Routledge
Taylor & Francis Group

Journal of Environmental Policy & Planning

ISSN: 1523-908X (Print) 1522-7200 (Online) Journal homepage: http://www.tandfonline.com/loi/cjoe20

Over-reaction and under-reaction in climate policy: an institutional analysis

B. Guy Peters, Andrew Jordan & Jale Tosun

To cite this article: B. Guy Peters, Andrew Jordan & Jale Tosun (2017): Over-reaction and under-reaction in climate policy: an institutional analysis, Journal of Environmental Policy & Planning, DOI: 10.1080/1523908X.2017.1348225

To link to this article: http://dx.doi.org/10.1080/1523908X.2017.1348225

Published online: 10 Jul 2017.

JOURNAL OF ENVIRONMENTAL POLICY & PLANNING, 2017
https://doi.org/10.1080/1523908X.2017.1348225

Routledge
Taylor & Francis Group

Over-reaction and under-reaction in climate policy: an institutional analysis

B. Guy Peters[a], Andrew Jordan[b] and Jale Tosun[c]

[a]Department of Political Science, University of Pittsburgh, Pittsburgh, PA, USA; [b]Tyndall Centre, School of Environmental Sciences, University of East Anglia, Norwich, UK; [c]Institute of Political Science, Heidelberg University, Heidelberg, Germany

ABSTRACT

In what circumstances do organizations react to changes in their operating environment by adopting proportionate policy responses? And drawing on institutional theory, what expectations can we formulate in relation to the proportionality of policy responses to climate change? These two research questions frame this article, which seeks to make new connections between the emerging perspective of proportionality in policy-making and existing institutional theories. We find that institutional theories are well suited to formulating expectations concerning the (dis)proportionality of policy responses, but their explanatory power can be further improved by taking the characteristics of specific climate policy problems into account. While there are many different problems nested in the 'meta' problem of climate change, we find that most of them have characteristics which suggest that policy under-reactions are more, not less likely. Amongst institutional theories, rational choice institutionalism provides the clearest expectation that proportionate policy responses are unlikely. Policy entrepreneurship is identified as one obvious way in which to stimulate proportionate policy responses, through fostering new ways of thinking within organizations.

ARTICLE HISTORY
Received 7 April 2016
Accepted 23 June 2017

KEYWORDS
Climate change; institutional theory; cybernetic model; policy over-reaction; policy under-reaction

Introduction

In an ideal world, governments would be able to produce a proportionate and targeted response to the policy problems that emerge within their operating environments. The everyday reality of governing, however, is often very different. The range of responses – as we will show in the field of climate change policy – is often quite variable and views tend to differ on whether they constitute adequate responses (see Maor, 2012, 2014a, 2014b, 2016). Why do governments, both as a whole and at the level of individual public organizations, often find it difficult to respond? And why do they find it difficult to adjust or re-calibrate their responses once they have been initiated?

There are a number of possible answers to those questions (see Gillard & Lock, 2016; Howlett & Kemmerling, 2017; Maor, Tosun, & Jordan, 2017), but in this article we focus attention on the role of institutions in either accelerating or dampening responses to climate change. By addressing these questions, we seek to contribute to two emerging, but separate streams of literature: one on climate change governance and the other on proportionality in policy-making. We employ institutional theory to develop a set of propositions about the likelihood of different public policy responses to climate change. The various versions of institutional theory supply substantial insights into the levels of response. It appears easier to explain the under-reaction of

CONTACT Jale Tosun jale.tosun@ipw.uni-heidelberg.de Department of Political Science, Ruprecht-Karls-University Heidelberg, Institut für Politische Wissenschaft, Heidelberg, Germany

governments to policy stimuli from an institutional perspective than it does to explain over-reaction. Under-reaction of governments mostly corresponds to the logic of incremental policy change (Lindblom, 1959) and of punctuated equilibria (Jones & Baumgartner, 2012). Explaining over-reaction has proved to be a tougher task for incrementalism and the theory of the punctuated equilibrium. Therefore, attempting to understand how the 'gearing' and the information processing occurring within an institution can produce a particular type of response remains one of the greater challenges in public policy analysis. Therefore, it is at the core of this article.

In order to generate refined hypotheses, we must bear in mind that climate change manifests itself in many different forms (see, e.g. Lenton et al., 2008), which requires a wide range of policy responses. Institutional theory does not allow us to formulate hypotheses on under- and over-reaction in general, but it is perfectly capable of doing so for particular policy problems that are inherent to climate change. For example, given that climate change mitigation involves promoting the use of renewable energy sources, one would expect that in their policy responses governments would continue to engage in renewable energy promotion. This point can be illustrated by the introduction of fuel-mixes that contain a certain share of ethanol or biodiesel with a goal of lowering greenhouse gas emissions, while entailing a minimum change to the existing energy policy approach (see, e.g. Tosun, 2017). Concerning adaptation to climate change (see, e.g. Bauer, Feichtinger, & Steurer, 2012; Biesbroek, Klostermann, Termeer, & Kabat, 2013), we might expect the same path-dependency in the sense that adaption policies are dominated by measures (e.g. sea walls and other flood defences) that have existed for a while, but perhaps were adopted in other policy sectors (such as urban and spatial planning) and for 'non' climate reasons. Lastly, we assume that individuals in organizations matter, which aligns well with the actor-centred approaches advanced by Maor (2012, 2014a, 2014b, 2016).

The remainder of this article unfolds as follows. We first introduce the main forms of new institutionalism in order to foreground our argument. Based on this, we embrace two analytical levels: the first being the level of institutions and the second the role of institutions. In the next section, we elaborate on how the nature of policy problems may matter for how organizations react to them. We then offer a concise discussion of the role of the individuals inside organizations to explain policy responses. Subsequently, we explore the implications of our theoretical reasoning for explaining climate change responses. Our main aim is to advance conceptual thinking, but in the final section, we offer some concluding remarks to guide future empirical research on these topics.

Disproportionate policy responses: a new institutional approach

In this section, we present our theoretical approach, which consists of two steps. We start by introducing the cybernetic approach, which fulfils two important functions. First, it aligns the emerging concept of disproportionate policy responses with the established literature on public policy analysis. Second, it links policy reactions to changes in the operating environments of organizations; as such, it offers a perspective that differs from that frequently adopted by policy analysts. In a second analytical step, we review the three forms of new institutionalism as put forth by Hall and Taylor (1996) and ask to what extent they allow for explaining disproportionate policy responses as reactions to changes in an organization's environment.

The cybernetic approach

Cybernetics posits the existence of a system incorporated in a closed signalling loop, where action by the system generates some change in its organizational environment. From this perspective, a proportionate policy response to a stimulus can be conceptualized as functioning as a simple cybernetic machine such as that described by Karl Deutsch (1966; see also Peters, 2013). In such a system, decision-makers attempt to maintain equilibrium conditions within the institutions, and in their responses to the socio-economic environment. If that environment changes slowly or in reasonably predictable ways, then the governing system should be capable of maintaining that equilibrium. In the present discussion, we can substitute the concept of 'proportionality' for 'equilibrium', and much of the same logic holds. We could conceptualize institutions and organizations as structures that process information (see Baumgartner & Jones, 2015; Jones & Baumgartner, 2012;

Schotter, 2008; Wilensky, 1969). Indeed, public sector organizations depend heavily upon their capacity to gather, process, and disseminate information.

In his initial thinking, Deutsch discussed the concepts of 'lag', 'lead' and 'gain' to describe how institutions might respond to stimuli. *Lag* refers to the temporal dimension of responses and measures the response time of governments to changes in the environment: how much time lag is there before the response? *Lead* also refers to the time dimension and gauges the capacity of the decision-makers to anticipate changes and act proactively. *Gain* refers to the 'gearing' of the responses, and the level of response of the system to a unit change in the environment. Obviously, systems with higher levels of gain tend to respond more significantly than do those with lower levels. As interesting as these may be, all these concepts are largely descriptive

In this paper, the most important of the three is *gain*. What institutional factors can lead to higher levels of gearing within the system, and hence to more or less significant levels of response to environmental change? Conversely, what elements within institutions diminish the capacity to respond in proportionate terms to changes in the environment?

The other two concepts also have relevance in explaining disproportionate policy responses. For example, *lag* may mean that although a response from the policy-making system is adequate in terms of its size or intensity, it is late and therefore inadequate, which can be equated to an under-reaction (Maor, 2014a, 2016; Maor et al., 2017). Likewise, a policy response may come too early and therefore be inadequate, which again we conceive to be an over-reaction (Maor, 2012, 2014b; Maor et al., 2017).

Turning now to *lead*, if policy-makers are capable of making decisions that anticipate changes in their environment they will be able to produce adequate responses through the investment of fewer resources. Lead also implies the possibility of reacting when there is no real need to, and hence producing an over-reaction. Conversely, lead can entail no reaction, which corresponds to an under-reaction. Knowing when and how to strike a balance between different concerns is especially difficult when policies address complex, interactive socio-ecological systems (Howlett, 2014; Vasconcelos, Santos, & Pacheco, 2013).

In summary, like Maor's (2012) initial conception of policy over-reaction, the cybernetic model of policy-making depends heavily on information processing within the public sector. Thus, from this perspective, institutional theory becomes central for understanding the capacity of governments to respond adequately. It seeks to explain that capacity for reaction in one of two ways. One is through the *structures* of the institutions and the other is through the *ideas* used to motivate individuals within the institution and to provide guides for action.

New institutionalism

With the development of the new institutionalism in political science, there has been a proliferation of theoretical approaches (see Lowndes & Roberts, 2013; Peters, 2009). The first approach in new institutionalism, that of March and Olsen (1989, 2005), discusses institutions from a *normative* perspective. The principal assumption of the approach was that individuals within organizations behave according to the 'logic of appropriateness' that they learned through being socialized within the institution. In policy terms, this means that the policy-maker learns which policies are important, and how best to address them. Rather than acting as an atomistic individual, she acts according to an institutional or organizational conception of what is a 'good' policy.

From this perspective, a disproportionate policy – in the sense of a policy that does not correspond to the equilibrium – becomes likely when the actions of the institution, or the demands for certain types of action, diverge from the stated norms of the institution (Brunsson & Olsen, 1993). What makes it difficult to formulate hypotheses is that the normative approach conceives that a whole range of values, myths, symbols, and routines within the institution or organization matter, and so it is difficult to discern which of these factors is more relevant than the others. Nonetheless, we can hypothesize that the probability of a policy over-reaction increases as the threats grow to the core values of an institution or organization. As institutions and organizations narrow the range of vision of actors within them, environmental change well outside the usual domain of concern for the institution may not even be recognized and hence increase the probability of a policy under-reaction.

The antithesis of this normative perspective utilizes standard logic from *rational choice theory* that stresses that individuals function primarily to maximize their own utility, or that of their organization, when making

policy. The structures of institutions therefore are seen primarily as the domains within which those individual preferences are pursued. Thus more so than for most approaches to institutions, these structures are seen as relatively malleable, with disproportionate policy responses coming through manipulating the incentives and disincentives for behaviour.

Within rationalist approaches, there are several different perspectives. For our purpose, one of the most relevant is that of veto players (Tsebelis, 2002). This argues that institutions can be conceptualized as a series of veto players that shape the strategies of actors attempting to put a policy into effect or block it. The other important approach is the institutional analysis and development perspective associated with the work of Elinor Ostrom (House & Araral, 2013; Ostrom & Basutro, 2011). This argues that institutions are crucial for processing pressures from the environment, and that they work through a number of levels of rules – especially 'rules in use' – in so doing. Although clearly embedded in rational choice approaches to institutions and strategic decision-making by the actors involved in policy-making, it also involves the increased use of ideas and learning as a significant part of the dynamic for action within the institution (see also Heikkila & Isett, 2004).

More than the other strand of new institutionalism, rational choice institutionalism assumes that rational institutional designers should be able to modulate responses to policy problems appropriately. Classical veto player theory (see Tsebelis, 2002) assumes that insofar as veto players are cohesive and complicate any policy response that deviates too much from the status quo, the most likely result is an under-reaction. There are, however, two scenarios when over-reaction is possible despite the presence of veto players. The first is that a policy problem is considered so extraordinary and/or so urgent – what is sometimes referred to as a 'focusing event' – that there is widespread agreement among most actors that an immediate and drastic policy response is necessary (see Walgrave & Varone, 2008). The second scenario is that views on how to address a given policy problem diverge so much that a policy over-reaction is more likely (see West & Lee, 2014).

The basic question within *historical institutionalism* is why and how institutions maintain the policy 'paths' on which they have embarked (Capoccia & Kelemen, 2007; Peters, Pierre, & King, 2005; Pierson, 2000). Although later theorizing within this perspective has emphasized the capacity for gradual change (Mahoney & Thelen, 2010; Streeck & Thelen, 2005), it largely assumes that policies once created will tend to persist unless there is a major shock – a punctuated equilibrium (Baumgartner & Jones, 2015; Jones & Baumgartner, 2012). Therefore, policy under-reaction may be expected, even if there were a significant change in the environment, or in the success of the policies themselves. Yet this is only one side of the coin: historical institutionalism claims that once made, policy choices will persist, but it does not necessarily mean that they must always be the same. In other words, it is possible that the intensity of a policy choice can vary. For example, an organization faced with a change in its policy environment may simply do more or less of the same thing.

Although generally thought of in terms of under-reaction and persistence of established patterns of policy, historical institutionalism may also be related to policy over-reaction. In the original formulation of the approach, the mechanism for change was 'punctuated equilibrium' (see Baumgartner & Jones, 2015; Jones & Baumgartner, 2012), involving large-scale and fundamental change in a policy regime (Capoccia & Kelemen, 2007). While the approach does not provide any means of predicting or explaining those punctuations, the possibility of large-scale change can be important for matching, or mismatching, policy responses. However, as the explanations for more extreme responses remain vague at best (but see Jordan & Matt, 2014), historical institutionalism provides us with little assistance in explaining how and why policy-making mechanisms react proportionately to changes in their environment.

Interim findings

Our discussion thus far has revealed that, in principle, all three new institutionalisms are well suited as a means to study disproportionate policy responses. Amongst them, rational choice institutionalism and normative institutionalism appear particularly promising. Historical institutionalism appears less well suited: it needs to be enhanced with a better account of when critical junctures are most or least likely to occur – something

that is still remarkably under-theorized (see, e.g. Baumgartner & Jones, 2015; Jones & Baumgartner, 2012; Soifer, 2012; Walgrave & Varone, 2008).

New institutionalism and the characteristics of policy problems

The above discussion has tended to deal with policy issues rather abstractly. In this section, we will attempt to provide a better understanding of when organizations are likely to react in a disproportionate manner. To this end, we discuss some characteristics of policy problems – understood as changes in the environment of organizations – that trigger policy responses, namely: severity, recurrence, scale and complexity.

Severity

The most obvious characteristic of a policy problem that could evoke a response from institutions is the reality, or perhaps the perception, of crisis or events with potentially severe consequences for society. According to institutional theory, institutions, and to some extent individuals, tend to interpret events in ways that make them familiar. We use analogies or metaphorical reasoning to classify events and thus can readily fail to respond in appropriate manners to events that differ in scale as well as in type from the previous events used as an analogy. It is difficult to know, *ex ante*, how severe a problem may become, so that resource constraints and institutional inertia tend to lead to under-reactions, especially in the short-term.

A good example of a policy under-reaction is provided by the delay in reacting to scientists' warnings about the impact of chlorofluorocarbon chemicals (CFCs) on stratospheric ozone. As early as 1974, scientific evidence indicated that CFCs could produce extremely serious consequences, but governments failed to respond in a swift manner. Action only occurred after a crisis event – the unexpected appearance of an 'ozone hole'. The United Nations supplied information about the threats to the ozone layer and provided a neutral ground on which governments could begin to cooperate (Meadows, Randers, & Meadows, 2004). Nevertheless, there was a delay – or lag in the terminology of the cybernetic theory – of about a decade between the discovery of the problem and the formulation of an international policy response. Eventually, the problem could be addressed successfully – the ozone layer is now recovering slowly – but the causal chain between the ozone layer (effect) and the cause (human-made CFCs) was a short one, which could be sufficiently addressed by means to a specific policy measure, that is, the replacement of CFCs by alternative substances.

That being said, severe events may also make it difficult to define what is an under- or an over-reaction. Take, for example, the response of New York City to the threat of a major blizzard in 2015. The reaction of Mayor De Blasio was to close public transportation, declare a state of emergency, and to shut the city down. In the event, the storm only skirted the city. Was this an over-reaction, given the potential harm that could have been visited upon New York City? Another similar example was the closure of European airspace in April 2010 in response to the eruption of an Islandic volcano, which threatened the safety of aviation (see Nohrstedt, 2013).

Linking severity with the three forms of new institutionalism, we can formulate more refined expectations about the occurrence of disproportionate policy responses. Given the centrality of core values to normative institutionalism, an over-reaction to a severe policy problem is more likely if it concerns an issue that is of central importance to an organization. Rational choice institutionalism predicts an over-reaction if there is agreement among all veto players that a problem is severe or if the veto players fail to act together. If veto players disagree with the government over the severity of a policy issue, an under-reaction is the more likely outcome. When the views on severity differ across the individual actor groups, policy advisory bodies can be helpful to produce political support (Craft & Howlett, 2013; Howlett, Tan, Migone, Wellstead, & Evans, 2014). From the perspective of historical institutionalism, over-reactions are more likely to the extent that policy-making patterns have become locked in. In other words, if there exists an institutionalized response to severe policy problems that corresponds to an over-reaction, the most likely outcome is another over-reaction. The same argument can be made for under-reactions and whether they have become the standard policy reactions to severe policy problems.

Recurrence

Some policy problems tend to occur repeatedly, and the dominant policy response to such problems involves re-making and revising existing programmes (Hogwood & Peters, 1983). As one moves away from those more or less routine decisions, however, there is a need for the greater exercise of discretion and hence the opportunity for under- or over-reaction by the decision-makers. Those possibilities arise even for problems that are perhaps novel, but which appear related to previous experience.

The most obvious possibility for organizations is to under-react to recurrent situations. As argued by historical institutionalists, organizations develop standard operating procedures for coping with policy issues as means of minimizing their decision-making costs (March & Olsen, 2005). From a normative institutional perspective, having those standard operating procedures, in turn, may lead the institution to code new events within those categories, thus producing the responses that are already programmed for. The difficulty arises in recognizing when the actual problems are indeed different from the expected or perceived problems, and therefore require different types of responses.

The recurring nature of some policy problems may also produce an under-reaction simply because there is a belief – individually and/or institutionally – that the problems are somehow 'unsolvable'. Therefore, if the problem cannot be resolved then there may be little reason to invest more resources in it. That belief may in turn interact with the standard political constraint of having to 'oversell' policy solutions in order to make them acceptable to sceptical legislators (see, e.g. Collantes & Sperling, 2008). If no one will seriously argue that the problem can and will be solved by a specific intervention, then there is little probability of getting major, or even adequate, policy responses. This perspective aligns well with veto player theory because in such situations, veto players are more likely to act against a proposed policy response in a cohesive manner.

Scale

It is commonly observed that governments around the world tend to deal with policy problems in an incremental manner, by making only relatively minor adjustments to the status quo. This pattern of policy-making is in many ways well suited to producing proportionate responses to policy challenges, assuming that there is adequate information and policy capacity to adjust to the changing environment (Painter & Pierre, 2005). If policies are adjusted continuously then they should, in principle, be able to be made to match the demands coming from the environment (Maor et al., 2017). Yet some policies, for example, those promoting nuclear electricity generation, are difficult to adjust incrementally. Similarly, some very large-scale problems, such as the threat of all out nuclear war, must be addressed through very comprehensive interventions (Schulman, 1980). To give another, more climate change related example, it does little good for the government to build half a dam across a river, or windfarms that are not connected to the electricity grid. These large-scale policy issues are quite difficult to modulate. In particular, the opportunities for under-reaction in these situations are very apparent. In Downs' (1972) seminal discussion of the issue attention cycle, he pointed out that after the discovery of an issue there tends to be an 'alarmed discovery' of the difficulties in solving the issue. This may be true for many, if not most policy issues, but may be especially true for large-scale ones.

When adopting the perspective of normative institutionalism, policy problems that require comprehensive interventions can in theory stimulate both under- and over-reactions. Over-reactions are possible as with a series of policy responses, some components of the policy package to be adopted may align with the core values of institutions and therefore become conducive to this response. Likewise, an insufficient number of components of a policy package may refer to the core values of an organization, in which case the problem as a whole is ignored. From the perspective of veto player theory, policy packages are less likely to be adopted when there are many veto players in a system, in which case a policy under-reaction is the most likely outcome. Historical institutionalism cannot be so easily aligned with this particular problem characteristic and therefore we abstain from elaborating further on its relationship to problem scale.

Complexity

Finally, and perhaps most importantly, we need to consider the complexity of policy issues and how that affects policy responses. While now widely recognized among policy-makers and policy scholars, the increased complexity of policy issues requires careful consideration in the design and implementation of policies. We know that issues such as climate change or the depletion of fish stocks involve multiple actors and have complex patterns of causation, and hence may be more subject to under-reaction than most 'simple' policy problems.

In institutional terms, this may be explained in part by the need to align multiple institutions in order to generate effective responses. North (1991) discusses the importance of massive 'institutional matrices', in which changes in rules in one sector involve adjustments in all others. That re-alignment of matrices may, in turn, be related to the re-framing of policy issues among some or all of these institutional actors (Schön & Rein, 1996). Complex policy issues generally involve intensive political action, if they are to be dealt with effectively, and indeed most attempts at addressing these issues appear to fail. Complex problems may also present the problem to organizations and institutions that the relevant information about the problem is ambiguous. This form of 'organizational ignorance' (Wilensky, 1969) at once provides an institution the opportunity to define information in a manner that suits its pre-existing patterns of behaviour but which also increases the probability of error.

As well as fundamental political difficulties in responding to these complex problems, the institutional problems are also substantial. As already noted, from the perspective of normative institutionalism, institutions can be conceptualized as bundles of ideas and symbols, so that attempts to redefine those ideas in order to work more effectively with others requires altering their internal values and providing members with a new set of values. That form of institutional change is more difficult than simple structural change, but may also be more enduring (Brunsson & Olsen, 1993). Therefore, when drawing on normative institutionalism, under-reaction appears the most likely outcome when an organization deals with a complex problem. Within the context of historical institutionalism, effective responses may require altering established paths, whether through extreme change, or through layering in new patterns of behaviour. Again, this logic suggests that the most likely outcome is a policy under-reaction.

Turning to rational choice institutionalism, the fact that complexity often entails comprehensive policy measures in theory increases the chances of a policy under-reaction. To address a complex issue, a whole package of instruments must be adopted. If one or more components fail to be adopted at the decision-making stage, the success of the whole policy project may be put at risk, thus lowering the willingness of vote-seeking politicians to launch such a project. Alternatively, we can conceive complexity to entail ambiguity regarding the number and type of policy measures needed in order to resolve a problem; that is, to be able to present a 'success story' to the voters (see McConnell, 2010). Again, decision-making under ambiguity – that is, when the causes of a problem and the consequences of adopting a particular solution are unclear – is characterized by reducing (electoral) risks and adopting an incremental approach.

The role of individuals in devising policy responses

Our discussion thus far has focused on the role of institutions, but individual actors *within* organizations are also inherently important. The institutional literature, including much of this paper, tends to anthropomorphize institutions and/or organizations. The discussion using this approach has been in terms of *institutions deciding*, whereas in reality those decisions must be made by individuals, alone or in groups, *within* them. We need, therefore, to discuss the role of the individuals in order to develop a comprehensive account of proportionality in policy-making.

That question, in turn, raises the classic question of the extent to which individuals can shape institutions, as well as institutions shaping individuals, which is also addressed in different forms of policy feedback theory (see, e.g. Jordan & Matt, 2014). Individual preferences may be shaped by their membership in the structure, as is central to the arguments of normative institutionalism. Processes of socialization and training within institutions provide members of the institution with preferences that may be different from those with which

they began, although there may be a good deal of self-selection among institutional members. Even with that self-selection, however, we should assume that the goals and preferences of individuals will be modified through their participation. And if there is significant self-selection of individuals committed to particular policies there may also be some tendency to over-react to problems arising in the policy areas, perhaps overcoming the usual reluctance for action attributed to institutions.

In addition, we can also think of actors attempting to utilize a change in their environment to augment their position within the public sector, or to augment the powers of their institution. Much as Allison (1971) described 'bureaucratic politics' as organizations finding ways to pursue their own goals in response to challenges from the environment, we can think of institutions (or organizations) responding in particular ways – perhaps especially over-reacting – as a means of pursuing their goals. Indeed, the discussion about challenges arising in the environment depends upon the perception of the occurrence and nature of the changes in the environment.

Those goals being pursued by an institution may be purposive – addressing real policy issues – or they may be more reflexive – seeking to enhance budgets or policymaking autonomy for the organization itself (Bozeman, 2004). In some instances, developing a strong, perhaps even excessively strong, reaction to a crisis in the environment can emphasize the need for strengthening the institution in question to provide better services, but it may also be simply a means of enhancing the role of the institution in the ongoing resource battles in the national capital.

This more individual perspective also emphasizes that the nature of policy problems may have to be constructed, as well as having some more inherent characteristics (Hay, 2011). It may be in the interest of the leadership, or the supporters, of an organization to construct some change in their environment as a 'crisis', or as a large-scale problem, so that they can use the anxiety created to enhance their budget or their policymaking latitude within government. Alternatively, they may wish to frame a problem as being a familiar, recurring issue so that they do not have to depart from their well-worn paths. There is danger of getting the response wrong in either case, and thereby in the longer-term undermining the position of the institution. Thus, the 'gearing' discussed above depends at least in part on the perceptions of the individuals within organizations.

Proportionality in climate policy response: some expectations

In this section, we formulate some theoretically informed expectations on how the four problem characteristics of severity, scale, recurrence, and complexity are likely to affect the likelihood of certain climate policy responses. In doing so, we will seek to draw upon all three types of new institutionalism.

Severity

Drawing on scientific assessments by the Intergovernmental Panel on Climate Change (IPCC) and accounts in the literature, climate change deserves to be regarded as a severe or 'wicked' policy problem (see, e.g. Levin, Cashore, Bernstein, & Auld, 2012). Yet, it is still very difficult to attribute specific, observable crises (e.g. extreme weather events such as cyclones and floods) to anthropogenic climate change (see, e.g. Demski, Capstick, Pidgeon, Sposato, & Spence, 2017). Were this possible, it would provide politicians with more focusing events to attract public attention to the meta problem of climate change (see, e.g. Schmidt, Ivanova, & Schäfer, 2013). Another factor that complicates the use of severity as a justificatory argument is that many of the policy measures being discussed today are likely to have been rationalised and justified with respect to temperature increases (and hence impacts) in the second half of this century (see, e.g. Levin et al., 2012). The extended time horizon inherent in climate change policy thus makes many current policy responses *appear* like overreactions even though they may in reality be proportionate or even significant under-reactions, if viewed across a much longer time horizon.

It is precisely because of this that the IPCC is now so heavily focused on encouraging attributional analysis – work which tries estimate the effect of warming on the probability of specific types of extreme event (intense

rain storms, estuarine floods, etc.). To be sure, attempts have been made by scientists to make climate change more perceivable: a prominent example is the concept of 'tipping points' as advanced by Lenton et al. (2008). Yet climate change is a phenomenon that has taken place – and will continue to take place – over a very long time period. Therefore, severity does not yet play a significant role in policy-making and this is reflected in the policy responses adopted so far (see, e.g. Fleig, Schmidt, & Tosun, 2017).

Recurrence

A policy problem such as climate change may have no suitable analogies, meaning that this mode of reasoning is very likely to produce some disproportionate responses and probably many under-reactions. Even with the sheer amount and credibility of scientific evidence available to policy-makers about the likely impacts of change, it appears to be human, and thus institutional, nature to address slow-moving problems or crises incrementally, rather than to invest heavily initially in a solution that could later be seen as wasteful. It is why policy-makers (and particularly politicians) find it so difficult (but not impossible) to deal with long-term problems (Jacobs, 2011).

Since climate change has many aspects and requires many different forms of policy action, policy responses should not be regarded as reactions to recurrent problems. From the perspective of historical institutionalism, organizations can rely on their standard operating procedures to cope with environment and energy-related issues. However, these do not necessarily marry up with all the numerous facets of the climate change *problematique*. The main issue here is that climate change spans many other policy areas including agriculture, transport and even defence and security (see, e.g. Adelle & Russel, 2013; Fleig et al., 2017; Tosun & Lang, 2017). Thus, even when a particular sector applies its respective standard operating procedures, it does not follow that climate change (as an overarching meta problem) will be adequately addressed. This explains why adaptation measures were more prominently addressed in the 2015 Paris Agreement (see Bäckstrand & Lövbrand, 2016; Boucher et al., 2016) than its precursor agreement (e.g. the Kyoto Protocol).

When addressing climate change, normative institutionalism contends that policy responses will reflect the core values of an organization. Considering that climate change requires policy responses from many different organizations, this perspective also suggests that under-reaction is a more likely outcome. The rational choice perspective suggests that the individual aspects of climate change could be framed in such a fashion that they require immediate and drastic action, which could lead to a situation in which veto players hesitate or fail to make use of their veto power.

Scale

For policy designers, the policy problem of climate change has an interesting mixture of scalar features (Faber, 2011). On the one hand, aspects of the problem do appear to require an international level response. On the other hand, these could be the incremental accumulation of many national and sub-national levels policies and programmes. Indeed, this is very much the philosophy underpinning the 2015 Paris Agreement, which introduced a climate governance system that is based on nationally determined contributions (Michaelowa & Michaelowa, 2017). Unlike building a bridge, the individual interventions are not 'all or nothing'; following standard incrementalist logic, they can accumulate slowly to match the scale of intervention required. This reasoning corresponds to the notion of polycentric governance as introduced by Ostrom (2005). In many ways, polycentric governance could be seen as a pragmatic response to the tendency for under-reaction to occur in climate policy (Jordan et al., 2015; Jordan, Huitema, van Asselt, & Forster, 2018).

Complexity

For a complex problem such as climate change with many possibilities for tipping points and non-linear interactions, the timing of interventions may be important alongside their content and extent (see Levin et al., 2012),

so that the lack of agility in some public institutions may contribute to failures and excessive lag in the policy system (see Jordan & Matt, 2014). With climate change, we might expect unelected civil servants (rather than politicians seeking re-election) to contribute more to the design of 'sticky' policy measures (Levin et al., 2012). The Clean Energy Ministerial founded in 2010 illustrates that there exists a group of countries that are willing to collaborate at ministerial level to develop policy measures. In doing so, each individual measure could constitute an under-reaction, but the sum of these could eventually build up to a proportionate policy response. In fact, following Fankhauser, Hepburn, and Park (2010), a continuous sequence of policy under-reactions might be more effective than a smaller number of much bigger reactions, as the latter could lead to the co-existence of climate policy instruments that undermine one another.

Conclusions

This paper has tried to address a number of issues that arise from empirically observable policy responses to climate change. Two main themes run through it. The first concerns organizations and the manner in which they can affect the ways in which the public sector makes policy, more specifically the extent to which it responds proportionately to changes in its operating environment. Following the cybernetic model, organizations are capable of reacting proportionately to changes in their environment. Neo-institutionalism offers a complementary view and suggests that organizations are also prone to produce disproportionate responses due to a range of factors, including the inherent nature of different policy problems. Although we know that differences among organizations do make a difference (see, e.g. Weaver & Rockman, 1993), institutional theory provides a means to unpack and explore those responses in more detail.

The second theme is that not all policy problems are the same, and that some conceptual understanding of the differences among problems could help analysts to understand better the capacity of public sector actors to respond proportionately. The rise of complex (Room, 2011), 'wicked' (Termeer, Dewulf, Breeman, & Stiller, 2013), or even 'super wicked' (Levin et al., 2012) problems, perhaps most notably climate change, render the capacity to respond effectively and proportionately all the more politically important. Both climate change mitigation and adaptation policies pose extremely complex questions for policy-makers attempting to design proportionate responses. Furthermore, the nature of the policy problems being addressed must be related to the approach to institutions to determine how effective the theories will be in explaining, or at least describing, the manner in which climate change is being or could in the future be addressed.

Third, we have attempted to connect institutional explanations with more individualistic explanations for policy choices, and especially disproportionate responses to policy challenges. Although institutional explanations can provide powerful explanations for policy choices, these explanations can be argued to involve some aggregation of individual decisions. This is more than a restatement of the familiar structure-agency dialectic, because it also emphasizes the importance of the content of institutions, especially ideas and values. At any rate, we argue that policy studies examining proportionality in policy responses should pay more attention to how individuals within organizations make decisions (see, e.g. Maor, 2012, 2014a, 2014b, 2016).

The characteristics of climate change do not suggest that proportionate policy responses are likely. Regardless of which form of new institutionalism we rely upon, the most likely outcome seems to be under-reaction. Among the different types, however, rational choice institutionalism allows us to formulate the most positive expectations since it pays more attention to the role of individuals. It is possible that individual change leads to changes at the level of organizations as new ideas become established, perhaps stimulated and facilitated by policy entrepreneurs (Jordan & Huitema, 2014a, 2014b).

In general, climate change mitigation policies appear more likely to be affected by under-reactions rather than over-reactions. But if scientific predictions hold true and the consequences of climate change manifest themselves more forcefully, it could mean that under-reactions in mitigation in turn generate pressures to over-react in adaptation. There are several reasons to expect this. First, adaptation measures are mostly planned

and implemented at the local level and hence correspond to a 'classic' task of urban and environmental planning (see, e.g. Bauer et al., 2012; Biesbroek et al., 2013). Consequently, local officials may have budgetary and bureaucratic incentives to engage in more activities. Second, the need for adaptation measures can be more directly linked to crisis events such as storms and floods, which are, necessary to move a policy issue up the political agenda (see Downs, 1972). Third, adaptation measures (flood protection schemes, sea walls, etc.) can be observed more directly by voters and hence may represent a more attractive option for vote-seeking politicians.

Acknowledgements

We acknowledge helpful comments on an earlier version of this manuscript by four anonymous reviewers. Annika Maretzki deserves credit for editorial assistance.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

We thank the COST network INOGOV – Innovations in Climate Governance (IS1309) (European Cooperation in Science and Technology) – for funding. Andrew Jordan also received additional support from the UK in a Changing Europe Initiative (ESRC PO 4030006272).

Notes on contributors

B. Guy Peters is Maurice Falk Professor of American Government at the University of Pittsburgh. He has written extensively in the areas of public administration and public policy.

Andrew Jordan is Professor of Environmental Policy at the Tyndall Centre for Climate Change Research, University of East Anglia. His research mostly concentrates on climate change and environmental policy in Europe.

Jale Tosun is Professor of Political Science at the Institute of Political Science, Heidelberg University. She works on a range of topics in the fields of public policy, international political economy, European integration, and public administration.

References

Adelle, C., & Russel, D. (2013). Climate policy integration: A case of déjà vu? *Environmental Policy and Governance*, *23*(1), 1–12.

Allison, G. T. (1971). *Essence of decision: Explaining the Cuban missile crisis*. Boston: Little, Brown.

Bäckstrand, K., & Lövbrand, E. (2016). The road to Paris: Contending climate governance discourses in the post-Copenhagen Era. *Journal of Environmental Policy & Planning*. doi:10.1080/1523908X.2016.1150777

Bauer, A., Feichtinger, J., & Steurer, R. (2012). The governance of climate change adaptation in 10 OECD countries: Challenges and approaches. *Journal of Environmental Policy & Planning*, *14*(3), 279–304.

Baumgartner, F. R., & Jones, B. D. (2015). *The politics of information: Problem definition and the course of public policy in America*. Chicago, IL: University of Chicago Press.

Biesbroek, G. R., Klostermann, J. E., Termeer, C. J., & Kabat, P. (2013). On the nature of barriers to climate change adaptation. *Regional Environmental Change*, *13*(5), 1119–1129.

Boucher, O., Bellassen, V., Benveniste, H., Ciais, P., Criqui, P., Guivarch, C., … Séférian, R. (2016). Opinion: In the wake of Paris agreement, scientists must embrace new directions for climate change research. *Proceedings of the National Academy of Sciences*, *113*(27), 7287–7290.

Bozeman, B. (2004). *All organizations are public: Bridging public and private organization theory*. San Francisco, CA: Jossey-Bass.

Brunsson, N., & Olsen, J. P. (1993). *The reforming organization*. London: Routledge.

Capoccia, G., & Kelemen, D. (2007). The study of critical junctures: Theory, narrative and counterfactuals in historical institutionalism. *World Politics*, *59*, 341–69.

Collantes, G., & Sperling, D. (2008). The origin of California's zero emission vehicle mandate. *Transportation Research Part A: Policy and Practice*, *42*(10), 1302–1313.

Craft, J., & Howlett, M. (2013). The dual dynamics of policy advisory systems: The impact of externalization and politicization on policy advice. *Policy and Society*, *32*(3), 187–197.
Demski, C., Capstick, S., Pidgeon, N., Sposato, R. G., & Spence, A. (2017). Experience of extreme weather affects climate change mitigation and adaptation responses. *Climatic Change*, *140*(2), 149–164.
Deutsch, K. W. (1966). *The nerves of government: Models of political communication and control*. New York, NY: Free Press.
Downs, A. (1972). Up and down with ecology – The 'issue-attention cycle'. *The Public Interest*, *28*, 38–46.
Faber, D. A. (2011). Issues of scale in climate change. In J. S. Dryzek, R.B. Norgaard, & D. Schlosberg (Eds.), *Oxford handbook of climate change and society* (pp. 479–489). Oxford: Oxford University Press.
Fankhauser, S., Hepburn, C., & Park, J. (2010). Combining multiple climate policy instruments: How not to do it. *Climate Change Economics*, *1*(3), 209–225.
Fleig, A., Schmidt, N. M., & Tosun, J. (2017). Legislative dynamics of mitigation and adaptation framework policies in the EU. *European Policy Analysis*, *3*(1), 101–124.
Gillard, R., & Lock, K. (2016). Blowing policy bubbles: Rethinking emissions targets and low-carbon energy policies in the U.K. *Journal of Environmental Policy & Planning*. doi:10.1080/1523908X.2016.1266931
Hall, P. A., & Taylor, R. C. (1996). Political science and the three new institutionalisms. *Political Studies*, *44*(5), 936–957.
Hay, C. (2011). Ideas and the construction of interests. In D. Béland & R. H. Cox (Eds.), *Ideas and politic in social science research* (pp. 65–82). Oxford: Oxford University Press.
Heikkila, T., & Isett, K. R. (2004). Modeling operational decision-making in public organizations: An integration of Two institutional theories. *American Review of Public Administration*, *34*, 3–19.
Hogwood, B. W., & Peters, B. G. (1983). *Policy dynamics*. Brighton: Wheatsheaf.
House, R. S., & Araral, E. (2013). The institutional analysis and development framework. In E. Araral, S. Fritzen, M. Howlett, & X. Wu (Eds.), *Routledge handbook of public policy* (pp. 115–124). London: Routledge.
Howlett, M. (2014). Why are policy innovations rare and so often negative? Blame avoidance and problem denial in climate change policy-making. *Global Environmental Change*, *29*, 395–403.
Howlett, M., & Kemmerling, A. (2017). Calibrating climate change policies: The causes and consequences of sustained under-reaction. *Journal of Environmental Policy and Planning*. doi:10.1080/1523908X.2017.1324772
Howlett, M., Tan, S. L., Migone, A., Wellstead, A., & Evans, B. (2014). The distribution of analytical techniques in policy advisory systems: Policy formulation and the tools of policy appraisal. *Public Policy and Administration*, *29*(4), 271–291.
Jacobs, A. M. (2011). *Governing for the long term: Democracy and the politics of investment*. Cambridge: Cambridge University Press.
Jones, B. D., & Baumgartner, F. R. (2012). From there to here: Punctuated equilibrium to the general punctuation thesis to a theory of government information processing. *Policy Studies Journal*, *40*(1), 1–20.
Jordan, A., & Huitema, D. (2014a). Innovations in climate policy: The politics of invention, diffusion, and evaluation. *Environmental Politics*, *23*(5), 715–734.
Jordan, A., & Huitema, D. (2014b). Policy innovation in a changing climate: Sources, patterns and effects. *Global Environmental Change*, *29*, 387–394.
Jordan, A. J., Huitema, D., Hildén, M., van Asselt, H., Rayner, T. J., Schoenefeld, J., … Boasson, E. (2015). Emergence of polycentric climate governance and its future prospects. *Nature Climate Change*, *5*(11), 977–982.
Jordan, A., Huitema, D., van Asselt, H., & Forster, J. (Eds.). (2018). *Governing climate change : Polycentricity in action?*. Cambridge: Cambridge University Press.
Jordan, A. & Matt, E. (2014). Designing policies that intentionally stick: Policy feedback in a changing climate. *Policy Sciences*, *47*, 227–247.
Lenton, T. M., Held, H., Kriegler, E., Hall, J. W., Lucht, W., Rahmstorf, S., & Schellnhuber, H. J. (2008). Tipping elements in the earth's climate system. *Proceedings of the National Academy of Sciences*, *105*(6), 1786–1793.
Levin, K., Cashore, B., Bernstein, S., & Auld, G. (2012). Overcoming the tragedy of super wicked problems: Constraining our future selves to ameliorate global climate change. *Policy Sciences*, *45*(2), 123–152.
Lindblom, C. E. (1959). The science of 'muddling through'. *Public Administration Review*, *19*, 79–88.
Lowndes, V., & Roberts, M. (2013). *Why institutions matter: New institutionalism in political science*. Basingstoke: Macmillan.
Mahoney, J., & Thelen, K. (2010). *Explaining institutional change: Ambiguity, agency and power*. Cambridge: Cambridge University Press.
Maor, M. (2012). Policy overreaction. *Journal of Public Policy*, *32*, 231–259.
Maor, M. (2014a). Policy persistence, risk estimation and policy under-reaction. *Policy Sciences*, *47*, 425–443.
Maor, M. (2014b). Policy bubbles: Policy overreaction and positive feedback. *Governance*, *27*, 469–483.
Maor, M. (2016). Emotion-Driven negative policy bubbles. *Policy Sciences*, *49*(2), 191–210.
Maor, M., Tosun, J., & Jordan, A. (2017). Proportionate and disproportionate policy responses to climate change: Core concepts and empirical applications. *Journal of Environmental Policy & Planning*. doi:10.1080/1523908X.2017.1281730
March, J. G., & Olsen, J. P. (1989). *Rediscovering institutions: The organizational basis of politics*. New York, NY: The Free Press.
March, J. G., & Olsen, J. P. (2005). *Elaborating the 'New institutionalism'*. Oslo: ARENA Program, University of Oslo.
McConnell, A. (2010). *Understanding policy success: Rethinking public policy*. Basingstoke: Macmillan.

Meadows, D., Randers, J., & Meadows, D. (2004). *Limits to growth: The 30-year update*. White River Junction, VT: Chelsea Green.
Michaelowa, K., & Michaelowa, A. (2017). Transnational climate governance initiatives: Designed for effective climate change mitigation? *International Interactions*, *43*(1), 129–155.
Nohrstedt, D. (2013). Advocacy coalitions in crisis resolution: Understanding policy dispute in the European volcanic ash cloud crisis. *Public Administration*, *91*(4), 964–979.
North D. (1991). Institutions. *The Journal of Economic Perspectives*, *5*, 97–112.
Ostrom, E. (2005). *Understanding institutional diversity*. Princeton, NJ: Princeton University Press.
Ostrom, E., & Basutro, X. (2011). Crafting analytical tools to study institutional change. *Journal of Institutional Economics*, *7*, 317–343.
Painter, M. & Pierre, J. (2005). *Challenges to state policy capacity: Global trends and comparative perspectives*. Basingstoke: Macmillan.
Peters, B. G. (2009). *Institutional theory in political science: The New institutionalism*. London: Continuum.
Peters, B. G. (2013). Information and governing: Cybernetic models of governance. In D. Levi-Faur (Ed.), *Oxford handbook of governance* (pp. 113–128). Oxford: Oxford University Press.
Peters, B. G., Pierre, J., & King, D. S. (2005). The politics of path dependency: Political conflict in historical institutionalism. *Journal of Politics*, *67*, 1275–1300.
Pierson, P. (2000). Increasing returns, path dependence and the study of politics. *American Political Science Review*, *94*(2), 251–267.
Room, G. (2011). *Complexity, institutions and public policy: Agile decision-making in a turbulent world*. Cheltenham: Edward Elgar.
Schmidt, A., Ivanova, A., & Schäfer, M. S. (2013). Media attention for climate change around the world: A comparative analysis of newspaper coverage in 27 countries. *Global Environmental Change*, *23*(5), 1233–1248.
Schön, D. A., & Rein, M. (1996). *Frame reflection: Solving intractable policy disputes*. Cambridge: MIT Press.
Schotter, A. (2008). *An economic theory of social institutions*. Cambridge: Cambridge University Press.
Schulman, P. R. (1980). *Large-scale policymaking*.New York: Elsevier-North Holland.
Soifer, H. D. (2012). The causal logic of critical junctures. *Comparative Political Studies*, *45*(12), 1572–1597.
Streeck, W., & Thelen, K. (2005). *Beyond continuity: Institutional change in advanced political economies*. Oxford: Oxford University Press.
Termeer, C. J., Dewulf, A., Breeman, G., & Stiller, S. J. (2013). Governance capabilities for dealing wisely with wicked problems. *Administration & Society*, doi:10.1177/0095399712469195
Tosun, J. (2017). The behaviour of suppliers and consumers in mandated markets: The introduction of the ethanol–petrol blend E10 in Germany. *Journal of Environmental Policy & Planning*, doi:10.1080/1523908X.2017.1299624
Tosun, J., & Lang, A. (2017). Policy integration: Mapping the different concepts. *Policy Studies*, doi:/10.1080/01442872.2017.1339239, 1-18
Tsebelis, G. (2002). *Veto players: How political institutions work*. Princeton: Princeton University Press.
Vasconcelos, V. V., Santos, F. C., & Pacheco, J. M. (2013). A bottom-up institutional approach to cooperative governance of risky commons. *Nature Climate Change*, *3*(9), 797–801.
Walgrave, S., & Varone, F. (2008). Punctuated equilibrium and agenda-setting: Bringing parties back in: Policy change after the dutroux crisis in Belgium. *Governance*, *21*(3), 365–395.
Weaver, R. K., & Rockman, B. A. (1993). *Do institutions matter?*Washington, DC: The Brookings Institution.
West, K. J., & Lee, H. (2014). Veto players revisited: Internal and external factors influencing policy production. *Legislative Studies Quarterly*, *39*(2), 227–260.
Wilensky, H. (1969). *Organizational intelligence: Knowledge and power in government and industry*. New York, NY: Basic Books.