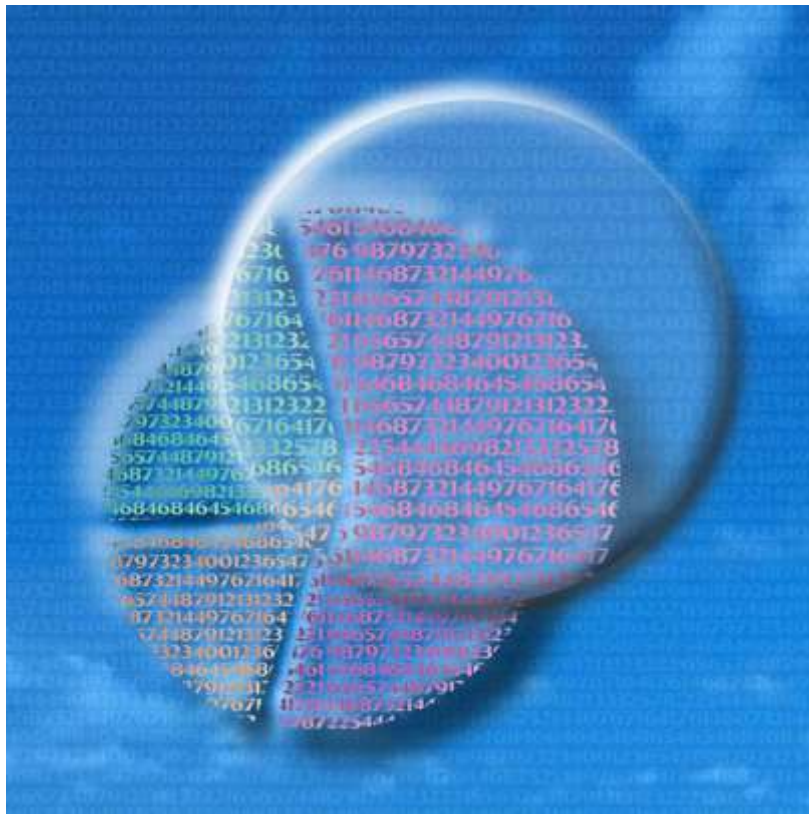


Recent activities

Andrea Saltelli

SVT–University of Bergen (NO)
ISTC–National Research Council (IT)



2005–2015 European Commission, head of the unit of econometrics and applied statistics

2016–2020 adjunct professor at the Centre for the Study of the Sciences and the Humanities (SVT) – University of Bergen (UIB)

2017–2021 visiting researcher at Open University of Catalonia

2021 SVT–UIB and Institute for Cognitive Sciences and Technologies of the Italian National Research Council (CNR).

@andreasaltelli 

www.andreasaltelli.eu



Last 2 years –
publishing



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ELSEVIER

Environmental Modelling & Software

Volume 146, December 2021, 105226



Sensitivity analysis: A discipline coming of age

Andrea Saltelli ^a , Anthony Jakeman ^b, Saman Razavi ^c, Qiongli Wu ^d

Part of special issue:

SI: Sensitivity analysis for environmental modelling

Edited by Saman Razavi, Andrea Saltelli, Tony Jakeman, Qiongli Wu



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FEEDBACK

SAMO:

1st SAMO 1995 Belgirate (IT)

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8th SAMO 2016 La Reunion (FR)

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...

10th SAMO 2022 Florida State University (US)



Ninth International Conference on
Sensitivity Analysis of Model Output



European
Commission

 CERFACS



See a brief history of SAMO <http://www.andreasaltelli.eu/file/repository/AndreaOpening.pdf>





Environmental Modelling & Software

Volume 137, March 2021, 104960



Part of special issue:

SI: Sensitivity analysis for environmental modelling

Edited by Saman Razavi, Andrea Saltelli, Tony Jakeman, Qiongli Wu

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Arnald Puy ^{a, b} , Samuele Lo Piano ^c, Andrea Saltelli ^d



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Samuele Lo Piano ^a , Federico Ferretti ^b, Arnald Puy ^{c, d}, Daniel Albrecht ^e, Andrea Saltelli ^f

SA papers about the property of different global SA methods and their estimators



Environmental Modelling & Software

Volume 127, May 2020, 104679



A sensitivity analysis of the PAWN sensitivity index

Arnald Puy ^{a, b}  , Samuele Lo Piano ^{c, d}, Andrea Saltelli ^{b, d}

More on SA methods; here a sensitivity analysis of a sensitivity analysis

[nature](#) > [nature communications](#) > [articles](#) > [article](#)

Article | [Open Access](#) | [Published: 26 July 2021](#)

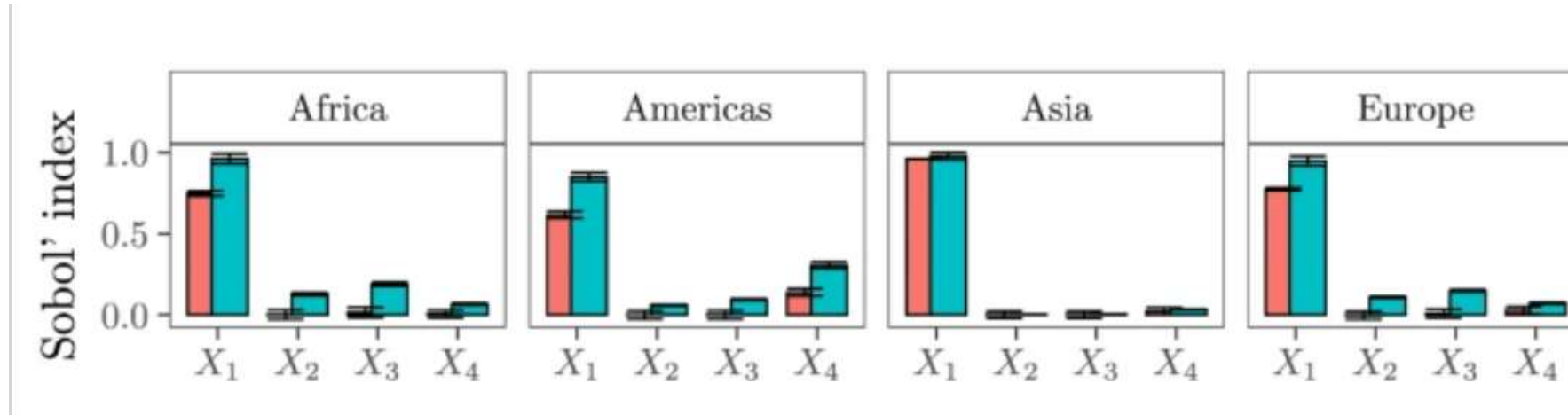
Irrigated areas drive irrigation water withdrawals

[Arnald Puy](#) , [Emanuele Borgonovo](#), [Samuele Lo Piano](#), [Simon A. Levin](#) & [Andrea Saltelli](#)

[Nature Communications](#) **12**, Article number: 4525 (2021) | [Cite this article](#)

2361 Accesses | **2** Citations | **10** Altmetric | [Metrics](#)

Modelling irrigation water reported by FAO err on the side of excess complexity



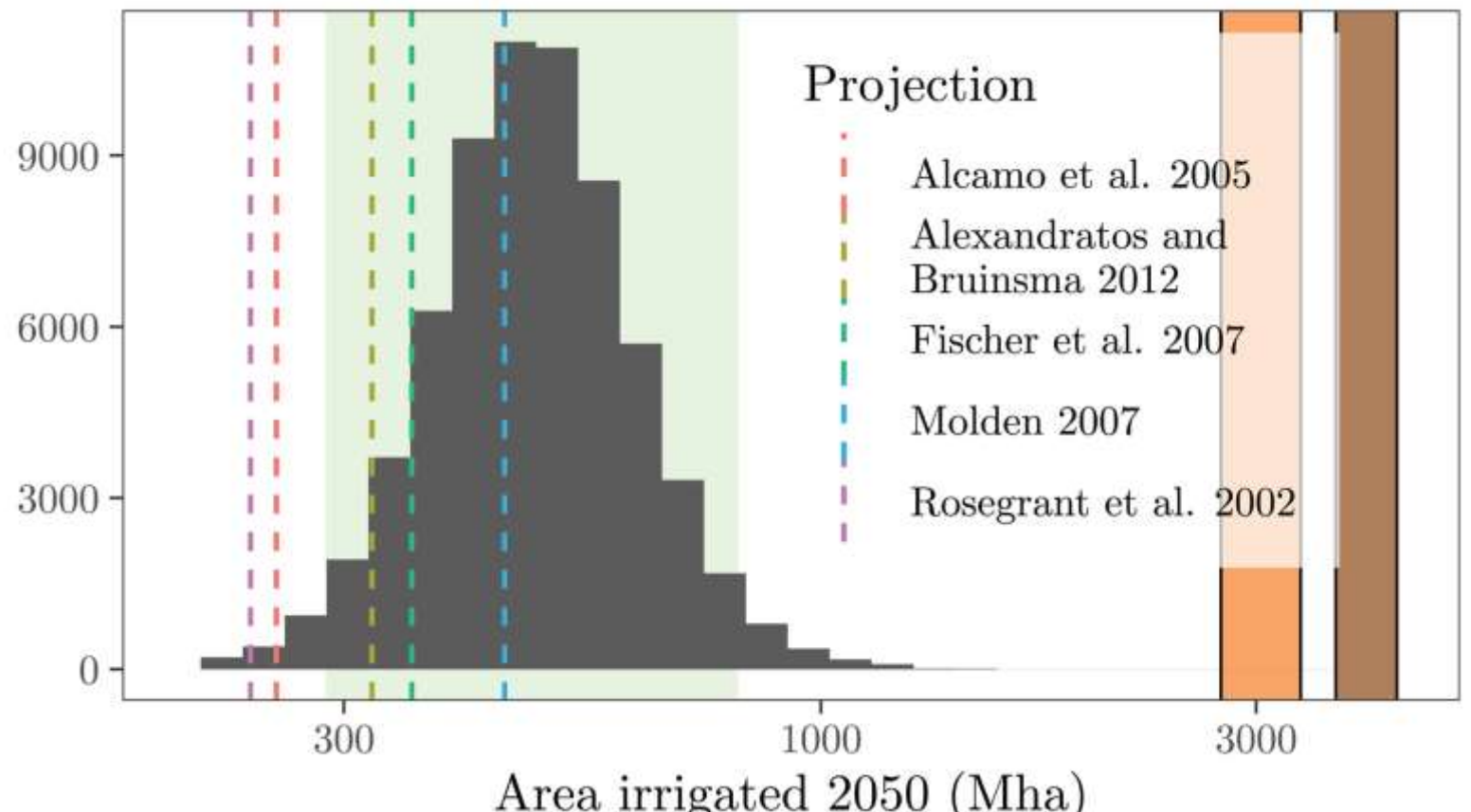
Analysis based on global quantitative uncertainty and sensitivity analysis

Research Letter | [Open Access](#) | 


Current Models Underestimate Future Irrigated Areas

A. Puy✉, S. Lo Piano, A. Saltelli

First published: 17 April 2020 | [https://doi.org/10.1029/2019GL083441](#)





 Open Access Published by De Gruyter March 15, 2021

Variable Selection in Regression Models Using Global Sensitivity Analysis

William Becker , *Paolo Paruolo*  and *Andrea Saltelli* 

From the journal *Journal of Time Series Econometrics*

<https://doi.org/10.1515/jtse-2018-0025>

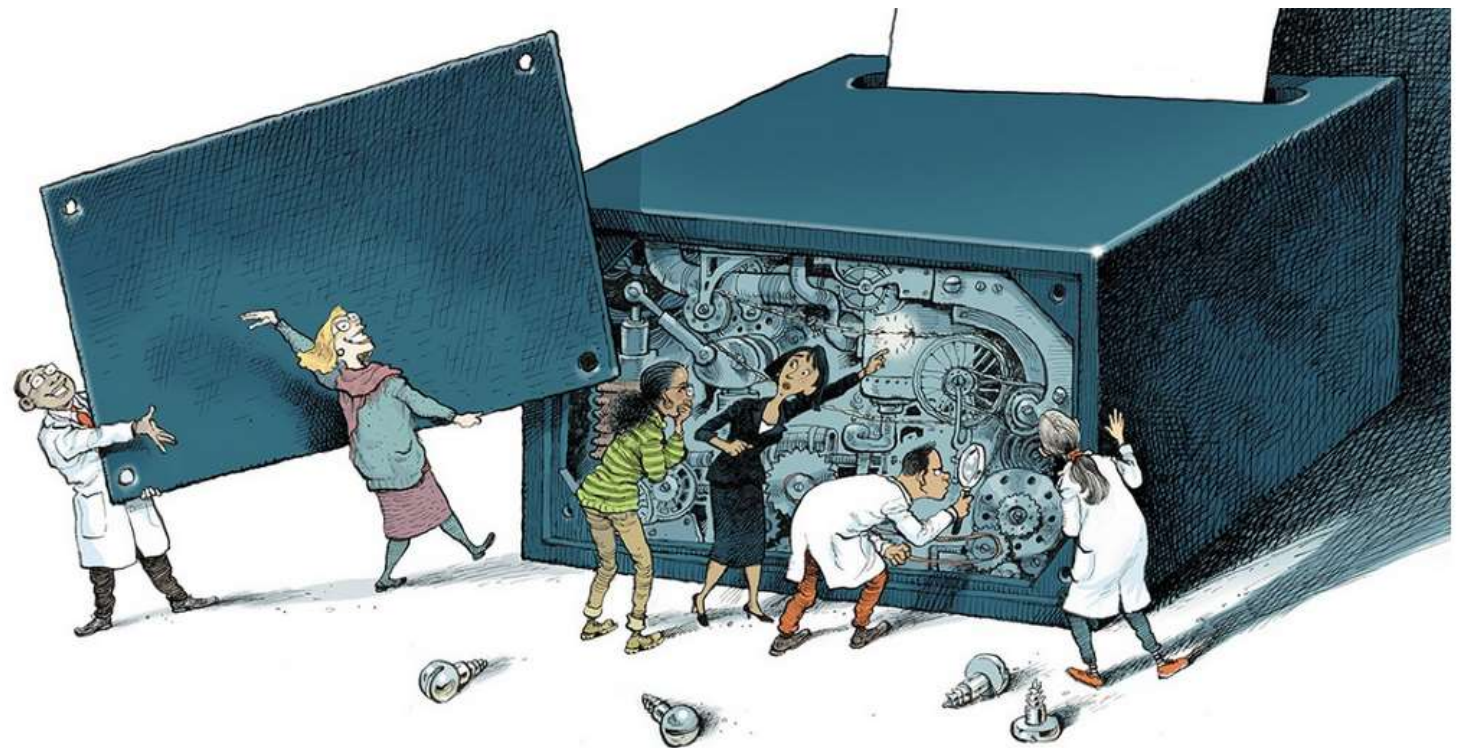
Global sensitivity used for variable selection in regression models. Demonstrated on a growth regression case study, and on a number of simulation experiments; it is found competitive with existing approaches to variable selection.

➔ Possible extension to features selection in machine learning?

[nature](#) > [comment](#) > article

COMMENT | 24 June 2020

Five ways to ensure that models serve society: a manifesto



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



Mind the assumptions

Assess uncertainty and sensitivity

Mind the hubris

Complexity can be the enemy of relevance

Mind the framing

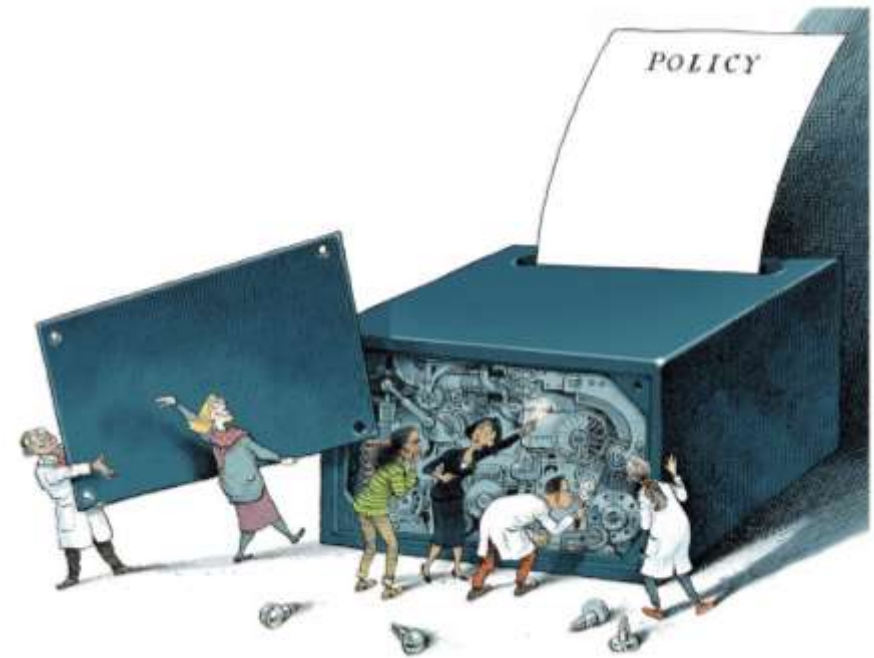
Match purpose and context

Mind the consequences

Quantification can backfire.

Mind the unknowns

Acknowledge ignorance



The 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}

Combine more lenses, including **Post-normal science (PNS)**, Bioeconomics, and Non-Ricardian economics

PNS 4 Symposium

Post-normal science as a movement:

between informed critical resistance, reform and the making of futures

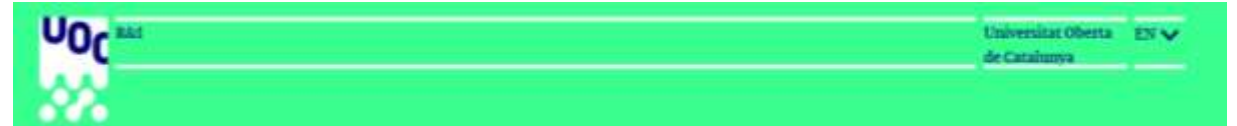
@Barcelona, 15-17 November 2018



Post-normal Science Symposium
Barcelona

📅 11/15/2018 09:00

📍 UOC, Avinguda Tibidabo, 39
Barcelona



About the event

Categories: [Humanities and sociocultural](#), [Politics](#), [Science](#), [Sociology](#)

Labels: [conspiracy theories](#), [ethics of quantification](#), [extended peer communities](#), [knowledge quality assessment](#), [participatory methods](#), [PNS](#), [post-normal science](#), [post-truth](#), [Reformation](#), [responsible quantifications](#), [Science and Technology Studies](#), [science for policy](#), [Social Responsibility](#), [STS](#)



Futures

Volume 115, January 2020, 102491



Technoscience, policy and the new media. Nexus or vortex?

Andrea Saltelli ^{a, b}  , Paul-Marie Boulanger ^c 

Using Luhmann's social system theory to read science's reproducibility and legitimacy crisis

Original Research | [Open Access](#) | [Published: 23 January 2020](#)

Quantitative Storytelling in the Making of a Composite Indicator

[Marta Kuc-Czarnecka](#) , [Samuele Lo Piano](#) & [Andrea Saltelli](#)

[Social Indicators Research](#) **149**, 775–802 (2020) | [Cite this article](#)

2735 Accesses | **29** Citations | **5** Altmetric | [Metrics](#)

Composite indicators aim to ‘tell a story’; can they be made to tell more than one story? Tested on EU cohesion policy indicators and World Bank’s Doing Business Index. Potentially useful for political negotiations.





COMMENT

<https://doi.org/10.1057/s41599-020-0396-5>

OPEN

Ethics of quantification: illumination, obfuscation and performative legitimation

Siddharth Sareen ^{1,2*}, Andrea Saltelli ² & Kjetil Rommetveit²

PALGRAVE COMMUNICATIONS | (2020)6:20 | <https://doi.org/10.1057/s41599-020-0396-5> | www.nature.com/palcomms

First article written on ethics of quantification

Why ethics of quantification is needed now

Andrea Saltelli

Open Evidence Research, Universitat Oberta de Catalunya, Barcelona, Spain

Antonio Andreoni

UCL Institute for Innovation and Public Purpose;
South African Research Chair in Industrial Development, University of Johannesburg, South Africa

Wolfgang Drechsler

Tallinn University of Technology, Estonia;
UCL Institute for Innovation and Public Purpose;
Davis Center at Harvard University, United States

Jayati Ghosh

University of Massachusetts Amherst, United States;
UCL Institute for Innovation and Public Purpose

Rainer Kattel

UCL Institute for Innovation and Public Purpose

Ingrid H. Kvangraven

Department of Politics, University of York

Ismael Rafols

Centre for Science and Technology Studies, Leiden University, the Netherlands

Erik S. Reinert

Tallinn University of Technology, Estonia;
UCL Institute for Innovation and Public Purpose

Andy Stirling

Science Policy Research Unit, University of Sussex

Ting Xu

School of Law at the University of Essex



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WORKING PAPER
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Essays

Ethics of quantification or quantification of ethics?

Andrea Saltelli

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<https://doi.org/10.1016/j.futures.2019.102509>

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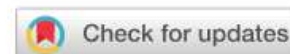
Highlights

- Common ethical features of different instances of quantification are identified.
- Problematic elements - such as metrics fixation, statistical abuses, poor modelling and unethical algorithms - are discussed.

Humanities & Social Sciences Communications





ARTICLE



<https://doi.org/10.1057/s41599-020-00557-0>

OPEN

From sociology of quantification to ethics of quantification

Andrea Saltelli ¹✉ & Monica Di Fiore ²✉

Give me a number!

Numbers, visible and invisible, pervade our life, dominate the language of our communication, and accelerate all our transactions. What price is being paid?



Structural Change and Economic Dynamics

Volume 58, September 2021, Pages 23-34



The opening of Central and Eastern European countries to free trade: A critical assessment

Marta Kuc-Czarnecka ^a  , Andrea Saltelli ^b , Magdalena Olczyk ^c , Erik
Reinert ^d 

Highlights

- With accession, 'Old' Europe managed a profit at the expense of the new one
- This was caused by trade asymmetries and by deindustrialisation of new member states
- Migration from accession countries became a source of cheap labour
- The Euro has not helped accession countries or the EU Southern periphery
- The EU enlargement has many losers – in both the old and the new EU



Futures

Available online 26 October 2021

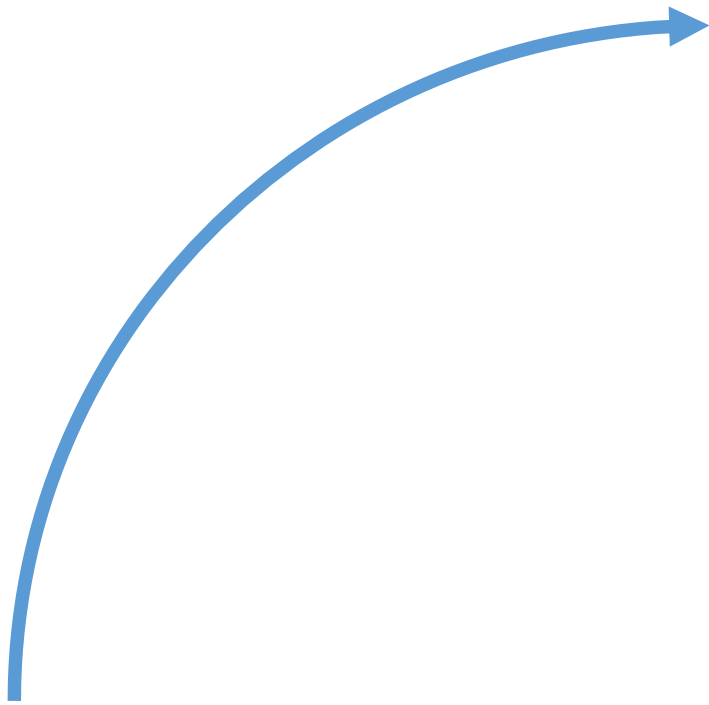
In Press, Journal Pre-proof ?



Science, the endless frontier of regulatory capture

Andrea Saltelli ^a  , Dorothy J. Dankel ^{b, c}, Monica Di Fiore ^d, Nina Holland ^e, Martin Pigeon ^e

Guardians of sound science



Guardians of reason



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An epistemic ladder for regulatory capture

- Epistemic. Invalidating the inference or the methods
- Institutional. Delegitimising and/or 'colonising' institutions
- Political. Promoting a worldview where the very idea of regulation is undesirable

Science, the endless frontier of regulatory capture



Last 2 years –
teaching

~50 classes / lecture in 2020–2021

Sensitivity analysis

Sensitivity auditing

Composite indicators

The modelling manifesto

Ethics of quantification

Elements from history and philosophy of science

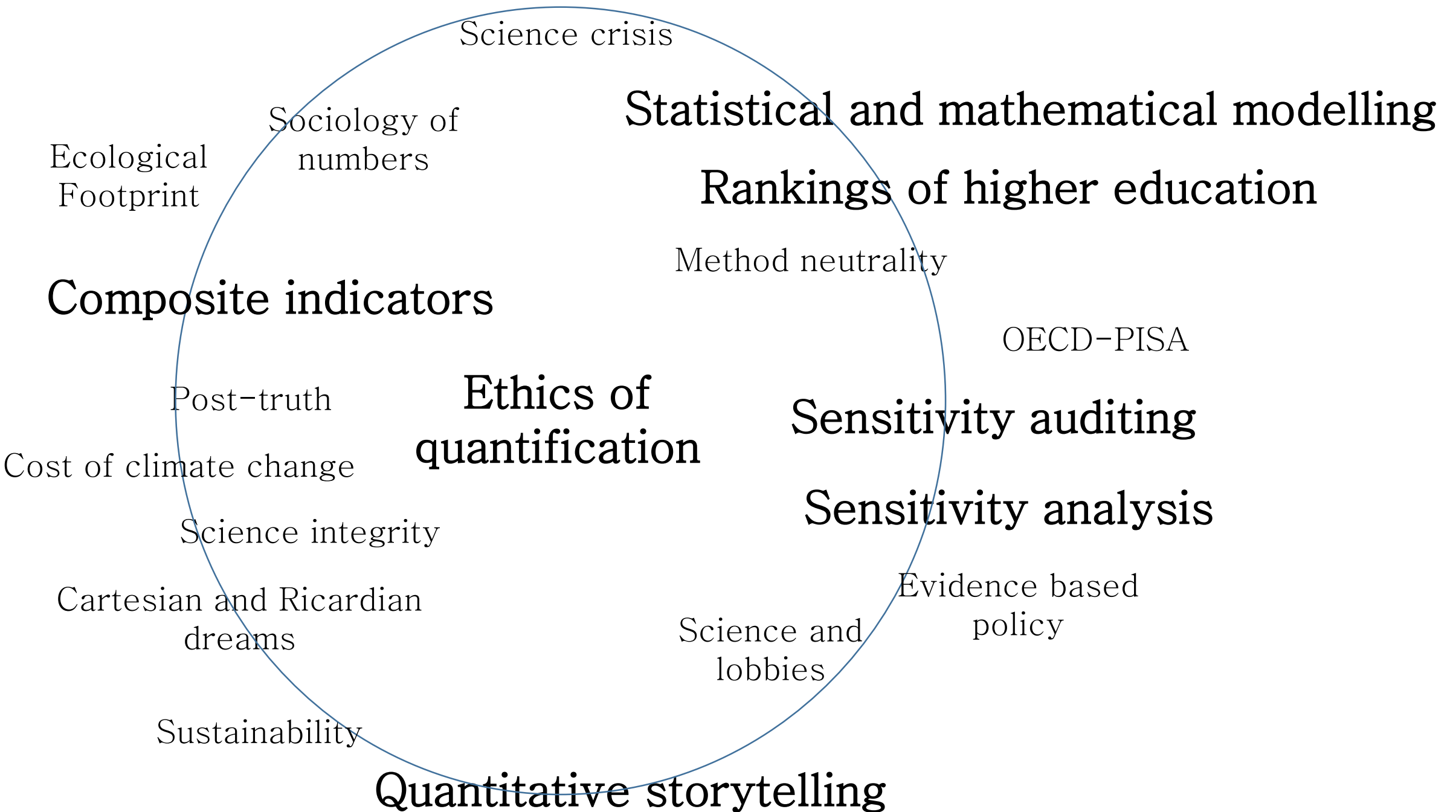
Responsible modelling and forecasting

Scientific integrity

Cartesian and Ricardian dreams

Regulatory capture

Scope for
cooperation?



The End



@andreasaltelli