Analyzing European Higher Education using the ETER data

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Content

- An example of using ETER data to investigate diversity of higher education in Europe
  - Exploiting the availability of data at the HEI level
  - But connecting it to relevant policy questions

- Question: how is European HE structured
  - Can we identify specific groups of HEIs?
  - And, particularly, a group of «European research universities» which are clearly different from the other HEIs?

Rationale

- While the US system is clearly differentiated
  - A long tradition of classification of universities («Carnegie classification») with clear criteria
  - «Ivy» league universities are a well-identified group
  - Only about 200 «research-intensive» universities

- Results for Europe are inconclusive
  - Beyond the obvious distinction between universities and colleges
  - Is this lack of differentiation the reason of the poor performance of European universities in international rankings?
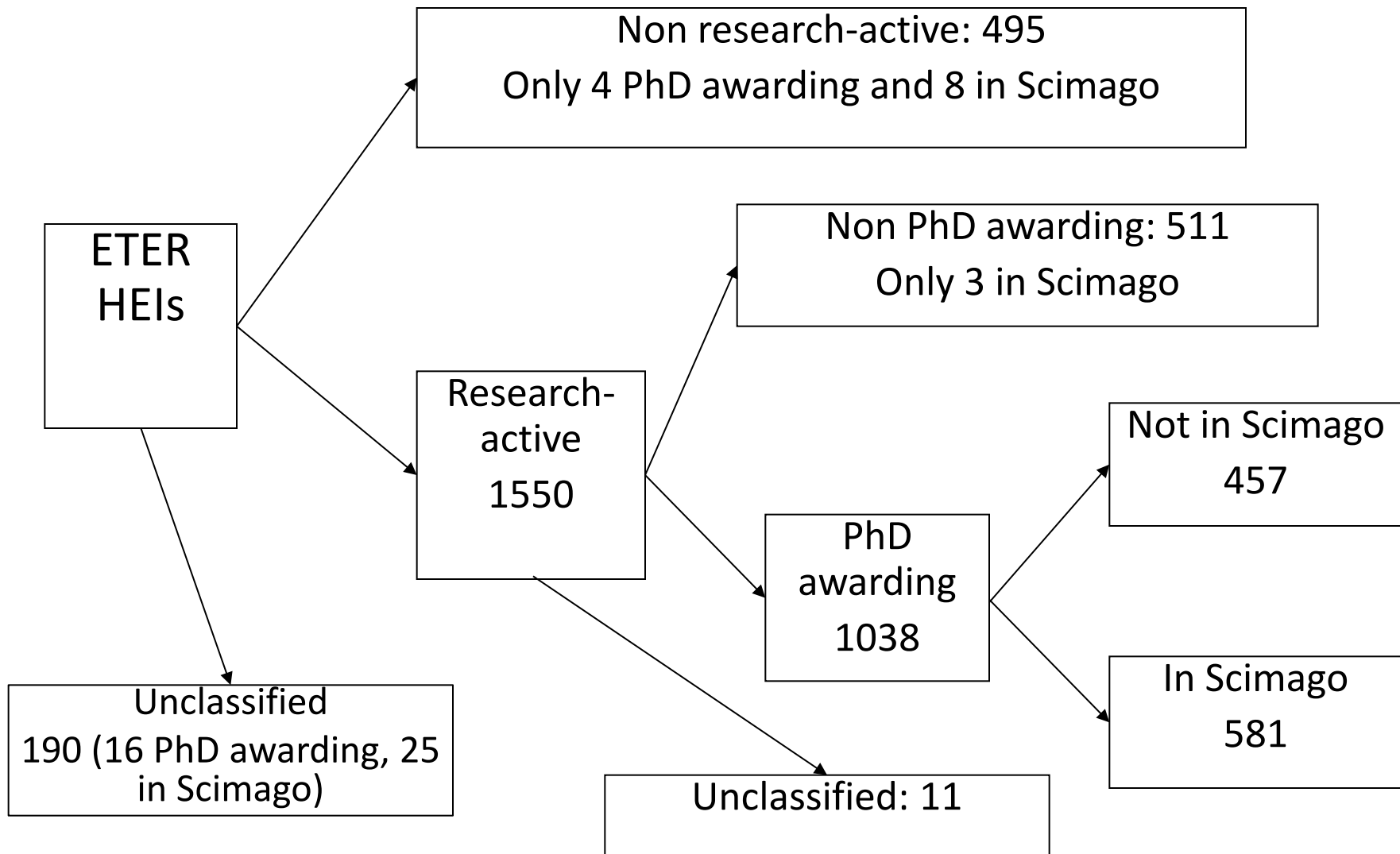
Approach

- Ex-ante classification based on characteristics
  - Using the extent of research

- Three basic criteria
  - Whether an HEIs is research active or not
  - Whether an HEI awards the doctorate or not
  - Whether an HEI as a significant publication or not

- In-depth analysis of the core of publishing universities in terms of their characteristics
  - Possibly a cluster analysis to see whether we can identify groups

Dataset

- ETER combined 2011/2012 dataset
  - 2242 HEIs in 30 countries

- ETER has been matched with
  - Scimago Institutions ranking data
  - Leiden ranking data

- Inclusion in Scimago: at least 100 publications per year in Scopus
  - Should cover all HEIs with a significant publishing activity

Classification tree

Non research-active: 495
Only 4 PhD awarding and 8 in Scimago

ETER HEIs

Research-active 1550

Non PhD awarding: 511
Only 3 in Scimago

PhD awarding 1038

Not in Scimago 457

In Scimago 581

Unclassified 190 (16 PhD awarding, 25 in Scimago)

Unclassified: 11

Group characteristics

	N. HEIs	Total staff (FTE)	Total students ISCED 6	Total students ISCED 7	Total students ISCED 8
Non research active institution	483	38'855	516'630	108'777	
Research active institution	508	143'183	1'762'822	159'656	
PhDAwarding	457	175'956	1'480'877	498'797	55'059
Scimago	581	1'025'725	6'498'867	2'127'272	437'199

	N. HEIs	Median staff (FTE)	Median students ISCED 6	Median students ISCED 7	Median students ISCED 8
Non research active institution	483	79	607	123	
Research active institution	508	198	1710	170	
PhDAwarding	457	340	1823	407	49
Scimago	581	2051	9588	3025	625

Group characteristics

- Group 1 are very small HEIs, mostly private and highly specialized

- Group 2 are mostly colleges, with an important role in bachelor education: some are very large (Amsterdam: 45'000 students)

- Group 3 are universities, but resemble to colleges in terms of their research orientation (few PhD students)
  - Very large distance universities (Hagen)

- Group 4 represents the core of European HE both in terms of education and research

Discussion

- The core of European HE is relatively small
    - Less than 600 universities
    - Covering most of activities in terms of education and research

- PhD education and international publishing are strongly associated
    - Scimago covers most of European research

- Institutional differentiation is visible mostly for bachelor education
    - Especially (but not only) in binary countries
    - Much less for master education

The European core

- To which extent we can identify a specific subgroup of research intensive universities?
  - If yes, which characteristics distinguish them from the other research-oriented universities

- Based on descriptive statistics we single out the group of HEIs with a least 10'000 publications in Scimago (over 5 years)
  - Identifying 214 HEIs, all of them except three in the Leiden ranking
 - Which produce ¾ of all publications

N. Of publications by HEIs
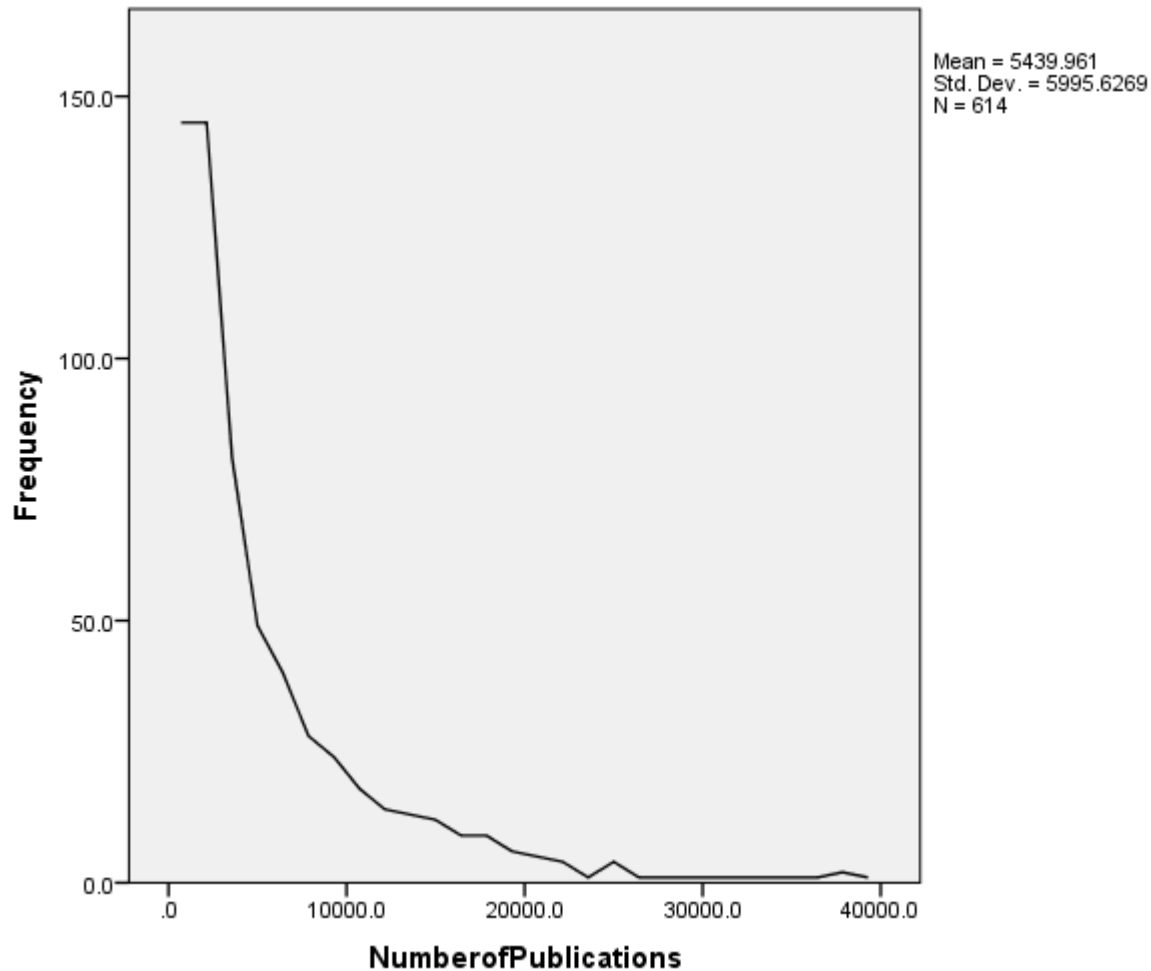
The core described

		Median staff (FTE)	Median students ISCED 6	Median students ISCED 7	Median students ISCED 8	Median publications
research_core	.00	1304	7771	1922	373	1852.5
	1.00	4056	12198	4552	1431	9576.0

- The core HEIs are clearly more research oriented that the other research universities
  - Have proportionally more PhD students and publications than the rest
- However, they are also larger in terms of undergraduate students
  - Suggesting that research orientation and size are associated
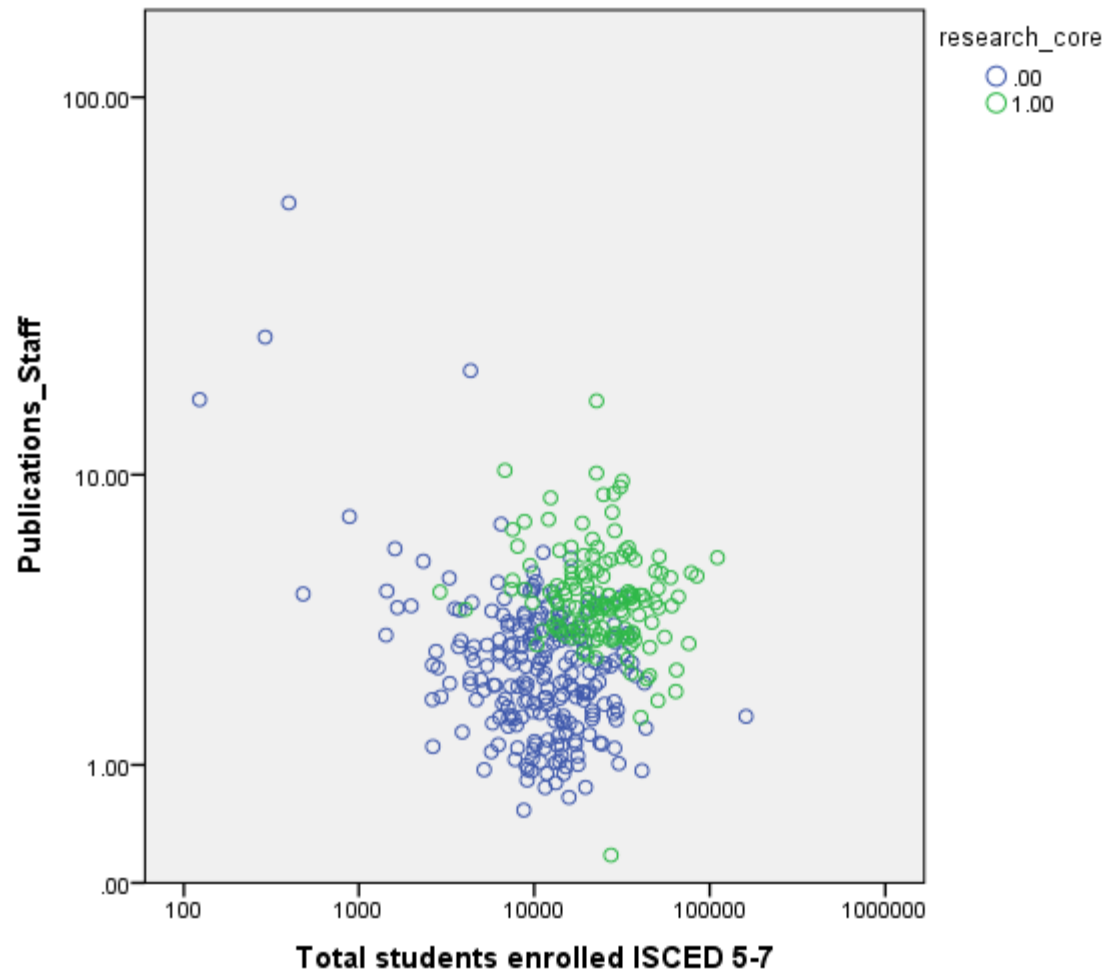
Education and publications

- There is no strong difference in teaching load between core and non-core

- The former are clearly more productive in terms of research
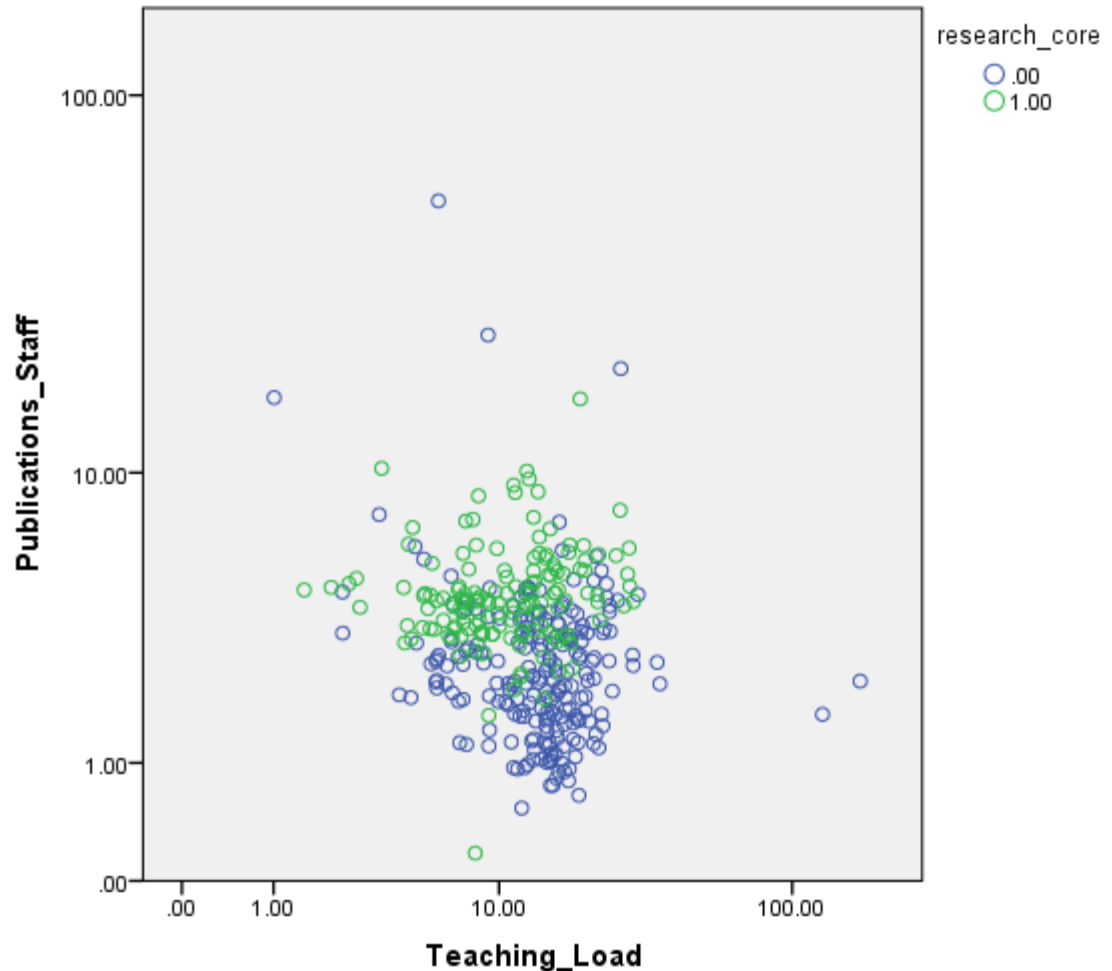
Size

- Most highly productive HEIs are also large in terms of students
- Even if there are a few highly productive medium-size HEIs

Discussion

- In Europe, education and research production are largely associated
  - Suggesting that to get research resources universities need to enrol many students
  - But universities in top-rankings are of medium size (around 15'000 students)

- Differentiation took place outside the university sector
  - Mostly concerning education at the bachelor level

- There are visible country differences
  - Not only in structure, but in distribution of functions

Final remarks

- Exploring carefully the data can provide many insights on European HEI
    - Which can be then explored further with more analytical methods (cluster analysis)

- You need to have a relevant issues to address
    - Which drives data exploration in some clear direction

- ETER data are really dimensional
    - Combining variables provides richer insights