

Citations, notoriety and scientific quality : Case of best journals of economics

Research Evaluation for the Social Sciences and the Humanities – Rennes

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Plan

- Introduction
- Data
- Analysis method
- Main results
- Conclusions

Introduction

Introduction

Over the last 20 years, there has been a series of mutations that affected the Scientifics works both in substance and in form.



indeed, we are witnessing to an «*administrationalization*» of scientific research.



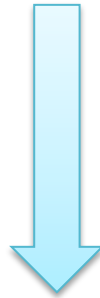
which appeals to evaluation tools

- **Bibliometric analysis :**
 - **An analysis of production**
 - **An influential analysis**
 - **An analysis of scientific cooperation**

- 3 types of indicators can be distinguished:
 - **volume indicators** (or production),
 - **impact indicators** (or influence)
 - **composite indicators** (i, h, g, y, etc.).

Limits of traditional approach (1/2)

This type of approach more focused on the quantitative aspect that on the qualitative aspect has quickly showed its limits.



An article that generates a lot of citations does not necessarily mean it's a good article

Limits of traditional approach (2/2)

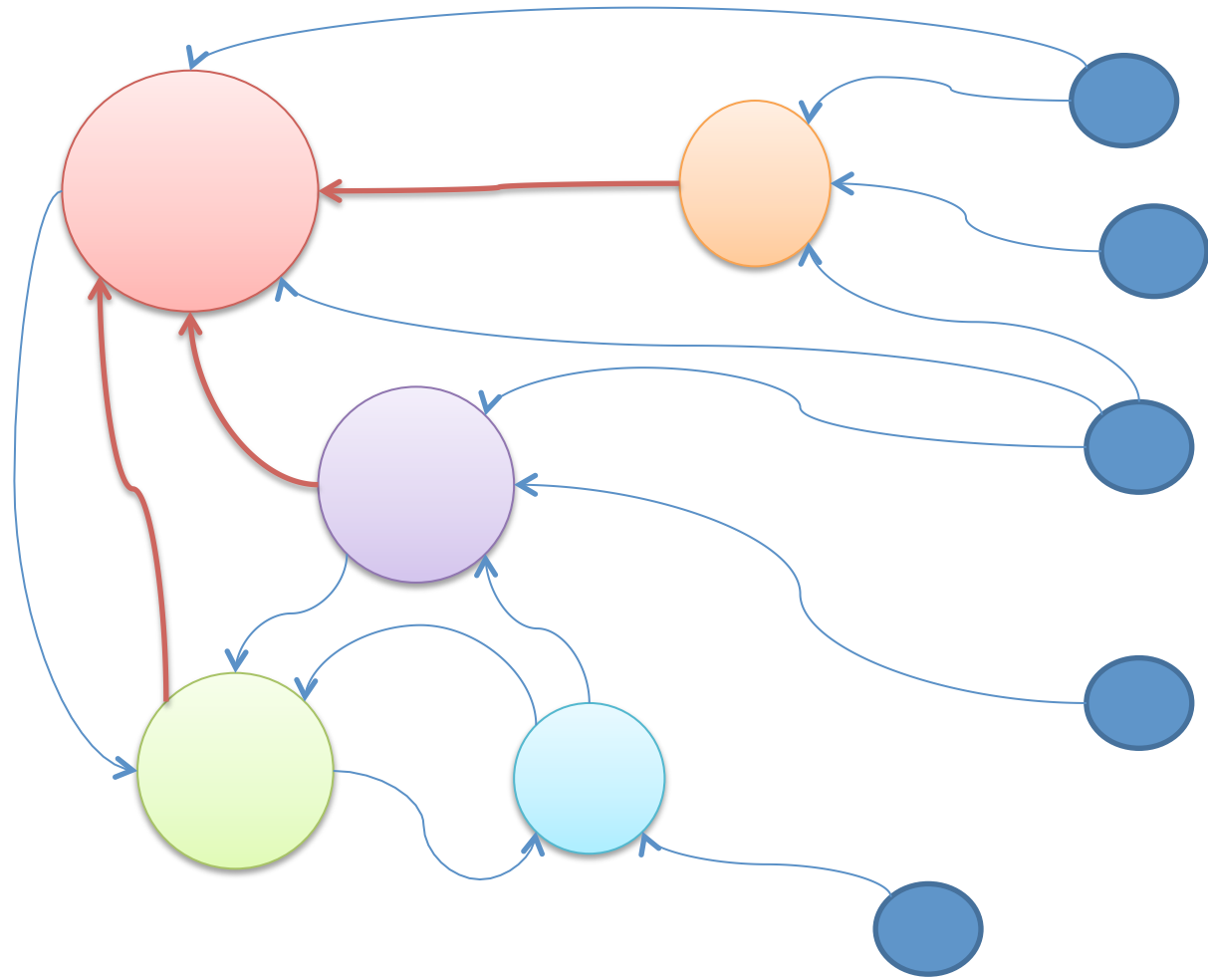
- Contested articles
- The date of publication
- The existence of friendship citations or complacency citations,
- The presence of self-citations, etc.

- Each citation **has not the same value**, but according to its :
 - author or
 - journal that refers,
- hence the integration of **new methods** which take into account the difficulties of the analysis by citations, incorporating **weight the citing articles**

- More recently, due to the success of the **Google** search engine, appeared **analysis PageRank**.



- The peculiarity of this method is that the citations **do not have the same value**.



- *Our object* : **make comparisons** between several modes of **evaluation research**.



- We focused our analysis on the **scientific articles** published in the space of eleven years (2000-2010) by the **five best journals in economics** in terms of ranking.

- Our main purpose : is to check **if the method of evaluation by number of citations is also criticized** on level of the most prestigious journals in economics ?



- We calculated a number of **numerical indices** to represent **different evaluation methods**.

- Our analysis involves comparing three methods of evaluation research articles :
 1. Count citations;
 2. Combes and Linnemer (2010) indices;
 3. PageRank.

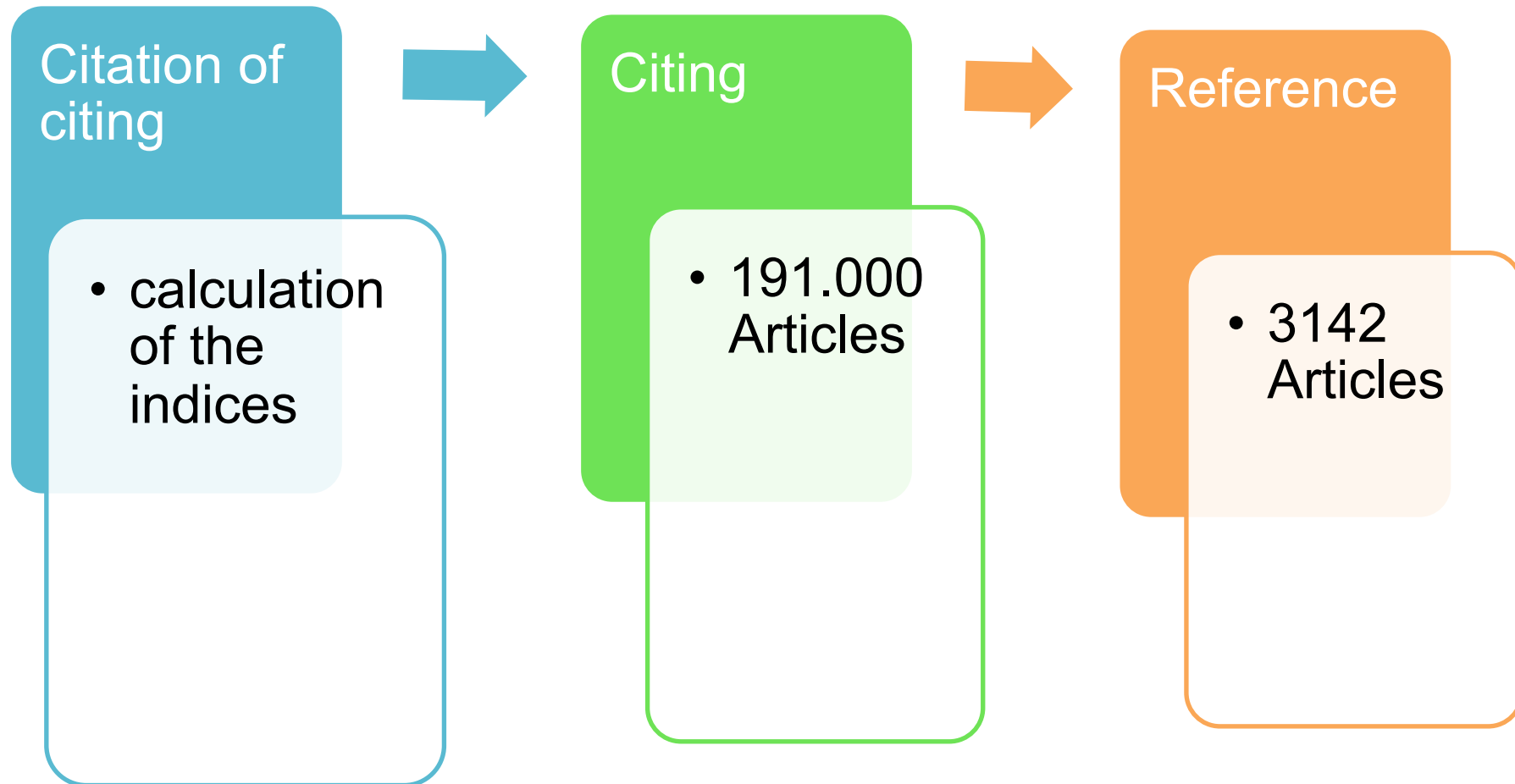
Data

1. Database

- We have created a database of all articles published by the best five economics journals over a period of eleven years (2000 to 2010).
- Data is retrieved late November 2014 from “**JSTOR**” and “**Web of Science**” allow us to identify more than **3142 articles** published in journals:

1. The American Economic Review (AER),
2. Econometrica (ECO),
3. Journal of Political Economy (JPE),
4. Review of Economic Studies (RES),
5. Quarterly Journal of Economics (QJE).

- Our database :



2. Indices calculated

- There are a total of 10 index :
 - TC : Total of citations
 - H : Mean that there are H citing articles which received at least H citations.
 - G : The index G of an article, mean that the G articles who cite him get together at least G^2 citations.



Count
citation



PageRank

- H_{Cli} : indicates that the reference article, received at least i citations of articles published in journals whose coefficient h or m of C&L, is greater than or equal to i .
- G_{Cli} : The index G_{CLi} of an article, mean that the G articles who cite him get together at least G^2 citations of articles published in journals whose coefficient h or m of C&L is greater than or equal to i

Combes
and
Linnemer
indices

Analysis method

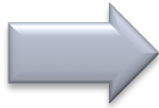
1. Correction of biases

- “Time effect” :
 - creation of temporary windows (1st crown)
 - assign dynamiques Corrections (2nd crown)

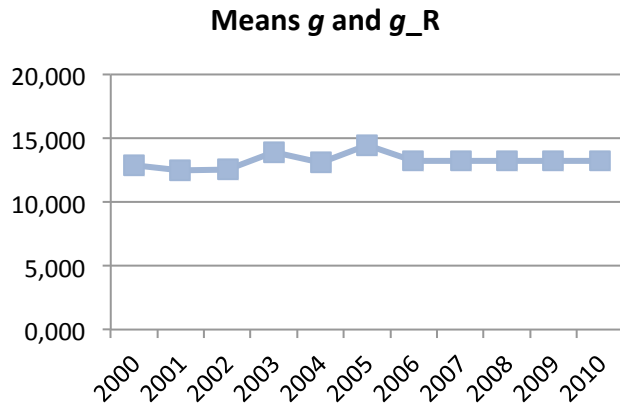
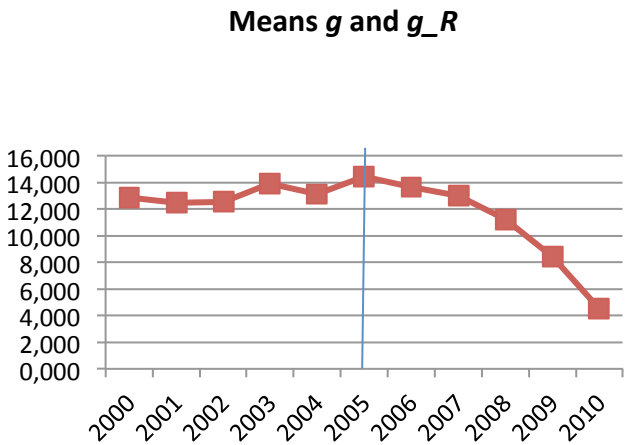
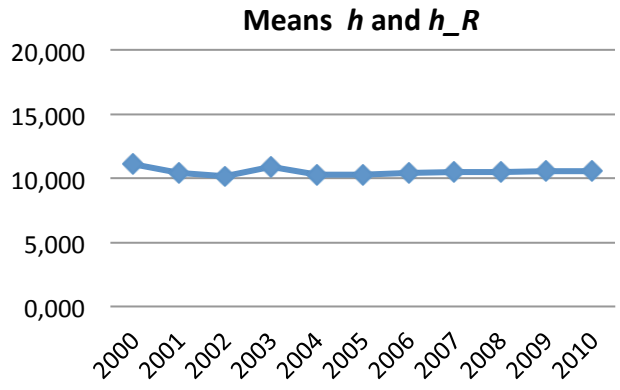
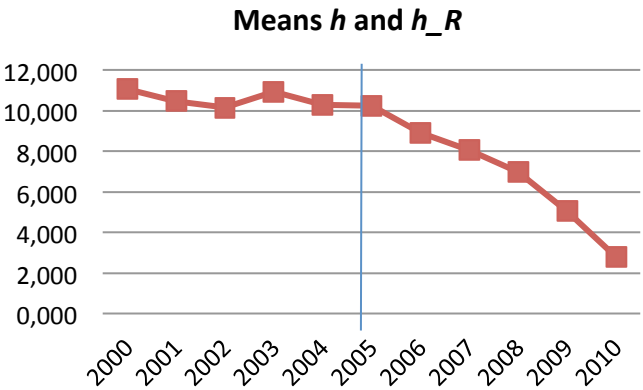
$$coeff(i) = \frac{\left(\sum_{j=1}^n \frac{X_j}{n}\right)}{X_i}$$

- “Effect review” :
 - Centralization of data ($X_i - X$)

Before



After



2. Principal Component Analysis

- a) Correlation between different evaluation methods.
- b) PCA : axes and observations

Main results

1. descriptives statistics (1/2)

Articles published by journal between 2000 and 2010.

Journals	Articles	publication/year	%
AER	1084	99	35%
Eco	668	61	21%
QJE	457	42	15%
RES	480	44	15%
JPE	453	41	14%
Total	3142	Mean 57	100%

1. descriptives statistics (2/2)

Average number of citations per paper in four years.

Journals	Articles	Citations	Citations / Article
AER	1084	19814	18
Eco	668	10992	16
QJE	457	12382	27
RES	480	6461	13
JPE	453	7595	17
Total	3142	57244	18

2 Top 10 articles

Nom auteur(s)	Titre	Revue	Issue	Année	LP/SP	Rangs TC			Rangs Combes et linnemer						
						TC	h	g	h_CLh	g_CLh	h_CLm	g_CLm	h_R	g_R	TC_R
Lawrence J. Christiano, Martin Eichenbaum, and Charles L. Evans	Nominal Rigidities and the Dynamic Effects of a Shock to Monetary Policy	JPE	1	2005	LP	1	35	17	1	1	3	1	35	16	1
Marianne Bertrand, Esther Duflo, and Sendhil Mullainathan	How Much Should We Trust Differences-In-Differences Estimates?	QJE	1	2004	LP	2	10	12	2	4	2	3	10	12	2
JEFFREY R. KLING, JEFFREY B. LIEBMAN, AND LAWRENCE E KATZ	Experimental Analysis of Neighborhood Effect	ECO	1	2007	LP	3	26	25	82	70	75	53	26	24	18
FRANK SMETS AND RAFAEL WOUTERS	Shocks and Frictions in US Business Cycles: A Bayesian DSGE Approach	AER	3	2007	LP	4	67	105	9	10	4	4	67	98	3
Elhanan Helpman, Marc Melitz and Yona Rubinstein	Estimating Trade Flows: Trading Partners and Trading Volumes	QJE	2	2008	LP	5	176	314	77	107	47	80	178	281	5
Marc J. Melitz and Giancarlo I. P. Ottaviano	Market Size, Trade, and Productivity	RES	1	2008	LP	6	59	127	32	23	8	7	59	124	4
Lutz Kilian	Not All Oil Price Shocks Are Alike: Disentangling Demand and Supply Shocks in the Crude Oil Market	AER	3	2009	SP	7	83	138	238	430	87	156	83	135	7
GARY E BOLTON AND AXEL OCKENFELS	ERC: A Theory of Equity, Reciprocity, and Competition	AER	1	2000	LP	8	1	1	7	9	15	4	1	1	6
Urs Fischbacher and Simon Gächter	Social Preferences, Beliefs, and the Dynamics of Free Riding in Public Goods Experiments	AER	1	2010	SP	9	20	19	238	703	26	136	20	19	28
JAMES E. ANDERSON AND ERIC VAN WINCOOP	Gravity with Gravititas: A Solution to the Border Puzzle	AER	1	2003	LP	10	19	3	25	50	43	36	7	3	8

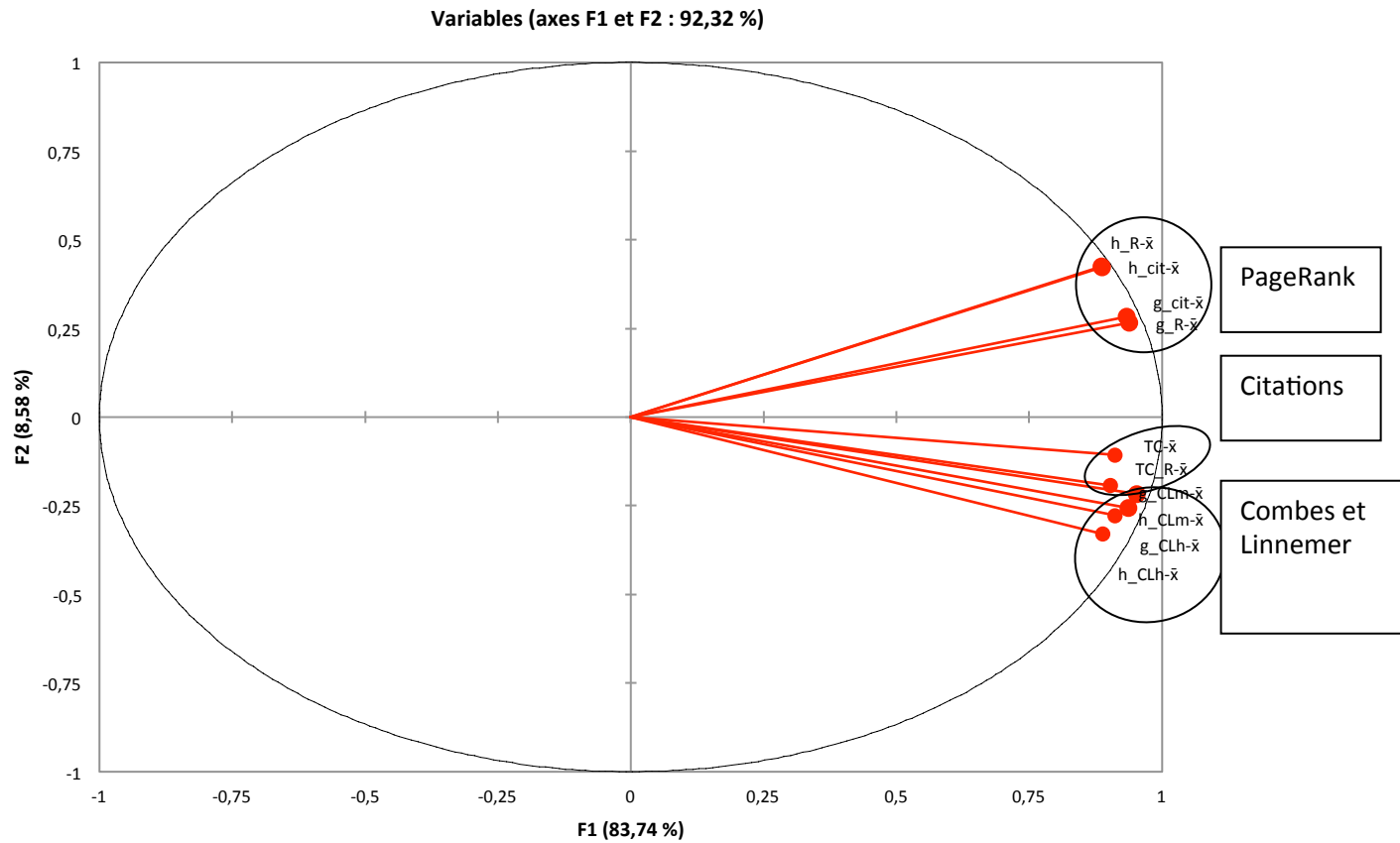
3. PCA analysis (1/3)

1. Pearson correlation matrix (rounded to one decimal place)

Variables	TC	h_cit	g_cit	h_CLh	g_CLh	h_CLm	g_CLm	h_R	g_R	TC_R
TC	1,0	0,7	0,8	0,8	0,8	0,8	0,9	0,7	0,8	1,0
h_cit	0,7	1,0	0,9	0,7	0,7	0,7	0,8	1,0	0,9	0,7
g_cit	0,8	0,9	1,0	0,7	0,8	0,8	0,8	0,9	1,0	0,8
h_CLh	0,8	0,7	0,7	1,0	0,9	0,9	0,9	0,7	0,7	0,8
g_CLh	0,8	0,7	0,8	0,9	1,0	0,9	1,0	0,7	0,8	0,8
h_CLm	0,8	0,7	0,8	0,9	0,9	1,0	1,0	0,7	0,8	0,9
g_CLm	0,9	0,8	0,8	0,9	1,0	1,0	1,0	0,8	0,8	0,9
h_R	0,7	1,0	0,9	0,7	0,7	0,7	0,8	1,0	0,9	0,7
g_R	0,8	0,9	1,0	0,7	0,8	0,8	0,8	0,9	1,0	0,8
TC_R	1,0	0,7	0,8	0,8	0,8	0,9	0,9	0,7	0,8	1,0

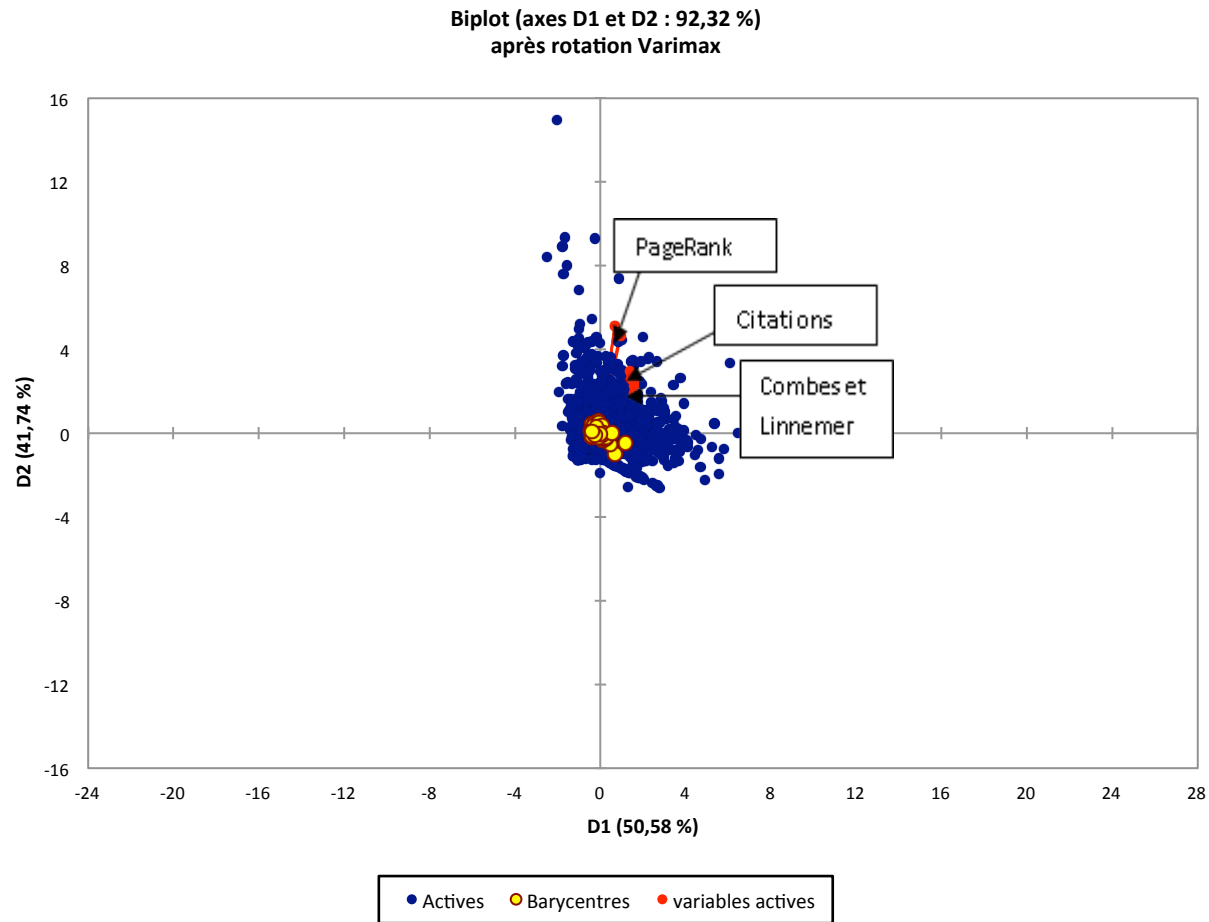
3. PCA analysis (2/3)

2. PCA Axes



3. PCA analysis (1/3)

3. PCA Axes and observations



Conclusions

Conclusions

- The counting of citations is an efficient method.
- The best journals include three features: **prestige**, **notoriety** and **quality**.
- it is better to evaluate with the easiest method (Occam Razor : “Why make complicated when they can make simple”)

Thank you for your attention!

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