"**Evaluating the performance of higher education institutions in Europe: A non-parametric efficiency analysis of 944 institutions**"

by

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EUMIDA database

Research project for the European Commission

Main goal: Test the feasibility of a regular data collection of microdata on HEIs

EUMIDA census

- 27 European countries (EU + Norway and Switzerland)

- 2008

- Approx. 90% of the total number of students in tertiary education (ISCED levels 5 and 6).

"Main Achievement"

Demonstrated that in all countries there exists a **core set of data** that shares the following features:

- Definitions of the UNESCO-OECD-EUROSTAT (UOE) Manual
- Routinely collected by the National Statistical Authorities
- Does not raise confidentiality issues
- Can be disaggregated at the level of individual units.

Our Approach

- Data Envelopment Analysis (DEA)

- Input Saving Efficiency

- Bootstrapping

Efficiency concept: Input Saving Efficiency

$$\max \sum_{r=1}^{s} u_r \, y_r^A + u_0$$

$$\sum_{i=1}^{m} v_i \, x_i^A = 1$$

$$\sum_{r=1}^{s} u_r \, y_r^j - \sum_{i=1}^{m} v_i \, x_i^j + u_0 \leq 0, \qquad j = 1,...,N$$

$$v_i \geq 0, u_r \geq 0 , u_0 \lessgtr 0$$

Decision Making Units

- 944 HEIs

- 17 European countries

- Cross section, 2008 reference year

Model Specification: Multiple Input Multiple Output

- **4 inputs**
- Labour
- Capital

- **5 outputs**
- Educational and/or research activities

Labour

- **Non-Academic Staff:** *Academic support staff, Management, quality control and administration staff, Maintenance and operational personnel.*

- Unit of measurement: Full time equivalents.

- Basic institutional descriptors per organisation.

Labour cont.

- **Academic Staff:** Personnel whose primary assignment is instruction, research or public service. Personnel who hold an academic rank. Personnel with other titles if their principal activity is instruction or research. Graduate students employed for teaching assistance or research.

- Unit of measurement: Full time equivalents.

- Basic institutional descriptors per organisation.

Capital

- **Total income:** Core funding, third party funding and fees.

- Unit of measurement: Euros.

- Basic institutional descriptors per organisation.

Capital cont.

- **Non-Personnel Expenditures**

- Unit of measurement: Euros.

- Basic institutional descriptors per organisation; current expenditures for goods and services consumed within the current year.

Outputs

- **Diploma** with duration of less than 3 years

- Unit of measurement: Total degrees (headcounts)

- Educational activities

Outputs cont.

- **Bachelor** 3 or 4 years

- Unit of measurement: Total degrees (headcounts)

- Educational activities

Outputs cont.

• **Master** 2nd level with duration 4 to 5 years

• Unit of measurement: Total degrees (headcounts)

• Educational activities

Outputs cont.

• **Master** 2nd level without 1st

• Unit of measurement: Total degrees (headcounts)

• Educational activities

Output cont.

- **Doctorate** delivered at ISCED 6 qualification

- Unit of measurement: Total degrees (headcounts)
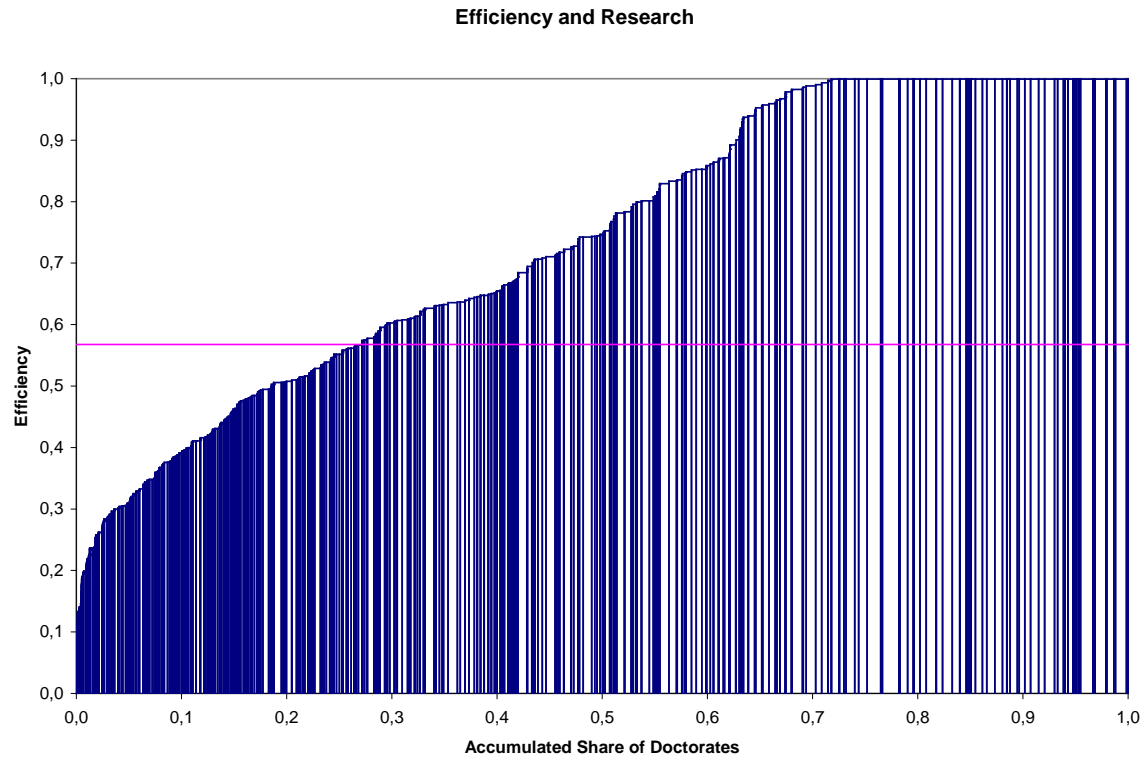
- Educational/research activities

Efficiency Distribution by Country 2008

Country	Average Efficiency	STDV	Number of HEI:s
AT	0,383682	0,281615	22
BE	0,785476	0,247815	21
CH	0,460548	0,291795	31
CZ	0,511391	0,246947	23
DE	0,624189	0,260519	**296**
ES	0,604723	0,204768	47
FI	0,439957	0,19997	46
HU	0,509893	0,236954	28
IE	0,562524	0,189646	21
IT	0,505385	0,250218	78
LV	0,776067	0,267604	15
NL	0,517439	0,242021	57
NO	0,272682	0,132101	44
SE	0,455805	0,236768	41
SK	**0,82465**	**0,317132**	20
UK	0,653838	0,212391	148
DK	**0,265333**	**0,036697**	**6**
MIN	**0,265333**	**0,036697**	**6**
MAX	**0,82465**	**0,317132**	**296**

Efficiency and Research by HEI

Efficiency and Research

Reflections

- Country differences – homogenization

- Quality of a knowledge intensive service

- Global, segmented market for education and research

- Dynamics – convergence to a common model?