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Evidence Based Policy Making: If You Want to Inject More Science into Policymaking You Need to Know the Science of Policymaking

Abstract

‘Evidence-based policy making’ (EBPM) is not a good description of the policy process. Drawing on policy theory, we should treat EBPM as an ideal-type in the same way as ‘comprehensively rational’ policymaking. Evidence may be important but, to identify and gauge its role, we should understand how it fits into the bigger picture in which ‘boundedly rational’ policymakers make choices based on uncertainty and ambiguity. This takes place in a policy environment which influences how they act and how much control they have over the final outcomes. Images of highly centralised and ‘rational’ policymaking by a small number of actors give way to pictures of less predictable or manageable multi-level governance involving many actors. When engaging with this process, scientists should not simply bemoan its pathologies in comparison with an ideal-type. Rather, they should understand the process to put themselves in a better place to adapt and respond.

Introduction

‘Evidence-based policy making’ (EBPM) is a vague, aspirational term, rather than a good description of the policy process. The simple aspiration can be defined as: policymakers should base their decisions primarily on scientific evidence.¹ Yet, it can be interpreted and characterised in very different ways. At one extreme is the naïve view that there can and should be a direct and unproblematic link between scientific evidence, policy decisions and outcomes: the identification of a problem should produce a proportionate solution; and, policymakers should select the most effective solution.² At the other is the ‘policy based evidence’ view that politics is so pathological that no decision is based on an appeal to scientific evidence (at least if it gets in the way of politicians seeking election), or so messy that the evidence gets lost somewhere in the political process. Indeed, if we initially hold the naïve view, we may quickly become disillusioned and develop the more cynical attitude.

A more practical approach is to argue that EBPM is an ideal-type to compare with the real world, in much the same way as we describe ‘comprehensively rational’ policymaking (we may also ask if the ideal-type is an ideal to aspire to). Our focus is on the ways in which policymakers process information such as scientific evidence, taking into account the short cuts they use when they have limited means to process information. This takes place in a

¹ We can define evidence as an argument or assertion backed by information. Scientific evidence therefore describes information produced in a particular way. Some (including the author) use ‘scientific’ broadly, to refer to information gathered systematically using recognised methods. Others refer to a specific hierarchy of scientific methods, with randomized control trials (RCTs) and quantitative systematic review at the top.

² Bastow et al (2014a; see also 2014b) identify this argument - that “political decision-makers could somehow be a kind of blank slate on which researchers or scientists could directly inscribe the ‘correct’ course of action to be followed” - in ‘commentary from research bureaucracies ... STEM scientists and professionals, and from the more naïve politicians or media commentators’. See Monaghan (2011: 6) on ‘policy based evidence’.

policy environment which contains many policymakers and influences how they act and how much control they have over the final outcomes.

This approach underpins the policy theory literature. By identifying the limits to comprehensive rationality, we explore the implications of ‘bounded rationality’. By stating that policymakers do not have the ability to gather and analyse all information, we identify the heuristics they use to gather what they can. This may reveal their biases towards certain sources of evidence – which may be more important than the nature of the evidence itself. By stating that they can only pay attention to a tiny fraction of the issues for which they are responsible, we identify which issues they put to the top of the agenda and which they ignore. There is a lot more to this process than the nature of the evidence – it is about how problems are ‘framed’ by their advocates and how they are understood by the policymakers held responsible for solving them. It is about the power to ignore or pay attention to particular studies; to link the evidence of a policy problem to a particular solution; and, to ensure that policymakers have the motive and opportunity to turn a solution into policy (Kingdon, 1984; 1995; Lieberman, 2002; Béland, 2005: 10).

The policy literature contains theories and studies which can be adapted to explain how evidence-processing fits into the wider policy process. For example, ‘punctuated equilibrium theory’ uses bounded rationality to identify long periods of policymaking stability and policy continuity punctuated by profound bursts of instability and change (Baumgartner and Jones, 1993; 2009). In some cases, policymakers ignore some evidence for years, then, very quickly, pay disproportionate attention to the same evidence. This may follow the replacement of some policymakers by others (for example, after elections) or a ‘focusing event’ which prompts the same policymakers to shift their attention from elsewhere. Some studies of policy diffusion use bounded rationality to identify emulation in the absence of learning; the importation of a policy by a government which may not possess much evidence about why it was successful somewhere else (Berry and Berry, 2014). In such cases, a policy may be introduced as much because of its reputation as the evidence of its transferable success. In other approaches, such as the ‘advocacy coalition framework’, we can identify a battle of beliefs, in which different groups seek to gather and interpret evidence in very different ways, and encourage policymakers to emulate their way of thinking (Sabatier and Jenkins-Smith, 1993; Jenkins-Smith et al, 2014). Policymaking is often about the dominance of one interpretation of the world. This dominance often takes time to overcome, suggesting that it is unusual for new evidence to have a direct, immediate and profound impact on the actions of policymakers. Indeed, some of the evidence that now informs policies – and which we now take for granted – has taken decades to be accepted within government (Cairney et al, 2012: 214-5; Cairney and Studlar, 2014).

These studies have two key points in common. First, policymakers have to make important decisions in the face of *uncertainty* (a lack of information), *ambiguity* (uncertainty about how to understand a problem and its solution, which cannot be solved by more information) and conflicting accounts regarding how to interpret information and draw conclusions (Zahariadis, 2007: 66). They do so by drawing on policymaking short cuts, such as by using information from sources they trust, and by adapting that information to the beliefs they

already hold. In a political environment where evidence is rarely conclusive enough to remove uncertainty, and cannot remove ambiguity, persuasion and argument are the tools used by policy participants to resolve problems (Majone, 1989: 8; 21; Cairney, 2012a: 234; Sanderson, 2009: 712).

Second, even in ‘Westminster’ systems associated with a concentration of power in the executive, there are many policymakers involved. We may begin with the ideal-type of a single, comprehensively rational policymaker at the heart of the process, but end by identifying a complicated picture in which many actors – in many levels or types of government – influence or decide how evidence is used and policy is made. The implication is that we should change how we see the role of evidence: from focusing on its use by policymakers at the ‘top’, or at a notional single point of decision, towards explaining how it is understood by many policymakers, frequently, throughout the political system as a whole.

In this context, a simple appeal for the government to do something with ‘the evidence’ is naïve. It highlights a potential irony: people seeking to inject more scientific evidence *into* policymaking may not be paying enough attention to the science *of* policymaking. Instead of bemoaning the lack of EBPM, we need a better understanding of ‘bounded-EBPM’ to inform the way we conceptualize ‘evidence’ and the relationship between evidence and policymaking.

To demonstrate this argument, the article first reviews the policy studies literature which discusses EBPM directly, and links it to a more general literature focusing on bounded rationality. Second, it shows how a range of modern theories of the policy process can explain the role of evidence within it.³ Third, it discusses the practical and normative implications of bounded EBPM for scientists seeking to influence the policy process. Scientists should identify how the policy process works and seek to influence it on that basis – not according to how they would like it to be. They should also reflect on the idea of ‘good’ policymaking, of which the use of scientific evidence is only one part.

From Comprehensive Rationality to Bounded EBPM

The idea of comprehensive rationality is that it represents, in one stylised way, an optimal policy process. Assuming that the values of society are reflected in the values of policymakers, and that a small number of policymakers control the policy process from its centre, it highlights the conditions that would have to be met to allow those policymakers to use the government machine to turn those aims into policies. There are three main conditions:

1. We can separate the values, required by policymakers to identify their aims, from the facts produced by organizations to assess the best way to achieve them.
2. An organisation acts optimally by ranking its aims according to its leader’s preferences and undertaking a comprehensive search for information.

³ The EBPM literature comes largely from the UK and Australia, while most policy theories were developed in studies of the US. This reminds us that ‘universal’ accounts, based on concepts and processes found in multiple countries, must be adapted somewhat to country-specific studies. We may also identify variations in the attitudes of scientists to EBPM according to policy issue or discipline.

3. Policy is made in a 'linear' way: policymakers identify their aims, the bureaucracy produces a list of all ways to deliver those aims, and the policymaker selects the best solution (Cairney, 2012a: 96).

The study of 'bounded rationality' notes that these conditions cannot be met and explores what happens when policymakers use heuristics to gather information and seek 'good enough' solutions (Simon 1957: xxiv; 1976: xxviii; Cairney, 2012a: 97-8).

This old approach has received a new lease of life following the rise of the EBPM agenda in countries such as the UK and Australia. Boaz et al (2008: 242) describe 'rational analysis' as 'comforting to researchers and, sometimes, to decision makers'. Botterill and Hindmoor (2012: 367) argue that EBPM, as a 'political slogan' and 'academic movement', shares comprehensive rationality's focus on separating facts and values, "to anchor policy-making in evidence and to deliver 'what works' unsullied by ideology or values considerations" (see also Brown, 2013: 3-4; Sanderson, 2002: 5; 2009: 705; 2011: 61; Williams and Glasby, 2010: 98; Australian Bureau of Statistics, 2010; Smith, 2013: 4). An attachment to comprehensive rationality may also be based on significant advances in scientific practice, knowledge and review, and the hope that EBPM can help overcome limitations in government (2012: 371). Boundedly rational policymakers, who can only gather so much information, can be aided by scientists with far greater capacity. In that context, if there remains a gap between hope and reality, it 'can be attributed to pathologies of the political process; the realities of which are that sound evidence is often pushed to one side ... what is missing is not the evidence but the institutional capacity and political will to act upon that evidence' (2012: 368; see also Monaghan, 2011: 30-1). Such a conclusion allows us to blame politicians for general failure and explain specific successes with reference to exceptional individuals.

Botterill and Hindmoor (2012: 370) argue that the problem with the supply of such evidence is that scientists face many of the same problems as policymakers. They cannot separate facts from values and interpretation, their research resources are limited (and often contracted out to policymakers), and any attempt 'to collect and communicate evidence to policy-makers involves distorting that evidence through simplification' (2012: 368; Pawson, 2006: 8-10). They have no 'unique claim to objectivity' (Sanderson, 2002: 6; Ginsburg and Gorostiaga, 2001; Petticrew and Roberts, 2006: 5). These limitations are often masked with an appeal to a scientific consensus, based on a hierarchy of evidence which favours RCTs and systematic review (Botterill and Hindmoor, 2012: 367-8; see also Nutley et al, 2007; 2013; McCaughey and Bruning, 2010; Neylan, 2008; Smith, 2013; Yeomans, 2013; Greenaway, 2008; Thom, 1999: 11-2; 2005; Boaz et al, 2006). Discussions which would be hotly debated within a discipline – particularly when complex issues defy simple cause and effect - become 'self-evident' facts when presented to policymakers, as part of a process in which people use evidence to exercise power (2012: 371-2).

These problems of exaggerating consensus are multiplied when we consider the wide range of ways in which scholars disagree about what they are doing, how they should do it, and how science should contribute to policy (Boaz, 2008: 239). They are exacerbated when: problems cross-cut traditional policy areas and disciplinary boundaries (Head, 2008: 4;

Sanderson, 2002: 15; Downe et al, 2012); the evidence base is patchy or contested (Head 2010: 78; 87; Sanderson, 2011: 69; Taylor, 2013: 12-3; Thom, 1999: 129); and, the evidence comes from abroad, in an unfamiliar or unsystematic way (Ettelt et al, 2012). Further, not all academics favour a hierarchy of evidence (Pawson, 2006: 52-4), and some encourage the wider generation of knowledge from practitioners, service users, interest groups, and public ‘deliberation’ to recognise, for example, the distinction between effective and appropriate policies (Williams and Glasby, 2010: 97; Petticrew and Roberts, 2006: 57-9; 68). So, the appearance of an evidence-policy gap could be caused by a romantic account of the supply of ‘the evidence’.

We can identify further issues with the demand for evidence. At times, EBPM appears to be supported by policymakers in broadly the same way as many scientists. Politicians may try to depoliticise issues by portraying them as technical (O’Brien, 2013: 4) and resolvable via research and expertise. Note the ‘magic’ or ‘silver bullet’ metaphor, to highlight a demand for a killer piece of information to remove the need for political choice (Cartwright and Hardie, 2012: 73-4). Some governments, including the UK, seem to privilege particular forms of evidence when providing major funding for academic/ scientific centres or government department units to determine ‘What Works’ (Boaz et al, 2008; Head, 2010a: 79; Solesbury, 2001; Haynes et al, 2012; for critical reflections, see Parsons, 2002; Sanderson, 2002; Boswell, 2009: 4).

Yet, even if they represent an interested audience, policymakers may not understand or pay attention to ‘the evidence’ in the same way as the scientists providing it (Botterill and Hindmoor 2012: 369, Head, 2010a: 87; Bambra, 2013; Sutherland et al, 2013; Sanderson, 2009: 703; Boswell, 2009: 33; Ettelt et al, 2012: 493; Rich, 1997), particularly if policymakers are not involved in the evidence gathering process and scientists focus on one aspect of a multi-faceted political problem (Petticrew and Roberts, 2006: 29-33; Cartwright and Hardie, 2012: 12). This problem is compounded by bounded rationality and politics. The cognitive limits of policymakers are reinforced by the policy process which limits their ability to act, and their demand for information may be unpredictable. At best, scientific evidence is one of several relevant sources of ‘evidence informed’ knowledge for policymakers, alongside knowledge of the policymaking system and the ‘practical wisdom’ of practitioners or service users (Head, 2008: 6; 2010: 87; 2013: 397). At worst, some policymakers may be ‘populist and anti-intellectual’, while others may only demand information to support a policy decision already made (Head, 2010a: 81; 84; Baggott, 2010; Boswell, 2009; Naughton, 2005; Stevens, 2007; Sanderson, 2009: 703; 2011: 61-2). Policymakers may look elsewhere for information – particularly when the issue is salient, new or unpredictable, and actors feel the need to make decisions quickly in the face of uncertainty (Head, 2010a: 81; 2010b: 172). Or, they treat ‘rational policy analysis’ as one of many ways ‘of telling a story alongside all the other stories in a department’ (Rhodes, 2013: 486).

So, the appearance of an evidence-policy gap is exaggerated by focusing on one type of EBPM image, in which the evidence comes first and we bemoan the inability of

policymakers to act accordingly. It competes with the identification of many other functions of research: to inform solutions to a problem identified by policymakers; as one of many sources of information within policy networks; as a resource used selectively by politicians, with entrenched positions, to bolster their case; as a tool of government, to show it is acting; and, as a source of ‘enlightenment’, shaping how people think over the long term (Weiss, 1979). Evidence may be used to help clarify the aims of policymakers, measure how well policy is working, evaluate pilot projects that may be rolled out nationally, support the roll out of pilots as ‘prototypes’ or beacons of ‘good practice’, or gather evidence to support performance management (Sanderson, 2002: 9-10; 13; Geyer, 2012). It may be used by governments to legitimise their activities (Sanderson, 2002: 3-5; Monaghan, 2011: 30-1); to make them seem more authoritative or credible (Boswell, 2009: 7-8; 25; 43-5). In each case, it would be naïve to think that the evidence could ever speak for itself or that its producers ‘control how their ideas are interpreted, modified and used by others’ (Head, 2013: 397), particularly when issues are salient (Monaghan, 2011: 2-4; 37-8). Scientists may provide important policy-relevant information but, if they want to influence how that information is used, they need to know how the policymaking process works.

The Role of Evidence in Theories of the Policy Process

We can take this argument one step further by examining the role of evidence in complex policymaking systems (note that ‘complex’ can be used to mean complicated, or to identify systems with specific properties). The aim of this section is to highlight how the policy process, or the environment in which policymakers operate, is conceptualised in policy theory, focusing primarily on approaches outlined in Sabatier and Weible (2014), Cairney and Heikkila (2014) and Cairney (2012a). Broadly speaking, these theories conceptualise the relationship between five key elements of the policy process.

First, policy theories identify a wide range of actors using evidence, making choices and influencing choice. Actors can be individuals or collectives, and collectives can range from private companies to interest groups to governments bodies (Weible 2014). A trend in the literature, in the past three or four decades, is to reflect on a broad shift from centralized and exclusive policymaking towards a more fragmented system with a large number of policy participants (Jordan, 1981: 96-100). Issues which were once ‘quietly managed by a small group of insiders’ have now become ‘controversial and politicized’ (Hecl, 1978: 94–7). This challenges the ideal-type image of EBPM. A focus on the bigger picture shifts our attention from evidence used by elected policymakers at the ‘top’ to its use by a wide range of actors in a multi-level policy process. It also reminds scientists that they are competing with a wide range of actors to secure a policymaker audience and present evidence in a particular way.

Second, they identify ‘institutions’, as the rules, norms, practices and relationships that influence individual and collective behaviour. Rules can be formal and widely understood, such as when enshrined in law or a constitution, or informal and only understood in particular organisations. Institutions at one level (e.g. constitutional) can also shape activity at another (e.g. legislation or regulation), establish the types of venue where policy decisions are made, and the rules that allow particular types of actors or ideas to enter the policy process (Ostrom

et al 2014; Pierson, 2000). There are many different institutions within governments and government departments, each providing different incentives, to policymakers or organisations, to seek and engage with particular sources of evidence (Cairney, 2012a: 77; Boswell 2009: 11-6; Boaz, 2008: 243). Support for particular evidence-based solutions may vary according to which department or unit takes the lead and how it frames the problem (Cairney et al, 2012: 43; Boswell, 2009: 16).

Third, most theories focus on the role of policy networks or subsystems, as the relationships between actors responsible for policy decisions and the ‘pressure participants’ (Jordan et al, 2004) such as interest groups, or other types or levels of government, with which they consult and negotiate. To some extent, the development of subsystems follows government attempts to deal with complexity. To address the sheer size of their responsibilities, governments divide them into broad sectors (such as health or education) and more specialist subsectors. Senior policymakers delegate responsibility for policy making to bureaucrats, who seek information and advice from groups. Groups exchange information for access to, and potential influence within, government.⁴ Some subsectors may be more exclusive than others. For example, ‘issues that are highly complex ... require long-term commitment and specialization and partitioning of responsibilities’ (Weible et al, 2012: 6). In that context, bureaucracies and other public bodies may have operating procedures that favour particular sources of evidence and some participants over others (Cairney, 2012a: 178).

Fourth, they identify the role of ideas, as a very broad term to describe ways of thinking, and the extent to which they are shared within groups, organisations, networks and political systems. It can refer to two intertwined processes. Shared ideas (knowledge, world views, language) appear to structure political activity when they are almost taken for granted or rarely questioned – as core beliefs, paradigms, hegemony, and monopolies of understanding (Cairney and Heikkila, 2014). Or, persuasion can be used to prompt actors to rethink their beliefs – such as when a proposed new solution challenges the way that a problem is framed or understood, and therefore how much attention it receives and how it is solved. In other words, well-established beliefs provide the context for a consideration of new evidence.

Fifth, they conceptualise the role of context and events. Context is a broad category to describe the extent to which a policymaker’s environment is in her control or how it influences her decisions. It can refer to the often-changing policy conditions that policymakers take into account when identifying problems and deciding how to address them, such as a political system’s geography, demographic profile, economy, mass attitudes and behaviour (Cairney and Heikkila, 2014). It can also refer to a sense of policymaker ‘inheritance’ - of laws, rules, institutions and programs – when they enter office (Rose, 1990). Events can be routine and anticipated, such as elections, or unanticipated incidents, including social or natural crises or major technological change (Weible 2014).

Then, in different ways, theories can be used to conceptualise the use of information, by boundedly rational policymakers using a range of informational shortcuts (a mix of ‘fast’ and

⁴ See Ettelt et al (2012: 497) on how this process works when bureaucrats and groups provide information from abroad.

‘slow’ thinking – Kahneman, 2012), in a large, messy policy process - far removed from the idea that ‘the evidence’ has a direct input to a small number of comprehensively rational policymakers in a clearly defined policy process.

Bounded rationality, ‘evolutionary’ theories and complex systems

Bounded rationality and ambiguity produces the potential for actors to frame the same problem in very different ways – and actor attention may lurch dramatically from one policy problem or image to another. In that context, ‘multiple streams analysis’ focuses on how evidence on policy problems and solutions is manipulated within political systems. Kingdon’s (1984; see also Zahariadis 2014) focus is on the interaction between two kinds of ideas: the type of policy solution that could draw attention and catch-on very quickly, and the established set of beliefs in a policy community⁵ that would slow its progress. Government attention may lurch quickly to a problem, but a feasible solution (i.e. acceptable to the community) takes much longer to produce. This highlights the role of relatively open networks - the interaction between wide groups of actors in a policy community to refine a solution - and actors, including: the ‘policy entrepreneurs’ who try to find the right time to propose solutions (when attention is high); and the policymakers who need the motive and opportunity to adopt them. ‘Focusing events’ can be important to shift levels of attention to a problem, suggesting that advocates can use evidence to highlight policy crises, but multiple streams analysis is about the need for other processes to occur before the event has more than a fleeting importance. The production of a successful evidence-based solution may take years or even decades to be accepted within a policy community, and it may be longer before policymakers have the motive and opportunity to adopt it.

Punctuated equilibrium theory (Baumgartner and Jones, 1993; 2009; Baumgartner et al, 2014) has a similar focus on the interaction between two types of ideas: the ‘monopoly of understandings’ underpinning established subsystem relationships; and the new solutions that could (a) prompt endogenous change when the attention of actors shifts and issues are reframed, or (b) ‘catch fire’ following successful ‘venue shopping’ (groups challenge a monopoly in one venue - such as the executive at a particular level – by seeking an audience in another - such as a legislature, courts, or other type or level of government). Subsystems can be a source of stability, power and policy continuity for decades. Instability and major change can come from the interaction between institutions, such as venues with different rules and understandings, or between the subsystem and ‘macropolitical’ system. The latter is unpredictable – lurches of macropolitical attention can destabilise subsystems, but most subsystems can remain unaffected for long periods. High institutional ‘friction’ may produce punctuations when the cost of engagement is high and major change follows a pressure-dam effect when ‘sticky’ rules are overcome by a major or cumulative effort. Events may cause punctuations – including major events like wars changing budget patterns. However, the focus is on serial attention to often-minor events. Similarly, context is important, but the focus is often the endogenous change in subsystems in the absence of similar change in wider

⁵ For Kingdon, ‘policy community’ is a broad term, not to be confused with its frequent use in the UK to refer specifically to policy monopolies or insulated networks (Cairney, 2012a: 178-9).

policy environment. In this context, actors use evidence as a resource, to frame policies in a way that supports or challenges often-well-established relationships within government. Framing is one part evidence and one part ‘emotional appeal’, and the focus is on the *use*, rather than the *properties*, of evidence

Complexity theory suggests that we explain behaviour and outcomes in terms of the whole policymaking system rather than the ‘sum of its parts’. Complex policymaking systems exhibit properties including: ‘non-linear dynamics’ when some forms of action are amplified and others dampened, by positive and negative feedback; ‘sensitivity to initial conditions’, or the cumulative effect of early decisions and events; ‘strange attractors’ or regularities of behaviour despite the unpredictability of complex systems; and, ‘emergence’, when systems appear to behave independently (Cairney 2012b: 124-5; Geyer and Rihani 2010). Emergence has a particular significance, because it highlights outcomes based on the interaction between a large number of actors, often in the absence of central control – which makes it difficult to know how, and to whom, to present evidence and to predict the impact of evidence-based policy (a point shared with the vast literature on implementation, and recognised in some EBPM accounts, such as Cartwright and Hardie, 2012: 162-9).

Bounded rationality, social construction and narratives

Policymakers may reinforce quick, emotionally biased, judgements with selective information to ‘institutionalize’ their understanding of a policy problem and its solution. For example, ‘social construction theory’ examines policy design in relation to ‘target’ groups and populations - the good groups entitled to rewards and the bad groups deserving of burdens or punishments (Schneider et al, 2014). The focus is on agenda setting – framing, assigning values, using (often ideologically driven) emotional characterizations of people and problems – and the cumulative effect of the distribution of benefits and punishments. A key aim is to examine the effect of policy design, in the past, on current debates. For example, a sequence of previous policies based on a particular framing of target populations may produce ‘hegemony’, when the public, media and/ or policymakers take for granted, and rarely question, that framing. Past policy represents the main context for policymaking. The distribution of benefits is cumulative, influencing future action by signalling to target populations how they are described and will be treated. For example, senior citizens may be favoured by spending programmes and given great incentives to engage regularly in politics, and both factors reinforce each other. Social constructions are difficult to overcome, since policy and strategy may reinforce hegemony, based on a dominant interpretation of social groups and how to treat them (Pierce et al, 2014). Some groups can become more or less powerful and categorised differently over time, but this may take decades in the absence of a major external event, such as an economic crisis or game-changing election, perhaps exploited by ‘entrepreneurs’ to change the way that policymakers and the public view particular groups (Schneider and Ingram, 2005: 444; Pierce et al, 2014).

Drawing on similar concepts, the narrative policy framework examines the role of narratives as stylised accounts of the origins, aims and likely impact of policies. They are used strategically to reinforce or oppose policy measures. Each narrative has a setting, characters,

plot and moral. They can be compared to marketing, as persuasion based more on appealing to an audience's beliefs than the evidence. People will pay attention to certain narratives because they are boundedly rational, seeking shortcuts to gather sufficient information – and prone to accept simple stories that confirm their biases, exploit their emotions, and/ or come from a source they trust. McBeth et al (2014) situate this process within subsystems, identifying advocacy coalitions competing to present the most compelling narrative, and 'macro level' institutions, by arguing that successful narratives may become embedded in the culture of policy systems. Context is important, as the factors that actors have to account for when constructing narratives ('legal and constitutional parameters, geography, scientific evidence, economic conditions, agreed upon norms'), and compared to the 'props' or setting for a play that can be taken for granted or, at times, dominate attention. Events are treated primarily as resources, used to construct narratives and apportion blame. As in social construction theory, the emphasis is on persuasion – in the context of uncertainty, ambiguity and the role of 'fast and slow' thinking – rather than the 'objective' use of evidence.

Bounded rationality and advocacy coalitions

The 'advocacy coalition framework' suggests that coalitions may compete fiercely to interpret evidence, particularly when they romanticise their own cause and demonize their opponents. It focuses on actors engaging in politics to translate their beliefs into action (Sabatier and Jenkins-Smith, 1993; Jenkins Smith et al 2014). There are three main types. 'Core' are fundamental and, like a religious conversion, unlikely to change in the studied time period ('a decade or more') but also too broad to guide detailed policy (such as one's views on human nature). 'Policy core' are more specific (such as the proper balance between government and market) but still unlikely to change. 'Secondary aspects' relate to the implementation of policy. They are the most likely to change, as people learn about the effects of, say, regulations versus economic incentives. A large number, and wide range, of actors with similar beliefs become part of the same 'advocacy coalition' – a metaphor to describe a 'non-trivial degree of coordinated activity' (Sabatier, 1988: 139) within coalitions, and an as-important opposition to the beliefs and policies of competing coalitions. Coalitions compete within relatively open policy subsystems (they include actors such as academics and analysts). The ACF's primary focus is on: (a) how coalitions interpret and respond to events; and (b) policy learning, and the revision of secondary aspects of coalition beliefs, as the primary or most frequent source of change in subsystems. Learning takes place through the lens of deeply held beliefs, producing different interpretations of facts in different coalitions. Evidence-based policymaking is an often highly-charged political process – coalitions selectively interpret information and use it to exercise power. In some cases, there are commonly accepted ways to measure policy performance. In others, it is a battle of beliefs (Weible, 2007: 99). Technical information is often politicised and a dominant coalition can successfully challenge the evidence supporting policy change for years – even if the new information seems self-evident to scientists.

Bounded rationality, diffusion and learning

The diffusion literature suggests that states may emulate others without gathering enough evidence to learn, in sufficient depth, about why they are perceived to be successful (Berry and Berry 2014). There are five main explanations for diffusion: learning; imitation; normative pressure; competition; and coercion. In other words, only one focuses on evidence gathering as a primary explanation. This is broadly consistent with the broader policy transfer literature which highlights the role of ‘epistemic communities’ containing networks of experts to spread evidence (Haas, 1992), and entrepreneurs ‘selling’ evidence-based policies from one government to another (Cairney 2012a: 263), but also the role of external pressure, international obligations and perceived need to keep up with international norms, to explain policy transfer often despite limited evidence gathering and meaningful learning (Dolowitz and Marsh, 1996; 2000; Ettelt et al, 2012).

The Practical and Normative Implications of Bounded EBPM

Policy theory shows us how bounded rationality combines with complexity to produce policymaking based on limited evidence and considerable ambiguity, which allows a wide range of actors to combine evidence with persuasion to influence decisions. Most theory challenges a naïve attachment to ‘rational’ policymaking, which implies top-down control of the system (Sanderson, 2009: 701; McCaughey and Bruning, 2010). Further, many of these ‘pathologies’ of the policy process cannot be overcome, and will not change with a change of personnel.

This prompts two key questions about how scientists should address such findings. First, should scientists stop bemoaning the real world and start adapting to it? If the policy process is messy and unpredictable, we might seek pragmatic ways to adapt and engage. We can derive some broad conclusions about how to adapt from policy theories (Weible et al, 2012; Greenaway, 2008: 497-9; Smith, 2013; Stoker, 2013). For example, it is important to know where the action is taking place, so the first strategic step is to recognise the often-central role of subsystems (and, in Westminster systems such as the UK, the peripheral role of Parliament in the policy process). The second is to learn the ‘rules of the game’ within subsystems and related institutions, since a knowledge of appropriate behaviour is crucial to develop reputations, within government, built on reliability, word of mouth and trust. Further, if persuasion is at the heart of a policy process riddled with ambiguity, we would frame our evidence to make it attractive to actors with particular beliefs and incentives to act. This could involve forming coalitions with other actors in the process, based on the knowledge that policymakers seek many sources of information (note the broad term ‘knowledge broker’ – Meyer, 2010. This is generally a long term strategy based on the training required to generate an understanding of how: (a) coalitions analyse, interpret and respond to evidence; and, (b) ‘local knowledge’ underpins subsystems (Weible et al, 2012: 9-15).

Beyond relatively stable subsystems, we may have to adapt to unpredictable levels of policymaker attention, which produce periods in which new evidence is gradually accepted within a political system, often followed by lurches of attention and a disproportionate response to evidence. We know that some issues take off quickly (Baumgartner and Jones, 1993), but it is easier to explain why than predict when. We know that ‘policy entrepreneurs’

can have a role, as the exceptional people who exploit political conditions to further their favoured solutions, but that they are ‘surfers waiting for the big wave’ rather than people who control policy processes (Kingdon, 1995: 225; 1984: 173; Cairney, 2013: 281; Lustick, 2011: 204; Mintrom and Norman, 2009). ‘Windows of opportunity’ can be exploited, but it takes a long term investment to wait for that time (Weible et al, 2012: 15).

We also have ethical and belief-based choices to make about which coalitions to join, and the extent to which we are willing to cooperate with others to produce a negotiated outcome, when faced with the possibility of loss or ‘stalemate’ (Weible et al, 2012: 8) – particularly in fields such as tobacco, alcohol and drug control, energy, and climate change, in which some members may demonise their competitors and accept short term losses for long term gains. There are similar ethical issues surrounding the ‘social construction’ of populations, based on accepting government legitimacy (and some public support) but challenging emotionally-driven, stigmatizing and often counterproductive policies (2012: 16).

The second question is: *should we accept the description but reject the prescription?* In other words, should we treat comprehensive rationality/ EBPM as an ideal as well as an ideal type? Lindblom (1959; 1964; 1979) famously rejected comprehensive rationality as an ideal, for two reasons. The first was practical: given the general limits on policy change, and on the power of policymakers within political systems, it is better to focus on a small number of realistic options than seek comprehensive searches for information, which have large opportunity costs (Cairney, 2012a: 100). The second was normative: there are better ways to measure ‘good’ policymaking. Lindblom focused on the (ability of a political system to produce policy based on widespread agreement (Cairney, 2012a: 109). Incrementalism was as much about politics (don’t change policy radically from an agreed position) as ‘rationality’ (don’t waste time researching options that divert radically from that position). Consequently, the solution was political: the ideal should be a pluralistic political system, as an arena for bargaining and compromise, setting the agenda for policy analysis.

There are similar issues to be discussed with ‘comprehensive EBPM’: is it an ideal? We can reasonably say ‘yes’ or ‘no’ if EBPM resembles comprehensive rationality and requires that a small number of policymakers control the policy process from its centre. We might say ‘yes’, if committed to a Westminster-style centralist model in which a small group of ministers are responsible for policy and accountable for their decisions to the public via Parliament. We might say ‘no’ if we have concerns about the unintended consequences of closing the evidence-policy gap by: accepting an alleged scientific consensus on the evidence; and, providing a clear link between scientists and politicians who centralise policymaking. A narrow idea of evidence-based policymaking from the top-down minimises the role for debate, consultation and other forms of knowledge.

Alternatively, a government may adopt a ‘bottom up’ approach to policymaking – consulting widely with a range of interest groups and public bodies to inform its aims, and working in partnership with those groups to deliver policy (perhaps by using long term, ‘co-produced’ outcomes rather than top-down and short term targets to measure success). This approach has important benefits – it generates wide ‘ownership’ of a policy solution and allows

governments to generate useful feedback on the effects of policy instruments when introduced in different areas. It gives local actors the discretion to use good judgement when importing lessons from success stories elsewhere (Cartwright and Hardie, 2012: 163).

On this basis, it would be difficult to maintain a separate EBPM process in which the central government commissions and receives the evidence which directly informs its aims, to be carried out elsewhere. If a government is committed to a bottom-up policy style, it should adopt the same approach to evidence – sharing it with a wide range of bodies and ‘co-producing’ a response. If so, the evidence-to-policy process becomes much less linear and simple, and more like a complicated and interactive process in which many actors negotiate the practical implications of scientific evidence – considering it alongside other sources of policy relevant information (Nutley et al, 2013; Williams and Glasby, 2010).

Pragmatic EBPM is about recognising the limitations of evidence and our ability to act on it – hence complexity theory’s focus on trial-and-error, adaptability to changing circumstances, and learning, as practitioners update their knowledge constantly through experimentation and evaluation (Sanderson, 2009: 706). So, for example, RCTs may provide information in that spirit, but without providing a blueprint for action, to be ‘scaled up’ uniformly. A preliminary assessment of ‘what works’ may be followed by constant re-evaluation (using a range of methods, not restricted to RCTs) as policies are rolled out in different areas and provide different types of feedback. Policies become ‘hypotheses’ based on more or less certainty (2009: 711; Taylor, 2013: 17; Pawson, 2006: 72; Cartwright and Hardie, 2012; Weinberger, 2014).

This discussion provides a *description* of the policy process and a defensible *prescription* for policymaking. It takes us some distance from the idea of objective evidence-driven policy, based on external scientific standards and a hierarchy of methods, towards treating evidence as a resource to be used by actors, within political systems, who draw on different ideas about the hierarchy of evidential sources. A wide range of actors may have a legitimate role in evaluating the appropriateness of policy interventions and, in some cases, their effectiveness. As such, scientific evidence is not, and should not be, a resource that is controlled solely by the scientists producing it.

Conclusion: what does EBPM mean in the real world?

The policymaking literature explains why there cannot be a direct and unproblematic link between scientific evidence and policy decisions and outcomes. Beginning with the ideal-type of ‘comprehensive EBPM’, we can identify the conditions required to minimise an evidence-policy gap: it is possible to produce a scientific consensus based on an objective and comprehensive account of the relevant evidence; the policy process is centralised and power is held by a small number of policymakers; scientific evidence is the sole source of knowledge for policymakers; policymakers understand the evidence in the same way as scientists; and, they have the motive and opportunity to turn the evidence into a solution that is consistent with, and a proportionate response to, the policy problem.

In the real world, the evidence is contested, the policy process contains a large number of influential actors, scientific evidence is one of many sources of information; and, policymakers base their decisions on a mixture of emotions, knowledge and short cuts to gather relevant evidence. This takes place in a policy process containing subsystems with their own rules on who, and what sources of evidence, to trust, and often a ‘monopoly’ on how to understand problems and how the evidence relates to them. Attention to particular kinds and sources of evidence can lurch unpredictably, as events prompt policymakers to shift their focus quickly, or ambiguity and uncertainty contributes to shifting attention to different policy images. The use of evidence is a political process; an exercise of power to characterise people and problems, and to justify beliefs and decisions. Policymakers use scientific evidence in a limited way before making major decisions.

Armed with this knowledge, as scientists we can choose how to adapt to those circumstances by, for example: identifying where the action takes place; learning about the properties of subsystems, the rules of the game, how to frame evidence to fit policy agendas; forming coalitions with other influential actors; and engaging in the policy process long enough to exploit windows of opportunity.

This knowledge also allows us to reflect on our legitimate role in this process. Scientists provide information to inform the deliberations of policymakers, who claim a legitimate policymaking role, and may engage in other forms of ‘good’ policymaking – by consulting widely and generating a degree of societal, governmental and/or practitioner consensus. If so, this highlights the importance of the use of evidence throughout the system rather than simply from the top down. If policymaking systems are multi-level and power is diffuse, then the use of evidence should be seen in the same way. It is about how actors make sense of, and use, evidence, throughout the system – not simply how they deliver evidence-based policies produced from the centre.

This way of thinking about the role of evidence in a complex policy system may help us reconcile a real world description of the policy process with our prescription for the use of evidence in policymaking. We began with the simple normative definition of comprehensive EBPM: policymakers should base their decisions primarily on scientific evidence. We end with the less satisfying, but more realistic, definition of bounded EBPM: policymakers find simple ways to make decisions after weighing up a wide range of evidence, of which science forms one part. Scientists are part of a policymaking process in which evidence may reduce uncertainty but not ambiguity, and the use of scientific evidence represents one of many aspects of good policymaking.

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