Locating climate adaptation in urban and regional studies*

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Abstract (submitted version only)

This paper aims to add new empirical and theoretical insights to the debate on climate change adaptation and regional and urban studies by linking the analysis of UK climate adaptation policy to the city-regionalist political processes and state structures. We argue, firstly, that UK climate adaptation policy has not adjusted to the rise of city-regionalism, and accordingly underplays the role of sub-national political interests and agendas in demarcating specific sectors and scales of adaptation. Secondly, climate adaptation policy has not only been slow to adjust to the rising significance of city-regionalism but also raises strategic policy questions about the longer-term trajectory of climate change adaptation in light of the territorial logic of the national competition state which currently frames effective adaptation planning, action and policy at subnational political scales. The paper argues that future research on climate adaptation governance needs to address the uneasy relationship between
the rise of city-regionalism, on the one hand, and the sector-led priorities of the competition state, on the other.

Introduction

This paper aims to add new empirical and theoretical insights to the debate on climate change adaptation and regional and urban studies by linking the analysis of UK climate adaptation policy to the city-regionalist political processes and state structures. We argue, firstly, that UK climate adaptation policy has not adjusted to the rise of city-regionalism, and accordingly underplays the role of sub-national political interests and agendas in demarcating specific sectors and scales of adaptation. Secondly, climate adaptation policy has not only been slow to adjust to the rising significance of city-regionalism but also raises strategic policy questions about the longer-term trajectory of climate change adaptation in light of the territorial logic of the national competition state which currently frames effective adaptation planning, action and policy at subnational political scales.

Drawing upon a study of UK adaptation policy and governance, this article challenges current orthodoxy that uncritically locates effective climate adaptation exclusively within national economic sectors but ignores subnational political interests, processes and state structures especially those coalescing around city-regionalist agendas. Although climate adaptation policy is rapidly being adopted by many nations (Massey, Biesbroek, Huitema, & Jordan, 2014), the UK state has arguably been ahead of the curve on climate adaptation policy since the 2008 Climate Change Act (Biesbroek et al., 2010). Nonetheless, UK climate adaptation policy has hitherto been delivered at the national scale through the UK National Adaptation Programme (England) (DEFRA, 2013), the Adaptation Delivery Plan: Climate Change Strategy for Wales (2010), Sector Action Plans (Scotland) (2009), Scottish Climate
Change Adaptation Programme (2013), and more recently the UK Climate Change Risk Assessment Evidence Report (Committee on Climate Change, 2017b). Whilst this positioning corresponds with the internationalisation agenda of the UK ‘competition state’, defined here as the state moving away from a welfare orientation by promoting increased marketisation through the liberalisation of cross-border trade and capital flows, re-commodifying labour, and privatizing public services (Genschel & Seelkopf, 2015), it fails to acknowledge other politico-spatial pressures that contribute to the devolved and politically fragmented character of climate adaptation governance, including the rise of city-regionalism as a discrete space of state policymaking and the re-assertion of ‘national’ political agendas in climate change adaptation governance across UK regions. Based upon evidence from the UK, it is suggested that adaptation is being sub-nationally reconstituted within a one-size fits all international competition state framework that fails to recognise how effective adaptation action needs to be move beyond dominant competitiveness discourses and engage with a range of local public, private and third sector stakeholders especially those engaged in city-regional processes.

We are cognizant that adaptation research in other countries, particularly in the Global South, have shown how different mapping techniques for adaptation and resilience planning at the city scale are heterogeneous, producing diverse understandings of resilience (Borie et al., 2019). Likewise, in the global North climate policy is increasingly led by regions and cities rather than national government, especially in the United States where the federal government is no longer committed to recent international climate agreements. However, the UK climate policy experience has tended to be more state-led, with national policy often dictating what local authorities (e.g. city councils) should be doing. The UK developmental context is certainly different from countries and cities of the Global South, yet regardless of developmental contexts, if countries need to formally legislate for climate change adaptation
all need to be more cognizant of respective place-based attributes and experiences to ensure climate adaptation policy is locally fit-for-purpose and takes into account the co-production roles of different urban and regional stakeholders (Howarth, Morse-Jones, Brooks, & Kythereotis, 2018).

Drawing upon findings of research conducted in three UK devolved regions (England, Scotland and Wales) between 2014 and 2017, this paper identifies three distinct processes shaping the strategic position of climate adaptation policy in the UK: (1) sector-driven territorial logic of the national competition state; (2) emergence of city-regionalism as an adaptation governance response to increased competition; and (3) the distinctive role that ‘national’ political priorities play in implementing climate adaptation across regions. The empirical research involved 28 interviews with national and subnational climate adaptation governance and policy stakeholders in: Cardiff (Wales); Glasgow (Scotland); and the Yorkshire and Humber sub-region (comprising Leeds, York and Hull) (England). These city-regions were selected to capture (a) the increasing importance of the city-region scale in national and subnational territorial policymaking in the UK (and hence also more widely) and (b) differences in how devolved national administrations within each region have dealt with the challenges of climate adaptation. The interviews reveal how climate adaptation policy has been slow to adjust to the rising significance of city-regionalism and national political interests in demarcating specific sectors and scales of adaptation planning in the devolved regions. At a practical level, the single-minded pursuit of ‘sectoral adaptation’ as a central plank of state competitiveness agendas hinders the communication of adaptation best-practice between policymakers and communities across different subnational jurisdictional policy spaces. This contradicts much of the adaptation planning literature which argues developing long-term adaptive capacity should be primarily through state rescaling and polycentric governance (e.g.
Adger, Arnell, & Tompkins, 2005; Amundsen, Berglund, & Westskog, 2010; Juhola & Westerhoff, 2011; Kythreotis & Bristow, 2017; Waters & Barnett, 2018). Despite recent attempts to align sectors and borders in climate risk research (Challinor et al., 2018), there remains significant differences in how these are epistemologically constituted. So, their conflation can be analytically dangerous given that sectors and borders frame specific types of adaptation response. Hence, we argue that future research and evidence that informs climate adaptation policy should pay greater attention to the role of territorial politics and governance in shaping how sector-based strategies are implemented in different national and subnational (regional and urban) contexts.

Section two briefly discusses the significance of climate adaptation in the UK since the accession of the 2008 Climate Change Act, with reference both to how the devolved regions address climate adaptation and to the emergence of city-regions as new spaces of the state charged with drawing together local authority climate action measures. Section three discusses how the spatial reconfiguration of climate adaptation in the UK has been influenced by the sectoral and territorial imperatives of the competition state in the UK. Section four utilises the interview data to illustrate how this spatial reconfiguration is shaped by discourses of international competitiveness, city-regionalism and changing subnational political priorities. We conclude by suggesting that future research on climate adaptation governance more generally, must address the uneasy relationship between the potential rise of city-regionalism as a distinct characteristic of the competition state, on one hand, and the sector-led priorities of the competition state, on the other.

2. Climate adaptation policy and the spatial reconfiguration of the state
Climate adaptation has evolved into an important climate policy imperative at international, national and, increasingly, subnational scales (e.g. Adger et al., 2005). Much has been written about the complexities of implementing state-led climate adaptation policy in the context of economic globalisation (e.g. Eakin & Lemos, 2006) and the various systemic competition pressures that are put on national states through the global neoliberal project that commodifies natural capital (Clark & York, 2005; Fieldman, 2011). The emergence of resilience as a central policy discourse that justifies this continued global neoliberal paradigm has been well documented (e.g. Welsh, 2014), and more recent work has attempted to highlight the importance of resilience in uniting different social, political and economic priorities in managing urban climate adaptation responses sub-nationally in the UK (Kythreotis, 2018; Kythreotis & Bristow, 2017).

Whilst we are cognisant that higher scale international pressures inevitably encroach upon the abilities of national and local states to implement more effective adaptation responses, there is a need to investigate specific examples of how national states have dealt with ‘downscale’ adaptation policy pressures that materialise sub-nationally. Governments in many countries accept that there will be a need to adjust to the impacts of current warming trends and that impacts will increase in magnitude and severity over the coming years (IPCC, 2014). Moreover, national climate adaptation strategies (as compared to mitigation strategies) have been viewed as constitutive of successfully tackling climate change (Berrang-Ford, Ford, & Paterson, 2011), arguably as a result of failed global mitigation efforts (Bassett & Fogelman, 2013).

National climate adaptation policy in more developed countries is part of a wider process of ‘eco-state restructuring’ whereby national states, including the UK, have responded
to growing international environmental legislation by selectively establishing new institutional and governance structures for managing economy-environment tensions at national and subnational scales (While, Jonas, & Gibbs, 2010). However, in contrast to the forms of eco-state restructuring experienced in low carbon mitigation projects, climate adaptation governance across the UK opens up the possibility of challenging the ‘top down’ territorial logic underlying environmental policymaking in the competition state by exposing emerging national spaces of climate adaptation to subnational pressures of democratic accountability. This could be viewed as a positive step given the attributes of successful climate adaptation being based upon more locally and place-specific forms of cultural, social and political sensibilities (Adger, Barnett, Brown, Marshall, & O’Brien, 2013; Measham et al., 2011; Vogel & Henstra, 2015). However, any devolved governance agendas are still subjugated by the sectoral approach that overarches UK state adaptation policy (Hjerpe, Storbjörk, & Alberth, 2015).

Sub-national climate adaptation responsibility has been highly structured and orchestrated at the UK national policy scale (Coaffee, 2013). Policy has principally evolved out of the 2008 Climate Change Act, which established national strategies on climate mitigation and adaptation. The Act set out a procedure for Climate Change Risk Assessments (CCRA) every five years (two CCRAs so far in 2012 and 2017) and led to the creation of a new independent advisory body, the UK Committee on Climate Change (UKCCC), which established an Adaptation Sub-Committee (ASC) to provide expert advice and scrutiny on adaptation. The Act also gave the UK Government an Adaptation Reporting Power (ARP) to direct other organisations (‘Reporting Authorities’) to report on current and future impacts of climate change on such organisations and outline proposals for adaptation.
The evidence-base of climate risks through the first CCRA in 2012 led to the statutory implementation of the UK National Adaptation Programme (NAP) in 2013, principally devised for England, with the devolved regions having to implement their own adaptation programmes: Scottish Adaptation Programme (2013), Welsh Sectoral Adaptation Plans (built on the Wales Climate Strategy 2010) and a cross departmental Northern Ireland Adaptation Programme (2013). Locally-led adaptation action through increased state and non-state governance are highly important (DEFRA, 2013), whereby the Local Adaptation Advisory Panel (LAAP) and the network ‘Climate UK’ provided links between central and local governments. Yet whilst such programmes enabled respective local authorities to work with other public and non-public stakeholders in local adaptation planning, it is not statutory for all UK local authorities to report on adaptation actions; stakeholder organisations involved in the first CCRA did so on a voluntary basis. This confirms critiques of such adaptation programmes for their lack of co-ordination, stakeholder involvement and unclear divisions of responsibilities (Biesbroek et al., 2010).

The 2012 UK Climate Change Risk Assessment (CCRA) assessed sectoral risks of climate impacts to the UK up to the year 2100, involving consultation with over 500 stakeholders from eleven different sectors (DEFRA, 2012: 17-18). This was to be used to inform future adaptation planning in the devolved regions, although both Scotland and Wales had already produced specific adaptation plans for various sectors because of their own respective devolved government’s environmental assessments and public consultations. The Climate Change Act of 2008 also enabled government ministers to direct certain bodies to prepare reports on adaptation. The sectoral approach to adaptation was taken up by all the devolved regions in some form, although each approach was allied through a risk-based sectoral approach to managing climate adaptation across the UK state (Figure 1). The shaded
area illustrates the most important sectors as defined through each devolved sectoral plan. Northern Ireland is included for devolved sectoral comparison purposes but was not part of the research. Getting cross-sectional responses was important because England, Scotland and Wales have approached adaptation policy in different ways because devolution has given each country certain policy autonomies, despite being statutorily bounded by the Climate Change Act (2008). This overarching legislation required a UK policy framework for national risk assessments every five years, a UK Committee on Climate Change (which comprises an adaptation sub-committee), the National Adaptation Programme (NAP) and the UK Adaptation Reporting Power (Committee on Climate Change, 2017a).

What is important for examining the sectoral focus of each devolved region, though bounded by the UK Climate Act, also enabled the researchers to ascertain how seriously adaptation is taken by each devolved nation. For example, the Climate Change (Scotland) Act of 2009 requires all public bodies (including local authorities) in Scotland to report on adaptation if required by Scottish Ministers. Additionally, Scottish Government funded ‘Adaptation Scotland’ through its own adaptation programme (The Scottish Government, 2013) which introduced an array of different adaptation and resilience community-based project initiatives. At the time of the research, Wales was already disbanding the Climate Commission for Wales, which had a specific adaptation sub-board to monitor Welsh Government progress on sectoral adaptation plans and were replacing this with other legally-binding legislation via the 2015 Well-being of Future Generations Act (Future Generations Commissioner for Wales, 2019) which set up seven long-term well-being goals that included a ‘Resilient Wales’. Additionally, the 2016 Wales Environment Act (Legislation.Gov.UK, 2016) attempted to legally marry up Welsh carbon emissions targets with UK 2050 emission targets (e.g. was mitigation focussed), although this Act did not really introduce anything
specific related to climate adaptation policy in Wales. England’s adaptation policy progress had been rather stunted at the national scale although the Local Adaptation Advisory Panel (LAAP) was designed to promote adaptation in local councils and draw other non-state governance actors into promoting bespoke local adaptation initiatives across England. However, local council adaptation plans in England has been found to be wanting in certain sectors like transport (Walker, Adger, & Russel, 2015). Hence, interviewing different governance actors in each devolved region of England, Scotland and Wales might reveal something more nuanced about devolved sectoral policy attention to climate adaptation across the UK, as well as telling us how such devolved adaptation plans were strategically aligning sub-national jurisdictional spaces, particularly city-regions, with upscale devolved and UK adaptation policies.

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Table 1 shows firstly the devolved regions’ sectoral focus included in respective adaptation strategies which could be seen to act as proxies for how seriously each devolved region was committed towards climate adaptation. Secondly, the timings in how each devolved administration were focusing on developing sectoral adaptation plans is significant. Scotland appeared more progressive than other devolved regions in formalising adaptation plans for certain sectors in tandem with the 2009 Climate Change Act (Scotland), Scotland’s statutory response to tackling climate change. In comparison to other countries, it is important to note that other devolved UK regions, like England, also developed climate adaptation as a distinct policy strategy through substantive authority (e.g. a legal framework), institutional order (e.g. ministerial responsibilities and mechanisms) and substantive expertise (policy documents and a cross-cutting governance structure that involves state and non-state actors) (Massey &
Huitema, 2012). In this sense, the UK state could be normatively seen as an international leader in climate adaptation policy (Massey et al., 2014; Tangney & Howes, 2016), but there were (are) important differences within the UK state that distinguish each devolved regions’ urgency and attention towards promoting a governance and policy agenda for climate adaptation. Indeed, the current 2017 CCRA reflects the urgency of climate adaptation assessment by bestowing a range of urgency scores (confidence levels) for environmental risks across different sectoral areas that encompass natural environments and natural assets (Committee on Climate Change, 2017b, p. 9).

Therefore, the UK approach regarding adaptation since the 2008 Climate Change Act is becoming more normatively attuned to both devolved regions and local needs and risks with respect to adaptation. However, whilst there are policy examples and institutional support mechanisms of ‘joined-up’ governance between national and subnational jurisdictions, like the LAAP and Climate UK, much of the evidence-base of risks regarding adaptation have been developed through the CCRA that took a sectoral approach to analysing climate risks. Hence, we argue that, on one hand, the UK state programme of adaptation has rescaled adaptation as an extra-territorial governance project across all the devolved regions. Yet on the other hand, the way in which sectoral risks have become a cornerstone of the very same UK state policy on adaptation points to a more nuanced tension in the territorial governance logics of climate adaptation in the UK today; one that positions the UK central state as maintaining ultimate control over how adaptation is discursively framed as a subnational political governance project. Hence, climate risk assessments are inevitably constrained by underlying normative values and goals that can constrain successful adaptation response (Adger, Brown, & Surminski, 2018). Such values and goals will inevitably be exacerbated and influenced by the Brexit process as the UK government moves to transpose European Union (EU) environmental
legislation into UK law through the Great Repeal Bill. Early indications at the time of writing suggest that climate-related legislation and subsequent planning may suffer (Cowell, 2017; Hepburn & Teytelboym, 2017) and climate targets previously driven through EU membership may be under-prioritised as the UK seeks to cement new free trade agreements around the world (Rayner & Jordan, 2016; Scott, 2016). At the UK national level, DEFRA's launch of the 2017 CCRA Evidence Report was given little publicity by DEFRA in comparison to the 2012 CCRA Evidence Report, and the 2017 CCRA was significantly under-resourced compared to the 2012 CCRA (Howarth et al., under review). The 2017 CCRA is based upon economic urgency and the effects of adaptation and socio-economic change on risk, whereas the 2012 CCRA did not include the effects of planned adaptation or socio-economic effects beyond population control (Humphrey, 2015). These recent UK climate policy horizons show how the governance of climate adaptation will undergo significant spatial reconfigurations as the UK state attempts to discursively frame, strategically-steer and align future climate adaptation policy with more pressing extra-economic priorities through adopting a sectoral risk-based approach.

3 Climate change adaptation and the rise of city-regionalism

Whilst there has been growing academic interest in describing and explaining the scalar politics of climate change governance (see Bulkeley, 2005), the emergence of city-regionalism as a ‘new state space’ (Brenner, 2004) with potential responsibility for climate adaptation remains under-researched.1 Whilst we recognise that effective urban adaptation policy and practice is highly contingent on the ‘activity space’ of the particular country in question

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1 This situation is not helped by efforts to ‘flatten’ scale as an ontological construct (Marston, Jones, & Woodward, 2005), which in turn encourage a mistaken view that (sub-national) territorial politics are causally insignificant if not downright antediluvian features in the landscape of state spatial reconfiguration (Jonas, 2012; Morgan, 2007).
hitherto research on city-regionalism has prioritised analysis of a possible causal relationship between the rise of competitive forms of city-regional governance and administration, on the one hand, and the internationalisation of the competition state, on the other (e.g. Jonas, 2013; Wachsmuth, 2017). However recent work suggests that the rise of city-regionalism as a domestic policy agenda further reflects how the state has sought to reconfigure territory in response to a host of pressing national political problems and tensions linked with globalisation, climate change and security (Harrison, 2010; Jonas & Moisio, 2018). For example, city response to climate change can benefit from a range of performance management criteria to better allocate resources and make more accountable streamlined decisions regarding climate change strategies (Jones, 2018). So, although climate change is increasingly recognised and framed as a source of ongoing tensions in the competition state, little has been written on its role in shaping contemporary territorial politics of city-regionalism within an economically developed national context where overarching statutory legislation is highly developed (e.g. UK at large) yet can be politically (re)constituted and (re)framed through certain institutionalised devolved powers of regions (e.g. Scotland, Wales, Northern Ireland).

There is growing evidence that city-regionalism is not solely framed by discourses of international competitiveness but also a variety of other social, political and environmental agendas, including sustainable development (Krueger & Gibbs, 2010). As cities around the world plan for both climate mitigation and adaptation (Bulkeley, 2013), city-regionalism is associated with new forms of collective action around social and environmental provision. Yet at the same time city-regions have ‘omnipresent institutional legacies’ (see Peck, 2016) that either enable or disable their ability to promote climate adaptation. For example, climate adaptation is being framed as a governance discourse across the devolved regions of the UK.
through the emergence of a more economically-centric resilience agenda for climate change policy and planning sub-nationally in the UK (Howarth & Brooks, 2017; Kythreotis & Bristow, 2017). The focus on sectoral risks in the CCRA for each devolved region could illustrate the emergence of a UK state-wide adaptation policy agenda governed by competition state territorial logics (that economically manage adaptation responses in the short-term), rather than adaptation being seen as a subjective socio-political and cultural process that requires more transformative, long-term anticipatory pathways of policy response (Adger et al., 2013; Eriksen, Nightingale, & Eakin, 2015; Kythreotis & Bristow, 2017).

As is the case for other aspects of urban and regional governance, climate-related policies and capacities increasingly draw on social relations and political structures extending well beyond the jurisdictional limits of the city-region, which in turn bring national and international economic and political priorities into the analytical frame of the region (Allen & Cochrane, 2007; Kythreotis, 2018; Prytherch, 2010). Climate governance in the UK has been shaped by more than forty years of international and national environmental regulation, the scale, scope and reach of which has broadened and deepened over time in response to rapidly-changing global and national political circumstances (While et al., 2010). Until recently, climate change initiatives in the UK were developed mainly as a response to measures undertaken at international and European Union (EU) levels. These include the 1997 Kyoto Protocol, the EU’s 2008 effort to allocate territorially-based greenhouse gas emissions (GHGE) reduction targets to its member states and the 2015 Paris Agreement. Under the EU’s 2008 effort sharing decision the UK was allocated a target of 14% CO₂ emission reduction by 2020 (Wurzel, Connelly, & Liefferink, 2016). Although the UK government has since ratified the 2015 Paris Agreement, the outcome of UK’s EU membership referendum in favour of leaving the EU has thrown into doubt Britain’s continued commitment to EU climate policies (Rayner...
Some argued that UK commitments under the Paris Agreement are unlikely to change after Brexit, and whether its carbon reduction commitments will remain joint with the EU or as a single party remains uncertain (Scott, 2016), but there are calls for the UK to include a target for achieving ‘net-zero’ emissions target in its Climate Change Act (Fankhauser, Averchenkova, & Finnegan, 2018). The UK government has recently announced plans to be carbon emission neutral by 2050 (Harrabin, 2019), but this inevitably requires bottom-up action (e.g. increased citizen pro-environmental behaviour) in addition to more strengthened policy action from government.

Simultaneously, UK climate change policy has always emphasized a strong national and regional orientation, particularly around GHGE (mitigation) targets as they are directly linked to wider economic policies that emphasise the importance of subnational contributions to a national low carbon economy agenda. The two main strategies of climate policy (mitigation and adaptation) are fragmented: whilst intrinsically related through practical implementation and management of risks and vulnerabilities at regional and urban scales (Laukkonen et al., 2009), mitigation has been the main focal point of international and national state policies on climate change because of the need to lower GHGE (Klein, Schipper, & Dessai, 2005). This wider territorial climate policy logic of prioritising lowering emissions first has trickled down to subnational climate policy agendas, (see Bulkeley, Broto, & Edwards, 2012), resulting in UK local government treating adaptation in an ad-hoc limited fashion because there lacks political and institutional support from central government. (Porter, Demeritt, & Dessai, 2015)

In summary, whilst climate adaptation is developing as subnational territorial governance in the UK, an adaptation agenda has been overtly top-down in policy focus (Adger et al., 2018), with little evidence of coherent responses to adaptation as a long-term issue within
the devolved regions (e.g. Flynn, Kythereotis, & Netherwood, 2016) and at local authority/city-regional levels (Kythreotis & Bristow, 2017; Porter et al., 2015). Whereas in developed countries climate actions are coalescing at municipal or subnational scales (Ford, Berrang-Ford, & Paterson, 2011), in the UK such actions are matched and framed within state competition logics through alignment with different economic sectors (see Table 1) since the UK 2008 Climate Change Act. The 2012 and 2017 CCRAs show continued evidence of adaptation being viewed solely in terms of the risks and opportunities that can emerge out of the physical climatic impacts that are, and will be, experienced across the UK up to 2100 (Committee on Climate Change, 2017b). This is also reflected in the language of policymakers, which points to subnational political discourse regarding climate adaptation being spatially reconfigured within blanket neoliberal resilience thinking to incorporate the private sector within such urban territorial logics (Kythreotis & Bristow, 2017; Romsdahl, Kirilenko, Wood, & Hultquist, 2017), where in fact there needs to be greater individual citizen engagement with both the science and policy domains in order to meet top-down international emission and temperature targets (Kythreotis et al., 2019). This sub-national adaptation policy ‘deficit’ will only be exacerbated by the UK leaving the EU as international legislation protects UK mitigation, but not adaptation commitments (Farstad, Carter, & Burns, 2018). This only creates a clearer pathway for future sub-national adaptation policy responses to be framed within the bias of national economic sectors that perpetuate the competition state, as the next section illustrates.

4. Climate adaptation and reconfiguring the UK state

The remainder of the paper reports the findings of empirical research conducted in three UK regions (England, Scotland and Wales) between 2015 and 2017. Our analysis is organised around three quite distinctive, yet at the same time potentially conflictual, processes shaping
the strategic position of climate adaptation policy in the UK state: (1) the sector-driven territorial logic of the national competition state; (2) the emergence of city-regionalism as an adaptation governance response to increased competition; and (3) the distinctive role that ‘national’ political priorities play in the implementation of climate adaptation across the UK regions. The findings are based on interviews conducted with 28 national and subnational climate adaptation governance and policy stakeholders in Cardiff city-region (Wales), Glasgow city-region (Scotland), and the Yorkshire and Humber sub-region (comprising Leeds, York and Hull city-regions) (England).

4.1 Sectoral climate adaptation and state competitiveness

Although not explicitly referred to in these terms in the interviews, the territorial logic underpinning the competition state emerged as an important issue amongst adaptation governance and policymaking stakeholders working across different state jurisdictional scales in the UK. One interviewee who worked at the local authority level and on the Local Adaptation Advisory Panel (LAAP), pointed out tensions between emerging UK state discourses of competitiveness (and austerity) and how this was affecting and shaping UK climate adaptation policy:

[W]e want to have a prosperous economy... affordable houses... people with the right skills and training...jobs availability, we want inward investment. We want to increase exports. And I think there is a very clear impact on business if they ignore adaptation measures. It will ultimately impact on their bottom line whether that is because their premises are flooded, the infrastructure network is flooded, and they can't get stuff moving... I think we need to do a little bit more to help businesses
understand that by taking resilience and adaptation seriously it can have an impact on their bottom line.

Climate adaptation is treated by the UK state and major financial sectors as a normative economic policy issue that has not progressed into firmer social and political action at the subnational scale – climate adaptation is framed by a discourse of international competitiveness, which in turn chimes with the low carbon city agenda approach by the UK state. Indeed, other work has highlighted how, in spite of the UK Climate Change Act, climate policy has not gained complete political traction and investor confidence because of the immediate costs to the state in having to react to uncertain risks and there has not been clear evidence of climate policy reform which need to involve changing (subnational) governance structures and alter existing economic monopolies if to initiate deeper structural political change (Lockwood, 2013).

Although the city-region has unlimited potential as an urban fix for such governance working (Carter et al., 2015; Kythreotis & Bristow, 2017), the UK state gives priority to climate mitigation over climate adaptation within this climate agenda, as the outcomes are intrinsically related to a more competitive UK state approach:

[T]here’s still very much a focus particularly in tough economic times on mitigation because you can see that you’re going to save money on mitigation. You know it’s a no brainer. You’re going to reduce your emissions. ... But other things for adaptation it’s difficult to quantify what you’re going to say because it might not be saving money.
The overriding attention to mitigation in subnational climate policy discourse is reflected in how local adaptation is approached by the UK state and the devolved regions. One environmental consultant in Wales pointed out how Welsh Government, through the Climate Change Commission of Wales, was pursuing an agenda for adaptation that focused specifically on sectoral opportunities that aligned with wider UK state economic policy agendas, rather than viewing adaptation as a more spatially discursive political governance construct:

That is down to the Climate Change Commission as well. They're putting all their bags into this sectoral action plan thing because it fits well with government. It fits the shape of the organisation... So tackling stuff by sector, if you take agriculture, who are the key factors there on agriculture? NFU, FUW, some of the big agricultural companies, some of the bigger landowners might take some notice, sectoral action plan on the shelf, yes that's very interesting...

This shows how the drive towards widened subnational adaptation governance has to contend with a variety of state infrastructural and managerial interferences, which have the power to subvert how adaptation tackles urban and regional vulnerability (Bassett & Fogelman, 2013; Eriksen et al., 2015).

4.2 Climate adaptation and city-regionalism

Nonetheless, city-regionalism is not exclusively driven by competitiveness at the expense of issues of social provision (Halbert & Rouanet, 2014; Jonas & Ward, 2007). This sub-section demonstrates how UK climate adaptation policymakers have encountered a range of ongoing infrastructural and collective provision challenges as climate policy has come to ground in UK city-regions. These challenges include issues related to housing, energy, fiscal
distribution, planning and the allocation of land uses. For example, one interviewee working for Natural Resources Wales highlighted how housing and transport issues in the Cardiff city-region needed to directly address future climate change:

If you look at this issue of housing targets... or air debate about, well where are 45,000 houses going to be built in Cardiff... if you just look at the city meeting arbitrary targets, then you may not arrive at what is essentially the best solution in terms of a sustainable or best climate change adapted solution... I'd like to see far more explicit recognition in the city region at that scale of planning for housing, transport.

In a similar vein, a local council officer from Cardiff highlighted the importance of city regionalism to wider environmental and climate policy agenda, “[I]n particular, looking at things like public transport and waste is being considered at the city region level when you look at project worth and how they’re coming together on that. Maybe the local authorities need to be even bigger...” This comment was interesting in that the forms of adaptation governance and policy recommended for the city-region actually originate and are influenced by stakeholders beyond the proximity of that specific urban area (Bulkeley & Betsill, 2005), to meet the burgeoning economic priorities of UK city-regions. For example, in Greater Manchester, urban political leaders embed strategic adaptation governance measures within urban spatial planning and policy frameworks by involving different stakeholders above and beyond councillors in Manchester Town Hall in strategies to reduce citizen vulnerability to climate impacts. They simultaneously indirectly meet infrastructural and collective provision challenges like housing development and greater access to sustainable transport (Carter et al., 2015). The Greater Manchester city-regional partnership have recognised the importance of shifting from blanket sectoral adaptation plans that do not take account of the
physical/topographical, cultural, economic and political diversities of the surrounding city-region to deal with a variety of climatic impacts, especially flooding (Carter et al., 2015).

The issue of using sectoral adaptation plans in dealing with various infrastructural challenges was also raised by another climate consultant interviewee working in the Cardiff city-region:

[T]ake it down to a local level [where], you get a clear kind of idea of the impacts given the topography, the nature of the rural economy, the number of farms, where they are, where they are related to the water catchments, what the transport infrastructure is like. You get a far more detailed and resonant picture... thinking a bit more long-term in our business planning, to adapt... [W]hat I am trying to illustrate is you can get into the detail of adaptation with a locally proximate picture. Whereas a sectoral action plan, what's that going to achieve? It might nudge government departments which is essential. But we shouldn’t be putting all of our eggs in a sectoral action plan basket.

This demonstrates that whilst strategically using the city-region to muster adaptation governance support and build widened capacity is an important political tactic, there remains a paradoxical need to practically address local adaptation challenges to prevent maladaptation. This highlights a tension between city-region adaptation being considered by policymakers as a strategic economic tool versus the practical action of adaptation implementation to reduce citizen vulnerability. North et al. (2017) highlighted in the context of urban austerity the conflict between effective climate (mitigation) policy implementation and green growth strategies in the post-industrial city of Liverpool. They argue that co-production governance can challenge the pre-existing neoliberal consensus of green growth as a framework for
implementing and justifying effective climate policy. Future adaptation policy in the UK therefore will continue to be governed by a trade-off between strategy and practical action with respect to climate adaptation.

Other interviewees in the Glasgow city-region swiftly pointed out how a new City Deal, like that in Manchester, could attend to this tension by solving infrastructural economic challenges that take account of future climate impacts:

Critical infrastructure doesn’t begin and end with the boundaries of the city or local government. We also link to the recently announced ‘city deal’, which is the first one in Scotland... similar to the ones in Manchester and elsewhere... it is an infrastructural development ... it is often about economic development, roads, rails and so on, we are also looking at an infrastructure that protects, preserves and adapts other forms what is aging and crumbling infrastructure, so key walls along the river, we would also like to issue a green infrastructure that is a key part of that.

Another interviewee from Glasgow city-region supported the idea of City Deals (agreement between central government and a city to enable the city to take greater responsibility of local decisions regarding economic growth and public spending) that encompass the city-region to embed adaptation into infrastructural provision:

In terms of adaptation action and the governance of it and the relevance of city regions because of those economic realities of the city region, I would have said yes, it [a city deal] makes most sense and because of the interaction between things like catchment, river catchments and cities, you know the boundary of the city isn’t the
relevant place to stop or to start your kind of governance arrangements or your decision-making processes.

Our findings illustrate how future infrastructural challenges of UK cities will play a significant role in how adaptation policy is embedded within city-regions. Importantly, it shows how planning adaptation through sectoral-based approaches may not be successful given that effective adaptation action and reducing urban and regional vulnerability relies on a need for policymakers to embrace the idea that city-regions are socially diverse geographical spaces where a ‘one-size fits all’ national adaptation policy framework does not work. Measuring adaptation responses in a more comparable conceptual way has is difficult given the heterogeneity of how different jurisdictional territories respond to climate impacts (Dupuis & Biesbroek, 2013). Nonetheless, city-regions have adopted different climate leadership strategies to deal with infrastructural and collective provision challenges, especially in traditionally structurally disadvantaged cities, but remain dependent on higher political scales to ensure that such leadership can be resourced and supported (Wurzel et al., n.d.). Hence, we find that adaptation governance in UK city-regions rely heavily on polycentric systems of policy and governance to ensure that specific city-regional economic and environmental challenges are met.

4.3 Climate adaptation and the national question

Our interviews also highlighted the emergent importance of subnational priorities, which are increasingly articulated in relation to UK climate adaptation policy. For example, one interviewee from Natural Resources Wales argued how national priorities at the UK level regarding climate change has enabled the Welsh Government to designate other subnational actors more power in shaping local and regional adaptation policy responses:
The Climate Change Act 2008... gave the Welsh Government a power to issue guidance to bodies in Wales on how to adapt to climate change... to designate certain key organisations as reporting authorities, and then to direct them to produce a report showing how they were adapting to climate change.

In Scotland, a more developed relationship between national and subnational stakeholders was in evidence because of national legislation, as mentioned by a Glasgow City Council climate officer:

Scottish Government sit on sustainable Glasgow, ahead of climate change... so [we are] very closely linked to them and whatever political aspects within Scotland, why is lay administration and the Scottish Government, we get on well with the civil service on a practical basis, particularly what works in Glasgow works for Scotland... In terms of other partners, we have got a lot of public sector partners. I mentioned to you it includes the NHS, Strathclyde partnership with transport, a public sector planning organisation, public transport. Universities and so on.

Our interviews found evidence of the devolved regions making links with subnational adaptation stakeholders where non-state groups were integral to this new adaptation governance emanating out of national legislation. However, the types of governance promoted tends to coalesce around the idea of sectors as forming the major response to climate adaptation: “The sectoral adaptation plans are part of Welsh Government’s wider adaptation strategy for bringing action across the five sectors in those plans.” However, he goes on to explain how some major issues remain the remit of national adaptation policy:
In terms of the reserved issues then... DEFRA’s National Adaptation Programme would pick up things like major infrastructure, but that’s really more or less [of] it. In terms of most everything else, then it’s down to Welsh Government to draw up its own adaptation programme.

This caveat illustrates how transitions from national to subnational independence on determining the types of adaptation policy responses that are locally implemented remain influenced by national policy priorities that ‘sectoralise’ adaptation responses. This has come under scrutiny from third-sector groups working on environmental issues who felt adaptation was more about the spaces in which people lived rather than sectors. As one climate officer from a third sector organisation working across Wales argued:

People don’t really know where to start to think about it [climate adaptation]. We did some work with the third sector partnership council... that involved talking to third sector organisations and saying what do you need? ... But they just really didn’t know what’s the next step... So we’ve come to a bit of a block there on it... there is interest but people need signposting and they need some specialist guidance on what to do, because people aren’t experts in these fields and it’s such a potentially significant field people think well I can’t just take advice from anyone, it has to be somebody that we respect and we trust.

Ad-hoc subnational adaptation policy responses were also suggested by another climate consultant working with several Welsh local authorities on local climate adaptation issues:
Well the question is, is it going to influence action on the ground? If we have a climate, well we do have a Climate Change Act. We have an adaptation plan which that's a national framework. And we have local authorities there just bumbling along doing what they've always done. Where’s the connect? The connect is in the guideline, themissive, the remit, kind of carrots and sticks to push local authorities to think about this more. And when they think about it more and start developing that local narrative you can get to practical stuff very, very quickly rather than motional, sectoral and abstract...

So, whilst national adaptation policy has given subnational stakeholders the policy tools to actually implement a form of subnational adaptation governance, this largely depends on local authority will to invoke policy change. Changes to national policy priorities considering Brexit will inevitably have an influence on the way adaptation is positioned and rolled out across the devolved UK regions. The fact that major infrastructure decisions in the context of adaptation remain in the hands of the NAP, and therefore, this sectoral approach, illustrates an ongoing national-subnational governance tension. As the same climate consultant continued:

Well the regional is action as well because you have key actors in adaptation working at regional level. So that's definitely about action. I think developing at a regional picture is very, very important. I’ll give you an example. We were doing some work in Powys. It was around futures. But involved climate adaptation. We had maps out. And people were there from Ceredigion…and all of a sudden the penny dropped. How reliant Ceredigion was on Powys getting its climate adaptation right because of transport networks. So I think there is a role particularly around infrastructure which is regional and catchment which is regional. So in a sense the local and regional should
be about narrative, capturing the risks and opportunities and working on those shared
risks and opportunities. But you can't kind of put a fudge in this uniform kind of frame
on Wales and say there's five regions where climate adaptation should work."

Overall, the ‘national’ question in respect of climate adaptation is a focus of ongoing tension,
political debate and negotiations, which are only likely to intensify as the Brexit process
unfolds.

6. Conclusions

This paper has examined how climate adaptation governance fits within the UK state
during a period of profound political tensions and uncertainties which are changing the balance
of power between the national UK state, the regions and their constituent city-regions. The
question of whether and in what form a discrete ‘national’ policy on climate adaptation exists
is rendered increasingly problematic by recent devolutionary trends and the rise of city-
regionalist agendas. Considering this, the UK currently offers a unique and timely platform to
examine the emerging urban and regional policy horizons with respect to climate adaptation.
However, we argue that further research progress on climate governance is hampered by a
failure to recognise the rise of city-regionalism as a distinct and causally significant new space
of politics and policymaking inside the state.

Drawing upon the findings of interviews with climate adaptation stakeholders, the
paper has provided new insights into the way regions have responded to climate adaptation by
incorporating it into sub-national political priorities. Many interviewees paint a positive picture
of how emergent national adaptation priorities have catalysed a more inclusive governance
project sub-nationally. However, deeper analysis of interviews reveals interlinked nuanced points regarding sectoral governance of adaptation across regions. In concluding, we highlight two themes that warrant further theoretically-informed empirical research.

Firstly, we find that current studies of climate adaptation policy are not sufficiently equipped to recognise the rise of city-regionalism and therefore underplay the role of sub-national political interests and agendas in demarcating specific sectors and scales of adaptation planning across regions. The pursuit of ‘sectoral adaptation’ as a central plank of state competitiveness agendas obscures the subtle ways in which adaptation best practice is communicated between policymakers and communities across different sub-national political jurisdictions and policy spaces. Consequently, research on national climate adaptation policy often fails to acknowledge the role of territorial politics in shaping how sector-based strategies are implemented in different national and subnational (regional and urban) contexts. On the one hand, this sectoral approach enables the state to reign over devolved and subnational governance adaptation responses and has been influenced by discourses of international competitiveness, city-regionalism and changing subnational political priorities. On the other hand, city-regionalism has opened up a strategic space for other material interests and rationalities to shape climate adaptation policy from below. Since city-regions are inherently socially diverse spaces where interests in collective social provision often override those relating to economic growth and competition, there is further scope for climate adaptation policy to deviate significantly from the national norm.

Secondly, and focusing more directly on the UK context, climate adaptation policy has not only been slow to adjust to the rising significance of city-regionalism but also raises strategic policy questions about the longer-term trajectory of change as the UK prepares to exit
the EU. Notably, there are serious questions raised about the future role of climate governance in the devolved regions of Scotland and Wales and their relation to the rest of the UK as the terms of EU exit are negotiated. Will regions want to renegotiate existing climate agreements with UK government? How will national and sub-national climate adaptation policy feed into other policy debates such as future trade agreements with the EU and non-EU partners? How does climate adaptation policy influence the internationalisation of the UK competition state in the medium to long term? Similar questions could likewise inform future research on climate adaptation governance across different national settings and, in so doing, shed further light on the complex and evolving relationships between the rise of city-regionalism, on the one hand, and the sector-led priorities of the competition state, on the other.
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