The context of measurement and the importance of intensities

Session II: Dimensions of measurement

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THE CASE OF SOUTH TYROL (ITALY)

INTRODUCTION

- South Tyrol is an **Autonomous Province** in the Italian Alps ≈ 500,000 inhabitants
- Official languages: German (69%), Italian (26%), Ladin (5%)
- **Dolomites UNESCO WHS**
- Tourism sector directly accounts for **11.4% of total GVA (2019)**

<table>
<thead>
<tr>
<th></th>
<th>2019</th>
<th>2020</th>
<th>Change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrivals</td>
<td>7.7 Million</td>
<td>5.8 Million</td>
<td>- 25%</td>
</tr>
<tr>
<td>Overnight stays</td>
<td>33.7 Million</td>
<td>23.8 Million</td>
<td>- 29%</td>
</tr>
</tbody>
</table>

Source: ASTAT
Main objectives:
• Offer a **theoretical contribution** to the conceptualisation and measurement of sustainable tourism
• Support the local DMO and the regional government in developing policies, strategies, plans and management processes for sustainable tourism (i.e., **support evidence-based policy-making**)

Activities:
• Systematic, timely and regular **monitoring** of tourism performance and impact at the highest data granularity possible (15 issue areas, 3 dimensions, 31 indicators)
• **Reporting**: yearly report + website (https://sustainabletourism.eurac.edu/)
• **NETWORKING ACTIVITIES**: ANNUAL STAKEHOLDER MEETING, THINK TANKS, BILATERAL MEETINGS WITH DATA PROVIDERS, PARTICIPATION AS JURORS TO LOCAL GREEN AWARDS, CO-DESIGN OF MONITORING ACTIVITIES AND CODES OF CONDUCT AT LOCAL LEVEL.
THE CASE OF SOUTH TYROL (ITALY)

The importance of intensities

Why are intensities so important?

- Data visualization (clustering municipal data)
- Differentiated tourism policies
- Management of peaks
- Long-term infrastructural investments
- Agglomeration economies
- Overcrowding and overtourism
- Hotspot management

STOST worked on a possible classification scheme for South Tyrolean municipalities based on intensities
Tourism Exposure Index

- Overnight stays & bed capacities (considered)
- Employees (excluded, too correlated)

Definition of data sources

- Bed concentration
- Tourism intensity

Definition of the "Tourism Exposure"

- Deviation from the mean (z-scores)
- Equal weighting of intensity and density

Standardization and weighting system

Classification (groups of municipalities)

- Quartiles or percentiles
- Absolute values (baseline year 2019)

Based on the STOST report and the ESPON report "Carrying capacity methodology for tourism".
Definition of the "Tourism Exposure"

Alternative options:

1. Bed density *(beds per km2)*
2. Employees *(% employed in the hotel and food service sector)*
3. Tourism intensity *(Average daily overnights/population)*\(\times 100\)
4. Occupation rates *(Overnights/(365* Beds))*\(\times 100\)
5. ...

After an evaluation of the reciprocal correlation, bed density and tourism intensity were taken as the basis for the exposure index.
Calculation, standardization, weighting systems

Calculation:

1. Calculation of tourism intensity for each municipality \((\text{Average daily overnights/population}) \times 100\)
2. Calculation of the bed density for each municipality \((\text{beds per km}^2)\)
3. **Standardization** (determination of the distance of each municipality from the mean value of the two indicators in the reference year)
   \[
   z = \frac{x - \mu}{\sigma}
   \]
   \[
   \mu = \text{Mean}
   \]
   \[
   \sigma = \text{Standard Deviation}
   \]
4. “Tourism exposure” as the average of both standardized values (equal weight)
Tourism exposure

Alternative options

- **Quartile (STOST-classification):** We group the communities into three groups, i.e.:
  a) “low exposure” (25% lower quartile),
  b) “average tourism exposure” (50% central quartile) und
  c) “high tourism exposure” (25% upper quartile)

- **Percentiles** (similar, but with arbitrarily selected percentages)

- **Ranking** (no categorization)
Fine-tuning of the Tourism Exposure Index

Stakeholder involvement

- **Stakeholder meetings and fine-tuning of the indicator** - Consideration of new data, different indicators, other selection criteria
  - Trade-off between: accuracy and data availability

- **Analysis of possible alternatives and their power** in describing reality and supporting decision making
  - e.g. 0.77 between tourism intensity and bed density (permanent settlement area) vs. 0.43 between tourism intensity and bed density (permanent settlement area)

- **Consideration of the policy goal of the indicator**
  - e.g. are differentiated policies needed between municipalities with average or low tourism exposure?
First results – considering total municipal surface and quartiles

Tourism exposure (total municipal surface)
- high
- medium
- low
First results – considering permanent settlement area and quartiles

Changing the type of surface considered, 14 municipalities change their status.
First results – considering permanent settlement area and ranking

Tourism exposure (permanent settlement area)
THE MEASUREMENT OF INTENSITIES

CONCLUSION

• There is a high correlation between indicators for intensities
  • Depending on how densities are calculated, a difference in correlation is perceivable

• The context of measurement has an effect on the measurement itself
  • The availability of data, as well as their granularity has an effect on measurement quality
  • The method for calculation of the indicator has an effect on the results (e.g. for a mountain area, settlement surface is better than overall surface)

• Multiple calculations and adjusting and refining procedures, as well as a discussion with stakeholders is fundamental to fine-tune indicators
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