The impact of selected natural factors on tourism demand

Valorization Addendum

For some years now, Ph.D. students at the University of Maastricht are expected to write a section on how their research can be translated into social or economic value (valorization). Universities are driving forces in research, but many policymakers do not make optimal use of academic research[18]. Throughout the years, there has been a consistent growth in research into how policy decisions can be based on the results of academic research. This growth has inspired ideas such as "research utilization," "knowledge transfer," "knowledge brokering," and "evidence-based policy[19]". Evidence-based policy, for example, is important for making effective and successful policy decisions. The literature on tourism demand has too long focused primarily on economic issues, such as income, price, substitution price, advertising, and supply constraints[20]. This one-sided and narrow approach sets the stage for further dwelling into different factors that influence tourism demand.

In this study, the relationship between several natural factors and tourism demand for a Small Island Destination (SID), Aruba, was investigated. In particular, this study examined the effects of climate, infectious disease, and vegetation on tourism demand and whether tourism demand impacts infectious disease or vegetation. Summarized, the study's main question was to find the connection between tourism demand for Aruba as a Small Island Destination and natural factors, specifically climate, infectious disease, and vegetation.

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To answer the main question, four sub-questions were formulated:

1. *What is the connection between tourism demand development and vegetation in a Small Island Destination?*
2. *Do cycles (wavelike variations around a trend) of climate affect tourism demand in a Small Island Destination?*
3. *Do seasonal factors (recurring variations at unique intervals within a year) of climate affect tourism demand in a Small Island Destination?*
4. *What is the connection between seasonal factors of tourism demand development and dengue in a Small Island Destination?*

From a theoretical perspective, it is worth noting that tourism is a complex phenomenon, and no single theory can explain developments in tourism. Therefore, this study included three theories: Sustainable Development, Systems Theory, and Chaos Theory. Sustainable Development was chosen, given its focus on a more long-term vision aspect. The relevance of the Systems theory is due to the openness and complexity of the tourism system, whereas the Chaos Theory was found relevant for explaining the potential outcomes of changes as not solely being based on a simple proportional relationship between cause and effect (non-linearity). By assessing the study through different angles/approaches, many theoretical constructs were taken into account, which will give a better explanation of the development of tourism than a more one-sided, single theoretical approach.

Based on the study questions, the investigation showed that:

- Tourism demand has a connection with vegetation density, where less vegetation on Aruba island did not impact Aruba's tourism demand.
- Seasonal and cyclical variations in climate affect Aruba's tourism demand. These variations include well-known climate variables such as rainfall and temperature, but also climate patterns such as ENSO (El Nino Southern Oscillation) and NAO (North Atlantic Oscillation).

- Dengue cases are influenced by tourism demand, specifically, cruise tourism. The infectious disease factor is an interesting and actual phenomenon, considering the ongoing COVID-19 pandemic at the time of writing this valorization section (October 2020), and its effect on tourism.

It is important to highlight that the studies conducted in this dissertation are based on a case study approach. Individual case studies can contribute to scientific generalizations (from one or a few facts to a broader/universal statement) through the replication effect (repeating the study with other case studies), where the mode of generalization is analytic (analytic generalization). The goal is to expand and generalize theories and not enumerate frequencies (statistical generalizations). In other words, the findings of the study cannot be generalized to other cases in the world but merely serve as sources for new ideas and theoretical propositions that will benefit future studies. The island of Aruba was used as a case study in the present research due to its consistent success as a highly desirable destination for visitors and has generally experienced one of the Caribbean's highest sustained growth rates.

This dissertation's studies have revealed that stakeholders should take an integrated approach when looking at developments in tourism demand. A combination of methods is needed to predict and manage tourism demand. We need to recognize that tourism development is a non-linear and open system process involving connections between actors, activities, and resources. The latter implies that tourism demand may be affected by many factors beyond the income of the tourists. Having an open mind on these potential determinants is a precondition for policymakers to understand and oversee tourism development in a destination adequately. For example, as the climate seems likely to affect tourism demand, stakeholders should keep an eye on short- and long-term weather forecasts to gain a lead on expected seasonal or cyclical fluctuations and respond to this information by adjusting marketing strategies.

It is important as well to explain the findings of this study in a language that stakeholders may understand without the technicalities usually involved in these types of studies. Besides face-to-face discussion, producing condensed non-technical articles in specialized magazines could help disseminate the investigation's findings and help others (e.g., policymakers) better understand the workings of tourism.

Besides practical contribution, the study also advanced the body of knowledge by providing several theoretical implications stemming from the investigation. First, climate is a natural factor that affects the demand for tourism, as its impact is time-and motivation-variant (pull and push). These pull and push factors could produce a series of combinations under which climate can impact tourism demand for destinations. Second, the relationship between dengue occurrence and the demand for tourism may be bidirectional, meaning that both can affect each other. The type of tourist matters as well if we distinguish between stay-over and cruise tourism. Third, tourism demand and vegetation may also have a mutual relationship, i.e., the development of one can have consequences for the other, and vice versa.

In addition to providing theoretical propositions, the study also contributed to the tourism literature by first offering new insights into the connection between natural factors and seasonal and cyclical developments in demand for tourism. While the relationship between climate factors and tourism demand was deemed one-sided in this investigation (i.e., climate affecting tourism demand), the study considered the relationships between, on the one hand, infectious diseases and vegetation, and tourism demand, on the other hand, as bilateral or two-sided. The bilateral consideration implies that tourism demand is more than a passive factor and can impact the same factor that influences it. Second, this investigation simultaneously analyzed the effect of both pull and push climate variables on cyclical and seasonal tourism demand movements on the case of study, which is rare when it comes to time-

series based studies. Third, past studies on dengue, although suggestive, were often inadequate to understand how seasonal patterns of dengue and tourism demand interact with each other in Small Island Destinations. Cruise tourism can act as a double edge sword when it comes to the interaction of dengue and tourism demand (cruise tourists being infected and also infecting residents at the destination). Fourth, as far as could be assessed, only a few numbers of studies were conducted using the normalized difference vegetation index (NDVI) to monitor the gradient in vegetation due to tourism growth on a Small Island Destination. Small Island Destinations rely on tourism for their economic growth, and their natural capital may be a key attraction for tourists.

All things considered, this investigation has shown its practical and academic merits and confirms that even one case study can advance the academic cause and promote applied knowledge to those in the daily operating field of tourism. The study also provides an impetus to future studies to better understand the driving forces of tourism demand. The efforts were not in vain.