The Carbon Footprint of Religious Food Consumption

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There has been a growing concern about effectively reducing CO2 emissions induced by a wide variety of household consumption activities, such as eating foods (Duchin, 1998). It is crucial to note that household consumption activities also significantly affected the carbon footprint of nations through the global supply chain (Hertwich and Peters, 2009). Duchin (2005) pointed out the importance of mitigating consumption-based CO2 emissions through lifestyle changes that reflect peopleâ€™s food purchases and dietary choices. Additionally, the previous study distinguished between rural and urban lifestyles.

Importantly, there are economic and cultural reasons behind food purchases and dietary choices, with religion being one of the influencing factors. A previous study found that consumers who believe in a specific religion tend to avoid gluttony but do not necessarily engage in sustainable food consumption (Minton et al., 2019).

To the best of our knowledge, there have been no previous studies focusing on the relationship between the carbon footprint and the religious preferences of nations. With this background, the novelty of this study is as follows. This study is the first attempt to investigate the influence of peopleâ€™s food consumption behavior, affected by their religious preferences, on COâ„‚ emissions throughout the supply chain. The study specifically focused on eight types of religions: Christians, Muslims, Hindus, Buddhists, Jews, Folk Religions, Other Religions, and the Unaffiliated.

The study utilized GROLIA database in 2018, a global multiregional input-output table that records inter-industry transactions and final consumption in 120 sectors across 164 countries worldwide, to gather data on food consumption in each country. The focus of this research was on the Asia-Oceania region, characterized by low religious diversity on a country-by-country basis, despite the overall high diversity of religious adherents in the region. We determined the amount of food consumption and the percentage of food consumption in each of the 15 food sectors per capita for each of the eight religious types in the Asia-Oceania region. Subsequently, we estimated the embodied COâ„‚ emissions in kg-CO2e per 1000 U.S. dollars of consumption in each food sector by believers of each religion in the Asia-Oceania region.

The results show that the embodied COâ„‚ emission intensities of consumptions among the eight religious types ranged between 538 kg-CO2e and 584 kg-CO2e per 1000 U.S. dollars. Muslims exhibited the highest emissions at 584 kg-CO2e per 1000 U.S. dollars, whereas Jews showed the lowest emissions at 538 kg-CO2e per 1000 U.S. dollars. Meat consumption among Jews accounted for a considerable 29.5% of the food-oriented COâ„‚ emission intensity, while dairy product consumption among Muslims and Hindus accounted for 24.8% and 41.2% of their respective emission intensities. In other words, this implies that countries with a Muslim majority and a Hindus majority consume a relatively larger amount of dairy products, such as milk and cheese, compared to other countries.

In conclusion, it is necessary to implement CO2 reduction policies focusing on food-oriented CO2 hotspots for each religion. Specifically, we suggest implementing an eco-labelling policy for targeted dairy products in both Muslim-majority and Hindu-majority regions, as well as a technology improvement policy to reduce direct CO2 emissions from processing dairy products.