

Decompose tourism carbon footprint using the Environmental Extended Input-Output Model

Topic: Environmental input-output modeling XI

Author: Ya-Yen Sun

Co-Authors: Wen-Huei Chang

International travel has grown into more than 1 billion cross boarder trips a year firsts time in 2012 and is estimated to reach to 1.8 billion by 2030. While destinations have eagerly embarked on the tourism development, one of the pressing issues is to evaluate and recognize the scale of tourism carbon footprint in order to account for the environmental externality of this economic driver. Empirical tourism carbon applications range from the national analysis to regional scales, and from targeting a single industry to a specific visitor segment. However, most of the existing literature has only focused on a snapshot of tourism consumption and carbon emissions, generally for one year period, without analyzing and decomposing long-term carbon emission for its sources.

The purpose of this study is to apply the decomposition analysis within the framework of Environmental Extended Input-Output Model (EEIO) as a macro-economic approach to study the underlying factors for driving the tourism GHG emission from 2001 to 2011 in Taiwan. Changes of tourism carbon footprint over the past decade will be decomposed into 5 individual factors: 1) final demand changes, 2) energy requirement per dollar output, 3) the composition of different energy required in the production, 4) the energy converting ratio with respect to GHG emission, and 5) domestic production structure. This research aims to contribute to a better understanding of the economic driver, energy structure, and technological adjustment with respect to tourism development.