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Article (Accepted version)
(Refereed)

Original citation:

Sharman, Amelia and Perkins, Richard (2017) *Post-decisional logics of inaction: the influence of knowledge controversy in climate policy decision-making*. [Environment and Planning A](#). ISSN 0308-518X

DOI: [10.1177/0308518X17722786](https://doi.org/10.1177/0308518X17722786)

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Available in LSE Research Online: July 2017

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Post-decisional logics of inaction: The impact of climate controversy in climate policy decision-making

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Acknowledgements: *The research for this article was undertaken whilst Amelia Sharman was at the LSE. The authors would like to thank three anonymous reviewers whose constructive comments helped to strengthen the article, as well as David Demeritt and Reiner Grundmann for their feedback on an earlier version. We would also like to thank the many interviewees for their time, input and contribution to the research.

Funding: Amelia Sharman's work on this article was supported by an LSE PhD Studentship, as well as funding from the Grantham Research Institute on Climate Change and the Environment at the LSE, and the Research and Development Management Association (RADMA). The authors also acknowledge financial support from the Centre for Climate Change Economics and Policy, which is funded by the UK Economic and Social Research Council (ESRC).

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Abstract

Contestation over knowledge claims, including their legitimacy as an input to policy decision-making, does not end at the moment of policy creation. Policies continue to be made and unmade during the implementation phase. Drawing from work on knowledge controversies, and building on Puchala's (1975) concept of post-decisional politics, we investigate the implementation of climate change policy in New Zealand and the United Kingdom. We identify politically salient post-decisional logics of inaction which have been used to justify delaying or diluting climate policy implementation in both countries. In New Zealand, knowledge controversy has had little or no influence over decision-making, with political rationales in the form of the current national economic interest and cost-based logics prevailing. Conversely, arguments emphasising scientific uncertainty have achieved political traction in the United Kingdom, creating a "fog of distrust" instrumental in draining political capital from the active implementation of climate policy. Explanatory factors such as structural economic considerations and different values placed on science as an input to policy-making are discussed, highlighting the importance of being attentive to the fluidity of knowledge controversies as they achieve salience and legitimacy according to the specificities of time and place.

Keywords: climate change, knowledge, controversy, policy, scepticism

1 Introduction

Increasingly, states are committing themselves to ambitious climate mitigation policies (Jordan et al., 2015). Much of the research into these policies has focused on their formulation and adoption. However, less well understood is what happens after the initial legislative act, including the factors shaping the subsequent enactment of domestic climate policy. This is important in light of growing evidence suggesting that many climate mitigation policies have failed to live up to their original ambitions, as decision-makers have sought to water-down commitments in practice (Carter and Clements, 2015; Bache et al., 2014).

This paper aims to investigate the role of knowledge controversy in delaying, diluting and justifying inaction on climate policy implementation. A small but vibrant strand of research has addressed the knowledge controversy surrounding climate change (Sarewitz, 2004; Hulme, 2009; Mahony and Hulme, 2016). Yet there remains a gap in the literature as to whether (and, if so, how) knowledge controversy influences political decision-making in the context of climate policy implementation. It could be that certain types of knowledge controversy (i.e. scientific versus political claims) are more prominent in shaping the climate debate than others. Another possibility is that knowledge controversy plays little or no role in decision-making, with arguments *not* predicated on disputes over knowledge proving more politically salient as a rationale for unmaking climate policies at the implementation stage.

To explore these issues, we introduce the concept of post-decisional logics of inaction, defined as resonant arguments or frames that provide the rationale for maintenance of the status quo, or increased conservatism, despite the intended aims of enacted policy. In doing so, we draw inspiration from Puchala's (1975: 497) post-decisional politics, concerned with 'who influences whom to do what, when, how, and why' once policies are executed. We contend

that post-decisional logics of inaction are likely to be especially apposite in the case of climate mitigation—not least because it may only be during the implementation stage that the true costs of climate policy come into focus and the scientific and technical grounds for action become more overtly political. Actors whose interests are threatened, or are otherwise critical of climate action, are anticipated to mobilise against policy using logics of inaction intended to prove influential amongst climate policy decision-makers (Hannigan, 2006; Kurz et al., 2010).

Our empirical analysis focuses on New Zealand (NZ) and the United Kingdom (UK), two industrialised countries with Westminster systems of government, which were early-movers in climate policy adoption. NZ was the first country to implement an ambitious “all sectors, all gases” emissions trading scheme (the NZ-ETS). Concomitantly, the UK is recognised as a climate pioneer, with the 2008 Climate Change Act enshrining legal commitments to dramatically reduce greenhouse gas (GHG) emissions by 2050. Yet, against a backdrop of active debate about climate change, both these flagship policies have experienced several post-adoption set-backs (Bullock, 2012; Carter and Clements, 2015; Gillard, 2016). We suggest that such implementation “failures” cannot simply be explained by recourse to institutional factors. Rather, other possibilities must be considered, including the influence of sceptical voices (defined intentionally broadly as actors critical of knowledge claims emerging from climate change science and/or policy, see Howarth and Sharman (2015)).

1.1 Knowledge, controversy and climate change

Emerging from work in science and technology studies (STS) and the sociology of scientific knowledge (SSK), a knowledge controversy refers to ‘events in which the knowledge claims and technologies of environmental science, and the regulatory and policy practices of

government agencies that they inform, become subject to public interrogation and dispute’ (Whatmore, 2009: 588). The first wave of investigations focused on controversies occurring within science. In particular, this work sought to shed light into the “black box” (Latour, 1987) of the construction of scientific facts within laboratory settings, together with the creation of particular actors as credible sources of scientific expertise. Scholars subsequently turned their attention to knowledge controversies as they entered the public domain. A major focus has been on controversies where policy decisions involving techno-scientific evidence is the subject of disagreement. Investigating public controversies not only necessitates re-posing questions regarding the legitimacy of actors and associated knowledge claims (Barry, 2012; Jasanoff, 2003), but also requires examination of the making (and unmaking) of policy decisions based on evidence and expertise assembled by competing (and sometimes polarised) actors (Martin and Richards, 1995; Nowotny et al., 2001; Collins, 2014). As Hannigan (2006: 29, emphasis in the original) argues, controversy is not about ‘an absence of certainty, but rather of *contradictory certainties*: several divergent and mutually irreconcilable sets of convictions both about the difficulties we face and the available solutions’.

A recurrent theme in the above literatures is that knowledge controversies are inherently political in nature. That is, they are fundamentally about *whose* evidence, opinions, arguments and framings are influential, and *whose* politics and science come to have authority within a contested domain. This interpretation references Beck’s (1992) “politics of knowledge”, defined by Grundmann (2007: 417) as the ‘instrumental use of knowledge claims for the achievement of political goals’. In this paper, we seek to advance understanding of the politics of knowledge by mapping, in actual policy environments, how knowledge controversies are enrolled into politics, and flow into and shape post-implementation decision-making within political systems. We also seek to contribute new insights into how these processes operate

within and through the contingencies of time and space. In so doing, we acknowledge that not only may knowledge controversies themselves be fluid, but also the circumstances under which they are animated by actors and achieve salience amongst governmental decision-makers.¹ In addressing these issues through a discursive analysis of knowledge claims, our research differs from, but aims to complement recent work seeking to highlight the ways in which physical objects such as maps or models contribute to the making and unmaking of knowledge (Whatmore, 2009; Landström et al., 2011). It also draws inspiration from, and supplements, scholarship concerned with mapping knowledge controversies (Venturini, 2010; Rogers and Marres, 2000).

The lens of knowledge controversy is particularly apt in the case of climate change. Conflicting knowledge claims and valuations of evidence and expertise are assembled to support different points of view within, what in a number of countries, has become a highly divisive public debate (Demeritt, 2001; Venturini, 2010; Bohr, 2016; Kurz et al., 2010). As noted by Donaldson et al. (2013), multiple knowledge practices are intended to enact alternative realities, and achieve potentially contradictory policy outcomes. In so doing, they co-produce new ways of valuing and acting upon, for example, climate data that necessitates according differential authority to evidence and expertise from conflicting sources. These battles of cognitive legitimacy, or “trials of strength” as referred to by Latour (1987), are also frequently multi-dimensional, in that they invoke scientific, economic, values-based and other rationales in order to achieve issue salience in the public domain.

Previous research seeking to understand the impact of knowledge controversy on climate change has focused on the political activities of sceptical voices. This includes strategies deployed by anti-regulatory groups to undermine political action on climate change (McCright

and Dunlap, 2010; Bohr, 2016) and the role of the media in the production and reproduction of controversy (Painter, 2011; Boykoff, 2013). Other research has sought to understand and categorise sceptical voices, the types of knowledge claims being made, and the scientific background of controversy in the climate debate (Jankó et al., 2014). There will inevitably be winners and losers from any ambitious climate policy such that disputes regarding policy are unsurprising (Skodvin et al., 2010). Controversy about underpinning scientific claims is however also evident, and is understandable given that ‘the construction of science *is* the construction of credibility’ (Mahony, 2014: 96, emphasis in the original).

Following this science/policy framework, Capstick and Pidgeon (2014) distinguish between response and epistemic scepticism. The former encompasses doubts about the effectiveness and feasibility of climate policy, while the latter is based on scientific factors. Yet this simple heuristic should not be interpreted as presenting mutually exclusive categories. Much policy-related controversy is, albeit often implicitly, tied to underlying scientific rationales (Bohr, 2016). Indeed, Van Rensburg (2015: 4) identifies what he calls ‘process scepticism’, based on critiques of the scientific *and* political processes underlying the creation of climate change knowledge. These categories of science and politics are nonetheless useful as a simple device to highlight the different *explicit* framings through which knowledge controversy can be seen to influence climate policy decision-making.

The preceding discussion helps to direct attention towards two important, yet under-investigated and interlinked, research questions. The first concerns the degree to which knowledge controversy and battles over cognitive legitimacy influence decision-making over climate policy implementation. One might expect policy-focused contestation to be prominent in political debates given the behavioural or cost implications of certain types of climate change

policies (Whitmarsh, 2009; Bohr, 2016). Yet less clear is whether science-based disagreements, previously documented at the adoption stage (Layzer, 2007), are politically salient during policy implementation. A second question asks whether (and, if so, how and when) different socio-political contexts come to matter in knowledge controversies (Hulme, 2010; Lövbrand et al., 2015). A key issue is why particular logics of inaction are mobilised and achieve political traction in certain contexts more than others, and whether such logics are predicated on knowledge controversy or framed outside of cognitive disputes. Several factors might come into play in shaping these realities. One is the sceptical voices themselves, their resources, capabilities and acumen, and strategic choices over how, when and to whom to frame arguments. Another set of factors relate to the wider context in which logics of inaction are articulated. Within this context, Jasanoff's (2011: 134) notion of "civic epistemologies" is particularly apposite, describing 'publicly accepted and procedurally sanctioned ways of testing and absorbing the epistemic basis for decision making' embedded in domestic political cultures and systems. More generally, we expect the salience of sceptical voices to be influenced by their bargaining power (Skodvin et al., 2010), and how logics achieve issue linkage with concerns of the wider public (Hannigan, 2006; Kurz et al., 2010).

1.2 The post-decisional politics of climate change

A long-established literature seeks to explain the gap between policy objectives, intent and aspirations, and subsequent policy action (Lipsky, 1979). Many interacting factors shape policy outcomes, including actors' rhetorical positioning (Kurz et al., 2010), as well as institutional factors such as organisational capacity, administrative fragmentation and principal-agent problems (Dimitrakopoulos, 2001; Bache et al., 2014). Yet, political elements are also crucial

to consider. Politics may carry over from policy adoption into implementation, in the sense that the latter continues to involve a series of choices by decision-makers, the influence of interests and the exercise of power. It is possible that knowledge controversy may (re-)surface at this stage, as techno-scientific knowledge underpinning climate action is subject to heightened scrutiny, counter-veiling claims and contestation (Hoppe et al., 2013: 286).

Puchala's (1975) post-decisional politics neatly captures these dynamics. Two features of climate change policy render the concept relevant in the present context. One is that, as well as 'issue-related substantive' purposes (i.e. materially reducing GHG emissions), governments may adopt climate legislation for 'political-strategic' reasons (Newig, 2007: 279), including: relief from domestic societal pressure to act, prestige from assuming international leadership, external legitimacy from conforming to norms of climate responsibility, and avoiding stigma arising from a failure to sign-up to mitigation commitments. Climate policies adopted for political-strategic reasons can be interpreted as a form of symbolic politics, aimed at reassuring others by creating the impression that "something is being done" (Blühdorn, 2013). Importantly, political actors may lack the intent or resolve to follow through on commitments enshrined in symbolic legislation, making implementation vulnerable to anti-regulatory interest groups or various economic and political vagaries.

Another relevant feature of climate change policy is that enabling primary legislation may be general or ambiguous in nature, with specific policy details often elaborated and resolved by administrative bodies at the implementation stage (Bache et al., 2014). An important consequence of these arrangements is that the true costs of climate change legislation for target groups may only become apparent later-on. Concomitantly, interest groups or other critical parties may thus be more likely to, or be more successful at, politically mobilising during

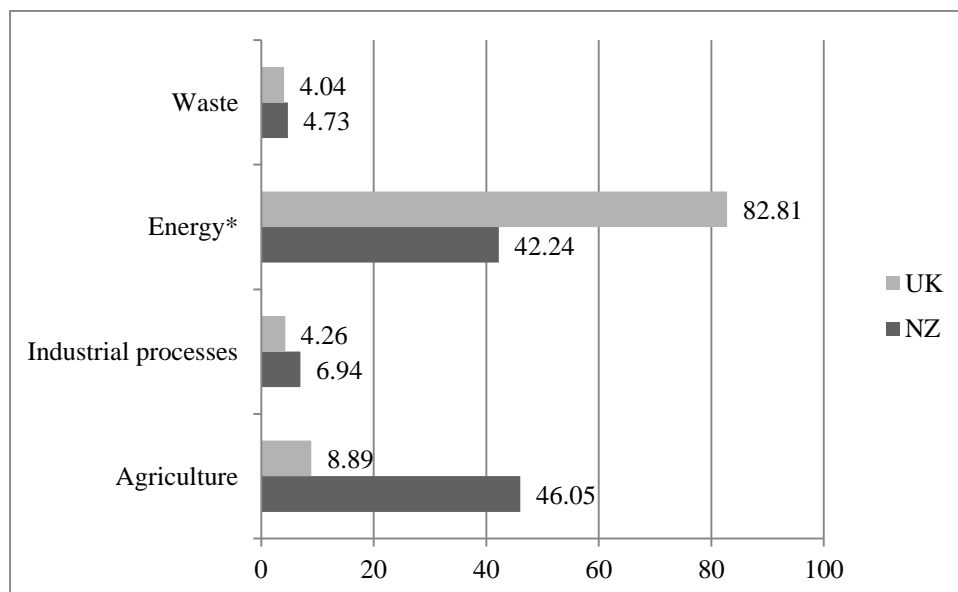
implementation by deploying various logics of inaction. Amongst others, they may potentially enrol scientific and/or policy-related knowledge claims, which seek to undermine the epistemological foundations of public climate action.

2 Climate change politics

2.1.1 New Zealand

In NZ, net GHG emissions increased 111% between 1990-2012 to 49.4 MtCO₂-e (MFE, 2014). NZ's GHG emissions profile differs significantly from most other developed nations, with nearly half total emissions comprising methane and nitrous oxide from agriculture (Figure 1). Agriculture (of which dairy comprises 55%) contributes approximately half of NZ's export earnings (NZ Government, 2015c). Three GHG emissions reduction targets below 1990 levels exist: an unconditional target of 5% by 2020, a conditional target of 10-20% by 2020 providing a comprehensive global agreement is reached, and 50% by 2050 (NZ Government, 2015b).

Figure 1: NZ and UK GHG emissions, percentage by sector 2012



* Energy includes, *inter alia*, emissions from transport and manufacturing industries
Source: (UN, 2012a; UN, 2012b)

Debate over climate change emerged in the late 1980s, with pressure groups such as the now-defunct Greenhouse Policy Coalition (representing a consortium of the country's largest industrial GHG emitters) and agricultural lobby groups regarded as highly influential (Barry and King-Jones, 2014; Bullock, 2012). The NZ-ETS was established in 2008. Agriculture was scheduled to enter the NZ-ETS in 2015, but due to intense opposition was indefinitely, and controversially, excluded in 2012.²

Kelly (2010: 9) identifies three key factors contributing to a 'major policy implementation deficit' in NZ climate policymaking: the dominant role of business-focused interest groups, short-term discourses regarding protection of the country's (land-based) economic competitiveness, and an influential legacy of neo-liberal market-focused ideology. NZ was a signatory to the Kyoto Protocol during its first commitment period, but in 2012 the Government announced that it would not sign-up to a second period and would instead aim to participate in a new, as yet unidentified, convention. Explicitly scientific contestation about climate change has been mainly limited to the arguments put forth by the NZ Climate Science Coalition (NZCSC, 2007). In 2010 the NZCSC formed the NZ Climate Science Education Trust which filed a statement of claim in the NZ High Court seeking to invalidate the official NZ temperature record kept by the state-owned National Institute of Water and Atmospheric Research (NIWA) (NZCSC, 2010). The court case was won by NIWA, but its members remain active in public discussion about climate change.

2.1.2 The United Kingdom

Net GHG emissions in the UK decreased by 28% between 1990-2012 to 582.2 MtCO₂-e (DECC, 2015). The vast majority of emissions are from carbon dioxide (82% in 2013), with the wider energy sector accounting for the largest share of overall emissions. A legally binding target of at least an 80% reduction in GHG emissions (on 1990 levels) by 2050 is contained in the 2008 Climate Change Act (CCA), with an interim target of a 50% reduction by 2025. A series of five-yearly “carbon budgets” exist to ensure targets are met. However, the Committee on Climate Change (CCC) has warned that the lack of policies focused on the post-2020 period is causing uncertainty and ‘risks failing to meet legal obligations to reduce emissions’ (CCC, 2015).

Carter (2014) suggests that, following a period of limited public interest and vigorous opposition to policy action by business interests, a window of opportunity opened between 2006-2010 allowing climate change to rapidly move-up the political agenda. However, climate change can no longer be understood as a valence issue in UK political discourse (Carter and Clements, 2015), instead becoming increasingly partisan. Likewise, Gillard (2016) highlights the role of the UK government’s austerity agenda in creating a context whereby the debate over climate change has shifted away from benefits and towards costs, resulting in policy retrenchment in a number of areas (e.g. renewable energy subsidies).

The most well-known body opposing climate action in the public UK debate is the Global Warming Policy Foundation (GWPF) (Painter, 2011). The GWPF actively disseminates information about both the scientific and policy dimensions of climate change and its chairman, Nigel Lawson, is highly visible in the media as a sceptical voice. Indeed, the media has played

a critical role in disseminating sceptical voices' perspectives, particularly through strong issue linkage between climate change policies and increased energy prices (Lockwood, 2013).

3 Method

Semi-structured interviews were undertaken with 99 individuals between November 2012 and March 2013, that is, during a period when pre-existing flagship climate change legislation—the NZ-ETS in NZ and the CCA in the UK—was being implemented. Interviewees were categorised as either academic, policy, politician, scientist or other (Table 1). Twenty of these individuals were (further) categorised as sceptical voices. Additional breakdowns as to the numbers of sceptical voices within each category are not provided in order to avoid interviewee identification by way of deductive disclosure (Kaiser, 2009). Respondents were selected with the aim of eliciting a range of perspectives from key actors involved in climate science, policy and/or politics.

Table 1: Interviews

		NZ	UK	Total
Academic	Social scientists working on climate change or related issues	7	5	12
Other	Media, NGO or industry representatives	10	11	22
Policy	Officials presently or previously working on climate change for nation-state or city/regional-level policy departments, or independent policy advisory agencies	17	10	27
Politician	Sitting members of Parliament; political party spokespeople on climate change, environment or energy; or city/regional-level politicians	4	5	9
Scientist	Scientists working on climate change in a university department of physics, geography, earth sciences or environment; or for a government-funded climate-related organisation	16	14	20
Total		54	45	99*

* Including 20 interviewees classified as sceptical voices identified from Sharman (2014) and Painter (2011).

The decision to rely predominantly on interviews, as opposed to other approaches, was deliberate. Interviews provide rich insights into the actions, beliefs and rationales of elite actors which may otherwise remain hidden from the attention of the public or media (Lilleker, 2003). They are therefore well-suited to the present research which involves politically controversial questions about the impact of sceptical voices. We found the vast majority of our respondents to be candid, with political advisors in particular offering detailed insights into the inner workings, political machinations and logics of policy decision-making. However, we cannot deny the possibility that certain actors may have misrepresented the influence of sceptical voices or indeed other logics. We further recognise the potential for actors within a controversy to “black box” knowledge claims via various mechanisms so as to make them either more robust to criticism or more salient for policy-making (Jasanoff, 2012; Miller and Neff, 2013). This makes analysis of such claims, or the perception of the influence of such claims, challenging (Venturini, 2010). We sought to mitigate any bias by carefully probing respondents, comparing different actors’ accounts and, where necessary, triangulating responses with relevant literature. The latter included newspapers which provided insights into the wider public debate on climate change.

Interviewees were asked whether they believed sceptical voices, “climate scepticism” or controversy about climate change in general (using, where possible, the language previously employed by the interviewee themselves), had an influence on contemporary (i.e. post-adoption implementation of flagship policy) domestic policy decisions made about climate change. They were also asked about other actors, considerations and rationales influencing

policy enactment. Interview data were analysed using thematic coding in NVivo10 and manually.

The impact of sceptical voices on policy decision-making was classified into one of three groups: direct, indirect and no impact. The first of these sought to capture influences which operate directly on bureaucratic and political decision-making. An example would be arguments invoked to justify cutting public subsidies for low carbon investments. Indirect impacts included influences that the respondent themselves thought were circuitous or removed from direct decision-making processes, such as impacts on public opinion and related support for climate change policy. Inevitably, as with other factors impacting policy, making causal inferences about the actual degree of influence of sceptical voices is difficult. Indeed, an important caveat to our findings is that we are centrally interested in “impact” on the *processes* of policy decision-making, rather than on policy implementation per se. Furthermore, to the extent that the paper investigates how particular knowledge claims were used to legitimise arguments made by certain actors, any logics of inaction identified by interviewees must necessarily be regarded as contributory factors to decision-making. Nonetheless, while it is impossible to, for example, identify where policies were never enacted in their entirety, this paper does attempt to show empirically the post-decisional logics of inaction that contributed to the draining of political capital from the active implementation of climate policy.

4 Post-decisional logics of inaction

A consistent narrative emerged from the interview process. A clear majority of respondents in NZ, particularly policy officials, did not consider that sceptical voices exerted a direct impact on policy decision-making. Yet the opposite was the case in the UK (Table 2). Indeed, even

collating direct and indirect responses, while the vast majority of UK respondents perceived that sceptical voices impacted policy decision-making, it still did not become the dominant opinion in NZ. The results in Table 2 also show a stark difference between the two contexts when just policy officials' and politicians' viewpoints are considered.

Table 2: Perception of impact of sceptical voices on policy decision-making

Case study	Category	Type of impact		
		Direct impact	Indirect impact	No impact
NZ	Academic	2	-	1
	Other	1	5	3
	Policy	2	4	11
	Politician	2	-	2
	Scientist	4	-	4
	<i>Total</i>		<i>11 (27%)*</i>	<i>9 (22%)</i>
UK	Academic	2	1	-
	Other	3	4	3
	Policy	8	1	1
	Politician	2	1	-
	Scientist	3	1	-
	<i>Total</i>		<i>18 (60%)</i>	<i>8 (27%)</i>

* Percentages are based on 71 interviewees who directly gave an opinion.

4.1 NZ - A dominant national interest story

The overwhelmingly dominant post-decisional logic of inaction in NZ was the pre-eminence of the current national economic interest. This centred on the protection of the country's agricultural base to ensure the cost-competitiveness of dairy in the global marketplace—particularly in the face of the global financial crisis. The indefinite exclusion of agriculture from the NZ-ETS in 2012 provides a concrete policy manifestation of this logic of inaction. As NZPolicy3 argued, “*why are we taxing our cows...and no other country is taxing theirs?*”. Disconnect between the initial policy ambition of the NZ-ETS and its current status was

frequently highlighted. NZPolicy9 argued that “*our policy has effectively been watered down...the evidence becomes stronger it seems and our scheme gets weaker*”, but also recognised that there were several “*legitimate political and probably economic reasons why making our scheme weaker makes sense for NZ at the moment*”. Moreover, the very existence of the NZ-ETS, as well as the exclusion of agriculture, has meant that climate change as a whole is regarded as having “*disappeared, absolutely*” from the political agenda of the government because “*politically the ETS has made it all go away*” (NZPolicy2). The effectiveness of this logic of inaction is unsurprising, not least due to warnings issued following the NZ-ETS launch that unless ‘other countries include agriculture [in equivalent pricing mechanisms] the comparative advantage of NZ agriculture will diminish with little if any reductions in global emissions’ (Jiang et al., 2009: 78). An important feature of this logic is that its underlying knowledge claims have gone largely uncontested: it was broadly accepted that the agricultural sector would incur substantive cost burdens from full NZ-ETS participation. It also clearly indicates how the scientific and political consensus regarding the necessity of initial legislative action changed in the implementation stage. The political ramifications of enacting an “all sectors, all gases” NZ-ETS overwhelmed the earlier policy justification based, in part, on agreement with scientific knowledge.

The influence of the current national economic interest logic of inaction was bolstered by two other factors, the first being political uncertainty regarding a binding international climate mitigation agreement. This uncertainty is important because NZ is unwilling to risk its national competitive advantage by making internationally unreciprocated policy commitments. Lobby groups use “*political uncertainty to their advantage*” (NZOther3), including making threats to move business offshore should more stringent policies be implemented. The second contributory factor was the demonstrative, symbolic political value of the NZ-ETS in

maintaining NZ's international credibility and legitimacy. Whereas NZ chose not to sign-up to a second commitment period of the Kyoto Protocol, specifically citing its rationale as acting in the country's best interests (Groser, 2012), the NZ-ETS, even in its current incarnation, was regarded as acting as a mollifying signal of enacted climate policy to the international community. NZPolicy6 explained that *"it can appear to be a, 'we'll try to get away with as little as possible, do just enough to politically hold some credibility around it, but only just enough'"*. This desire for credibility is important as *"NZ has a primary interest in being seen as a good global citizen"* (NZPolicy17) in order to secure access to global trade deals. This post-decisional logic of inaction also rests on an explicit *"fair share"* (NZPolicy3) basis, as the country *"shouldn't be trying to stay ahead of the pack when it's costly"* (NZPolicy1).

As regards the scientific basis for climate change policy, while there was a *"very strong acceptance of climate change by ministers and ministries"* (NZPolicy13), scientific rationales were not viewed as having a *"conscious and open impact, an explicit impact on decision-making"* (NZPolicy17). Moreover, whereas scientific considerations both for and against policy action were seen to contribute towards the rationale for policy *development*, they were regarded as being nearly absent from the policy implementation phase. Indeed, while *"the sceptic debate was quite strident"* (NZPolicy2) at the formation stage of the NZ-ETS, it was largely seen as having *"had its battles and lost"* (NZPolicy3). Politicians were widely regarded as being dismissive of sceptical voices, particularly those who frame their arguments in scientific terms and who were viewed to be *"running interference rather than being constructive"* (NZPolicy1). In fact, sceptical voices such as the NZCSC who openly base much of their opposition to climate policy on scientific grounds were seen as increasingly side-lined in terms of political credibility. The global financial crisis was also identified as a contributory factor in reducing the need for politicians to position any criticism of climate policy upon a

foundation of scientific uncertainty. In essence, economic arguments, bolstered by the climate of financial austerity, were so dominant that scientifically-based scepticism was able to be dismissed as irrelevant. The majority of sceptical voices concurred with NZOther6 who considered their impact to be *“fairly small”*. Thus, whereas scientifically-based scepticism exists in the NZ context, it was not regarded as a legitimate policy discourse, nor does it appear to act as an influential logic of inaction, particularly at the policy implementation stage.

4.2 The UK - The continued relevance of scientific doubt

In stark contrast to NZ, the majority of respondents, particularly policy officials and politicians, regarded sceptical voices as exerting direct influence on decision-making over UK climate policy implementation. While the CCA provides a solution of architecture, post-decisional political conservatism was clearly apparent, with the most notable post-decisional logic of inaction being the expression of scientific doubt. In short, contestation over scientific knowledge, apparent at the policy adoption stage, also carried over into implementation. UKPolicy3 identified *“a highly-organised, very well-funded group...whose job it is to try and undermine everything the climate science community is doing”* and UKPolicy5 suggested that *“most cabinet ministers remain unconvinced about climate science and warm to the GWPF’s position rather than the IPCC Fifth Assessment report”*. Yet the pathway of influence for scientific arguments was recognised as complex. Whereas *“very few UK politicians are out-and-out climate denying”* (UKPolicy5), scientific rationales were argued to contribute to a *“fog of distrust”* (UKPolicy10) that reduces the impetus for active implementation of climate policies. It was thought unlikely that the CCA would be repealed or significantly altered in the near term, but this scientifically-based logic of inaction was clearly seen as contributing towards *“not just a slowing down but blockages”* (UKPolicy6) in terms of active policy

implementation. Critically, scientifically-based arguments provided “*a fig leaf for certain policy inaction*” by “*draining political capital...from mitigative action on climate change*” (UKScientist14). Since the passing of the CCA in 2008, it was argued that UK climate change policy “*did backtrack...[as] the climate sceptics’ arguments came up and we didn’t address them or just they became more vocal or people used them as an excuse to ignore it when they actually just didn’t want to pay for action or change behaviours*” (UKPolicy9). In contrast to the policy development stage, it is perceived that now “*we barely use the word climate, and even in internal documents the word climate is rarely used*” (UKPolicy5). UKPolicy4 provides a concrete example of the impact of this logic of inaction:

It manifests itself in terms of the resources going into the CCA... You can soft peddle; you can really do the minimum. What we’ve seen compared to the first cycle of the climate change risk assessment and national adaptation programme and planning, the resource that went into that. We’re seeing this time round, just a fraction of that, a tenth of the resources.

Individual political figures either actively using or sympathetic to arguments disputing the veracity of climate science were also regarded as important in terms of direct influence on implementation. Owen Paterson, former Secretary of State for Environment, Food and Rural Affairs, was particularly noted as having “*very little interest in climate change, putting it politely*” (UKPolicy4) due to his scepticism of climate-related scientific knowledge claims. Additionally, it was also “*widely thought that under the current political leadership of the Treasury, the former chancellor Lord Lawson has a disproportionate influence*” (UKPolicy6). Groups such as the GWPF were deemed significant as “*they are loud and they get a lot of airtime*” (UKPolicy3), with interviewees recounting stories of politicians receiving emails from the GWPF “*pointing to various different particular findings every day*” which is “*putting*

the centre of gravity a bit in a particular direction” (UKPolicy8). Lobby groups were “*trying to push forward this message that...not only should we not subsidise uneconomic renewables but let’s forget climate change because it’s not an issue anymore*” (UKPolicy1). These explicitly scientific-based discourses were regarded as successful in their ability to cast scientific doubt as a mechanism to water-down policy implementation, as well as impacting policy officials’ working processes. UKPolicy1 remarked that sceptical voices “*try to absorb as much of our time as possible...to keep us busy so that we’re not doing what we should be doing*”. Impacts on policy officials are important given their central role – particularly in Westminster systems– in offering advice to politicians and influencing policy decision-making on an ongoing basis.

While the influence of sceptical voices in engendering scientific knowledge contestation in order to reduce effective policy implementation was a dominant theme, economic considerations were also mentioned as a factor explaining the government’s lukewarm commitment to implementing its climate change commitments. As one observer noted, national economic interest arguments “*intuitively strike a chord with quite a lot of people and decision-makers, and businesses can forever cite them whether or not they have evidence*” (UKPolicy8), and it was seen as an “*unhappy coincidence of timing that the financial crisis came*” (UKPolicy9) not long after the legislative adoption of the CCA. Indeed, echoing previous work (Gillard, 2016; Carter, 2014), our findings suggest that the politics of austerity loomed large over the implementation of climate policy in the UK. At the time of research, the economic impacts of implementing the UK’s climate change commitments came to the fore within a wider public debate about the costs of domestic energy, with the government’s climate policies “blamed” for recent rises in household energy bills (e.g. see Doyle, 2015). The government, together with a range of other pro-mitigation actors, sought to counter this narrative, but it

nevertheless contributed to the eventual decision to reduce the green levy impacting electricity bills. Yet, while cost factors were regarded as “*bottom line politics*” (UKPolicy4), two important caveats are in order. First, unlike NZ, cost-based logics were additionally explicitly predicated upon scientific doubt. There was a clear linkage between perceptions of policy necessity and opinion regarding the legitimacy of underlying scientific knowledge claims. The costs of so-called “green” policies could be framed as unnecessary because the notion of uncertainty in the underlying science achieved resonance with policy decision-makers at the implementation stage. Second, while much of the media coverage of climate change had focused on cost-related factors, evidence from those close to the policy process indicated this economic framing was only one part of the policy rationale, alongside the important scientific doubt logic of inaction explained above. Indeed, given that respondents in both NZ and the UK were asked identical questions by the same interviewer, we regard the differences in responses by political and policy actors in the two case-study countries revealing.

5 Discussion: Unravelling contrasting logics

This research provides evidence of politically salient, albeit contrasting, post-decisional logics of inaction in NZ and the UK. While scientific scepticism was evident in NZ, arguments used to justify indefinite removal of agriculture from the NZ-ETS were based on largely uncontested knowledge regarding the economic impacts of climate policy. The dominance of the current national economic interest and cost-based logics in NZ chimes with Bartram and Terry’s account of a long history of ‘goal deflation’ (2010: 31) in NZ’s climate change politics. While climate change remains a topic of public concern, regularly ranking in public opinion polls as the most important environmental issue facing the world (Hughey et al., 2013), only 6% of the population considers climate change as the most important environmental issue facing NZ

itself. This suggests that climate change exists largely as an *external* problem which, within a broader neo-liberal approach to free markets in NZ, is closely aligned with outward-facing issues of trade and concerns over international competitiveness. The dominant post-decisional logic of inaction, emphasising the *current* national economic interest, also has a clearly temporal aspect indicative of an emphasis on short-term political considerations. Indeed, central to understanding the efficacy of this logic is the observation that the NZ-ETS can be interpreted as a largely symbolic policy which was designed, to a greater or lesser extent, to signal the country's commitment to international climate action. This has meant that political resolve for comprehensive, "all-sectors-all-gases" implementation has proved weak in the face of a narrative which portrayed clear-cut, negative economic consequences of extending the NZ-ETS to agriculture. As Kurz et al. (2010: 604) note, appeals to the national interest using particular knowledge claims are not only 'ubiquitous in political discourse' but a 'powerful rhetorical resource' that, in this case, are effective in determining how climate change is perceived as inadequately politically salient as a basis for effective policy implementation.

Economic logics were also politically relevant in the UK—which is perhaps unsurprising given the implementation of the CCA coincided with the financial crisis and an ensuing period of economic austerity. Yet post-decisional logics which explicitly referenced scientifically-based arguments also held cognitive authority. In other words, while a complicated hybrid of economic and scientific rationales for inaction existed in the UK, science-based knowledge controversy weighed in far more heavily than was the case in NZ. Underlying the temporally dynamic nature of knowledge controversy, the political purchase obtained by claims referencing scientific uncertainty during the implementation phase stands in contrast to their relative impotence during policy adoption. The CCA was passed by Parliament with a historically unprecedented majority on a wave of political consensus (Carter and Clements,

2015). Our findings reveal how this consensus on the urgent need for action unravelled, with a combination of economic recession and latent opposition to climate change policy amongst influential members of the subsequent government creating a space for arguments predicated on scientific uncertainty. The experience of the two case-study countries thus resonates with Downs's (1972) issue attention cycle, specifically the change between alarmed discovery and euphoric problem-solving enthusiasm, with commitment dwindling as the costs of realising significant progress became apparent. Yet the UK case, where scientific knowledge claims were (additionally) employed to justify a reduction in prioritisation and funding of the CCA, shows how the role of knowledge controversy may be locally specific.

Several factors may explain the relative influence of scientific doubt-related knowledge claims. One suggestion offered during the interview process was the existence of "*inherent distrust [not] of scientists, but of science-informed policy*" in the UK (UKPolicy2). Apposite in this regard is the "perfect storm" of science-based contestation about climate change that occurred in 2010 (Leiserowitz et al., 2013). Within a matter of months, Climategate³, the political failure of the Copenhagen United Nations Framework Convention on Climate Change negotiations and errors related to rates of glacial melt found in a 2007 IPCC report were all highlighted by the UK media (Anderegg and Goldsmith, 2014) as well as by lobby groups including the GWPF. Epistemic uncertainty and scientific misconduct were key narratives that appeared to resonate strongly with both the UK public and policy-makers. As observed by Jasanoff (2011: 136), the British civic epistemology is characterised by the requirement for governing elites to conform to 'popularly accepted criteria of epistemic validity', with the public's acceptance of scientific facts closely tied to their 'confidence in the trustworthiness of fact makers'. Crucially, faith in these institutions had been eroded in the preceding decades, with public scientific controversies –such as the bovine spongiform encephalopathy "crisis" (Lodge and Matus,

2014)– still fresh in the UK public’s consciousness. The political acumen of lobby groups using scientifically-based arguments also appears to be greater in the UK as compared to NZ. As indicated above, the GWPF directly and regularly contacts MPs to express its viewpoint, and, crucially, is chaired by a previous Chancellor of the Exchequer, suggesting a degree of insider credibility in the policy process. Likewise, sceptical voices have featured prominently in UK newspapers, with doubts over the veracity of the science a recurrent storyline.

A third contributory factor is the relative value placed on science. The UK has a strong history of evidence-based policy-making, with explicit emphasis on science as a decision-making input (Holmes and Clark, 2008) and relatively greater reliance on scientific advisors across government. The existence of the CCC in the UK which is legally mandated to provide scientific advice on the 2050 target, carbon budgets and emissions is also pertinent. Given the importance accorded to science as a rationale *for* policy, it seems understandable that science would be conferred equal weight as a mechanism to *dispute* policy. This relationship has been argued to be particularly pertinent for environmental issues given their heavy reliance on scientific evidence (Jacques et al., 2008). Evidence-based policy-making is valued in NZ. Yet a combination of the centuries-long(er) history of scientific endeavour and deeply-embedded culture of ‘weighing and balancing facts in public circulation’ (Jasanoff, 2011: 136) might explain greater awareness of science and thus recognition of its ability to inform policy in the UK.

Finally, structural considerations are relevant. As Figure 1 shows, most of NZ’s GHG emissions originate from a single source (the agricultural sector), whereas the more diverse energy sector (including transport and manufacturing) is responsible for the majority of the UK’s emissions. In NZ, a clear relationship exists between the inclusion of agriculture in the

NZ-ETS and the country's immediate economic performance (particularly in terms of international trade), such that the dominance of an economic logic is understandable. Conversely in the UK, a more complex relationship exists between the myriad climate policies under the framework of the CCA, the different sectors that comprise the economy, and overall national economic performance. We argue that this complexity provides fertile ground for arguments predicated on scientific doubt, whereas in NZ there is no need or space to invoke scientific arguments. The current national economic interest effectively "crowds-out" other logics. This does not deny the well-documented relationship between political ideology and the use of scientific logics to argue for a reduction in regulatory burden (McCright and Dunlap, 2010). However, it helps to explain why in NZ, a country where ideological opposition to climate change regulation exists in terms of free-market fundamentalism, scientific uncertainty is a less powerfully resonant post-decisional logic of inaction.

6 Conclusion

Knowledge controversies are widely considered to be political, with Venturini (2010: 262) highlighting how they 'decide and are decided by the distribution of power'. Yet comparatively little is known about *how* such controversies are political, including the role of contested knowledge claims as an input to public policy decision-making processes. A key insight from our work is that the relationship between knowledge controversies, on the one hand, and public policy decision-making, on the other, needs to be understood as dynamic, fluid and contingent. Previous research has documented these characteristics for knowledge controversies themselves; how in particular localities, controversies have the potential to "heat-up" and "cool-down", "melting" and "solidifying" to form new social configurations and governing arrangements (Donaldson et al., 2013; Venturini, 2010; Maderson and Wynne-Jones, 2016).

We refine and extend this work by demonstrating that these dynamics can spill-over into political decision-making, and moreover do so in ways which are temporally and spatially uneven. Our empirical research reveals that the use and influence of knowledge controversies is not fixed; instead it evolves and can become more overtly political as the policy-making process unfolds. These dynamics reflect not only the intensity of knowledge controversies, but also their political purchase, as different underlying politics, rationales and knowledge become less or more politically salient over time. Referencing the work of Donaldson et al. (2013), we thus show that knowledge controversies follow political “trajectories”, potentially (but not always) entering the nexus of political debate and decision-making during the implementation phase. Our results also highlight how the prevalence, use and political relevance of specific forms of knowledge controversy (e.g. scientific vs. policy) are far from universal across space. Epistemic disputes which, in one locale may boil over into the domain of wider public and political debate, may continue to simmer beneath the surface in others. The degree to which such controversies achieve salience and traction amongst political decision-makers may also differ significantly between different socio-political contexts.

In drawing these conclusions, our findings contribute to work in geography, political ecology and comparative domestic politics which serve as a corrective to de-contextualised accounts of knowledge politics (Pritchard et al., 2016; Donaldson et al., 2013; Lövbrand et al., 2015; Jasanoff, 2011). The production, governance and deployment of knowledge surrounding the science, and to a greater or lesser degree, the policy, of climate change exhibits, in the words of Hulme (2010: 558), a ‘globalising instinct’. Yet insights from our research contribute to the literature on knowledge controversies by highlighting the ongoing importance of the local in how such knowledge is understood, contested and acted upon (Jasanoff, 2011). In fact, whereas Painter (2011) has argued that climate change scepticism is an Anglo-Saxon phenomenon, even

in two Anglo-Saxon countries with a number of political and cultural similarities, the political salience, traction and perceived policy impact of knowledge controversy has differed significantly. Understanding these geographical differences remains a complex task – and one which could be productively taken-up in future research. Our work nevertheless shows that place (and, indeed time) matter by influencing the cognitive legitimacy and weight accorded to different types of scientific knowledge and science-based policy. Additionally, it points to the importance of material factors which influence the discretionary space for contestation, with ambiguity over policy impacts providing a more fertile ground for the political mobilisation of knowledge controversy.

Another insight from our work is that controversies do not exist, nor are they always politically mobilised, in isolation. Rather, within the arena of post-decisional politics, knowledge controversy may combine, fuse and be refracted through other rationales and arguments. Within the UK, logics of inaction predicted on scientific uncertainty achieved political traction precisely because they could be used instrumentally to bolster logics emphasising economic costs, notably within a context of growing austerity and rising electricity prices. Seen in this light, knowledge controversies can be understood as comprising hybrid formations, assembled alongside other logics in certain times and places, to achieve the political goals of their protagonists. In this respect, we concur with Barry (2012) who argues that the significance of individual knowledge controversies needs to be considered according the ways in which they become connected to other events, conflicts and controversies. An instructive analogy can also be drawn with the seminal work of Kingdon (1984) which, although concerned with agenda-setting, similarly draws attention to the contingent nature of public policy. More specifically, our work indicates that knowledge controversies are more likely to achieve political purchase in spatio-temporal contexts where they are actively coupled with other logics and public

problems, and moreover within the setting of a receptive political mood, favourable party ideology and supportive interest groups.

A further implication concerns the importance of recognising that political contestation of climate change continues well beyond the legislative adoption stage (Layzer, 2007). These dynamics are important because they add to a growing body of work (e.g. see North et al., 2017) which challenge accounts of climate change as being somehow apolitical—little more than a technocratic exercise in the shadow of an assumed political consensus (Swyngedouw, 2010). Indeed, in identifying influential logics of inaction in two early-movers in climate policy, the present paper sounds a cautionary note. It suggests a need to pay more attention to what happens when climate policies are put into effect, recognising that the passing of legislative action may prove a misleading indicator of actual commitment to, and subsequent action on, climate mitigation.

Notes

1. We would like to thank an anonymous reviewer for pointing out the potential relevance of the concept of fluidity for understanding knowledge controversies.
2. NZ-ETS agriculture participants have been required to report on-farm biological emissions since 2012 but are not required to surrender emissions units. The Government has stated that such an obligation will only occur if ‘there are economically viable and practical technologies available to reduce emissions’ and if NZ’s ‘trading partners make more progress on tackling their emissions in general’ (NZ Government, 2015a).
3. Climategate refers to the unauthorised release of over 1,000 emails and documents from the University of East Anglia in 2009.

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