

Tourism-Induced Environmental Kuznets Curve

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In under twenty years, the global travel industry, otherwise known as tourism, has exceeded many sectors as one of the greatest polluters, representing up to 8% of worldwide emissions (UNWTO 2018). **Tourist activities require the use of renewable and non-renewable energy sources, air transport systems, etc which impacts on environmental quality.** This position reverberates the agreement of the United Nations Framework Convention on Climate Change (UNFCCC) on keeping carbon emission to below 2°C. **With the increased attention on climate change, and human activities in many sectors including the tourism, Simon Kuznets introduced the Environmental Kuznets Curve (EKC) Hypothesis in the 1950s.**

The EKC hypothesis is used to assess the quality of environment resulting from economic growth, energy consumption, advance technology, and tourist activities. EKC explains the nexus between the growth of real income and environmental degradation. In other words, EKC explains how the growth of an economy tends to increase at the early stage of development up to a threshold point where the relationship between environmental quality and economic growth becomes negative. The EKC hypothesis also presents an inverted U-shaped curve that depicts how industrialization tends to lead to the movement of labour from the rural to urban areas in search of white collar jobs. As shown in figure 1, the rise in economic activities will boost per capita income up to a point where such increase will have a negative influence on the environment resulting in a trade-off between economic activities and environmental degradation.

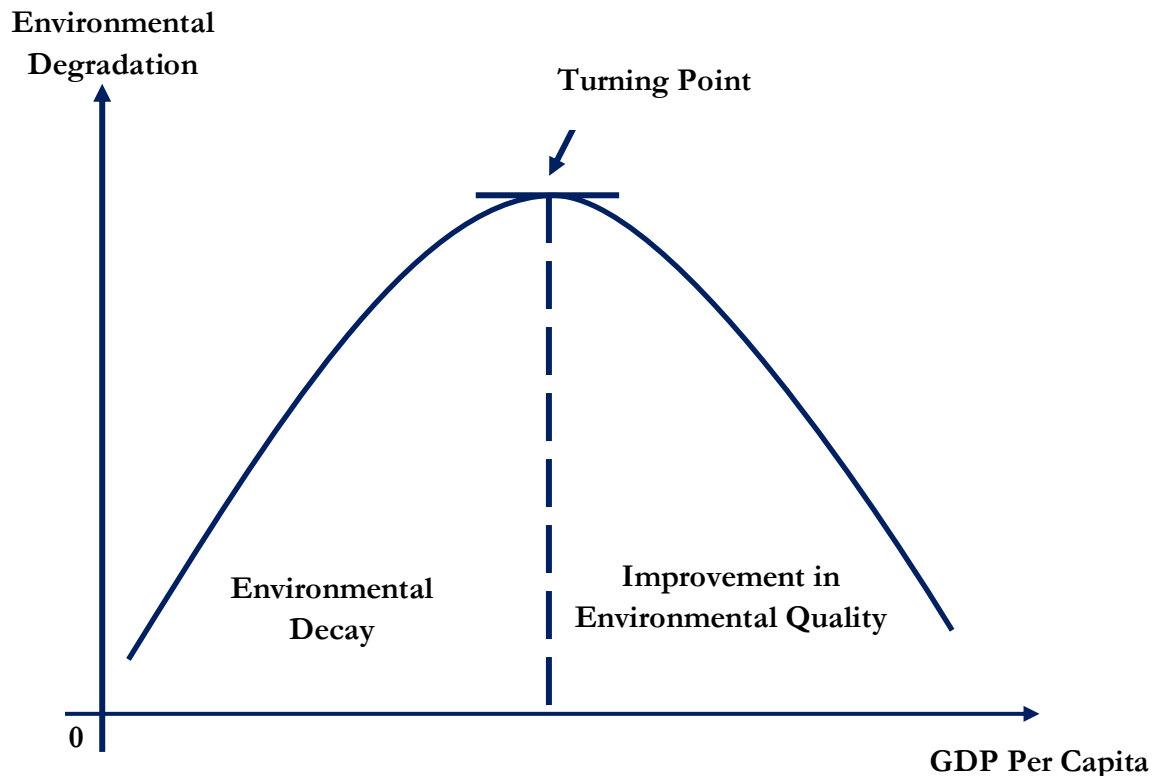


Figure 1. A representation of the Environmental Kuznets Curve Hypothesis

Source: Author

The concept of tourism induced EKC stems from the increased contribution of tourism to the growth of many economies. Researchers have adopted the EKC hypothesis to explain how the development of the tourism industry has potentials to lead to higher levels of emissions. The tourism-economic growth-emissions nexus is understood via the causal relationship between tourism development and economic growth as demonstrated by the tourism-led growth hypothesis (Adedoyin et al., 2020; Balsalobre-Lorente et al., 2020). According to UNWTO (2018), the global tourism sector has generated more than triple of what was generated in the last 20 years from \$490 billion to \$1.6 trillion. However, tourism is not only significant to the economy but also has a significant effect on environmental quality (Katircioğlu 2014). Thus, the need to establish the linkage between the tourism sector and the basic EKC curve is apparent, while considering the tourism sector as one of the main sectors due to its significant contribution to the global economy. This process of examining the influence of tourism by incorporating the EKC hypothesis for the formulation of sustainable policy

mechanisms which are required for reduction in environmental pollution is termed Tourism-Induced Environmental Kuznets Curve (T-EKC). T-EKC is used to explain the propensity of the tourism industry as a significant engine of economic growth as well as a propellant of environmental degradation through its various activities. T-EKC hypothesis is premised upon the assumption that tourism as a significant driver economic growth can assert a negative impact on climate change.

Tourism-induced EKC hypothesis is substantially premised upon the relationship between tourism development and environmental degradation. The purpose of this is to develop a niche on how productivity growth driven by tourism sector could affect the environment. Many tourism-related activities are energy-intensive and are contributors to environmental degradation. Also, there are increased levels of CO₂ emissions from transportation and construction of hotel buildings which are important drivers of the tourism industry. Additionally, the rapid growth of tourism-related activities has intensified the increasing demand for energy resources for numerous purposes such as catering services, cultural heritage sites, and provision of accommodation through hotels, hostels, and inns for tourists and many other sources of attractions to the tourists. As a result, the nexus between tourism development and environmental degradation has generated much interest from tourism marketers, policymakers and other stakeholders in the tourism industry. Hence, understanding T-EKC is essential, and an investigation of the hypothesis can provide vital solutions on how the tourism sector could improve productivity while maintaining a green and sustainable environment. Such understanding will produce decisive actions for all stakeholders to put in place, to meet the consensus reached from the United Nations Framework Convention on Climate Change (UNFCCC) which is to keep global temperature below 2⁰ C.

The tourism-led growth hypothesis is central to T-EKC and environmental degradation. As part of economic growth is driven by the tourism sector, there is more pressure on the environment. This portrays two sides of the tourism sector in an economy. On one hand, the tourism sector significantly contributes to economic growth, particularly for countries dependent on tourism, and on the other hand, as the sector expands, it contributes adversely to the environment. The numerous environmental hazards caused by tourism development include extreme weather conditions and climate change, environmental pollutions, scarcity of water and other resources, high energy consumption and other hazardous effects of tourism development. Nonetheless, the rapid growth of the tourism industry has intensified the increasing demand for energy resources which emits carbon.

The influx of visitors also creates population explosion in many developed countries as tourists tend to explore attractions beyond what the environment can absorb. Migration through visiting family and friends is one of the key tourism activities which demonstrates how inbound tourism grows (Dwyer et al., 2014; Seetaram, 2012). This may lead to excessive occupancy. This outlines that environmental degradation will be high for countries with higher earnings from tourism, via various tourism activities that are attached to these destinations.

To counter the environmental adversities of tourism development, it is imperative to map out fundamental conservation policies that are in line with the targets of the country's macroeconomic policies. Since the rise in CO₂ emission is strongly tied to the level of energy consumption (Adedoyin and Bekun, 2020), it is important to formulate policies that are geared towards protecting the environment from pressure. This is because uncontrolled environmental damage caused by continuous consumption of energy (particularly non-renewables) may force the prospective tourists to lose interest in visiting a destination, thereby losing competitiveness.

Thus, as the global economy moves towards the turning point of the inverted U-shaped EKC curve, there should be more concentration on the adoption of green technology as sources of energy for the numerous tourism activities. The adoption of these green energy sources will put the level of emissions under considerable control through the preservation of the environment and the creation of sustainable tourism development. Also, to keep the pace of economic growth as well as environmental sustainability, the demand for renewable energy sources in the tourism industry should be a focus of attention for policymakers and other stakeholders in the tourism sector. Additionally, policies of the government should also be directed towards the promotion of sensitization programs for tourism actors and stakeholders. The implication of this is to instil the consciousness in them as regards the impacts of their activities on the environment and the need to work and implement some environmental issues in their various business environments.

In summary, regulatory policies can also be introduced specifically for tourism businesses and operators. For example, special emphasis on green consumption and environmental sustainability should attract a form of an environmental tax rebate or fines for firms that generate carbon emissions. This will motivate the adoption of greener technologies as such tax will be an additional cost of production for these firms, which could be avoided if environmental sustainability is focal for the destination or tourism services provided.

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