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PREFÁCIO

# IMPROVING EVIDENCE USE IN PUBLIC POLICY

Justin Parkhurst[1]

## 1 INTRODUCTION: THE IMPORTANCE OF EVIDENCE

The word 'evidence' can mean many things depending on context. On a personal level it can relate to individual experiences shaping our perceptions or beliefs. In legal settings it can refer to information gathered by investigators or presented to courts. While research scientists may use it to refer to empirical data collected to support or reject a particular hypothesis. At its most basic, evidence refers to information that justifies our decisions and conclusions in one way or another. As such, the importance of evidence to inform policy decisions is widely recognised, with a long history of scholarly discussion. It has been noted, for instance, that Aristotle was concerned with different forms of knowledge (including scientific knowledge) as important to inform rule-making (Sutcliffe and Court, 2005). Similarly Plato argued that it is the philosophers who possess greater knowledge – both of how to rule, as well as on the true nature of the world – who are best suited to rule and should use their knowledge to enlighten the public (Brooks, 2006; Plato, 1980).

Over time there have no doubt been countless examples of leaders using information – of one kind or another – to decide which course of action might best achieve their goals. Whether based on administrative data, military assessment, or religious prophecy – decision makers have always wanted to know if their choices of action will have desired effects. Yet the current embrace of evidence – and in particular of scientific evidence – to inform policy has more recent roots and evolution.

It was in the last century that the fields of public administration and public policy have made bureaucratic and political decision making the subject of rigorous analysis – including thinking around of the role of science in these realms. In the 1950s in the US, Harold Lasswell developed the idea of a 'policy orientation' which held research and scientific methods to be critical in their deliberate use to address public problems (Lasswell, 1951; 1970). At this time in the United States there was

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also a growing optimism over the roles that certain kinds of evidence – in particular programme evaluations – could play in guiding policy decision makers' choices of public interventions. An explosion of social policy experiments and evaluations grew around the idea that rigorous testing would allow society to find 'what works' for key issues in education, healthcare, or criminal justice reform (Nutley, Walter and Davies, 2007; Pawson and Tilley, 1997). This initial optimism, however, soon hit a number of challenges, as it became clear that for many social interventions there was no single intervention that 'works' for everyone in all settings – and even if a piece of evidence could be found that something worked in one setting for one issue, it does not necessarily follow that it will work for everyone, everywhere (Cartwright and Hardie, 2012; Pawson and Tilley, 1997). Policy scholars of the time further identified that evidence or research could be 'used' in many different ways – not just to inform choices between competing interventions, but to delay decisions, to support pre-established choices (regardless of impact), or in broader diffuse ways shaping societal thinking (Weiss, 1977; 1979).

By the 1990s, however, a renewed focus on rigorous use of evidence could be seen. This was in part inspired by the medical profession's formal embrace of 'evidence-based medicine'. Said to reflect the "conscientious, explicit, and judicious" (Sackett et al., 1996, p. 71) use of scientific evidence, evidence-based medicine typically meant using experimental trials and systematic reviews or meta-analyses of trials to guide clinical practice. The launch of the Cochrane Collaboration in 1993 formalised a global network for evidence synthesis around clinical practice (Starr et al., 2009), and was seen by many as providing a 'gold standard' of evidence use. The medical field's efforts thus inspired other sectors as well, which aimed to emulate the scientific rigour of the clinical sciences, and avoid the trappings of political bias through the application of methods such as experimental trials and systematic reviews (Smith, 1996; Haynes et al., 2012). This push for following evidence again filtered into the policy sector. In the UK, for instance, the government of the time declared "what counts is what works",[2] which for some commentators represented the birth of the modern 'evidence-based', or 'evidence-informed', policy movement that continues to inform academic research and government planning and practice today (Boaz et al., 2019; Smith, 2013).

Within these recent developments, the use of the language of searching for 'what works' has proliferated, despite the fact that authors increasingly pointed out that evidence *for policy* is decidedly different to its use *in clinical medicine* (Black, 2001). One difference is that medical decision making often takes for granted the ultimate goal being pursued – assuming a shared understanding of stakeholders that the goal will be to improve patient outcomes or the cost-effective use of

2. Available at: <https://bit.ly/3Ho1xtj>.

resources in the health system. Clinical interventions typically also assume that medical treatments work in similar ways (through the same mechanisms of causal effect) in different people given shared human biology and anatomy. Yet in the policy realm, these assumptions rarely hold.

The availability of pieces of evidence says nothing about the desirability or consensus over the agreed goals of policy action; and the diverse mechanisms through which policy interventions cause effects means that an intervention which can produce a social result in one setting might not necessarily work in the same way elsewhere (Cartwright and Hardie, 2012; Parkhurst, 2017). As such, the evidence and policy literature has come to note that methods of evaluation or review cannot themselves eliminate political considerations from policy decisions. Indeed, the decision on which outcomes to evaluate are fundamentally linked to decisions about what social outcomes to pursue – and these in turn are decidedly political. Indeed, even within medicine there have been debates about the evidence-based approach and its focus purely on outcomes-based research data; as opposed to an incorporation of consideration of patient perspectives and values on what is in their best interest (Pinheiro and Nogueira, 2021). Policy scholars of evidence use thus note that focusing solely on a method of evidence generation (such as experimental trials or systematic reviews) risks depoliticizing critical political choices, rendering obscure the trade-offs made by decision makers – trade-offs and value judgments which typically must be transparent and contestable in democratic societies (Wesselink, Colebatch and Pearce, 2014; Pielke Junior, 2007; Parkhurst, 2017).

There might be some concern, then, that the renewed embrace of searching for 'what works' risks repeating the over-optimism (and over-simplification) of some mid-20th century thinking. And while it has been important for scholars to call this out from time to time (Russell et al., 2008), the past two decades has also seen a proliferation of work that has greatly expanded our understanding of the nature of evidence use itself within policy settings. The renewed focus on evidence to inform policy has not therefore just been a political slogan. It has in turn generated a range of conceptual and practice-oriented work as well. Such work has engaged with the complex nature of social interventions, the institutional realities of policy decision making settings, and the politically contested nature of policy decision making itself.

## 2 RECENT WORK ON THE USE OF EVIDENCE

The understanding how – in relation to evidence use – public policymaking is decidedly different to technocratic evaluation derives from our understandings of: the political nature of decision making, the incentives and motivations of policymakers, and the structural and procedural features of the policymaking processes

itself. From this starting point, recent authors have applied a range of theories from political science, cognitive psychology, science and technology studies, and other areas to better understand the dynamics of evidence use in public policy spaces. These works have considered issues such as: how cognitive limitations and biases of decision makers shape which evidence is seen or used (Lin and Gibson, 2003; Cairney, 2016; Parkhurst, 2012; 2016); how the arrangements and functioning of institutional systems linking research to policy can influence which evidence is seen for what problems (Hoppe, 2009; 2010; Liverani, Hawkins and Parkhurst, 2013; Lavis et al., 2008); the ways that the dynamic nature of policy change processes over time provides windows of opportunity for certain evidence to be taken up (Cairney, 2016; Lewis, 2003); how dominant policy ideas and discursive framings shape how pieces of evidence are seen as policy-relevant (Smith, 2013; Lewis, 2006); and how the institutional logics and strategic goals of bureaucratic bodies can shape which forms, sources, and uses of evidence are seen to be appropriate to their goals (Parkhurst et al., 2020). As a whole, such work provides a wealth of understanding of the policy stakeholders, systems, structures, and functions that can influence which evidence is used, by whom, when and for what goals within policy-formulating spaces.

A second major thrust of work in recent years has been to try to understand how to increase or the 'impact' evidence will have on policymaking. 'Bridging the gap' work of this nature can also build on insights provided in the above research to guide individuals to more 'successful' strategies of research 'uptake'. Some efforts look specifically for interventions that increase the use of evidence in decision making in a measurable way (Langer, Tripney and Gough, 2016). Others seek to identify so-called barriers or facilitators to evidence use (Oliver et al., 2014; van der Arend, 2014). And a number of strategies or guidelines have been developed to inform individuals aiming to achieve greater impact or uptake of their own research evidence (Green and Bennett, 2007; Bazalgette, 2020; Straus, Tetroe and Graham, 2013; Shucksmith, 2016; Lavis et al., 2003; Reed, Bryce and Machen, 2018; Cairney, Oliver and Wellstead, 2016). Typically works of this nature highlight the importance of efforts that focus on: training researchers to more effectively provide or communicate evidence ('push' strategies); training decision makers to better understand or know how to access evidence ('pull' strategies); or building links to bridge the two groups.

These works have provided a wealth of suggestions on ways one might work to increase the chances that a piece of evidence is seen, selected, or taken-up by a targeted decision maker. However, there are some key conceptual issues with efforts focused on evidence uptake or bridging the research-policy gap in this way. For one thing, there has been little reflection on the question of *which* evidence should be taken up for *what* ends. Public policy scholars have noted for decades

that policymaking involves choices between competing interests, goals, and values. Yet advice on evidence utilization typically avoids consideration of what is the *right* goal to pursue, or whether the taken-up evidence leads in the right direction. Indeed, after reviewing the evidence-to-policy literature, Oliver and colleagues were highly critical of the existing work pushing for research uptake that is based on a problematic underlying assumption that 'more' use of evidence is assumed to be 'better' – regardless of consideration of political goals and processes (Oliver, Lorenc and Innvaer, 2014). Smith similarly has explained that the guidelines to increase impact often assumes that any use of research is by definition a good thing (Smith, 2013) – while noting that efforts to *increase* the use of research is not the same as efforts to *improve* the use of research (op. cit., p. 23). It is this fundamental distinction between *using* research evidence, and *improving the use* of research evidence, that presents an important gap in the literature, and allows a critical next step to be taken in the evidence informed policy movement.

## 3 IMPROVING EVIDENCE FOR POLICY

While it may initially appear straightforward, what it means to *improve* evidence use within a policymaking space actually requires a good deal of conceptualization and clarification of multiple concerns; and the idea in itself can capture three linked questions, as follows.

1) What *should* be considered *good* evidence for policymaking?
2) What does it mean to use evidence in a *better* way?
3) How can countries build systems to ensure *the right* evidence is used in *better* ways?

As emphasized in the italics, these questions involve normative (value based), rather than technical, considerations. As such, addressing them requires an explicit normative turn in conceptualization of evidence use. That is, it is necessary to move away from academic questions of 'what affects/shapes evidence use', and away from practice-based questions of 'what increases the use of (my) evidence', to ask what represents the good use of evidence within a political system, and what can be done to try to achieve better evidence use within a country.

### 3.1 What *should* be considered *good* evidence for policymaking?

Some may feel that the first of the three questions above is already addressed by the methodological debates that have raged in recent years about randomized trials and the so-called 'hierarchy' of evidence (Ravallion, 2020; Dimova, 2019). In brief, the focus of these debates have been around methodological appropriateness. While there are a large number of individuals and groups that

embrace randomized trials as the 'best' evidence based on their ability to illustrate causal effect of an intervention, others note that public policy decisions are not simply concerned with choices between interventions based solely on their effects – and as such the right evidence for policy must alternatively be judged on its *appropriateness to the issues being addressed* (Parkhurst and Abeysinghe, 2016; Petticrew and Roberts, 2003). In a recent paper, colleagues and I have further explored what this concept of appropriateness would mean for bureaucratic agencies – defining a *programmatic approach* as one that uses the goals and tasks of a bureaucratic agency as a starting point to reflect on which forms, sources, and uses of evidence best serve those goals (Parkhurst et al., 2020).

This shift to appropriateness provides an opportunity for key scientific best practices principles to be applied within the policy sphere to help identify what good evidence for policy would look like. Given that applying an incorrect or inappropriate method to solve a problem would be a violation of basic scientific principles, we can hold that it would also be problematic to apply inappropriate methods in relation to a particular goal (or knowledge need). So, for instance, if the social desirability or willingness to pay for an intervention was the evidence needed to inform a decision, an experimental trial might not be appropriate. An example such as this illustrates that requiring experimental trials would, in fact, not be providing 'good' evidence for that particular policy need.

Good evidence, however is not just evidence that is appropriate to the policy question. It must also be evidence of high *quality*. This is another fundamental scientific principle of course, but the quality criteria of different forms of evidence, will depend on the methods by which they are generated. Assessing social desirability (to continue the example above) might require a survey, rather than a clinical trial, to generate appropriate evidence. But survey evidence can be of higher or lower quality based on factors such as sample size and representativeness. A good piece of evidence for policy, then, can potentially be defined as evidence *appropriate* to the policy decision that is also judged to be of high *quality* according to its method of generation.

There is one more scientific principle, however, to apply when considering the question of what constitutes good evidence for policy. Science is not a search for one perfect truth, as much as the accumulation of knowledge (Bird, 2007). As such, rather than applying single pieces of evidence to justify policy action, evidence must be synthesized from bodies of knowledge to ensure the best-informed decisions can be made. It is critical then for evidence synthesis to ensure it reviews evidence in comprehensive ways, to avoid selective uses of evidence that lead to incorrect or misleading outcomes. This final scientific principle then allows us to come to a working definition to answer the first of the three critical questions above: good evidence for policymaking can be seen as rigorously synthesized evidence of high quality that is appropriate to the policy consideration at hand.

### 3.2 What does it mean to use evidence in a *better* way?

The second question listed above, however requires going beyond principles of scientific good practice alone. It fundamentally asks what better use of evidence means within a policy space. This rejects the idea that simply 'more' evidence utilization is better based on the recognition that political goals can be numerous and contested, and simply being effective does not equate to doing the right thing per se. Instead, answering the second question requires turning to consider the original purpose of the application of evidence to policymaking.

While rarely stated in academic work on the subject, for most advocates and champions of evidence use there is an implicit belief that evidence can, and should, be mobilized to reach social goals and to achieve societal improvement (Boaz, Locock and Ward, 2015). This position is based on the classic view that the ultimate goal of public policy making is in service of the public good, or the public interest (Bozeman, 2007). Again, we can look back to antiquity for this concept – as when Plato presents the argument that "no ruler, in so far as he is acting as ruler, will study or enjoin what is for his own interest. All that he says and does will be said and done with a view to what is good and proper for the subject for whom he practices his art" (i.e. for the benefit of those ruled) (Plato, 1980, p. 24). While there have been arguments over how much Plato's calls for societal rule by (albeit benevolent) philosopher kings contrast to modern democratic principles (Brooks, 2008) – the underlying premise of policies in the public service endures. In the modern era, Dewey (1954) claimed in his classic text *The Public and its Problems* "a criterion for determining how good a particular state is [includes] the degree in which its officers are so constituted as to perform their function of caring for public interests" (op. cit., p. 33). And from this starting point, the idea of judging government action based on its service to the public interest can naturally be expanded to consider its use of evidence as well, however. Therefore, a key criterion for judging what constitutes a better use of evidence for policy would be to judge if it is being used in service of the public interest and societal improvement.

But what constitutes the public interest, and what goals to pursue in the name of societal improvement, are decidedly political questions. It is here then that we must move outside scientific principles to instead guide out thinking with normative principles developed for political decision making. Dating back to John Stewart Mill, democratic theory would hold that politics serves as the mechanism by which the interests and rights of the public are achieved (Christiano, 2021). As such, it is normative democratic principles, rather than scientific ones, which need to be applied which can help to judge whether evidence is being used for policy in better ways.

A first principle required to ensure evidence is being used in the public interest is that of *goal clarification* for the policy action being undertaken (and for which evidence is being marshalled). Critics of overly-technical perspectives of evidence use have often noted that policymaking involves making choices between multiple competing social priorities or values, and thus the right body of evidence to review will depend on which goals are being pursued. Indeed, in Lasswell's 'problem orientation' of the policy sciences, goal clarification is the first intellectual task to undertake – requiring policy actors to make an explicit consideration about which social values to pursue in policy action (Lasswell, 1970). In reality, it may be that politicians do not always wish to be so explicit about the goals they pursue – preferring to play different objectives off against different constituencies, or to retrospectively highlight goals achieved after any series of policy actions is complete. But from the perspective of evidence use, knowing which goals are being pursued at the start is fundamental and critical to know both what body of evidence (in relation to different outcomes) should be synthesized to inform choices, and which forms of evidence are most appropriate to the decisions made.

Goal clarification is, in fact, particularly essential to build into evidence use systems, yet it is rarely discussed or considered within works looking to improve evidence use. Cairney, Oliver and Wellstead (2016) touch on this when they note that much work in evidence use aims at reducing data uncertainty (by searching for more information on a given question), but fails to address policy ambiguity (around how problems are conceived). Some may be hesitant to ask evidence advisors to clarify social goals – out of a concern that science or evidence advice should not be making the political choices on which social values to embrace, or what social outcomes to pursue. But goal clarification is not the same as goal selection. It is fundamentally different to having science advisors select social goals and having them request – indeed even require – clarification of social goals from political leaders. Indeed, without such clarification it can never be clear if the evidence being provided is appropriate, and thus impossible to judge if it is being used well.

Other democratic principles, however, are equally crucial to apply if one wishes to ensure evidence is being used in service of the public interest. Within systems of evidence utilization, politicians and bureaucratic actors will be both shaping when evidence is used, as well as for what goals it is applied. To serve the public interest, there must be some mechanisms through which the public's values are represented, and the political agents acting on behalf of the public can be held to account. Thus, better uses of evidence for policy can be seen as those which ensure both *accountability* and public *representation* throughout the process.

A final principle, however, which can be particularly important to judge if evidence is being used well is that of *transparency*. Transparency itself is sometimes seen as a tool that ensures or builds accountability, allowing the public to see

the political decisions being made on their behalf (Meijer, 2014). Transparency is also critical, however, in relation to the use of evidence in two ways. First, Elliot and Resnik (2014, p. 648) explain that "transparency can promote public trust by helping lay people understand how both empirical evidence and value assumptions enter into scientific decision making and policy formation". In addition, however, transparency is also necessary when experts review or synthesise evidence to inform policy so that scientific peers are able to provide scrutiny and oversight (Bornmann, 2013) – to help ensure rigor and quality in line with scientific principles discussed above.

If we accept the premise that the good use of evidence in policy is that which serves the public interest – these principles allow further consideration of what might be needed to achieve this. In particular through: clarification and specification of goals pursued; accountability to and representation of the public and their values; and transparency in the evidence utilization process to enable scientific and democratic scrutiny.

### 3.3 How can countries build systems to ensure *the right* evidence is used in *better ways*?

We can now turn to the final question of how to bring about improved uses of evidence for policy in national systems. While the above two sections highlight normative principles that can be used to conceptualise what an improved use of evidence would be for policymaking, the final step is to consider how this can be brought about systematically. This requires shifting thinking away from individual pieces of evidence, training of particular leaders, or influencing specific policy choices, to instead consider the systems of evidence and science advice operating within countries – systems that function across policy decisions, and across any particular research study or finding. In essence, it requires a shift to consideration of the institutionalisation of evidence use, and how to improve institutional arrangements in line with these principles.

Some authors have already begun to consider the steps needed to institutionalise evidence use within national policy decision making structures. Stewart, Langer and Erasmus (2019), for instance, have described this as 'spiral' process involving the steps of: raising awareness, developing capability, and using evidence – all taking place across a set of levels building up from the individual, to the team, organization, and ultimately institutional level. The authors argue that institutionalization of evidence use is a long-term process that cannot be judged by the use of evidence in anyone decision point. Rather they explain: "[t]he decision itself is not an endpoint… there are many incremental shifts, as you move around the spiral, all of which are important. We recognise that big changes are the result of multiple small steps, and that the larger changes can take many years

to accumulate" (op. cit., p. 7-8). Koon et al. (2013) have further highlighted the importance of the 'embeddedness' of research organizations within health policymaking systems – with embeddedness capturing the centrality and strength of connections that research organizations can have. This is ultimately seen to affect the influence that research organizations may have on other organizations within the system (and thus increase the uptake of research in policymaking).

Such frameworks help to identify what institutionalised systems of research and evidence use might look like, as well as steps one can take at different points to develop the systems of evidence use. However, these approaches typically work from the logic that what matters is use or take-up of research; without necessarily engaging with the normative principles discussed previously of what constitutes good evidence for policymaking, or the good use evidence within policy processes. And yet, institutionalisation is a decidedly normative process. Selznick (1957) famously described institutionalisation as a process by which organisations are 'infused' with values. That is to say institutionalisation sets the structures, rules, and processes that prioritise particular values and pursue certain goals. Building on Selznick in relation to public sector organisations, Boin, Fahy and 't Hart (2021, p. 2) further explain: "[i]nstitutions embody and safeguard certain values that are important to a society" – describing public institutions as 'guardians of public value' (op. cit., p. 7).

Previous work of my own has described the institutionalised arrangements of evidence advice as *governing* the use of evidence in policy making – with the normative principles discussed here allowing further consideration of what the *good governance of evidence* would look like (Parkhurst, 2017). In that work I argue that the good governance of evidence is achieved through "the institutionalisation of structures, rules, processes and practices that work to ensure that rigorous, valid and relevant bodies of evidence are utilised through transparent and deliberative processes to inform decisions that ultimately remain representative of, and accountable to, local populations" (op. cit., p. 170).

Ultimately, there is no single template to follow when considering how to build evidence advisory systems that ensure good evidence for policy is being used in ways that serve the public interest. Halligan (1995) has noted, there can be pros and cons for any given policy advisory system arrangements – looking at the location of advisors (internal or external to government) and the level of control held by government officials. Combinations of these are seen to affect the performance of the advisory system in relation to its flexibility, policy suitability or effectiveness of advice given – with Halligan concluding "the verdict is still out on what structure works best for policy advice" (op. cit., p. 162).

Thus, just as public administrative governance arrangements vary across countries, so too will evidence advisory and evidence provision arrangements. Indeed, in most countries there will likely be sets of agencies and groups providing science and evidence to a variety of decision makers. In one mapping of the UK science advice system, for instance, Hopkins et al. (2021) illustrate how science advice to Ministers comes from: formal science advisory mechanisms in government; independent academic councils and committees; government units specialising in research and evidence; and external groups as well.

But while It is not possible to say which bureaucratic arrangements, or which system of representation, is the 'best' one, we can instead consider if bureaucratic and representation systems reflect good governance principles. We can also consider how to improve them if they are found lacking, or if we identify new or additional principles we wish to infuse into our organisations through further institutional change. As noted by Stewart, Langer and Erasmus (2019) above, the ongoing institutionalisation of evidence use will, in most cases, be a process of small changes at multiple points within existing bureaucratic structures. But by making these changes in relation to good governance of evidence principles, we can follow what has been termed a process of *guided evolution* of the evidence system (Parkhurst, 2017). It is *evolutionary*, as institutional change tends to be incremental shifts in existing systems, with some changes taking hold as more fit for purpose, and others falling away when proving unfit for purpose. It is *guided*, however, by explicit consideration of the normative principles upon which such changes can be based.

So, for example, it may be that existing evidence advisory bodies within a country have well established rules or procedures for evidence synthesis in relation to intervention effectiveness assessment (such as through the use of systematic reviews or meta-analysis) – with such approaches in line with scientific principles of rigour and comprehensiveness. Yet existing bodies may be lacking explicit procedures in relation to goal clarification, or may be limited in their transparency of operation. Requiring and implementing a standard procedure for evidence review which begins with an explicit statement of the goals of the policy being informed could be an incremental change within an existing system, but would help to hold both science advisors, and political leaders, accountable. Increasing transparency or public deliberation in the review process can further help to allow peer scrutiny over whether the appropriate evidence was reviewed in relation to those goals, but also allow public scrutiny over whether their political leaders are indeed pursuing outcomes representing their interests.

What is critical is for each element of an evidence advisory system to consider if their levels of transparency, deliberation, or accountability are sufficient – or if there may be a gap which prevents the public and scientific community to undertake sufficient democratic or scientific scrutiny. Ultimately, this chapter argues that

improving evidence use at a national level is a structural and institutional process that must critically look at the systems in place to provide evidence, and explicitly consider the normative principles by which those systems operate – using such principles to guide improvements and system changes.

## 4 DISCUSSION OF THIS VOLUME

This volume represents an important step in the efforts to improve evidence use at a national level in Brazil. Chapters touch on a range of academic and practice-based questions – yet they arise from a broad desire to improve the structure and functioning of the systems that provide evidence to inform important public policy decisions.

The book is divided into sections covering: theoretical-conceptual aspects of evidence use in Brazil (section 1); methods and approaches to communicate evidence (section 2); Analysis of evidence use at different levels of the Brazilian government (section 3); Analysis of the state as an evidence producer (section 4); and a final section critically analysing the use of evidence in a range of public policies in Brazil, from education to the environment to covid-19. As such the book should provide a wealth of both conceptual and empirical examples to reflect on the theory, systems, and practices of evidence use in Brazil.

Many of these chapters consider the ways that bureaucratic agencies function in relation to evidence, providing insights into the political and structural factors shaping evidence utilisation by public servants. For instance: Machado, Sandim, Alves, Motoki and Vivas look for correlates of the use of scientific evidence by public servants in the Federal District – considering features of these individuals and incentives of their organisations in relation to evidence use. Koga, Palotti, Lins, Couto, Loureiro and Lima similarly focus on the ways that evidence use by Federal bureaucrats is shaped by their differing political-institutional contexts – identifying a range of forms of evidence and uses of evidence specific to their bureaucratic realities. Oliviera and Menke discuss the sources of information preferred by another form of official – auditors of the Comptroller General. While Filgueiras, Palotti and Nascimento provide insights into how a structural shift – in the form of the construction of a digital platform – was linked to a more instrumental use of evidence in relation to policy decisions. A range of other chapters consider how particular forms of evidence was utilized in specific Brazilian policy decisions (e.g.: Furtado and Lassance on the use of computer simulations; Bachtold and Robert on the use of ethnography; Vieira, Servo and Piola on the use of Health Technology Assessment; or Fiani on the use of Econometric models).

There are also chapters that look at other arms of the state in relation to evidence use – such as the judiciary and the legislature. Work considering evidence

use in these bodies, however, has often taken on different concerns to the largely technocratic approach assumed to underlie planning of many public sector bureaucratic bodies. Work in the US, for instance, has explored the evolving criteria used by courts – and the specific role of trial judges – for admitting scientific evidence: finding tensions around how much judges can or should be able to assess the reliability or validity of scientific evidence (Walsh, 1999; Improving…, 1997). There have also been studies in Colombia and Germany that have analysed how courts can consider health-related evidence differently to public health bodies. These studies find that courts often utilise evidence in relation to legislative and constitutional principles (such as the right to health). This was found to lead to different conclusions (and policy implications) when health-provision decisions fall to courts, as opposed to ministries of health or affiliated public health bodies (Ettelt, 2018a; Hawkins and Alvarez Rosete, 2019). In this volume, the chapter by Nascimento and Dias also considers evidence use within the judicial arm of government, yet provides a novel approach to the question. Rather than focussing on how evidence is used to decide in specific court cases, it looks at the role of evidence in advocacy ('ativismo com as estatísticas' [activism with statistics]) for reform of the working conditions within judicial system itself.

In contrast to judiciaries, legislatures often hold a different position in relation to scrutinising, approving, or setting public policy. The roles played by legislatures in different countries has been found to vary considerably – from oversight and approvals (of budgets, for instance), to the direct formation of policy through the creation of laws and regulations (Ettelt, 2018b); and it has been argued that legislatures have not yet been widely studied in relation to their uses of evidence to inform policy (Rose et al., 2020). In one analysis, however, Ettelt (2018b) explored the ways that parliaments in a set of countries used evidence for health policymaking – finding the role of evidence to be limited, and noting that party politics could dominate evidence use processes.

The role of partisan politics within legislatures – and its subsequent impacts of evidence use – can, therefore, be an important area for further work. In Weiss' (1979) classic typology of research use for policy, she describes a 'political model' of research use as reflecting situations where "the constellation of interests around a policy issue predetermines the positions that decision makers take" and research "becomes ammunition for the side that finds its conclusions congenial and supportive" (op. cit., p. 429). It has been further argued that the greater the levels of political contestation or polarisation faced, the greater the chance for bias in the creation, selection, or interpretation of evidence (Parkhurst, 2016).

Indeed, political competition and polarisation are often no more visible than in national legislatures, and in this volume, the chapter by Almeida explores this very question of how the political make up of legislative committees influences

the type of evidence used. The chapter undertakes an empirical analysis of bills considered by committees within the Chamber of Deputies to consider when information of different quality was used. It finds overall that information of high evidentiary quality was not often used. It further analyses correlations between quality of information and the make-up of the committees themselves, finding initial indications that greater heterogeneity of preferences within committees can lead to improved quality of information shared.

This preface, however, raised a set of key questions to guide thinking around how we can work to improve the use of evidence for policymaking. And indeed, several chapters speak more directly to the three sub-questions discussed above. For example, Pinheiro explores what is termed a 'modelo moderado' [moderate Model] – in which evidence is defined in relation to policymaker action – fundamentally analogous to the programmatic approach that the needs and goals of bureaucratic decision makers can serve to establish what forms, features, and applications of evidence are appropriate or policy relevant (Parkhurst et al., 2020).

Other chapters are decidedly institutional in their approach. Araújo, for instance, considers how the policy process and nature of planning institutionalized particular information that would be used for prevention of forest fires. While Segatto, Santos, Alves e Peria study whether evidence use was institutionalized for education policymaking at state level (finding only one state actually having institutional structures for this). Works such as these can enable critical reflection on the institutional evidence advisory systems in place, and whether they provide the most appropriate evidence for this policy need in the best possible ways.

Finally, one of the most explicit discussions in this volume of whether evidence was used *well* comes in the chapter by Moraes, who compares Brazilian state governments responses to the current covid-19 pandemic. The chapter presents a key set of criteria by which to judge good uses of evidence in relation to pandemic response – whether it was: timey, comprehensive and precise, involving expert participation, interdisciplinarity, transparent, and proximate to the political process. These principles may differ somewhat from those discussed above, but the ultimate approach is similar – an explicit consideration of normative concerns by which to judge the use of evidence.

## 5 FINAL THOUGHTS

While the use of knowledge to inform decisions dates back to antiquity, it has been in the past century that the structures and functioning of public administrations has become a well-developed field of study. Consideration of the ways that science and evidence are used to improve public services has grown alongside this. In the past few decades, we have seen an expansion in academic and applied work that directly analyses evidence use within policymaking spaces drawing on a range of

disciplinary and conceptual approaches. However, despite this growth, gaps still remain. Recent work has begun to understand how features of the state shape the use of evidence – yet this knowledge base still requires expansion to different country contexts and different policy issues. As such, this volume provides a wealth of insights into evidence use in Brazil specifically, cutting across a range of key public concerns. This preface, however has also raised the challenge of what it means to use evidence well, and how to build systems within countries to ensure this is done. This remains an emerging area to consider for many in the field, but again there are chapters in this volume which can help to develop these ideas in Brazil – and ultimately inform future decisions and debates about the structures of evidence advice best suited to serve the public interest.

At the time of writing, the covid-19 pandemic is providing an urgent challenge to many countries in the use of science and evidence to inform policymaking. And while this might appear to be raising new considerations for the use of evidence, in many respects, such issues have existed throughout time. The appropriate evidence in response to a novel pandemic may indeed look different to using evidence for routine health concerns, or other long term public policy considerations requiring science advice (be it transportation, forest management, or climate policy). Yet ultimately, using evidence *well* – for any policy challenge – requires establishing systems that can marshal appropriate scientific research, data, and information, to serve public needs. Doing so requires explicit reflection on the goals of policy action – as well as the criteria by which good evidence, and the good use of evidence, can be judged at a national level.

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