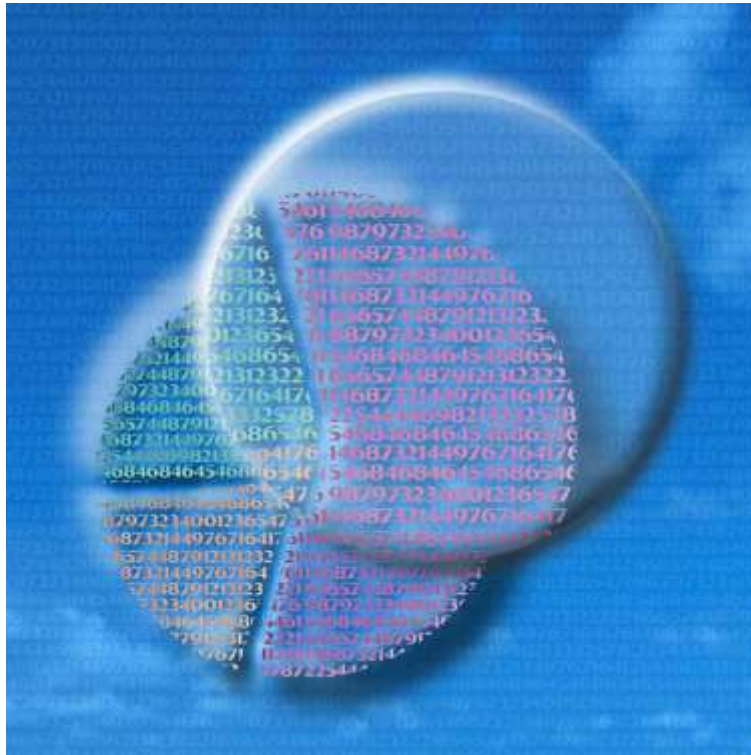


Some thoughts on sensitivity analysis



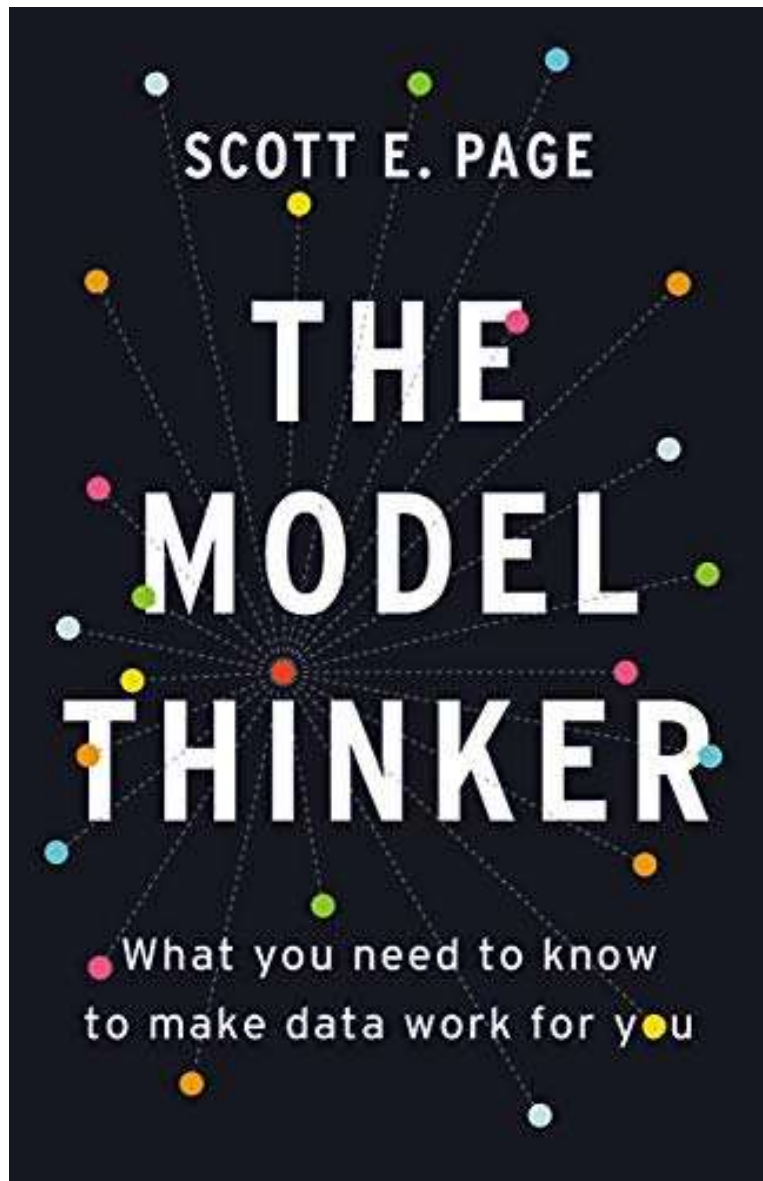
Andrea Saltelli
University of Bergen



Quarterly iEMSs webcast on "The Future of #Sensitivity_Analysis for #Systems_Modelling and #Policy_Support", November 9 2021

Danger: Provincialism / parochialism / insularism of the sensitivity analysis community?

Way forward: being alert to duplications; utilize new teaching technologies; contextualize sensitivity analysis both among number crunchers and in the context of sociology of quantification, engage with other disciplines



Number crunchers: great book; Shapley values discussed but not for SA

MOOC with Coursera and Stanford



The first offering of Model Thinking drew 60,000 students.

NEWS | 13 November 2020



nature

Simulating the pandemic: What COVID forecasters can learn from climate models

Methods that are routine in computation-heavy fields could lead to more reliable pandemic predictions.

[David Adam](#)



Duplications: “ensemble modelling ... in which thousands of versions of the model are run with a range of assumptions & inputs, to provide a spread of scenarios with different probabilities”



Annu. Rev. Sociol. 2019. 45:223–45

First published as a Review in Advance on
May 13, 2019

The *Annual Review of Sociology* is online at
soc.annualreviews.org

Annual Review of Sociology

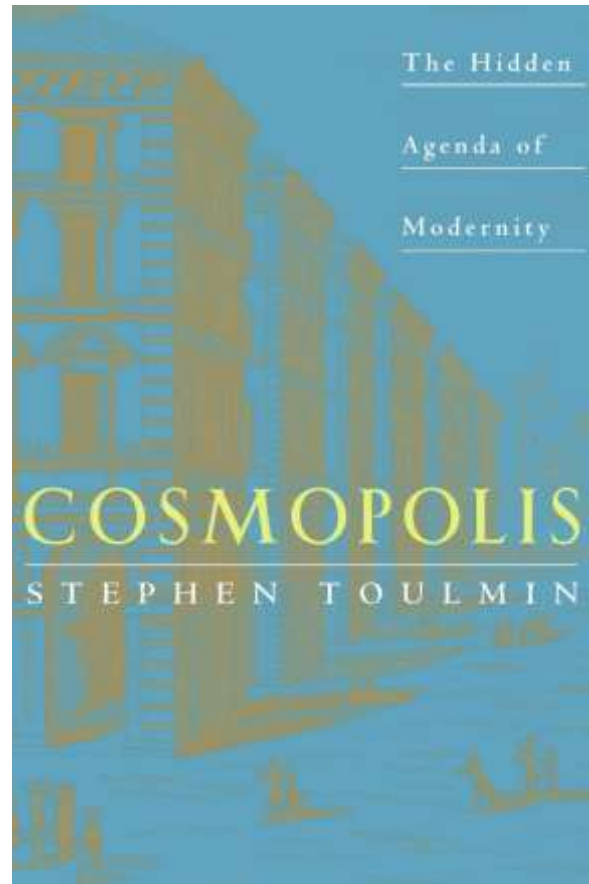
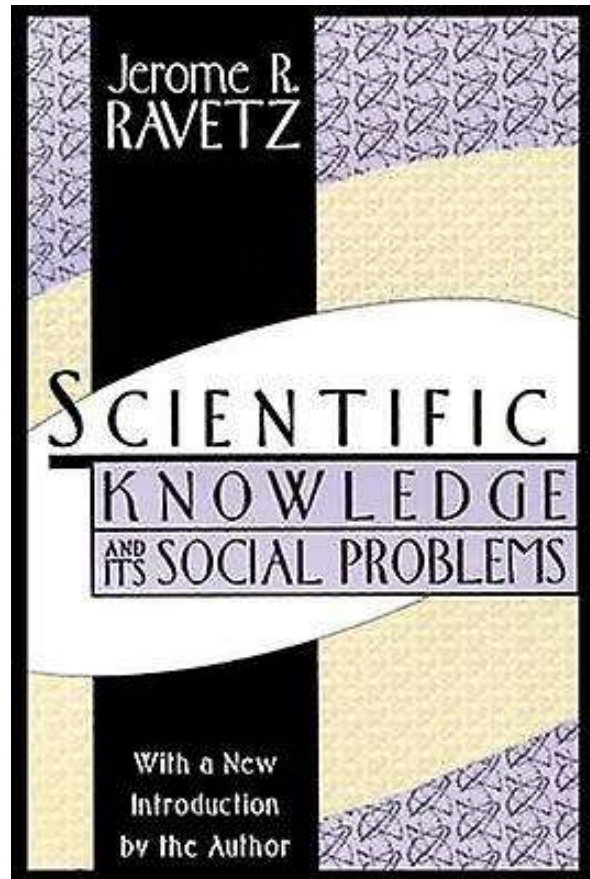
What's New with Numbers? Sociological Approaches to the Study of Quantification

Andrea Mennicken*,¹ and Wendy Nelson Espeland*,²

¹Department of Accounting, London School of Economics and Political Science, London WC2A 2AE, United Kingdom; email: a.m.mennicken@lse.ac.uk

²Department of Sociology, Northwestern University, Evanston, Illinois 60208, USA

Danger: cultural obstacles / Cartesian or Ricardian dreams
/ reductionism / procedural utopia
Way forward: engaging with ...



...



UCL Institute for
Innovation and
Public Purpose



WORKING PAPER
WP 2021/07

Altered States: Cartesian and Ricardian dreams

Erik S. Reinert

Tallinn University of Technology

UCL Institute for Innovation and Public Purpose

Monica di Fiore

Institute for Cognitive Sciences and Technologies, Consiglio Nazionale delle Ricerche

Andrea Saltelli

Open Evidence Research, Universitat Oberta de Catalunya (UOC)

Jerome R. Ravetz

Institute for Science, Innovation and Society, University of Oxford



Five ways to ensure that models serve society: a manifesto

Pandemic politics highlight how predictions need to be transparent and humble to invite insight, not blame.

Engage with other disciplines

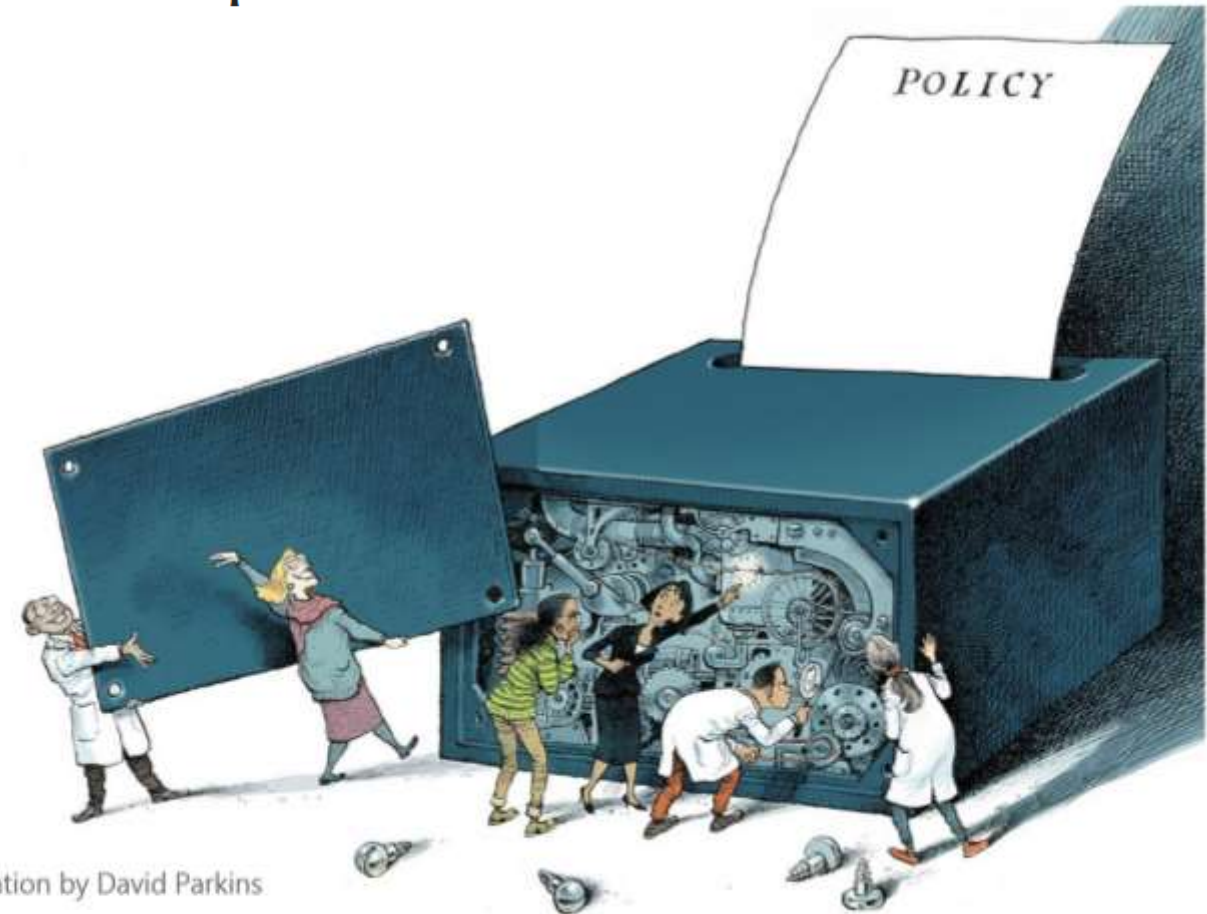


Illustration by David Parkins

Andrea Saltelli , Gabriele Bammer, Isabelle Bruno, Erica Charters, Monica Di Fiore, Emmanuel Didier, Wendy Nelson Espeland, John Kay, Samuele Lo Piano, Deborah Mayo, Roger Pielke Jr, Tommaso Portaluri, Theodore M. Porter, Arnald Puy, Ismael Rafols, Jerome R. Ravetz, Erik Reinert, Daniel Sarewitz, Philip B. Stark, Andrew Stirling, Jeroen van der Sluijs & Paolo Vineis

3 modellers Lo Piano, Puy, Saltelli

2 experts models and society Pielke, van der Sluijs

3 statisticians Mayo, Stark, Portaluri

2 statactivistes Bruno, Didier

2 economists Kay, Raynert

1 epidemiologist Vineis

2 sociologists of quantification

Espeland, Porter

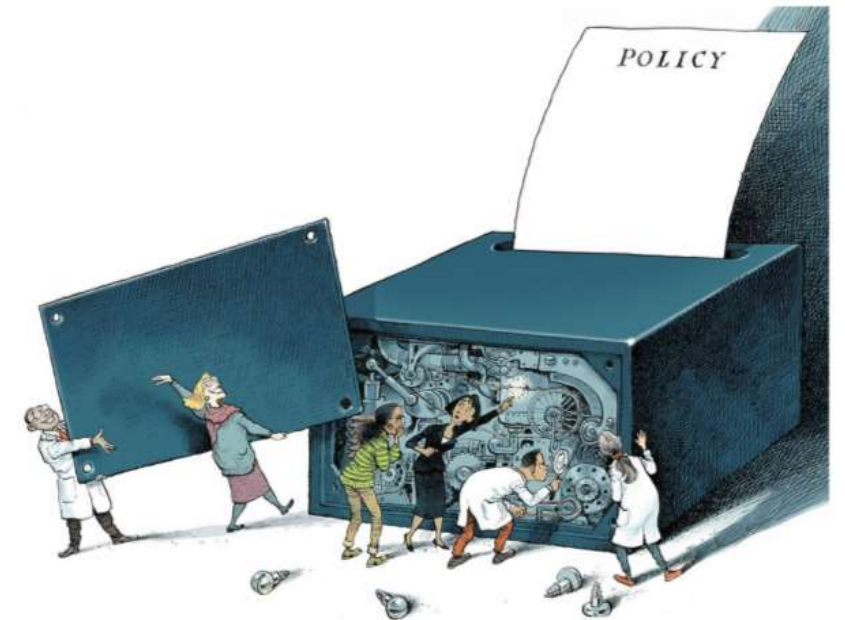
3 STS scholars Bammer, Sarewitz, Stirling

1 philosopher Ravetz

1 historian Charters

1 political scientists Di Fiore

1 expert RRI - Open Science Rafols



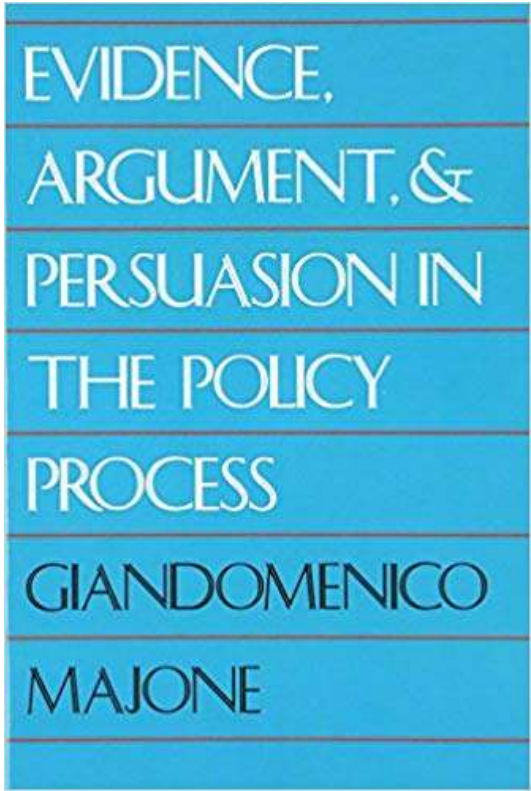
Danger: Technicism / neutrality

Way forward: using SA to engage with fantastic and 'funny' numbers; monitoring, vigilance, deconstruction

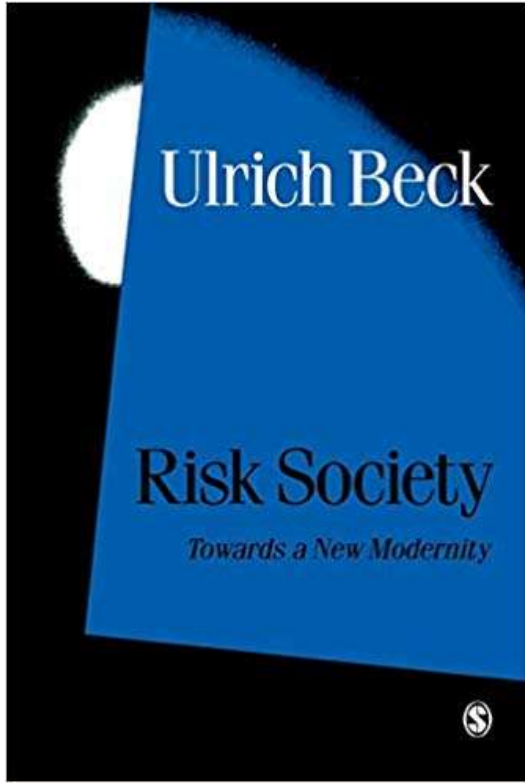
From Ulrich Beck to Giandomenico Majone: the technique is never **neutral**



Ulrich Beck
(1944 –2015)



1989



1992 (1986)



Environmental Science & Policy

Volume 106, April 2020, Pages 87-98



The technique is never neutral. How
methodological choices condition the
generation of narratives for sustainability

Andrea Saltelli ^{a, b} ✉, Lorenzo Benini ^c, Silvio Funtowicz ^a, Mario Giampietro ^{d, e}, Matthias Kaiser ^a,
Erik Reinert ^{a, f}, Jeroen P. van der Sluijs ^{a, g, h}



Culture Unbound
Journal of **Current Cultural** Research

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Theme: Objectification, Measurement and Standardization

Funny Numbers

Theodore M. Porter

University of California, Los Angeles, USA

the modern reverence for quantitative evidence has enabled funny numbers to achieve primacy. The ascendancy of cost-benefit analysis, risk analysis, and statistical tests of significance stands in tribute to this ideal.

Mind the assumptions

Assess uncertainty and sensitivity



Mind the hubris

Complexity can be the enemy of relevance

Mind the framing

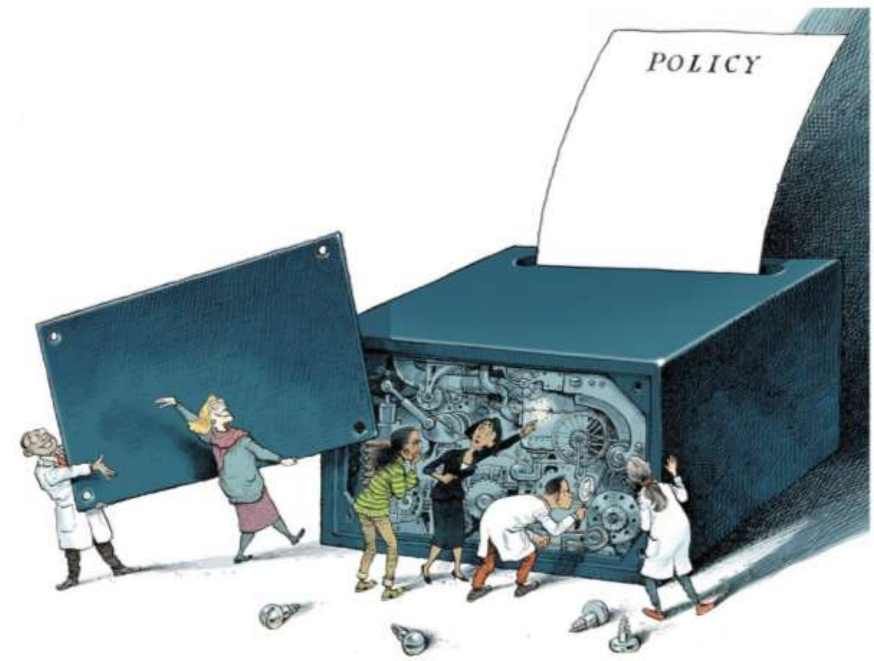
Match purpose and context

Mind the consequences

Quantification can backfire.

Mind the unknowns

Acknowledge ignorance



The epistemic community built around



can play a useful (lead?) role in the monitoring of funny numbers, provided it succeeds in establishing itself as an authoritative interlocutor

The End



@andreasaltelli