An Examination of the Reliability of Prestigious Scholarly Journals

Andrew Oswald
University of Warwick, UK

Rome: October 2006
A question for almost any nation
A question for almost any nation

How should levels of scientific funding be distributed across different universities?
The UK’s current approach

1. We have a Research Assessment Exercise (RAE)

2. We elect peer-review panels to decide on quality
Big sums of money are involved
Big sums of money are involved

About 12 billion Euros will be allocated in the UK over the next few years.
But what design for the future?
But what design for the future?

The UK government would like to go to a simpler, cheaper system.
But what design for the future?

The UK government would like to go to a simpler, cheaper system.

It wants to design a ‘metrics’ approach.
A commonly heard suggestion is to:
A commonly heard suggestion is to:

have a system where papers are rated according to the prestige of the journal
Might this have advantages?
Might this have advantages?

• Objective (if we use journal rankings from ISI, say)
• Potentially inexpensive
• Simple to understand
• Fairly immune from personal biases
• Emphasizes refereed work
So this paper asks a natural question

How reliable are journal labels?
There is some earlier work on this issue.
One of the most famous studies

Another interesting piece

Both these raise question marks over the reliability of psychology and management journals.
Both these raise question marks over the reliability of psychology and management journals.

Hence a natural concern:
Is the quality of a journal a reliable sufficient-statistic for the quality of a journal article?
Is the quality of a journal a reliable sufficient-statistic for the quality of a journal article?

My data apparently suggest no.
A simple test

I collect data on economics articles published 25 years ago, in 1981.

The data suggest that article quality often differs greatly from that of the journal ‘label’.
Of course, we therefore need some reasonably objective measure of ‘quality’.
One approach

Arguably, although not perfect (self-citations, US bias, fashion, etc), the number of citations to an article is a way to judge an article’s importance.
Assume that total citations are a rough proxy for excellence
Assume that total citations are a rough proxy for excellence.

I find it is better to publish the best article in the Oxford Bulletin of Economics than all 4 of the worst-4 articles in the equivalent issue of the American Economic Review.
Perhaps you could turn to the hard copy of the paper.
Then what should nations do?
My own view

1. In the very short-run, put weight on the journal’s prestige

2. In the longer-run, put weight on the number of citations to the individual article
This suggests that we should devise a formula that means the journal prestige ‘label’ matters only if the article was published very recently.
Thus, it is necessary to weight partly the article and partly the journal.
Thus, it is necessary to weight partly the article and partly the journal.

This sounds like a convex combination.
One possible suggestion:
‘Valuing’ a journal article

\[ v = w(y)c + [1-w(y)] e(j, r, i) \]

where value \( v \) is a convex combination of citations \( c \) to the article and the prestige \( e \) of the journal.
As the years, $y$, increase:

the emphasis should switch from the prestige of the journal to the number of citations that the actual article is accruing:

$w(y)$ rises and $1 - w(y)$ shrinks.
Other recent work

A 2005 paper by Jonathan Adams in *Scientometrics*.

It shows that cites (t) quite closely predict cites (t+8).
Adams examines papers in molecular biology and genetics.
Pattern of citation growth for UK authored papers published in 1993.

Total papers 1993: 1348

Molecular Biology & Genetics
Summing up the ideas today:
Conclusions

Journals are unreliable.

Elite journals often publish poor papers, and vice versa.

A scientific-funding system needs to recognise this.
An Examination of the Reliability of Prestigious Scholarly Journals

Andrew Oswald
University of Warwick, UK

Downloadable through www.oswald.co.uk

Rome: October 2006