Islands transport policy in Greece: The Island Transport Equivalent

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Greek insular Regions

120 inhabited islands
13% of country’s population

4 Island Regions:
• North Aegean
• South Aegean
• Ionio Islands
• Crete

• In average 30% decline of GDP
• 13.3% of total workforce
• Dependency from tertiary sector
• High unemployment rates
• High percentages of people at risk of poverty and social exclusion
• High migration flows (North Aegean)
Transport Challenges

- Market’s structure
- Inequality (Mainland vs island)
- Cost
- Frequency
- Connectivity
  - Adaptability
  - Affordability
  - Accessibility
  - Acceptability
- Infrastructures
- Quality
- Low satisfaction (Perceptions)
- Coastal Transport Network
- Unbalanced interest (Commercial vs thin lines)
- Market’s characteristics (Seasonality)
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National policies for remote islands

- Direct subsidies
- Indirect subsidies

- Shipping companies
- Residents SMEs
National policies for remote islands

Thin lines

Type of policy: Direct subsidies
Beneficiary: Shipping company
Scope: Ensure a minima number of ferry connections for lines that present non-commercial interest
Budget: 90 million euro → 130 million for 2020 (+45%)
Process: Tendering
Minimum requirements: frequency of itineraries

No further quantitative or qualitative criteria are used for the selection of the service provider
National policies for remote islands

Commercial lines

Condition:
All year round services—Public Service Obligation

Barrier to entry the market

BUT

Ensures territorial and social cohesion

Manning:
host state rules vs flag state rules (EU REGULATION 3577/92)
National policies for remote islands

Island Transport Equivalent for Passengers

- Ferry ticket subsidy:

  \[ TF_i = f(Distance\ covered;\ Bus\ reference\ ticket\ value;\ Ferry\ ticket\ value) \]

- The amount of max annual subsidy/beneficiary of island \(i\):

  \[ PL_i = f(Total\ annual\ budget;\ Number\ of\ island's\ beneficiaries;\ Average\ distance;\ Bus\ reference\ ticket\ value;\ Ferry\ ticket\ value;\ Island's\ insularity\ index) \]
National policies for remote islands

Island Transport Equivalent for Commodities

**Type of policy:** Indirect subsidy  
**Beneficiary:** SMEs retail & manufacturing  
**Scope:** Island companies have to pay a fare corresponding to what mainland companies pay for equivalent transport services  
**Estimated cost:** 64 million euro  
**Process:** Compensation per bill of landing  
**Pilot phase:** June-Dec 2018  
**Full application:** Jan. 2019

- Bill of landing subsidy:

\[ C_{zi} = (\text{Bill of lading value} ; \text{Commodities Sea Transport Equivalent} ; \text{Commodities Road Transport Equivalent} ; \text{Amount of cargo carried} ; \text{Distance covered} ; \text{Subsidy rate}) \]

- Maximum annual subsidy amount for island i:

\[ P_i = f(\text{Commodities Sea Transport Equivalent} ; \text{Commodities Road Transport Equivalent} ; \text{Annual maximum quantity of transported commodities} ; \text{Distance covered}) \]
National policies for remote islands

Island Transport Equivalent expansion to:

* Air transport
* Fuels
* Other strategic cargoes
* Private cars
Insular policy challenges in the Greek case

- Absence of regular monitoring process
- Lack of data/Outdated data
- Policies based on single dimension criteria
  - Empirical vs scientific approach

- Fragmented
- Short term
- Generic
- Limited effectiveness
Solving the island policy making (un)equation: the connectivity index

Connectivity is **NOT ONLY** the availability of transport that enables people and goods to reach a range of destinations at a reasonable generalised cost.

**Connectivity** reflects the current state and the prevailed conditions of an island, not only in terms of transport links but also in terms of developmental potential.

**Island's Connectivity** = \( f(\text{quantity} ; \text{quality}) = \text{Transport Capacity} \times \text{Performance Indicator} \)
The islands’ connectivity index

Island's Connectivity = Transport Capacity * Performance Indicator

Performance Indicator:
An additive value function for a given ranking of specific criteria / sub criteria on a reference set of alternatives $A_R$ (islands), according to the UTA (Utilities Additives) multi criteria decision making methodology.
## The islands’ connectivity index

### Passenger Ferry Services' index (ICI) criteria and sub criteria:

<table>
<thead>
<tr>
<th>Criteria $g_i$</th>
<th>Sub criteria $g_{ij}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>FINANCIAL COST</td>
<td>Fare cost - Cost for accessing port - Cost for “on board” services</td>
</tr>
<tr>
<td>TIME</td>
<td>Trip duration - Consistency of timetables - Access time to ports</td>
</tr>
<tr>
<td>ACCESSIBILITY</td>
<td>Number of itineraries - Frequency of itineraries - Number of transits - Number of interconnected destinations</td>
</tr>
<tr>
<td>QUALITY OF SERVICES</td>
<td>Ship’s accommodation - On board services - Information services - Ticket purchase facilities</td>
</tr>
<tr>
<td>SOCIAL COST</td>
<td>Ships’ environmental performance - Ships’ age - Corporate social responsibility of passenger ferries’ operators</td>
</tr>
</tbody>
</table>
The islands’ connectivity index

**Passenger Ferry Services**

**Island's Connectivity:** $IC = P \times u(g)$

$IC = [FP + APeq] \times u(g) = [FP + c(g)\times AP] \times u(g) = FP \times u(g) + AP \times u(g)\times c(g)$

$P$ = is the total number of the passenger transport capacity provided through the port(s) and airport(s) of an island

FP, is the number of the ferries' passenger capacity

AP, is the number of the airplanes' passenger capacity

APeq, is the air (to sea) equivalent passenger capacity value

$c(g) = $ is a transport mode conversion factor

$u(g)$, is the qualitative additive value function (**performance indicator**) of the transport services criteria g

$$u(g) = \sum_{i=1}^{n} p_i \times \sum_{j=1}^{m} p_{ij} \times u_{ij}(g_{ij})$$

**Island Connectivity Index:** $ICI = IC / IC_{max}$
# The islands’ transport potential index

**Islands' Transport Potential index (IPI) criteria and sub criteria:**

<table>
<thead>
<tr>
<th>Criteria $f_i$</th>
<th>Sub criteria $f_{ij}$</th>
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</thead>
<tbody>
<tr>
<td>DEVELOPMENT</td>
<td>Per capita income - (Un)employment rate - Entrepreneurship rate</td>
</tr>
<tr>
<td>TOURISTIC ATTRACTION</td>
<td>Interest for visiting - Availability of cultural sites, touristic areas and resorts - Multitude of cultural, athletic and touristic events and activities - Availability of hosting, catering and entertainment services</td>
</tr>
<tr>
<td>INFRASTRUCTURE</td>
<td>Adequacy of ports - Internal transport system - Existence of airport - Public services</td>
</tr>
<tr>
<td>LOCATION</td>
<td>Remoteness and isolation - National interests</td>
</tr>
</tbody>
</table>
Island's Transport Potential

Islands' Potential: \[ IP = N \times v(f) \]

\( N = \) is the size of the island’s population (winter season), or the gross sum of the island’s population plus the total available beds in all the island’s tourist accommodation establishments (summer season).

\( v(f) \), is the qualitative additive value function (performance indicator) of the transport potential of an island related to the islands’ transport needs criteria \( f \)

\[ v(f) = \sum_{i=1}^{n} q_i \times v_i(f_i) \times \sum_{j=1}^{m} q_{ij} \times v_{ij}(f_{ij}) \]

Island Transport Potential Index: \[ IPI = \frac{IP}{IP_{max}} \]

Island Connectivity Adequacy Index: \[ IPI = ICI / IPI \]
Restructuring CTN

- Reviewing and redesigning of the minimum islands’ connection requirements as well as determining of an optimal islands’ connections network
- Examining and implementing joint or multimodal transport systems to and from the islands
- Forming joint ventures between port authorities and shipping companies
- Establishing a ISLANDS TRANSPORT ORGANIZATION
## Integrated approach for insular policy

<table>
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<tr>
<th>Data</th>
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<tbody>
<tr>
<td>Processes and tools (B.I. systems)</td>
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<tr>
<td>Stakeholders consultations</td>
</tr>
<tr>
<td>Institutions and KPIs (e.x. observatories)</td>
</tr>
<tr>
<td>Education (policy makers, local authorities)</td>
</tr>
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Thank you for your attention