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When does evidence-based policy turn into policy-based evidence? Configurations, contexts and mechanisms

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Many studies on evidence-based policy are still clinging to a linear model. Instead, we propose to understand expertise and evidence as 'socially embedded' in authority relations and cultural contexts. Policy-relevant facts are the result of an intensive and complex struggle for political and epistemic authority. This is especially true where science and policy are difficult to distinguish and the guidelines for validating knowledge are highly contested. To understand the mechanisms leading to policy-based evidence and the long-term consequences of these transformations more comparative research on the cultural and institutional 'embeddedness' of epistemic and political authority is needed.

key words evidence-based policy • expertise • regulatory science • policy-relevant knowledge

Introduction

Evidence-based policy has become ubiquitous as a general prescription for transparency, accountability and better governance (Davies et al, 2000; Nutley et al, 2010). However, many studies on evidence-based policy are still clinging to a linear model where research is clearly demarcated from policy, and knowledge transfer works more or less effectively depending on both the methodological and interpretive clarity of its sender and the political will and rationality of its receiver. These perspectives share a frustration that political and administrative actors 'express an eagerness to get all the policy-relevant scientific information they can. Yet, paradoxically and for whatever reasons, they are not influenced by such information if they receive it' (Caplan et al, 1975, 50).

In accordance with recent debates in Science and Technology Studies (STS) and evidence-based policy research we propose to understand expertise and evidence as socially embedded in authority relations and cultural contexts (Hoppe, 2005, Jasanoff, 2011a; Nutley et al, 2010; Jung et al, 2014; Strassheim, 2013; Strassheim, forthcoming).

Following this line of argument, the notion that scientifically approved facts are value-free, only to be ignored or, worse, ideologically 'polluted' when crossing the boundary into the zone of politico-administrative procedures might be too simplistic. More often than not, policy-relevant facts are the result of an intensive and complex struggle for political and epistemic authority on both sides; science as well as policy. This is especially true where science and policy are closely interlinked and the guidelines for validating knowledge are highly contested, as they are under conditions of 'regulatory science' (Jasanoff, 1990) or 'mandated science' (Salter, 1998). Moreover, what counts as evidence is defined by institutionally and discursively established conventions that differ between countries and policies. The epistemological status of facts and their political relevance might vary heavily depending on foundations of expertise that dominate a certain social context.

This article is structured by three main arguments: Firstly, apart from cases of fraud or manipulation of data for political purposes, we are suggesting that policy-based evidence making might actually be the flip side of evidence-based policy. In an attempt to neutralise ideologies and to eliminate power asymmetries from decision making, they are ignored, only to reappear in the debate about policy-based evidence. Public conflicts indicate that evidence-based policy rests on its own mechanisms of exclusion and selectivity, that is, modes of black-boxing, knowledge monopolisation, blame avoidance and over-simplification. As political and administrative actors are seeking for new ways to legitimise evidence-based policy by more robust standards and guidelines, the public debate about policy-based evidence becomes even more intense.

Secondly, deficits and side effects of evidence-based policy become more visible with both the rise and pluralisation of 'regulatory science' (Jasanoff, 1990). Government research agencies, advisory commissions and other forms of organised science-policy interaction in the public sector can be characterised by the involvement of governments and industry, and by the pressure to produce policy-relevant knowledge under complex institutional and time-related constraints. Especially in regulatory science, where the demarcation between science and politics is often uncertain, conflicts over the justifiability and accountability of expertise and evidence have emerged. Paradoxically enough, it can be shown that the attempts to realign and re-regulate the contested practices of policy-relevant knowledge production in terms of guidelines, policy assessments and stakeholder involvements have only increased the public awareness of the intensive intertwinement between science and politics.

Thirdly, as comparative studies on science-policy arrangements have shown, the way evidence-based policy works is to a significant extent the result of context-specific arrangements of politico-administrative institutions. Against the propositions of an 'objectivist epistemology' (Majone, 1996), the styles of public knowledge production, the practices of objectivation, and the foundations of expertise and evidence vary to a large extent between different countries. While this might in itself be less problematic, it has become an issue of contestation with the growing influence of globally active science-policy organisations, such as the International Panel on Climate Change (IPCC) and other transnational knowledge actors. Again, the attempt to find a common ground for these different 'civic epistemologies' (Jasanoff, 2005) based on sound science has given way to concerns about the politicisation of science, most notably in the case of the IPCC.

We do not deny the influence of ideologically driven manipulation for political purposes and the problems of gaming and cheating as unintended consequences of

management by numbers (Hood, 2007). From an 'embeddedness' perspective, however, current controversies on evidence-based policy and the criticism of what has been termed 'policy-based evidence making' (for an overview see Sanderson, 2011) might also be a symptom of a growing public awareness of complex authority relations and differing cultural contexts in the science-policy relationship. We call this the 'reflexive politicisation' of evidence-based policy.[1] Efforts to control and optimise the science-policy relationship are countered by even more scepticism and contestation. Public debates are triggered by the erosion of what has formerly been accepted as 'taken for granted until further notice' (Schutz, 1976, 288) in the production of policy-relevant knowledge. By making visible the contingency of existing arrangements, 'reflexive politicisation' might lead to innovation and learning. However, it might also have contrary effects: under conditions of power asymmetries, mechanisms of closure and selectivity in the production of policy-relevant knowledge evolve.

To understand these dynamics of evidence-based policy immunising itself against criticism and thus turning into policy-based evidence, more comparative research on the 'embeddedness' of evidence and expertise is needed. In our paper we give an overview of recent studies that tackle these questions. Furthermore, our aim is to set out the configurations, contexts and mechanisms of policy-based evidence making. Through a critical conceptual analysis we aim to clarify and contextualise what the evidence indicates in the political decision-making context. Our paper is organised as follows: We take the simultaneous praise and criticism of evidence-based policy as a starting point to argue that what seems to be a contradiction in the relationship between science and policy actually points to a research gap. After giving an overview of the literature on evidence-based policy and four central mechanisms leading to policy-based evidence making, we identify the organisational, instrumental and procedural dynamics of reflexive politicisation in regulatory science. In the final section we develop the perspective on evidence-based policy as institutionally and discursively embedded in social contexts. We conclude by re-stating our argument, and linking tentatively pointing out some further assumptions on the dilemma between evidence-based policy and policy-based evidence in the 'post-national constellation'.

Praise and criticism of evidence-based policy

After more than 20 years of evidence-based policy, the quest for facts as a means of policy enlightenment has not come to an end. On the contrary, there seems to be an international and transnational interest in assessing the effectiveness of public policies and in making well-informed decisions about policy programmes, instruments and institutions on the basis of expert knowledge, scientific research, stakeholder involvement, evaluations and statistical modelling.[2]

In the UK, evidence-based policy was adopted in 1999 in the *Modernising Government* White Paper (Cabinet Office, 1999). Since then, it has remained an integral element of public management strategies and policy practice. A recent paper by the Cabinet Office (2013, 1–3) takes the notion of 'what works' as a basis for policy (Davies et al, 2000), presenting 'our world leading *What Works* approach' as a 'fundamental principle of good public services', announcing the creation of a '*What Works* network of evidence centres'. This network is supposed to synthesise existing evidence, translate it in terms of the needs of users, publish and disseminate findings, and promote standards of good evidence across such policy fields as crime reduction, local economic growth,

early intervention and better ageing. A national advisor who sits within the Cabinet Office coordinates the network and provides guidance to ministers and stakeholders. The initiative by the coalition government echoes a similar approach under the New Labour government, the 'evidence network', founded in 2001 as part of an effort by the Economic and Social Research Council (ESRC) to provide access to information resources in social and public policy. This official commitment to evidence-based policy has been furthered by the so-called 'Nudge Unit', a behavioural economics insights team in the Cabinet Office installed in 2010 which has published several influential papers on the application of behavioural economics across policy fields, and proposing randomised control trials (RCT) as an important way 'of determining whether a policy is working' (Cabinet Office Behavioural Insights Team, 2010; 2012; Strassheim et al, 2014).

One of the few comparative studies in this field concludes that, despite certain differences, such a 'shared commitment' to evidence-based policy and practice can be observed across different countries (Nutley et al, 2010, 142). While there is significant diversity in political, administrative and cultural arrangements, evidence-based policy can be viewed as part of a broadening discourse on the role of knowledge in societies and a growing demand for knowledge-intensive public services. The former prime minister of Australia, Paul Rudd, referred to this international discourse when he stated in 2008 that '… policy innovation and evidence-based policy making is at the heart of being a reformist government' (Rudd, 2008).

However, the praise for evidence-based policy has being accompanied by increasing criticism. Since the 1970s the notion of policy being driven by statistics and research has been interpreted by some as an 'ideology of scientism' (Doherty, 2000; Rosenhead and Thunhurst, 1979). In his seminal paper on the origins of evidence-based policy in the UK, Solesbury (2001) points to the plurality and complexity of evidence, the role of power and authority in science-policy interaction and the misuse of knowledge for political purposes. Meanwhile in Australia, Marston and Watts (2003, 158) warn that there is

> a risk that 'evidence-based policy' will become a means for policy elites to increase their strategic role over what constitutes a social problem in a way that devalues tacit forms of knowledge, practice based wisdom, professional judgment, and the voices of the ordinary citizens.

Carol Weiss famously termed the policy-driven utilisation of scientific knowledge as 'endarkenment' (Weiss, 1980).

In the past few years, these criticisms have been perceived by some to be an inversion of evidence-based policy, leading to the label 'policy-based evidence making'.[3] If evidence-based policy entails the 'clear commitment that we will be guided not by dogma but by an open-minded approach to understanding what works and why' (DfEE, 2000), policy-based evidence is supposed to mean exactly the opposite: the failure to include relevant knowledge, the claim of distorted evidence when actually it is not, the interference with research and its opportunistic use, the fabrication, suppression, falsification and instrumentalisation of facts for political purposes.

The literature provides various examples of policy-based evidence making across countries and policy sectors. In studies on crime prevention it has been reported that policy makers base their stories about the success of family intervention programmes

on weak methodologies and biased samples, constantly ignoring the recommendations of science teams – a 'nightmare place to which populist political rhetoric and "policy based evidence" can deliver us' (Gregg, 2010, 16). In European immigration policy, evidence has been shown to become a 'resource for lending credibility to controversial claims, underpinning high risk decisions or bolstering the credibility of government agencies' (Boswell, 2008, ii). The 2009 Renewable Energy Directive which mandates the European Union member states' road transport fuel to comprise a minimum of 10% renewable content by 2020 has been described as a prime example of what Pawson (2006) calls the 'cherry-picking of evidence' (Sharman and Holmes, 2010). Similar concerns have been raised in diverse fields such as criminal justice (Hope and Walters, 2008; Marston and Watts, 2003), public health (Kemm, 2006), international development (Crewe and Young, 2002), food safety (Rothstein, 2013), the liberalisation of EU energy markets (Torriti, 2010), child care (Rüling, 2010), social work (Mullen and Shuluk, 2010), and the use of impact assessments, performance indicators and policy appraisal tools (Adelle and Weiland, 2013; Hood, 2010; Nilsson et al, 2008). These examples suggest that policy-based evidence making can be understood as a mode of double selectivity. Either evidence is neglected and distorted because it comes into conflict with political values and ideologies (that is, *normative selectivity*), or it is ignored and misinterpreted as a result of limited politico-administrative perception (that is, *cognitive selectivity*). Moreover, by resting exclusively on certain sources of epistemic and political authority while excluding others, policy-based evidence is deeply rooted in power asymmetries between actors or instruments of science-policy interaction.

From this double selectivity of evidence, four different mechanisms of 'policy-based evidence' can be identified: (a) *knowledge monopolisation* defined as asymmetry in the cognitive resources of actors may lead to cognitive closure, ignorance of knowledge pluralism and a more or less explicit tendency to protect the cognitive core of organisations or networks at the science-policy interface against contrary evidence (for an example see Halffman, 2009); (b) *blame-avoidance* and risk-aversion by strategies of spinning, presenting or showing evidence to shift responsibilities to other actors (Hood, 2007; 2010; Power, 1997); (c) *black-boxing* resulting from 'governing by numbers', complex statistical models and simulations, that lead to epistemic opacity and a culture of self-confirmation (Miller, 2001; Porter, 1995); (d) *over-simplification* imposed by large-scale planning schemes and management techniques based on a small number of rational principles, but which ignore local or practical forms of knowledge, possibly leading to failures in social order and the incapacitation of civil society (Scott, 1998). Table 1 presents these four mechanisms, ordering them by their dominant mode of selectivity (*cognitive* or *normative*), and by the kind of power asymmetries (*actor-related* or *instrument-related*) which make policy-driven production or utilisation of evidence possible.

Table 1: Mechanisms of 'policy-based evidence making'

	Asymmetries in epistemic and political authority relations	
	Actor-related asymmetries	Instrument-related asymmetries
Cognitive selectivity	a) Knowledge-monopolisation	b) Black-boxing
Normative selectivity	c) Blame-avoidance	d) Over-simplification

These modes of policy-based evidence making have raised serious doubts about the legitimacy and transparency of the science-policy nexus. Professional experts are being placed under increased public scrutiny while political actors are expected to refrain from ideologies and search for new modes of 'evidence-awareness' and 'intelligent policy making' (Sanderson, 2011). Social movement activists, scholars and professional reformers call for modes of deliberation such as roundtables, stakeholder conferences and increased public participation in policy advice processes (Fischer, 2009). Increasingly, evidence-based policy making is perceived as 'stealth advocacy' (Pielke, 2011), transforming public conflicts into debates between experts and immunising political issues against critique and opposition. Leaving aside fraud or manipulation of data, accusations of policy-based evidence might actually signify the reappearance of issues around ideology and power which are muted by notions of evidence-based policy. In her analysis of the global politics of transgenic crops, Kinchy (2012) has shown that as a response to protests by civil society movements, NGOs and farmers are in favour of a broader range of considerations in public governance and against science-based decision-making:

> industry groups assert that decisions must be based on 'sound science'. These moments of conflict indicate, that the scientization of governance, for from creating a neutral basis for decisions, has the effect of excluding less powerful actors from policy debate. (Kinchy, 2012, 3)

Similar observations on the hidden political dimension of evidence-based policy have been made with regard to the IPCC (Beck, 2012). In its insistence on the primacy of scientific evidence, the IPCC seems to be ignorant to the already dense relations in which scientific and political claims are interwoven.

> It allows IPCC experts to act in an overtly political manner while simultaneously claiming to be disengaged from politics. Climate science and policy, however, cannot be strictly separated, as the linear model of expertise implies. As a matter of fact, the boundary between facts and values invariably becomes fuzzy and science and policy become inextricably intertwined in controversies over climate change. (Beck, 2012, 9)

In an attempt to eliminate interests and power asymmetries from decision making, they are invisibilised, only to reappear in the debate about policy-based evidence:

> As a result, policy commitment and public consent are reduced merely to a question of whether the science is right or wrong. Ignoring the political context in which the IPCC operates is, paradoxically enough, instrumental in exaggerating the politicization of science rather than keeping problems away from the 'political whirl'. (Beck 2012, 9)

Like Kinchy's 'epistemic boomerang', evidence-based policy is hit by the recent public debate about policy-based evidence, reacting to these delicate interdependencies between de- and re-politicisation. As political and administrative actors seek new ways to legitimise evidence-based policy through even more robust standards and guidelines, the public debate about the flip side of this paradigm becomes more intense.

The next two sections address the reasons for this escalatory dynamic: the importance of regulatory science within policy processes and the international dimension of science-policy interaction.

Regulatory science: struggling for political and epistemic authority

In the production of policy relevant evidence, bureaucracy not only influences problem definition but sometimes also the standards of research performance and the criteria of its validity. The increasing interdependence of science and the modern state comes with a price as, 'ironically, the greater the utility of science in political affairs, the less it can maintain its image of objectivity that has been the very source of its political value' (Nelkin, 1987, 293). In return, science struggles to keep its authority in defining, describing and explaining reality. By demarcating 'good science' from illegitimate and subjectively tainted claims, by publicly presenting evidence as certain and reliable while reserving methodological or conceptual doubts for the backstage, science tries to maintain its reputation. Moreover, in carefully framing evidence and facts to gain attention in processes of policy making, science becomes involved in contestations over the political relevance and justifiability of certain arguments (Rüb and Strassheim, 2012; Star and Griesemer, 1989): 'It is through these processes that facts produced in one locality come to speak with authority to other questions even to other fields, times and places' (Morgan, 2011, 7). While the intensity of contestations may vary across national contexts and different policies, expertise and evidence are systematically the result of a struggle over interpretive power and political relevance on both sides of the margin. It is less a paradox and much more an inevitability in the interaction between science and policy that their interdependence leads to public praise and criticism at the same time, depending on the relative power of persuasion and the attribution of competences in a given situation (Gieryn, 1998; Jasanoff, 2011b; Pielke, 2013).

This is especially true for what Jasanoff terms 'regulatory science' (Döhler, 2012; Jasanoff, 1990; 2011b). Governmental research agencies, advisory commissions and expert networks seek to 'produce "techniques, processes and artefacts" that further the task of policy development' (Jasanoff, 1990, 77). While the concept has been developed in the US with its broad landscape of agencies and its culture of 'sound science'-based policy making, it has found widespread acceptance in international research on science-policy interaction (for an overview see Johnston, 2012). In areas of regulation such as climate protection (Beck, 2012), chemical regulation (Böschen, 2013; Halffman, 2005) and energy politics (Voss, 2007), regulatory science has become an integral and increasingly controversial part of policy making.

In contrast to academic science, regulatory science can be characterised by the involvement of governments and industry and by the pressure to produce policy-relevant knowledge under complex institutional and time-related constraints, sometimes because of imminent danger to public health and safety (see Table 2). Regulatory science:

> is more often done at the margins of existing knowledge, where science and policy are difficult to distinguish…. [The] guidelines for validating science in the regulatory context tend to be fluid, controversial, and arguably more politically motivated than those applicable to university-based research. (Jasanoff, 1990, 79)

Table 2: Regulatory and academic science

	Regulatory Science	Academic Science
Initiators	Government	Scientists
Institutional affiliation	Regulatory agencies, advisory committees	Universities, public and private research facilities
Goals	"truths" relevant to policy	"truth" of originality and significance
Motivation	Policy-driven	Curiosity-driven
Time frame	Statutory deadlines, political pressure or time pressure because of imminent danger	Open-ended
Audience	Policy-makers, affected industries, courts, media, consumers	Scientific community
Level of conflict	Often high, because of conflicting interests	Low, controversies stay inside the scientific community

Source: Jasanoff 1990: 80; Döhler 2012: 9 (modified)

Policy-based evidence making is often the result of this dense interlinkage between the political and the scientific sphere in regulatory science. This may lead to instances of 'advocacy science', where a complex body of scientific literature is culled, or funding found for new studies, with the aim of finding evidence that supports a regulatory decision, while downplaying contradictory evidence (Johnston, 2012). This has led to calls for a strict separation between the two spheres. However, such a formal and organisational separation between policy making and scientific knowledge production may also be problematic. In the case of the German food safety system, for example, the clear separation between 'risk assessment' and 'risk management' – the so-called 'Red Book model' (Millstone, 2009) – and the establishment of two different agencies in the aftermath of the BSE crisis, was supposed to prevent any political influence on existing scientific assessment or the identification of new health risks. However, there has been criticism that, especially under the conditions of complex risks or in case of a food safety crisis, the strict separation between the political management and the scientific assessment of risks may lead to public communication problems, coordination failures and a lack of adjustment between science standards and management necessities (Millstone and Zwanenberg, 2002). In the words of Martin Hirsch, former director of the French food safety agency AFSSA, 'We have clearly identified two dangers. The first is the confusion between risk assessment and management. The second danger is the risk of separation of one from the other' (see Böschen et al, 2002, 11). Consequently, in controversial areas such as genetically modified organisms (GMO) the German separation of risk assessment and risk management has been suspended, and both sides of risk regulation are coordinated again under the roof of one agency, as is already the case in the UK. It seems that 'wicked problems' like GMO, which

notoriously lack a clear definition and an optimal solution, pose a serious challenge to the linear model of evidence-based policy (Rittel and Webber, 1973).[4]

There have been several efforts to reform 'regulatory science' (Döhler, 2012; Johnston, 2012). These efforts to re-regulate regulatory science focus on (1) the organisational level, (2) instruments of evaluation, and (3) participatory procedures. However, the unintended consequences and problems resulting from these efforts have not succeeded in reducing the debates around evidence-based policy.

Firstly, the 'rise of the unelected' has been accompanied by numerous peer reviews, advisory bodies and guidelines (Vibert, 2007). Depending on the regulatory and administrative setting in each country, there are different approaches to control and coordinate non-majoritarian institutions, like regulatory agencies and government research organisations, in terms of science-policy interaction. In the UK, with its public management culture, the Food Standards Agency (FSA) is advised by the General Advisory Committee on Science (GACS) and the Social Science Research Committee (SSRC) on science governance and the use of evidence. Those and other committees are themselves regulated by several frameworks and good practice guidelines, ranging from the Treasury's Magenta Book (HM Treasury, 2011) and Green Book (HM Treasury, 2014) on the use of evidence and evaluations to a number of agency guidelines, codes of conduct and review programmes. In contrast, advisory committees in Germany are more often attached to ministries than agencies. Especially in the case of government research agencies, ministries have an interest in emphasising and protecting scientific credibility and neutrality, as such agencies provide policy advice and scientific evidence (Döhler and Bach, 2012; Döhler, 2012). Accordingly, the struggle for epistemic and political authority differs between both contexts of regulatory science. While in the UK contestation is focused on creating, controlling and disbanding advisory committees, the attribution of authority in Germany depends on the intricacies of interaction between ministries and agencies (Korinek and Veit, 2013; Rothstein, 2013).

Secondly, in the last two decades instruments of 'policy assessment' have been adopted rapidly in regulatory science around the world. Tools such as regulatory impact assessment (RIA), cost-benefit analysis (CBA), scenario analysis or computer simulations are routinely carried out in all OECD jurisdictions (Adelle and Weiland, 2013; Nilsson et al, 2008; OECD, 2009). Foss Hansen (2013) uses the concept of 'evaluation governance' to refer to governance based directly on evaluative information, that is governance initiatives anchored in systematic assessment of organisation, implementation, output and outcomes of public policy. While some instruments of evaluation have been made mandatory through legislation, and across most countries entail some form of stakeholder involvement, evaluation governance has been described as an example of 'diffusion without convergence' (Radaelli, 2005). Different institutional frameworks, purposes of assessment, modes of utilisation, coverage of impacts, qualities and levels of transparency as well as different roles in the policy process lead to a huge variety of practices (Adelle and Weiland, 2013). This variance is partly explained by the way political actors shape assessment structures and practices according to their preferences. In their comparative study of policy appraisal tools, Nilsson et al (2008) have argued that:

> tools are likely to be selected primarily on the basis of organizational routines and standard practices and on the expectation that they will produce evidence

> that speaks directly to, and supports, the core beliefs of governing coalitions ('politically based evidence making' as one of our interviewees in the UK government put it). (2008, 352)

Thirdly, the last decade has seen the introduction of participatory procedures such as lay involvement, round tables and nationwide debates (Felt and Fochler, 2008; Fischer, 2009; Jasanoff, 2003; Rayner, 2003; Wesselink et al, 2011). They are supposed to enhance the knowledge base of evidence-based policy, to improve the accountability of regulatory science and to reconnect the input- and output-dimension of political legitimacy. Again, the FSA provides a good example for the broadening of participation through multiple forms of consumer engagement, consensus conferences and stakeholder committees. In his detailed analysis of four diverse approaches at the FSA, Rothstein (2013) shows that participation procedures have become the object of conflicting expectations. Moreover, the longitudinal analysis of participative practices points to institutional dynamics of 'selection' and 'adaptation' to fit with policy demands. Rothstein argues that:

> such 'domesticating' processes, for example, sustain participative practices that can fit with expected methodological norms of evidence-gathering, but deselect those practices that cannot be adapted to fit entrenched conceptions of how participation can serve the public interest, or even undermine attempts to build wider support for policy. (2013, 17)

While stopping short of the automatism of politico-administrative logics to prevail over lay perspectives, Rothstein's analysis echoes other studies in the dynamics of participation in regulatory science (Bogner, 2011; Bora, 2007).

Taken together, these debates around regulatory science illustrate the organisational, instrumental and procedural dynamics of 'reflexive politicisation'. As evidence-based policy becomes formalised and professionalised, it also becomes disputable (Drori et al, 2003). As a result, the guidelines and standards of science-policy interaction are prone to struggle for epistemic and political authority. Especially in regulatory science, where the demarcation between science and politics is often uncertain, reflexive politicisation triggers conflicts over the justifiability and accountability of formerly unquestioned arrangements. The attempt to realign and re-regulate the contested practices and institutions of policy-relevant knowledge production in terms of the linear evidence-based policy model may lead to a temporary domestication. However, it should have become clear why in such configurations evidence-based policy is increasingly being perceived as policy-based evidence: not primarily because of ideological manipulation, but as a result of both the intricate and institutionally complex interdependencies between science and politics and the intensifying debate on the (reflexive) regulation of 'regulatory science'.

In the next section we are taking the analysis further to the international and global level of policy-based evidence, arguing that 'reflexive politicisation' might gain additional momentum by the activity of transnational knowledge actors.

Different countries, different evidence? Civic epistemologies and transnational comparisons

It was only recently that evidence-based policy became the object of systematically comparative analysis (Nutley et al, 2010; Rüling, 2010). Based on results from the NORFACE seminar series[5], six different countries (Iceland, Ireland, Norway, Scotland, the Netherlands and Sweden) are compared in terms of the role of different sorts of evidence in the policy process, the impact of social sciences on policies, and the strategies and interventions of evidence-based policy. While the results of the different country profiles presented in the study are only tentative, the authors argue that the influence of administrative and political traditions, the approaches to strengthen research supply, the extent of policy and practice demands for research evidence, and the initiatives to improve the link between the supply and the demand side of knowledge production vary considerably across the six cases. The Netherlands, for example, has an advisory system dominated by the Central Planning Bureau, an organisation that has possessed a knowledge monopoly in the public sector since the 1930s. They are the result of corporatist arrangements, securing the advisory positions of a limited number of actors and thus stabilising their influence on science-policy interaction in several policy domains, most notably in economic policy (Halffman, 2009; Nutley et al, 2010, 137). The Dutch example shows how politico-administrative arrangements are important in understanding how evidence-based policy works in particular contexts.

Similar findings have been made in a study on the transformation of child care policy in the UK and Germany. Rüling (2010) analyses the way child care was reframed as an 'economic issue' in both countries in the 1960s. In both countries, reframing had been based on a set of scientific studies, the results of which were used for political argumentation. However, while in Germany the emphasis was on increasing fertility and economic growth, British policy focused on social investments through a higher employment rate of single parents and the long-term educational benefits. Different models of evidence-based policy making can be observed in these examples. The British frame of reference for politically motivated selection of evidence is based on the liberal welfare state tradition; the German case of policy-based evidence making serves the purpose of legitimising the current agenda of family and employment policy. The author concludes:

> that the use of evidence is not 'rational' *per se*, but is used within a specific frame of reference which is contingent to the national debate or the welfare state culture. So, to put it in a nutshell, 'what counts' in policy-making is not 'what works', but rather 'what is defined as the problem'. (Rüling, 2010, 179)

A more systematic approach to tackling these differences in science-policy interaction has been presented by Jasanoff (2005; 2011b). With her comparison of 'civic epistemologies' in the US, Britain and Germany, she combines both the conceptual analysis of epistemic boundary work and the empirical in-depth study of different contexts of policy-relevant knowledge production (Table 3).

While the comparative analysis of differing 'civic epistemologies' is in its infancy, such research promises to shed new light on the conditions of reflexive politicisation across national boundaries. Based on Jasanoff's concepts, Beck (2012) argues that

Table 3: Civic epistemologies: what counts as evidence?

	United States *Contentious*	Britain *Communitarian*	Germany *Consensus-seeking*
Styles of public knowledge making	Pluralist, interest-based	Embodied, service-based	Corporatist, institution-based
Public accountability	Assumption of distrust; legal	Assumptions of trust; relational	Assumptions of trust; role-based
Practices of demonstration	Sociotechnical experiments	Empirical Science	Expert rationality
Nature of Objectivity	View from nowhere (formal, numerical, sound science)	View from everywhere (consultative, empirical common knowledge)	View from everywhere (negotiated, collectively reasoned knowledge)
Foundations of Expertise	Professional skills, technically most qualified experts	Experienced safe hands	Authorised institutional representatives
normative commitments	- Open access to information - Transparency - Public comment and criticism	- Issue-specific experience - Dedication to the public good - Balanced judgement	- Inclusion of all relevant voices - Willingness to accomodate reasons of others
administrative practices	- Freedom of information - Public comment - Legal challenge and review	- Nomination from the public - Principles of public life - Conflict of interest rules	- Representation of relevant institutional voices - Appointment of substitute members
advisory bodies	Pluralistic, interested, but fairly balanced (stakeholder)	Members capable of discerning public good (civil service)	Representative and inclusive of all relevant views (public sphere)

Source: Jasanoff 2005; 2011 (cumulated and modified)

public criticism around the IPCC is not only based on different interests in climate policy *per se,* but on the specific criteria for validating knowledge and evidence. By orchestrating international expertise, setting environmental standards and validating knowledge, the IPCC has gained authority in terms of epistemic as well as political claims. However, the 'consensus-seeking' style of expertise associated with German corporatism can not easily be made compatible with the British way of 'embodied' and 'service-based' knowledge production (Jasanoff, 2005):

> These forms of cultural divergence indicate that the relationship between scientific expertise, policy making, and public trust is neither uniform nor linear nor deterministic. The persistence of national differences signals a need for the role of science in future climate policies to be rethought. The question remains: if nation states such as Germany and the United States can diverge so greatly, how can credibility be established across international public arenas? (Beck, 2012, 7)

Indeed, the recent political and public debates about the role of the IPCC and its 'one-size-fits-all model of expertise' (Beck, 2012, 9) can be seen as a direct reaction to the all-encompassing claims of evidence-based policy. This is not an isolated case: as studies on the transnationalisation of knowledge networks and policy consultants have shown, the tensions triggered by the reflexive politicisation of evidence-based policy and the disputes about policy-based evidence making have already reached the 'global agora' of expertise (Stone, 2002; 2012).

Conclusions

In our paper, we take the simultaneous praise and criticism of evidence-based policy as a starting point to ask for the conditions under which it turns into policy-based evidence making. We have argued that what seems to be a contradiction in the relationship between science and policy actually points to a research gap. We propose to understand expertise and evidence as 'socially embedded' in authority relations and cultural contexts. Policy-relevant facts are the result of an intensive and complex struggle for political and epistemic authority *on both sides*, science as well as policy. This leads us to three main arguments:

Firstly, policy-based evidence making might actually be the flip side of evidence-based policy. Public conflicts indicate that evidence-based policy rests on its own mechanisms of exclusion and selectivity. As political and administrative actors are seeking for new ways to legitimise evidence-based policy by more robust standards and guidelines, the public debate about policy-based evidence becomes even more intense.

Secondly, this political dimension of evidence-based policy becomes even more visible in the context of regulatory science. Attempts to realign and re-regulate the contested practices of policy-relevant knowledge production through guidelines, policy assessments and stakeholder involvements have only increased the public awareness of the intensive intertwinement between science and politics.

Thirdly, the transnationalisation of science-policy arrangements poses another challenge for evidence-based policy making. The styles of public knowledge production, the practices of objectivation and the very foundations of expertise and evidence vary to a large extent between different countries. With the growing influence of globally active science-policy organisations such as the IPCC and other transnational knowledge actors, the 'one-size-fits-all' model of expertise is more contested than ever (Beck, 2012, 2).

Taken together, these three observations constitute the 'reflexive politicisation' of evidence-based policy. As evidence-based policy becomes increasingly professionalised and formalised, it also becomes more disputable, especially when confronted with 'wicked problems', where standards for science-policy interaction are prone to increased struggle for epistemic and political authority. Moreover, such struggles are even more probable under the conditions of transnationalised expertise.

By arguing that policy-based evidence flows from evidence-based policy's integral assumptions, this paper suggests fundamental questions to be addressed in future research. Who controls the transnational activity of expert networks? What should be the basic standards of scientific legitimacy and accountability under conditions of multilevel interaction? How could democratic expertise be designed? In particular, these questions need to be placed in the context of the 'post-national constellation', as international communication expands both horizontally, between political actors,

expert communities and lay people, and vertically through modes of coordination in multilevel systems (Zürn, 2012, 58). Rather than a disembedding of expertise and evidence, as the logic of evidence-based policy might suggest, we highlight the enduring challenges of reconciling the diverse contexts and mechanisms at play between different policy sectors and political cultures.

Notes

[1] Ulrich Beck has once used this term in his analysis of the 'risk society' (1992, 77). For a more recent discussion on reflexivity and politicisation in science-policy relationships, see the literature on agencies (Christensen and Laegreid, 2006), reflexive governance (Voss and Bornemann, 2011) and global governance (Zürn et al, 2012).

[2] Definitions of evidence-based policy making range from a narrow focus on effectiveness to a broad focus on all modes of knowledge-based decision making and evidence awareness in public policy and management (Nutley and Webb, 2000; Sanderson, 2002).

[3] For some major arguments on policy-based evidence see the debate between David Willetts, Steve Rayner, James Panton and Evan Harris at the 'Battle of Ideas' on 31 October 2010, www.battleofideas.org.uk/index.php/2010/session_detail/4085.

[4] We agree with the proponents of 'post-normal science' that there are complex problems that may be value-loaded and need extended peer communities for their solution. However, we prefer the term 'reflexive politicization' because it highlights the conflictive dynamics of such problems. It also omits the potentially reifying understanding of 'post-normal science' existing beyond or beside 'normal science' (Funtowicz and Ravetz, 1993).

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