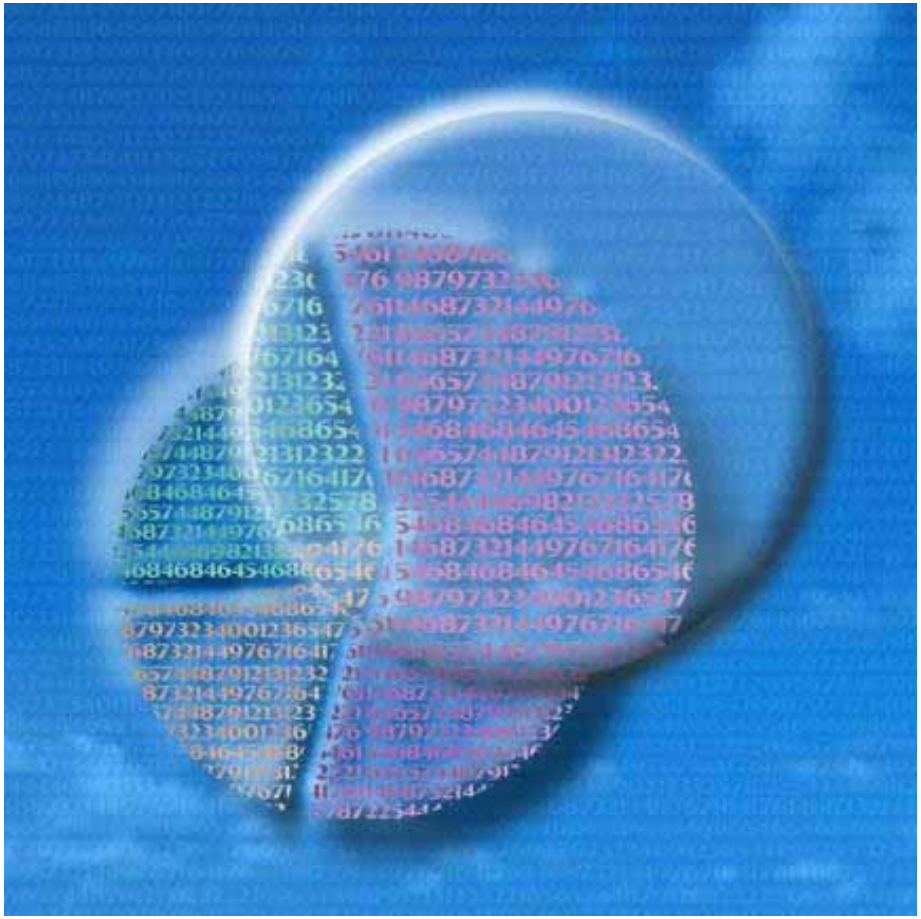


Evidence based policy making at the crossroad: what does this mean for evaluators and decision makers?

6th international evaluation conference
EVALUATION RESULTS FOR DECISION-MAKING:
Use, challenges and examples
20-21 May 2015
Vilnius, Lithuania

Andrea Saltelli
Centre for the Study of the Sciences and the Humanities (SVT) - University of Bergen (UIB), and Institut de Ciència i Tecnologia Ambientals (ICTA) - Universitat Autonoma de Barcelona (UAB.

The use of science for policy is at the core of a perfect storm generated by the insurgence of several concurrent crises.

The prevailing modern positivistic model of science for policy, known as ‘evidence based policy’, is based on simplifications and compressions of available perceptions.

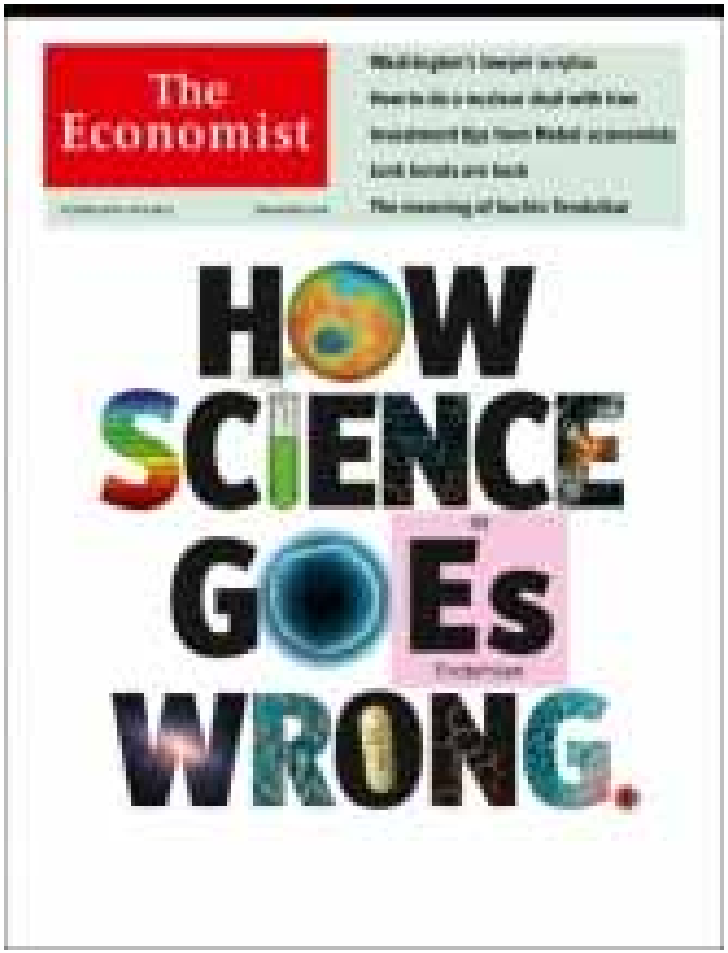
How this concerns the evaluation community and what traps should it avoid.

“the great ideas which once inspired Europe seem to have lost their attraction, only to be replaced by the bureaucratic technicalities of its institutions.”

“As the European Union has expanded, there has been growing mistrust on the part of citizens towards institutions considered to be aloof, engaged in laying down rules perceived as insensitive to individual peoples, if not downright harmful” (Strasbourg, November 25, 2014)

http://en.radiovaticana.va/news/2014/11/25/pope_francis_address_to_european_parliament/1112318

“Science still commands enormous—if sometimes bemused—respect. But its privileged status is founded on the capacity to be right most of the time and to correct its mistakes when it gets things wrong. […] The false trails laid down by shoddy research are an unforgivable barrier to understanding”



Issues with trust / quality in the scientific enterprise

- Laboratory experiments cannot be trusted without independent verification (Sanderson 2013), rules are proposed to spot "suspected work […in] the majority of preclinical cancer papers in top tier journals" (Begley 2013).

Begley CG 2013 Reproducibility: Six red flags for suspect work Nature 497 433–434.

Ioannidis J P A 2005 Why Most Published Research Findings Are False PLoS Medicine 2(8) 696-701.

Sanderson K 2013 Bloggers put chemical reactions through the replication mill Nature 21 January 2013.

Issues with trust / quality in the scientific enterprise

In a landmark study of results in cancer science Begley and Ellis were able to reproduce only 11 per cent of the original findings (2012).

Begley, C. G., and Lee M. E., 2012, Drug Development: Raise Standards for Preclinical Cancer Research, Nature, 483, 531–533.

“Currently, many published research findings are false or exaggerated, and an estimated 85% of research resources are wasted.”

Ioannidis, J. P. (2014). How to Make More Published Research True. PLoS medicine, 11(10), e1001747.

“Springer and Université Joseph Fourier release SciDetect to discover fake scientific papers”

https://www.springer.com/gp/about-springer/media/press-releases/corporate/springer-and-universit%C3%A9-joseph-fourier-release-scidetect-to-discover-fake-scientific-papers--/54166

“Shoddy science” is not confined to natural sciences: social sciences are also affected; “I see a train wreck looming” warns Daniel Kahneman; Joseph Stiglitz condemns perverse incentives in the modelling of financial products at the hearth of the present crisis.

Daniel Kahneman

Joseph Stiglitz

Yong, E., Nobel laureate challenges psychologists to clean up their act, Nature, News, 03 October 2012.
Stiglitz, J. (2010) Freefall, Free Markets and the Sinking of the Global Economy, Penguin, London.

- Science/knowledge degenerates when it becomes a commodity for Ravetz (1971), Lyotard (1979) and Mirowski (2011).

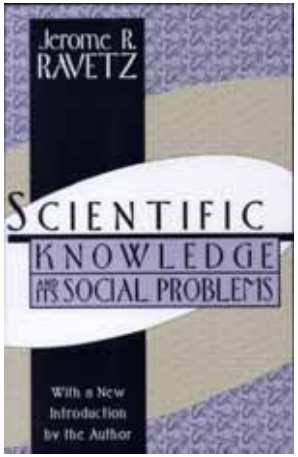
Jerome R. Ravetz

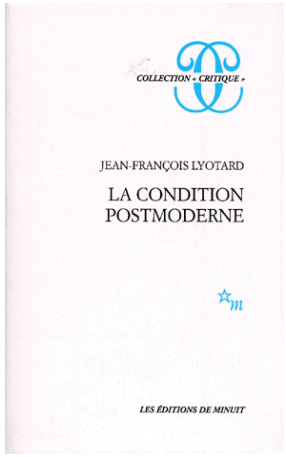
Ravetz, J., 1971, Scientific Knowledge and its Social Problems, Oxford University Press, p.22.

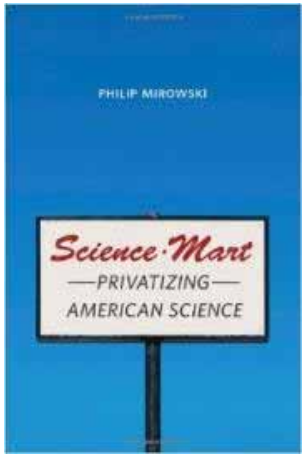
Lyotard, J.-F. 1979. La Condition postmoderne. Rapport sur le savoir, Paris : Minuit, Chapter 10.

Mirowski, P. 2011. Science-Mart: Privatizing American Science, Harvard University Press.

Jean-François Lyotard







Philip Mirowski

More controversy - wicked issues

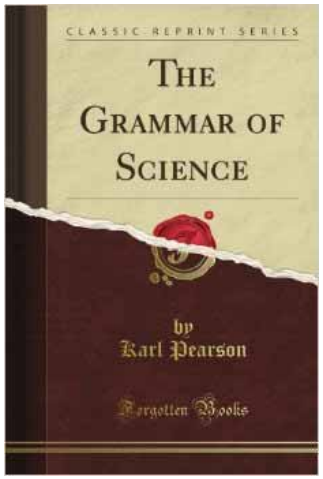
- More and more issues become ‘wicked’ , meaning by this deeply entangled in a web of hardly separable facts, interests and values… (GMO, climate, the use of statistics in Education (PISA), bees and pesticides, children born to gay couples, culling of badgers, …)
- There are evident elements of wickedness even in the EU rules for impact assessment, evaluation, science advice …

Science as a solution?

Karl Pearson (a social Darwinist) suggests not wasting resources on social programs as:

"No degenerate and feeble stock will ever be converted into healthy and sound stock by the accumulated effects of education, good laws, and sanitary surroundings"

Karl Pearson



Pearson, K., 1892, The Grammar of Science, Walter Scott Publisher, London, p.32.

THE NEW YORKER

"Carmen Reinhart and Kenneth Rogoff […] famous (now infamous) research that conservative politicians around the world had seized upon to justify pennypinching Policies …"

John Cassidy, April 2013 issue

"… rising levels of government debt are associated with much weaker rates of economic growth, indeed negative ones …"

It was instead a coding error uncovered by three researchers at the university of Michigan.

"In Britain and Europe, great damage has been done as a result."

THE NEW YORKER

Saltelli, A. and Funtowicz, S., 2014, When all models are wrong: More stringent quality criteria are needed for models used at the science-policy interface, Issues in Science and Technology, vol. winter, pp. 79-85.

‘Evidence based policy’ is based on dramatic simplifications:

‘Hypocognition’ (Lakoff, 2010), or ‘Socially constructed ignorance’ (Rayner, 2012), and much earlier by Jerome R. Ravetz, ‘Usable Ignorance’ (1987).

Lakoff, G., 2010, Why it Matters How We Frame the Environment, Environmental Communication: A Journal of Nature and Culture, 4:1, 70-81

Rayner, S., 2012, Uncomfortable knowledge: the social construction of ignorance in science and environmental policy discourses, Economy and Society, 41:1, 107-125.

Ravetz, J., R., 1987, Usable Knowledge, Usable Ignorance, Incomplete Science with Policy Implications, Knowledge: Creation, Diffusion, Utilization, 9(1), 87-116.

Saltelli, A., and Giampietro, M., 2015, The fallacy of evidence based policy, Submitted to FUTURES. http://www.andreasaltelli.eu/file/repository/PaperDraftPolicyCartesianDream_16c.pdf

Rayner (2012): socially constructed ignorance is not the result of a conspiracy but of the sense-making process of individuals and institutions:

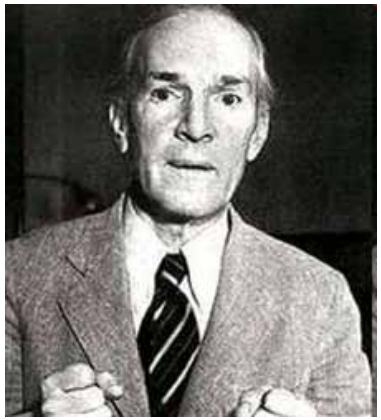
“To make sense of the complexity of the world so that they can act, individuals and institutions need to develop simplified, self-consistent versions of that world.”

“The process of doing so means that much of what is known about the world needs to be excluded from those versions, and in particular that knowledge which is in tension or outright contradiction with those versions must be expunged.”

“But how do we deal with […] dysfunctional cases of uncomfortable knowledge […]?

“How can uncomfortable knowledge be insinuated into the decision processes of organizations and institutions that have evolved on the basis of being able to remain deaf or blind to it?”

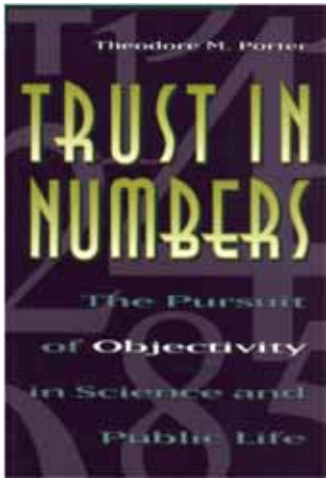
“It is difficult to get a man to understand something when his salary depends upon his not understanding it.”



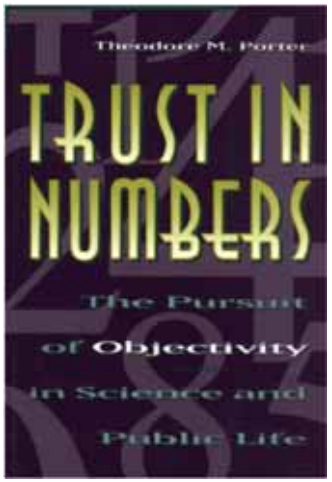
Upton Sinclair

"The appeal of numbers is especially compelling to bureaucratic officials who lack the mandate of a popular election, or divine right. Arbitrariness and bias are the most usual grounds upon which such officials are criticized. A decision made by the numbers (or by explicit rules of some other sort) has at least the appearance of being fair and impersonal."

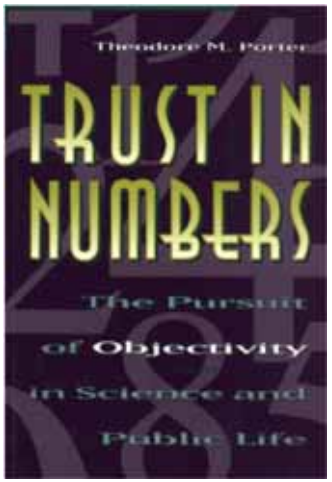
Theodor M. Porter



Theodore M. Porter, Trust in Numbers, The Pursuit of Objectivity in Science and Public Life, Princeton 1995



"Scientific objectivity thus provides an answer to a moral demand for impartiality and fairness. Quantification is a way of making decisions without seeming to decide. Objectivity lends authority to officials who have very little of their own."



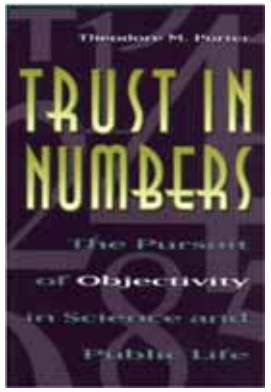
"Any … measures necessarily involve a loss of information … [and distorts behavior]"

Here Porter 'explains' hypocognition and hints to what we normally call Goodhart's law from Charles Goodhart.

http://cyberlibris.typepad.com/blog/files/Goodharts_Law.pdf

In what respect does this concern the evaluation community? Are there pitfalls to avoid?

Take due note of the existing crisis in ‘evidence based policy’ (and in ‘science advice’!)



Abandon faith in unbridled quantification (Porter’s book virtuous example of the Corps des Ponts et Chaussées)

Give up the demarcation model (where facts are separated from norms) - avoid being trapped into the last bastions of ‘naïve positivism’ as upholders of hard ‘facts’

Policy Sci (2014) 47:387–402
DOI 10.1007/s11077-014-9208-3

The new randomised controlled trials (RCT) movement in public policy: challenges of epistemic governance

Warren Pearce · Sujatha Raman

"The production of knowledge for governance itself needs be governed."

Policy Sci (2014) 47:387–402
DOI 10.1007/s11077-014-9208-3

The new randomised controlled trials (RCT) movement in public policy: challenges of epistemic governance

Warren Pearce · Sujatha Raman

- "Evidence […] never 'speaks for itself'";
- "Experts […] need to […] consider a plurality of sources and forms of evidence";
- "Institutions have a key role in maintaining transparency and standards in both the production of evidence and its mediation by expert advisors".

Policy Sci (2014) 47:387–402
DOI 10.1007/s11077-014-9208-3

The new randomised controlled trials (RCT) movement in public policy: challenges of epistemic governance

Warren Pearce · Sujatha Raman

"There is a danger that the current UK government's interest in RCTs is driven not by their methodological suitability, but because they lend themselves to a model of governance that values context-free quantification and benchmarking."

"In this situation, RCT advocates would do better by helping build institutions that could put the evidence from trials in its proper context, clarify the conditions under which interventions work or do not work and why, and interpret the meaning of RCTs in relation to plural sources of evidence."

A workshop – free access (registration needed): **Significant Digits: Responsible Use of Quantitative Information,** 9-10 JUNE 2015 Brussels, FONDATION UNIVERSITAIRE (Rue d'Egmont, 11)

https://ec.europa.eu/jrc/en/event/conference/use-quantitative-information

Vladimír Šucha: Opening. **Jerome Ravetz**: 'The Significance of Digits'. **Jeroen van der Sluijs**: On the extinction of craft skills with numbers: the case of "Overall, 7.9% of species are predicted to become extinct from climate change". **Mario Giampietro**: Quantitative story telling as a therapy for hypocognition. **Dorothy Dankel**: Fisheries quota advice for management: Significant scripts and significant digits. **Philip Stark**: Pay no attention to the model behind the curtain. **Zora Kovacic**: The simplification of complexity: challenges of sustainability science for governance. **Andrea Saltelli**: Evidence based policy: handle with care. **John Kay**: Knowing what we don't know.