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REVIEW

What is philosophy of science and public policy?

Reviewed Book

Kennedy, A. G. (2023).
Science and Public Policy: a Philosophical Introduction.
New York, NY, U.S.A.: Routledge

Reviewed by
Byron Hyde

Abstract

This book on philosophy of science and public policy provides a clear introduction to the basics of philosophy of science — scientific methodology, evidence types, and values in science. However, it falls short as an introduction to philosophy of public policy. The review contends that philosophy of public policy comprises two subdisciplines: philosophy of science and political philosophy. The book notably lacks engagement with many key figures in both areas, including Nancy Cartwright and Jonathan Wolff, and lacks treatment of evidence-based policy literature. The book functions adequately as an introductory philosophy of science text but inadequately addresses the unique problematics of evidence-informed policymaking.

Keywords

Policy-making, communication and governance of science; Science and policy-making

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When policymakers appeal to science without understanding its methodological limits, and when citizens reject scientific findings without grasping what makes them scientific in the first place, we end up with policy debates that talk past one another. Ashley Graham Kennedy argues that, before we can apply science effectively to public policy, we need to understand what science is, how it works, and what it can and can't do. This may sound obvious, but this foundational understanding is conspicuously absent from much public discourse and, more surprisingly, from the training of many scientists and policymakers themselves.

Kennedy structures her argument in two parts. The first half establishes the philosophical foundations: scientific methodology, the concept of evidence, and data interpretation. Science, she argues, operates within a defined domain delimited by methodological naturalism. All scientific explanations must appeal to natural causes within the realm of space, time, energy, and matter. Science cannot answer questions about justice, fairness, or moral value because these concepts lie outside its empirical domain. This means that questions like whether genocide is wrong or whether a policy is just cannot be settled by scientific inquiry alone, however rigorous. They require normative reasoning that necessarily transcends empirical methods.

Building on this foundation, Kennedy argues that scientific evidence comes in multiple forms. Randomised controlled trials represent only one type, and an exclusive focus on them impoverishes policy deliberation. Observational studies, theoretical models, and expert judgment all constitute legitimate forms of evidence when properly interpreted. The case of smoking bans illustrates this pluralism. While early evidence linking second-hand smoke to health harms came primarily from observational studies rather than experimental trials, policymakers were justified in acting on this evidence given its consistency, the mechanistic plausibility of the connection, and the relatively low cost of precautionary measures. The demand for perfect experimental evidence in such cases reflects a misunderstanding of both how science works and how policy must often proceed under uncertainty.

Kennedy insists that values necessarily permeate the scientific process itself. Scientists must make value judgments when deciding which questions to research, how to interpret ambiguous data, and when evidence reaches a threshold sufficient for policy action. Drawing on Richard Rudner [1953] and Heather Douglas [2009], she invokes the argument from inductive risk: when scientific claims have predictable social consequences, scientists cannot avoid weighing the costs of false positives against false negatives. Kennedy argues we should acknowledge this openly rather than maintain the fiction of value-free science.

The second half addresses science communication, expertise, and application. Drawing heavily on Naomi Oreskes and Erik Conway [2010], Kennedy examines how manufactured scientific controversy has exploited public misunderstanding of science. This points to a deeper problem: the public often cannot distinguish genuine scientific debate from politically motivated dissent masquerading as scientific skepticism.

Kennedy defines scientific experts as those who are both competent in their field and trustworthy in their communication. Expertise confers epistemic authority but not moral authority to dictate policy. The Imperial College COVID-19 model serves as her primary example. The epidemiologists who created it provided competent predictions about deaths under different scenarios, but when they recommended stringent lockdowns, they overstepped their expertise. Kennedy insists that recognising this boundary doesn't diminish science's importance but clarifies its proper role.

The book concludes with a case study of addiction policy in the United States. Kennedy shows how competing definitions of addiction, rooted in different empirical findings and value commitments, lead to radically different policy approaches. If addiction is primarily a brain disease, as neuroscience suggests, then the criminal justice system's punitive approach appears misguided and treatment becomes the appropriate response. But if addiction involves elements of choice and responsibility alongside neurological changes, a different policy framework might be warranted. The scientific evidence doesn't settle this question because the question itself involves normative judgments about autonomy, responsibility, and the proper aims of public policy.

As a philosophical introduction to science and public policy, Kennedy's book faces several limitations. The first half provides a competent overview of philosophy of science basics — realism, evidence, methodology — but doesn't advance much beyond standard introductory material. Readers with some basic knowledge of philosophy of science — what Bas van Fraassen [1980] says about constructive empiricism, Thomas Kuhn [1962] on paradigm shifts, and so on — won't find new insights here. The treatment is serviceable for students encountering these debates for the first time, but it's fundamentally a recapitulation rather than a contribution to ongoing discussions in philosophy of science.

More concerning is the book's sparse engagement with the emerging field it purports to address. Philosophy of public policy is, in my view, composed of two subdisciplines: philosophy of science and political philosophy. There are giants in both fields who've addressed public policy explicitly, but whom Kennedy ignored. Nancy Cartwright — one of the most prominent living philosophers of science — has done extensive work on evidence-based policy that addresses exactly the kinds of questions about evidence and inference that Kennedy does — including a well-cited book: *Evidence-Based Policy: a Practical Guide to Doing It Better* [Cartwright & Hardie, 2012].

On the political philosophy side, Jonathan Wolff is a figure that really ought to be at least mentioned in any philosophical introduction to science and public policy. He too has a popular book (with two editions and a third forthcoming, I hear): *Ethics and Public Policy: a Philosophical Inquiry* [Wolff, 2019]. This offers sophisticated treatments of exactly the issues Kennedy tackles in her case studies, demonstrating how philosophical analysis can inform concrete policy debates on topics from gambling regulation to drug policy.

These philosophers are impossible to miss: they're both highly decorated academics, including election to Fellowship of the British Academy, and have held dozens of senior leadership positions within the discipline for decades. Their complete absence from Kennedy's book suggests unfamiliarity with key literature and significantly weakens its value as an introductory text.

The problem extends beyond philosophical sources. The discussion of evidence hierarchies and evidence-based practice makes no reference to Gordon Guyatt [1992], the physician-epidemiologist who coined the term "evidence-based medicine" and whose work on the GRADE framework directly addresses questions about evidence quality that Kennedy discusses. When Kennedy treats randomised controlled trials and observational studies without engaging with the extensive methodological literature on these topics, she misses opportunities to ground her philosophical points in practical debates. These omissions limit the book's ability to speak to audiences outside of philosophy.

The second half of the book, which should move beyond introductory philosophy of science to grapple with the specific challenges of science-informed policy, reads more like applied philosophy of science than philosophy of public policy. The addiction case study illustrates the problem. Kennedy correctly identifies that different conceptions of addiction lead to different policy approaches, but she doesn't discuss how policymakers try to navigate such conceptual disputes. The final chapter particularly disappoints in this respect. A book on science and public policy should engage substantively with evidence-based policy, yet the conclusion focuses primarily on defining addiction. This leaves readers with the narrow impression that the main role of philosophy in public policy is to clarify definitions. Philosophy has much more to contribute than that, but Kennedy inadvertently reinforces this negative stereotype.

Kennedy positions her book as both an introduction to philosophy of science and a practical guide to science-informed policymaking. It's better at the former than the latter. The philosophical discussions are clear, at least, and the brevity of the book might make it worth the attention of students on a masters of public administration (MPA), public policy (MPP), or public health (MPH) who want a light introduction to some of the basic philosophical problematics of public policy. However, for philosophy or public policy courses that require grounding in the philosophy of science and evidence-based policy literature, Kennedy's book is inadequate.

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