FAU FREIGHT MOBILITY RESEARCH INSTITUTE
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FMRI Webinar

ITE FAU Student Chapter Lecture Series

Measuring Performance and Economic Impact in Transportation

Dimitrios J. DIMITRIOU

Planning, Management & Economics in Transport

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DEMOCRITUS UNIVERSITY OF THRACE

DEPARTMENT OF ECONOMICS
https://econ.duth.gr/en/the-department/

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Profile Dimitrios J. DIMITRIOU

Dimitriou holds Doctorate in Transport demand forecasting; MSc in Infrastructures Environmental Planning; MSc in Transport Planning & Management; and Diploma (equivalent to 4 years BA & 1 year MSc) in Civil Engineering (sector of transportation).

He has long experience (25 years) in field of transportation, delivered many projects in planning, operation, management, business development and economics.

He is Professor Associate in Quantitative Analysis and Management of Transport Infrastructures, providing dedicated courses and research in subjects of transport economics, decision making and risk assessment in Dept. of Economics, Democritus University of Thrace and other Universities in Greece and Europe.

He has published over 250 papers in referred journals, scientific and professional editions, international conferences and he has elected in executive positions in professional associations and committees of expert.

He was the Chairman of the BoD in Athens International Airport (5 years). He occupied many executive positions and he provided advisory in Transport Authorities, Enterprises and Investors for investments in large projects.

In 2017/18 awarded for the Professional Achievements by the British Council and he has elected in prestigious positions in professional associations and forums.

Outline

- Key drivers on measuring performance:
  - Corporate business environment
  - National/local economy
- Transport sector challenges and decision making
  - Investment outputs
  - Commitments and growth frame
- Methods to estimate economic footprint
  - Case studies
  - Key conclusions
- Discussion issues

Transport Enterprises Revenues streams

Transport activities

- Passengers/users (ticket, park&ride, etc)
- (penalties…..)

85% → 40-50%

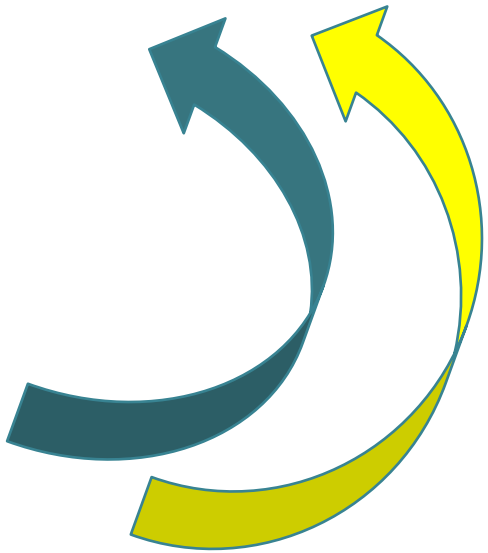
Non transport activities

- Advertising
- Commercial activities
- Real estate

15% → 60-50%

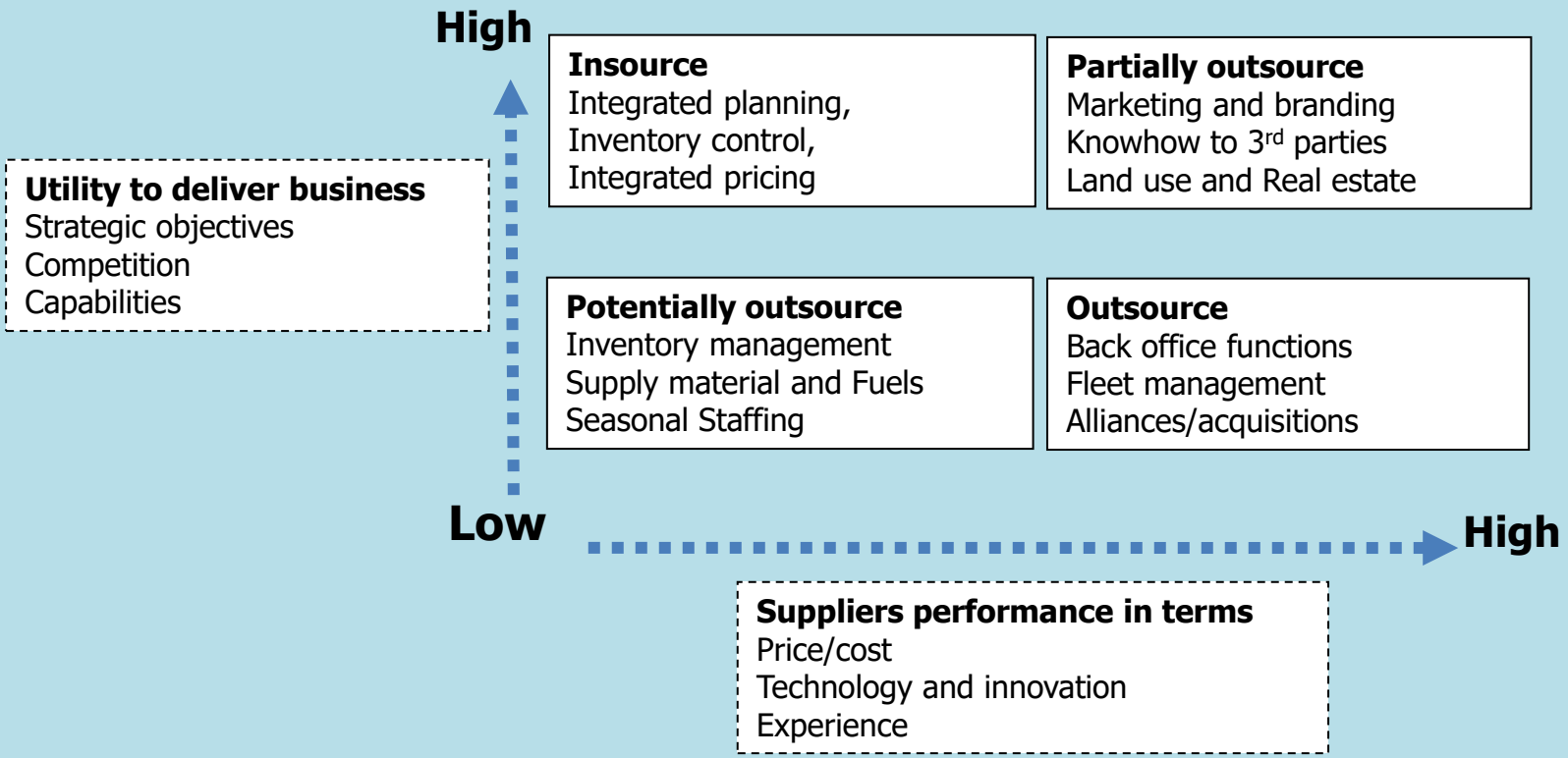
- Creditability/financing
- Portfolio/asset management
- Trade (shopping centres, sales, etc)
- Other financial services (insurance, visa, etc)
- Other non-financial services (energy, info, etc.)

- Transport spin off activities – data use



Transport business transformation

Orientation towards outsourcing based on business value at risk in transport sector



Source:

Dimitriou D., (2021). The evolution in transport operators corporate structure : ownership and governance, Outsourcing and Offshoring, InTech, (ISBN 978-1-83968-471-5), DOI: 10.5772/intechopen.96334

Transport business transformation

a typical International Air Carrier

Insourcing

High

Fleet management	Technical provider	Business Intelligence
Fleet management Scheduling Flying Crew	Maintenance Repair Overhaul	Marketing Branding Revenue/fares
On Bord services	**Logistics**	**Partnership services**
Catering Sales-Entertainment Cabin crew	Fuels Cleaning Ground staff	Interlining, code sharing Ticketing Destination marketing

Low

Outsourcing

High

Outsourcing functions for …

a typical International Airport

Insourcing

High

Administration	Traffic intelligence	Passenger services
Safety - Security Accounting Custom services	Air Traffic Control Traffic data management Destination marketing	Info kiosk Ticketing Advertisement
Airside	**Terminal**	**Landside**
Maintenance Apron crew Cleaning	Baggage handling Cleaning - FM Stores and Sales	Parking Accommodation Real estate – Market area

Low

Outsourcing

High

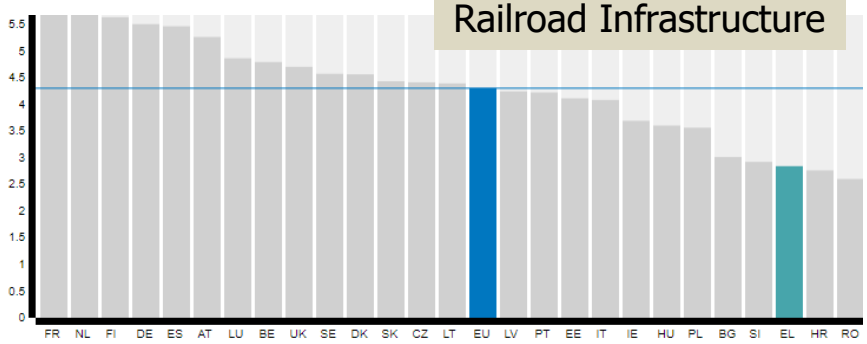
Source:

Dimitriou D., (2021). The evolution in transport operators corporate structure : ownership and governance, Outsourcing and Offshoring, InTech, (ISBN 978-1-83968-471-5), DOI: 10.5772/intechopen.96334

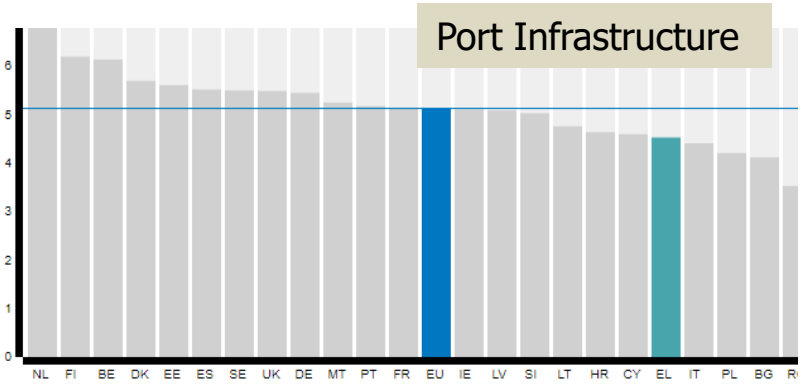
Quality Infrastructure Index

Eurostat *(2018)*

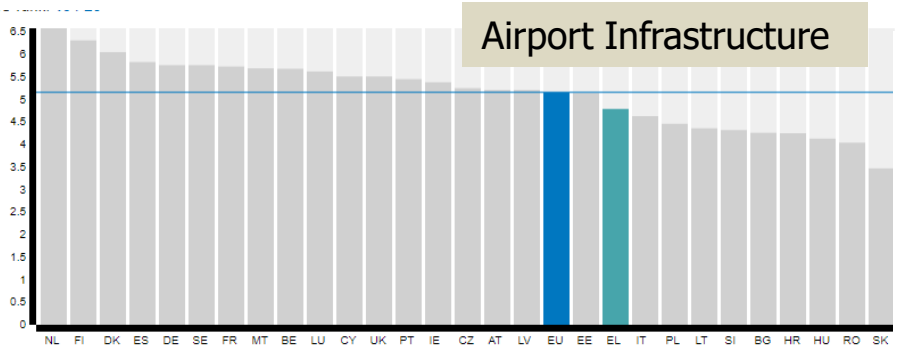
Railroad Infrastructure



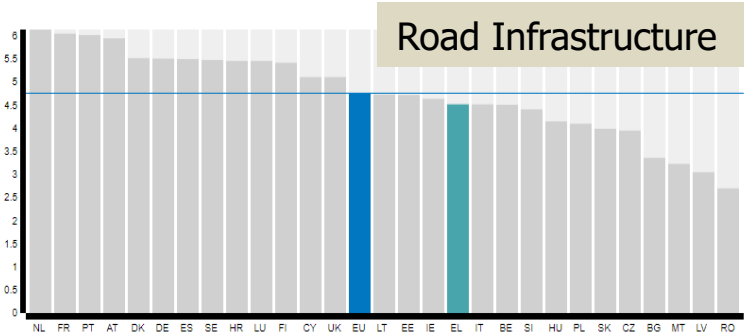
Port Infrastructure



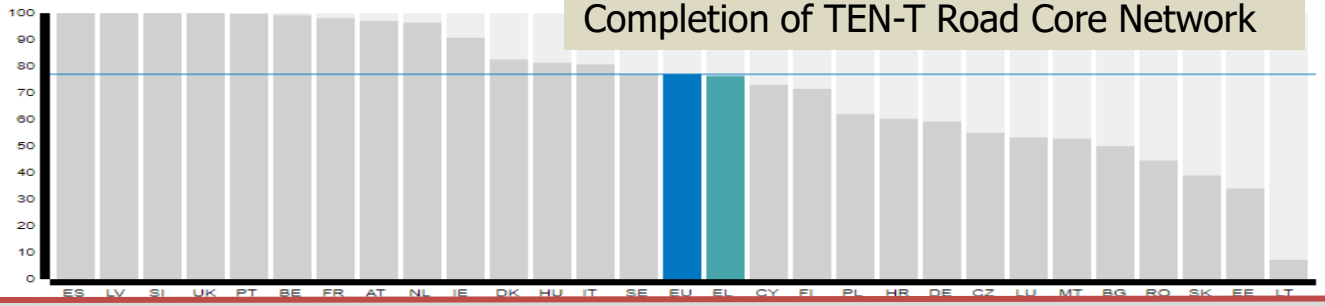
Airport Infrastructure



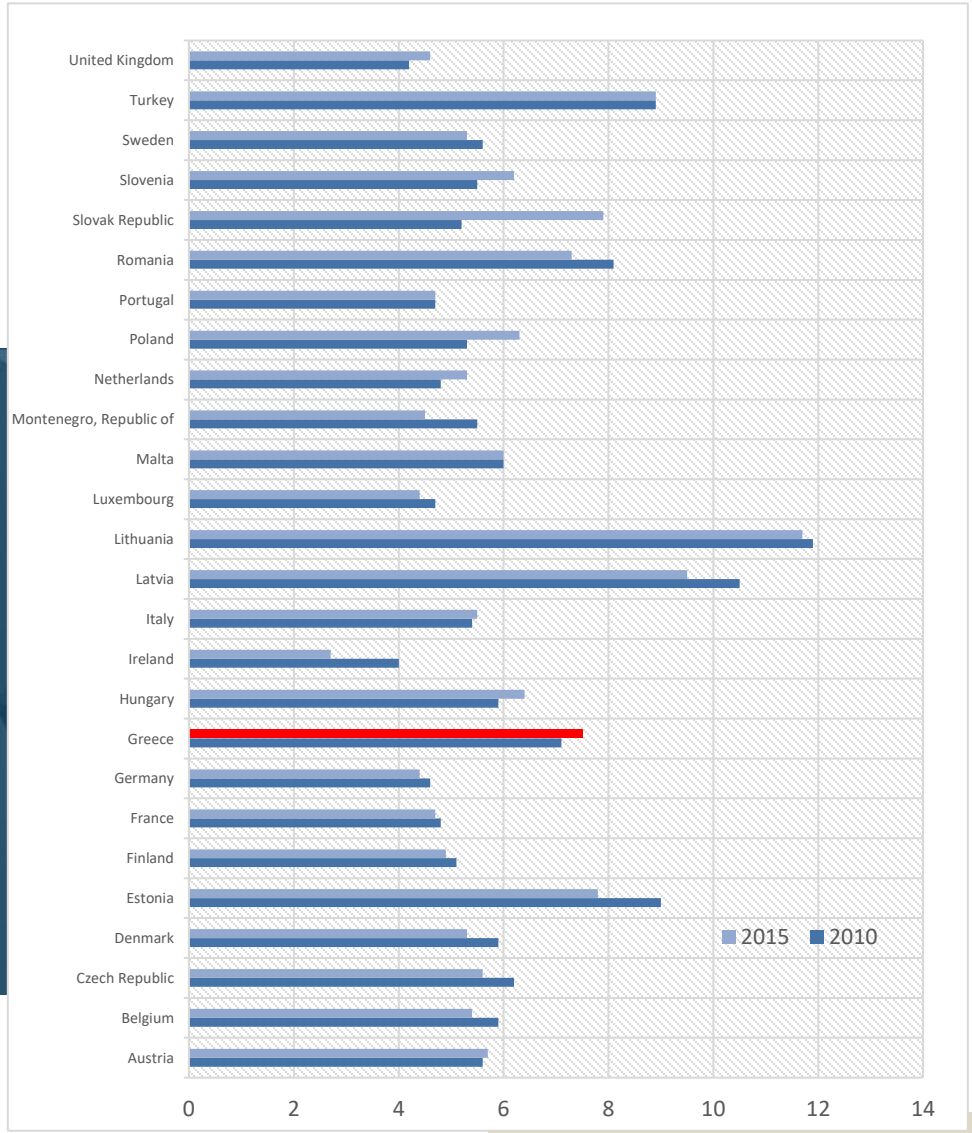
Road Infrastructure

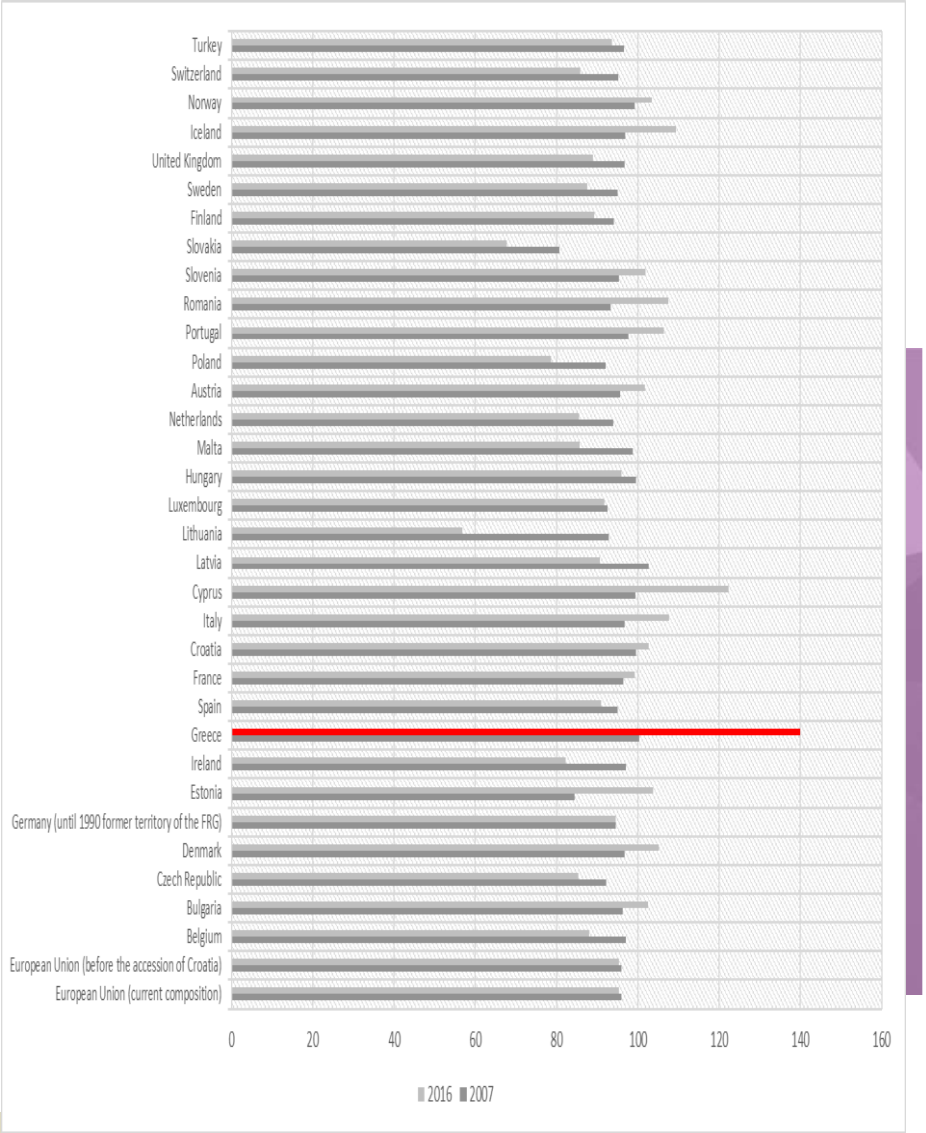


Completion of TEN-T Road Core Network



Transport Infrastructure % of GVA





GVA of the transport sector as a share of GDP (2010vs2015), *OECD (2018)*

Key questions in strategic planning and decision making

Strategic planning and DSS

What is the Region Economic Base

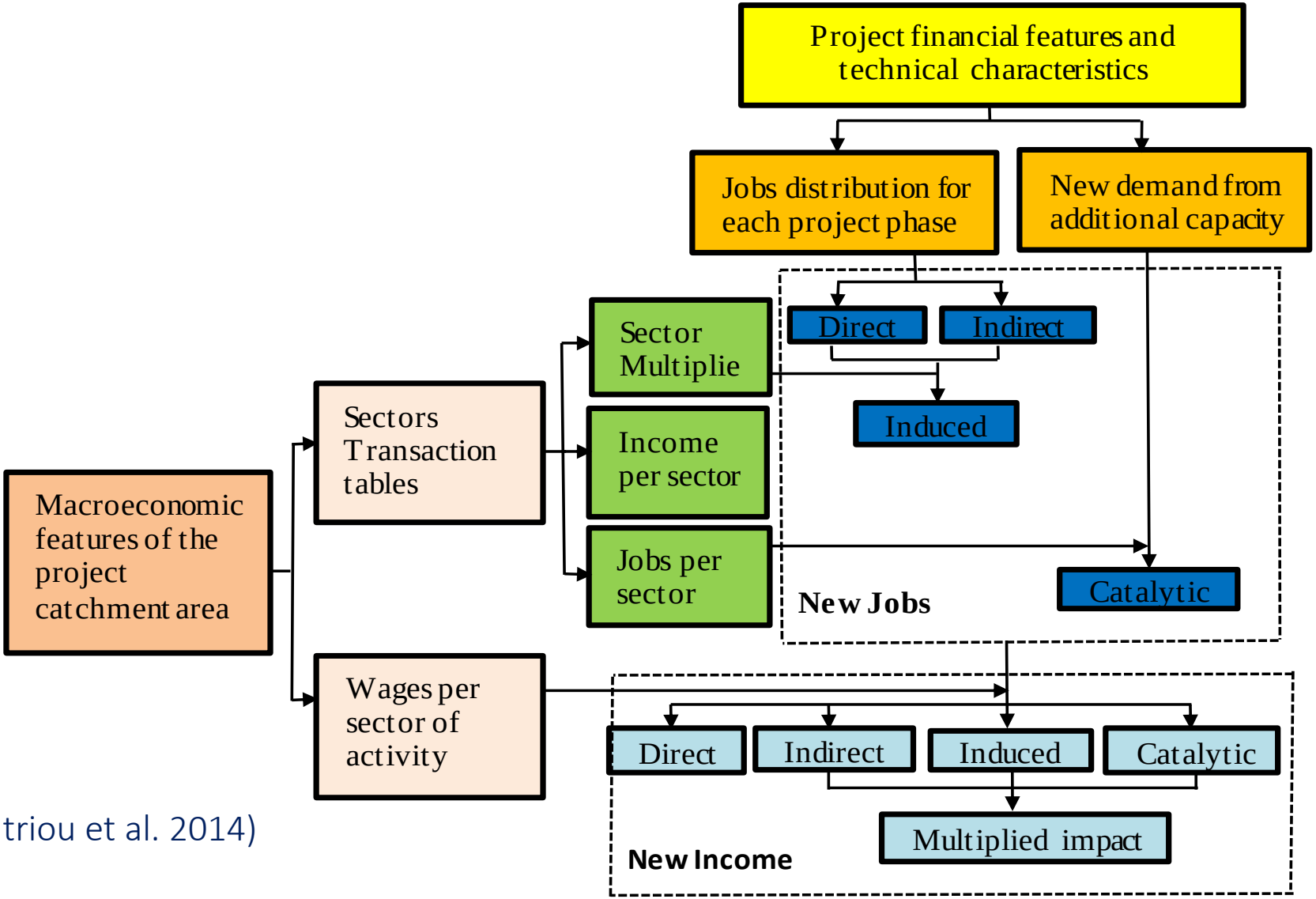
How many jobs will be gained?

How much total Output will be gained?

What will be the ripple effects across the Regional Economic System?

(Dimitriou et al. 2015)

Economic impact modelling



(Dimitriou et al. 2014)

Key functions of direct and indirect economic effects

Key categories of Air transport Business

- **Air carriers (airlines)**
  - Fuels
  - Catering
  - Maintenance
  - Sales
- **Aircraft manufactures**
  - Materials
  - Manufacturing
  - Sales
- **Airports**
  - ATC
  - Handling
  - Maintenance

(Dimitriou et al. 2013)

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Application in Greece

Dimitriou et al., 2017; Transportation Procedia

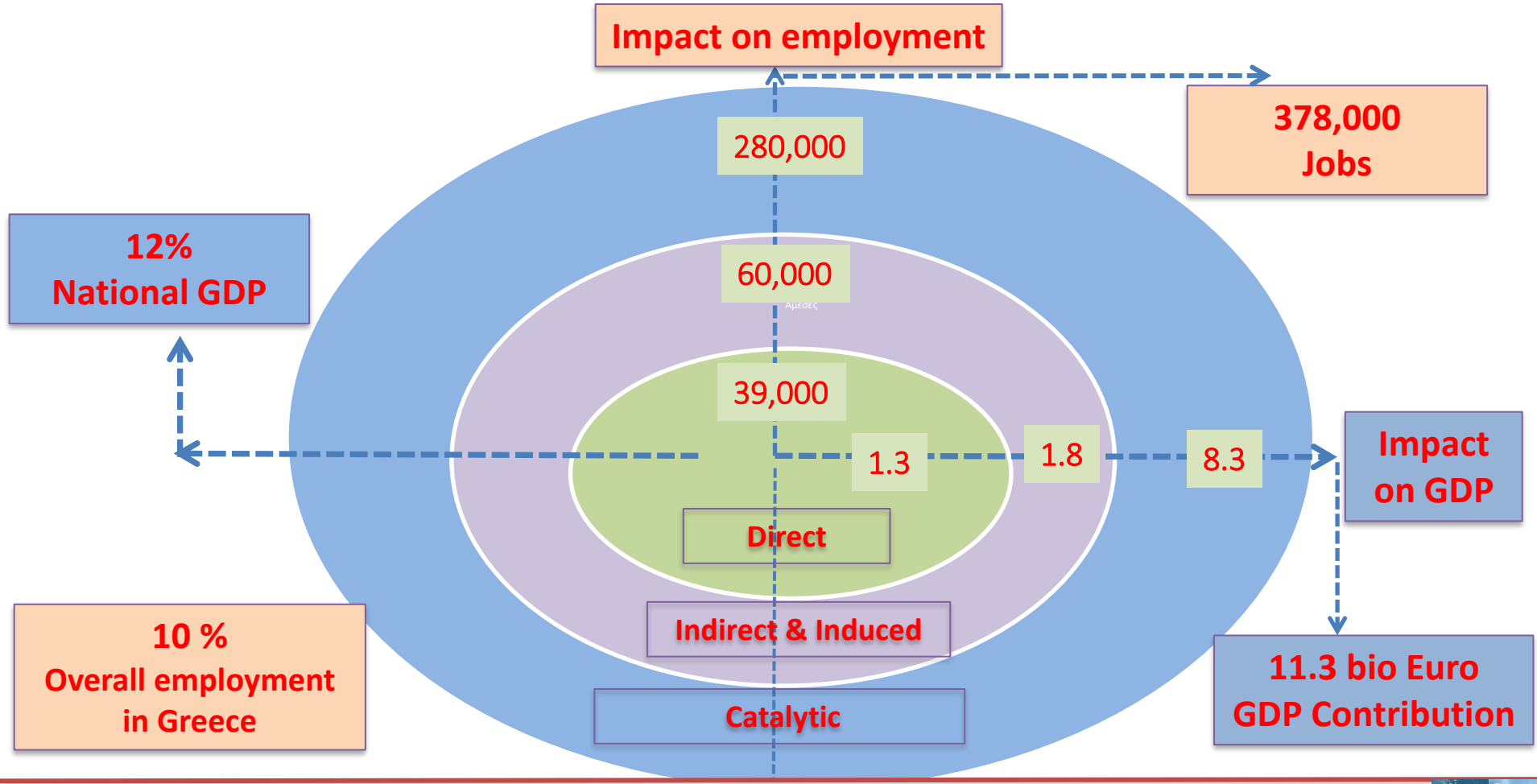
Aviation economic impact in Greece (2015)

	Direct	Indirect	Induced	Catalytic	Total
Contribution to employment (jobs)					
Airlines	**5,050**	**1,500**	**6,000**		
Aerospace	**1,800**	**500**	**2,100**		
Airports	**32,000**	**10,500**	**38,990**		
Total	**38,850**	**12,500**	**47,100**	**280,000**	**378,350**
Contribution to GDP (Million Euros)					
Airlines	**151**	**45**	**180**		
Aerospace	**54**	**15**	**60**		
Airports	**960**	**315**	**1,170**		
Total	**1,165**	**375**	**1,410**	**8,300**	**11,250**

Application in Greece

Dimitriou et al., 2017; Transportation Procedia

Aviation economic impact in Greece (2015)



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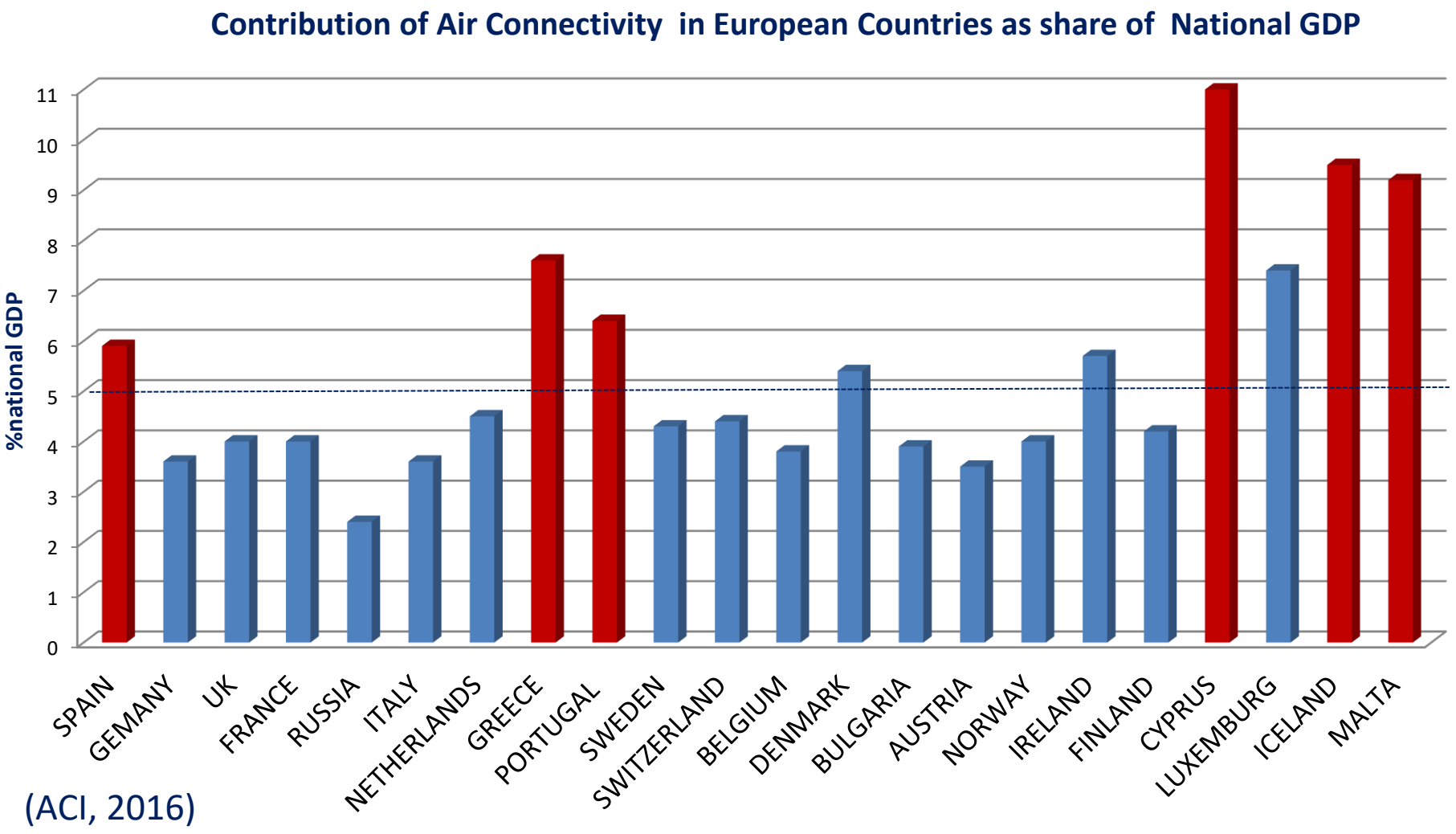
Dimitriou et al., 2017; Transportation Procedia

Aviation Economic Impact in Greece (2016)

Economic sectors with the higher multipliers	
Sectors	Multipliers
Products of agriculture, hunting and related services	1,65
Crude petroleum and natural gas; services oil and gas extraction	1,66
Food products and beverages	1,55
Coke, refined petroleum products	2,05
Chemicals, chemical products and man-made fibres	1,75
Basic metals	1,55
Electrical energy, gas, steam and hot water	2,10
Construction work	1,50
Wholesale trade, commission trade services, vehicles, motorcycles	2,05
Hotel and restaurant services	1,85
Internal – regional transport services (public transports, taxi, etc)	1,55
Post and Telecommunication services	1,55
Real Estate	2,10
Tourist services (agents, etc)	2,20

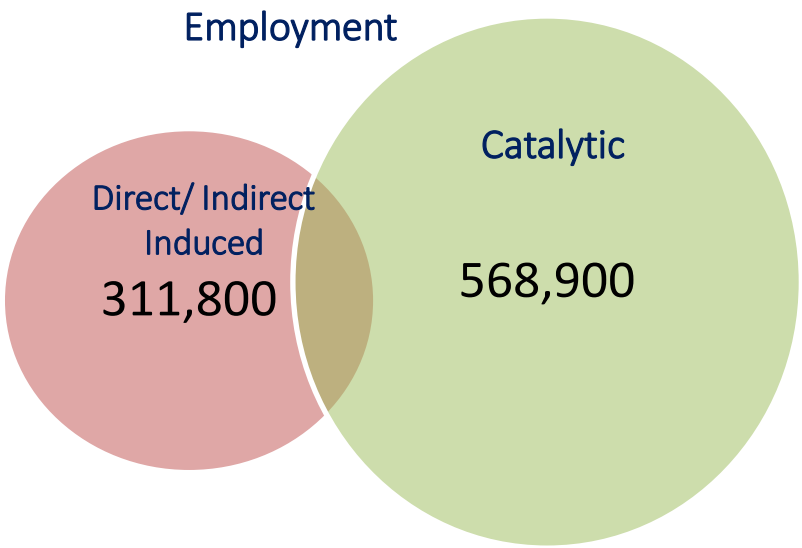
Case studies and highlight on Economic contribution of air connectivity in various regions

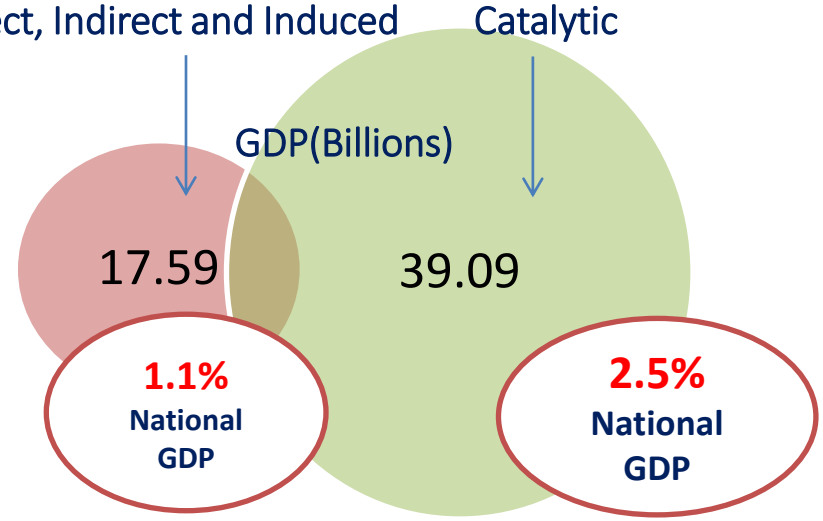


(ACI, 2016)

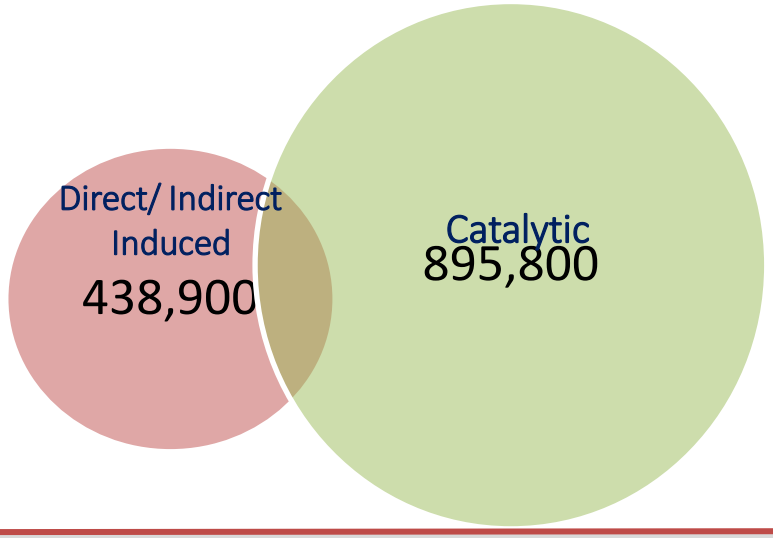
Case study I-Mediterranean countries

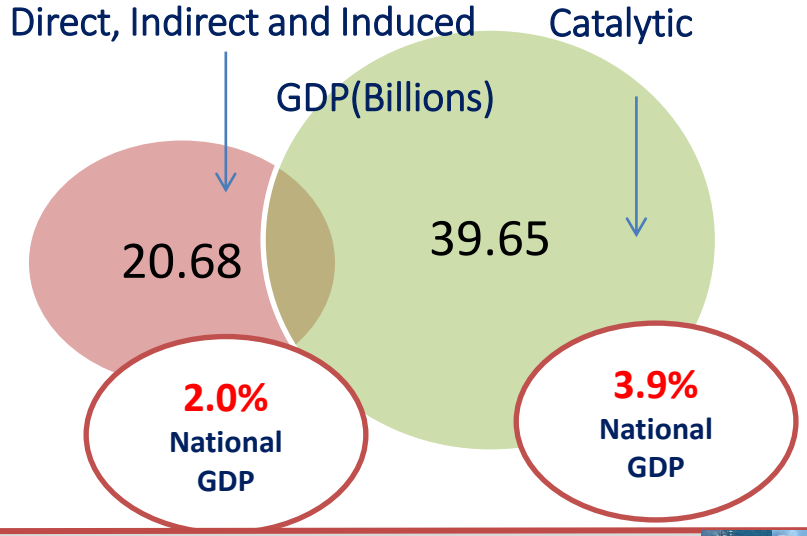
ITALY





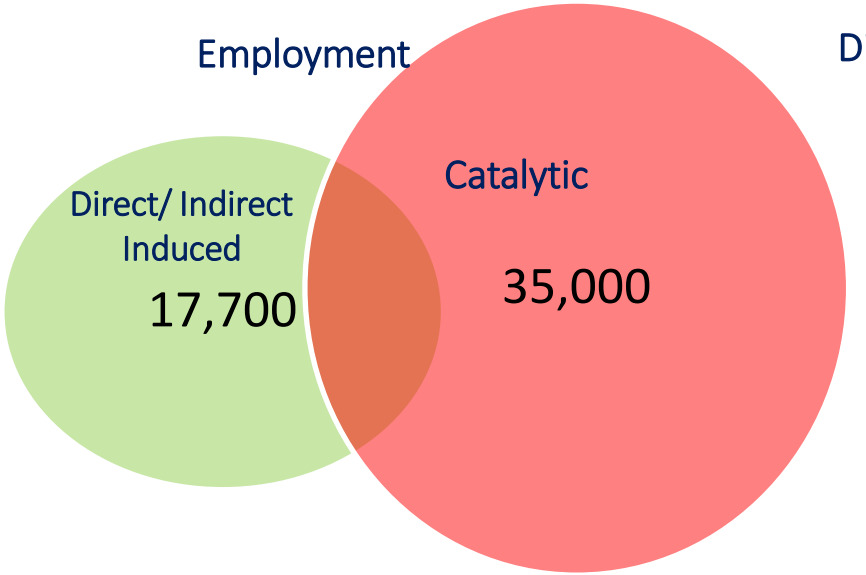
SPAIN

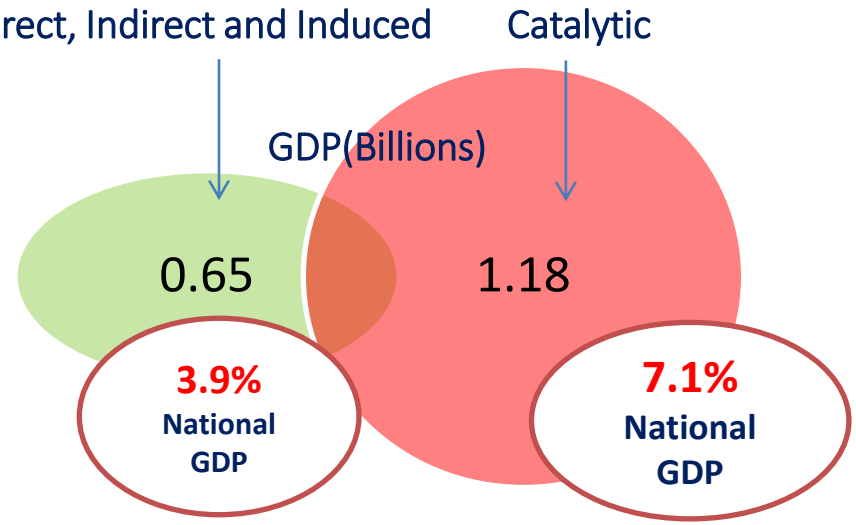




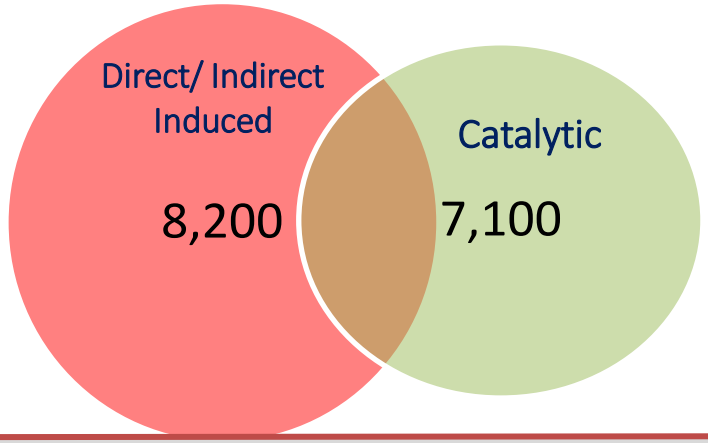
Case study II- Remote tourist islands

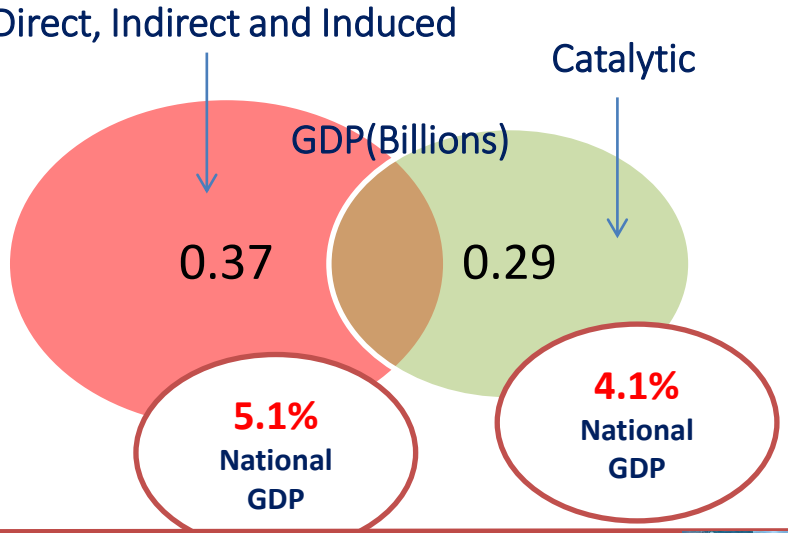
CYPRUS





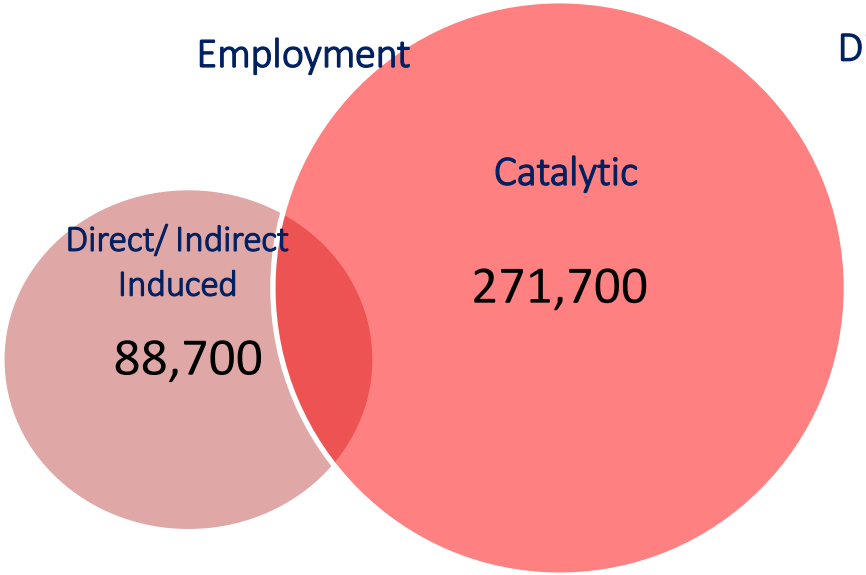
MALTA

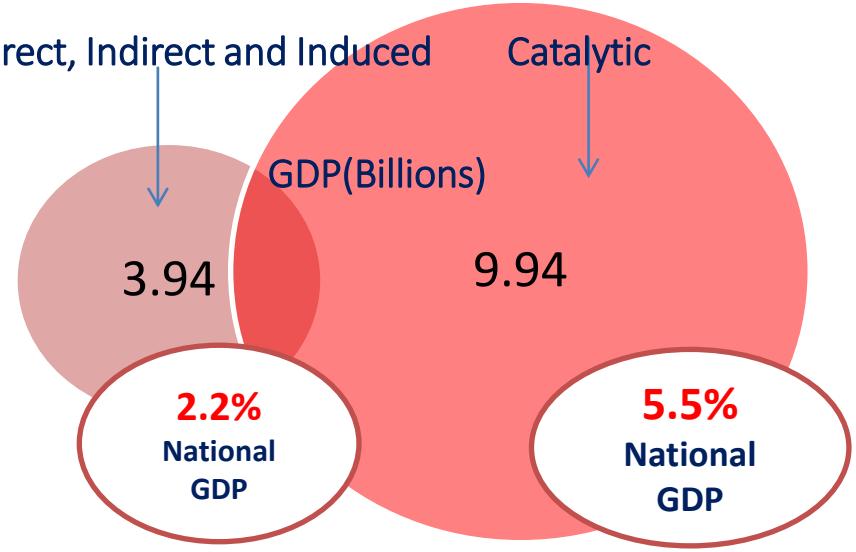




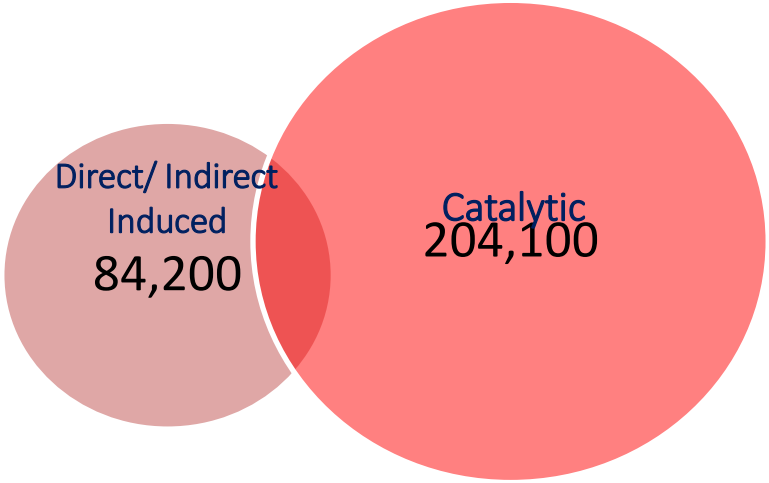
Case study III- Remote tourist destinations

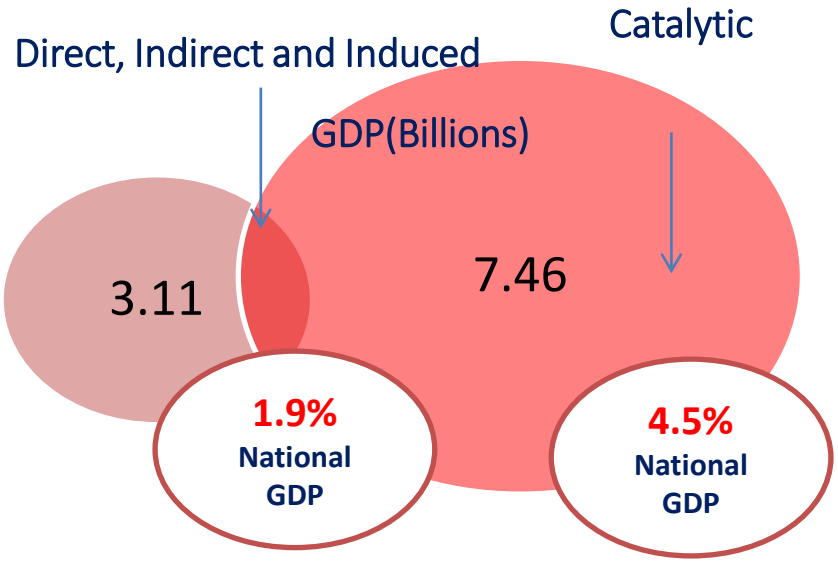
GREECE





PORTUGAL

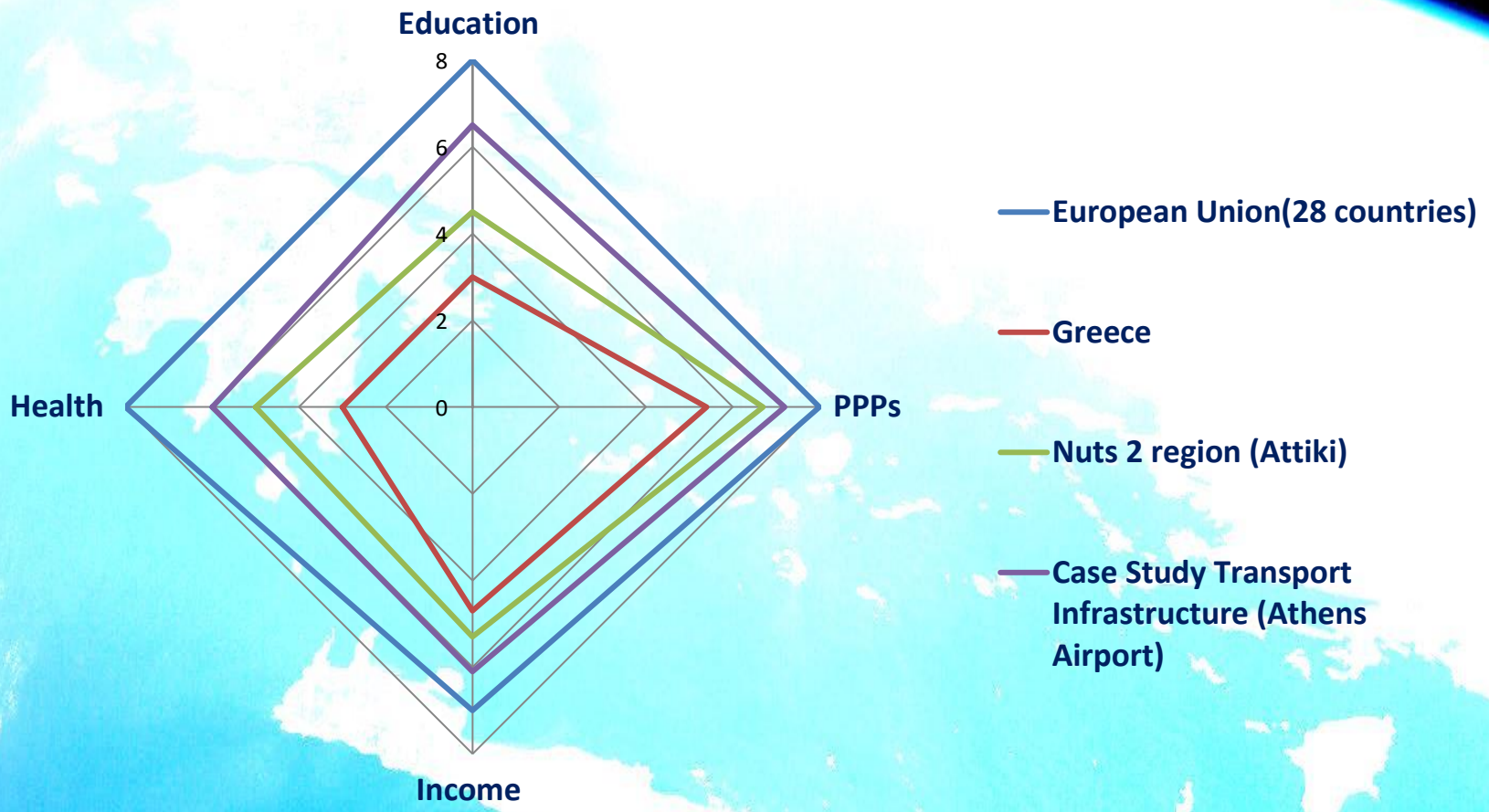




Case: Air transport Socioeconomic impact in Greece

SARTZETAKI, DIMITRIOU, 8th Biennial PhD Symposium, London School of Economics, 2017

Welfare impact for large transport infrastructure in Greece



Concluding remarks

- Why to estimate impacts in national/regional economy?
  - ✓ Estimate the overall contribution in an economic system (regional – national scale)
  - ✓ Estimate the economic impacts on other economic sectors
  - ✓ Provide essential economic and social outputs for a variety of stakeholders involved in decision process (such as Government; authorities; NGOs, etc.)
  - ✓ Monitoring the productivity and the efficiency of air transports in economies

- How significant are the transport industry impacts in national/local economy?
  - ✓ Quick and HIGH impacts in unemployment and business growth
    - ✓ Income multiplier ÷ 4 (construction period) ÷ 2 (operation period)
  - ✓ Act as un FDI providing additional impact to the poorest region of the country
    - ✓ GDP contribution very high

Concluding Remarks

- How to estimate air transport social impacts in national/regional economy?
  - ✓ I-O and CGA methodology approach for income and jobs created
  - ✓ GVA for social values
    - ✓ High need for data
    - ✓ Inputs on data mining concept, in terms of income, skills, gender, etc.
- Why to estimate air transport social impacts in national/regional scale?
  - ✓ Review the contribution in an economic system (regional/national scale)
  - ✓ Compare with other business sectors
  - ✓ Support a variety of stakeholders involved in decision process (such as Government; authorities; NGOs, financial institutions, etc)
  - ✓ Monitoring the productivity and the efficiency of air transport in economies
  - ✓ **Estimate contribution on welfare**

Selected references

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Thank you

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