



INTERNATIONAL ASSOCIATION OF SCIENTIFIC, TECHNICAL & MEDICAL PUBLISHERS

RESEARCH ASSESSMENT EXERCISES & PUBLISHING IMPLICATIONS

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What is *stm*?

- International association
 - for **ALL** types of STM publisher, commercial, not for profit, large or small
- Founded in 1969
- Over 100 members
 - who publish in science, technology, medicine, the social sciences, economics and business studies
- Each year STM members publish
 - 55% of journal titles, 65% of all journal articles, tens of thousands of books, reference works
- Exists to represent and advocate the positions of scholarly, research and medical publishers

stm

Holy Grail of Research Assessment

“You can only manage what you can measure”

Business School Dictum

(orig. Peter Drucker)

“Not all that counts can be counted”

Albert Einstein

- RA Objectives
 - Encourage excellence, ration funds
- RA Assumptions
 - α inputs directly lead to α outputs
 - Institutions with most α outputs are the best
 - Funding α institutions leads to more α outputs
 - More α outputs are good value for society

Research Assessment & Publishing

- Research assessment is at the heart of the formal scholarly communication system...
 - The peer review of **papers**
 - The reputation of **journals**
- ... and publication activity helps judge...
 - The **standing of a researcher** from where s/he **publishes**; which feeds into
 - The **evaluation of institutions** based on the **publication** record of their staff
- Assessment is not an exact science

How can it be done?

“Beauty Contests & Footprints in the Sand”

- Qualitative expert opinion
 - Peer review: grant panels, journal referees etc.
- Quantitative metrics of outcomes
 - Mostly derivatives of publication
- Algorithm to combine and produce rankings

- Methodological issues
 - How to count metrics
 - How to normalise for comparison
 - Dealing with very different disciplinary profiles

Measurable Outcomes of Research

OUTCOMES

- First order outcome
 - Publication
- Second order outcomes
 - Usage by readers
 - Citation by authors
 - Patents applied for
- Third order outcomes
 - Media coverage
- Fourth order outcomes
 - Development and economic exploitation

METRICS

- Publication counts
- Download counts
- Citation counts
- Patents granted
- No. of stories that appear
- GDP and employment

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An issue for SSAH disciplines

Normalisation Problems

- How/what/who do you count?
- Publication productivity
 - Per capita, per department, per discipline?
- Usage and citation
 - Downloads/cites per published item?
 - Downloads/cites per journal (or per e book)?
 - Downloads/cites per journal per market size?
 - Who (or what) is doing the downloading?
- Complex (compound) metrics
 - E.g., journal impact factors, how to associate with authors, institutions?

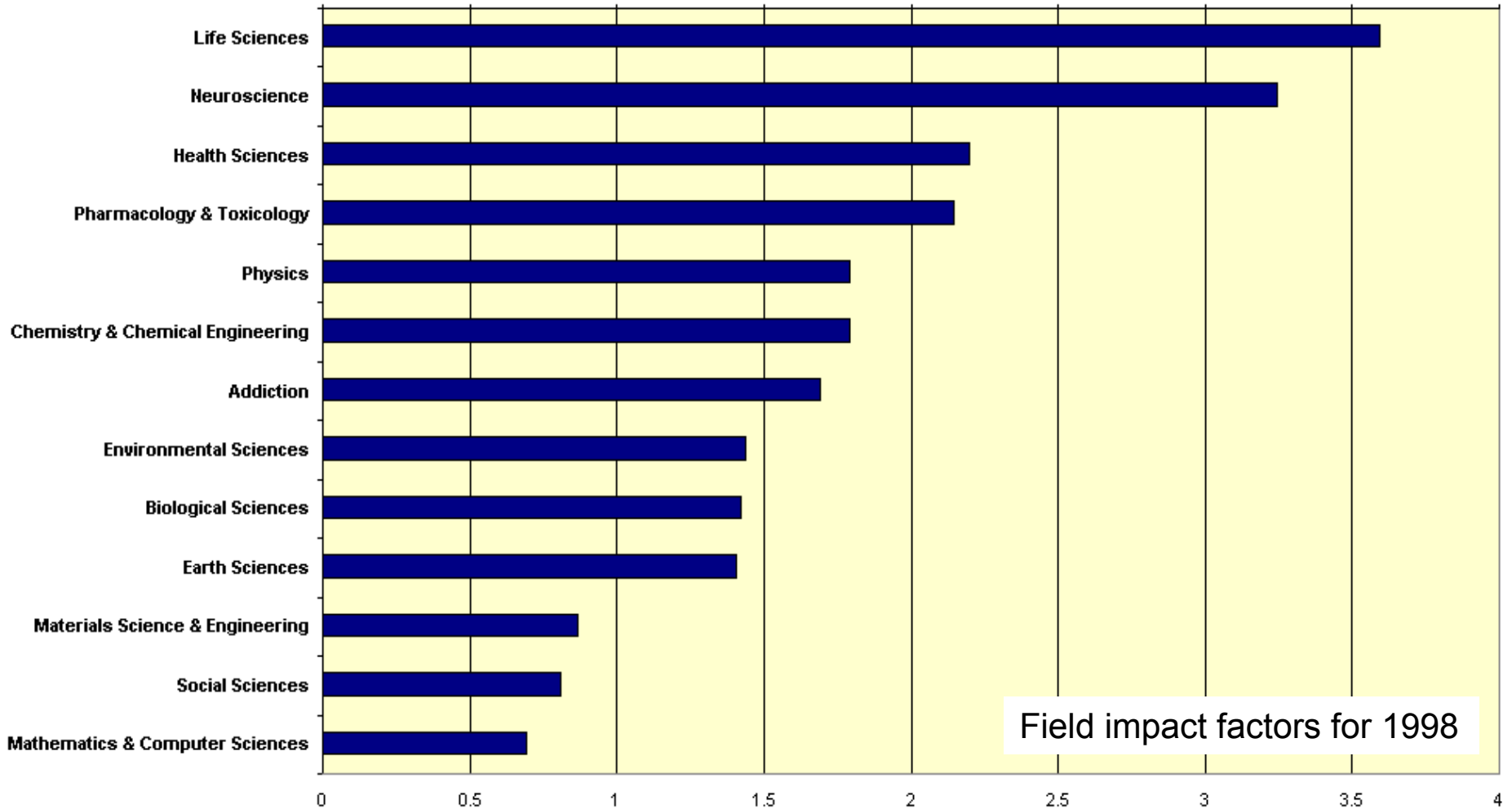
Citations As A Metric

- Assumption
 - Citation is an attribution of scholarly value
 - Not all fields are equally covered by citation datasets; does not work well where book publication predominates
- Wide range of citation types
 - Honorific, historic, “political”, discursive
 - Not all reflect scholarly value
- Simple counting of citations is misleading
 - Journals have different sizes (papers/year), widely varying readerships, different purposes
 - Cross disciplinary comparison is invalid
- Analysis difficult at article or author level
 - Data is skewed: normal for 80% of cites to come from 20% of articles
 - Insufficient data: level close to statistical noise

Impact Factor

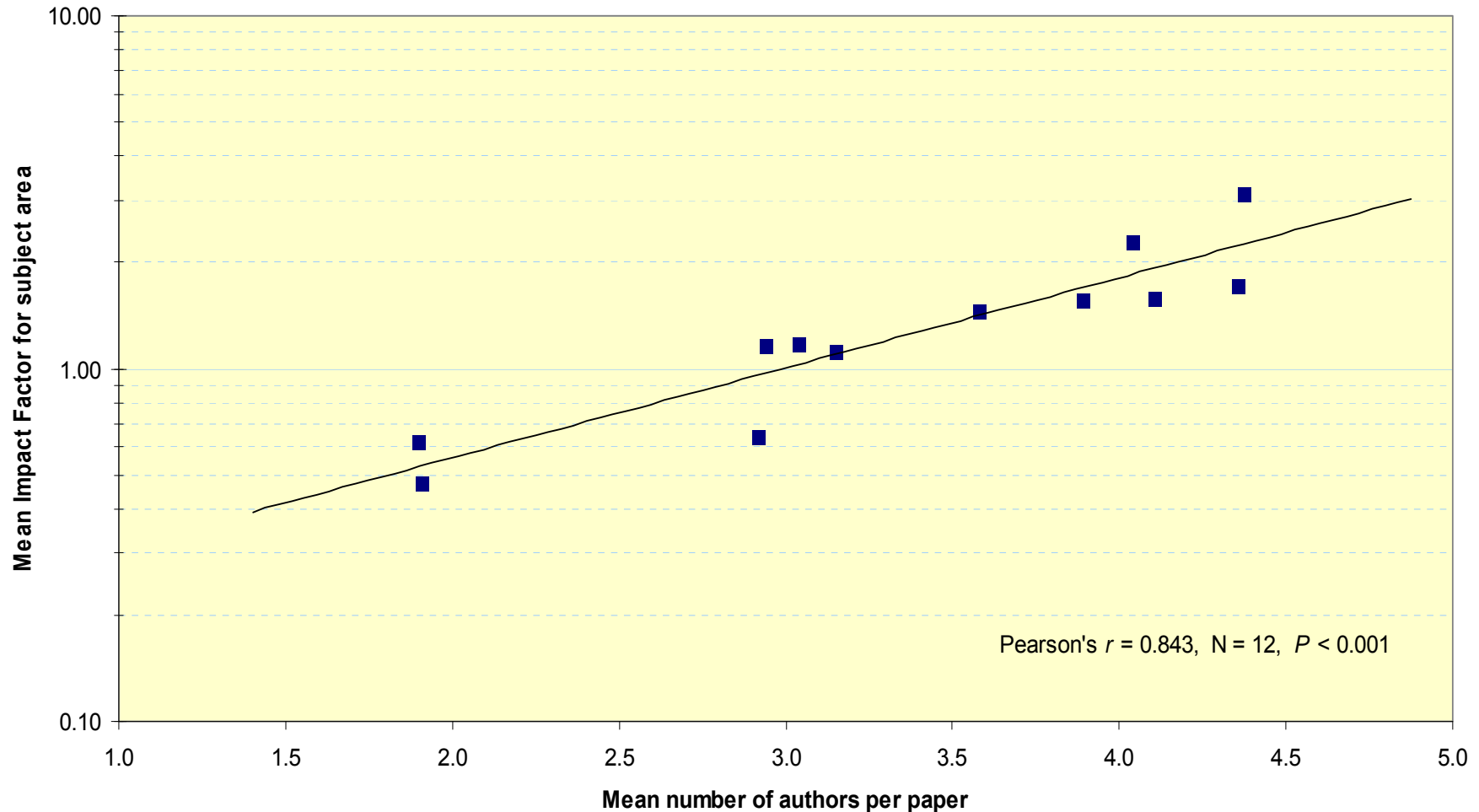
- A normalized citation measure
 - Number of citations received over a period
divided by
 - number of citable items published in that period
- */S/* journal impact factor is over two years
 - Varies by subject area, journal (paper) type, journal size, citation window, and over time
 - Depends on definition of “citable items”
- **Cannot** be manipulated as a “score” or raw number

Influences on Impact Factors: Subject Area

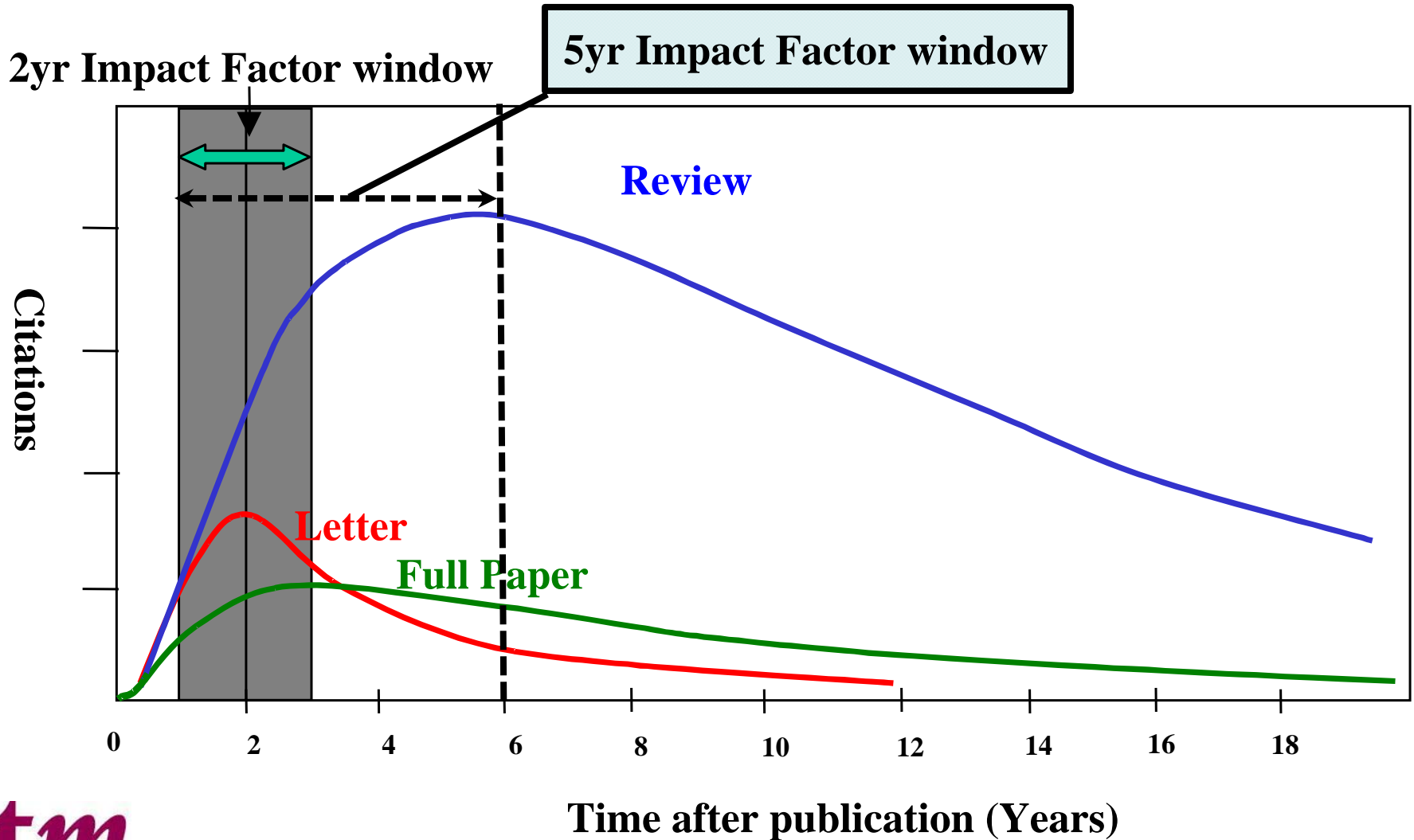


Influences on Impact Factors: No of Authors

Impact Factors and Mean number of Authors per paper

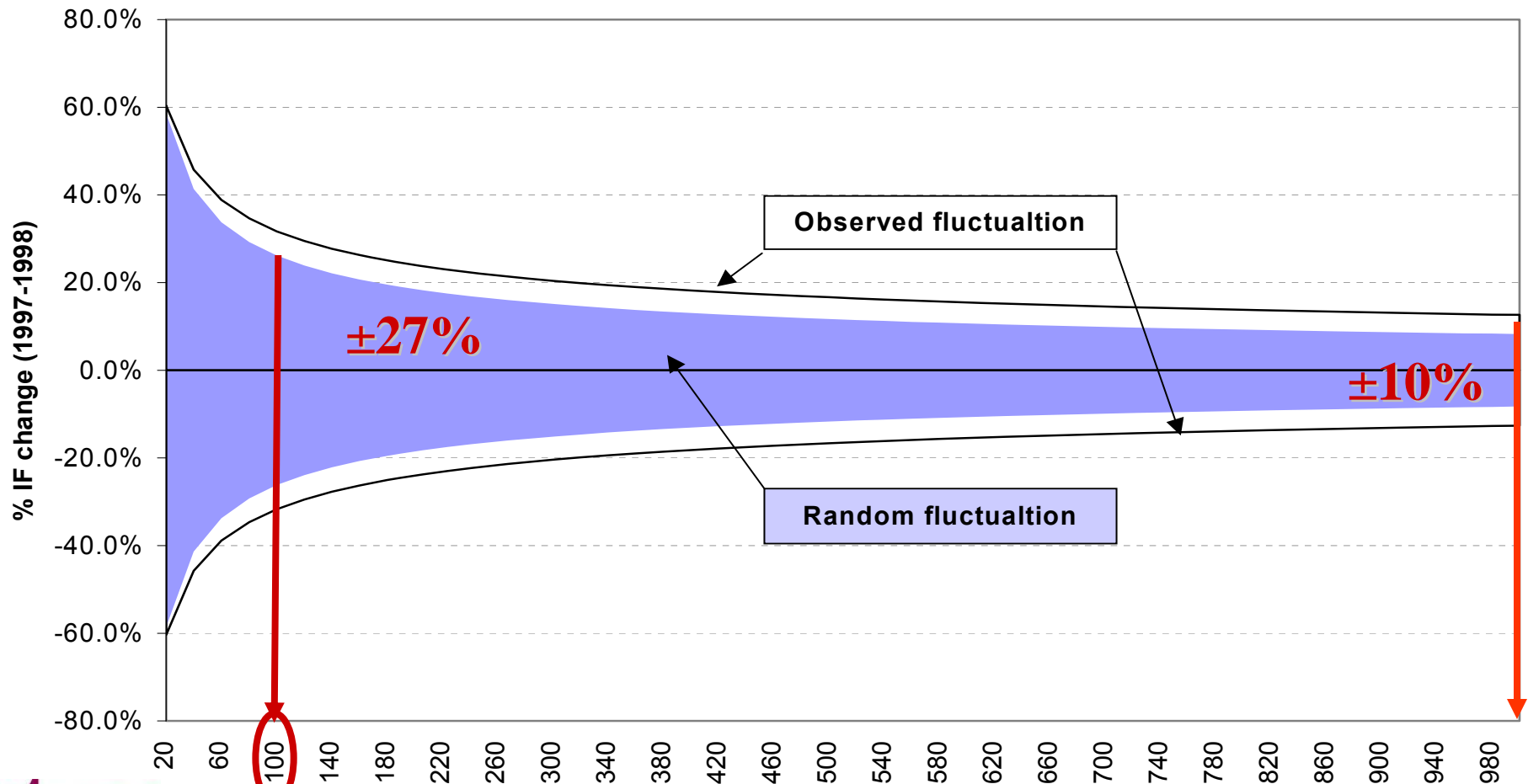


Influences on Impact Factors: Article Type



Influences on Impact Factors: Journal Size

Impact Factor Fluctuation vs Journal Size



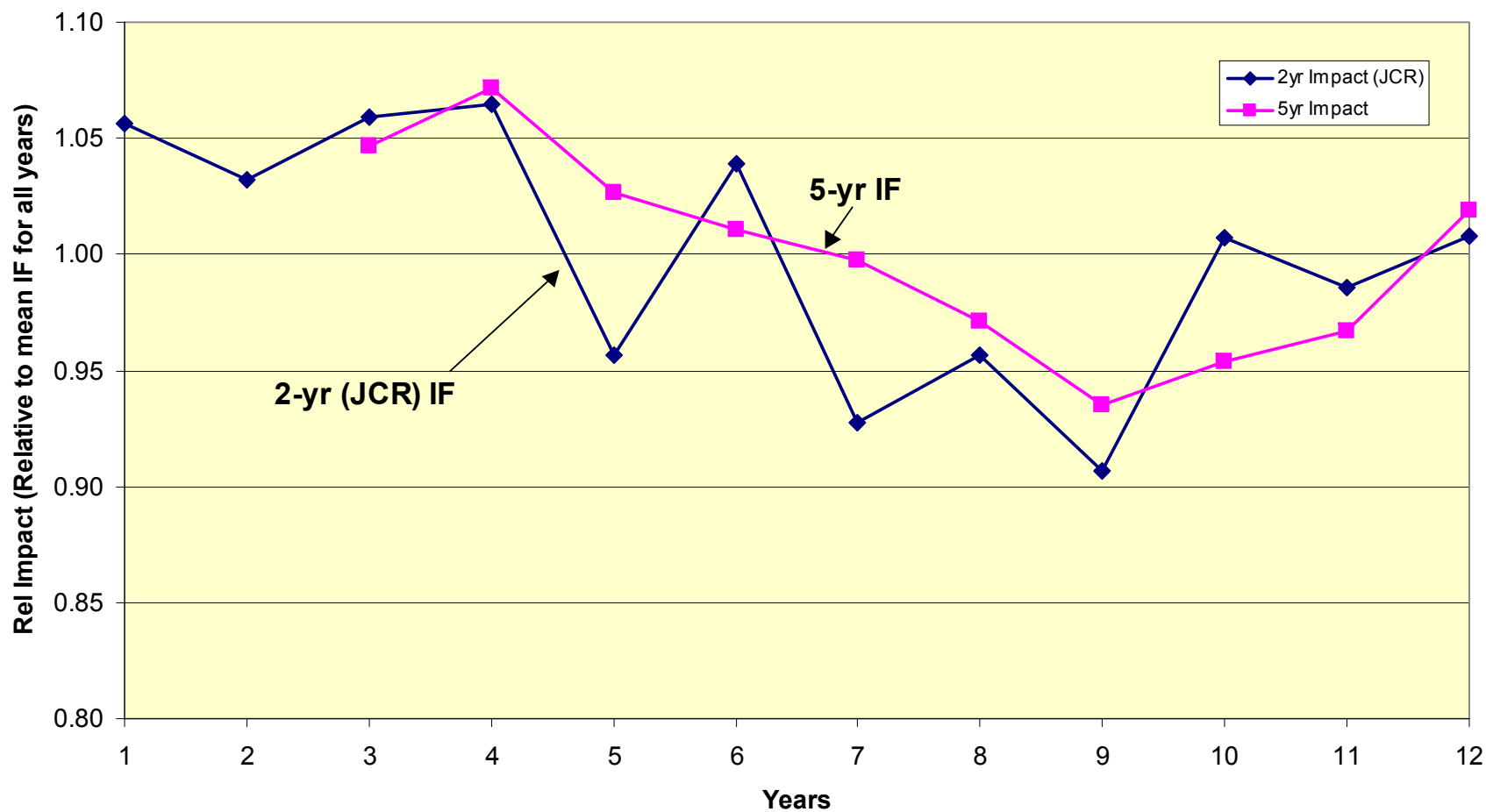
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Average journal size

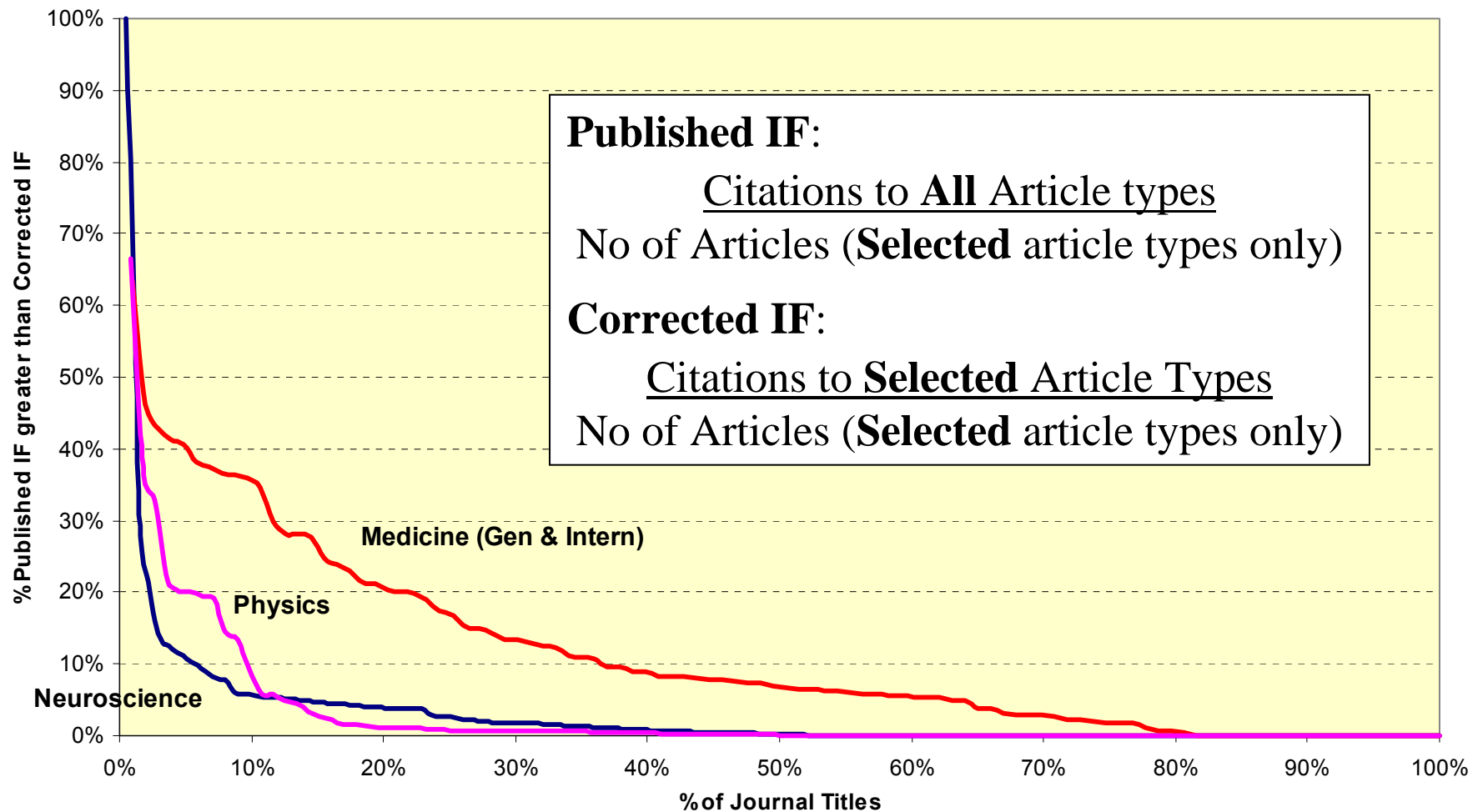
Journal size (No of articles)

Influences on IFs: Measurement Window

Impact Factor Fluctuations
Ave 200+ Chemistry Journals



The Numerator/Denominator Problem



Usage As A Metric

- Assumption: the act of use denotes reading
 - Historical shelving studies by libraries
 - Downloading of electronic full text articles \equiv reading?
- Counting downloads can be misleading
 - Need common (electronic) standards (Project COUNTER) for the count
- Need to normalize for comparison
 - journals have different sizes (papers/year) and widely varying potential readerships
 - Very similar problems to citation analysis
- Research ongoing between UKSG and publishing community to develop a “journal usage factor”; but won’t help book intensive disciplines

Issues

- Game playing
 - “You get what you measure”
- Institutions re assessment rules
- Impact Factor Engineering
 - Include more review articles
 - Classify low impact content as non citable
 - Include editorials that cite all your articles
 - Publish extremely controversial editorials (medical journals) or articles

Issues

- Qualities and problems of different metrics:
 - Qualitative
 - Problems of peer review: human beings!
 - Quantitative
 - Normalising for markets and sizes
 - Disaster of numerical values
 - abuse of IFs, dangers of simplistic use of download data
 - Citations are author measures
 - Longer time constants: archival value?
 - Downloads are a reader measure
 - Shorter time constants: sexiness?
- Journal based evaluation systems may not work for books

Further Reading

- M Amin & M Mabe Impact factors: use and abuse *Perspectives in Publishing*
http://www.elsevier.com/framework_editors/pdfs/Perspectives1.pdf
- Free to use, download and mount on your network

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