

Measuring the Resilience of Tourism Destinations

Through a Tourism Adaptive Capacity Index (TACI)

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Introduction

The consideration of tourism as a development driver is still under discussion because the efforts to enhance local benefits and competitiveness in tourism seem controversial from a sustainable perspective. With regard to insular contexts, the need to consider the peculiarity of these territories emerges. Studies on the impact of tourism on island destinations worldwide have shown both positive and negative externalities generated by tourism in these contexts. Monitoring tourism impacts is fundamental to avoiding negative effects on the environment and residents and finding new opportunities for the expansion of local industries. The outbreak of the Covid-19 crisis has recently confirmed these fears as it highlighted how much some destinations were vulnerable and threatened by their model of tourism development.

In this context, the capacity of response or the resilience of the destinations is also questioned. Applied to tourism destinations, resilience is the ability of a destination to recover to a stable dynamic process after a negative shock. Thus, resilience is about the way in which these destinations are capable to mitigate the effects of a shock whatever its origin, even in case of a hysteresis phenomenon.

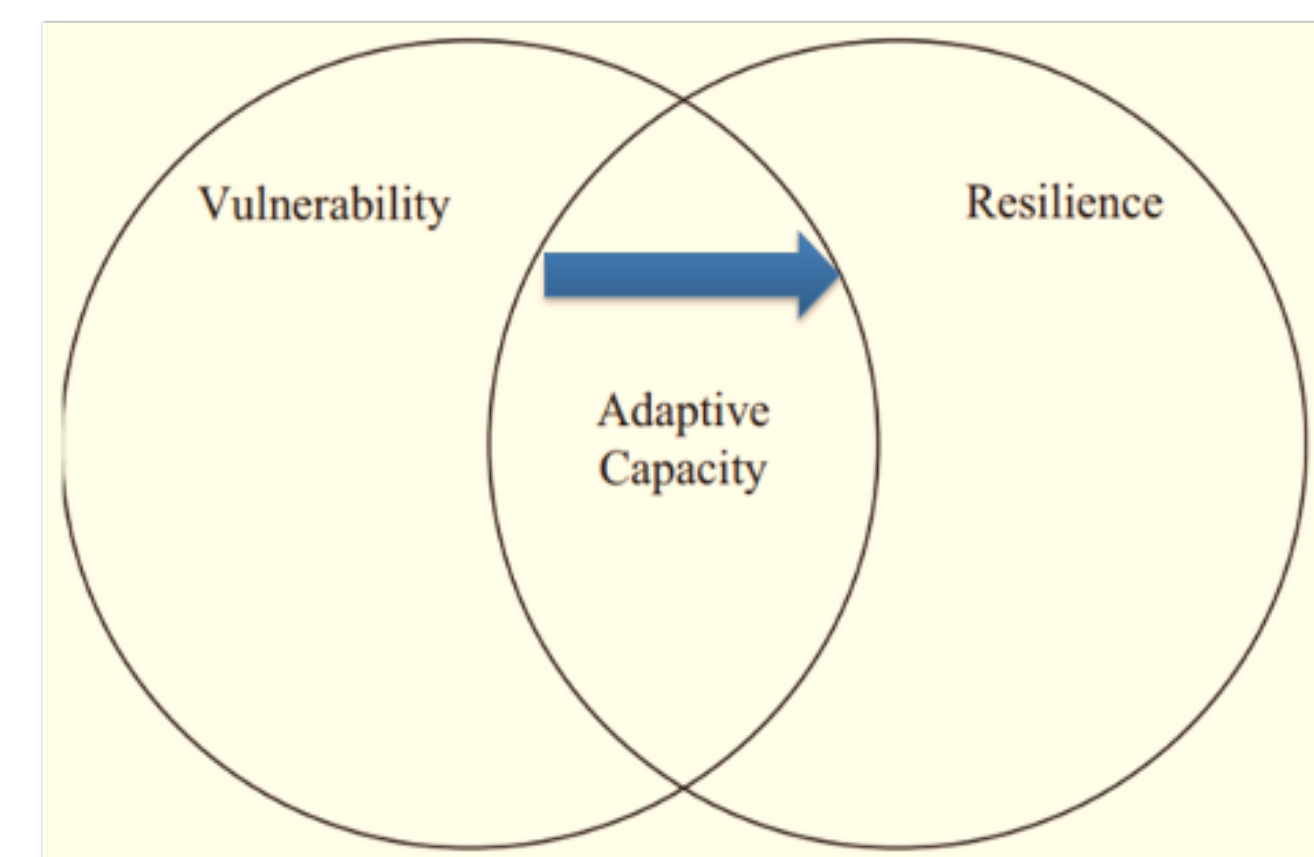


Figure 1: Vulnerability to Resilience

Adaptability or adaptive capacity is then an attribute of the system, that is, it is both as a component of vulnerability and economic resilience. The adaptive capacities of a destination are therefore the driving force behind its resilience, but also its competitiveness. The long-term success of a destination thus depends on the ability of the destination's tourism structures, professionals (businesses and employees) and institutions to adapt to changes in competition, to cope with pressure and to seize opportunities

On the basis of these elements, the problematic of this paper is: How to analyze and measure the adaptive capacity in tourism? Our major findings can be seen as follows: studying adaptive capacity of a destination implies to go beyond the unique factual description of the main economic indicators. Our TACI helps to improve this and to clarify the importance of each determinant in the ranking of each country. Our empirical results highlight three groups of destinations and can be seen as an additional useful toolbox to determine destination clubs.

Main Objectives

1. Bibliometric study on the determinants of adaptive capacity and sub-determinants as only few studies have focused on for Tourism sector (Hartman, 2018, Scoll Hart and Gossling, 2019)
2. From determinants to variables
3. Building a composite indicator : Tourism Adaptive Capacity Index (TACI) Hierarchical clustering on principal components analysis was performed on the data to identify clusters of countries

Materials and Methods

This paper has a conceptual and empirical motivation based on two objectives.

First, it identifies define the determinants of the tourism adaptive capacity. A bibliometric study on vulnerability, resilience and capacity adaptive indexes in tourism but also in different fields of study (climate change, business...) will allow to determinate the main components of capacity adaptive in tourism and the related indicators.

Second, it constructs a composite indicator to capture the adaptation capacity in tourism. a composite indicator. Composite indicators which compare country performance are increasingly recognised as a useful tool in policy analysis and public communication (Saltelli, and all 2007).

Our analysis mentioned six determinants of the adaptive capacity in tourism:



Figure 2: TACI determinants

These 6 determinants are made up of 16 sub-determinants,declined in 22 indicators. These ones are used to construct the Tourism Adaptation Capacity Index (TACI).

Déterminants	Sub-déterminants	Indicators
Governance	Quality of Governance	6 World Governance Indicators WGI
	Environmental governance performance	Environmental Performance Index, Yale
	Tourism as a government priority	Government prioritization of the T&T industry T&T (WEF)
Economic resources	Economic Performances	T&T Government expenditure (% total), WEF PIB par capita, WDI
	Tourism Competitiveness	Ease of doing business index, WDI Travel and tourism competitiveness index, WEF
	Attractiveness of the destination	Effectiveness of marketing to attract tourists, WEF Country brand ranking (tourism edition)
Financial resources	Diversification	Inbound tourism: missing data
	Debt level	missing data
	Debt capacity	Credit rating, Trading economics
Human and social capital	Social and economic conditions	Human development index, Unde
	Education	Enrolment rates in secondary and tertiary education, WDI
	Innovation	R&D expenditure (% PIB), WDI
Infrastructures	Informations	Open Data Inventory (ODIN), Open Data Watch
	Quality of the transport infrastructure	Quality of transport infrastructure (air, railroad, port), WEF
	Quality of the tourism infrastructure	Quality of tourism infrastructure, WEF
Technological resources	Quality of the TIC infrastructure	Users Internet (% pop), ITU

Figure 3: Taci déterminants

Regarding the empirical analysis, our estimates of the TACI are based on 148 countries in 2019. More precisely, we selected 2 methods to construct our index. The first one is calculated as an average. In the second method, the weights are based on a principal component analysis (PCA). A Hierarchical Clustering on Principal Components is also used to define groups among the 148 countries.

Results

Hierarchical clustering has been a powerful method for developing in-built classification systems and is applied to divide our dataset of 148 countries.



Figure 4: Factor Map

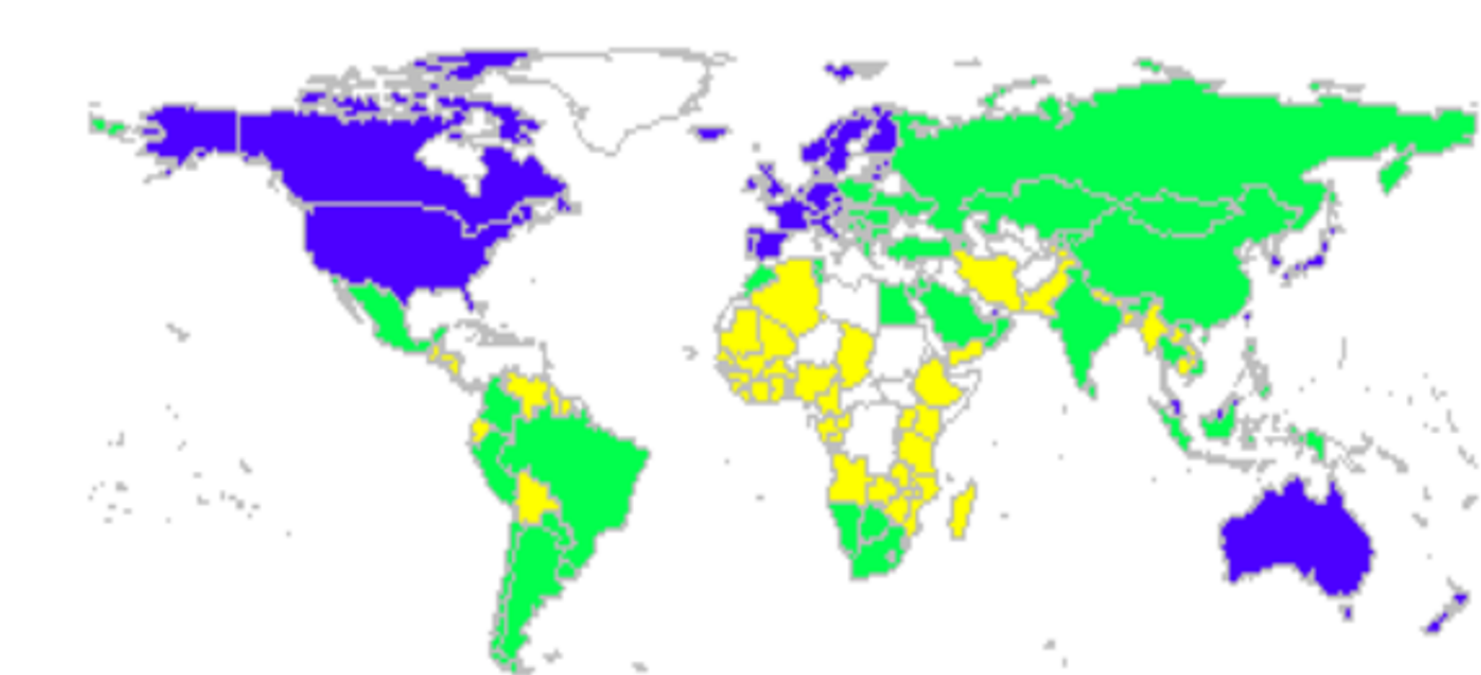


Figure 5: A World of TACI

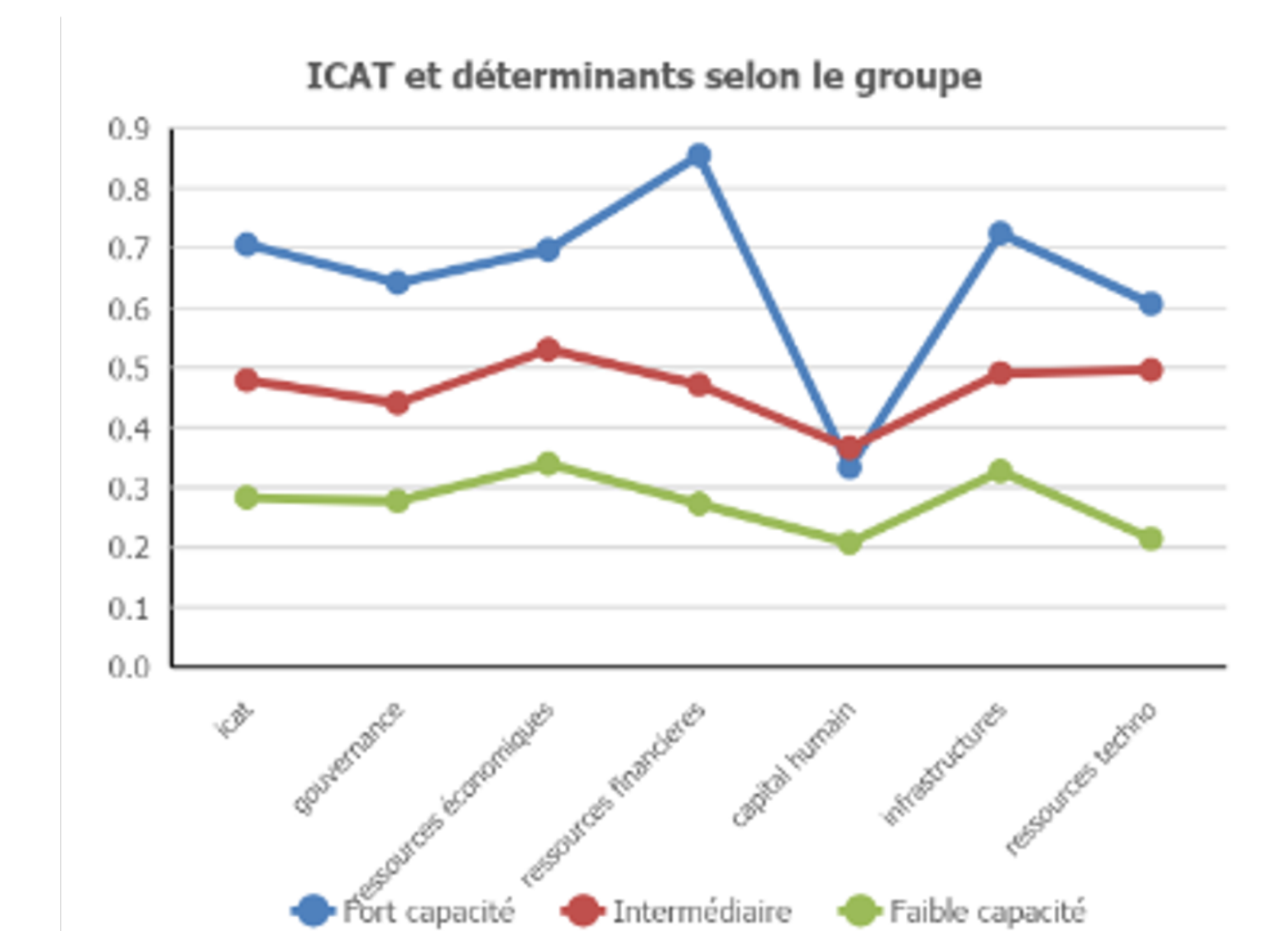


Figure 6: Figure caption

Conclusions

- A TACI is now proposed for Tourism sector and complete few studies on this subject
- First results are consistent with most of our expectations : for developed countries but also for some famous destinations (Mauricuis, Seychelles...)

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