Overtourism and Carrying Capacity:
A Regional Perspective for Greece

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Overview of Tourism in Greece 2010-2019

- Tourist arrivals: +127%
- Inbound overnight stays: -69%
- Tourism receipts: +89%
- Average duration of stay: +26%
- Expenditure per stay: +17%

Inbound tourism in Greece was affected by the world trend:

Shorter and more frequent trips

Regional Features of Inbound Tourism in Greece 2019

The **insular territories** of Greece (Crete, Ionian and South Aegean Islands) account for:

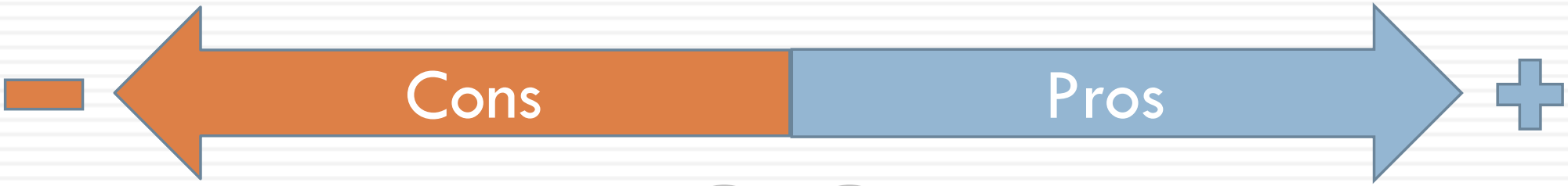
- 42% of inbound tourism
- 52% of overnight stays
- 60% of tourism receipts

..... and they exhibit high seasonality as:

- In Crete 42% of overnight stays
- In South Aegean 62% of overnight stays
- In Ionian Islands 68% of overnight stays

occur at the 3rd Quarter of the year

Impacts of Tourism Growth



Cons			Pros
Overuse of natural resources	1	1	Boosts economic growth
Demographic congestion Discomfort & nuisance to locals	2	2	Fights unemployment
Negative ecological impacts	3	3	Ensures extra income to households
Altering of moral values and customs of residents	4	4	Mitigates regional inequalities

Overtourism: A new term for an old problem

"Too many tourists in a specific destination at a certain period"

If you cannot measure it, you cannot manage it.

- Number of Tourists or Overnight stays
- Butler's Tourist Life Cycle
- Doxey's Irridex Model
- Pizam's Attitude Index
- Carrying Capacity
- Tourism Planning Frameworks

are some of the indicators or the methods evolved over time in order to measure the impacts of ever-growing tourism

Methodology – Description of the Indices

- Manera and Valle (2018) created a compound index to measure tourism intensity; the Tourism Intensity Index (TII) and a complementary one to measure tourism density; the Tourism Density Index (TD).
- These indices combine tourism, economic and demographic variables and are used for intra-country comparisons and classification.
- The variables used are: the number of tourists, the population, tourism revenues and the GDP for the each country (i) and for the world (w).

Indices Presentation
The Case of Greek Regions

We adapted the TII and TD to be applicable at regional level in Greece:

TOURISM INTENSITY INDEX

$$Tourism\ Intensity\ Index^{\,r} = \sqrt{\frac{\frac{N_r}{P_r}}{\frac{N_{gr}}{P_{gr}}} \times \frac{\frac{TR_r}{GDP_r}}{\frac{TR_{gr}}{GDP_{gr}}}} \times 100$$

Where:

- ✓ N = Inbound Overnight stays
- ✓ P = Population
- ✓ TR = Tourism Revenues
- ✓ GDP = Gross domestic Product
- ✓ (r) = Region
- ✓ (gr) = Greece

Data used were extracted from the open databases of the Hellenic Statistical Authority (EL.STAT.) and of the Bank of Greece (BoG).

Indices Presentation
The Case of Greek Regions

TOURISM DENSITY INDEX

$$TD = \frac{Inbound\ Overnight\ Stays}{Population} \times \frac{Population}{km^2} = \frac{Inbound\ Overnight\ Stays}{km^2}$$

Data used were extracted from the open databases of the Hellenic Statistical Authority (EL.STAT.) and of the Bank of Greece (BoG).

Indices Range Groups

The TII and TD allow for two kinds of classification of the Greek region, according to the mean value of each index over the 4-year period

Tourism Intensity Index

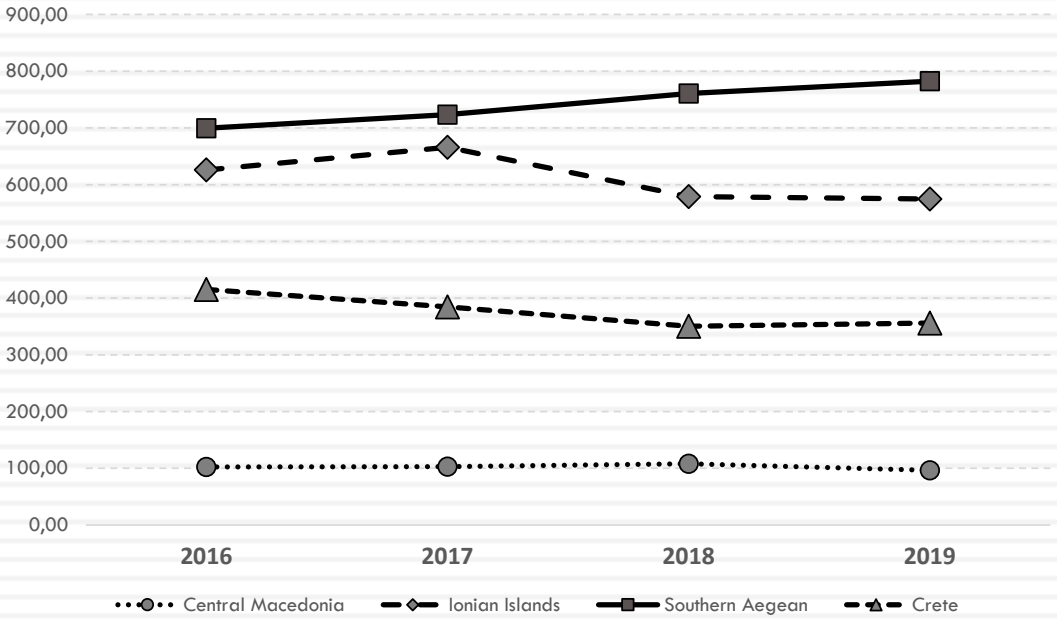
- High: $TII_{avg}>100$
- Medium: $50<TII_{avg}<100$
- Low: $TII_{avg}<50$

Tourism Density

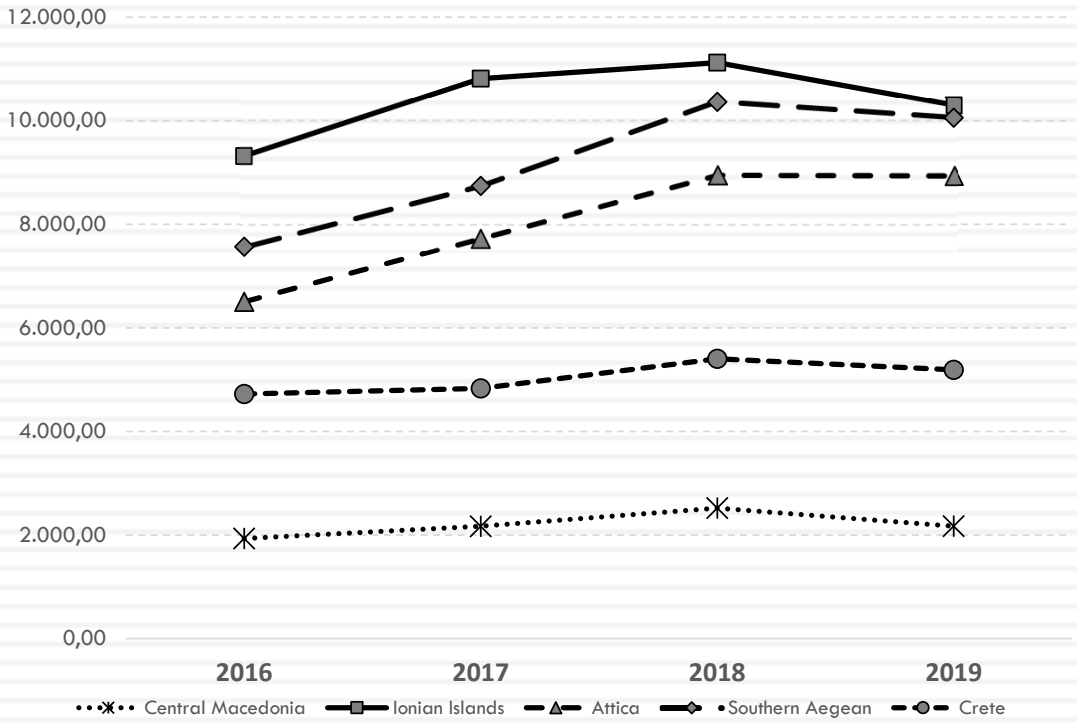
- High: $TDI_{avg}>1000$
- Medium: $500<TD_{avg}<1000$
- Low: $TD_{avg}<500$

High TII & TD Evolution 2016-2019 in the Greek Regions. Some Results

TOURISM INTENSITY INDEX



TOURISM DENSITY INDEX



Conclusions

- The demographic component of the TII, $(\frac{N_i}{P_i})$ shows the tourism pressure exerted on the region. The higher the magnitude, the greater the pressure.
- The economic component of the TII, $(\frac{TR_i}{GDP_i})$ shows the dependency from tourism of the region. The higher the magnitude, the greater the dependency.
- The insular regions of Greece recorded the highest TII and TD.
- The increased dependency on tourism, renders the insular regions of Greece very vulnerable to tourism turmoil.
- The percentage changes of TD reveal the emerging regions of Greece.
- The proposed indices are impartial and unbiased and can be a very useful tool for designing tourism policies aiming at correcting negative externalities because of the advancing of mass tourism and therefore ensure the environmental sustainability of a destination.

Conclusions

If you cannot measure it, you cannot manage it,
and the indices presented in this paper help us measure
tourism intensity and density.

However, we must be aware that measurement is always partial
and cannot constitute the be-all and end-all of knowledge
of the phenomena investigated.

The pursuit of constructing other indices is constant and continuous
in the research community.