

The politics of modelling

Numbers between science and policy

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Foreword by

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Acknowledgments

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- Di Fiore, Monica, Marta Kuc Czarnecka, Samuele Lo Piano, Arnald Puy, and Andrea Saltelli. 2023. "Mind the Framing: Match Purpose and Context." In *The Politics of Modelling. Numbers between Science and Policy*, edited by Andrea Saltelli and Monica Di Fiore. Oxford University Press.
- Di Fiore, Monica, and Andrea Saltelli. 2023. "Introduction." In *The Politics of Modelling. Numbers between Science and Policy*, edited by Andrea Saltelli and Monica Di Fiore. Oxford University Press.
- Drechsler, Wolfgang, and Lukas Fuchs. 2023. "Mind the Consequences: Quantification in Economic and Public Policy." In *The Politics of Modelling. Numbers between Science and Policy*, edited by Andrea Saltelli and Monica Di Fiore. Oxford University Press.
- Espeland, Wendy Nelson. 2023. "Foreword. Mathematically Modelling as a Critical Cultural Enterprise." In *The Politics of Modelling. Numbers between Science and Policy*, edited by Andrea Saltelli and Monica Di Fiore. Oxford University Press.
- Kuc-Czarnecka, Marta, and Andrea Saltelli. 2023. "Mathematical Modelling: Lessons from Composite Indicators." In *The Politics of Modelling. Numbers between Science and Policy*, edited by Andrea Saltelli and Monica Di Fiore. Oxford University Press.
- Lo Piano, Samuele, Arnald Puy, Razi Sheikholeslami, and Andrea Saltelli. 2023. "Sensitivity Auditing: A Practical Checklist for Auditing Decision-Relevant Models." In *The Politics of Modelling. Numbers between Science and Policy*, edited by Andrea Saltelli and Monica Di Fiore. Oxford University Press.

- Puy, Arnald, and Andrea Saltelli. 2023. "Mind the Hubris: Complexity Can Misfire." In *The Politics of Modelling. Numbers between Science and Policy*, edited by Andrea Saltelli and Monica Di Fiore. Oxford University Press, 2023 (forthcoming).
<https://arxiv.org/abs/2207.12230>.
- Ravetz, Jerome R. 2023. "Models as Metaphors." In *The Politics of Modelling. Numbers between Science and Policy*, edited by Andrea Saltelli and Monica Di Fiore. Oxford University Press.
- Saltelli, Andrea, and Monica Di Fiore. 2023. "Epilogue. Those Special Models." In *The Politics of Modelling. Numbers between Science and Policy*, edited by Andrea Saltelli and Monica Di Fiore. Oxford University Press.
- Saltelli, Andrea, and Monica Di Fiore, eds. 2023. *The Politics of Modelling. Numbers between Science and Policy*. Oxford: Oxford University Press.
- Sarewitz, Daniel. 2023. "Preface: The Sciences of Modelling Through." In *The Politics of Modelling. Numbers between Science and Policy*, edited by Andrea Saltelli and Monica Di Fiore. Oxford University Press.
- Stark, Philip B. 2023. "Pay No Attention to the Model Behind the Curtain." In *The Politics of Modelling. Numbers between Science and Policy*, edited by Andrea Saltelli and Monica Di Fiore. Oxford University Press.
- Stirling, Andrew. 2023. "Mind the Unknown: Exploring the Politics of Ignorance in Mathematical Models." In *The Politics of Modelling. Numbers between Science and Policy*, edited by Andrea Saltelli and Monica Di Fiore. Oxford University Press.
- Vineis, Paolo, and Luca Savarino. 2023. "In the Twilight of Probability: Covid 19 and the Dilemma of the Decision-Maker." In *The Politics of Modelling. Numbers between Science and Policy*, edited by Andrea Saltelli and Monica Di Fiore. Oxford University Press.
- Xu, Ting. 2023. "Mathematical Modelling, Rulemaking, and the Covid-19 Pandemic." In *The Politics of Modelling. Numbers between Science and Policy*, edited by Andrea Saltelli and Monica Di Fiore. Oxford University Press.