THREE ESSAYS ON RESILIENCE AND SUSTAINABILITY OF THE TOURISM SECTOR IN INDIA: A MULTISCALE VIEW

A Thesis

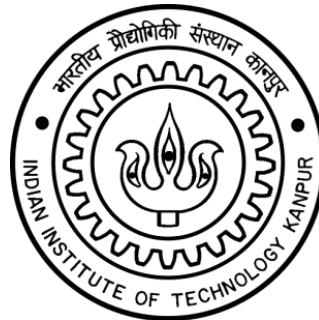*Submitted in Partial Fulfilment of the Requirements*

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by

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to the

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Certificate

It is to certify that the work done in the thesis entitled "**Three Essays on Resilience and Sustainability of the Tourism Sector in India: A Multiscale View**" by Mahfuzuar Rahman Barbhuiya (16114262), has been carried out under my supervision and this work has not been submitted elsewhere for a degree.

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Declaration

This is to certify that the thesis titled "**Three Essays on Resilience and Sustainability of the Tourism Sector in India: A Multiscale View**" has been authored by me. It presents the research conducted by me under the supervision of **Dr. Devlina Chatterjee**. To the best of my knowledge, it is an original work, both in terms of research content and narrative, and has not been submitted elsewhere, in part or in full, for a degree. Further, due credit has been attributed to the relevant state-of-the-art and collaborations (if any) with appropriate citations and acknowledgements, in line with established norms and practices.

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Synopsis

Name of Student	:	Mahfuzuar Rahman Barbhuiya
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Tourism is one of the main drivers of the global economy. In 2019, prior to the Covid-19 pandemic, the contribution of the tourism sector was 9.6 trillion dollars which accounted for about 10.3% of the global Gross Domestic Product (GDP)[1]. In addition, tourism also helps in reducing poverty via employment generation, accounting for about 333 million jobs (10.3% of all jobs). According to the 2030 agenda for sustainable development. UN's Sustainable Development Goal (SDG) 8.9 aims to create a sustainable tourism sector that would promote local jobs.

One of the key aspects of the tourism eco-system is that is vulnerable to exogenous shocks, which can either be in the form of gradual deterioration or a sudden shock. Tourist destinations are susceptible to degradation caused by environmental damage and overtourism. Sudden shocks due to war, natural disasters and pandemics could affect the social and economic well-being of the local community. For instance, global restrictions of movement during Covid-19 impacted the tourism sector severely with a 50% loss in economic output and a 20-25% loss in jobs in 2020 compared to 2019[2]. Given the importance of tourism as an economic activity and the vulnerability

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[1] Source: https://wttc.org/Research/Economic-Impact
[2] Source: https://wttc.org/Research/Economic-Impact

of the tourism eco-systems, it is important to understand the factors that make tourism systems more resilient. This is the primary focus of this thesis.

Resilience has been defined as "the capacity of a system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure, identity, and feedbacks — in other words, stay in the same basin of attraction" (Walker et al., 2004). We look at the issues of resilience and sustainability of the Indian tourism sector at different scales of aggregation viz. the macro, meso and micro scales. The macro level study looks at resilience of the tourism sector for different states within India, which have faced shocks such as different kinds of natural disasters and internal conflict. The meso level study looks at the resilience of hospitality organizations that faced a sharp drop in tourism revenues post Covid-19, and the strategies adopted by these organizations. Finally, the third study was at a micro level, where we explored the attitudes and environmentally conscious behavior of individual tourists that leads to sustainability of tourism destinations. We provide a summary of each of these studies below.

Study 1: Vulnerability and Resilience of Domestic and International Tourism Sectors to Multiple Shocks: An Indian Panel Study [3]

The first study in this thesis takes a macro view of resilience – that is resilience of tourism sector across different states of India. Tourism resilience studies often focus on a single shock event. In reality, the same destination may face different kinds of shocks. It is important to compare the relative effect and resilience to different shocks. Using a panel dataset for 22 Indian states, we build random effect models to understand the impact of natural disasters and political conflict on domestic and foreign tourist arrivals. Severe conflict events affect domestic tourist arrivals negatively, while natural disasters do not. In contrast, natural disasters affect international tourist arrivals negatively, but conflicts do not. We study resilience by identifying breaks in tourist arrivals and noting corresponding recovery times. Breaks were observed in more states for the international segment compared to domestic segment. Recovery times was also greater for

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[3] (Barbhuiya & Chatterjee, 2020)

international rather than domestic tourists. Thus, domestic tourists seem to be more resilient compared to international tourists. Our study provides useful insights that may have policy implications.

Study 2: Just survive or thrive? Effect of psychological and organizational resilience on adoption of innovative strategies by hospitality sector post Covid-19 [4]

In the second study, we look at resilience at the meso scale, i.e., the resilience of hospitality organizations that faced a sudden negative shock. Several small and medium-scale businesses within the hospitality sector have suffered significant losses due to the Covid-19 pandemic. We aim to understand the role of psychological and organizational resilience in the perceived negative impact, as well as adoption of coping strategies. Data was collected from 549 managers of small and medium-sized hotels across 28 states and 3 union territories in India. Structural equation methods were used to predict factors affecting adoption of four strategies, price discounts, cost-cutting, revenue generation and brand building. Organizational resilience was associated with tactical measures such as cost-cutting and price discounts. Psychological resilience of managers was associated with the adoption of strategic measures such as revenue generation and brand-building activities. Thus, we find that while organizational resilience enables the survival of businesses, psychological resilience helps them to thrive. Innovative strategies and visionary leadership build resilient businesses that endure in the long run.

Study 3: Bottled water usage and willingness to pay: Visual nudges and the theory of planned behaviour [5]

In the third study, we look at sustainability at a micro-scale – i.e., behaviour of individual tourists that promotes environmental sustainability of tourism destinations. Consumption of bottled water creates large amounts of non-biodegradable plastic waste that poses a serious threat to marine life. Single-use plastic bags have been banned in several states in India. However, bottled water

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[4] Barbhuiya and Chatterjee.
[5] (Chatterjee & Barbhuiya, 2021)

usage is still widely prevalent. We use Ajzen's theory of planned behaviour to understand how beliefs, attitudes, social norms, perceived costs, and perceived benefits affect tourists' intentions to reduce bottled water usage. We use visual cues to compare the effect of positive and negative framing on tourists' behavioural intentions and their willingness to pay an environmental tax. Pro-environmental beliefs, attitudes, and social norms affect tourists' intention to carry their own water. Perceived costs such as the inconvenience of carrying water and changing habits are the primary barriers to eco-friendly intentions. Negative visual cues that nudge the tourist to be aware of environmental costs increase the willingness to pay an environmental tax but do not affect behavioural intentions. Women are more environmentally friendly than men, both with respect to behavioural intentions and willingness to pay. This study is the first to provide insight into the pro-environmental behavioural intentions of Indian tourists. Increasing consumer awareness and providing alternatives for clean drinking water may reduce bottled water consumption.

To summarize, this thesis explores several different dimensions of sustainability in the tourism sector at different scales of the economy. The macro-scale study looks at aggregate tourism demand across Indian states, the meso study looks at the resilience of individual hospitality organizations and the micro-scale study looks at sustainable behavior of individual tourists. We study different kinds of threats to sustainability including natural disasters, political turmoil, health shocks, environmental degradation and overtourism. Thus, this thesis provides a comprehensive multi-scale view of resilience and sustainability for the Indian tourism sector.

This thesis is dedicated to the memory of my father,

Abba!

Mr. Mizazur Rahman Barbhuiya!

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Publications Based on the Thesis

1. Barbhuiya, M. R., & Chatterjee, D. (2020). Vulnerability and resilience of the tourism sector in India : Effects of natural disasters and internal conflict. *Tourism Management Perspectives*, *33*. https://doi.org/10.1016/j.tmp.2019.100616

2. Barbhuiya M.R. and Chatterjee D, (2022) Just survive or thrive? Effect of psychological and organizational resilience on adoption of innovative strategies by hospitality sector post Covid-19, *Journal of Tourism Planning and Development*. https://doi.org/10.1080/21568316.2022.2121312

3. Chatterjee, D., & Barbhuiya, M. R. (2021). Bottled water usage and willingness to pay among Indian tourists: visual nudges and the theory of planned behaviour. *Scandinavian Journal of Hospitality and Tourism*, *21*(5), 1–19. https://doi.org/10.1080/15022250.2021.1974544

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List of Abbreviations

AGFI	Adjusted Goodness of Fit Index
AVE	Average Variance Extracted
BBI	Building Brand Image
CA	Cronbach's alpha
CCM	Cost-Cutting Measures
CFI	Comparative Fit Index
CR	Composite Reliability
DTA	Domestic Tourist Arrival
FTA	Foreign Tourist Arrival
FL	Factor Loading
GDP	Gross Domestic Product
GFI	Goodness of Fit Index
NFI	Normed Fit Index
OR	Organizational Resilience
PD	Pricing and Discounts
PNEC	Perceived Negative Effects due to Covid-19 Restrictions on Tourism
PR	Psychological Resilience
RGS	Revenue Generation Strategies
RMSEA	Root Mean Square Error of Approximation
SDG	Sustainable Development Goal
SE	Standard Error
SME	Small and Medium-scale Enterprises
SRMR	Standardized Root Mean Square Residual
TLI	Tucker–Lewis Index
TPB	Theory of Planned Behaviour
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNWTO	United Nations World Tourism Organization
WTTC	World Travel and Tourism Council

Chapter 1 : Introduction

Tourism has emerged as one of the key drivers of the global economy in the twenty-first century. The contribution of tourism to global GDP in 2021 was 5.81 trillion US dollars, a significant drop from the pre-Covid levels of 9.63 trillion US dollars in 2019 (UNWTO, 2022). As per the World Travel and Tourism Council, tourism in 2019 accounted for about 10.3% in terms of its contribution to global employment as well as global GDP (WTTC, 2022). The tourism industry encompasses (i) travel services such as airlines, train travel, bus travel, taxi providers and ferries, (ii) hospitality services such as resorts, small and medium range hotels and Airbnb lodges and homestays etc., and (iii) other recreational and support services including restaurants, tourist guides, adventure sports guides and event managers for conferences and meetings.

Compared to capital-intensive sectors such as automobile manufacturing, steel, and oil refinery, the tourism sector poses smaller barriers to entry. Tourism is not restricted to just urban centres and helps develop and connect rural and remote areas. Such remote areas may not have access to other sources of employment. By providing employment tourism enables equitable economic growth and lowers income inequality. The demand for tourism is often driven by destination image, the authenticity of tourist experience, opportunities for adventure sports and leisure activities, and the desire for exploring historical and cultural diversity. In a time of increasing racial and religious polarization worldwide, travel and tourism helps people connect across cultures. Hence tourism directly or indirectly helps attain various United Nations' Sustainable Development Goals, such as alleviating poverty, a hunger-free world, livelihood opportunities and economic growth, and reducing inequalities.

Tourism is an activity that is discretionary and voluntary in nature. In times of peace and prosperity, the wish to relax and rejuvenate, and the desire to see new places are powerful pull factors that result in high demand for tourism. However, in difficult times, individuals may choose to be risk averse and cut down on unnecessary travel. As such, the demand for tourism is strongly influenced by external factors. It may fluctuate depending on shocks in the ecosystem such as

economic recessions, natural disasters, man-made conflicts, and health shocks. It is worth noting that natural disasters and internal conflicts occur mainly at local levels, a few types of natural disasters like tsunamis and cyclones, economic and health disasters may arise at regional or global levels, and disasters related to terrorism mainly occur at international levels.

Since 2000, the tourism industry has experienced three global shocks which resulted in a drop in international tourist arrivals as well as global GDP. The 9/11 attack on the World Trade Center in NY led to a fear of air travel and subsequent drop in global tourism. The growth in global tourism faced another decline post the 2008 global economic recession. Finally in 2020, the international lockdowns and travel restrictions to curb the spread of the Covid-19 pandemic led to a 50% drop in global tourism. In terms of economic losses due to the Covid-19 pandemic, the tourism industry saw a drop of 55% and 45% in 2020 and 2021, respectively, because of various restrictive measures taken by governments. As stated above, tourism leads to equitable economic growth and hence can address issues of global poverty and unemployment. In addition, it is also vulnerable to many external shocks which can lead to wide fluctuations in demand for tourism. Thus, sustainability and resilience of the tourism industry are important concerns that are addressed by scholars as well as industry practitioners.

Resilience in tourism is defined as the capacity of the system to adapt to changing conditions and sustain in the long term (Lew et al., 2016). Resilience should not be confused with stability which merely aims to restore the system to the original state. The principle of resilience is one where one accepts that with time, the tourism ecosystem will continue to change and evolve. Resilience is associated with how people, organisations and economic systems adapt to these changes and become stronger. This view of resilience that talks about '(re)building back better' has been discussed by several researchers (Bains & Durham, 2013; Prado et al., 2015; Vahanvati & Rafliana, 2019). So, it is not just about dealing with a particular shock at a given time but whether the system is prepared for the future shock.

The perception of India as a global tourism destination has improved significantly in the last thirty years. Several factors may have impacted this change. Economic liberalization policies adopted by the Indian government in 1991 set India on the path of higher economic growth. India became a hub of outsourcing services for many multinational companies in the early 2000s. Improvement in infrastructural facilities such as international airports, and perceived cultural westernization led to an increase in international tourism demand in the last twenty years. International tourist arrivals in India increased from 2,537,282 in 2001 to 10,930,355 in 2019. The primary reasons for inbound tourism are quite diverse and vary from state to state. These include medical tourism (NCR, Mumbai, and Chennai), nature-based tourism (Goa and the Himalayan states), adventure tourism (Uttarakhand and Sikkim), cultural tourism (numerous UNESCO-identified heritage sites in Agra, Rajasthan, Gujarat, Tamil Nadu, Maharashtra) and spiritual and religious tourism (Kerala, Uttarakhand, Varanasi, Gaya, Karnataka, and Tamil Nadu). Overall, tourism contributed 9.3% (266.9 billion US dollars) of India's GDP in 2019 (Ministry of Tourism, 2021) and provided employment to about 8.1% of the total workforce.

In this thesis, we study resilience of the Indian tourism sector for different kinds of shocks and at varying scales of aggregation, namely, macro, meso and micro scales. The first study of this thesis is a macro-level study. It looks at the resilience of the tourism industry across 22 states in India that have faced various kinds of natural and human-induced disasters. In the second study, which is a meso-level study, we look at the organizational and psychological resilience of 549 hospitality organizations which faced a sharp drop in tourism revenues due to the Covid-19 pandemic. Finally, in the third study, we look at sustainability on a micro-scale, the individual tourists, and their environment-friendly travel behaviour. We explored the attitudes and environmentally conscious behaviour of 336 individual Indian tourists.

Chapter 2 : Vulnerability and Resilience of Domestic and International Tourism Sectors to Multiple Shocks: An Indian Panel Study

2.1. Introduction

Tourism plays an important role in the global politico-economic sphere. It is a key driver of economic growth and a provider of employment for tourist destinations (Pablo-Romero & Molina, 2013). The tourism industry worldwide has experienced sudden shocks in the form of natural disasters such as floods and earthquakes (Cochrane, 2010; Becken, 2013), or man-made disturbances such as wars and terrorist attacks (Richter & Waugh, 1986; Sonmez, 1998). Such exogenous shocks change tourist perception about the attractiveness of a particular destination. This may lead to negative shifts in demand, with tourists preferring to visit destinations that are perceived to be safer. Changes in destination image may eventually lead to stagnation and decline of the tourist destination (Ichinosawa, 2006; Nguyen & Imamura, 2017).

Resilience is one of the key factors that enable a socio-ecological system to be sustainable in the long run (J. Cheer & Lew, 2017; Clifton, 2010; Espiner et al., 2017). In the sphere of tourism, Prayag (2018) argues that there is a need to shift from a crisis management perspective to a resilience perspective. Most empirical research in resilience of the tourism sector focusses on a specific exogenous shock affecting a particular destination (Pennington-Gray, 2018). Some studies focus exclusively on natural disasters (Biggs et al., 2012; Calgaro & Lloyd, 2008), some concentrate on political conflict or terrorist attacks (Causevic & Lynch, 2013; Liu & Pratt, 2017; Sonmez, 1998; Yap & Saha, 2013) while others focus only on economic shocks (Perles-Ribes et al., 2016).

In reality, a particular tourist destination may be subject to different kinds of shocks at different points of time (Neef & Grayman, 2018; van Strien, 2018). It is necessary to be able to compare the impact of different kinds of shocks on different kinds of tourists, in order to be able to formulate appropriate strategies for improving resilience. Few studies have compared the vulnerability and resilience of destinations that have experienced shocks that fall under different

categories[6]. A few studies have tried to locate the incidence of a shock by identifying structural breaks in time-series data of tourist arrivals (Cró & Martins, 2017; Min et al., 2019). There is also paucity of research in understanding the differential impact of such shocks on domestic versus foreign tourist segments. One notable exception is Cellini and Cuccia (2015) who considered the effect of the 2008 global economic recession on both domestic and international tourist arrivals in different regions of Italy.

In the Indian context, Dhariwal (2005), and Yap and Saha (2013) look at time series data for international tourist arrivals to India (not at a state level). Parida et al. (2017) study the effect of only political conflict and not natural disasters. None of the extant studies have tried to estimate and compare the impact of different kinds of shocks on tourism, at the level of intra-country granularity, for two different segments of tourists, viz. domestic and foreign tourists. This is the research gap that motivates this study.

In India, tourism is governed by the state government and not the union government. Each state has its own budget and its own tourism department (sometime setup as tourism corporation) that seeks to attract tourists and manage tourism destinations. This study conducts an intrastate comparison of the resilience of the tourism economy post disaster. This is dependent on the efficacy with which the state governments address the concerns of the tourists through infrastructural support, strengthening the law-and-order situation and conducting marketing campaigns that improves the perception of the destinations in the minds of the tourists. Thus, we are looking at the resilience of the tourism economy in each state. In this study, tourist arrivals is a proxy for the demand for tourism services in a state.

The main contributions of the paper are as follows. In the first part we explore vulnerability of the tourism sector in different Indian states to different kinds of shocks. Using random effect panel

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[6] Page et al. (2012) studied the effect of global economic crisis and swine flu in Great Britain, and (Wang, 2009) studied the effect of three independent shock events on tourism in Taiwan viz.(i) the 1997 financial crisis, (ii) the 1999 earthquake and (iii) 2001 terrorist attack on World Trade Centre. These studies examine specific events. In contrast we study a class of event such as natural disasters and political conflict.

models, we estimate the effect of the incidence as well as severity of natural disasters and terrorist attacks on tourist arrivals. We build separate models for two segments of the market – international and domestic tourists. The impact of different kinds of disturbances on different tourist segments, across a variety of geographical destinations has not been studied before, hence our findings are new and add to the extant literature.

In the second part of the study, we study the resilience of the domestic and foreign tourism sector in different Indian states. We propose a new method for studying the resilience of a particular destination, using variations from expected arrival trends[7]. Our results provide new insights into the vulnerability and resilience of international and domestic tourists and their variations across different states of India.

The rest of the paper is organized as follows. In Section 2, we provide a review of relevant literature. In section 3, we formulate the research questions and state the hypotheses we will test. In Section 4, we describe the tourism statistics for each state as well as the incidences of natural disasters and political conflicts during the study period. In Section 5, we describe the results of the panel models to study the impact of exogenous shocks on foreign and domestic tourist arrivals. In Section 6, we discuss the resilience of the tourism sector. Section 7 concludes the paper.

2.2. Literature Review

We first discuss the theoretical foundation of the concept of resilience in socio-ecological system. Next, we review the literature of resilience in the specific context of tourism. Finally, we describe the literature on effect of political conflict and natural disasters on tourism. A summary of the extant literature is provided in Appendix I.

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[7] Some researchers have identified structural breaks in the data (Cró & Martins, 2017; Perles-Ribes et al., 2016). However, non-availability of time-series data over a long enough time periods before and after each event meant that this could not be done in the present study.

2.2.1. Resilience- Conceptualization and Theoretical Models

Resilience is one of the key concepts used to understand the dynamic process of change in socio-ecological systems. Holling (1973) defined resilience as a measure of the ability of a system to absorb natural or economic shocks and continue to function at levels of pre-shock performance. Holling (1996) made a distinction between the two definitions, namely "engineering resilience" and "ecological resilience". Engineering resilience refers to the time taken by a system to revert to a state of equilibrium when it faces some small perturbations or shocks. This is the more traditional definition of resilience. Ecological resilience is based on the assumption that a system may have multiple stable equilibria. In this case, the ecological resilience refers to the magnitude of the shock which the system can absorb before it transforms to another stable equilibrium state. Gunderson and Holling (2002) introduced the idea of panarchy, a heuristic model of nested adaptive renewal cycles which were depicted using a series of asymmetric figure of 8's which represented changes at different time scales (slow to fast). Walker et al. (2004) defined resilience as "the capacity of a system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure, identity, and feedbacks − in other words, stay in the same basin of attraction".

In the socio-ecological context, Folke (2006) modelled resilience by linking the concepts of vulnerability, resilience, and adaptive capacity. The development of a resilience perspective of dynamical systems includes an inherent ability to withstand disturbances, adapt to change, and transform to new states at different time scales. Nelson et al. (2007) pointed out that socio-ecological systems may have multiple stable states that are bounded by thresholds and the desirability of any given state is a normative decision. A system that is inherently inequitable or not socially desirable may also be resilient to changes. They also noted the trade-off between having a high adaptive capacity for the present vs. being resilient to future uncertainties. Hosseini et al. (2016) provides a recent review of the different definitions of resilience. Academic interest in resilience has seen a significant rise in the last two decades. Xu and Marinova (2013) provide a comprehensive review in the area of resilience between the years 1973 and 2011.

2.2.2. Resilience in Tourism Studies

Butler (1980) in his seminal paper introduced the 'tourism area life cycle' (TALC) model, in which he contended that tourist locations evolve over time and this dynamic nature might lead to degradation of environmental quality and a decline in the tourism experience. In the TALC model, rejuvenation and resilience are two important stages which take into account changes in environment and economics. Farrell and Twining-ward (2005) described tourism as an evolving complex system that includes the aspirations and values of local people in addition to the geographical specifics of the place.

Several dimensions of resilience have been discussed in the tourism literature including economic resilience (Cellini & Cuccia, 2015; Lew, 2014), social resilience (Cinner et al., 2009; Keck & Sakdapolrak, 2013; Sharifi, 2016) and organizational (or enterprise) resilience (Annarelli & Nonino, 2016; Orchiston et al., 2016). Different indicators have been proposed for the measurement of resilience of destinations to disasters (Basurto-cedeño & Pennington-gray, 2016; Cutter et al., 2010). Cutter et al. (2010) included several variables to create a composite indicator for resilience – these included the social, economic, institutional, infrastructure, and community capacities of the tourist destinations to withstand sudden shocks. Lew (2014) made the distinction between fast changing variables and slow changing variables for measurement of resilience in the tourism context. After reviewing available resilience indicators, (Sharifi, 2016) concluded that resilience indicators should be multi-dimensional and should cover the temporal dynamism and risk management abilities of communities. Kristjánsdóttir et al. (2017) provides a comprehensive review of indicators and find that researchers are focussing on the interconnectedness and dynamic nature of indicators. The commonality among all these definitions was the understanding that resilience refers to the ability of a system to stay within certain parameters after a disturbance, where the parameters may be operational, functional or performance related. Such resilience may be due to inbuilt characteristics of the system that exist even before the disturbance occurs.

2.2.3. Vulnerability and Resilience of Tourist Destinations to Natural Disasters

The link between tourism and disaster risk reduction and management is important for places that both rely heavily on tourism and are prone to natural disasters (Becken & Hughey, 2013). Espiner and Becken (2014) made the distinction between resilience and vulnerability. They contended that a highly resilient destination does not necessarily mean that it is not vulnerable, and vice versa. Some common mechanisms have been identified, which increase social and economic resilience. These are adaptive governance, capacity building, community participation, social and cultural factors, and perception management of the tourist destination. Calgaro and Lloyd (2008) analysed the effects of the 2004 tsunami on Khao Lak in Thailand. Khao Lak's vulnerability was shaped by 13 interlinked factors including social norms, dynamic governance processes and industry linkages. Calgaro and Lloyd (2008), and Djalante et al. (2011) pointed out the inter-linkages between adaptive governance, disaster risk reduction and resilience.

To make tourism more resilient, there need to be initiatives and adaptations from different sectors of the tourism supply chain and different scales of governance (Luthe & Wyss, 2014). Governments should use learning from disasters, both positive and negative, by documenting and evaluating responses of different stakeholders. Such documentation will guide and improve crisis management capacity and disaster risk reduction (Calgaro & Lloyd, 2008; Gurtner, 2016).

Some studies have noted variations across locations. Urban areas are more resilient than rural areas (Cutter et al., 2010). Bastaminia et al. (2017), Cinner et al. (2009), Saja et al. (2018) and Sharifi (2016) focussed on social resilience in the wake of disasters. Cinner et al (2009) considered coastal regions in Madagascar, and identified assets, flexibility, the capacity to learn and the capacity to self-organise as critical for social resilience. Using panel data for 26 years, Kim & Marcouiller (2015) studieYd the vulnerability and resilience of US natural parks and coastal regions that had faced hurricanes. Bastaminia et al. (2017) considered resilience in the context of earthquakes in the Rudbar, Iran and identified awareness, knowledge, skill, attitude, and social capital as the primary indicators of social resilience. Saja et al. (2018) proposed an

inclusive and adaptable 5S framework consisting of social capital, social mechanisms, social structure, social equity, and social belief.

It has been noted that informal tourism enterprises are most affected by disasters. Informal tourism enterprises fare better after crises when they are supported by the government, family, and community (Biggs et al., 2012; Cinner et al., 2009; Joerin et al., 2012). The hotel sector in the tourism industry has received relatively less attention from the resilience viewpoint. Brown et al. (2017) provide a review of the literature specifically with reference to the hotel industry and find that typically hotels tend to be under-prepared and lack adaptive capacity in the event of disasters.

2.2.4. Vulnerability and Resilience of Tourist Destinations to Political Conflict and Terrorism

We now turn to the effect of political conflicts on tourism. Wars, political instability, and terrorism severely impact the tourism industry and create a negative image of the tourist destination (Sevll, 1998). The literature in this area is vast with several authors studying the effect of local, regional, and global conflict on tourist inflows in affected areas. In an early article on this topic, Richter and Waugh (1986) point out the reason tourist attractions are particularly vulnerable to terrorist attacks and the tactical and strategic reasons why terrorists might target tourist destinations. Sonmez (1998) reviewed the extant literature and gave an overview of why terrorists may target tourist destinations and how this may affect destination image and further destabilize the local community. Using somewhat unstructured interviews with local government officials, Causevic and Lynch (2013) try to understand the role of tourism in promoting collaboration and economic rejuvenation in post-conflict Bosnia and Herzegovina.

Yap and Saha (2013) built fixed effect models using panel data for 139 countries in the period 1999-2009 to understand the effect of political instability and conflict on tourism demand. They found that political instability has a strong and statistically significant negative effect on tourist arrivals. Liu and Pratt (2017) conducted a longitudinal study to gauge the effect of terrorism on tourist demand in 139 countries. These 139 countries included 15 countries from East Asia and

Pacific, 30 from Europe and Central Asia, 16 from Latin America and Caribbean, 14 from Middle East and North Africa, 2 from North America, 4 from South Asia and 14 from Sub-Saharan Africa. They found that terrorism has a long run negative effect in 9 countries and a short run negative effect in 25 of the 95 countries they studied. The effect of political violence on tourism has also been studied in Sri Lanka (Fernando et al., 2013), Greece (Samitas et al., 2018), and Indonesia (Gurtner, 2016). In all cases, political instability and terrorism is found to have a negative effect on the tourism industry. Cró and Martins (2017) studied structural breaks in time-series of tourist arrivals using Bai and Perron's structural break test and found that the breaks coincided with political crises and disasters.

In India, the effect of internal conflicts and political instability on tourism has been studied by Dhariwal (2005) and Parida et al. (2017). Dhariwal (2005) studied the arrival of foreign tourists in India over the period 1966 to 2000 and modelled it using dummy variables for three kinds of disturbance events viz. internal political instability (Maoist etc.), communal events and Indo-Pak conflict. They found that both tourist arrivals as well as tourism receipts were negatively affected by internal political conflict and Indo-Pak conflict. Parida et al. (2017) analysed the determinants of foreign and domestic tourist arrivals using a two stage least square fixed effect panel model. While the methodology used in both of these papers was similar to this study, it is important to note that they included only terrorist activities in their model and found no significant effect of this variable on tourist arrivals. They do not consider the effect of natural disasters. Neither do they consider the time to recovery (resilience) of the tourism sector in each state as we do.

2.2.5. Comparison of Domestic and Foreign Tourist Segments

International tourism has garnered far greater attention in the extant literature than domestic tourism. This may be due to the greater economic implications of international tourism due to foreign exchange earning potential; as well as the availability of consistent data from the UNWTO. The number of domestic tourists far exceeds the number of international tourists visiting the country. According to a recent estimate by WTTC, 73% of the global tourism

spending is contributed by domestic tourists (WTTC, 2018). Eijgelaar et al. (2008) provided one of the first comparative analysis of domestic vs, international tourism globally. Yang and Wong (2012) used a spatial econometric model to study the spillover effects of domestic and international tourism flows in 341 cities in China. Tiwari et al. (2018) demarcated the foreign tourist flows to India based on the source countries and analyzed the extent to which shocks were permanent or temporary based on where the tourists were coming from. Dahles and Susilowati (2015) found that domestic tourism segment in Yogyakarta, Indonesia was more resilient than the international tourism segment.

2.3. Research Gap and Research Questions

As can be seen from the review of literature presented above, there have been several studies that have considered the impact of different kinds of shocks on tourism. These include studies that have looked at short term shocks such as terrorist attacks, natural disasters (earthquakes, floods) and epidemics such as SARS etc., or long-term impacts of climate change, economic recessions, and political unrest. These studies consider different the impact on a specific destination of different kinds of shocks independent of each other.

However, many destinations are subject to different kinds of shocks at time. Simultaneously, they may be subject to natural disasters as well as terrorist attacks. Building stronger and a more resilient tourism sector within the constraints of limited economic and physical resources indicates that one needs to understand and be able to compare the effects of different kinds of shocks for the same destination which will allow policy makers to build appropriate disaster management plans.

While a few studies have looked at the effect of specific events such as a disease outbreak and economic recession (Page et al., 2012; Wang, 2009), there are no studies have compared the differential impact of multiple categories of shocks, on domestic and international tourists for the same destination over a period of years. This is the research gap that we aim to address in this study. Thus, we formulate the following research questions:

RQ1: What is the impact of the occurrence, severity and recency of natural disasters and internal conflict on domestic and foreign tourist arrivals across different states in India?

RQ2: How long does it take to recover from a decline in international or national tourism activity across states of India?

2.3.1. Hypotheses to be tested

Based on the research questions stated in Section 2.3, we formulate the following hypotheses that will be tested in this study. In each case, we are stating the null hypothesis:

H1. The incidence of natural disaster events does not affect domestic tourist arrivals

H2. The incidence of internal conflict events does not affect domestic tourist arrivals.

H3. The severity of natural disasters does not affect domestic tourist arrivals

H4. The severity of internal conflict events does not affect domestic tourist arrivals

H5. The recency of the last disaster (whether it be natural disaster or internal conflict) does not affect domestic tourist arrivals.

H6. The incidence of natural disaster events does not affect foreign tourist arrivals

H7. The incidence of internal conflict events does not affect foreign tourist arrivals.

H8. The severity of natural disasters (measured by number of fatalities) does not affect foreign tourist arrivals

H9. The severity of internal conflict events (measured by number of fatalities) does not affect foreign tourist arrivals

H10. The recency of the last disaster (whether it be natural disaster or internal conflict) does not affect foreign tourist arrivals.

2.4. Tourism, Natural Disasters, and Political Unrest across the States of India

Tourism is an important driver of the Indian economy. It contributed about Rs. 16.91 trillion (or US $247.3 billion), which was about 9.2% of the GDP of 2018. India was ranked 7th among 184 countries by the World Travel and Tourism Council, 2018 (WTTC, 2018), in terms of

contribution of tourism to the overall economy. This sector also generated about 42.67 million jobs which accounted for about 8% of the total employment in India. The economic contribution of tourism is expected to grow by about 6.7% annually to about US $492 billion by the year 2028 as per the WTTC. In comparison tourism in the Asia-Pacific region is expected to grow at about 6.4%

India has 35 states and union territories which vary in terms of their climatic and geographical conditions, and also in socio-economic, political and cultural aspects. In this study we included 22 states that saw the highest demand in domestic and foreign tourism. State wise data for geographical area, number of beaches and hill stations, monuments of national interest, population, average Gross State Domestic Product (GSDP), and average number of domestic tourist arrivals (DTA) and foreign tourist arrivals (FTA) are summarized in Table 2.1. Uttar Pradesh is the most populous state having about 16.5% of the country's population followed by Maharashtra (9.28%), Bihar (8.57%) and West Bengal (7.54%). In terms of socio-economic indicators, Delhi has the highest GSDP per capita followed by Sikkim, Haryana, Maharashtra and Gujarat.

As can be seen from Table 2.1, in terms of geographical area, Rajasthan, Madhya Pradesh and Maharashtra are the largest. The natural (beaches and hill stations) and man-made attractions (monuments) also vary from state to state. Kerala has the largest number of natural attractions with 134 hill stations and 19 beaches. Uttarakhand, Himachal Pradesh, Tamil Nadu, and Maharashtra rank high in terms of natural attractions. In terms of monuments of national importance, Tamil Nadu leads followed by Uttar Pradesh, Karnataka, Madhya Pradesh, Maharashtra, and Gujarat.

Tamil Nadu has the highest number of domestic tourist arrivals followed by Andhra Pradesh, Uttar Pradesh, Karnataka, and Maharashtra. In terms of foreign tourist arrivals, Maharashtra leads followed by Tamil Nadu, Delhi, Uttar Pradesh, Rajasthan, West Bengal, and Kerala. Foreign tourists accounted for a relatively higher percentage of total tourist arrivals in Delhi, Kerala,

Maharashtra, Sikkim, and Rajasthan. Parida et al. (2017) found that in addition to economic development in each state, the presence of world heritage monuments acted as pull factors for both domestic and international tourists. Suresh et al. (2016) studied state wise tourist arrivals and found that literacy rates, consumer price index, number of tour operators and the presence of a domestic, international or metro airports increased the tourist arrivals in a particular state.

Table 2.1: Geographical features, socio-economic conditions, tourist attractions, domestic and foreign tourist arrivals across states

	State / Union Territory	Area (sq.km)[a]	Beaches[b]	Hill Stations[c]	Monuments of national importance[d]	Population (Crores)[ag]	Avg. GSDP (2004-14) Rs. Crores[e]	GSDP per Capita	Annual DTA (2008-14) (Crores)[f]	Annual FTA (2008-14)	%FTA / Total Tourist
1	Andhra Pradesh	275045	16	9	137	8.47	603348	71262	14.89	477,255	0.32%
2	Assam	78438	0	5	55	3.12	100932	32382	0.38	14,984	0.39%
3	Bihar	94163	0	2	70	10.38	219110	21108	1.62	530,566	3.16%
4	Chhattisgarh	135191	0	4	47	2.55	124762	48849	0.84	3,349	0.04%
5	Delhi	1483	0	0	174	1.68	266556	159107	1.17	1,946,842	14.18%
6	Gujarat	196024	9	4	203	6.04	538338	89153	2.02	147,015	0.72%
7	Haryana	44212	0	1	91	2.54	263750	104031	0.69	174,797	2.46%
8	Himachal Pradesh	55673	0	40	40	0.69	57485	83839	1.17	362,827	3.00%
9	Jammu & Kashmir	222236	0	20	69	1.25	60540	48243	0.90	56,037	0.62%
10	Jharkhand	79714	0	4	13	3.30	121576	36879	1.30	49,979	0.38%
11	Karnataka	191791	16	18	506	6.11	428269	70058	6.22	479,521	0.77%
12	Kerala	38863	19	134	26	3.34	277861	83223	0.87	647,288	6.90%
13	Madhya Pradesh	308245	0	3	581	7.26	292379	40274	4.16	246,343	0.59%
14	Maharashtra	307713	38	18	285	11.24	1051003	93528	4.95	3,172,976	6.02%
15	Odisha	155707	22	9	78	4.19	189656	45213	0.76	51,080	0.66%
16	Punjab	50362	0	1	33	2.77	226084	81606	1.18	151,889	1.27%
17	Rajasthan	342239	0	1	163	6.86	352025	51300	2.66	1,281,243	4.60%
18	Sikkim	7096	0	16	3	0.06	7587	124848	0.05	26,554	5.28%
19	Tamil Nadu	130058	16	32	1152	7.21	583182	80842	15.36	2,743,214	1.75%
20	Uttar Pradesh	240928	0	0	742	19.96	609067	30517	12.32	1,551,049	1.24%
21	Uttarakhand	53483	0	61	44	1.01	81131	80194	4.40	390,520	0.88%
22	West Bengal	88752	8	17	134	9.13	428395	46897	2.83	1,150,565	3.90%

a   Source: State Census, 2011 (https://www.census2011.co.in/states.php)
b   Common knowledge, see also List of Beaches in India, Wikipedia, (https://en.wikipedia.org/wiki/List_of_beaches_in_India)
c   Common knowledge, see also List of hill stations in India, Wikipedia, https://en.wikipedia.org/wiki/List_of_hill_stations_in_India
d   Source: Alphabetical List of Monuments, Archeological Society of India (http://asi.nic.in/alphabetical-list-of-monuments/)
e   Source: State wise statistics, NITI Ayog, (http://niti.gov.in/state-statistics)
f   Source: Market research and statistics, Ministry of Tourism, Govt. of India (http://tourism.gov.in/market-research-and-statistics)
g   One Crore is ten million

2.4.1. Natural Disasters

Several tourist destinations in India have witnessed natural disasters such as floods, cyclones, earthquakes, and a tsunami in addition to deaths due to heat and cold waves. India ranked fourth in the world in terms of the total number of natural disasters (147) and third in terms of the economic losses ($167 billion dollars) caused by disasters in the period 2005-2014 (Hall et al., 2017). Recent instances include the cyclone in Orissa in 1999 (Kumar et al., 2010); earthquake in Gujarat in 2001 (Lahiri et al., 2001); the tsunami in 2004 that affected Andhra Pradesh, Tamil Nadu and Kerala (Joerin et al., 2012); earthquakes and landslides in Sikkim (Chakraborty et al., 2011); flash floods in Uttarakhand in 2013 (Kotal et al., 2014) and floods in Kerala in 2018 (Mishra et al., 2018). A state-wise summary of such events during 2008-2014 is given in Table 2.2. In terms of severity, the 2004 Tsunami and the flash floods of 2013 had the highest death toll. In terms of number of occurrences, Uttar Pradesh and Bihar had the highest frequency of events.

A map of India with the geographical spread of these events is given in Appendix II, where areas have been shaded based on the number of natural disaster events. The eastern coastal states and the northern states at the foothills of Himalayas are most prone to disasters.

2.4.2. Political Unrest and Terrorist Attacks

India has been plagued by ongoing political conflict and terrorist attacks concentrated in certain parts of the country. Two regions in particular have been subjected to severe ongoing conflict. One is the northern state of Jammu and Kashmir – which has had been in the middle of an ongoing conflict with militants as well cross border terrorism (Bose, 2005). The other source of long-term unrest has been Maoist violence in the four states of Chhattisgarh, Jharkhand, Bihar and Odisha (Bahree, 2010; Gomes, 2015). State-wise summary of total number of conflict events and total deaths in the period 2008-2014 is given in Table 2.3. Only 11 states out of the total 22 states in this study experienced some kind of political conflict. These are the only states that have been included in this table.

A map of India with the geographical spread of internal conflict is given in Appendix III. The areas in this map have been shaded based on the percentile of frequency of occurrences of internal conflict events. As can be seen the states of Jammu and Kashmir, Chhattisgarh and Jharkhand had the highest frequency of political conflict events.

Table 2.2: State Wise Occurence, Kind and Severity of Natural Disasters (2008-2014)

State/UT	Number of Incidents	Kind of Disaster	Total Deaths	Total Affected[a]
Andhra Pradesh	16	Cyclone / tsunami	5831	15088468
Assam	3	Earthquake/storm	88	1080200
Bihar	15	Storm / Extreme Temperature	377	14455874
Chhattisgarh	2	Cyclone	25	14150000
Delhi	8	Extreme Temperatures	154	642
Gujarat	3	Storm	56	143
Haryana	5	Extreme Temperatures	162	813
Himachal Pradesh	6	Extreme Temperatures	147	771
Jammu & Kashmir	12	Extreme Temperatures / earthquake	1538	226366
Jharkhand	5	Storm	86	13230100
Karnataka	1	Storm	17	17
Kerala	1	Tsunami	4000	654512
Madhya Pradesh	2	Extreme Temperatures	57	270
Maharashtra	2	Extreme Temperatures	62	350
Odisha	8	Storm / Extreme Temperature	194	14220702
Punjab	6	Extreme Temperatures	144	682
Rajasthan	4	Extreme Temperatures	127	683
Sikkim	1	Earthquake	23	575200
Tamil Nadu	4	Tsunami / Cyclone	5076	974528
Uttar Pradesh	25	Extreme Temperatures / storm	702	4093
Uttarakhand	4	Floods / Extreme temperature	4053	2000234
West Bengal	10	Storm / Extreme Temperature	311	19563451

a. The total affected numbers indicate the total number of people affected by these disasters

Table 2.3: State Wise Occurence, Kind and Severity of Internal Conflicts (2008-2014)

State/UT	Total Number of Incidents	Deaths	Main Kind of Conflict
Andhra Pradesh	433	130	Maoist
Assam	977	811	Insurgency
Bihar	1525	450	Maoist
Chhattisgarh	3291	1411	Maoist
Jammu & Kashmir	1411	410	Terrorism
Jharkhand	3494	1172	Maoist
Madhya Pradesh	38	1	Maoist
Maharashtra	700	302	Maoist
Odisha	1154	406	Maoist
Uttar Pradesh	20	3	Maoist
West Bengal	739	487	Maoist

2.5. Vulnerability of Tourism Sector in Each State to Natural Disasters and Political Conflict

Our primary objective in this study was to understand whether natural disasters and political unrest affected tourist arrivals of foreign and domestic tourists across different states of India. We also wanted to compare the magnitudes of the effects on domestic and foreign tourism.

2.5.1. Data

Our data consisted of panel data for domestic tourist arrivals (DTA) and foreign tourist arrivals (FTA) in 22 states over 7 years from 2008 to 2014. This data was obtained from the Market Research and Statistics division of the Ministry of Tourism, Government of India[8]. Data for natural disasters in the Indian subcontinent over this same period was obtained from the EM_DAT database from the Centre for Research on the Epidemiology of Disasters (CRED) (Guha-Sapir et al. 2015). Data for political unrest and internal conflict events was obtained from South Asian Terrorism Portal (SATP)[9] (Bowie & Schmid, 2011). State wise economic indicators such as Gross State Domestic Product and contribution to GSDP from different sectors was taken from NITI Aayog, Govt. of India[10]. The state of Telangana was formed in 2014, after dividing the former Andhra Pradesh into a northern and southern states. Given that our data spans a period pre and post 2014, and since there are large similarities in culture, geographical features as well as vulnerability to natural disasters etc., we treat Telangana and Andhra Pradesh as one single entity.

The rationale behind choosing only two types of disasters was that we only select those disasters which were severe and occurring frequently. For man-made disasters, we used only terrorism and internal conflicts such as Maoist and insurgency and did not consider other types of crimes like theft, robbery, murders, and rapes. The primary reason for not choosing such crimes is because data for such types of crimes where tourists were primarily targeted or occurred in a tourist

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[8] http://tourism.gov.in/market-research-and-statistics
[9] https://www.satp.org/
[10] http://niti.gov.in/state-statistics

destination was not available. Natural disasters such as cyclones, tsunamis, earthquakes, storms, extreme temperature, and floods were chosen as these disasters reported a loss of lives. The disasters that have been chosen in this study are primarily because the disasters' severity was high and, at least one loss of life was reported in a particular state due to that disaster. Similarly, we choose the states where the natural or man-made disasters were severe and occurred frequently and reported a loss of life because of these disasters. We have essentially followed an event methodology, where a particular event has taken place and we used that event as a marker to see the tourist arrivals before and after the event.

Before Covid-19 Pandemic, India only faced either man-made or natural disasters. Though many studies have also looked at economic disasters, however, in our case this economic downfall would not have affected state to state and would have impacted the whole country. Internally the states are dependent on the entire system, and it is not one country versus another. A country can face a recession, but it is not possible for a state in India to face a recession. Thus, we did not investigate the economic disaster for this study.

2.5.2. Model Specification

The large variations in geographical and socio-economic conditions across different states of India, as well as the different climatic and political conditions in each state lead to heterogeneity in the tourism attractiveness of each state. The pull factors (tourist attractions) and push factors (natural disasters and political instability) vary from state to state. Each state also differs from others in terms of its institutional infrastructure, its economic conditions, its social and cultural factors, and the effectiveness of its governance (given that the state government legislative members are elected independently of each other). These differences also affect the resilience of the states to natural disasters and political conflict. Therefore, it makes sense to study the commonalities and differences in the factors that affect the resilience of the tourism industry across states. This motivates our pan-India study with state-wise panel data over 7 years from 2008-2014 (after the global recession in 2008).

We use panel regression methods to understand the effect of natural disasters and internal conflict on the arrivals of domestic and foreign tourists to different states of India. The primary variables of interest are indicator variables for whether there was a natural disaster or internal conflict in a given state in a given year, and the associated fatalities for these events. We include several control variables in our model to ensure that there is no omitted variable bias. These include the Gross State Domestic Product (GSDP), share of the GSDP contributed by the travel and infrastructure sector (Railways and Roads), tourism industry (trade, hotels, and restaurants) and government expenditure (Public Administration). We use GSDP instead of GSDP/capita because we are interested in the overall resources available to the state to deal with sudden economic shocks. GSDP/capita would give an idea of the average economic condition of the residents of a state – which is not our primary concern here. We also include a variable that indicates the number of years that have elapsed since the last disaster. This variable was included to see whether a particular state was more prone to disasters; it was expected that in more resilient states tourism would resume as time progressed without the occurrence of fresh events.

The panel regression models for domestic and foreign tourist arrivals are specified below.

$$DTA_{it} = \beta_0 + \beta_1 GSDP_{it} + \beta_2 ND_{it} + \beta_3 FAT\_ND_{it} + \beta_4 IC_{it} + \beta_5 FAT\_IC_{it} + \beta_6 RW_{it} \\ + \beta_7 TR_{it} + \beta_7 THR_{it} + \beta_8 PA_{it} + \beta_9 BF_{it} + \beta_{10} HS_i + \beta_4 CS_i$$

$$FTA_{it} = \beta_0 + \beta_1 GSDP_{it} + \beta_2 ND_{it} + \beta_3 FAT\_ND_{it} + \beta_4 IC_{it} + \beta_5 FAT\_IC_{it} + \beta_6 RW_{it} + \beta_7 TR_{it} \\ + \beta_7 THR_{it} + \beta_8 PA_{it} + \beta_9 BF_{it} + \beta_{10} HS_i + \beta_4 CS_i$$

where:

Dependent variable: Domestic Tourist Arrivals (DTA) or Foreign Tourist Arrivals (FTA)

Independent variables:

ND   : Natural Disaster Dummy
FAT_ND   : Fatalities due to natural disaster
IC   : Internal Conflict dummy
FAT_IC   : Fatalities due to internal conflict
GSDP   : Gross State Domestic Product
RW   : % contribution to overall GSDP from railways sector
TR   : % contribution to overall GSDP from transport sector (other than railways)
THR   : % contribution to overall GSDP from trade, hotels and restaurants
PA   : % contribution to overall GSDP from public administration
YALD   : Years after last disaster
BF   : Big Festival Dummy
HS   : Hill State Dummy
CS   : Coastal State Dummy

We use the F test and Hausman test to choose between fixed effect, random effect, or OLS regression (Baltagi, 2008). Based on results given in Table 2.4, we choose the random effect model.

Table 2.4: Results of F test and Hausman Test

Dependent Variable	F Test (fixed vs. pooled OLS)	Hausman test (fixed vs. random)
	H_0: OLS better than fixed entity effects	H_0: u_i uncorrelated with regressors, Random effect better than fixed effect
Foreign Tourist Arrival	F = 54.052, df1 = 19, df2 = 121, p-value < 2.2e-16 Reject null hypothesis	chisq = 32.122, df = 11, p-value = 0.000729 Cannot reject null hypothesis
Conclusion	Fixed Effects model better than pooled OLS model	Random effect model better than Fixed Entity effect model
Domestic Tourist Arrival	F = 12.712, df1 = 19, df2 = 121, p-value < 2.2e-16 Reject null hypothesis	chisq = 20.814, df = 11, p-value = 0.03535 Cannot reject null hypothesis
Conclusion	Fixed Effects model better than pooled OLS model	Random effect model better than Fixed Entity effect model

2.5.3. Domestic Tourist Arrivals

We first built the panel model for domestic tourist demand. The dependent variable was the log of domestic tourist arrivals (DTA). The coefficients of the independent variables, and their statistical significance, are given in Table 2.5. As can be seen from the results, whether there was a natural disaster that year, or the fatalities due to such disasters, do not have a statistically significant effect on domestic tourist arrivals. Though the dummy variable for internal conflict is not statistically significant, the number of fatalities due to internal conflict is highly statistically significant and is negative in sign. Given these results, we were able to reject only Hypotheses 4 among the stated hypotheses. We were not able to reject Hypotheses 1, 2 3 and 5.

Table 2.5: Results of Panel Regression with Random Effects for Domestic Tourist Arrivals
Dependent Variable: Log(Domestic Tourist Arrivals)

	Estimate	Std. Error	z-value	Pr(>|z|)	
(Intercept)	0.659	2.101	0.314	0.754	
log(GSDP)	1.236	0.154	8.039	0.000	***
factor(ND)1	-0.032	0.120	-0.265	0.791	
FAT_ND	0.000	0.000	-1.240	0.215	
YALD	-0.014	0.037	-0.377	0.706	
RW	0.269	0.243	1.110	0.267	
TR	0.057	0.081	0.712	0.477	
THR	-0.025	0.028	-0.912	0.362	
PA	0.068	0.035	1.946	0.052	.
factor(IC)1	0.300	0.191	1.574	0.116	
FAT_IC	-0.004	0.001	-3.299	0.001	***
factor(BF)1	0.170	0.212	0.801	0.423	
factor(HS)1	1.176	0.545	2.158	0.031	*
factor(CS)1	0.099	0.404	0.245	0.807	
Signif. codes: 0	'***' 0.001	'**' 0.01	'*' 0.05	'.' 0.1	' ' 1
Total Sum of Squares	66.767				
Residual Sum of Squares	32.58				
R-Squared	0.51204				
Adj. R-Squared	0.46673				
Chisq	146.908 on 13 DF		p-value $< 2.22e\text{-}16$		

Among the control variables, log(GSDP) is positive – i.e. states which are doing better economically attract more domestic tourists. The dummy variable HS (i.e. the state is a hill state) is also statistically significant and positive indicating that there is a higher demand among domestic tourists to go to hill stations. It is interesting to note that the share of GSDP from the

railways or road transport sector, or the trade, hotel and restaurant sectors was not statistically significant. The variable PA which is the ratio of the GSDP contribution from the Public Administration to state GDP is statistically significant and positive, indicating that states that spend more on public administration attract more domestic tourists. The adjusted R-square of the model was 0.47 indicating a reasonably good fit of the data.

2.5.4. Foreign Tourist Arrivals

In, the second model developed in this paper, the dependent variable was the log of foreign tourist arrivals (FTA). The coefficients of the independent variables, and their statistical significance, are given in Table 2.6. As can be seen from the results, the dummy variable for the occurrence of a natural disaster was statistically significant and had a negative effect on foreign tourist arrivals. However, the severity of the natural disaster did not have a significant effect. Interestingly, neither the occurrence nor the severity of political conflicts had a statistically significant effect on foreign tourist arrivals.

Table 2.6: Results of Panel Regression with Random Effects for Foreign Tourist Arrivals

Dependent Variable: Log (Foreign Tourist Arrivals)

	Estimate	Std. Error	z-value	Pr(>|z|)	
(Intercept)	1.091	2.419	0.451	0.652	
log(GSDP)	0.902	0.172	5.242	0.000	***
factor(ND)1	-0.202	0.101	-1.987	0.047	*
FAT_ND	0.000	0.000	-0.744	0.457	
YALD	-0.025	0.032	-0.757	0.449	
RW	-0.479	0.263	-1.825	0.068	.
TR	-0.103	0.079	-1.308	0.191	
THR	0.034	0.028	1.180	0.238	
PA	0.059	0.034	1.711	0.087	.
factor(IC)1	0.162	0.175	0.929	0.353	
FAT_IC	-0.001	0.001	-1.205	0.228	
factor(BF)1	0.011	0.176	0.061	0.951	
factor(HS)1	0.552	0.862	0.640	0.522	
factor(CS)1	0.597	0.693	0.862	0.389	

Signif. codes: 0	'***' 0.001	'**' 0.01	'*' 0.05	'.' 0.1	' ' 1
Total Sum of Squares	36.936				
Residual Sum of Squares	22.317				
R-Squared	0.3958				
Adj. R-Squared	0.33969				
Chisq	91.7109 on 13 DF		p-value	6.57E-14	

Log of GSDP was highly statistically significant and had large positive effect on tourist arrivals. A higher ratio of GSDP contribution from Public Administration seemed to increase tourist arrivals. Foreign tourist arrivals were not affected by big festivals or it being a hill state or coastal state. The adjusted R square of the models for FTA was 0.34 which was lower than for the previous model, for DTA. Given these results, we were able to reject Hypothesis 6 but could not reject Hypotheses 7, 8, 9 or 10.

2.6. Resilience in Tourism – Identifying Breaks and Years to Recovery

In the first part, we explored the vulnerability of tourism sector to natural disasters or political conflict. In the second part, we address the issue of resilience. We have used the "engineering resilience" definition; that is we identify the number of years it takes for the tourism industry in a particular state to bounce back after a shock. Several studies have looked at the impact of specific exogenous shocks such as an earthquake (Huang and Min, 2002), a cyclone (Vu et al., 2016) or political unrest events (Liu and Pratt, 2017) by identifying structural breaks in time-series data. Since we did not have time-series data at a level of granularity to conduct such event studies, we adopted a different methodology for identifying breaks. Based on data for 14 years (2003-2016)[11] we regressed foreign tourist arrivals (FTA) and domestic tourist arrival (DTA) with time to obtain the trends in each state. The estimated coefficients for trend lines are given in Table 7.

There are some interesting things to note from these results. We can see that domestic tourist arrivals are increasing at a much higher rate than foreign tourist arrivals. In particular we see that for some of the southern states (Tamil Nadu, Andhra Pradesh and Karnataka) and one northern state (Uttar Pradesh), the year over year increase in DTA is very high indeed.

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[11] For panel regression, we used data for seven years (2008-2014) and not 14 years, due to unavailability of data for internal conflict. In this part of the analysis, we use a larger data set for domestic and foreign tourist arrivals across all states since the data was readily available.

Table 2.7: Regression Coefficients for Tourist Arrival Trend Lines for Each State

	FTA		DTA	
	Intercept (in thousands)	Slope - trend (in thousands)	Intercept (in thousands)	Slope - trend (in thousands)
Andhra Pradesh	682.49	-27.36	65777.32	11085.87
Assam	6.15	1.18	1909.05	256.43
Bihar	-136.05	88.88	2900.71	1781.29
Chhattisgarh	-0.72	0.54	-5941.46	1909.20
Delhi	1101.89	112.66	-5436.29	2296.22
Gujarat	-14.37	21.52	1419.98	2504.00
Haryana	-27.35	26.95	4944.93	263.74
Himachal Pradesh	203.44	21.25	4085.07	1019.86
Jammu & Kashmir	33.55	3.00	6498.33	339.90
Jharkhand	-47.76	13.03	-8263.91	2835.66
Karnataka	371.61	14.39	-8436.15	9416.66
Kerala	206.82	58.73	4229.05	601.17
Madhya Pradesh	99.24	19.61	-20909.52	8334.79
Maharashtra	643.81	337.22	-14690.21	8560.22
Odisha	21.54	3.94	2495.13	686.65
Punjab	-88.51	32.05	-9264.81	2804.00
Rajasthan	915.40	48.78	13830.35	1699.17
Sikkim	3.22	3.11	160.51	42.12
Tamil Nadu	220.02	336.43	-39122.23	25699.04
Uttar Pradesh	-369.67	256.10	-10398.81	17821.82
Uttarakhand	1008.36	-82.38	85118.72	-5476.97
West Bengal	735.51	55.34	-2557.18	4119.72

We computed the predicted numbers of tourist arrivals for each year. We are interested to identify variations that can be identified as a negative shock, and the number of years that it took for the tourism sector of the state to recover from such negative shocks. The residuals (actual minus predicted) for each state-year point were computed. If the negative residuals (drop in tourist arrivals) from one year to the next was greater than one standard deviation of the time-series for that state, it was considered to be a break year. The number of years that the residuals continued to be negative was the taken to be the years to recovery.

We explain our methodology of identifying break years through the example of two states viz. Tamil Nadu and Uttarakhand. Figure 2.1 indicates the variation from mean in number of foreign tourist arrivals for each of the above 5 states. As can be seen from the figure, FTA in Uttarakhand

experience a break year in 2006. The standard deviation from the average, in terms of the number of foreign tourist arrivals in different states during the 14 years of study has been given in Figure 2.1. While tourist arrivals fall by about 3.5 standard deviations in 2006, it takes several years for the tourist arrivals to catch up with the forecasted values. Tamil Nadu does not suffer a drop in tourism of more than 1 standard deviation in the entire study period.
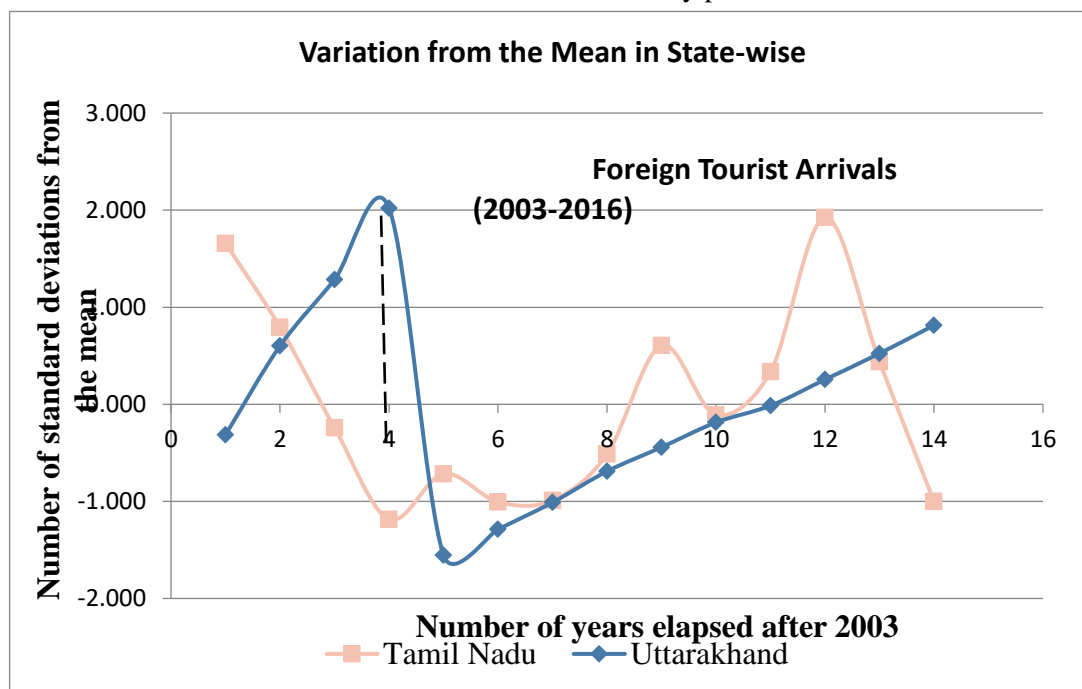
Figure 2.1: Variance of residuals (actual minus forecasted values) of FTA during study period

A summary of breaks and recovery times given in Table 8. As can be seen from Table 2.8, the slope for the trend lines for foreign tourist arrivals in Maharashtra, Tamil Nadu, Uttar Pradesh and Delhi had the largest positive slopes for FTA's. In case of domestic tourist arrivals, the slopes for Tamil Nadu, Uttar Pradesh, Andhra Pradesh, Karnataka and Maharashtra were the highest. Foreign tourist arrivals had a positive slope in all states except Andhra Pradesh and Uttarakhand; and the slope for domestic tourist arrival trends was positive for all states except Uttarakhand.

The break years for both FTA and DTA were identical in the case of Uttarakhand (2007), Rajasthan (2009), Karnataka (2008), Himachal Pradesh (2014/2013) and Haryana (2015). Even though our data cannot explain the reason for these breaks, we speculate that the breaks in

Uttarakhand and Himachal Pradesh may be related to floods in 2007 and 2013. The break in Karnataka may be related to the global recession in 2008.

Table 2.8: Trend Line Parameters, Breaks and Years to recovery for Each State

	FTA		DTA	
State/UT	**Year of Break**	**Years to recovery**	**Year of Break**	**Years to recovery**
Andhra Pradesh	2010	5	2013	2
Assam	No Break		2016	1+
Bihar	2013	4+	No Break	
Chhattisgarh	2005	4	2015	2+
Delhi	2009	2	No Break	
Gujarat	No Break		No Break	
Haryana	2011, 2015	3, 2+	2015	2+
Himachal Pradesh	2014	3+	2013	4+
Jammu & Kashmir	2015	2+	2013	4+
Jharkhand	2012	2	No Break	
Karnataka	2008	3	2008	3
Kerala	2009	4	No Break	
Madhya Pradesh	2009	6	No Break	
Maharashtra	2013	4+	No Break	
Odisha	2015	1	No Break	
Punjab	2007	9	No Break	
Rajasthan	2009	3	2009	7
Sikkim	2015	1	2011	6+
Tamil Nadu	No Break		No Break	
Uttar Pradesh	No Break		2014	3+
Uttarakhand	2007	7	2007	7
West Bengal	No Break		2011	3

In cases where the residuals in tourism demand continue to be negative till the last year in our sample (2016), we have marked such cases with a '+' to indicate that this is censored data.

Other than this, Andhra Pradesh suffered a break in FTA in 2010 and DTA in 2013. Chhattisgarh suffered a break in FTA in 2005 and DTA in 2015. Jammu and Kashmir suffered a break in FTA in 2015 and DTA in 2013. Some states suffered a break in FTAs but not in DTAs – these were Bihar, Delhi, Jharkhand and Kerala, Madhya Pradesh, Maharashtra, Odisha, and Punjab. Assam, Uttar Pradesh, and West Bengal had no breaks in DTAs but had breaks in FTAs.

The years to recovery ranged from 1 year (Odisha, FTA) to 9 years (Punjab, FTA). FTAs had more numerous breaks than DTAs (18 and 12 respectively). The median number of years taken

to recover were more for FTA compared to DTA. We find that there has been greater volatility in foreign tourist arrivals compared to domestic tourist arrivals across the 22 states. 17 of the 22 states witnessed a break in foreign tourist arrival trends and only 12 of the 22 states experienced a break in domestic tourist arrival trends. The years to recovery were typically greater for foreign tourist arrivals than domestic tourist arrivals.

2.7. Conclusions

In this study, we were interested in understanding the comparative effect of natural disasters and political conflict on domestic and foreign tourist arrivals across different states in India. Using panel data for 22 states over seven years from 2008-2014, we built random effect models, after incorporating several control variables. Our results indicate that natural disasters do not affect domestic tourism demand but do have a negative effect on foreign tourism demand. Conversely, political unrest, has a negative effect on domestic tourism but not on foreign tourist arrivals.

The reasons for this apparent anomaly in tourism demand among international and domestic tourists may be due to the differences in motives and psychology of these two segments. Domestic tourists are motivated by social or religious reasons and have fewer resource constraints in terms of time and money while traveling within the country. Their perceived risk may be lower. Hence, they may be willing to take chances in visiting places that have faced natural disasters. Political conflict, however, may increase their concerns for their physical safety.

International tourists planning to travel to India may stay away from states affected by natural disasters, to minimize possible disruptions and to get the greatest value for their time and money. Our result that terrorism or political conflict does not affect international tourist arrivals is similar to those of Liu and Pratt (2017), and Parida et al. (2017). Cró and Martins (2017) had identified structural breaks in tourist demand to be coinciding with crises or disasters. We find similar trends, further we are able to find direct statistical support for causal relationships or lack thereof. Analysing breaks in trends, we find that domestic tourists are more resilient to shocks compared to the foreign tourists, which is similar to the finding of Dahles and Susilowati (2015).

2.7.1. Limitations and scope for future research

We conclude with an assessment of the limitations of the study. We have used pan-India data across 22 states and 7 years. We did not have access to monthly tourist arrivals, and this has constrained our analysis to some extent. Further, we have not been able to capture destination specific traits affecting resilience. However, as pointed out by Pennington-Gray (2018), while there are many case studies on resilience for individual destinations, there are not too many studies across destinations, and there is a need for appropriate research to fill this gap. This study meets that broader research objective with a robust empirical model of pan Indian data across 22 states and seven years. We did not have access to data at a granularity for each event in each state to be able to conduct an event study methodology. Hence, even though we identified the breaks in tourism trends, we could not assign the causes for the breaks, or the reasons for different periods of recovery in each state. These constitute interesting questions for future work.

Chapter 3 : Just survive or thrive? Effect of psychological and organizational resilience on adoption of innovative strategies by hospitality sector post Covid-19

3.1. Introduction

The Covid-19 pandemic has caused a severe disruption in the tourism industry worldwide. According to a report published by the World Tourism Organization, the restrictions imposed during the pandemic resulted in a drop of 85% in tourist arrivals in 2021 compared to 2019 figures. Losses sustained by the tourism industry are estimated to be between $676 billion and $934 billion (UNCTAD, 2021). This has further led to a loss in global GDP estimated to range anywhere between $1.8 trillion and $2.4 trillion. Despite widespread vaccination drives in all countries, recovery in the tourism sector has been slow in the post-Covid-19 era.

In the past, research in resilience has focused on localized shocks such as natural disasters or political upheaval such as terrorist activities (Eichelberger, 2007; Hayashi, 2012; Jiang et al., 2021). Unlike these localized disturbances, the Covid-19 pandemic affected all countries equally irrespective of their geographic, economic, political, or cultural differences (Dube et al., 2020; Shapoval et al., 2021). The global nature of the COVID-19 shock provides a unique perspective for researchers in organizational resilience. Even though the entire hospitality sector faced this shock, some segments fared better than others (Ozdemir et al., 2021). These differences in outcomes motivate the current study. Specifically, we are interested in understanding the following questions. What are the organizational and leadership characteristics that make a certain business more resilient than others? What factors differentiate businesses that thrive from those that merely survive? The results of this study will shed light on the specific traits that make an organization more resilient. Further, the results will be of interest to researchers in organizational resilience as well as practitioners that want to make their organizations more resilient.

Some studies have focused on the resilience of the tourism sector at a macro-level (Adams et al., 2021; Gafter et al., 2022). We are interested in the resilience of individual organizations,

especially among small and medium scale enterprises. Small and medium-scale enterprises (SME) play a very important role in the hospitality sector. They contribute to overall economic growth and provide employment opportunities for residents in tourism destinations. There are significantly more numbers of SME hotels compared to large hotels, and these are often located in remote locations. The owners of SMEs are often themselves residents of the tourist destination. As such, they are more committed to supporting local livelihoods and alleviation of poverty. Thus, they play an important role in the growth of sustainable tourism. SMEs are more vulnerable to sudden shocks (Kenny & Dutt, 2021; Kukanja et al., 2020; Okafor et al., 2021), compared to larger enterprises, and it is important to understand how to make these institutions more resilient. With this motivation, we explore the resilience of SMEs in the hospitality sector in the post-Covid-19 era.

While the tourism sector overall has been quite resilient to different kinds of shocks (Ireland et al., 2003; Shi et al., 2022), the degree of resilience exhibited by different stakeholders within the tourism sector varies tremendously. Some businesses and destinations fare better than others. Some organizations do not just survive but thrive in the face of adversities (Applegate & Harreld, 2009). Organizations that recognize the opportunities presented by adverse circumstances and can devise innovative solutions are able to move ahead of their competitors during difficult times (Ireland et al., 2003; Shi et al., 2022).

We identify two different sources of resilience within the organization. One is tied to the organization's systems and management culture that allows the organization to adapt to adverse situations – this we denote as "organizational resilience". The other source of resilience is associated with the leadership traits demonstrated by the top management of the organization. This we denote as "psychological resilience (PR) of leaders". While resilient organizations may be able to sustain the organizational trajectory in the present, psychologically resilient leaders may have the vision, and the power to take innovative decisions that might change the trajectory in the future.

Government policies may impact both psychological resilience and organizational resilience by ongoing messaging that boosts a culture of facing adversities with strength and optimism. Showcasing organizations and individuals with some specific awards and media recognition may encourage others to adopt similar strategies in the future.

Strategies adopted by businesses can be tactical or strategic in nature. We identify four different kinds of strategies adopted by businesses viz. (i) offering price discounts, (ii) implementing cost-cutting measures, (iii) identifying and promoting new avenues for revenue generation and, (iv) building the brand image of the hotel to retain brand recognition and brand value. Amongst these, the first two are tactical measures while the last two are more strategic measures with a long-term view and require innovative thinking.

Using a questionnaire designed for the study, primary data was collected with a survey of 549 small and medium-scale hotels located in 37 cities across India. Factor analysis and structural equation techniques were used to build four different models, for the adoption of each of the four different strategies outlined above. Results indicate that high levels of organizational resilience (OR) resulted in more tactical approaches to the pandemic, while high levels of psychological resilience led to more strategic and innovative actions. Thus, while OR allows the organization to survive, PR may enable it to thrive. Our results provide an important new insight into the specific kinds of resilience and their impact on tourism innovation during uncertain times.

3.2. Theoretical Background

There are two distinct themes in this study: (i) the organizations that are affected by the shock and the strategies that they adopt and (ii) the resilience characteristics of the organization. We discuss below the theoretical background for each of these aspects that provide the basis for the conceptual framework for this study.

Contingency theory: There are different kinds of organizational theories[12] that address different kinds of organizational structures and make different assumptions based on how organizations function internally and how they interact with the environment (Jones, 2013). Amongst these theories, the contingency theory (Fiedler, 1978) is a theory that describes decision-making at different levels of leadership within the organization. Contingency theory is described as:

"The Contingency Model provides a conceptual framework which enables to explain the effects of such change-inducing conditions as organizational turbulence, leadership experience, training, and job rotation. The integrating concept in the dynamic interpretation of this theory is the leader's situational control and influence, which, as it changes, brings about a corresponding change in the leader's behavior and performance" (Fiedler, 1978, page 59).

Several empirical studies based on contingency theory have concluded that there is no "one size fits all" solution to organizational crises. The effectiveness of leadership traits differs based on the kind of organization and the context (Raymond, 1990; Weber et al., 2009). Within the contingency theory, Staber and Sydow (2002) make the distinction between two different kinds of responses to an external shock. These are (i) a reactive response which leads to adaptation after the shock happens and (ii) a proactive response which leads to building adaptive capacity before the shock happen (Mojtahedi & Oo, 2017). Rasmussen (2010) makes a distinction between the reactive and proactive approaches adopted by employees and leadership at different levels of decision-making within the organization.

The COVID shock was a contingency that caused severe organizational turbulence in the entire tourism sector. Further, we are interested in understanding how resilience characteristics (leadership traits) of different stakeholders affect the strategies adopted for post-Covid-19 recovery. For these reasons, the contingency theory is the appropriate theoretical lens which underlies our conceptual framework.

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[12] The different organizational theories include classical theory, neo-classical theory, administrative theory, scientific management theory, bureaucratic theory, contingency theory, and modern organizations theory.

Resilience theory: Holling (1973) in his seminal paper defined resilience as the ability of an ecological system to absorb changes in certain state variables and persist in the original state. More recently, Haimes (2009) proposed that resilience is the ability of a system to contain the degradation within acceptable parameters and recover to its earlier state within a reasonable time frame and without incurring high costs. A recent view of resilience in the wake of a disaster underlines the idea of "build back better" (Bains & Durham, 2013; Francis et al., 2018; Vahanvati & Rafliana, 2019). That is using the physical or economic shock as an opportunity to build an organization that is more adaptive and more resilient than it was previously. The literature on organizational resilience has theorized the role of proactive leadership, and organizational flexibility on resilience (Giousmpasoglou et al., 2021). We use this theoretical lens to propose our models.

3.3. Literature Review

There are three different elements in the resilience literature, viz. a) the nature of the socio-economic system subject to a shock, b) the nature of the shock, and c) the response strategies allowing the system to revert to its original state. In the following paragraphs, we summarize the literature on these themes.

3.3.1. Socio-economic system subject to shock

The socio-economic system that we study consists of SMEs in the hospitality sector. Owners and top management of hotels have a higher stake in the success of the business compared to the employees who may seek employment elsewhere if they lose their jobs. Hotel owners are interested in the long-term success of their business, while employees take a short-term view. Thus, the strategies that are adopted by individual leaders may differ from the collective organizational response from other stakeholders. Given this inherent difference, we include both psychological and organizational resilience as explanatory factors and include a brief review of literature for both these factors below.

Psychological Resilience of Individuals

Psychological resilience is the capability of an individual to maintain core values and integrity; and continue to function appropriately when there is sudden shock or disruption (Veréb et al., 2020). Fletcher and Sarkar (2013) suggested that PR refers to the ability of an individual to positively adapt to an adverse situation. PR may be positively affected by an individual's personality traits such as extraversion and conscientiousness, and negatively by traits such as neuroticism (Oshio et al., 2018). Meredith et al. (2011) identified the following factors - positive coping, positive affect, positive thinking, realism, behavioural control, physical fitness, and altruism as being important antecedents of an individual's resilience.

Three dimensions of psychological resilience, namely, resourcefulness, optimism, and hardiness had a significant impact on the success of entrepreneurs in the tourism industry (Ayala & Manzano, 2014). Rittichainuwat et al. (2020) found that the Buddhist philosophy of Karma combined with Thai cultural values of kindness, concern for others, empathy and generosity are important antecedents of the resilience of Thailand tourism. Weber et al. (2017) and Hallak et al. (2018) noted that responsiveness and awareness improved psychological resilience. Further, Lombardi et al. (2021) found a strong connection between improvisation and resilient leadership in the hospitality industry. Organizational leaders and business managers who utilize the available resources and make appropriate decisions make businesses more resilient (Jiang et al., 2021; Pathak & Joshi, 2020). Thus, the psychological resilience of leaders includes innate character traits such as hardiness, optimism, positive attitudes, and realism, as well as the way they interact with their environments such as altruistic behaviour, empathy, generosity, resourcefulness, and innovative thinking.

Organizational Resilience

Organizational resilience is the ability of an organization to withstand shocks and adapt to changes in the environment (Brown et al., 2019; Pathak & Joshi, 2020). Organizational systems, organizational culture and teamwork that capitalizes on the collective strength of all individuals

in an organization, build OR (Wilson et al., 2018). An organization's resilience may be improved by leadership, governance, pre-sight, social capital, collaboration, resources, financial capital, and strategies to fight changes (Kainthola et al., 2021; Schmid et al., 2021).

Morrison and Teixeira (2004) observed that many small and medium-scale businesses fail within three years of establishment. This may be due to a lack of an appropriate marketing strategy, lack of managerial skills, lack of quality control, and insufficient financial resources. Government support in the form of capacity building, building resilience, disaster preparedness, image building, and financial assistance is critical for the survival of such enterprises (Ahmad, 2015; Fotiadis et al., 2013). Schmid et al. (2021) observed that the small and medium-scale businesses were the most vulnerable during the pandemic due to limited resources and lack of long-term planning. A study by Crespí-Cladera et al. (2021) found that restaurant owners were more resilient to the COVID-19 shocks compared to hotel owners.

Despite the challenges posed by the uncertainties during the pandemic, the need for business continuity was found to be the major factor that motivated organizations to be resilient. In addition, access to financial resources, planning, organizational culture, and good management enables organizations to withstand shocks and continue to be resilient.

3.3.2. Nature of the Shock – Public Health Events and Pandemics

Historically, the tourism industry has faced several exogenous shocks including natural disasters such as floods, earthquakes, and tsunamis (Barbhuiya & Chatterjee, 2020; Brown et al., 2018; Lew, 2014); economic upheavals such as the 2008 recession (Crespí-Cladera et al., 2021); man-made shocks such as terrorist activities and wars (Jiang et al., 2021; Rittichainuwat et al., 2020); and widespread diseases such as SARS, Ebola, Covid-19, and other pandemics (Carlos et al., 2020; Novelli et al., 2018). Given the fact that we are primarily interested in the resilience of the hospitality sector in the post- Covid-19 era, we focus on the literature related to widespread disease or pandemics.

French et al. (2018) and Zheng et al. (2021) defined a pandemic as the spread of communicable disease across geographical boundaries and an epidemic as an outbreak confined to a particular location and community at a specific time. Since a pandemic can spread at an unprecedented rate, it creates a sense of fear among people (Dalrymple et al., 2016). Containing a pandemic is a herculean task (Ferguson et al., 2006). Governments across the world stepped in with restrictive travel measures, closure of schools and colleges, banning public events and gatherings, etc., as seen during the SARS (Eichelberger, 2007) and Covid-19 (Zheng et al., 2021). Post-Ebola outbreak, foreign tourists chose not to visit Africa (Cahyanto et al., 2016). Similarly, in the post-SARS, many Chinese and Hong Kong travelers maintained social distance and avoided travelling in groups (Zheng et al., 2021). Bhaskara and Filimonau (2021) noted that the businesses might recover soon after the disasters, but the psychological effect of such disasters might last a very long period. In the case of Covid-19, some governments were able to successfully contain the spread of the pandemic (Jalan & Sen, 2020). Ntounis et al. (2022) conducted a qualitative study among small business owners in English towns and found that tourism businesses were more vulnerable compared to other small businesses.

3.3.3. Responses to Crises - Strategies

The response to a given crisis can be at the micro-level, strategies adopted by individual businesses, or at the macro level, viz. governmental policies. Individual businesses can choose to adopt tactical or strategic responses. Governments can create policies that will make the entire tourism sector more resilient in the face of future shocks. Here we look at the literature from the point of view of responses from individual hotels.

Strategies Adopted by the Individual Hotel Managers in Response to Disasters

The hotel business is vulnerable to crisis, and many studies have been undertaken to understand the responses to the crisis (Brown et al., 2017, 2019; Tsao & Ni, 2016). Türkay & Atasoy (2021) defined crisis management as a strategy to fight sudden changes and return to normalcy in the best possible manner with minimum loss of resources. Literature has identified two distinct

approaches to crisis responses (Pforr & Hosie, 2007). First is a strategic (proactive) response, where businesses plan of any crisis and are more resilient. However, the proactive response is mainly carried out by big businesses with massive resources at their disposal. The second approach is a tactic (reactive) response, where businesses assess the losses during the disasters and plan a path of recovery. This approach is primarily adopted by small and medium scale businesses, of which many do not survive post-disaster due to lack of resources (Pforr & Hosie, 2007). Kim et al. (2019) studied the efficacy of price discounts for recovery of tourism business post crisis.

Further, from a survival perspective, it is crucial to identify and understand the critical business processes and roles of human resources and technology to sustain the identified business process (Perdue et al., 2007). Novelli et al. (2018) suggested that to manage and build image post-disasters efficiently, recovery measures taken by the government in the form of economic support are crucial. Some scholars like Hayashi (2012) and Henderson (2005) have studied natural disasters. Others like Jamal and Budke (2020) and Novelli et al. (2018) have studied health disasters like Covid-19, SARS, and Ebola. Each researcher has stressed the need to have crisis planning. In a study by Cioccio and Michael (2007), they noted that lack of risk management strategy and, most importantly, non-availability of proper insurance is the primary reason businesses fail. The authors further suggested that a proper approach to marketing to rebuild the business image and visitor confidence is essential to restart business post disasters.

Quarantelli (1970) observed that crisis planning should be futuristic and not merely about managing disasters since they are almost always unprecedented. As a crisis abates, the fearful memories of tourists associated with the crisis also fade (Farmaki, 2021). This may influence tourist behaviour in the post-Covid world. Kenny and Dutt (2021) suggested that with preparing for the crisis, businesses should also look for ways to improve and improvise themselves post-disasters and rebrand themselves with new opportunities rather than just planning to return to the status quo. It is essential to understand how the business stakeholders interpret the crisis and what decisions they take to handle it (Türkay & Atasoy, 2021). Thus, this decision-making process is

critical as business stakeholders would want this process to be effective and would like to return to normalcy with the least damages and exit crisis with better hold in business. Hamidovic (2012) noted that crisis management is crucial, and businesses without a crisis management plan often experience substantial damage or cannot survive in the long run.

Seraphin (2019) suggested that the best way to prepare for disasters is to insure the business. Ritchie (2008) noted that only improving resilience to disasters will not be sufficient for the businesses' survival in the long run, and steps should be taken to make the business financially resilient. The only way the negative impacts of a crisis can be managed is by the proper implementation of disaster mitigation plans.

3.4. Conceptual Framework

As we noted above, we base our conceptual model for the study on the contingency theory of organizations. The severe reduction in tourism caused by COVID affected all hotel owners equally, however, the response of the hotel owners was dependent on their specific situations and their specific leadership traits. The kind of strategies that a specific organization may adopt would depend on the levels of organizational resilience inbuilt in the organization, or the psychological resilience of its leadership.

Each member of an organization looks for short-term rewards and tries to survive in the organization first (Staber & Sydow, 2002). Resilient organizations are adaptive in nature (Adams et al., 2021; Staber & Sydow, 2002). Lower-level managers have limited discretion in taking decisions, they may limit their actions to tactical decisions such as cost-cutting and pricing and discounts. However, leaders of an organization have a much greater say and greater control in the strategic decisions taken by the organization. As stated above, we formulate the models based on the contingency theory of decision making where both the traits of the decision-maker as well as the situational factors might affect decision making. After a comprehensive literature review, we did not find any studies on the effect of different kinds of resilience on the strategies adopted by

hotel owners in the post-Covid-19 era. This is the research gap that motivates this study. We formulate the following research questions:

RQ1: Does psychological resilience of the leader affect the post-COVID decisions (tactical vs. strategic) adopted by SMEs?

RQ2: Does organizational resilience affect the post-COVID decisions (tactical vs. strategic) adopted by SMEs?

RQ3: How does the perception of the negative effects of the pandemic (situational factors) affect the adoption of different coping strategies?

Following the research questions, we wanted to see if psychological resilience (PR), organizational resilience (OR), and perceived negative effects due to Covid-19 restrictions on tourism (PNEC) significantly affect the pricing and discounts (PD), cost-cutting measures (CCM), revenue generation strategies (RGS), and building brand image (BBI). For this purpose, we propose the following hypothesis. In each case, we are stating the null hypothesis below. Rejecting the null would provide evidence for a statistically significant relationship between the two constructs.

3.4. Hypothesis:

H1: PR has no effect on cost-cutting measures

H2: PR has no effect on revenue generation measures.

H3: PR has no effect on strategies for building brand image.

H4: PR has no effect on offering price discounts.

H5: OR has no effect on cost-cutting measures

H6: OR has no effect on revenue generation measures.

H7: OR has no effect on strategies for building brand image.

H8: OR has no effect on the offering price discounts

H9a: Psychological resilience is not associated with perceived negative effects (PD model)

H9b: Psychological resilience is not associated with perceived negative effects (CCM model)

H9c: Psychological resilience is not associated with perceived negative effects (RGS model)

H9d: Psychological resilience is not associated with perceived negative effects (BBI model)

H10a: Organizational resilience is not associated with perceived negative effects (PD model)

H10b: Organizational resilience is not associated with perceived negative effects (CCM model)

H10c: Organizational resilience is not associated with perceived negative effects (RGS model)

H10d: Organizational resilience is not associated with perceived negative effects (BBI model)

H11: Perceived negative effects do not lead to cost-cutting measures

H12: Perceived negative effects do not lead to revenue generation measures

H13: Perceived negative effects do not lead to brand building.

H14: Perceived negative effects do not lead to pricing and discounts.

3.5. Methodology

3.5.1. Focus Interviews

Twenty telephonic and eight in-person semi-structured focus interviews were conducted between December 01 and December 11, 2020. The aim of the focus interviews was to understand the specific strategies used by the hotel managers in response to the pandemic. The interviews lasted between forty-five to sixty minutes and were conducted in five north-eastern Indian cities belonging to five different states, namely Silchar (Assam), Shillong (Meghalaya), Aizawl (Mizoram), Dimapur (Nagaland) and Imphal (Manipur). These interviews allowed the identification of four distinct coping strategies commonly adopted by hotels, viz. offering price discounts, cut costs, innovative ideas for revenue generation, building the brand image and the expectation of governmental support.

3.5.2. Questionnaire Development

After an extensive review of the literature, we chose several established scales measure the levels of organizational and psychological resilience of hotel managers. These included the Psychological Resilience and Self-Efficacy from (Pathak & Joshi, 2020); Change and Crisis Strategy from (Melián-Alzola et al., 2020); Adaptive capacity, Revenue Plan and Social capital from (Filimonau et al., 2020); and Crisis resilience and Cooperative Initiatives from (Pappas, 2018). We modified the scale and adapted them for the Indian conditions. Further, in order to capture the different coping strategies, we modified the Cost Management and Pricing Policies

scale from (Weaver et al., 2019). The final questionnaire consisted of 55 items using google forms. We also gathered information regarding the hotel, its geographic location, type of ownership, type of hotel, services offered by the hotel, type of tourists that visit the hotel, years of being associated with the hotel industry, the number of rooms, and employees in the hotel.

3.5.3. Sample Selection and Data Collection

Our aim was to conduct a pan India study of the hospitality sector. We followed a stratified purposive sampling method (Teddlie & Yu, 2019). At the first stratification level, we considered each of the 28 Indian states and three union territories in India (appendix IV). We selected the state capital or main tourist destination cities at the second stratification level in each state or union territory. We selected 37 cities. At the third stratification level, we selected around 5-20 hotels from each of the cities. Since we were primarily interested in small and medium-size hotels and hospitality enterprises, the criteria for choosing a hotel were that it should have less than 50 rooms. The number of rooms was cross verified by using the hotel's website or by using popular online hotel booking websites like makemytrip.com, booking.com, and goibibo.com.

We contacted the hotel managers through available contact information, and upon receiving consent, we shared the questionnaire. Text messaging, WhatsApp and Telegram were used to share the online questionnaire with the hotel managers. The survey was conducted between January 15 and February 15, 2021. We received 552 completed responses. Of these, three responses were from hotels that had more than 50 hotel rooms and had to be dropped. The final sample used in the analysis consisted of 549 responses. The validity of a web-based online survey was confirmed by Krantz & Dalal (2000).

3.5.4. Statistical Analysis – Interaction Analysis and Structural Equation Modeling

After cleaning and processing the raw data, we performed descriptive analysis. Interaction analysis was conducted to see whether there were any patterns in the adoption of coping strategies

based on the type of hotel and the five different geographic regions of India in which the hotels are located.

Confirmatory factor analysis yielded seven factors, four associated with the four different coping strategies, and three factors that measured the latent variables: psychological resilience, organizational resilience, and perceived negative impact of Covid-19 regulations. These seven factors, consisting of 36 items, explained 41.2% of the total variation in the data. Four models were conceptualized to test Hypotheses H1 through H14. We tested all four models using statistical methods of CFA and structural equation modeling in R using the 'lavaan' package. Avkiran and Ringle (2018) recommended that 0.4 cut-offs for factor loading were used in both exploratory and confirmatory factor analysis. The average variance extracted (AVE), composite reliability (CR) and Cronbach's alpha (CA) are reported in this study to see the convergent validity, reliability, and internal consistency of the data for the factors in the CFA model. We report several fit indices for the four models to indicate the goodness of fit of the models.

3.6. Results and Discussion

3.6.1. Descriptive Statistics

The contingency tables 3.1, 3.2 and 3.3. show the relationship between the type of hotels, with hotel ownership, years in the hotel industry and hotel's geographic location respectively. About 57% of the hotels are either budget hotels or Airbnb or homestays, while 37% are mid-range types. Nearly half of the surveyed hotels are family-owned and almost 42% of the family-owned hotels are mid-range hotels. Almost 60% of hotels owned by companies are either Airbnb/ homestay or luxury/ resort hotels. More than 47% of 549 respondents had experience in the hotel industry between 0 and 10 years. Around 28.5% had 16 and above years of experience, however, only 16% of these respondents were associated with budget hotels. Respondents from east and west India are around 16% each, while approximately 27.3% each are from the north and north-east India.

Table 3.1: Contingency Table showing the relationship between Type of Hotels and the Hotel Ownership.

	Individual	Family	Company	Total
Budget	52	44	10	106
Mid-range	71	113	20	204
Airbnb/ homestay	61	68	25	154
Luxury/ resort	22	45	18	85
Total	206	270	73	549

Table 3.2: Contingency Table showing the relationship between Type of Hotels and the Years in the hotel industry

	0-5 Year	6-10 Year	11-15 Years	16-20 Years	21 and above	Total
Budget	19	38	24	18	7	106
Mid-range	33	56	51	40	24	204
Airbnb/ homestay	28	43	38	22	23	154
Luxury/ resort	20	25	16	16	8	85
Total	100	162	129	96	62	549

Table 3.3: Contingency Table showing the relationship between the Type of hotels and the Hotel's Geographic Location.

	East	West	North	South	North-east	Total
Budget	16	17	28	20	25	106
Mid-range	38	29	59	22	56	204
Airbnb/ homestay	23	32	36	19	44	154
Luxury/ resort	15	12	24	9	25	85
Total	92	90	147	70	150	549

3.6.2. Confirmatory Factor Analysis to Identify Latent Constructs

We performed exploratory factor analysis and found that 36 items loaded on eight latent factors. Items with factor loading less than 0.4 were dropped, as suggested by (Avkiran & Ringle, 2018). Based on the items that loaded on each factor, they were named as follows: cost cutting measures (CCM), revenue generation strategies (RGS), building brand image (BBI), psychological resilience (PR), organizational resilience (OR), perceived negative effect of Covid-19 restrictions (PNEC), organizational characteristics (OC) and pricing and discounts (PD). These eight factors accounted for 41.2% of the total variance in the data.

Table 3.4 shows the factor loadings (FL) and Cronbach Alpha figures for each latent construct. The Cronbach Alpha for four of the latent factors, PR, PNEC, CCM and RGS are more than 0.70 which is above the acceptable threshold, as per Tavakol and Dennick (2011). Further, Hair et al. (2007) suggested that CA above 0.6 is acceptable; thus, the 0.66, 0.61 and 0.67 CA value of BBI, PD and OR, respectively, is sufficient. We dropped the factor OC from further analysis since it did not meet the threshold for acceptable criteria for CA, AVE and CR.

Factor 1: This factor comprises of the cost cutting measures (CCM) adopted by the hotel. CCM like increasing reliance on temporary employees /day labour and cutting down complimentary facilities for employees had the highest loading. This factor has a CA of 0.86.

Factor 2: The factor comprised of the actions taken by the hotel towards revenue generation strategies (RGS). The main question with high factor loading was "offered bulk discounts (group booking/ functions etc.)". This factor had a CA of 0.71.

Factor 3: Building brand image (BBI) was the factor underlying the strategies adopted by hotels to improve their image during the Covid-19 pandemic. Strategies such as advertisements, free pick-up and drop-off facilities, and complimentary breakfast had the highest loading in this factor. The CA for this factor was 0.66.

Factor 4: Pricing and Discounts (PD) was used as a marketing strategy to sell the hotel rooms. The items used in this factor measured the level of discounts offered, and whether any extra discount was offered due to pandemic. PD had a CA of 0.61.

Factor 5: Psychological Resilience (PR) measures hotel manager's positive attitude and self-efficacy in the face of adversities. This factor had a CA of 0.80.

Factor 6: Organizational Resilience (OR) consisted of seven items that measured the organizational culture and communication systems. It included organizational characteristics such as open communication both within and outside the organization, a diverse customer base, a strong organizational ethos and optimism. This factor had a CA of 0.67.

Factor 7: Perceived negative effect of Covid-19 restrictions (PNEC) measured the perceptions of the respondent about the extent which governmental regulations may have had on tourist arrivals. This factor had a high Cronbach alpha CA of 0.78.

Table 3.4: Latent Factors Identified

	Constructs	FL	SE	CA
PR	**Psychological resilience**			**0.80**
PR1	I usually take stressful events at work in stride	0.51	0.74	
PR2	I have confidence in myself in dealing with crisis without panicking	0.58	0.66	
PR3	I feel as a hotel owner/ manager I can handle many things at a time	0.56	0.69	
PR4	Even when things are uncertain, I am always optimistic about the outcome.	0.63	0.61	
PR5	Even in the middle of difficulties, I have faith that everything will work out fine	0.53	0.72	
PR6	I always look on the bright side of things regarding how our hotel will perform.	0.60	0.64	
PR7	It is most important to stay healthy and safe during the pandemic. I am hopeful that we can always recover from financial losses.	0.57	0.67	
PR8	We are listed on commercial websites	0.42	0.82	
PR9	We have adequate social resources to withstand the Covid19 crisis.	0.49	0.77	
PR10	We have partnerships and alliances with other hotels to offer joint services that will help us during the pandemic.	0.51	0.74	
OR	**Organizational Resilience (Specific to Covid-19)**			**0.67**
OR1	I usually come up with new ideas to manage any crisis/ disaster at work	0.49	0.76	
OR2	Even though there are many difficulties, this pandemic may turn out to be a blessing in disguise	0.48	0.77	
OR3	The diverse customer base of this hotel will help in maintaining demand through the Covid-19 crisis.	0.49	0.76	
OR4	The different reasons that visitors stay in this hotel for will help in maintaining demand through the Covid-19 crisis.	0.48	0.77	
OR5	Management in this hotel listens actively to the problems in our organisation	0.50	0.75	
OR6	People in the organisation work across the departments, if necessary, to do things well	0.43	0.82	
OR7	Communication with customers, employees, and other hotels will help this hotel overcome this crisis	0.47	0.78	
PNEC	**Perceived Negative Effect of Covid-19 Restrictions on Tourism**			**0.78**
PNEC1	Strict regulations related to testing for Covid-19 for tourists	0.84	0.30	
PNEC2	Travel restrictions from other states	0.76	0.42	

Different coping strategies identified				
CCM	**Cost Cutting Measures**			**0.86**
CCM1	Lay off employees with lower salaries	0.76	0.42	
CCM2	Lay off employees who had higher salaries	0.82	0.32	
CCM3	Increasing our reliance on outsourcing	0.49	0.76	
CCM4	Increasing our reliance on temporary employees/ day labour	0.86	0.27	
CCM5	Cutting down the cost of free facilities for employees	0.83	0.31	
RGS	**Revenue Generation Strategies**			**0.71**
RGS1	Offer discount to individual tourist party	0.69	0.52	
RGS2	Offered bulk discounts (group booking/functions)	0.73	0.47	
RGS3	Offer services such as hosting marriages and other functions to generate revenue	0.63	0.61	
RGS4	We offered quarantine services to generate revenue	0.43	0.82	
BBI	**Building Brand Image**			**0.66**
BBI1	Advertising to attract customers	0.63	0.61	
BBI2	Marketing efforts emphasizing increased safety protocols	0.59	0.66	
BBI3	Amenities such as free pick-up and drop-off and complimentary breakfast	0.64	0.59	
PD	**Pricing and Discounts**			**0.61**
PD1	At present, we are offering discounts at (no discount|0-5% | 5-10% | 10-15% | Above 15%)	0.66	0.56	
PD2	At present, because of the pandemic, we are offering an extra discount (no discount | 0-5% | 5-10% | 10-15% | Above 15%)	0.63	0.60	
FL – Factor Loading | SE – Standard Error | CA - Cronbach's Alpha				

3.6.3. Strategies Adopted by the Hotel Sector in Dealing with Covid-19

In response to the disruption caused by Covid-19, hotels adopted four coping strategies viz, pricing and discounts (PD), cost cutting (CCM), revenue generation (RGS), and building brand image (BBI). We performed some preliminary analysis to see common patterns based on location or price segments.

Four univariate regression models were built. The dependent variables were the factor scores for each strategic action, and the independent variable was a regional dummy. The results are given in Table 3.5. We find that hotels in north and northeast India were less likely to undertake cost cutting measures and offer discounts than their counterparts in western India. We also found that hotels in north and north-east India are more likely to use revenue generation strategies. Hotels in eastern India were less likely to use brand building strategies than their western counterparts. There were no other statistically significant differences in strategies based on geographical locations. Thus, hotels in western India were more likely to offer discounts or undertake cost

cutting measures. Hotels in the north and north-east were more likely to adopt revenue generation strategies.

Hotels in different price segments also followed different strategies. As we can see from Table 3.6, budget and mid-range hotels were less likely to adopt cost cutting measures than luxury/ resort hotels. Further, mid-range hotels are less likely to use revenue generation strategies compared to hotels in the luxury/ resort category. BBI and PD were not statistically significant strategies for hotels in different price segments.

Table 3.5: Coping strategies adopted by hotels in different geographical locations in India.

	CCM		RGS		BBI		PD	
	Estimate	p-value	Estimate	p-value	Estimate	p-value	Estimate	p-value
(Intercept)	1.633	0.000	3.900	0.000	4.622	0.000	3.856	0.000
East	-0.036	0.806	0.002	0.986	-0.253	**0.043**	-0.019	0.924
South	-0.198	0.180	0.159	0.198	0.142	0.262	-0.232	0.246
North	-0.319	**0.016**	0.282	**0.011**	0.137	0.230	-0.987	**0.000**
North-east	-0.406	**0.002**	0.190	**0.083**	0.047	0.678	-0.504	**0.005**
Adjusted R2		0.019		0.011		0.019		0.077

Table 3.6: Coping strategies adopted by hotels in different price segments

	CCM		RGS	
	Estimate	**p-value**	**Estimate**	**p-value**
(Intercept)	1.552941	0.0000	4.14118	0.0000
Budget	-0.27936	**0.0506**	-0.04684	0.6940
Mid-range	-0.23431	**0.0643**	-0.18529	**0.0800**
Airbnb	-0.00749	0.9549	-0.06325	0.5680
Adjusted R2		0.0101		0.002234

3.6.4. Structural Equation Models - Effect of PR and OR on Four Coping Strategies

We conceptualized four models to understand the effect of psychological resilience (PR) and organizational resilience (OR) on the adoption of different strategies in response to the Covid-19. Estimated standardized path coefficients for SEM for PD (model 1), CCM (model 2), RGS (model 3) and BBI (model 4) are given in table 3.8 and shown in Figures 3.1a, b, c and d.
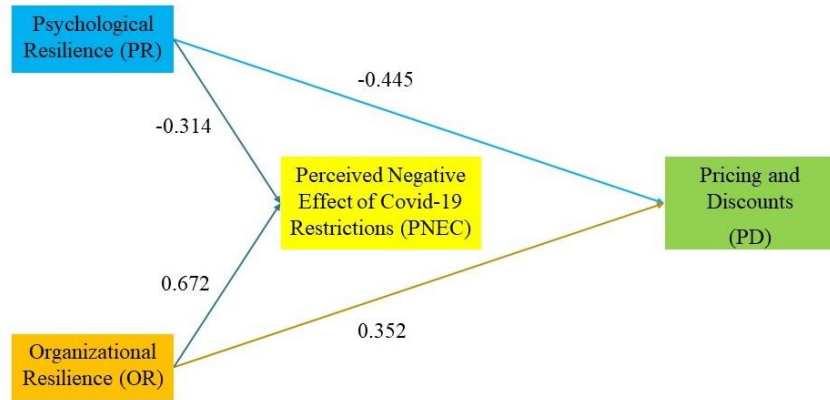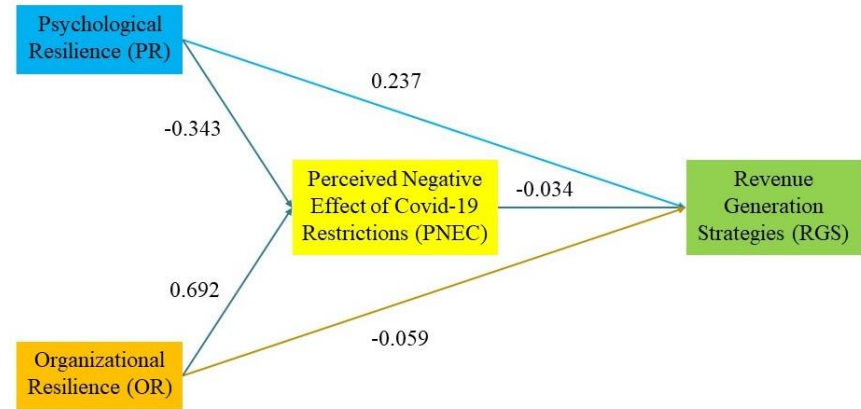
Figure 3.1a: SEM model for PD (Model 1)

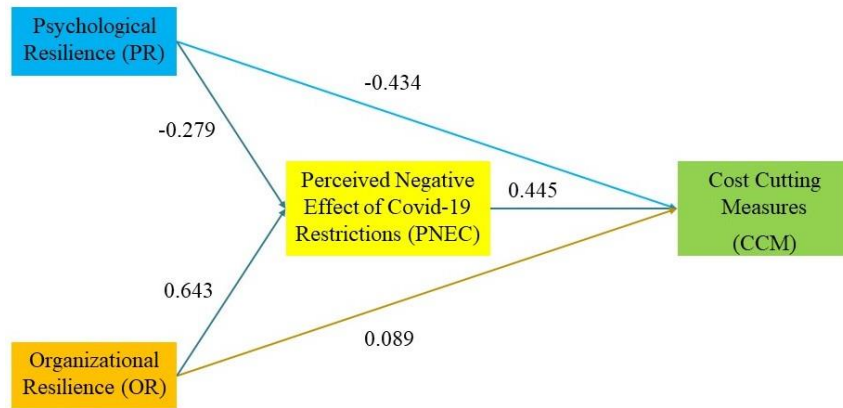**Figure 3.1c: SEM model for RGS (Model 3)**

Figure 3.1b: SEM model for CCM (Model 2)
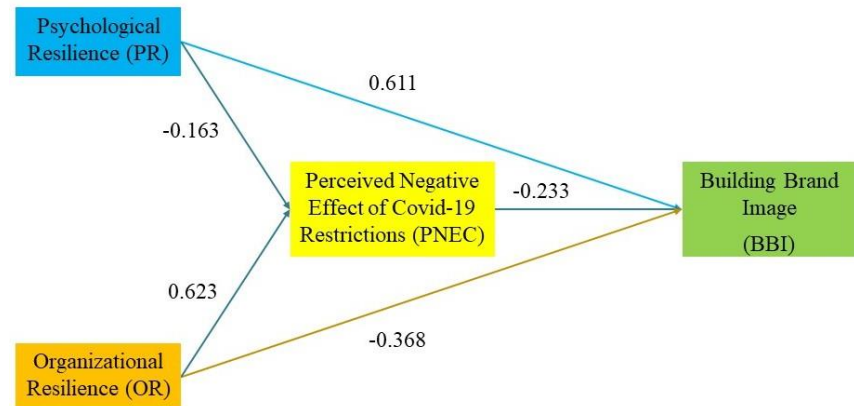
Figure 3.1d: SEM model for BBI (Model 4)

Figure 3.1: SEM models for PD, CCM, RGS, and BBI

3.6.5. Effect of Perceived Negative Impact of Covid-19 Regulations on PR and OR

It can be seen from the estimated path coefficients in Figures 3.1a, b, c, and d that the perceived negative impact of Covid-19 regulations (PNEC) in all four models is negatively correlated with psychological resilience (PR) and is positively correlated with organizational resilience (OR). Hotel managers with greater levels of PR have a lower expectation of disruption due to Covid-19. (Standardized β coefficient -0.314, -0.279, -0.343, and -0.163). Organizations that expect greater disruptions to tourism due to Covid-19 are better prepared to deal with it (standardized β coefficient 0.643, 0.692, 0.623 and 0.672). While individual leaders who are more resilient may not be worried about negative shocks, organizations that are more resilient tend to anticipate such shocks and prepare for them. Thus, we reject Hypotheses H9a, H9b, H9c, H9d, H10a, H10b, H10c and H10d.

Perceived negative impact (PNEC) is positively correlated with cost-cutting measures (CCM) and negatively correlated with revenue generation (RGS) and brand building (BBI). Thus, we reject Hypotheses H11 through H13 but are not able to reject H14.

3.6.6. Effect of Organizational resilience (OR) on response strategies

Hotels with higher levels of OR were more likely to adopt tactical measures such as offering discounts (PD) rather than strategic measures such as brand building (BBI). Standardized β coefficients for the effect of OR on PD was 0.352 while the effect of OR on BBI was -0.368. We find that OR has a small effect on cost-cutting measures and revenue generation strategies. Thus, we reject null hypotheses H5 through H8. Resilient organizations aim to survive through disruption by offering attractive prices and maintaining demand. Organizations would be risk-averse and may not undertake strategic measures such as brand building.

3.6.7. Effect of Psychological resilience (PR) on response strategies

Higher levels of psychological resilience (PR) are positively correlated with strategic responses such as brand building (BBI) and revenue generation (RGS) rather than tactical responses (CCM and PD). The standardized β coefficients were 0.237 and 0.611 for the effect of PR on RGS and BBI respectively. The β coefficients were -0.434 and -0.445 for the effect of PR on CCM and PD respectively. We reject the hypotheses H1 through H4. Leaders and hotel managers with greater psychological resilience may recognize the opportunities offered by an industry-wide slump in demand. They may opt for long-term strategies like RGS or BBI to gain a strategic advantage over their competitors.

3.6.8. Reliability, validity, and goodness of fit measures

All accepted criteria for reliability and validity were employed for all the constructs in the four models. Several fit indices are reported in table 3.7 to verify the fit of the models. The goodness of fit index (gfi), adjusted goodness of fit index (agfi), comparative fit index (cfi) and Tucker–Lewis index (tli) values are above 0.9, which suggests a good fit for the model (Hair et al., 2007b). The normed fit index (nfi) values for models 1, 3 and 4 are above 0.8, the threshold value for a satisfactory fit (Forza & Filippini, 1998). The Root Mean Square Error of Approximation (rmsea) and standardized root mean square residual (srmr) values are less than the acceptable limit of 0.08 and 0.8 in all the four models.

Table 3.7: Fit of the models

		gfi	agfi	nfi	cfi	rmsea	srmr	tli	aic	bic
Model 1	PD	0.956	0.945	0.89	0.963	0.028	0.052	0.958	29565	29763
Model 2	CCM	0.946	0.935	0.905	0.966	0.030	0.048	0.962	32546	32775
Model 3	RGS	0.950	0.939	0.876	0.955	0.030	0.066	0.949	31404	31623
Model 4	BBI	0.956	0.945	0.893	0.968	0.026	0.044	0.963	29969	30180

3.6.9. Summarization of Results

In Table 3.8, we compare the relative magnitudes of the standardized beta coefficients across the four SEM models. When arranged in this order, we find that the path coefficients for organizational resilience were the highest for the most short-term measures (PD) and the least for the most long-term measure (BBI). The opposite pattern was noticed for psychological resilience. Path coefficients for PR were the lowest for the most short-term measure (PD) and highest for the most long-term measure (BBI). This symmetrical and opposite relationship between these two different kinds of resilience in the coping strategies of an organization provides very interesting insights.

Table 3.8: Summarization of Path Coefficients for Four SEM Models

	Tactical		Strategic	
	Pricing and Discounts	Cost Cutting Measure	Revenue Generation Strategies	Building Brand Image
Model	1	2	3	4
PR	-0.445	-0.434	0.237	0.611
OR	0.352	0.089	-0.059	-0.368
PNEC		0.445	-0.034	-0.233
PR=~ PNEC	-0.314	-0.279	-0.343	-0.163
OR=~ PNEC	0.672	0.643	0.692	0.623

The overall summarization of the results from all our models yields a very interesting insight. This has been visually summarized in Table 3.9. As stated before, we built four models where the dependent variables were the four coping strategies, namely (i) pricing and discounts, (ii) cost-cutting measures, (iii) revenue generation and (iv) building brand image. In each case, the explanatory variables were organizational resilience and psychological resilience of leaders. In terms of the ease of implementation from the most tactical to the most strategic measures.

Offering discounts is easiest to implement in the short term, followed by cost-cutting. Revenue

generation and brand building can only be accomplished in the long term.

Table 3.9: Summarization of the Results of Hypotheses

H.No	Null Hypothesis	Reject or do not reject	Beta coefficient	Explanation
H1	PR has no effect on cost cutting measures	Reject	-0.434 (0.000)*	Leaders with high levels of psychological resilience DO NOT opt for cost-cutting measures.
H2	PR has no effect on revenue generation measures.	Reject	0.237 (0.000)*	Leaders with high levels of psychological resilience DO opt for revenue generation measures.
H3	PR has no effect on strategies for building brand image.	Reject	0.611 (0.009)*	Leaders with high levels of psychological resilience DO opt for building brand image.
H4	PR has no effect on offering price discounts.	Reject	-0.445 (0.000)*	Leaders with high levels of psychological resilience DO NOT opt for price discounts.
H5	OR has no effect on cost-cutting measures	Reject	0.089 (0.000)*	Organizations with high levels of organizational resilience MAY opt for cost-cutting measures.
H6	OR has no effect on revenue generation measures.	Reject	-0.059 (0.000)*	Organizations with high levels of organizational resilience MAY opt for revenue generation measures.
H7	OR has no effect on strategies for building brand image.	Reject	-0.368 (0.000)*	Organizations with high levels of organizational resilience DO NOT opt for building brand image.
H8	OR has no effect on the offering price discounts	Reject	0.352 (0.000)*	Organizations with high levels of organizational resilience DO opt for price discounts.
H11	Perceived negative effects (PNEC) do not lead to cost-cutting measures	Reject	0.445 (0.001)*	Perceived negative effects DO lead to cost-cutting measures
H12	Perceived negative effects (PNEC) do not lead to revenue generation measures	Reject	-0.034 (0.004)*	Perceived negative effects DO NOT lead to revenue generation measures
H13	Perceived negative effects (PNEC) do not lead to brand building	Reject	-0.233 (0.002)*	Perceived negative effects DO NOT lead to brand building
H14	Perceived negative effects (PNEC) do not lead to pricing and discounts	Failed to reject		Perceived negative effects has NO effect on pricing and discounts

Table 3.9. (cont.) Summarization of the Results of Hypotheses

H.No	Null Hypothesis	Reject or do not reject	Beta coefficient	Explanation
H9a	Psychological resilience is not associated with perceived negative effects (PD model)	Reject	-0.314 (0.000)*	Perceived negative effects ARE ASSOCIATED with psychological resilience
H9b	Psychological resilience is not associated with perceived negative effects (CCM model)	Reject	-0.279 (0.000)*	Perceived negative effects ARE ASSOCIATED with psychological resilience
H9c	Psychological resilience is not associated with perceived negative effects (RGS model)	Reject	-0.343 (0.000)*	Perceived negative effects ARE ASSOCIATED with psychological resilience
H9d	Psychological resilience is not associated with perceived negative effects (BBI model)	Reject	-0.163 (0.000)*	Perceived negative effects ARE ASSOCIATED with psychological resilience
H10a	Organizational resilience is not associated with perceived negative effects (PD model)	Reject	0.672 (0.000)*	Perceived negative effects ARE ASSOCIATED with psychological resilience
H10b	Organizational resilience is not associated with perceived negative effects (CCM model)	Reject	0.643 (0.000)*	Perceived negative effects ARE ASSOCIATED with psychological resilience
H10c	Organizational resilience is not associated with perceived negative effects (RGS model)	Reject	0.692 (0.003)*	Perceived negative effects ARE ASSOCIATED with psychological resilience
H10d	Organizational resilience is not associated with perceived negative effects (BBI model)	Reject	0.623 (0.000)*	Perceived negative effects ARE ASSOCIATED with psychological resilience

*p-values

3.7. Conclusion

The COVID-19 pandemic has had a catastrophic effect on the tourism sector worldwide. Fears among tourists reduced their wish to travel. In addition, governmental regulations and restrictions further impeded the movement of tourists. In this environment, the hospitality sector, and the small and medium sector enterprises faced severe challenges to its survival. However, despite an

overall decline in the sector, some hotels and hotel owners have proved to be quite resilient and have managed to attract tourists and continue their businesses.

Our primary aim in this article was to understand the characteristics of an organization that allows them to be more resilient and take a long-term view. Following a comprehensive review of the literature, we identified two different kinds of resilience - organizational resilience which is embedded in the organizational culture and systems and psychological resilience which is an individual trait of the leader or manager (Brown et al., 2019; Lombardi et al., 2021; Pathak & Joshi, 2020a; Veréb et al., 2020).

We have included two different theoretical frameworks for conceptualizing the model of decision-making adopted by organizations in response to a crisis. The first theory is the contingency theory (Fiedler, 1978) and the second one is the resilience theory (Holling, 1973). Staber and Sydow (2002) posited that an organization may be reactive or proactive while responding to disasters. After formulating a conceptual framework for decision-making, we developed a questionnaire with scales for measuring organizational and psychological resilience. Primary data was collected from 549 small and medium-scale hospitality enterprises from all states of India. PLS-SEM was used to estimate the path models.

We identified four kinds of coping strategies, short-term tactical measures such as offering pricing discounts (PD) and cost-cutting measures (CCM); and long-term strategic measures such as revenue generation (RGS) and building brand image (BBI). Results from our empirical models indicate that organizations that had high levels of OR adopted tactical measures such as CCM and PD that ensured survival in the short term. Organizations with leaders that exhibited high levels of PR were more likely to adopt strategic measures such as RGS and BBI. Such measures allow them to gain competitive advantage over their competitors who may not pose as much of a threat as in normal times.

Our results are consistent with the findings from other studies as follows. Staber and Sydow (2002) found that there was a distinction between undertaking adaptive strategies (reactive

measure) and building in adaptive capacity (proactive measure) in the organization. Resilient individuals are the ones who take proactive strategic decisions and thus make an organization resilient (Jiang et al., 2021; Schmid et al., 2021). Resilient leaders may recognize the opportunities created by challenges and look to reap rewards in the long run by filling up the voids created by exiting businesses (Roumpi, 2021). These leaders look for opportunities to thrive and not just survive during a crisis (Schmid et al., 2021).

The insight into the effect of different kinds of resilience on response strategies adopted by organizations is novel. Innovative thinking and greater levels of psychological resilience among leaders are particularly important to ensure that organizations do not just survive but thrive during periods of greater uncertainty.

The key implication of this study is the understanding that while resilient organizations are able to survive in the short term, for long-term success, an organization needs resilient leadership. Thus, leadership training programs for SMEs, higher levels of communication between different stakeholders and reduction of risks through cooperation and sharing of resources would enable the tourism sector to thrive even when faced with adverse situations.

3.7.1. Limitations of the study

There are some omitted factors including financial resources, social capital, restrictions imposed by local and state governments etc. We were not able to include these due to lack of data. Data collection coincided with a period of low incidence of Covid-19 since it was after the first wave and before the onset of the second wave. The low levels of Covid-19 infections during the data collection period might affect the levels of optimism, which would affect the responses received. We conducted the study before the onset of the second wave of the Covid -19 in India which was quite severe in terms of fatality rates and economic losses. Since the perceived negative impact of Covid (PNEC) was an important explanatory factor, the results might have changed after the second wave. However, our results are more relevant now, with much lower levels of incidence and fatality due to Covid.

Future studies may be able to include some of the variables that have not been included in this study. Additionally, the effects of external policies and industry or government support may be important. These may be included in future studies.

Chapter 4 : Bottled water usage and willingness to pay: Visual nudges and the theory of planned behaviour

4.1. Introduction

Tourism has emerged as one of the fastest-growing industries in the last decade, with a growth rate outpacing that of the global economy. Notwithstanding positive economic outcomes, the unprecedented growth of tourism coupled with a lack of environmental awareness among tourists has led to widespread environmental degradation of tourist destinations (Pigram, 1980).

One of the primary sources of environmental degradation is the accumulation of solid waste from single-use plastics. Single-use plastics such as plastic shopping bags, food wrappers, and bottled water create mountains of non-biodegradable waste (Kulik, 1995), which reduces aesthetic value and hampers the local ecosystem by polluting rivers and clogging drainage systems (Clapp, 2012; Heidbreder et al., 2019). Simon and Schulte (2017) estimate that around 4.8 to 12.7 million tonnes of plastic waste ends up in the oceans of the world per year, endangering marine ecosystems and entering the food chain with unforeseeable consequences for the health and survival of humans as well as other species. Oceans and marine water bodies are part of the "global commons" (Vogler, 2012). Several researchers have called for the need for international environmental regulations and treaties to reduce the generation and use of plastic (Tessnow-von Wysocki & le Billon, 2019). The generation of plastic waste in developing countries is a looming problem with global consequences. Williams et al. (2019) provide a compelling argument for acting quickly to contain the damage caused by plastic pollution in developing countries.

Scandinavia leads the world in terms of Environmental Performance Index (EPI). Ingebritsen (2012) says the following about Scandinavian countries.

"This analysis places Scandinavia as a hegemon (defined as power greater than all others) along a continuum of states and regional actors who practice ecological institutionalism."

Nordic countries lead the rest of Europe in the move from bottled water to tap water (Tosun et al., 2020). Scandinavian countries may play an important role in fostering global cooperation in environmental sustainability among developing countries such as India. Some Nordic countries and India have already been working together to develop sustainable cities as part of the Nordic Sustainable Cities program (Nataniel, 2020). Thus, even though our study looks at behaviour of Indian tourists, we believe that it has relevance to a global as well as Nordic audience.

In the last twenty years, research published in the Scandinavian Journal of Hospitality and Tourism has focused on different kinds of environmental and sustainability issues. These include the impact of climate change, corporate social responsibility, and consumer's willingness to pay for green tourism (Gjerald et al., 2021; Lundberg & Furunes, 2021; Michael Hall & Saarinen, 2021). In the context of a progressively shrinking world, with high levels of interconnectivity and global spill-over effects, pro-environmental behaviour needs to become a common global paradigm. The present work may serve to underscore the relevance of Nordic research to the global push towards green tourism.

Cavagnaro and Curiel (2012) situated the individual as the most important actor within the framework of the three levels of sustainability (TLS) within a sustainable society, sustainable organizations, and sustainable leadership. Consistent with the importance given to the role of individuals in the TLS framework, we investigate plastic bottled water usage by individual tourists, in particular the attitudes, social norms and cues that may nudge individual tourists towards environmentally responsible behaviour.

Recently Nepal banned the use of single-use plastics near Mount Everest (India Asia News Service (IANS), 2019). While plastic bags have been banned in some states in India since 2018, the use of other kinds of single-use plastics has not yet been regulated (Business Insider India Bureau, 2019). Bans if introduced would be difficult to implement with inadequate monitoring capabilities (Vimal et al., 2020). In the absence of implementable laws, it is important to

understand consumer attitudes and design campaigns that will nudge consumers to behave in an eco-friendly manner.

As per a report by UNICEF, less than 50% of the Indian population has access to clean drinking water (UNICEF, n.d.). There are health concerns related to consuming tap water, including dissolved fluoride and even arsenic in some states (Ghosh & Bose, 2016) in addition to possible transmission of water-borne diseases. Packaged bottled water provides travellers a convenient and cheap alternative. It is widely available at railway stations and in retail shops at low prices. It would be difficult to implement a ban on bottled water, given its importance in the absence of alternatives. However, single-use plastics in bottled water cause an excess of plastic waste. Hence, there is a need to think of new and eco-friendly alternatives. To devise effective policies, it is important to understand the attitudinal factors that affect the use of bottled water in India. There are currently no studies that have looked at these issues and this is the research gap that we aim to fill.

We propose a model based on Ajzen's theory of planned behaviour to understand which of these factors would affect tourists' attitudes and intentions to purchase bottled water (Ajzen, 2011). We measure the attitudinal and motivation related factors using appropriate scales. Confirmatory factor analysis and structural equation modelling methods are used to analyse the primary data. We also propose to test the effect of positive vs. negative framing on the pro-green intentions of respondents.

4.2. Literature Review

The literature in the area of sustainable behaviour in the area of tourism is quite extensive. In this study we are interested in understanding factors affecting pro-environmental consumer behaviour related to reduction in the use of bottled water. We are also interested in appropriate nudges that may encourage environmentally friendly behaviour. We provide a review of some of the relevant literature in the following areas:

(i)   Attitudes and use of bottled water vs. tap water, and

(ii)   Theory of planned behaviour based studies for eco-friendly behaviour.

(iii)   Environmental concerns, nudges and message framing

4.2.1. Bottled water vs. tap water - consumer perceptions

Bottled water has faced criticism for causing environmental and ecological damage through the creation of "*mountains of plastic waste*" (Clapp, 2012; Hawkins & Emel, 2014). In developed countries, environmental concerns have been at the centre of the debate on bottled water vs. tap water (Brei & Böhm, 2011; Knopper, 2008; Parag & Roberts, 2009). Clapp (2012) mentions the rising tide of awareness against single-use plastics including bottled water, and the plastic industry fighting back against anti-plastic regulations. Johnstone and Serret (2012) conducted a large-scale study of 10,000 households to understand the factors that lead to bottled water consumption. They found that consumption was higher in less developed countries (highest in Mexico and lowest in the Netherlands). Preference of bottled water over tap water was due to the negative perceptions of the quality of tap water in terms of taste and health concerns. There are both push and pull factors that lead to the purchase of bottled water.

Negative factors such as health concerns and distrust in municipal corporations push consumers away from tap water (McSpirit & Reid, 2011; Saylor et al., 2011). Saylor et al. (2011) looked at the reasons for bottled water consumption among students at Purdue University. They found that perceived health risks associated with tap water, the taste of bottled water, and convenience were the primary reasons that led to a preference for bottled water. McSpirit and Reid (2011) studied the consumption of bottled water in the coal mining regions of Appalachian Mountains in the US. While perceived pollution impacts were found to have an indirect effect on the bottled water purchases, perceptions about tap water quality, distrust in water treatment plants and saliency of drinking water concerns directly affected bottled water purchase. Barriers to drinking tap water by college students identified by Santos and van der Linden (2016) included factors such as water filters are inconveniently located, bottled water is perceived to be cleaner and colder, and the students did not have a reusable bottle.

Some of the pull factors that increase the demand for bottled water have been studied by (Ballantine et al., 2019; Wilk, 2006). Ballantine et al. (2019) found that perceived health benefits, aesthetics of the bottle, convenience, taste and self-image were some of the primary reasons for purchasing bottled water. Saylor et al. (2011) found that some consumers felt that since they were recycling of the plastic bottles, purchase of bottled water was not actually damaging to the environment. Thus, there is a disconnect between the perception of the environmental impact of bottled water, which may be due to clever marketing by companies that sell bottled water (Wilk, 2006).

4.2.2. Environmental concerns, nudges and message framing

In their seminal paper on libertarian paternalism, Thaler and Sunstein (2003) introduced the idea of nudging individuals towards choices that are better for them. Thaler and Sunstein (2003) coined the term "choice architecture" to indicate the designing of systems that presents choices to individuals in a manner such that it might influence their specific choices. Most individuals like to feel that they are in control of their own decisions. They may not react well to authoritarian instructions but may behave in a personally or socially beneficent manner in response to such subliminal nudges. One of the examples outlined in the book is arranging food in a school cafeteria such that healthy options are kept at the entrance. Students who are hungry might pick up the first items on the table and may thus make healthier food choices. In this way choice architecture can provide nudges, though not every nudge may be through choice architecture. Sometimes nudges may also use real or virtual incentives such as monetary benefits or public recognition.

Environmental pollution is a negative externality caused by the actions of individual agents. Indulging in non-green behaviour imposes a public cost on the environment but may provide private benefits to the consumer. As a result, it embodies the "tragedy of the commons" (Hardin, 1968). In the absence of immediate and discernible effects of their non-green behaviour, consumers may lull themselves into thinking that the problem is not as big as it is made out to be

(Norgaard, 2006), or that as individuals they have limited ability to make a significant difference, or that there will always be time to do something about it later (Andreou, 2007). Governmental regulations to promote eco-friendly behaviour may not always be effective (Taylor et al., 2012). In such situations, nudges may be particularly useful in the case of changing an individual's behaviour to be more pro-environment.

The effect of nudges on pro-environmental behaviour has been studied by several authors (Baxter & Gram-Hanssen, 2016; Blose et al., 2015; Goldstein et al., 2008; Tsayem & Cavagnaro, 2013; Tyers, 2018). We focus only on studies that looked at the role of message framing on individual behaviour. In a path-breaking study, Goldstein et al. (2008), performed an experiment to understand how pro-environmental messages delivered using different kinds of social norm frames affected the reuse of towels in a hotel in the southwest US. The effect of social norms activation and persuasive information on the intention to purchase bottled water was also studied by van der Linden (2015). He found that a combination of norm activation as well as persuasive messages had a significant negative effect on purchase intentions. In a study relevant to ours, Maurice (2017) found the effect of activation of different kinds of social norms on the use of bottled water. She found that social norm activation in a negative frame had a greater effect on pro-environmental behaviour.

The effectiveness of loss frames vs. gain frames in the environmental context has been studied by several authors (Baxter & Gram-Hanssen, 2016; Blose et al., 2015; S. B. Kim & Kim, 2013; Yoon et al., 2019). Baxter and Gram-Hanssen (2016) studied message framing in the context of the recycling of mobile phones and found that gain-framed messages are better when the alternative is a do-nothing mind-set. Kim & Kim (2013) and Yoon et al. (2019) also found that gain-framed messages had a greater effect on responsible tourism intentions. In a study similar to ours, Grebitus et al. (2020) studied the effect of information gathering through internet searches, eco-friendly priming, and consumer perceptions on the consumer's willingness to pay for eco-friendly plastic bottles. They found that eco-friendly nudges encouraged consumers to make more sustainable choices.

4.2.3. Theory of planned behaviour, attitude-behaviour gap and willingness to pay

Ajzen (1991) proposed the theory of planned behaviour which considered the effect of beliefs, attitudes, social norms and perceived behavioural control on an individual's behavioural intentions as well as behaviour. This theory has proved to be very useful in predicting human behaviour in a lot of different spheres. Here we look at studies that used the TPB model in pro-environmental behaviour, especially concerning bottled water usage. Qian (2018) used the TPB model to compare the factors that affect the bottled water vs. tap water choice in Singapore, Hong Kong, and Macau. They found that "safety and hygiene" and "convenience and availability" were the primary reasons why respondents chose bottled water. Xu and Lin (2018) looked at bottled water usage among college students in the United States and found that perceived benefits of bottled water increase the intention to purchase.

Juvan and Dolnicar (2014) pointed out that even amongst environmentally conscious individuals, a gap exists between their eco-friendly attitude and their not so eco-friendly vacationing behaviour. The individuals in the study reduced the cognitive dissonance caused by this gap by offering several kinds of justifications for their behaviour. A similar study finds that different psychological, political, and demographic factors affect the willingness of Norwegians to behave in an environmentally conscious manner at home and in tourism settings (Mehmetoglu, 2010). These studies are relevant to ours in that we find that while the respondents were not willing to change their behaviour of purchasing bottled water, they were willing to pay a green (guilt) tax to make up for their behaviour. A couple of other studies look at travel goals and environmental consciousness of tourists within the Nordic context (Jacobsen et al., 2018; Puhakka, 2011).

Willingness to pay (WTP) is the maximum price that a consumer is willing to pay (or their reservation price) for a particular good or service. The demand curve in microeconomic theory represents the continuum of reservation prices for different segments of the market with different demand elasticities. In environmental economics, willingness to pay is often used as a proxy for the value that individuals may place on environmental goods (Green et al., 1998). Green taxes

serve as an extrinsic motivation while environmental concern serves as an intrinsic motivation. While some consumers may not be willing to reduce their consumption, they may be willing to pay green taxes (Schwartz et al., 2019). The willingness of consumers to pay for management of single use plastic has been studied by (Kang et al., 2012; Neeld et al., 2018).

4.3. Research Questions

Given our review of the literature, we find that no extant studies have looked at bottled water usage in India. Further, we did not find any studies that have looked at how visual cues that provide a positive or negative farming might affect the consumer's behavioural intentions. Thus, we arrive at the following two primary research questions.

RQ1: Do positive or negative framings have different effects on the intention to carry a water bottle and the willingness to pay an environmental tax?

RQ2: Following the theory of planned behaviour, do the following factors have a significant effect on the tourist's intention of carrying their water bottle:

- Environmental beliefs,
- Environmental attitudes,
- Social norms towards the environment,
- Attitude towards not purchasing bottled water,
- Social norms towards not purchasing bottled water,
- Perceived benefit of carrying a water bottle,
- Perceived cost of carrying a water bottle

4.4. Methodology

4.4.1. Research Question 1: Design of Experiment

We designed a randomized controlled experiment to test the effect of mental framing on behaviour. To create different kinds of mental frames, we placed three different visual images (from a search on Google) at the beginning of the questionnaire. The use of visual images for creating pro-environmental motivation was validated by Boomsma (2012). These images have

been included in Appendix V. The first image used as the control (neutral framing) shows a person drinking water from a plastic water bottle. The second image, used for negative framing, shows a forest with plastic waste littering the ground. The third image, used for positive framing, shows bottled water in an aesthetic packaging against a backdrop of beautiful nature. These visuals were chosen after conducting an extensive internet search for neutral, negative, and positive images associated with bottled water usage. We did not choose images that were too graphic or that might have evoked either a strong negative or positive emotion. We wanted to provide respondents with realistic visuals that might be consistent with their own experiences while traveling. The nudge related experiment consisted of sending different versions of the questionnaire to respondents randomly selected from an overall pool. After being shown one of the three images, respondents were asked two questions as follows:

(i)   Whether they prefer to carry their own bottle rather than buying bottled water

(ii)   Willingness to pay an environmental tax on the bottled water where the tax amounts ranged between Rs. 0 and Rs. 5 for a bottle priced Rs. 20

4.4.2. Research Question 2

Our second question was related to understanding the attitudinal factors that affect Indian tourists' behavioural intention of carrying a water bottle rather than buying bottled water. For this we propose the following hypothesis:

H1: Pro-environmental beliefs have a positive effect on attitudes towards intention to carry a water bottle.

H2: Pro-environmental attitudes have a positive effect on behavioural intention

H3: Pro-environmental social norms have a positive effect on the norm for carrying water bottles

H4: Perceived benefits of carrying a water bottle has a positive effect on intention

H5: Perceived costs have a negative effect on the intention to carry a water bottle

4.4.3. Questionnaire development and collection of data

Questionnaire development:

The survey questionnaire comprised of five-sections. In the first section, we included the visual images that served as cues for research question 1. Three different versions of the questionnaire were created using Google Forms, and respondents were randomly sent one of the three versions, to conduct the experiment designed above. We used the human exception paradigm and the new environmental paradigm (HEP-NEP) scale developed initially by Dunlap and van Liere (1978) to measure environmental beliefs (EB). We created our own scales to measure the respondent's pro-environmental attitude, attitude towards bottled water, pro-environmental social norms, social norms for not purchasing single-use water bottles, perceived benefit, and perceived cost of carrying a water bottle. The last section of the questionnaire measured socio-economic and demographic characteristics of the respondents such as age, gender, education, income, occupation, current city, and the current state they belong. Krantz and Dalal (2000) have confirmed the validity of the web-based survey designs; thus, this research collected data using google forms. For each question, we used the seven-point Likert scale, ranging from "1= strongly disagree" to "7 = strongly agree".

Sample size and sample selection

The polled sample consisted of 600 individuals residing in India that were identified using convenience-sampling methods. The questions were framed in a way such that responses were situated within the context of tourism. Thus, for the purpose of this paper, we define the concept of tourist as *prospective tourists* who are asked about the kind of behaviour they may engage in while visiting a tourist destination. We used a minimum age cut-off of 17 years young adults start college at that age. They may live away from their families and have the opportunity to exercise their own purchase intentions when they attend college. We randomly selected individuals from our overall pool of 600 respondents into three sub-sets of 200 each. Each of these groups received a different version of the questionnaire via social media applications such as Facebook

Messenger, Instagram, and WhatsApp. Three hundred thirty-six filled questionnaires were received that were used for subsequent analysis.

Statistical analysis - ANOVA and structural equation modelling:

Primary data collected from respondents was cleaned and processed. A descriptive analysis was conducted. T-tests, and one-way and two-way ANOVA tests to see if there were significant differences in the purchase intentions and willingness to pay between groups facing different framing conditions. Finally, we tested the conceptualized model for purchase intentions based on the theory of planned behaviour using statistical methods of confirmatory factor analysis and structural equation modeling.

The SEM analysis was carried out in R using the 'lavaan' package. In confirmatory factor analysis, a factor loading cut-off of 0.4 was used as recommended by Avkiran and Ringle (2018). Cronbach's alpha (CA), average variance extracted (AVE), and composite reliability (CR) are reported as measures of internal consistency, reliability, and convergent validity. Several fit indices of the final model are reported that allow us to evaluate whether the conceptualized TPB model fit the data.

4.5. Analysis and results

4.5.1. Descriptive Statistics

As shown in Table 4.1, more than 63% of the 336 respondents had ages between 24-35 years, while around 10% of the respondents were 48 and above years of age. The male and female respondents respectively constituted 56 and 44 %. More than 87% of the respondents were either graduate or post-graduate, and 10% had a PhD degree. One-third of the respondents preferred not to disclose their income. The figure in Appendix VI shows the geographical distribution of respondents in India.

Table 4.1: Socio-economic and demographic characteristic of the respondents

Demographic Variable	Category	Frequency	Percentage
Age Group	17-23	20	5.95
	24-35	213	63.39
	36-47	69	20.54
	48-59	28	8.33
	60+	6	1.79
Gender	Females	148	44.05
	Males	188	55.95
Education	12th Pass	9	2.68
	Graduation	141	41.96
	Post-Graduation	152	45.24
	PhD	34	10.12
Income	Up to Rs 500,000	60	17.86
	Rs 500,001 - Rs 750,000	40	11.90
	Rs 750,001 - Rs 1,000,000	47	13.99
	Rs 1,000,001 - Rs 1,250,000	34	10.12
	Above Rs 1,250,001	43	12.80
	Prefer not to say	112	33.33

n = 336

4.5.2. Experimental Results

The mean willingness to pay (WTP) for the groups exposed to positive, neutral, and negative framing is Rs. 1.95, Rs. 2.02 and Rs. 2.57, respectively. The differences in means were tested using t-tests, for which the results have been given in Table 4.2. The differences in mean WTP between the groups exposed to negative framing and the neutral group as well as the negative and the positive framing group were statistically significant with small p-values. This shows that the negative framing had a significantly greater effect on the respondents' willingness to pay. The mean WTP for males and females was Rs 1.97 and Rs 2.45 respectively. The differences in mean WTP between females and males are statistically significant at the 99% confidence level. One way and two way ANOVA was conducted to see whether there were any significant differences

for WTP and intention for different genders and across income groups. These results confirm that there are no significant differences in intention, but there is a statistically significant difference in WTP across different gender and income categories.

Table 4.2: Experimental Results for WTP and Message Framing

Table 4.2a: T-test analysis results

T-test	T value	Df	P value	Mean x	Mean y
WTP Negative - WTP Positive	2.5455	220.37	0.0116	2.566372	1.954955
WTP Neutral - WTP Negative	-2.291	220.9	0.02291	2.017857	2.566372
WTP Neutral - WTP Positive	0.27626	220.97	0.7826	2.017857	1.954955
WTP Female - WTP Male	-2.4303	315.61	0.01564	2.445946	1.973404

Table 4.2b: One-way ANOVA test with respect to gender for WTP and Intention

ANOVA	Df	Sum Sq	Mean Sq	F value	Pr
WTP	2	22.2	11.11	3.552	0.0298
Residuals	333	1041.7	3.128		
Intention	2	0.3	0.1458	0.072	0.931
Residuals	333	678.9	2.0389		

Table 4.2c: Two-way ANOVA for WTP for gender and income

2-way ANOVA test	Sum Sq	Df	F value	Pr(>F)
Gender	8.53	1	2.8433	0.09272
Income	34.89	5	2.3251	0.04274
Gender: Income	38.18	5	2.5443	0.02814
Residuals	972.37	324		

4.5.3. Results of confirmatory factor analysis (CFA)

Confirmatory factor analysis of the items in the questionnaire yielded six distinct factors, viz. individual environmental belief (EB), attitude towards specific

behaviour (ASB), social norms (SN), social norms towards specific behaviour (SNSB), perceived benefit (PB), and perceived cost (PC) of the specific behaviour. The factors are described below. Table 4.3 shows the factor loadings, standard error, and Cronbach's alpha of each of the latent constructs. The Cronbach's alpha (CA) for all constructs was greater than 0.70, which is within the acceptable limit (Tavakol & Dennick, 2011). Cronbach's alpha value of SNSB was somewhat lower at 0.63, however this is within the acceptable range (Hair et al., 2007a).

Factor 1: We included the HEP-NEP scale which measures belief of respondents with respect to human being's place in nature. It is interesting to note that only one factor emerged and that was from the items in the NEP scale – i.e., the New Environmental Paradigm. High factor loading on items confirmed that respondents felt a sense of disquiet about the state of nature and environment caused by human activities. The Cronbach alpha of this scale is 0.72.

Factor 2: This factor named as attitude towards specific behaviour (ASB) was used to measure the respondent's attitude towards not using plastic bottles. The main question that had a high loading on this factor was **"I think it is good to reduce the use of disposable plastic water bottles"**. This factor has a Cronbach alpha of 0.74.

Factor 3: The factor social norms (SN) factor measured the attitude and behaviours of respondent's friends and family with respect to the environment. It appears that friends being environmentally is more important than family members. The Cronbach alpha for this construct was 0.72.

Factor 4: Social norms towards specific behaviour (SNSB) is a factor that describes how social norms may influence an individual's intention to carry their own water. This novel construct throws light on the influence of specific social norms (not just generally being environmentally friendly) affects behavioural intentions. This factor had a somewhat lower Cronbach alpha of 0.63. This is somewhat lower than the traditionally used cut-off of 0.7. This is primarily due to

the fact that only two questions loaded on this factor. As has been demonstrated by (Cortina, 1993), Cronbach alpha varies significantly with the number of items loading on a factor, even if the inter-item correlation is high. Further, some other studies have indicated values of alpha between 0.6 and 0.7 may also be adequate (Taber, 2018).

We did consider combining Factors 3 and 4. However, in our SEM model, we found that distinguishing between "environmental social norms" and "social norms towards the use of bottled water" and allowing a mediating role of the latter yielded a better fit for the overall TPB model. Hence, we retained this factor as a separate construct.

Factor 5: Perceived benefit of carrying a water bottle ((PB) is used to measure the health and environmental benefits of carrying their water bottle as perceived by respondents. Being environmentally friendly and marinating a certain travel style were reported to be the primary benefits. Avoiding health problems related to drinking water from bottles made from low-grade plastic was also considered as a benefit. This construct had a higher Cronbach alpha of 0.79.

Factor 6: Perceived cost of carrying a water bottle (PC) measures the inconvenience associated with carrying a reusable water bottle. The factor loadings showed that respondents feel that having to remember to carry their own water bottle every time they travel added to their cognitive efforts needed and was considered to be the main deterrent. This factor had a Cronbach alpha of 0.82.

The reliability and validity of the factors described above have been reported in Table 4.4. The average variance extracted (AVE) numbers are somewhat low for some of the factors – however they are close to 0.5 which is the appropriate threshold (Fornell & Larcker, 1981). The Composite reliability (CR) of almost all the factors is greater than 0.7 which indicates acceptable reliability of the instrument.

Table 4.3: Results of confirmatory factor analysis

	Constructs	FL	SE	CA
1	**Environmental Beliefs (EB)**			**0.72**
EB1	The earth is like a spaceship with very limited room and resources.	0.432	0.814	
EB5	Humans are severely abusing the environment.	0.503	0.747	
EB6	Plants and animals have as much right as humans to exist.	0.667	0.555	
EB7	Despite our special abilities, humans are still subject to the laws of nature.	0.522	0.728	
EB8	When humans interfere with nature it often produces disastrous consequences.	0.676	0.543	
EB11	If things continue their present course, we will soon experience a major ecological catastrophe.	0.649	0.579	
2	**Attitude towards Specific Behavior (ASB)**			**0.74**
ATT1	Disposable plastic bottles are not bio-degradable, they are bad for the environment.	0.752	0.434	
ATT2	I think it is good to reduce the use of disposable plastic water bottles.	0.892	0.204	
ATT3	Reducing use of disposable water bottles is as important as reducing the use of plastic carrying bags.	0.54	0.709	
3	**Social Norms (SN)**			**0.72**
SN1	My family members are environmentally conscious.	0.593	0.648	
SN2	My close friends are environmentally conscious.	0.745	0.445	
SN3	Being environmentally conscious is a way of life for me and my friends.	0.712	0.493	
4	**Social Norms towards Specific Behavior (SNSB)**			**0.63**
SNSB1	Many of my friends and family carry their own water bottles instead of buying/using plastic water bottles while travelling	0.564	0.681	
SNSB	I like carrying my own water bottle because it sends a positive message to my friends and family	0.798	0.364	
5	**Perceived Benefits (PB)**			**0.79**
PB1	I like to carry my own water bottle because it allows me to have water from known sources (plastic bottles may be tampered with by vendors)	0.611	0.626	
PB2	I like carrying my own water bottle because I have heard that it may not be good for our health to drink from bottles made from low-grade plastic.	0.647	0.582	
PB3	I like to carry my own water bottle because it fits my travel style	0.663	0.561	
PB4	I like carrying my own water bottle because I am environmentally friendly.	0.803	0.356	
6	**Perceived Costs (PC)**			**0.82**
PC1	I have always relied on being able to buy a water bottle wherever I go, and it is difficult for me to change my habits	0.725	0.474	
PC2	It is not convenient to carry a water bottle because it's an extra thing that I have to remember to take with me	0.916	0.161	
PC3	It is not convenient to carry a water bottle because it adds to the weight of my luggage	0.726	0.473	
7	**Behavioral Intention (IN)**			
IN	I prefer to carry my own water bottle rather than buying bottled water while traveling.	0.518	0.732	

FL- Factor Loading; SE- Standard Error; CA- Cronbach's Alpha

**Table 4.4: Reliability and validity of constructs in the CFA model**

Component	Mean	SD	AVE	√ AVE	CR
Environmental Beliefs (EB)	6.433	0.987	0.339	0.582	0.750
Attitude towards Specific Behavior (ASB)	6.567	0.917	0.551	0.742	0.780
Social Norms (SN)	5.267	1.190	0.471	0.686	0.726
Social Norms Towards Specific Behavior (SNSB)	5.650	1.375	0.477	0.691	0.640
Perceived Benefit (PB)	5.800	1.398	0.469	0.685	0.777
Perceived Cost (PC)	5.467	1.667	0.631	0.794	0.835
Behavioral Intention (IN)	6.000	1.420	0.268	0.518	0.268

4.5.4. Results of Path Model for Behavioural Intention

Estimated path coefficients for the structural equation model for behavioural intention to carry a water bottle while travelling are given in Table 4.5. In order to be able to compare the effect sizes of the different explanatory factors, we look at the standardized β coefficients. As can be seen from the last column in Table 5, the perceived benefits of carrying one's own bottle of water has the highest effect on behavioural intention (standardized $\beta = 1.079$). Social norms towards the specific behaviour (i.e. carrying own water bottle) has the second largest effect (standardized $\beta = 0.883$). Perceived costs of carrying a bottle has a large negative effect on the intention to carry a bottle (standardized $\beta = -0.795$). Environmentally friendly social norms has a positive effect on social norms for own water bottle usage (standardized $\beta = 0.561$). Thus social norms towards specific behaviour mediates the effect of social norms on behavioural intention. Attitudes that mediates the relationship between environmental beliefs and intention (standardized $\beta = 0.199$). All the path coefficients were highly significant with very small p values. Our results provide support for all the Hypotheses H1 – H5 stated above. Measures for the goodness of fit of the SEM model are given in Table 4.5. The goodness of fit indices lies above the thresholds for acceptable fit as recommended by Hair et al. (2007).

Table 4.5: Path Coefficients for the SEM Model

	β estimate	Std.Err	z-value	P(>|z|)	Std β
Attitude towards specific behavior	0.166	0.054	3.098	0.002	0.199
Perceived Cost	-0.795	0.119	-6.706	0.000	-0.522
Perceived Benefit	1.225	0.158	7.755	0	1.079
Social norm towards specific behavior	0.908	0.122	7.452	0	0.883
Attitude=~Environmental Belief	0.337	0.065	5.16	0	0.458
Social norm towards specific behavior =~ Social norms	0.561	0.093	6.005	0	0.545

	gfi	agfi	nfi	cfi	tli
Goodness of fit measures	0.899	0.874	0.843	0.912	0.9
	srmr	**rmsea**	**aic**	**bic**	
	0.071	0.056	21424.3	21615.15	
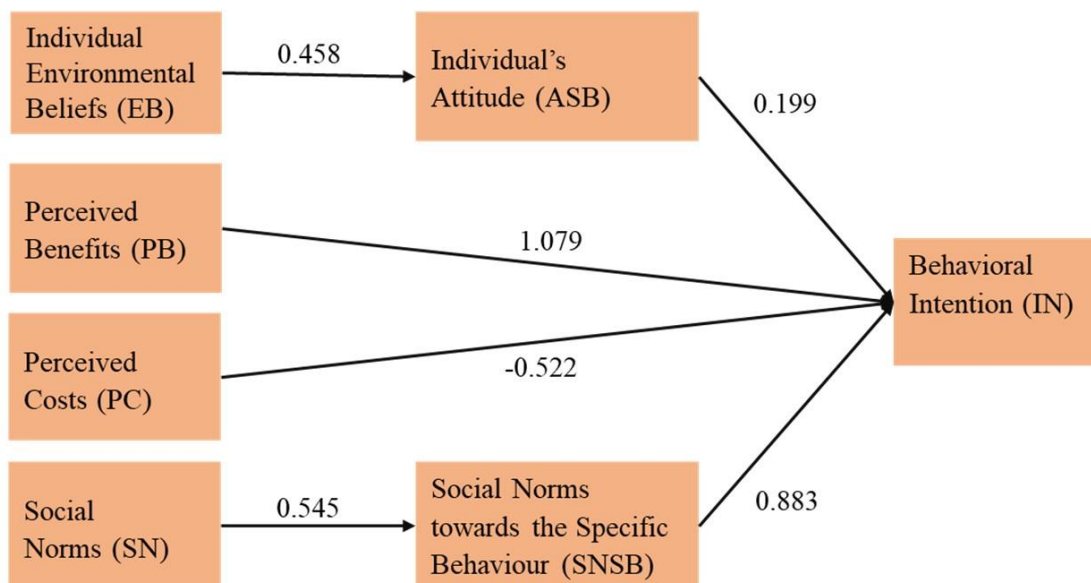
Figure 4.1: SEM model for the behavioral intention of tourists to carry their own water bottle while traveling

Note: Specific behaviour refers to carrying one's own bottle rather than purchasing bottled water

4.6. Conclusions

The primary objective of this study was to understand the factors that might lead Indian tourists to carry their water while travelling and not purchase bottled water. Plastics from bottled water and other single use plastics end up in the oceans of the world that poses a serious threat to marine eco-systems and contamination of our food systems. While our research has looked at the behavioural patterns of Indian tourists, changes in consumer behaviour will have a significant impact globally and specifically to Nordic countries which have led the world in their commitment to global environmental awareness.

A model was conceptualized based on the theory of planned behaviour. We found that perceived benefits and perceived costs as well as social norms (especially the norms followed by one's friends) had a higher impact on behaviour than beliefs or attitude. This is consistent with the attitude behaviour gap reported in other studies (Bamdad, 2017; Croteau, 2019; Juvan & Dolnicar, 2014). After a comprehensive review of the literature, Heidbreder et al. (2019) had found that habits and social norms had a large effect on bottled water usage. We also report similar results. Primarily the effort of remembering to carry water is one of the barriers to the not purchasing bottled water. Social norms, especially those of the peer group, encourage individuals to behave in a pro-environmental manner.

We conducted an experiment using visual images to test the effect of negative or positive framing on the respondent's behavioural intentions and willingness to pay a green tax on their purchase of bottled water. We found that negative framing has a significantly higher effect on the willingness to pay compared to positive and neutral framing. These results match studies such as Blose et al. (2015), Maurice (2017) and White et al. (2011) and are contrary to findings of Baxter & Gram-Hanssen (2016). We found significant differences by gender in the willingness to pay. Female respondents were willing to pay higher green taxes. This is consistent with the results of several other studies (López-Mosquera, 2016; Vicente-Molina et al., 2018).

Our study provides for the first time, an understanding of the pro-environmental behaviour of Indian tourists with respect to the purchase of bottled water. This study is novel because it uses three different theoretical frameworks to understand the issue

(i)   Nudge and choice architecture (use of positive, negative, and neutral messages)

(ii)   Willingness to pay green tax varying based on demographics and nudges

(iii)   Theory of planned behaviour - effect of beliefs, attitudes, and social norms on pro-environmental behavioural intentions.

We find that individuals may not be willing to change their behaviour based on visual nudges, but they may be willing to pay an environmental tax to assuage their guilt. It is interesting to note that personal convenience and costs have a much greater effect on tourists' behaviour rather than environmental awareness. Any effort to nudge individuals towards green behaviour would have to focus on personal benefits, reduce personal costs and activate social norms. Public interest advertising that uses social norm activation and negatively framed environmental messages may be effective in encouraging the reduction of bottled water usage. Providing access to clean drinking water in public places (even with a nominal payment) may reduce bottled water consumption.

4.6.1. Limitations of the study

Our study has some limitations. It uses data collected via a convenience sample and hence the results are not representative of all Indian tourists and travellers. Admittedly, there is a section of the Indian population that is poorly educated, financially constrained, and not easily reachable through a questionnaire administered in English. In our sample, somewhat younger, more affluent, and better educated Indians may be over-represented. However, based on our understanding of Indian society, we believe that our sample is still reasonably representative of the broader set of Indian travellers and tourists who purchase bottled water during their travel. Since a large section of tourists are typically younger, more educated and are relatively more

affluent, our study would be relevant to a large section of tourists within India. It may also have wider relevance to tourists in other countries with similar demographics.

Another limitation of our study is that we were not able to monitor actual behaviour which may differ from stated intentions. The stated intentions may be a result of providing socially desirable answers and may not truly reflect the underlying true environmental attitudes. However, this study does provide some important empirical evidence on this important environmental issue.

Chapter 5 Conclusion

Resilience and sustainability are important issues that have gained a lot of visibility within the purview of both academics and practitioners in the tourism industry. As per the SDGs, tourism sustainability is important as it helps in alleviating poverty, having a hunger-free world, provides livelihood opportunities and economic growth, and reduces inequalities.

In this thesis, our primary goal was to understand the issues of resilience and sustainability in the context of the tourism sector in India. The study encompasses different scales of the tourism sector, including the macro, meso and micro scales. We address different issues within sustainability when viewed through the lens of different stakeholders, including state governments, the hospitality sector, individual tourists, and specific tourist destination. The issues that we have addressed span from shocks caused by natural disasters and terrorism, health shocks caused by Covid, and finally the threat to the environment caused by tourists using single use plastic bottles. In addition to the shocks that may cause a decline in demand for tourism, we also looked at the issues caused by excessive demand or lack of environmental awareness among tourists that may lead to degradation and decline of tourist destinations. The first two studies looked at the resilience aspect, and the following study looked at the sustainability issues within tourism.

In the first study, we studied the effect of natural and man-made shocks on foreign and domestic tourist arrivals in 22 Indian states. We observed that foreign tourists are significantly negatively affected by natural disasters. Domestic tourists are significantly negatively affected by the severity of the political conflict. The time required to recover from a shock was more significant for foreign tourists, and 17 states saw a break in foreign tourist arrivals; however, only 12 states saw a break in domestic tourist arrivals. Thus, foreign tourists are less resilient than domestic tourists.

In our second study, we studied the resilience of 549 small and medium-scale enterprises. We wanted to see the various coping strategies taken by organizations post-disaster (here, Covid-19

pandemic). We observed that psychological resilience and organizational resilience affected a business's decision-making. The coping strategies are either tactical (short-term) or strategic (long-term) measures. Managers with higher psychological resilience take measures such as building-brand image and revenue generation strategies, i.e., strategic measures. The organization with higher resilience takes measures such as pricing and discounts and cost-cutting strategy, i.e., tactical measures. Thus, we observe that organizations with higher resilience help an organization to survive, whereas a business leader's psychological resilience helps the organization to thrive. The long-run survival of an organization is primarily because of visionary leadership and innovative strategies taken by the business leaders.

In our third study, we studied the sustainable pro-environmental behaviour of 336 Indian tourists. A tourist's intention to carry their water bottle while travelling depends on their pro-environmental beliefs, pro-environmental attitudes, and social norms. Barriers to eco-friendly intentions are perceived costs such as changing habits and inconvenience in carrying personal water bottles. Nudges to pro-environmental behavior, though, help in willingness to pay an environmental tax; however, it does not affect the intention to carry a water bottle while travelling. Affordable plastic water bottles are the biggest reason for this not-so-environmentally friendly behavior. Plastic water bottle consumption may be reduced by providing clean and accessible drinking water facilities and increasing consumer awareness. We further observed that men are less environmentally friendly than women.

There are several policy implications that arise from this research. State governments that wish to promote international tourism can take measures to make tourist destinations less vulnerable to natural disasters. Further they can take measures to ensure that international tourists are supported and provided with prompt relief if they faced any difficulties due to any such disaster. The second study shows that effective leadership among the small and medium scale hospitality organizations allows them to survive in the long run. Appropriate support given in the form of subsidies and tax holidays in the short run may allow these organizations to survive. Training imparted for idea generation and brand building exercises may also be useful. The third study

indicates that provision of clean and hygienic sources of drinking water and the imposition of an environmental taxes on bottled water, along with negatively framed messages may nudge tourists towards green behavior. Thus, this thesis provides a comprehensive view of several issues related to resilience and sustainability within the Indian tourism sector.

Table 5.1: Summarization of the three studies in the thesis

	Study 1: Macro scale study	Study 2: Meso scale study	Study 3: Microscale study
Entity	States of India	Small and medium-scale hospitality organizations	Individual tourist
Main Issue	Vulnerability and resilience of tourism sector to Natural disaster and Internal conflict	Resilient strategies adopted as a response to drop in demand due to Covid-19	Pro-environmental behavior by tourists in NOT using plastic water bottle
Research Question	1. To what extent do different kinds of shocks affect domestic and foreign tourist demand over time 2. Which sector - domestic or international tourism is more resilient to different kinds of shocks?	1. What are the coping strategies adopted by hospitality organizations post Covid? 2. How does Psychological Resilience / Organizational Resilience affect adoption of tactical vs. strategic decisions.	1. What affects the tourist's intention to behave in a pro-environmental manner 2. What affects the tourist's willingness to pay an environmental tax. 3. How does message framing affect the behavior and WTP?
Methodology Data	Panel data for 14 years across 22 states of India	Primary data from owners and senior managers of 549 hotels across 28 Indian states & 3 UTs	Primary data collected from 336 individuals; Experiment conducted for message framing
Methodology Statistical methods	• Panel data models • Structural breaks in time-series	• Confirmatory Factor Analysis and Path Models (pls-SEM)	• Confirmatory Factor Analysis and Path Models (pls-SEM) • Experiment (ANOVA)
Findings	• International tourists more vulnerable to natural disasters • Domestic tourists more vulnerable to internal conflict • Domestic tourism more resilient than international tourism	• Reducing prices, cost-cutting, revenue generation and brand building - main strategies • Organizational Resilience leads to adoption of short-term tactical measures • Psychological Resilience of leaders leads to adoption of long term strategic measures	• Perceived costs are barriers to pro-environmental intentions • Pro-environmental attitudes and social norms affect behavior • Negative framing leads to greater WTP, but not changes in behavior

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Appendix I: Theme –wise summary of literature review

Theoretical and Conceptual Studies
Holling (1973); Sönmez (1998); Gunderson and Holling (2002);
Adger (2000); Carpenter *et al.* (2001); Folke (2006); Nelson *et al.* (2007); Clifton (2010); Cochrane (2010); Lew (2013); Hosseini *et al.* (2016); Sharifi (2016); Brown *et al.* (2017); Saja *et al.* (2018)

	Empirical Studies on Vulnerability and Resilience
Qualitative (Case studies based on primary data)	*Natural Disasters:*
	Calgaro and Lloyd (2008); Cinner *et al.* (2009); Djalante *et al.* (2011); Biggs et al. (2012); Orchiston *et al*. (2016); Bastaminia *et al.* (2017); Basurto-Cedeño and Pennington-Gray (2016); Shaw and Ichinosawa (2006); Gurtner (2016)
	Political Conflict / Terrorist Attacks
	Richter and Waugh (1986); Causevic and Lynch (2013); Gurtner (2016)
Quantitaive (Econometric models based on secondary data)	*Natural Disasters*
	Huang and Min (2002); Cutter *et al.* (2010); Page *et al.* (2012); Cellini and Cuccia (2015); Kim and Marcouiller (2015); Vu *et al*. (2016); Min *et al.* (2019); Joerin *et al.* (2012);
	Political Conflict / Terrorist Attacks
	Yap and Saha (2013); Liu and Pratt (2017); Fernando et al. (2016); Samitas et al. (2018); Cró and Martins (2017); Dhariwal (2005); Parida et al. (2017)

Appendix II: Geographical Distribution of Natural Disasters in India

PERCENTILE

- 75 - 100
- 50 - 75
- 25 - 50
- 00 - 25

Appendix III: Geographical Distribution of Internal Conflict in India

PERCENTILE

- 75 - 100
- 50 - 75
- 25 - 50
- 00 - 25
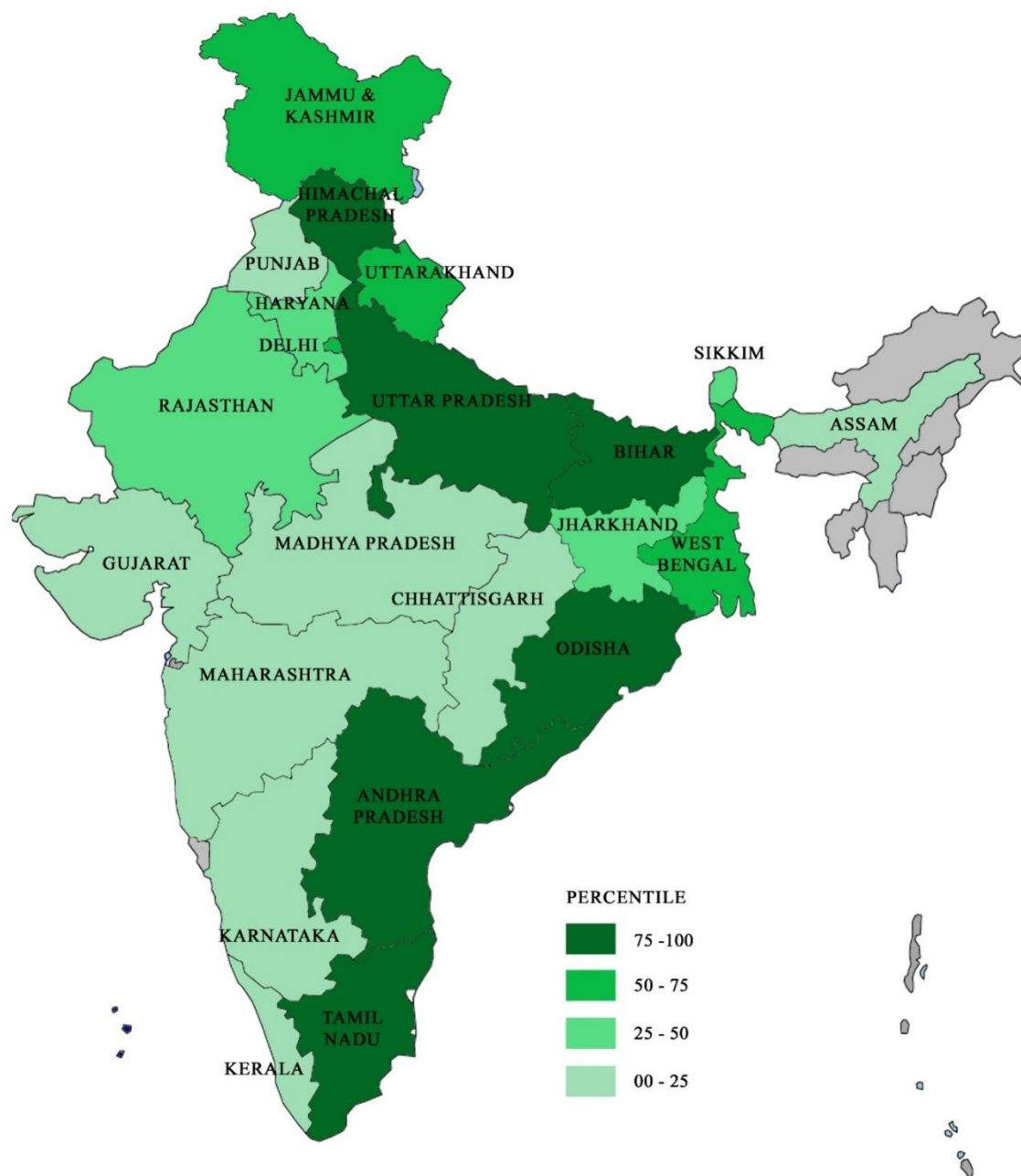
Appendix III: Geographical Distribution of Internal Conflict in India
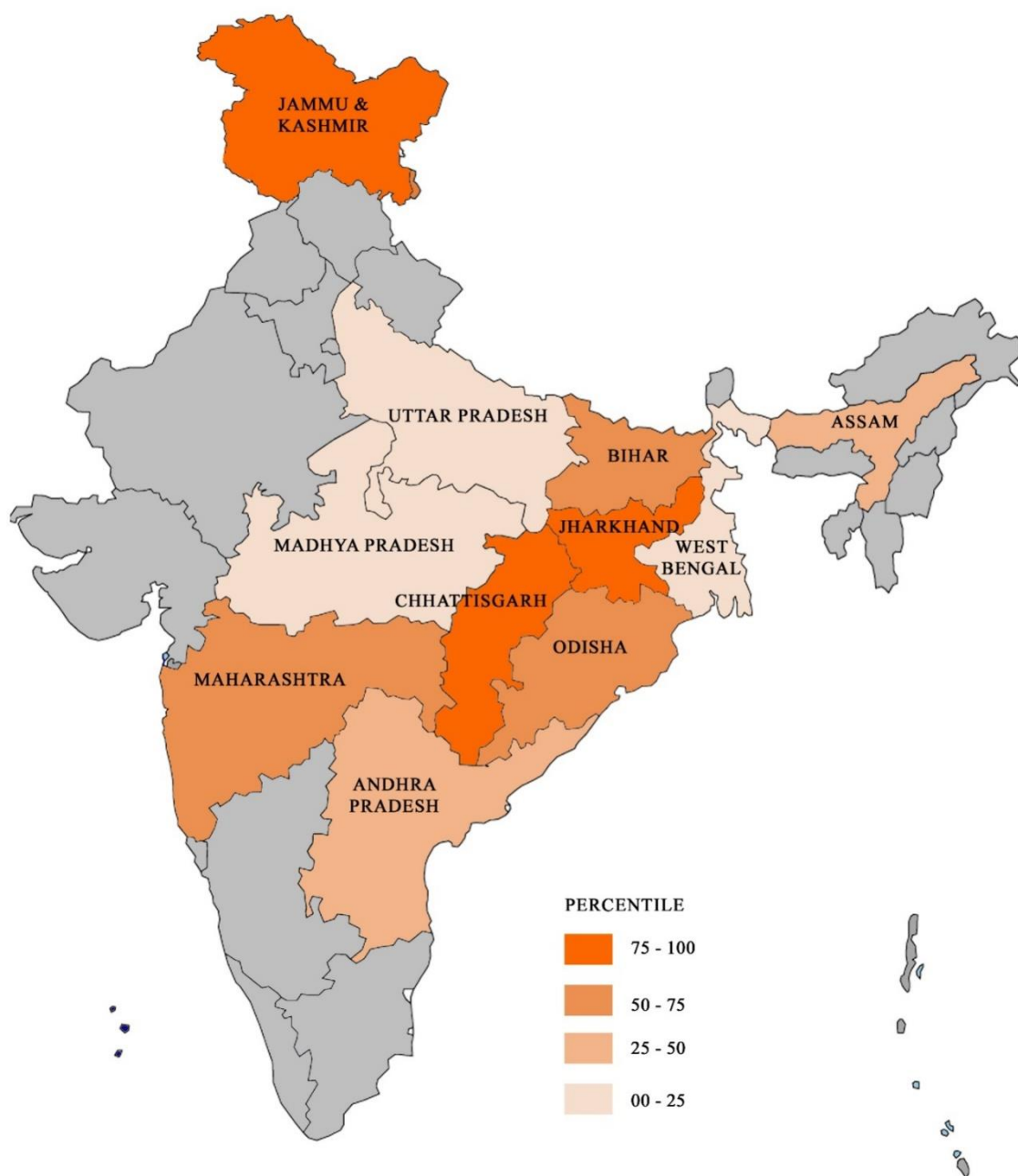
Appendix IV: Region-wise division of states and union territories surveyed for the study

SN	East (E)	West (W)	North (N)	South (S)	North-east (NE)
1	Bihar	Rajasthan	Uttarakhand	Telangana	Sikkim
2	West Bengal	Gujarat	Haryana	Andhra Pradesh	Meghalaya
3	Jharkhand	Goa	Uttar Pradesh	Karnataka	Tripura
4	Odisha	Maharashtra	Punjab	Kerala	Assam
5	Chhattisgarh	Madhya Pradesh	Himachal Pradesh	Tamil Nadu	Manipur
6			Delhi (UT)		Nagaland
7			Ladakh (UT)		Mizoram
8			Jammu & Kashmir (UT)		Arunachal Pradesh

(UT) represents union territories

Responses were taken from all 28 Indian states and three out of eight Indian union territories.

Appendix V: Images used for Neutral, Negative and Positive Framing

Neutral Framing

Negative Framing

Positive Framing

Appendix VI: Geographical distribution of the respondents

Arunachal Pradesh	1
Goa	1
Meghalaya	1
Sikkim	1
Tripura	1
Chandigarh	1
Jammu and Kashmir	1
Ladakh	1
Puducherry	1
Punjab	1
Andhra Pradesh	2
Himachal Pradesh	2
Mizoram	2
Nagaland	2
Manipur	3
Kerala	4
Odisha	4
Chhattisgarh	5
Gujarat	5
Bihar	6
Tamil Nadu	6
Haryana	8
Jharkhand	9
Rajasthan	9
West Bengal	12
Telangana	16
Uttarakhand	16
Assam	19
Karnataka	23
Maharashtra	23
Delhi	41
Uttar Pradesh	49
Madhya Pradesh	60