for tourist activities than other ways (Dichter, Chen, Saxon, Jackey, & Suo, 2018). Thus, it is important for countries to focus on financial sector development—encompassing financial inclusion—more broadly in aiding tourism recovery. This is in line with the results of our study and consistent with the empirical findings of Gopalan and Khalid (2022), who attribute a critical role for financial inclusion in spurring tourism development.

5. Conclusion, limitations and directions for future research

The COVID-19 pandemic heralded an unprecedented economic “scarring”, especially for the countries heavily dependent on the tourism sector. Consequently, most governments around the world introduced aggressive economic stimulus packages to alleviate economic losses due to the COVID-19 outbreak on different sectors of their economies, especially the tourism sector. This study attempts to understand the impact of these economic policies on the tourism industry’s recovery and the role played by a country’s resilience in the underlying relationship. More specifically, we explore whether the COVID-19 economic policy response has any impact on tourism recovery across countries and if the level of resilience of a country plays any role in the underlying nexus. To the best of our knowledge, this is one of the first attempts to quantify such impacts in the tourism literature.

Our empirical results indicate that tourism recovery is significantly influenced by the COVID-19 economic policy response. However, the impact of economic policy response on tourism recovery is contingent on the level of resilience of a country. In particular, amongst the less resilient countries, the impact of economic policy response on tourism recovery is the largest, but the impact disappears as countries become more resilient. In addition, we find that both fiscal policy response and interest rate cuts are effective in reviving the tourism sector, especially for less resilient countries. However, the impact of an interest rate cut is statistically significant for a slightly larger range of resilience scores. Furthermore, these results are robust to the addition of extra control variables and the use of different measures of control variables.

Notwithstanding the significance of our results, this study has some limitations, which also provide indicative directions for future research. First, given that the research question is topical in nature, it is not possible to explore the dynamic relationship between economic policies, resilience, and tourism recovery. Future research can address the same issue or similar issues in a dynamic setting as more data become available over time. Second, as discussed earlier, there is a lack of a comprehensive resilience framework in the context of the tourism sector; hence, there is no established resilience measure specific to the tourism sector. Thus, our study cannot specifically disentangle the impact of tourism sector resilience from other sectors in the economy. This also opens the doors for future research, whereby researchers can develop a measure of resilience specific to the tourism sector, drawing on the emerging theoretical literature on resilience in the context of the tourism sector.

To conclude, this study has taken a step towards integrating economic policy response and resilience in the context of tourism recovery from shocks such as the COVID-19 pandemic. This approach allows us to draw appropriate conclusions at a cross-country level. This study also offers several empirically testable propositions for future research to tackle, which could zero in on the factors that would help tourism businesses build resilience and prepare effectively to mount a recovery from similar crisis episodes in the future.

CRediT authorship contribution statement

Luke Okafor: Conceptualization, Methodology, Formal analysis, Investigation, Writing – original draft, Writing – review & editing. **Usman Khalid:** Conceptualization, Data curation, Formal analysis, Investigation, Writing – original draft, Writing – review & editing, Funding acquisition. **Sasidaran Gopalan:** Conceptualization, Writing – original draft, Writing – review & 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.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.annale.2022.100073>.

References

- Arbulú, I., Razumova, M., Rey-Maqueira, J., & Sastre, F. (2021). Can domestic tourism relieve the COVID-19 tourist industry crisis? The case of Spain. *Journal of Destination Marketing & Management*, 20, Article 100568.
- Bassil, C., Saleh, A. S., & Anwar, S. (2019). Terrorism and tourism demand: A case study of Lebanon, Turkey and Israel. *Current Issues in Tourism*, 22(1), 50–70.
- Becken, S. (2013). Developing a framework for assessing resilience of tourism sub-systems to climatic factors. *Annals of Tourism Research*, 43, 506–528.
- 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.
- Blake, A., & Sinclair, M. T. (2003). Tourism crisis management: US response to September 11. *Annals of Tourism Research*, 30(4), 813–832.
- Calgaro, E., Lloyd, K., & Dominey-Howes, D. (2014). From vulnerability to transformation: A framework for assessing the vulnerability and resilience of tourism destinations. *Journal of Sustainable Tourism*, 22(3), 341–360.
- Dichter, A., Chen, G., Saxon, S., Jackey, Y., & Suo, P. (2018). *Chinese tourists: Dispelling the myths*. McKinsey & Company. <https://www.mckinsey.com/~media/mckinsey/in-dustry/travel%20logistics%20and%20infrastructure/our%20insights/huanying%20to%20the%20new%20chinese%20traveler/chinese-tourists-dispelling-the-myths.pdf>.
- Elgin, C., Basbug, G., & Yalaman, A. (2020). Economic policy responses to a pandemic: Developing the COVID-19 economic stimulus index. *Covid Economics*, 1(3), 40–53.
- FM Global. (2020). FM global resilience index, 2020. Retrieved from <https://www.fmglob.com/research-and-resources/tools-and-resources/resilienceindex/explore-the-data/>.
- Friedrich, R. J. (1982). In defense of multiplicative terms in multiple regression equations. *American Journal of Political Science*, 26(4), 797–833.
- Global Health Security. (2019). *Global health security index*. GHS Index. Retrieved 10 June 2020 <https://www.ghsindex.org/>.
- Gopalan, S., & Khalid, U. (2022). *How does financial inclusion influence tourism demand? Empirical evidence from emerging markets and developing economies*. Tourism Recreation Research. Forthcoming.
- Gopalan, S., & Rajan, R. S. (2020). Doing whatever it takes: Understanding the COVID-19 stimulus calculus. *Global Policy Opinion*. Wiley.
- Gössling, S., Scott, D., & Hall, C. M. (2020). Pandemics, tourism and global change: A rapid assessment of COVID-19. *Journal of Sustainable Tourism*, 29(1), 1–20.
- Gurtner, Y. (2016). Returning to paradise: Investigating issues of tourism crisis and disaster recovery on the island of Bali. *Journal of Hospitality and Tourism Management*, 28, 11–19.
- Guru, B. K., & Yadav, I. S. (2019). Financial development and economic growth: Panel evidence from BRICS. *Journal of Economics, Finance and Administrative Science*, 24(7), 113–126. <https://doi.org/10.1108/JEFAS-12-2017-0125>
- International Monetary Fund. (2021). *World economic outlook: Managing divergent recoveries*. Washington, DC, April.
- Jiang, Y., Ritchie, B. W., & Verreynne, M. L. (2019). Building tourism organizational resilience to crises and disasters: A dynamic capabilities view. *International Journal of Tourism Research*, 21(6), 882–900.
- Kaushal, V., & Srivastava, S. (2021). Hospitality and tourism industry amid COVID-19 pandemic: Perspectives on challenges and learnings from India. *International Journal of Hospitality Management*, 92, Article 102707.
- Khalid, U., Okafor, L. E., & Burzynska, K. (2021). Does the size of the tourism sector influence the economic policy response to the COVID-19 pandemic? *Current Issues in Tourism*, 1-20. <https://doi.org/10.1080/13683500.2021.1874311>
- Khalid, U., Okafor, L. E., & Sanusi, O. I. (2021). Exploring diverse sources of linguistic influence on international tourism flows. *Journal of Travel Research*, 0047287520988909.
- Khalid, U., Okafor, L. E., & Shafiuallah, M. (2020). The effects of economic and financial crises on international tourist flows: A cross-country analysis. *Journal of Travel Research*, 59(2), 315–334.
- Khan, A., Bibi, S., Lyu, J., Latif, A., & Lorenzo, A. (2021). COVID-19 and sectoral employment trends: Assessing resilience in the US leisure and hospitality industry. *Current Issues in Tourism*, 24(7), 952–969.
- Khan, A., Bibi, S., Lyu, J., Raza, A., Hayat, H., & Meo, M. S. (2020). Unraveling the nexuses of tourism, terrorism, and well-being: Evidence from Pakistan. *Journal of Hospitality & Tourism Research*, 44(6), 974–1001.
- Kreiner, N. C., & Ram, Y. (2020). National tourism strategies during the Covid-19 pandemic. *Annals of Tourism Research*, 89. <https://doi.org/10.1016/j.annals.2020.103076>
- Kumail, T., Ali, W., Sadiq, F., & Khan, A. (2021). Nexus of terrorism and tourism: Empirical evidence from south Asian countries. *Journal of Tourism Analysis: Revista de Análisis Turístico (JTA)*, 28(1).
- Kuščer, K., Eichelberger, S., & Peters, M. (2021). Tourism organizations' responses to the COVID-19 pandemic: An investigation of the lockdown period. *Current Issues in Tourism*, 1–14.
- Luthe, T., & Wyss, R. (2014). Assessing and planning resilience in tourism. *Tourism Management*, 44, 161–163.
- Meng, Y., Khan, A., Bibi, S., Wu, H., Lee, Y., & Chen, W. (2021). The effects of COVID-19 risk perception on travel intention: Evidence from Chinese travelers. *Frontiers in Psychology*, 12. <https://doi.org/10.3389/fpsyg.2021.655860>
- Okafor, L., Khalid, U., & Gama, L. E. M. (2022). Do the size of the tourism sector and level of digitalization affect COVID-19 economic policy response? Evidence from developed and developing countries. *Current Issues in Tourism*, 1-24. <https://doi.org/10.1080/13683500.2022.2107898>
- Okafor, L. E., Bhattacharya, M., & Apergis, N. (2020). Bank credit, public financial incentives, tax financial incentives and export performance during the global financial crisis. *The World Economy*, 43(1), 114–145. <https://doi.org/10.1111/twee.12848>
- Okafor, L. E., & Khalid, U. (2021). Regaining international tourism attractiveness after an armed conflict: The role of security spending. *Current Issues in Tourism*, 24(3), 385–402.
- Pongsakornrunsilp, S., Pongsakornrunsilp, P., Kumar, V., & Maswongssa, B. (2021). The art of survival: Tourism businesses in Thailand recovering from COVID-19 through Brand Management. *Sustainability*, 13(12), 6690.
- Prayag, G. (2018). Symbiotic relationship or not? Understanding resilience and crisis management in tourism. *Tourism Management Perspectives*, 25, 133–135.
- 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, Article 102812.
- Rodríguez-Antón, J. M., & Alonso-Almeida, M. (2020). COVID-19 impacts and recovery strategies: The case of the hospitality industry in Spain. *Sustainability*, 12(20), 8599.
- de Sausmarez, N. (2007). Crisis management, tourism and sustainability: The role of indicators. *Journal of Sustainable Tourism*, 15(6), 700–714. <https://doi.org/10.2167/jost653.0>
- Sharma, G. D., Thomas, A., & Paul, J. (2021). Reviving tourism industry post-COVID-19: A resilience-based framework. *Tourism Management Perspectives*, 37, Article 100786.
- Cooper, M. (2006). Japanese tourism and the SARS epidemic of 2003. *Journal of Travel & Tourism Marketing*, 19(2–3), 117–131. https://doi.org/10.1300/J073v19n02_10
- da Silva Lopes, H., Remoaldo, P. C., Ribeiro, V., & Martín-Vide, J. (2021). Effects of the COVID-19 pandemic on tourist risk perceptions—The case study of Porto. *Sustainability*, 13(11). <https://doi.org/10.3390/su13116399>
- Strickland-Munro, J. K., Allison, H. E., & Moore, S. A. (2010). Using resilience concepts to investigate the impacts of protected area tourism on communities. *Annals of Tourism Research*, 37(2), 499–519.
- Sviryzdenka, K. (2020). Introducing a new broad-based index of financial development 1. IMF Working Paper No. 16/5, Available at SSRN: <https://ssrn.com/abstract=2754950>
- Walker, B., Holling, C. S., Carpenter, S. R., & Kinzig, A. P. (2004). Resilience, adaptability and transformability in social-ecological systems. *Ecology and Society*, 9(2). <https://doi.org/10.5751/ES-00650-090205>
- Wang, C. J., Ng, C. Y., & Brook, R. H. (2020). Response to COVID-19 in Taiwan. *JAMA*, 323(14), 1341. <https://doi.org/10.1001/jama.2020.3151>
- World Bank. (2021). *World bank development indicators*. Washington, USA.
- WTTC. (2021). Travel & tourism economic impact. Available at <https://wtcc.org/Research/Economic-Impact>.
- Yang, Y., Altschuler, B., Liang, Z., & Li, X. (2020). Monitoring the global COVID-19 impact on tourism: The COVID19tourism index. *Annals of Tourism Research*, 103120. <https://doi.org/10.1016/j.annals.2020.103120>

- Yeh, S.-S. (2020). Tourism recovery strategy against COVID-19 pandemic. *Tourism Recreation Research*, 1–7.
- Zhan, L., Zeng, X., Morrison, A. M., Liang, H., & Coca-Stefaniak, J. A. (2022). A risk perception scale for travel to a crisis epicentre: Visiting Wuhan after COVID-19. *Current Issues in Tourism*, 25(1), 150–167. <https://doi.org/10.1080/13683500.2020.1857712>
- Zhong, L., Sun, S., Law, R., & Li, X. (2021). Tourism crisis management: Evidence from COVID-19. *Current Issues in Tourism*, 1–12.

Luke Okafor is an Associate Professor at the University of Nottingham Malaysia. His research interests include international economics, applied economics, tourism economics, industrial economics, development economics.

Usman Khalid is an Assistant Professor at the United Arab Emirates University. His research interests include tourism economics, environmental economics and development economics.

Sasidaran Gopalan is an Assistant Professor at the United Arab Emirates University. His research specialization lies in the intersection of international finance and development policy.