

## Chapter 3

# The Tourism Sector's Impact on Carbon Emissions: An Empirical Analysis of Transitioning G20 Countries

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### ABSTRACT

*The tourism sector is generally perceived as a green industry because of its seemingly clean value chain activities. However, despite these perceptions, there have been doubts regarding the environmental impacts of tourism. Past studies have considered these environmental effects due to increasing concerns about global warming and climate change. This chapter attempts to analyze the effects of tourism value chain activities on carbon emissions in the context of the environmental Kuznets curve for G20 countries using a ten-year dataset. The results confirmed the environmental Kuznets curve hypothesis. The findings indicate that, despite increases in energy use and investment inflow, tourism activities decrease carbon emissions. The study concluded that tourism sector activities, foreign trade, and labor force participation all have statistically significant favorable effects on carbon emissions. Given the growing global transitions within the sector, the study reckons the sector's need to focus on sustainable tourism as a development and improvement strategy.*

## **INTRODUCTION**

Tourism and travel sector has been one of the sectors severely impacted by the global COVID-19 pandemic. On the other hand, the contribution of tourism and travel to global economic growth cannot be ignored (Balli, Sigeze, Manga, Birdir, & Birdir, 2019). The sector's value chain activities have undoubtedly contributed directly and indirectly to global economic growth, employment, infrastructure, Gross Domestic Product (GDP) and Balance of Payments (BoP), among other contributions. Over the years, tourism has been generally perceived to be green, and there have been growing literature regarding the promotion of green tourism (Font & Tribe, 2001); the development of green tourism strategy (Chengcai et al., 2017) and green innovations for the sector (Gavrilović & Maksimović, 2018).

Despite these perceptions and developments, certain of the tourism sector's value chain activities have been adversely affecting the environment. For instance, some of the tourism activities such as sea or beach activities have ranked among the top causes of environmental pollution. Other activities have also resulted in greenhouse gas (GHG) emissions, which lead to climate change and global warming (Ehigiamusoe, 2020; Khan et al., 2020). The tourism sector has had a 'mixed bag' of both fortunes and misfortunes. In this context, the 2019 tourism contribution to global GDP was 10.3%, and its share of total exports was 6.8%.<sup>1</sup> Between 2009-2013, Lenzen et al. (2018) calculated tourism's carbon footprint share out of global GHG emissions as 8% and the study showed a worrying trend that carbon footprint is increasing over time. Travel related carbon emissions of the tourism sector is three out of four of total emissions caused by tourism activities (World Tourism Organization and International Transport Forum [WTO & ITF], 2019). In 2016, this accounted for 5% of world emissions related to energy consumption (WTO & ITF, 2019).

### **Tracing Back Climate Change and Global Warming**

International and national institutions, non-governmental organizations (NGOs), universities, governments and policymakers have presented various solutions and recommendations to resolve climate change and global warming. Due to population and economic growth post-second World War (WWII), energy consumption and natural resource depletion increased rapidly. In the following years, industrialization has accelerated. In addition to all these developments following WWII, globalization and usage of fossil fuel-based technologies have caused a large amount of environmental degradation which cannot be ignored. Such degradation raised and increased global environmental awareness and showed an urgent need for global cooperation. One can consider United Nations Human Environment Conference held in Stockholm in 1972 as "the first important step taken towards an international cooperation for environmental problems" (Sönmez, 1995, p. 194). However, only after the end of the Cold War period dominated by bipolar World order, there have been some advancements in cooperation (Hoefnagel & Bode, 2011, p. 290). "Since the late 1980s, environmental issues have started to take their place on the international agenda much more, and the concept of sustainable development was first introduced in the United Nations Brundtland Report in 1987" (Porto & Ciaschi, 2020, p. 2). In this context, as climate change is a global problem, after opening for signature in Rio de Janeiro in 1992, "United Nations Framework Convention on Climate Change" entered into force in 1994. For the first time, Parties involved took necessary measures at the international level regarding the fight against climate change. Following this, the Kyoto protocol's signature process in 1998 and the Paris agreement in 2016 were initiated. Since

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