GETTING RESEARCH INTO HEALTH POLICY AND PRACTICE

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A cognitive-political model of evidentiary bias

Biased uses of evidence can undermine the policy process and lead to seemingly intractable debates over policy issues. As such, it is increasingly important to consider the different forms of bias that arise in policy arenas, and the mechanisms by which political factors generate these biases. Brief 2 delineated two forms of evidentiary bias within political decision-making: *technical bias* – which represents violations of scientific best practice, including manipulation, cherry picking, or erroneous uses of evidence; and *issue bias* – representing the ways that the prioritisation or selection of particular forms or bodies of evidence can bias policy agendas in unseen ways. Evidentiary bias may arise via both *overt* and *subtle* mechanisms. Overt mechanisms are seen in the fundamentally competitive nature of policymaking, as actors and stakeholders compete to achieve political victories and results that advance their personal, corporate, or ideological interests. Such an environment can drive the biased use of evidence through deliberate strategies. Subtle mechanisms, on the other hand, capture the unconscious processes that affect human thinking and information processes, which are shaped by our underlying values, expectations, desires, or needs. By understanding these origins and mechanisms of evidentiary bias in policy arenas, we can construct a 'cognitive-political framework' to help identify features of policy debates that may bring about bias. This model may help to guide strategies aiming to prevent or mitigate the impact of such forms of evidentiary bias.

The *overt* politics of evidence

By conceptualising the policy process as an arena through which competition occurs, it becomes apparent that participation in policy debates is not driven by a desire to be technically accurate, but by a need for political success or even survival. From this perspective, many forms of evidentiary bias are predictable. When interest groups have much to lose from a policy decision – such as corporate actors resisting product regulation - the strategic use of evidence should indeed be expected, and can be argued to be 'rational' when policy decisions may determine the political or financial survival of involved actors. Similarly, for those already in positions of authority, political survival may depend on the use of cherry-picked or piecemeal evidence. Within political systems, individuals often face pressure to manipulate evidence in order to show positive programme results or, alternatively, to hide unwanted findings. Further, in extreme cases, where political interests are so challenged by bodies of evidence, a strategy to undermine faith in scientific practice as a whole may be pursued – as seen in the debates over tobacco control or

At a glance

- Evidentiary bias in policymaking may arise through both overt (deliberate) and subtle (unconscious) mechanisms.
- Complex, important, and highly polarised policy issues are particularly susceptible to bias through overt and subtle mechanisms.
- A cognitive-political model of evidentiary bias may be used as a tool to help mitigate or avoid bias in future policymaking.

climate change [1].

Competition and contestation can also drive cases of issue bias, whereby the creation, selection, and use of (technically valid) evidence can serve to direct policy attention to a limited number of key concerns, to prioritise outcomes of interest, or to obscure other relevant policy considerations. The term 'evidence-based advocacy' is often used to refer to efforts to provide research to influence policy in line with particular agendas. In these cases, groups deliberately promote the use of issue-specific evidence to shape policy decisions towards preferred interests [2], or use the credibility that comes from embracing scientific evidence to make a particular position appear more legitimate.

The *subtle* politics of evidence

In addition to bias arising from the deliberate pursuit of a preferred policy outcome, there can also biased uses of evidence with less obvious origins. This more 'subtle' bias can arise through intuitive and unconscious mechanisms by which individuals' value systems, or their group identities, bias their understandings and interpretations of evidence. Cognitive psychologists have explored how *heuristics* (simplifying processes) can lead to biases in understanding information. These include the inaccurate assessment of data, as well as tendencies towards other errors such as stereotyping, selective information review, drawing premature conclusions, and constructing erroneous causal explanations. These heuristics are linked to a number of cognitive biases, including [3]:

- Illusory correlations – drawing an incorrect assumption of correlation;
- Confirmation bias – 'the seeking or interpreting of evidence in ways that are partial to existing beliefs, expectations, or a hypothesis in hand'; and
- Cognitive dissonance aversion – unconsciously avoiding or reducing situations of dissonance that arise when presented with information that leads to a conflict or contradiction between valued outcomes or ideas.

These heuristics and biases can be *political* in origin, as they are often driven by our existing values and beliefs – things that are fundamentally at stake in political debates. As such our political interests can work to predispose us towards biases in the use of evidence through cognitive processes which act to ensure that our values and beliefs remain unchallenged, even in the face of potentially contradictory evidence. For example, this can explain cases where inconclusive evidence is taken as proof. The cognitive sciences can also provide insights into the widespread embrace of the language of 'what works', and the deference to evidence hierarchies to guide policy - critiqued by some scholars as prioritising methodological rigour over relevance (an example of issue bias). The 'what works' language risks *depoliticising* policymaking by unconsciously replacing the fundamental (but difficult) question of 'what should we do?' with the more straightforward question of 'what has had an effect?' (an example of attribute substitution).

Further, the term 'motivated reasoning' is used to capture the ways in which our pre-existing political affinities unconsciously lead to biased assessments of policy-relevant evidence. Studies have even shown cases where greater scientific knowledge or numeracy is correlated with increased bias in the interpretation of data, demonstrating that the biased assessment of evidence is not simply driven by a lack of subject-specific knowledge [4]. Rather, it may be explained by 'identity protective cognition', in which individuals are motivated to use evidence in ways that are supported by their peer groups rather than by fidelity to evidence itself [5].

Features of policy problems and mechanisms of bias

While the nature of political debate may be competitive, and the nature of human cognition may be bias-prone – this does not necessarily mean that biased uses of evidence are inevitable or cannot be mitigated. This brief argues that by unpacking the overt and subtle mechanisms that manifest in bias, we are better positioned to expect when they may arise in the political arena. In particular, we can look to identify key features of policy problems that might engender bias in both overt and subtle ways. Three such policy features include

the complexity of the problem, the level of contestation (or importance), and the polarisation of the issue.

Problem complexity

Complexity theory distinguishes between *complex* problems and *complicated* problems [6]. In this distinction, complicated problems are typically multifaceted, with many component elements involved. A complicated policy issue, then, may be one where there are many outcomes of relevance to consider – economic costs, social acceptability etc. Such cases may increase the opportunity for issue bias, as a valid evidence base may exist for each concern, but interest groups might only use those bodies of evidence relevant to their desired goals. However, in *complex* (uncertain) situations, different forms of evidentiary bias may arise. For example, the sowing of doubt as a political strategy to undermine scientific credibility can be seen in complex policy issues such as climate change or tobacco control.

Complex and complicated problems may invoke the use of different heuristics and their associated biases. Reliance on so-called intuitive 'fast thinking' is often seen when humans face a large number of choices (i.e. complicated situations). In theory, taking time to 'think slow' and weigh up all evidence could avoid errors. Yet, when faced with uncertainty, thinking 'slow' does not eliminate all unknowns, and other heuristics that deal with situations of partial information may still exist [7].

Contestation/importance of the issue

The importance of a policy decision to stakeholders provides a second feature of policy problems that can influence the mechanisms through which bias arises. Clearly, the more important a decision is to interest groups, the stronger the incentive will be to overtly manipulate evidence in pursuit of key goals.

The importance of a policy decision to an individual can also influence unconscious biases through what has been termed 'attitude strength'. Greater attitude strength has been shown to increase the utilisation of affective heuristics, resulting in associated biases such as a greater misperception of risks or selective information gathering. Attitude strength can also influence the intensity of cognitive dissonance felt when evidence does not align with values [8].

Problem polarisation

Finally, problem polarisation refers to how many viable positions there are for individuals to take on an issue, or to how wide a spectrum of political viewpoints are held within a society. Highly polarised issues have few middle-ground positions; therefore, in theory, such issues lead to greater incentives for overt evidence manipulation, as the implication of an unfavourable policy decision would be extreme for one side of a contested debate – a 'winner takes all' scenario.

The phenomenon of 'identity protective cognition', which explores bias deriving from a desire to remain congruent with an existing affinity group, has further implications when policy issues are highly polarised. For polarised issues with no middle ground (e.g. abortion debates), any evidence that is dissonant to a policy position would imply support for a diametrically opposed outcome. This increases the motivation to use evidence in biased ways. In a polarised policy environment, on the other hand, the influence of 'identity protective cognition' will be particularly strong, as individuals find themselves in widely divided social and personal networks split along political lines. In such cases, any interpretation of evidence that is in disagreement with the affinity group risks more extreme social isolation than would be the case in a political environment with a range of middle-ground positions.

A cognitive-political model of evidentiary bias

Combining these insights, a cognitive-political model of evidentiary bias can be constructed (see table overleaf) which maps out the key features of policy problems, identifying how they can generate technical and issue bias through both overt and subtle mechanisms. This model can be used as a tool to both predict when bias may arise, as well as to help inform strategies to mitigate or potentially avoid instances of evidentiary bias in evidence-informed policy arenas.

A cognitive-political model of evidentiary bias

Features of policy problems	*Examples sources of technical bias*	*Example sources of issue bias*
Complexity		
a) Complicated	Increased reliance on intuitive 'fast' thinking and heuristic-driven processes may manifest in biases such as inaccurate judgements of probability or drawing illusory correlations.	By being multifaceted, complicated policies involve a larger number of concerns. This increases the chance that evidence utilised excludes other relevant policy considerations.
b) Uncertain	Uncertainty can drive heuristics that engender bias, such as deferring to established preferences or past experiences which may not accurately address the current issue. With more scientific unknowns, it is easier to sow doubt as a political strategy.	In situations of uncertainty, there is a greater likelihood for attribute substitution to resolve the unconscious desire for certainty – e.g. pursuing what can be measured, not necessarily what is important.
Contestation	For issues important to stakeholders, there will be a diminished relative value of scientific accuracy. Greater issue importance reflects increased 'attitude strength' – linked to stronger affective feelings driving bias and more intense instances of cognitive dissonance.	Greater importance of policy outcomes can shape which ones are selected to be included or excluded from programme evaluations. Greater importance of the issue can lead to stronger incentives to review evidence speaking to a limited (preferred) set of social concerns.
Polarisation		
a) Of the issue	A 'winner takes all' outcome, with no option for compromise, can incentivise the manipulation of evidence to 'win'.	Having more to lose may increase incentives to review evidence speaking to a limited (preferred) set of social concerns.
b) Of the political environment	A political environment with few divided political groupings can lead to stronger motivation for identity-protective cognition.	Polarised environments reflect the clustering of concerns at extremes, leading to selection of evidence about limited concerns.

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This brief is a summary of the chapters "The overt politics of evidence…" and "The subtle politics of evidence…" in the book *The Politics of Evidence* available for free from: http://bit.ly/2eQ3By2. Extended version also published as Parkhurst (2016) "Appeals to evidence for the resolution of wicked problems: the origins and mechanisms of evidentiary bias" *Policy Sciences* (2016) (http://bit.ly/2f5KUJ0).

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