

The need for science management and benchmarking tools in Portugal

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Conteúdo

- 1 Goals**
- 2 Research growth and rankings
- 3 FCT, A3ES and others
- 4 Faculty evaluation
- 5 Concluding remarks

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Goals

- To raise some questions concerning the data and procedures needed for better science management and benchmarking
- Related aspects:
 - What research is being produced?
 - How is it impacting the higher education system?
 - Who is doing it?
- Hence: research performance, study programmes, faculty evaluation

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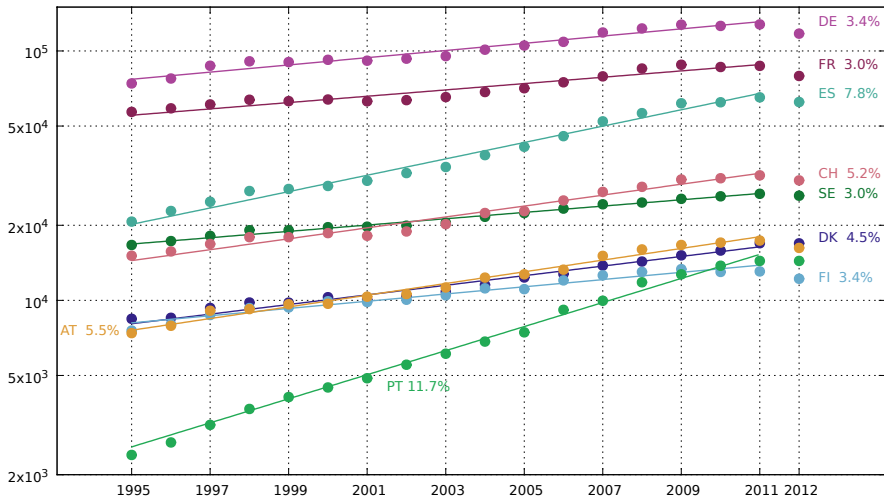
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Research growth in Portugal

- Research volume has been increasing
- Number of researchers with PhD, published articles...
- How does the growth compare with other EU countries?

Research growth rates

Articles 1995-2012 (Web of Science)



Details

- Data retrieved on Jan. 21, 2013
- Source: Web of science
- Databases: SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, CCR-EXPANDED, IC
- Query: by country and publication year

Portuguese research growth

- The growth rate is 11.7%
- Main acting institutions: Universities
- Have their rankings improved in proportion?
- Why, or why not?

Portuguese research growth

- We know how to stimulate scientific research
- But how does it impact the rankings?
- Missing links
- Cause-effect relation (productivity/ranking) fuzzy
- How accurate are the data used in the ranking?
- Can we duplicate / understand the results?

Portuguese research growth

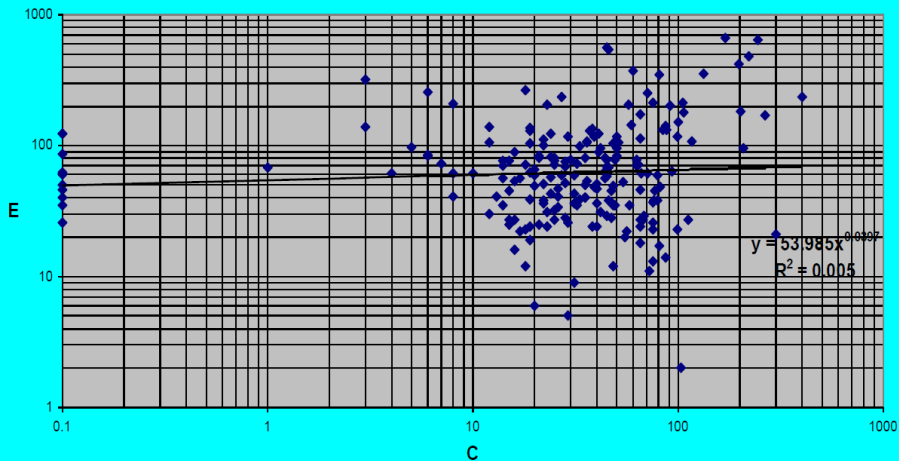
- Databases: ISI, Scopus, etc.
- Raw data not useful without “cleaning up”
- Process is complex and expensive
- Examples:
 - Separate author and affiliation lists
 - Multiple affiliations
 - English / Portuguese institution names

Portuguese research growth

- Needed: a better, more accurate database
- Suited to the benchmarking needs of Portuguese institutions
- Accurate, standardized names/affiliations
- Towards fully accountable scientific production

Human factor

Correlation between Expert Scores with Citation-Analysis Based Scores
THE Ranking 2004



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- Mission: to promote the advancement of scientific and technological knowledge in Portugal
- FCT funds research units, project proposals, scholarships, etc.
- Funding is decided after the evaluation of the merit of proposals

- Mission: to contribute to the improvement of the quality of Portuguese higher education
- A3ES assesses higher education institutions and their study programmes
- Ensure the integration of Portugal in the European quality assurance system of higher education

Procedure

- Evaluation of:
 - Research units
 - Project proposals
 - Individual scholarships
 - Study programmes
- Support elements:
 - Workplans, progress reports, CVs, publication lists, syllabus
- Supplied by the interested party
 - A group of researchers
 - An individual

Fact checking

- Should the data supplied to the evaluation agency / panel by interested parties be cross-checked?
- How can this be done?
- One simple solution:
 - Ask for ISI/Scopus/... accession numbers in CVs or publication lists
- Difficulties:
 - Those noted before in connection with those databases

Duplication

- CVs and publication lists need to be delivered to separate agencies for different purposes...
- ...Or even to the same agency for different purposes
- Simple solutions:
 - Stick to one of the existing CV frameworks
 - Allow data from other platforms to be imported
- Difficulties:
 - Data difficult to cross-check
 - Accession numbers and similar solutions could be considered
- Wanted
 - Different aggregation levels for different purposes

Pitfalls

- Availability of metrics leads to “a fever of numbers”

“The goal of computation is insight, not numbers.”

R. Hamming (1915–1998)

- Needed: numbers *and* expertise

Pitfalls (continued)

- “The fatal attraction” (van Raan, 2005)
- Bibliometric methods deemed improper for research performance evaluation
- Even at higher aggregation levels (large institutions, say)
- Indicators are used by people without competence and experience in the quantitative study of science

More pitfalls

- Comparison between different scientific areas is difficult
- Existing studies: citation counts, citation density, authorship...
- Counting methods are important in the final ranking results
- Biased comparisons lead to poor management decisions

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Faculty evaluation

- Each University works with its own system
- Results of the evaluations are not comparable across institutions
- Mobility may bring a pleasant (or unpleasant) surprise
- Working data may be supplied by the interested party (faculty)
- Duplication of effort

Faculty evaluation

- Should we consider the advantages and disadvantages of more integration?
- Should we defend the adoption of a common CV framework?

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Concluding remarks

- Principle: scientific research and study programmes should be accountable to the public, in an independent and clear way
- Duplication of effort should be avoided to the extent possible
- Move towards better data validation
- Consider the advantages and disadvantages of integration
- Allow reports at different aggregation levels to maximise the usefulness of the data sources, rather than creating different repositories
- Treat each scientific area separately, according to its characteristics
- Supply numbers *and* insight so that decision-makers see beyond the numbers