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Muddling through with climate change targets: A multi-level governance perspective on the transport sector

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Abstract

The UK Climate Change Act 2008 commits to a reduction of 80% in national greenhouse gas emissions by 2050 compared to 1990 levels. This article explores what happens next where these top level aspirations are expected to be turned into radical action. It does so through examination of the transport sector, which is a highly complex, fragmented and multi-level delivery environment. The research draws on cases studies of four major cities with different governance structures within the two distinct, yet connected, national contexts of England and Scotland. It integrates a range of theoretical legacies, namely 'muddling through', multi-level governance, and positional analysis, to look across governmental layers and out to non-governmental actors at all levels. Underneath the 80% target, the framework for action remains unclear. Lower tiered authorities report difficulties in acting in a more comprehensive or rapid manner than upper tiers of government, largely because of the potential costs involved and a significant resource dependency on national governments. Ambition is also tempered by conflicts with economic growth objectives and the difficulties in aligning the objectives of the myriad of public and private organisations that need to take action.

POLICY RELEVANCE

The transport sector is seen to be a difficult sector in which to achieve early cuts in carbon emissions. Understanding how to mobilise the many public and private sector actors in the transport sector is a key challenge to be addressed in many developed countries. This article provides practical insights from real decision-makers about the difficulties that a slow incremental strategy creates. Whilst it builds flexibility in to future decision-making it also leads to short-termism and generates uncertainty about investment and policy choices. This allows carbon policy to be crowded out by other agendas, most notably economic growth. Whilst there are aspirations for green growth strategies that grow jobs and substantially cut carbon, these remain elusive in the transport sector with major new infrastructure often stimulating more carbon consumption. A clearer framework for carbon management is necessary if sound long-term mitigation policies are to be put in place.

Keywords

Multilevel governance, climate change, transport, incrementalism

1. Introduction

The UK has, in many respects, taken the lead on developing a framework for action to reduce CO_2 emissions. A key actor in the development of the Kyoto Protocol (1997) the UK has since gone on to become the first nation to commit itself, through the Climate Change Act 2008, to a legally binding target[1] of at least an 80% cut in greenhouse gas (GHG) emissions by 2050 (relative to 1990 levels). Progress is to be tracked by an interim emission reduction of 34% by 2020, with interim rolling five-year budgets (CCC, 2012). In Scotland, these targets have been taken further, with the Climate Change (Scotland) Act 2009 setting an 'interim target' of a 42% reduction in GHG emissions by 2020 with a requirement to set annual targets.

Domestic transport emissions account for 20% of UK GHG emissions and 24% of UK CO_2 emissions (Ryley and Chapman, 2012). It is the sector making the least progress with a reduction of just 1.4% since 1990 (CCC, 2012). To achieve an 80% reduction in carbon across the UK economy will require action across all sectors. Although reductions do not have to be equal across all sectors or to proceed at similar rates, transport must play a significant role in this process (DfT, 2009).

Solutions to reduce carbon from transport will necessarily involve a complex policy mix involving new technologies, reformed pricing structures and new forms of behaviour. There is considerable debate about what the pathways could and should be to any plausible future (Hickman and Banister, 2012). Giddens suggests that whilst there is now awareness of the need to act, there is a need to embed climate reduction policies "in our institutions and in the everyday concerns of citizens, and here […] there is a great deal of work to do" (2009, p. 4). He argues that the state is an "all important actor" (p. 5) from a local to an international level, in setting treaties and in enacting their delivery, in supporting embryonic technologies and in working with markets and the private sector to ensure that the true costs of climate change are reflected in prices. Banister et al. (2012, p. 486) however suggest that the "current organisational and institutional structures may be inappropriate when it comes to addressing climate change and transport" due to the complexity of the policy mix and the fragmented delivery environment.

Despite the apparent importance of the institutional environment to carbon management there have been few investigations exploring how the current institutions influence carbon management and the capacity of different governance strategies to improve the situation (Marsden and Rye, 2010); Anderton (2010) and Niemeier et al. (2012) being exceptions. There is a "mismatch between transport and environmental institutions" (Anderton, 2010, p. 57) and this mismatch complicates policy development and implementation. All these articles point to substantial risks of poor alignment, inadequate incentives and sanctions between decision makers at different spatial scales but Neiemeier et al. (2012) suggest that even where policy alignment can be achieved in principle "there are often vast disparities between the intent... and actual implementation" (p. 132). The tensions between institutions and the realities of local delivery where other policy concerns are at play are hypothesised as being particularly problematic. The existing evidence has been review-based and so it is important now to examine and explain actual implementation processes.

This article explores how, and indeed if, top level aspirations for carbon reduction are turned into radical action within a complex, fragmented and multi-level delivery environment. In terms of *significance*, it sheds important new light on the realities of policy implementation underneath the headline national target for carbon reduction. Put slightly differently, it reveals a stark 'rhetoric-

reality gap'. In terms of *originality*, the article has two novel components. First, a new combination of theoretical concepts is described which brings structure and insight to the interplay between complex governance structures and policy choice. This is done through the integration of 'muddling through', multi-level governance and positional analysis, capturing the important interdependencies of decision-makers in strategy development and delivery. The article then explores the facilitators and barriers to carbon reduction in the transport sector through a case-study based investigation grounded in four major cities with different governance structures within the two distinct, yet connected, national contexts of England and Scotland. In terms of *rigour*, this article presents the findings of a comparative case study method involving over fifty interviews with politicians, officials, pressure groups and a host of other actors from the local to the supranational level. The results of this first phase research were then presented, discussed and refined through a series of four focus-group workshops. The findings underline the importance of the vertical integration of carbon targets across spatial scales and the impact of competing policy agendas and actor perspectives. The carbon agenda does not sit easily with any of the existing, and distinct, institutional delivery structures; a finding which is of relevance well beyond the transport sector. More importantly however, the article concludes that the economic growth imperative, and an inability to overcome some conflicts with carbon policy, has dominated the delivery environment. The presence of a national target has yet to stimulate the adoption of a new coherent pathway to a low carbon transport system.

2. Theoretical tools

The policy problem in question requires a set of theoretical tools that are able to capture both the importance of policy pathway choices and the plurality of state and non-state actors that set, influence and deliver policy. To explore policy pathway choice this section presents a discussion on incrementalism versus comprehensive policy analysis, policy making, and policy change building on Lindblom's work (1959, 1979). The governance environment discussion is structured through an introduction to the key concepts of multi-level governance (Bache and Flinders, 2004; Piattoni, 2010). The section concludes with a new integration of these perspectives which also draws on Söderbaum's (1982) work on 'positional analysis'.

2.1 Incrementalism versus comprehensive analysis and policy making

Incrementalism is a method of analysis and policy making formalised by Charles Lindblom (1959) in the classical article 'The Science of Muddling Through' (see as well Braybrooke and Lindblom, 1963; Lindblom, 1979). Here we will present only some key concepts about incrementalism. For further readings see the reviews provided by Weiss and Woodhouse (1992), Allison and Saint-Martin (2011) and Howlett and Migone (2011), and the critiques provided by Dror (1964) and Lustick (1980).

In incremental decision-making there is no need for decision-makers to clarify their guiding values and objectives as a starting point (Lindblom, 1959). Empirical inquiry and selection of goals and values happen simultaneously. There is also neither the need to produce a consensual vision for the future nor to set out the best means to arrive there. Lindblom argued that this exercise requires unnecessary efforts and quarrels. Individuals might disagree on what they ultimately want and nevertheless agree that a certain policy is beneficial and should be implemented (even if they don't agree on the reasons why the policy is beneficial or to whom). Policies are selected on the basis of agreement on the need for their implementation rather than any shared acceptance of their outcomes or driving mechanisms. Incrementalism does not seek efforts to comprehensively analyse all relevant factors related to the policy under scrutiny as this is typically constrained by budgets,

time and/or imperfect analytical capacity. It instead focuses on the likely outcomes of making a small policy change in relation to what would happen if that change was not made, or was made differently. Based on the outcomes of a small change decision-makers implement a new small change, which also gives them more room for manoeuvre in the case where negative results are experienced. The last fundamental characteristic is that, in incrementalism, strong theories are not frequently relied upon. In this approach decision-makers adopt pragmatic understandings of reality as they are not willing to risk experiencing the large range of unpredictable consequences of comprehensive changes fostered by abstract and perhaps naive theoretical understandings. This is for Lindblom a possible sign of 'wisdom' (1958, p. 86).

By contrast, comprehensive approaches tend to adopt strongly theoretical arguments for justifying long-term, fundamental, policy changes. In this approach policy pathways are typically selected through an analytical process that seeks to incorporate all factors considered relevant. This is needed because the deep nature of the change requires a careful analysis of its consequences. The selection of guiding values and objectives is therefore the first step to make. These provide the bearings for the entire process of policy making, and more specifically to clarify what exact type of change is needed. The basis for setting climate change emission reduction targets implies a strong guiding objective, is informed by theories of climatic change and subsequent inferences of impacts. Such thinking resonates strongly with the comprehensive approach.

Forester (1984) provided insights about the conditions surrounding the likelihood of adoption of one or other of these approaches. He argued that what is deemed as a rational approach to a problem depends on the circumstances of the decision-making process. Using a bounded rationality theoretical framework he claimed that when a group of actors with clear and consensual goals meet in an environment characterised by simple interactions, perfect information, and plenty of time to make decisions, there are good conditions to apply the comprehensive method. However, as these conditions mutate towards greater complexity, the comprehensive approach is no longer suitable. This highlights an important tension for this case study. The policy design was proposed above to be comprehensive in its basis yet the delivery environment in transport is complex and contested (Banister, 2008; Bertolini et al., 2008; May and Marsden, 2010), suggesting a likely tendency to incrementalism in decision-making. The difficulties in setting meaningful targets that do not distort behaviour are significant even in stable delivery environments (Hood, 2006; Marsden et al., 2009).

Incrementalism and comprehensiveness can be considered as two ends of a spectrum (Lindblom, 1979) as shown in Figure 1. When one institution moves across this scale towards the left hand side it means that the institution is adopting a more incremental stance; moving towards the right hand side means accepting comprehensive action as preferable. This is always a relative assessment: it is difficult to argue that a set of policy choices is intrinsically incremental or comprehensive. Indeed, Institution B might consider itself as performing quite incremental policy changes; however if Institution A adopts even smaller incremental changes then B will appear to A as adopting a rather comprehensive approach (see Figure 1).

Figure 1

Lindblom (1979) has argued that a sequence of small incremental steps in policy making can potentially mean faster changes than one comprehensive change. Incremental change can also be accompanied by rapid changes or 'punctuated equilibria' (Hall, 1993). Incrementalism may however fail to generate the types of ambitious policy pathways which are considered necessary (Banister et al., 2008). This means that the opposite of an incremental approach is not necessarily a 'radical' approach. It is in theory possible to implement a quite radical change in the policy setting by means of many small incremental steps made one after another. In the same line of reasoning, to implement a comprehensive approach is not necessarily something leading to radical change. A comprehensive policy might be implemented in a very slow manner and therefore be perceived as leading to a quite prudent change in the policy setting. The level of incrementalism and comprehensiveness to be adopted should be seen as one of the variables that policy makers can manipulate when they aim at increasing the speed of policy change and not as synonyms of marginal and radical policy changes, respectively.

Policy change can also be 'cumulative' or 'noncumulative' (Cashore and Howlett, 2007). Cumulative policy change happens when succeeding decisions coherently point at the same goal, e.g. increasing parking charges to reduce driving in to city centres is supported by a subsequent increase in bus frequencies. Noncumulative policy change happens when succeeding decisions neutralise each other, e.g. increasing parking charges in the city centre is accompanied by allowing the expansion of peripheral shopping malls with free parking. Noncumulative policy change can happen for several reasons: the arrival in government of a new party with different political goals (Cashore and Howlett, 2007); fluctuations in the way a certain policy is viewed (e.g. nuclear energy policy) (Baumgartner and Jones, 1991) or a change in the political agenda. In this study, the economic downturn is a critical contextual change subsequent to the development of the Climate Change Act as was a change in government (in 2010).

Policy change pathways can therefore be characterised by means of determining how incremental or comprehensive they are (or, in some cases, how incremental or comprehensive they were *planned* to be); by means of determining the adopted speed of policy change (or, perhaps, the *achieved* speed of policy change as an actor might wish fast changes and only manage to implement them slowly), and by means of assessing whether they have cumulative or noncumulative effects. For further insights on these types see Durant and Diehl (1989, p. 196), Cashore and Howlett (2007, p. 537) and Levin et al. (2009 [2010]). Drawing on this body of work we caricature eight policy pathways as shown in Figure 2. For simplicity, we present Figure 2 using straight arrows although linearity is not assumed or implied. For example, a policy pathway essentially characterised by slow comprehensive change might include some moments when the speed of change is relatively fast.

Figure 2

The adoption of the Climate Change Act in 2008 with its commitment to achieve a reduction of 80% in GHG emissions by 2050 was a decision that maps on to the 'cumulative slow comprehensive' type. This Act was motivated by the theoretical understanding that climate change is a serious issue needing to be addressed (Stern et al., 2006). The distant time horizon (2050) is sufficiently long for new technologies and policy choices to be developed and, whilst still implying deep cuts, the long period can be associated with a slow speed of policy change. Recognising the uncertainties about progress in different sectors and the technological developments that might come to the fore, the

Act allows for interim budget periods, with recent monitoring suggesting the need for more rapid action in forthcoming budget periods (CCC, 2013). This remains within a comprehensive paradigm however as the interim targets have to be consistent with the 80% outcome.

2.2 Key insights from multi-level governance

The term 'multi-level governance' emerged from a ground-breaking analysis of the European Union structural policy (Marks, 1992) and was defined as 'a system of continuous negotiation among nested governments at several territorial tiers' (Marks, 1993, p. 392). These tiers – also referred to as 'governance levels' – can range from the supranational to the local. Hooghe and Marks (2003) expanded the conceptualisation of multi-level governance through a perspective of the governing purpose or function. Type I actors refer to general-purpose jurisdictions in which a wide range of governing functions are undertaken (e.g. the European Commission or a local authority). This contrasts with the task-specific jurisdictions of Type II, which are set up for a specific function or goal (e.g. the Office of the Rail Regulator or EuroCities). Multi-level governance is therefore a governance style in which, for example, coalitions of local authorities bypass national governments to influence the European Commission (Betsill and Bulkeley, 2006) or negotiate directly with industry to stimulate desired technological change (Marsden et al., 2011).

Figure 3 represents this type of interaction by means of the bidirectional arrow (1): a governmental institution (G) at Governance Level L-2 is negotiating with a non-governmental institution (NG) at Level L without interference of any of the institutions at Level L-1 (e.g. through a funding programme such as CIVITAS where cities bid for funds from the European Union to support the implementation of innovative transport measures). The arrow is bidirectional to express the idea that this relationship is not hierarchical. Multi-level governance is characterised by institutions and actors from a variety of levels continuously negotiating in loosely designed decision-making processes. Typically, both governmental and non-governmental institutions work together in these processes. The institutional interactions at the same level (see in Figure 3 the arrows marked with 2), or in-between levels (arrows marked with 3), can be formally established or more ad-hoc, with less emphasis on hierarchies than has typically been the case.

**Figure 3 **

Since its first publication in 2003, the relevance of Type I and Type II forms of governance have been identified in many empirical settings, particularly of relevance here is the work on cities and the governance of sustainability and climate change mitigation (Betshill and Bulkeley, 2006; Bulkeley and Betshill, 2005; Gustavsson et al., 2009). Significant instances of Type II governance are identified at both the local level with networks of public and private actors and at transnational level with networks of city based public and private actors (Betshill and Bulkeley, 2006; Bulkeley and Betshill, 2005). It is suggested that cities can indeed bypass the nation state to access significant resources to tackle climate change and to legitimise their leadership in the area. Variety has also been observed, for example in two Swedish cities Sundsvall and Växjö. In relation to climate change mitigation Sundsvall is shown to be more dependent on 'vertical' and 'intergovernmental' structures (Type I). Växjö is more characterized by 'independent action and self governance' with greater involvement of regional energy companies, universities and private enterprise (Type II), although here too central government grants remain important (Gustavsson et al., 2009, p. 71-72). In this article we use multi-level governance to define the settings of interest (Section 3) and as an entry point to identify the

state and non-state actors that may be of relevance to the study. For a full review, critique, and future research directions on multi-level governance see Piatonni (2010) and Bache (2012).

2.3 Muddling through meets multi-level governance

To understand the current approaches to policy pathway selection and the extent to which this is influenced by the governance setting requires an integration of the two theoretical frameworks outlined above. We have drawn on Söderbaum's work on 'positional analysis' to allow us to perform this integration (1992). Based on a systems thinking framework, positional analysis is associated with writings on institutional economics which highlight the importance of relationships between organisations and actors (Söderbaum, 1992). This means that a given policy issue (e.g. whether carbon emissions targets should be implemented) is not conceptualised as a merely technical problem and becomes a co-result of, and something influencing how, the involved parties conceptualise themselves, are institutionally organised, and relate to each other (Bromley, 1989; Söderbaum, 1993).

Figure 4 proposes a simplified representation of a multi-level governance network with four institutions. One is located at Governance Level L and three at Governance Level L-1. For simplification the status as governmental or non-governmental institutions is not considered. The Figure captures two concepts from the multi-level governance literature. Firstly, different institutions are located at different governance levels (e.g. national and local). Secondly, institutions maintain non-hierarchical interactions which are represented by means of the bi-directional arrows. These elements were drawn from Figure 1. We have superimposed the continuum of incrementalism and comprehensiveness to integrate the choice of each institution about their position on this continuum and, therefore, their relative position with other institutions. This means that institutions at different levels necessarily have different relative positions in the scale of which there are three possibilities. If two institutions at different governance levels adopt similar degrees of incrementalism their relative positioning or alignment is 'vertical'. If the institution that is at the higher level is more comprehensive, then their alignment is 'comprehensive over incremental'. The last possibility is 'incremental over comprehensive'.

Figure 4

Different positioning between institutions is likely to lead to different consequences in terms of the synergies and tensions experienced by involved actors. For example, under what conditions can lower tiers of government pursue more ambitious (rapid) comprehensive strategies than national government? Does lowest common denominator politics limit the ability of coalitions of local government actors to adopt ambitious comprehensive strategies? Will, as Stead (2008) suggests, the arguments for policies and resources related to individual sectoral remits create a tendency to incrementalism? Similarly, will the consideration of multiple policy agendas beyond carbon also increase, as Forester (1984) suggests, the likelihood of non-cumulative policy making as different agendas dominate different decisions? We explore these contentions and tensions through a series of case studies described below.

3. Methods and case studies

The UK's carbon management framework is acknowledged to have a "complex interplay of reserved and devolved responsibilities" (DEFRA, 2008, p. 12). This complexity is illustrated by the introduction of the Climate Change (Scotland) Act 2009 and the different competencies which the Scottish, Welsh and Northern Irish governments have for transport (MacKinnon et al., 2008). Our methodological approach was therefore to select two case study areas in England and two in Scotland to allow exploration of the extent to which the different institutional structures and governance arrangements that exist within England and Scotland at a national and sub-national level might explain differences in levels of carbon reduction ambition and policy progress.

The four case study areas selected were Leeds and Manchester City Regions in England and Edinburgh and Glasgow City Regions in Scotland. All four are major city regions and both pairs of national case studies are relatively close neighbours connected by major motorway and rail routes within one to two hours journey time. A brief description of each case study area can be found in Table 1. Case study research is not representative and, whilst there may be a strong logic to the site selection criteria above, we cannot rule out other cities or rural areas in the UK being quite distinct. Whilst not described here, a series of workshops with regional and national stakeholders were used to assess the transferability of the findings, suggesting that the themes which emerged are of broader relevance (see also emerging findings from Groer and Boltze, 2013, in Germany)[2].

Table 1

Fifty one semi structured interviews, involving 59 people, were conducted between Autumn 2011 and Autumn 2012. Four interviews were held at a European level, twelve at an England/UK level, ten at a Scottish national level with the remaining 25 at a local level across the four case study sites. In total three politicians were interviewed, nineteen government officials, seven public bodies or partnerships with entirely public sector boards, thirteen NGOs with interests across business and environment and the remaining nine with private sector transport providers. We believe that this represents an appropriate coverage of actor types at different scales given the structure of the case studies. Analysis was conducted by four research team members independently. Meetings were used to identify and agree key themes (e.g. incentives, uncertainty, competing logics, silos) from an initial sample of the interviews. These themes were then applied in reviewing the full sample of the interviews.

4. Findings

The findings are reported as a reflection on the different policy pathways that were mapped out in Figure 2, first by reflecting on comprehensive and incremental approaches and then cumulative or non-cumulative policy approaches as described in policy documents and through the interviews. There is then an exploration of some of the ways this matters to policy implementation within the systems of multi-level governance studied. This is not to imply that one concept defines another in a sequential sense; they are all interrelated. Further reflection on the overall implications is offered in the conclusion.

4.1 Comprehensive and Incremental Policy

There is no divergence between England and Scotland in the headline target of an 80% reduction in emissions by 2050, although there are minor differences on the detail of the anticipated depth of

emissions cuts along the pathway. The headline target was referred to by actors at all levels and, whilst typically referred to as challenging, it was taken as given. The Committee on Climate Change advises the government on setting the five year interim carbon reduction budgets required by the 2008 Act. It also issues an annual monitoring report and expert advice periodically. In its 2013 report to Parliament, it concluded that the UK has met the first carbon budget (to 2013) and is likely to meet the second (to 2018). However, "without a significant increase in the pace of emissions reduction, starting very soon" the third and fourth carbon budgets (to 2023 and 2038) will not be met (CCC, 2013, p. 10). The overall framing of carbon policy is comprehensive.

What follows from this within the transport sector is much less clear. At the time of the establishment of the Climate Change Act short term national sector-based targets were set in England, although these were relatively quickly abandoned. Now, in both England and Scotland the national level target is not further broken down for different sectors. The carbon accountability for progress within the transport sector at a national level in both England and Scotland is now through reporting against the achievement of various policy initiatives rather than against progress against targets (HMG, 2011; TSG, 2009). Looking at a national scale, the decision to not adopt targets but to set out lists of policy measures to be pursued is also aligned strongly with incrementalism, despite the comprehensive 2050 targets it sits under. For example, whilst the UK Carbon Plan talks about long-term decarbonisation of the vehicle fleet, the uncertainty in exactly how the competing vehicle technologies will unfold means that the Action Plan for transport is a list of 17 actions for transport (including consultation and review) all for completion by the end of 2013 (HMG, 2011, p50 and p211). This was not held by national level governmental actors to be an abandonment of the principles of long-term carbon reduction as the policies proposed are supposed to be consistent with feasible pathways to 2050 and indicative ambitions for each policy are given.

At a local level, the Committee on Climate Change has concluded that local authorities are critical actors with "significant scope to influence emissions in buildings, surface transport, and waste, which together account for 40% of UK greenhouse gas emissions" (CCC, 2012, p. 8-9). It estimates that opportunities to influence travel behaviour make up 20% of abatement potential in the sector, but local authorities are also important in promoting the roll out of other key parts of the strategy such as electric charging infrastructure. The lack of national commitment to specific carbon reduction targets within the transport sector was reported as placing actors at a regional or local level in a difficult position. In Scotland, for example, the national government agrees 'Single Outcome Agreements' where local government negotiate outcome focussed targets they will achieve. However, there has been no emphasis to include carbon and, as such, road safety remains the main transport outcome. This was seen to weaken the local political emphasis on resourcing carbon reduction policy. Only the Leeds region has yet adopted specific transport emission reduction targets, although Manchester will do so in the coming year. However, interviewees at both sites suggested that such targets were more aspirational rather than deliverable. The current economic downturn has led to the development of relatively conservative three year delivery plans in Manchester and Leeds. A national expert reflected that when cities do set out very ambitious targets it is rarely apparent how they will achieve them.

Local governments are not required to report their progress on carbon targets to national government and interviewees reported little interest in the subject from the local public. In that

sense, the presence of or intention to adopt a target in the English authorities has not yet stimulated any significant action relative to the two Scottish authorities that have not adopted a specific target. The policy packages that were discussed did not differ significantly in emphasis between the four cities (with the exception of a more ambitious tram network in Manchester – a feature of transport policy in the city for 30 years). In summary, the national 80% reduction target acts as an aspirational signal but does not clearly filter through the transport sector into a set of joined up delivery plans consistent with it. This does not mean that no actions are being taken that are consistent with carbon reduction. However, being comprehensive at a local level is a matter of taste and appears to be symbolic or aspirational comprehensiveness which appears to be underpinned by a pragmatic incrementalism.

"*it's always a mixture of the influence of government, our own ambitions locally, that Greater Manchester has set or the Districts have set themselves anyway, and then reconciling what's achievable and what's practical*" (Greater Manchester local government officer)

4.2 Cumulative and Non-Cumulative Policy

The theoretical framework in Section 2 brings to the fore the potential for conflicts between policy areas and for non-cumulative decision-making. At a local level, the complexity of developing a transport based climate plan was neatly summarized by an official:

"*as a strategy person, in our council alone we have 40-50 different strategy documents. There comes a point when in becomes not humanly possible to know about these things. And I know I think the local transport strategy is the centre of the universe, but I've a funny feeling there are people out there don't even know it exists*" (Scottish local government official)

Whilst the delivery environment is complex, the economic downturn was the largest single influence on the types of actions that were being planned for transport. This has been reflected in changes to political and spending priorities, logics of intervention and structures of decision-making. All of these relegated the relative importance of carbon policy and introduce greater potential for non-cumulative policy making which, in turn, slows the rate of policy change for carbon reduction. All of the government and business actors acknowledged that the current position was economy first, with any carbon benefits seen as a valuable but secondary benefit.

"*I'd rather know how to prevent unemployment as a more important priority than some of the stuff in the climate change legislation…maybe some of this [climate] agenda has to slide back a bit…*" (Member of Scottish Parliament)

"*politicians….they wanted to focus primarily on promoting growth and the economy*" (West Yorkshire local government official)

The fragile state of the economy meant that both public and private sector actors were unwilling to countenance the adoption of measures that increased costs or risked reducing traffic levels in ways that might disadvantage existing businesses or retail. This appears to be a significant brake on the ambition for faster adoption of behaviour change initiatives which involve demand management.

"*there's certainly a reluctance to do, to consider anything too radical. The emphasis is always on improving the public transport system…as I say it's a kind of rhetoric and reality, there's this kind of desire to say the right things in terms of the environment but a reluctance to follow through in terms of considering… discouraging people from bringing their cars into the town centre and so on*" (Glasgow local government official)

There has also been a change in emphasis towards infrastructure investment with this being seen to be a stimulus for economic growth. Whilst some infrastructure construction will stimulate lower carbon choices (e.g. electrification of rail, new tram systems) it is being introduced in a context which layers more choices for travel rather than constraining choice (Marsden et al., 2013) or seeking to lock-in the benefits of mode shift. The investment plans described were typically seen to be a necessary pre-requisite to unlock employment and cater for growth. Government funding streams such as those promoting behaviour change were also directed more strongly towards promoting growth over carbon reduction (for example, public transport investments that supported access to employment from unemployed areas were a higher priority than those which would take more commuters out of their cars). The shift in political priorities has also led the English coalition government to give private sector actors still greater importance within the local and sub-regional decision-making context. The establishment of Local Economic Partnerships is placing the private sector at the heart of infrastructure investment allocation decisions and this is now the main route for local infrastructure. In Scotland business has a voice through Scottish Enterprise and through groupings such as Sustainable Glasgow as well as the traditional routes such as Chambers of Commerce.

"*the local economic partnership are very keen to see transport interventions, as, as a key to economic growth in the area. Again, that's very focussed on economic growth, rather than a reduction in carbon*." (Member of West Yorkshire Integrated Transport Authority)

Businesses were prepared to support carbon reduction policies that either lead to a reduction in business costs (e.g. through energy savings) or where the additional costs are borne by the state. Interviewees were able to identify such 'win-win' solutions, but not enough of them to make a large difference. The overall reflection was therefore of non-cumulative policy development.

4.3 Multi-Level Governance

Lindblom suggests that incrementalism is both likely and sensible in complex policy areas and is not necessarily synonymous with slow progress. However, further examination of the responses of the actors in the system shows several ways in which the characterization set out above does appear to matter and which is influencing progress on the ground.

Figure 5 shows a very significant variation in the contribution of passenger and freight to emissions across the different devolved administrations and regions. There is also a variation of more than a factor of two between CO_2 emissions per capita between the highest (Peterborough) and lowest (Cambridge) cities in England. In the absence of a national goal for transport, it was not clear to the local participants how much of the anticipated carbon reduction should come from different areas. Should local governments adopt a comprehensive approach consistent with the overall national

target, work towards some other self-determined carbon reduction target or mirror national carbon policies as they are introduced? Questions were raised about how local authorities should deal with through traffic or the presence of a port within their boundaries. As indicated in Figure 4, each local authority was determining how comprehensive to be with uncertainty over whether this fits the expectations of other actors in the system.

**** Figure 5 ****

In the English and Scottish context leaving the ambition as an entirely devolved matter is difficult. The local authorities have no legislative powers and remain highly dependent on national government for resources for new projects (capital) and funding on-going activities (revenue). Only 34% of the revenue funding typically comes through local taxation. It is unsurprising therefore that the discussions around what was happening on carbon reduction revolved around schemes which have grant funding from central government (for cleaner buses, electric charging points and promoting sustainable transport). Our interviews with local government stakeholders frequently turned to the hollowing out of technical capacity and of reductions in core financial resources of 25% and upwards.

"*We have had our budget cut by £170 million over two years, last year and this year. And we are working on the basis that there are going to be further cuts in subsequent years... I think we've lost about a fifth of our staff across the board*." (Greater Manchester local government officer)

This position was mirrored in all case study sites and seems to be largely unrelated to the governance context although a new combined authority in Manchester with greater financial autonomy was seen to have the potential to improve this, although it was too early to show how in practice this mattered.

As the multi-level governance framework suggests, the policy environment is influenced by and influences non-governmental actors also. All of the local authorities particularly noted that the public transport operators retain freedom to set fares and routes and were not always consistent with the proposed policy pathways.[3]

"*bus companies have, increased fares erm... well above inflation… so, erm... and a lot of those, erm some of those outcomes, we don't have a lever to pull to change them, because they are decisions that are made by the bus companies*" (West Yorkshire local government officer)

The lack of clear policy direction at a national level was important to operators as it generates some uncertainty in investment priorities. In the rail sector, private sector companies bid for franchises to run packages of routes for 15 year periods. In the bid process, a train operating company told us that assumptions have to be built in about the level of environmental improvement to be delivered by a franchise. Where these improvements are also additional costs (e.g. which cannot be recouped through energy savings), the bidder has to make a decision about the extent to which including these costs risks making their bid uncompetitive financially. Their preference was for clear environmental targets which then create a level playing field for bidders.

Government grant funding for new lower carbon buses by contrast was seen to be accelerating adoption of hybrid technology in particular. Bus companies, invest in new vehicles with an eight to ten year life expectancy. The payback on the buses is a function of the purchase cost, maintenance costs, fuel savings and attractiveness to passengers. The current purchase premium for hybrid electric buses with lower CO_2 emissions means that purchases will only be commercially viable with additional government subsidy. It is not the role of business to voluntarily pay for external social costs and so the strategy adopted was to be follow the level of ambition set out by the availability of central government grants.

4.4 Fast or Slow?

The Climate Change Act was only established in 2008 and in some senses it is therefore too early to declare the speed of decarbonisation. Overall, the carbon budgets have been met but a greater rate of change is now needed. In the transport sector emissions are only fractionally below 1990 levels. They fell by 1.3% in 2011, to 110 $MtCO_2$ and early indications are that they may have fallen by a further 0.3% in 2012. Overall progress can be classified as slow from an outcome perspective, particularly since total vehicle miles have remained static since 2002. The reductions have resulted from a combination of improved new car fuel efficiency, high fuel prices and a slow economy which dampens travel demand. Progress on the uptake of electric vehicles has been slower than anticipated, the initial increase in biofuels has stalled over uncertainties regarding total environmental impacts of such fuels and there has also been limited progress on more fuel efficient 'eco-driving' (CCC, 2013).

The evidence from the interviews shows no signs of more rapid decarbonisation being led by local government. Five years on from the Climate Change Act and only one city had a transport facing carbon reduction target and all of the sites were still mired in discussions over how to account for emissions which suggests a lack of priority to drive change, for the reasons set out above.

5. Conclusions

The UK has been at the forefront in promoting climate change emission reduction and has had some early successes. It is now, as a more rapid rate of reduction in emissions is demanded (CCC, 2013), that the system is being tested for robustness and effectiveness. This is particularly true given the economic downturn that has overshadowed the introduction of the Climate Change Act. In the transport sector progress has been slow despite relatively favourable conditions.

The Climate Change Act and Climate Change Act (Scotland) are examples of comprehensive policy making where targets are set to meet scientifically derived emission reduction goals. It is apparent however, that the adoption of a clear long-term goal, whilst stimulating positive intent and action, is only the start of a complex web of negotiated policy processes to deliver real change. The carbon management system set out at a national level is essentially a series of incremental commitments which aim to follow a policy pathway that will lead to an 80% reduction. This is argued to allow for innovation and new technologies to emerge which we cannot yet fully foresee. This might be a sound approach but it is insufficient. The absence of a clear cascade of responsibilities from national to local level creates uncertainty about who should achieve what. Cities can self-determine their strategies in this uncertainty (and some have) but to no great effect and even the owners of the

strategies have doubts over how they can be achieved. One of the participants clarified the challenge by noting that "*it would be difficult to foresee a more cluttered landscape of institutions to take forward big policy issues in an integrated way. So everything depends upon partnerships and voluntary arrangements and so on, aligning where it is possible*" (Glasgow Local Government Official). The problem with this is that there is no clear agreement, at least not around carbon. Whilst the findings provide a pessimistic outlook, we do not conclude that cities or regional bodies cannot lead in the climate change reduction process. However, to do so is likely to require some independence of resource and a policy vision that allows them to prioritise this independent of the national level.

The lack of clarity of responsibility over carbon management is problematic but could be resolved or at least reduced if resources and the will to do so existed. Legal responsibilities for air quality are, for example, comparatively clear and were seen to drive change in local areas in ways that climate policy had not yet achieved. The clarity has not developed for two main reasons. First, in a resource constrained public sector focussed on economic growth, carbon management is not a priority. Second, the logics which are being exploited to restore economic confidence relate to infrastructure investment. Such investments in the transport sector seek to widen choice, stimulate travel and can work against carbon reduction. Although there is a hope that the vehicle fleet can be decarbonised there is currently no coherent 'green growth' narrative for the transport sector. Non-cumulative policy making was a major feature of the data. These contradictions undermine public and private confidence in the carbon reduction plan. Whilst this study sought to identify the potential importance of different governance arrangements, the conclusion is that without the right politics and policy settings in place the structures are of secondary importance.

The theoretical toolkit introduced has provided significant insight into the development of carbon policy. Whilst we conclude that the differences in structures of government between the four cases (and within that therefore between England and Scotland) have, as yet, relatively little explanatory power with regards outcomes, this does not diminish the relevance of multi-level governance. Contrary to previous expectations (Betsill and Bulkeley, 2006), there was a comparative absence of actors bypassing the nation state. The suggested limitations of a reliance on Type II organisations and the voluntary and private sector to deliver significant change (Bache and Flinders, 2004) were, however, confirmed. Importantly, the policy position adopted by the different agencies was not seen as an independent choice, being influenced by actors at the same level and, most notably, at higher levels. Understanding how to better interpret and influence these interdependencies is, we suggest, an important area for further work and it requires the binding together of governance and policy design, as achieved here.

The article began by asking how, and indeed if, top level aspirations for carbon reduction are turned into action within a complex, fragmented and multi-level delivery environment. Actual progress has been found to be generally non-cumulative and slow in the transport sector. The presence of a top level carbon target provides a stimulus for the intention to change and this is important. However, it is clear that it does not close the 'implementation gap' raised by Neiemeier et al. (2012). In complex policy spaces such as climate change, incrementalism is perhaps inevitable. If incrementalism is to achieve progress along a pathway to significant carbon reduction, then a clearer remit for carbon reduction for governmental and non-governmental actors at all levels is required and greater emphasis needs to be placed on the delivery frameworks for steering change. It also appears critical

to develop a narrative and set of interventions that are consistent with the persistent growth imperative if technological gains are not to be eroded by stimulating additional travel.

Endnotes

[1] Despite the hard language of 'legally binding' the Act does not include an enforcement mechanism and accountability is delivered through the establishment of an independent Committee and parliamentary scrutiny. See Hovi et al. (2012) for further discussion of the challenges of designing target enforcement systems.

[2] The stakeholder workshop reports can be found at www.its.leeds.ac.uk/transport-carbon.

[3] Edinburgh benefits from part ownership of one of the two major bus companies and so has slightly greater influence on matters such as partnership working for rapid adoption of new greener bus fleets.

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City Region	Population	Context	Carbon Policy
Leeds	2,954,700[a]	Leeds City Region was not a formal administrative area but was considered a functional economic area.[d] It has recently gained certain powers including greater control over transport involving establishment of a West Yorkshire Transport Fund.[e]	The City Region includes a private sector led Green Economy Panel which has produced an agenda for actions towards a low carbon economy. In keeping with DfT guidance on the 3rd Local Transport Plans (LTP3), the West Yorkshire LTP3 includes Low Carbon among its objectives and has a target for a 30% reduction by 2026.
Manchester	2,685,400[a]	Greater Manchester has been given powers by government allowing formation of a Combined Authority and Transport for Greater Manchester which has significant control over transport in the city region.	The Greater Manchester Climate Change Strategy (GMCCS) has a target of 48% reduction in carbon emissions by 2020. The Strategy includes plans for targets for emission reduction from transport through implementation of the Greater Manchester LTO3 and national funding including the Local Sustainable Transport Funds [f]
Edinburgh	1,600,000[b]	Edinburgh City Region includes nine local authorities. The Regional Transport Partnership	The City Region Economic Review describes intentions to develop a low carbon economy. Similarly the Regional Transport Partnership includes measures to reduce emissions from transport (as required by the 2009 Act)[g]
Glasgow	1,195,200[c]	Glasgow City Region includes eight local authorities	The 'vision for the Glasgow City Region 2008-2013 includes an objective of sustainable development which in turn includes mention of 'renewable energy and reduction of pollution.'[h] The Strathclyde Partnership for Transport Regional Transport Strategy, includes carbon reduction from the transport sector as an indicator. [i]

a. ONS 2011; b. Edinburgh City Region Economic Review 2011 ; c. National Records of Scotland (2012); d. Leeds City Region website; e. HM Treasury (18/09/12); f. GMCCS 2011; g. SESTRAN *Regional Transport Strategy 2008-2023*; h. Metropolitan Vision – our vision for the Glasgow City Region 2008-2013; i. Strathclyde Partnership for Transport 2008

Table 1: Case study descriptions