Agglomeration is in the eye of the beholder: the changing governance of polycentrism

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Abstract

With a focus on evolving governance configurations, this paper traces attempts at promoting polycentrism. The paper steers attention to the policy approaches that seek to develop and promote a polycentric urban region (PUR), whether that polycentric economic system is actual now or something only faintly sketched out now but aspired to in the future. Tracking policy shifts concerning a perceived Glasgow-Edinburgh economy over a period of two decades, the paper explores why different projects, strategies and initiatives have come and gone. In doing this, the paper operationalises the TPSN framework, showing how polycentrism inserts through structuring principles to try and shape existing fields of socio-spatial relations and organisation (notably concerns for city-regionalism). In this framing, agglomeration is presented as a malleable and seductive notion that helps to secure views on why certain forms of sub-national development should take priority.

Introduction

How arguments for polycentrism are pursued and what traction they have, hinge on evolving orientations and arrangements for urban and regional policy. This paper, recalling Turok and Bailey (2004a; 2004b) and Bailey and Turok (2001) - who set out to assess whether the economic geography of central Scotland reflected a polycentric urban region (PUR) - presents policy movements for and against polycentrism, and is informed by framings provided in the literature on sociospatial relations (Jessop et al., 2008; Jones, 2009; Jonas, 2012). A key finding of Turok and Bailey's work, nearly twenty years ago, was that Scotland's central belt - a spatial setting encompassing Edinburgh and Glasgow and proximate towns - largely orients around the two major cities acting as independent city-regions. They argued that a polycentric orientation may be useful in policymaking, particularly in strategic frameworks, but that the urban size and interaction patterns typically associated with a PUR appeared somewhat patchy in this context (Bailey and Turok, 2001; Turok and Bailey, 2004). Over the last 20 years, however, there has been a simmering – latent, rarely actualised - policy interest in the idea of an Edinburgh-Glasgow economic system.

A key concern in Turok and Bailey's writing, over a number of contributions, was the manner in which spatial arenas were considered to be ripe to promote regional competitiveness (also see Bristow, 2005; Harrison, 2020), and this connects to a concern for the apparent dynamics of agglomeration economies. Agglomeration - as reflected in urban economic and economic geography

literatures - is a key framing for explaining why urban economies function as they do; why do firms and workers cluster in dense, often costly, areas, for example? However, there is concern in the literature for the varied spatial configurations that may support agglomeration processes. While the agglomeration literature hinges on the scale and density of a conurbation – whilst acknowledging concepts such as "attenuation" (Rosenthal and Strange, 2008) and "effective density" (Graham, 2007) - Phelps and Ozawa (2003) show the varied spatial forms through which agglomeration processes may emerge. As noted by Phelps and Ozawa (2003), and developed further by Meijers and Burger (2017), "borrowed size" typically considers agglomeration effects for smaller cities that are closely connected to a larger city. At the same time, the requirement for spatial proximity has been questioned (Meijers and Burger, 2017) with networks posited as suitable for the effective operation of other proximate interactions (e.g. "organisational proximity" and "cognitive proximity" (Boschma, 2005)). As van Meeteren et al (2016: 1293) remark: 'Agglomeration economies' … is a slippery concept in itself that encompasses a variety of external economies" operating at a range of geographic dimensions.

The prior comments present some stylised points relating to the spatial impressions of agglomeration economies. However, a further concern relates to the manner in which a rhetoric or narrative of agglomeration serves the instrumental roles of policymakers. The agglomeration logic has seen a resurgence over the last decade, and the release of the 2009 World Development Report was one key intervention (World Bank, 2008). In this rendition, as Peck and Sheppard (2010: 337) remark, agglomeration economies have almost universal merit and would "eventually" lead to "better opportunities for all". Other, accounts, such as Glaeser's (2011) *Triumph of the City*, and Katz and Bradley's (2013) *Metropolitan Revolution* move accounts of agglomeration from a technical dissection to a plea for policy adoption and action.

Taking forward the notion of agglomeration as being instrumentally valid within a range of spatial imaginaries (Fedeli et al., 2020) - as a justifying logic of sorts - the key conceptual contribution of this paper is to argue that the governance attempts inspired by polycentrism can be conceptualised in terms of the activation of the dimensions comprising the TPSN (territory, place, scale, network) framework (Jessop et al., 2008). Critically, this activation hinges on a recursive relationship with the spatial economic system itself, and whether the system is seen, by policymakers and lobbyists, to hinge on the size of the urban centres existing within the geography (morphological PUR), the interactions across the centres (functional PUR), or a combination of the two (Burger and Meijers, 2012). That is, to present the economic system as it exists now (as observer independent phenomena), and then to consider how policymakers reflect or imagine the system in various ways, which then leads to how they seek to shape (or intervene in) the system (Hoole and Hincks, 2020). The TPSN provides a nuanced framework to work through this, by considering the interaction of the existing logics for sub-national economic development (notably city-regionalism) with the emergent logics (polycentrism) that may shift, re-orient or replace the existing view.

In terms of definitions, polycentricity has a varied heritage and treatment in the literature. As Van Meeteren et al (2015: 1279) aptly summarises, there are varying "scale-dependent connotations of

the concept: intra-urban, inter-urban and interregional polycentricity". This paper - as with the contributions of Bailey and Turok - is positioned in terms of polycentricity reflecting an "inter-urban" concept (Davoudi, 2003). Indeed, to flesh out the basic geography of concern briefly, Edinburgh - the capital city of Scotland - is on the east coast of Scotland, whilst Glasgow is toward the west coast on the Clyde river. The city centres are 46 miles apart and are within one hours travel time (satisfying the maximal distance condition of a PUR (Bailey and Turok, 2001: 698: Parr, 2004: 232)). Different geographies can be used to consider the urban areas meanwhile: the core city areas relate to Glasgow City and the City of Edinburgh (local authority areas); the city-regions can be defined either by the travel to work areas, or a wider scope that includes seven neighbouring authorities in the scope of Glasgow, and five neighbouring or somewhat proximate local authorities in the case of Edinburgh.[i] The political concerns of Edinburgh and Glasgow sit within a government apparatus whereby local authorities have limited powers vis-à-vis the Scottish Government, and where the UK Government maintains influence in reserved policy domains (immigration and defence *inter alia*). Relationships between the Scottish and UK Government are strained by ongoing constitutional debates, notably the Scottish Government's ongoing emphasis on seeking a second independence referendum.

A portrait of two cities taking different economic development trajectories has been sketched out by authors previously (Bailey and Turok, 2001; Turok and Bailey, 2004a; 2004b; Bailey et al., 2002). With reflections presented on employment, business bases and land use dynamics, a simple story in this literature was one of Edinburgh's success versus Glasgow's continued challenges in moving past deindustrialisation (Lever, 1991; Turok, 2004). Docherty et al (2004: 453) remarked: "While Edinburgh has struggled to cope with demand … Glasgow still has significant capacity to soak up demand, with significant employment growth still required to overcome the persistent socio-economic consequences of inherited urban decline". For the authors, when considering prospects for financial services in particular, this presented two policy choices: encourage the spread of growth from Edinburgh west to Glasgow, or develop Glasgow as a "distinctive yet complementary" centre of economic activity in its own right (Docherty et al., 2004: 453). The Review of Scotland's Cites (2002: 84), for the Scottish Executive, similarly noted that:

> "… the Executive has to take a longer and harder look at the costs and benefits of different spatial development patterns … There will have to continue to be a considered judgement on the balance of support between Glasgow and Edinburgh and they will inevitably compete as places for particular firms and activities; however much more explicit consideration needs to be made about when it is best to view Central-Scotland … as the relevant market or planning area."

Such choices and policy dilemmas, as this paper will show, continue to resonate within the notion of polycentrism.

Taking the Bailey and Turok contributions as a temporal limit for the empirical scope of this research, this paper charts the myriad initiatives and activities that have used, promoted or impacted the

notion of a Edinburgh-Glasgow economic system over nearly twenty years. This research asks: why and how has polycentrism been deployed in various policy narratives, and by whom? What sustained such narratives, and why did they fall away? The methodology for this paper hinges on a multi-method approach. The first method was key informant interviews, and 12 of these were conducted with policymakers and advisors (present and past) who have worked on Edinburgh-Glasgow projects (or are working in impacted areas). Interviewees - who held or hold senior positions - were from both Edinburgh and Glasgow. The organisational links of the interviewees included government economic development agencies, business groups, university academics and local authority officers (municipalities). Interviews were typically in the range of 45-60 minutes and were conducted via telephone or an online meeting portal. Interviewees were identified from the author's existing understanding of the policy context, plus snowballing occurred. Supporting the data gleaned from interviews, documentary materials were collected to both triangulate points raised in interviews and to gauge, independently, how the empirical context has evolved over time (where an interviewee may indicate a gap in knowledge). The documents included government reports and strategies, commissioned think pieces, infrastructure business cases and prospectus' for industry development. Most documents were collected ahead of the interviews, though, in some interviews, documents were pointed to and subsequently obtained. For both the interviews and documents, a breadth of perspectives was intentionally sought, cutting across multiple professional disciplines, and encompassing those promoting Edinburgh-Glasgow linkages (in polycentrist terms), to those more inherently sceptical (see Appendix 1). Categories derived from the interview data, and documentary analysis, reflect both the questions posed and novel or surprising insights emerging from the semi-structured discussions. Documents and interview notes, broadly ordered by the question structure, were analysed until it was considered that no further categories were missing (or that no key insights were left out of the categories given the research focus).

In what follows, we provide a concise descriptive outline of the Glasgow-Edinburgh economic system. Following this, we outline the manner in which arguments for polycentrism have been made, and consider what has hindered their application and efficacy (and this shows why, at this point, city-region logics remain dominant). The paper then develops the core conceptual contribution with an application of polycentrism to the TPSN heuristic. The conclusions suggest future paths for research on polycentrism.

Polycentrism in the case of Edinburgh-Glasgow

To position the Glasgow-Edinburgh context within debates on PURs, we set out data to give an impression of the existing settlement structure and the interactions between them. We then turn to the paper's predominant concern for polycentrism – and the politics and agendas that seek to promote or develop a polycentric form – whether the form exists now or not (Vandermotten, 2008). Here, data, which is presented under core themes drawn out from the data collected, gives insights on how different initiatives and narratives have sought to impress PUR logics on policymakers, and

this shows a continual tussle between varying conceptions of sub-national economic development priorities.

Parr, in a series of contributions (2004; 2005; 2008), works toward taxonomic cleanliness in how urban and regional economic settings are conveyed and labelled. Seeking to address the definitional fluidities sometimes associated with PURs (Meijers, 2008; Parr, 2008), Parr (2004: 231) takes to the task of establishing some parameters for PURs, noting that these would reflect "a set of conditions … that would need to be satisfied before a PUR could reasonably be said to exist" (vis-à-vis a benchmark region). The following "conditions" are proposed: "clustering of centres"; "upper limit on centre separation"; "lower limit on centre separation"; "size and spacing of centres"; "size distribution of centres"; "interaction among centres" and "centre specialisation" (Parr, 2004: 232-233). In other words, a scattering of economic centres is not enough for a PUR to exist in these terms; rather the relative sizes, distances, links and commercial orientations of the centres need to be taken into account. As we will lay out in this paper, the Glasgow-Edinburgh form or system at present, reflects one of partial resemblance rather than complete fit with the aforementioned conditions.

Data on Glasgow-Edinburgh interactions and their morphological states, show that - in terms of the former, firstly - commuting from one core city area to the other core city area reflects only around 1% of commuting trips (this holds for both directions of commute). Higher percentages (2-4%) appear for commuting interactions across some local authorities in the wider city-regions (form Glasgow city-region local authority to Edinburgh city-region local authority, in other words). At the same time, city-region interactions far outweigh the above (Lothians to Edinburgh is 30% of all commuting trips, for example) (Transport Scotland, 2019). Data from airport passengers surveys, meanwhile, again show strong local catchment orientations, but with Edinburgh airport showing slightly greater reach into Glasgow (in terms of the address of passengers using the airport) (Civil Aviation Authority, 2018). In terms of the size of the settlements, Glasgow maintains its positions as the largest city-region in Scotland with a travel to work population of 1.286 million, compared with Edinburgh at 716,000. The core local authority areas, however, have similar populations (Scottish Government, 2019).[ii]

Moving to consider polycentrism, Table 1 charts a series of interventions that support or impact on the proposition of closer links between the Glasgow and Edinburgh economies. The table starts in 2000, yet in the 1990s one interviewee pointed to two conferences that sought to bring the issue more firmly on to policy agendas (one held in Glasgow, the other in Edinburgh). The interviewee remarked that she/he was "greatly influenced by European thinking", and that at an event in 1990, "European academics" presented and "not a dissenting voice was heard" (Interviewee 7). It was remarked, that, at the time, "the Glasgow-Edinburgh corridor felt like and looked like a single economic region but the politics and the local cultures didn't seem to correspond" (Interviewee 7). The "distinctively European approach" behind the notion of a PUR was seen to rest on the view that urban size matters for "global competitiveness" but that this should not come at the cost of "North American" style "sprawl, inner city decline, extreme social polarisation and auto-dependence" (Docherty et al., 2004: 452).

Table 1 – Timeline of initiatives, strategies and events that promote, impact or suggest Glasgow-Edinburgh

	2000-04	2005-09	2010-14	2015-19
Strategies	03 – Cities policy review (for the Scottish Executive) 04 – National Planning Framework 1 (NPF1)	09 – NPF2	11 – SG agenda for cities 14 – NPF3	16 – SG agenda for cities (updated) 16 – Empowering Scotland's cities 17 – innovation audit – Enabling Technologies in Scotland's Central Bel
Initiatives		06- Glasgow-Edinburgh Collaboration Initiative (GECI) formed 06 – Transport Scotland formed	11 – Scottish Cities Alliance formed 14 – RSA City Growth Commission final report.	
Policies/ Investments			13 – Edinburgh-Glasgow Improvement Programme 14 – Glasgow City Deal signed	17 – Enterprise and Skills Review (Regional Partnerships) 18 – Edinburgh City Deal signed (HoT, 2017)
Relevant literature (academic and grey)	Bailey and Turok (2001); McGregor et al (2001); Bailey et al (2002) ; Docherty et al (2004); Turok and Bailey (2004a); Turok and Bailey (2004b);	Glaeser (2005); Turok (2006)	RSA City Growth Commission (2014)	Clark (2016)

The periodisation presented in table 1 allows us to drill down into the ebb and flow of interest in polycentrism (also see O'Brien, 2019). Notably, the predominant sentiment is that Edinburgh-Glasgow connections are now not carrying the same weight of interest and concern as they did through the period 2000-10. As one interviewee remarked: "I would say Edinburgh-Glasgow tends to rise up the agenda periodically and then seems to sink back down again without really having advanced. In Scottish Government, Scottish Enterprise and other agencies … it raises its head and then disappears. At present I would say the focus and interest is low" (Interviewee 6).

The rise and fall of the Glasgow-Edinburgh Collaboration Initiative (GECI), was a notable turning point, perhaps. The GECI held the aim: "to accelerate the achievement of the cities' shared economic development objectives" (Finch and Cann, 2013), and "catapult the combined metro region of Glasgow-Edinburgh into Europe's first league" (BAK Basel Economics cited in Walker, 2008). The GECI hinged on the rationale that collaboration "between the two cities provides a critical mass and scale of opportunity that can help to accelerate our economic growth" (Glasgow City Council, 2010a). Based on a partnership between the local authorities in Edinburgh and Glasgow, coupled with Scotland's economic development agency, the GECI focused on the "additionality" of attracting investment, and the notion that "collaboration helps achieve objectives that either city could not achieve alone" (Glasgow City Council, 2010a). Such a narrative closely echoed Glaeser's

(2005) intervention on the potential of the Edinburgh-Glasgow economic system, where - as Turok (2006: 788) summarised - it was argued that "Glasgow and Edinburgh should join forces to operate as a single city region with the critical mass required for success in the global marketplace". As further developed below, personalities of leadership, changing local politics, new institutional trajectories in urban policy (the advent of the Scottish Cities Alliance notably), and new tools for sub-national policymaking in Scotland, resulted in the initiative having a limited life span.

From the empirical material collated, it is suggested that four themes sit behind the waxing and waning of policy interest in polycentrism for Edinburgh-Glasgow: competitiveness and investment; infrastructure and planning; local and national politics; and cultures of deal-making and city-regionalism. This provides the content for populating the TPSN framework in the section that then follows, where, at its core, sociospatial relations are framed in terms of:

> "… deeply processual and practical outcomes of strategic initiatives undertaken by a wide range of forces produced neither through structural determinism nor through a spontaneous voluntarism, but through a mutually transformative evolution of inherited spatial structures and emergent spatial strategies within an actively differentiated, continually evolving grid of institutions, territories and regulatory activities" (Jones, 2009: 498).

Competitiveness and investment

As intimated in the literature overview, the lure of strengthening Edinburgh-Glasgow linkages can be seen to centrally hinge on competitiveness arguments. As McGregor et al (2001: 11) remark: "By forming a larger economic entity, it is possible to compete for high income growth sectors such as financial and business services". This is a sentiment echoed in an early Scottish Government economic strategy where it was noted, there will be "actions" to: "Facilitate greater collaboration between Edinburgh and Glasgow and their surrounding areas to develop a city region with the scale and quality of assets … that can compete with leading cities globally for mobile people, business and investment, with delivery bodies working across conventional boundaries" (Scottish Government, 2007: 33).

Sitting behind these sentiments, was a revival in how cities were viewed by policymakers. One interviewee remarked of a sense, through the 1980s, that "the days of the big city were over" (Interviewee 7). The "collaborate to compete" mantra which emerged in the Glasgow-Edinburgh context reflected a greater policy acceptance of the view that cities of the size of "3-5 million" were needed. Given the relative closeness of Scotland's two major cities, making choices about being "rivals or partners" was crucial it was suggested; "if we don't hang together we will hang separately" (Interviewee 7). Interviewees pointed to this as a contemporary concern (e.g. Interviewee 9), noting that it "would be good to get the scale to compete … if Edinburgh and Glasgow put their minds together" (Interviewee 5). For some, furthermore, Edinburgh-Glasgow linkages hold the key to counter-balancing the "death star" that is the London economy (Interviewee 9; also see RSA City Growth Commission, 2014). How Glasgow-Edinburgh was promoted to international investors,

hinged, in some respects, on events at MIPIM (an event where city leaders seek investment in their areas) (Interviewee 1; Interviewee 3). This reflected the GECI playing the role of "broker" in seeking investment, with a joint stand for Edinburgh-Glasgow appearing on one such occasion (Glasgow City Council, 2010b).

A further dimension within competitiveness concerns is how particular prized or key sectors in the economy are positioned in terms of the Glasgow-Edinburgh system. A notable area is financial services, which has also been a focus for others (Bailey et al., 2002; Docherty et al., 2004). Both cities have large financial services sectors within the context of UK regional centres, with major North American and global firms undertaking various activities, from banking to asset management and asset servicing. The size of the sector across the two cities remains sizeable, yet, as Waite (2017) points out, different intra-sectoral profiles and policy tools are in place. Nevertheless the spatial imaginary of a linked financial centre remains prominent. This can be evidenced in both prior research (Waite, 2017), but also in promotional material prepared by industry support groups. In terms of the latter, the prospectus set out by the industry body, Scottish Financial Enterprise, notes the "central hubs of Edinburgh and Glasgow". It is claimed, moreover, that "Edinburgh and Glasgow are among the most well connected cities in the UK when it comes to the range of transport options available, which is why financial services companies choose to run their global operations from here" (Scottish Financial Enterprise, 2018). Similarly pointing to the connections across the two cities, one interviewee remarked that by "choosing Glasgow, [the global firm] aren't excluded from the Edinburgh financial services community" (Interviewee 4).

In other sectoral areas, interviewees suggested "collaborative success" between the universities across the two cities (Interviewee 4), through joint research activities, for example. Other interviewees, suggested clear splits between Edinburgh and Glasgow's sectoral strengths needed to be more clearly articulated: "Glasgow has the events infrastructure, Edinburgh doesn't"; conversely, there is "no point Glasgow trying to do the data science stuff" (Interviewee 6). "We understand the complementary roles the two cities play" remarked another (Interviewee 2). The institutional arrangements to support such a viewpoint are limited, however, with the Scottish Cities Alliance taking a promotional view for what are seen to be Scotland's seven cities (since 2011). Other emerging arrangements such as "regional partnerships" take a single city-region orientation most obviously. One clear observation about the Scottish economic development context, indeed, is that there is no shortage of competing actors and agendas.

Content for the TPSN heuristic emerges from this theme in terms of attempts to present Edinburgh and Glasgow - not as distinct places - but as a combined scalar setting (to move the cities up the hierarchy of cities competing for global investment). The scalar representation tries to make the case that, together, the two cities are more than what they are on their own (summed together). This polycentrist imaginary has been levered into global investment settings, to seek inflows of capital with the aim of driving economic growth, yet single city-region views now prevail. The imaginary relies on a view of complementarities across the two cities, where the notion of agglomeration is

presented through a varied spatial configuration. This perspective, as set out below, runs across a set of political tensions and conflicting agendas.

Infrastructure and planning

Supporting the competitiveness ethos to some degree, is the issue of how spatial planning and infrastructure investment variously reflect and shape aspirations for a PUR. Scotland maintains a different approach to spatial planning, compared with England, and places the National Planning Framework (NPF) at its core. Iterated three times - with activities ongoing for revising edition four - the NPF, which "grew out of European thinking" (Interviewee 8), sets out "where development and infrastructure is needed" in Scotland (Jackson, 2019). Of relevance to this paper's focus on polycentrism, is that the prominence of Edinburgh-Glasgow linkages were stronger in earlier versions. NPF1, for example - where areal definitions gave focus to the "central belt" - made the following point:

> "The relationship between Edinburgh and Glasgow is of key importance. Viewing the two cities as complementary will benefit the Central Belt and the Scottish economy as a whole. Central Scotland as a destination for business investment, living and tourism is important in the European and global contexts. From this perspective, Edinburgh and Glasgow should be seen as two economic and cultural anchors linked by a fast, efficient, high quality transport system" (Scottish Executive, 2004: 69).

A similar sentiment prevailed in NPF2, with Edinburgh-Glasgow positioned "as being of vital importance … the two cities are working to make Central Scotland a globally important centre of economic activity" (Scottish Government, 2009: 72). By the time NPF3 was published, however, the "central belt" became a mere spatial reference point rather than a focus for strategic spatial thinking and intervention (Scottish Government, 2014). In this iteration, indeed, "city-regions" provided the organising framework, with the focus on Edinburgh-Glasgow having eroded (Interviewee 1).

Despite its waning prominence in planning documents, remnants of the central belt logic remain: planners are encouraged to think outside their strategic development regions (city-region based geographies); and the west of Edinburgh, on the way to Glasgow, remains a key concern for planners (Interviewee 8). In Glasgow, moreover, developments in the east of the city concerning urban drainage and Commonwealth Games legacies, were, in the view of one interviewee, pertinent to strengthening central belt links (Interviewee 8). Finally, one of the infrastructure interventions which the GECI sought to promote, and maintain the profile of, was the Edinburgh-Glasgow Improvement Programme (EGIP). This rail infrastructure programme – which is progressing in phases - seeks increased connectivity between the cities through station developments, cutting journey times and increasing frequencies. This is an ongoing intervention that seeks to "future proof" connections between the two cities (Ernst & Young, 2014: i). Such infrastructure has a critical role, interviewees remarked, and if "significant infrastructure is going ahead, that makes Glasgow-Edinburgh collaboration real" (Interviewee 2). EGIP may have integrating effects to look out for in the future, in other words.

Considering TPSN applications here, the aforementioned periodisation of planning policy shows polycentrism presented in a manner that, at one point, was central and critical - reflecting an agglomeration inspired spatial imaginary of a single "important centre" (Scottish Government, 2009: 72) - then, at a later point, as little more than an outline spatial demarcation. At the same time, narratives of polycentrism can be seen to hold an almost latent quality, and notable infrastructure initiatives rest on business cases that deploy the logic (even if only implicitly).

Local and national politics

Asked why initiatives and projects to support the Edinburgh-Glasgow economic system tended to come and go, "pure politics" was one explanation (Interviewee 9). This has several dimensions in the case of polycentrism for Edinburgh-Glasgow. First, the colours of the political parties leading the two core city authorities are important. When the GECI was first conceived around 2005, the Labour party - a left of centre party - was dominant in both Edinburgh and Glasgow. As it stands now, the nationalist party (the Scottish National Party (SNP)) runs a minority administration in Glasgow, whilst Edinburgh is governed by a coalition between Labour and the SNP.[iii] This changing potpourri of local power structures culminates, for some, with the reflection that "Scottish tribalism continues to be one of Scotland's biggest weaknesses" (Interviewee 6); in other words urban and regional policy is subject to the whims of local political vicissitudes. Further to the political configurations of local authority governance, officer (or within bureaucracy) level relationships were considered to be important. Indeed, when these relationships changed, so did the willingness to collaborate, it was remarked (Interviewee 9; Interviewee 1). When an "outgoing" local authority chief executive left in one of the cities, for example, the atmosphere for cross-city collaboration diminished (Interviewee 2; also Interviewees 1 and 5). Though officials commented on good working relationships at lower levels (interviewee 5), key relationships between the local authority leaders were key for some; "if you were going to build a twin city, they needed to sign it in their own blood". Collaboration across the two cities requires "political backing with a political mandate", others maintained, and local authorities need to get past a mentality of being "in it" to burnish their "own profile" (Interviewee 4).

National level political configurations also have a bearing on regional policy arguments and commitments. Indeed, with the SNP now dominant in the Scottish Parliament, the politics of how local authorities appeal to the Scottish Government must reflect this. This occurs in a context where centralism of power is seen to be pervasive, and where local authorities have comparatively few powers to shape local change (Interviewee 6; Interviewee 9). The upshot of this, some respondents felt, is that Glasgow-Edinburgh collaboration was never a serious concern for the Scottish Government (in terms of senior political buy-in) (Interviewee 4). In contrast, the Scottish Government had to be concerned with city-region focused City Deals (as discussed below) as they were effectively obliged to contribute a funding share along with the UK Government (Waite et al., 2019). Indeed, a further national dimension is the ongoing constitutional question relating to Scotland's place in the UK, while the challenge of managing reasonably big cities within a small nation reflects a key tension in nation building (Interviewee 5). The Scottish Government's concern for cities policy stems from this, along with how such a concern may be mediated by long running interests in

balancing rural interests (Interviewee 9). A change in institutional focus was also mentioned in terms of Scotland's enterprise agency making a shift away from a "spatial lens" to focus on "sectors" around 2010 (Interviewee 8). Though somewhat reinstated through a focus on "regional partnerships" (post-2018), this has yet to stretch to a resurgent emphasis on Edinburgh-Glasgow as an economic system (Interviewee 12).

Finally, the distinctive characters and cultures of the two cities also sits behind the politics, and the "rivalry between the cities is so deep seated", remarked one respondent (interviewee 3). For another, "deep parochialism" gets in the way of recognising the different economic strengths that the two city and city-region economies present (Interviewee 9). Given that it is "almost inevitable that political leaders will respond to the [parochial] psyche" a key question for policymakers becomes "what can they collaborate on?" (Interviewee 4). The two cities "need to work together on a major success … something they can't do on their own", was another respondent's view (Interviewee 6).

TPSN framings can be drawn from the above, as we consider the contestation between local and national levels of government, and how this determines particular approaches to sub-national economic development. Such determinations are also coloured by ongoing constitutional struggles, and a sense, perhaps, that local authorities have to act as supplicants to higher orders of government (hence pervasive centralism). How the Scottish Government seeks to manage urban against rural concerns, presents a further scalar and territorial problematic for polycentrism. We also show how the agential capacities of local authority chief executives reflect, perhaps, the most promising network-based channel to make polycentrism tractable.

Cultures of deal-making and city-regionalism

Intersecting with the local and national political tensions, the emergence of City Deal mechanisms which provides capital spending in areas of infrastructure and innovation, amongst other areas, has been noteworthy (O'Brien and Pike, 2018; Waite and Morgan, 2019). The deals provide funding from the UK and Scottish Governments over 15 to 20 year periods, and are coupled with local contributions. Glasgow was the first city-region to sign a City Deal outside of England in 2014, whilst an agreement was reached for the Edinburgh city-region in 2018. The introduction of deals was noted by a number of respondents as a diminishing force for polycentrism. The key point here, is that City Deals compelled the core cities of Edinburgh and Glasgow - through the lure of a funding pot - to look to their city hinterlands (the city-regions). This reflected the fact that city-regions are the functional geography preferred by the UK Government (one of the major funders). As a consequence, the orientation of urban policy concerns appeared to shift (and certainly away from concerns for the Glasgow-Edinburgh system). Moreover, whilst multi-city "powerhouses" have gained some profile in England (MacKinnon, 2020), this has yet to emerge as anything more than a fleeting point of interest in Scotland (Interviewee 5).

Deal-making, and "the art of the deal" was noted as presenting "a different perspective from spatial planning" (Interviewee 8). Indeed, how deal-making is stitched together warrants further comparative research work (Waite et al., 2018), and, more particularly, consideration is warranted as to whether

getting the deal done may in some cases trump the strategic thought as to what policies and interventions go into them. In this respect, to what extent is there agreement between the priorities agreed for City Deals, and the priorities presented in planning frameworks which share a coterminous or overlapping territorial scope? On this matter, Purves (2019: 8) argues that the deals are "untrammelled by the discipline of spatial strategy" and "aren't integrated adequately with the strategic planning process". In other words, whilst polycentrism, as reflected in earlier NPF version, aligns with spatial planning – and promises a nuanced assessment of urban centres and how they interact – City Deals may be seen to take the form of an inter-city competitive scramble for the next funding package. Compelling this scramble, the pull of London and the emerging performance of Manchester – whether rhetorical or real – was seen as spurs for City Deals to be agreed (Interviewee 5): "if … the City Deal [wasn't signed], the foreign direct investment was all going to Manchester" (Interviewee 2). Conversely, the orientation to the city-region, though clearly dominant now (Interviewee 12), is seen, by some, to be an overly narrow spatial setting for shaping economic development (interviewee 4). In this respect "some things: research collaborations; pitching to sectors; [attracting] global talent" are seen to be more effectively enacted by policymakers through a wider spatial imaginary (Interviewee 4). This positions the possibility of polycentrism once more, even if, at present, it rests in the shadow of other spatial orientations and logics.

Here, in terms of TPSN, the "scalar fix" of city-regionalism acts to close out, or defer, other spatial imaginaries (including polycentrism) (Hoole and Hincks, 2020; MacKinnon, 2012). The UK Government inserted City Deals as tools, and these - with the lure of underlying funding - required local authorities to look to their city-region extents in order to reflect "functional" boundaries for intervention. Moreover, City Deals - in setting off a process of inter-city bidding – effectively presents a network framing as different urban nodes across the UK spatial economy seek advantage under the auspices of "spatial rebalancing" (Martin et al., 2015) or "levelling up" (Muthumala, 2020).

Framing polycentrism

The aforementioned themes show that arguments for polycentrism in the Glasgow-Edinburgh context, over the last 20 years, have run into a series of competing agendas and political tensions in sub-national policymaking. More particularly, the empirical discussion shows polycentrism - conceived as a spatial imaginary (Granqvist et al, 2019; Hinks et al., 2017) – interfacing with: existing knowledge sets relating to urban development (what is the justifiable scale for agglomeration?); political path dependencies; and institutional pivots (at one time promoting polycentrism, at the next point largely bypassing it). Competitiveness debates are mobilised by different bodies, and agglomeration logics are wielded to fit malleable geographies, within a political context of local political ruptures and nation building under a constitutional cloud. This aligns closely with Hinks et al's (2017: 655) reflection on the Greater Manchester context:

> "[spatial imaginaries] can determine where government investment is channelled and
> into what kinds of policies. But, crucially, [there are] limits facing those creating new

spatial imaginaries. The parallel processes of creating acceptable social, political, economic and environmental imaginaries need to succeed, leading to sufficient agreement among partners to support strategies backed by resources and a programme of institutional alignment if not institution building."

Indeed, the promise of a polycentrism-inspired spatial imaginary is contingent on complex, multi-dimensional socio-spatial relations, and this provides for a useful application through TPSN.

Table 2 applies the core themes extracted from the data and situates these within the TPSN heuristic developed by Jessop et al (2008). The central point to this framework is that it seeks to establish sociospatial relations in a more complex way, beyond the "one dimensionalism" that can be observed in some parts of the geographic literature (Jessop et al., 2008: 392). The framework hinges on a two-way reading most prominently. In the first instance, starting with the rows, these reflect "structuring principles" that effectively place a new lens on existing fields of socio-spatial activity. So, in the first row, territory shapes activities and processes at places, scales and networks. In the context of this paper's focus, polycentrism gives content to this structuring principle; so we read horizontally how territory is treated in polycentrist terms, and, in doing this, we are forced to consider how this territorial framing intersects with other extant logics (perhaps pertaining to city-region level agglomeration) at place, scale and networks. Conversely, reading the table through the columns, we start with the field, such as place, and consider how extant activities and processes at a place are (or may be) shaped by polycentrism's dimensions of territory, scale and networks. This is to present the fields – territory, place, network and scale – as exhibiting existing logics and practices that may be different from, but that interact in some form, with polycentrism (as the logic underpinning the structuring principles). That is, the structuring principle and field of operation are mutually animating and recursive.

A third dimension to Table 2's interpretation is where a structuring principle meets a field of the same category (e.g. place-place). In terms of place, for example, the field may relate to the spatial density of agglomeration interactions within the two existing city-regions, whilst the structuring principle of place - as conceived through polycentrism - may reflect and promote the stretched spaces through which agglomeration may work across (we know, for example, the spatial reach of certain knowledge spillovers is more limited to confined, dense settings, but labour pools can span across wider geographies). So we effectively shift, through the imaginary of polycentrism, to the potential of agglomeration from being seen at "place" to being seen at "places" also.

Recalling the different morphological and functional aspects of PURs, and polycentrism, it is important to reflect this in the multi-dimensionalism promoted by the TPSN framework (Harrison and Growe, 2014; Haughton and Allmendinger, 2015). Thus whilst "polynucleated cities" appears in Jessop et al (2008: 395) under the networks-place interface, this typological illustration does not limit a more expansive interpretation of how polycentrism may be enacted across other interacting dimensions. Therefore, in treating polycentrism as a structure principle, its functional and morphological character warrants populating all dimensions: territory, place, scale and network. To

focus on the latter solely, in an applied example (such as that provided in this paper), would be to cursorily discard the morphological elements.

In summary form, the structuring principles of polycentrism can be set out as follows:

- Territory – the delimited and mapped area of the central belt as defined by local authority boundaries.
- Place – the varying urban sites across the central belt, where core places are marked by the density of intra-area economic interactions. Plus the lingering promise or potential of the combined mass (of Glasgow and Edinburgh).
- Scale – the ordering of (and contestation about) public policy levers to shape sub-national development between local authorities, the Scottish Government and the UK Government, and how this ordering shapes the pursuit and application of polycentrism (MacKinnon, 2012).
- Network - Interactions across urban nodes within the central belt (e.g. commuting across the economic system), and the positioning of the central belt as a promotional site within global fora.

Taking the now almost canonical presentation given in Jessop et al (2008) and Jessop (2016), Table 2 – tracking past and current agendas and initiatives - presents polycentrism as a contingent logic that is accepted in some cases, and in other cases resisted, by virtue of complex sociospatial configurations. The configurations hinge on the material and knowledge-based processes in the economic system now; policymakers' existing conceptions of this system (or parts of the system); and alternative conceptions of the economic system that policymakers may choose to adopt or tilt towards (in this case, polycentrism) (MacKinnon, 2012).

Table 2 – Polycentrism within the TPSN heuristic

Fields of operation – existing sub-national spatial logics (to the right, read downwards); Structuring principles - polycentrism (below, read horizontally)	Territory	Place	Scale	Networks
Territory	How E and G wrestle with city-region extents at present, along with the notion of a joint territory conceived in terms of the central belt (as a PUR identity).	Identity of G as the city for the west of Scotland, on the Clyde river, and E for the east of Scotland on the Firth of Forth (places viewed by residents, typically, as fiercely distinct rather than complementary).	Central belt as the domain of territorial integration for the PUR, and how a policy focus on this spatial container is resisted or supported within small nation politics.	Rhetoric of multi-city powerhouses - bigger land areas with bigger populations that are ripe for policy intervention - as being relevant to levelling up/spatial re-balancing discussions in UK public policy.
Place	Seeking to wrestle with peripheral needs in city-region agendas (e.g. the role of Inverclyde within the Glasgow city-region); would a PUR agenda diminish these relations?	Conceptions of how agglomeration functions through different modes of proximity (actually/potentially). City-regionalism as the functional framing that is now dominant. Also, the notion of planning for one city being open to planning taking place in another city.	Relative sizes of G and E city-regions; G bigger, but E catching up in terms of population size. PUR promoted in terms of two major cities, that are within one hour's travel time, that may present an agglomeration function in addition to that emerging from a single conurbation.	City-region level fora (such as the Glasgow city-region Cabinet and Regional Partnership) - which emerged through deal-making mechanisms - provide the major interlocutory domains with SG and UKG, plus other UK city-regions.
Scale	Limited powers of local authorities vis-à-vis SG and UKG to shape spatial and planning interventions at new scales.	G and E as second-tier financial centres in the shadow of the economic dominance of London. Also lagging the political movements and decentralising claims of Greater Manchester (as a comparator second-tier city in the UK).	Urban policy interests subject to local political shifts reflecting a wider Scottish context of SNP domination (and shaped by the politics of nation building).	Fitful/passing initiatives to support polycentrism – such as GECI - and the notion of the central belt (as variously signed up to and abandoned by G and E and Scottish-level actors).
Networks	Velocity of commuting and trading between E and G, and across the central belt, and shaping interventions to promote these.	The perceived linked roles of G and E as promoted to global industry networks. At the same time, the city-region is privileged as the site to address rebalancing agendas.	Big city narrative revival promoted by European policymakers in the 90s. Uncertainty of the "powerhouse" agenda in the Scottish context (and lagging England with such steps).	The manner in which the notion of G and E interactions are promoted at MIPIM. Existing chief execute relationships as a potential channel to promote a PUR.

Core framework given in Jessop et al (2008: 393); revised in Jessop (2016: 24).
Notes on abbreviations: Edinburgh (E); Glasgow (G); Scottish Government (SG); UK Government (UKG)

Conclusion

This paper has worked through sociospatial framings so as to shed light on the shifting contours of sub-national governance that is negotiating or resisting the spatial imaginary of polycentrism. Through its rejection of "one dimensionalism", the TPSN framework permits the varied dimensions of inter-urban polycentrism, and their interface with alternative logics of sub-national policy (notably city-regionalism), to find expression (Hoole and Hincks, 2020). Further questions about TPSN applications may be posed from this paper, nevertheless. Can applications of the TPSN framework - with polycentrism presented as a "structuring principle" - be usefully presented in "morphogenetic"

terms where the population of the TPSN framework hinges on the agency-structure tensions exhibited by arguments for polycentrism meeting claims for the continued relevance of city-regionalism (as the almost privileged domain for sub-national policymaking at present) (Varró, 2014)? In tandem with notions of the "compossible" and "incompossible" (Jones and Jessop, 2010), this may help to reveal the critical realist underpinnings of such a framework. The paper aligns conceptually, furthermore, with Fedeli et al's (2020: 176) reflection that periodisation brings to light the ways "new and old economic actors" jostle to shape "metropolitan imaginaries" in different ways. Suggestions made by these authors to consider the varying institutionalisations of imaginaries (also see O'Brien, 2019 and Münter and Volgmann, 2020), and the roles of elite versus community voices in progressing these, also warrants future consideration (Fedeli et al, 2020: 177).

This paper develops, furthermore, the somewhat cursory distinction in the existing literature between polycentricity and polycentrism, and draws out the necessary recursivities between the two via a rich case exposition. In doing this, some further lines of research on polycentrism can be pointed to. First, is polycentrism always reliant on a competitiveness (agglomeration-based) logic? If "just transitions" and "inclusive growth" are core concerns for varying orders of government, what would these objectives imply about how inter-urban linkages and developments are conceived? (Interviewee 6). Aligning with questions posed by Vandermotten et al (2008) and Fedeli et al (2020: 178), interviewees in this research also noted that goals such as "net carbon zero" will also critically influence urban and regional policy (given existing carbon footprints); does this present a further rationale for polycentrism? (interviewee 9). Second, what data can we develop to better gauge the polycentric system (roughly conceived) as it stands, and to thus see where functional or morphological changes may be emerging? In undertaking this research, limits in requesting further data were prevented given the Covid-19 crisis, however, it may be useful in future research to gauge: one, interaction patterns for different occupational groups (perhaps through commuting data obtained from anchor institutions); and, two, map research interactions between universities in order to sketch out the velocity of knowledge linkages.

The increasing prominence of rhetoric on sub-national, multi-city "powerhouses" in the UK (MacKinnon, 2020) may revive the notion of a PUR - at least in the form of a rough resemblance (cf Parr, 2017) - and may reinvigorate earlier narratives that encouraged policymakers to move past the "supposed differences between Edinburgh and Glasgow" (Glaeser, 2005: 82). The powerhouse notion promotes the agglomeration logic at its core, and is seen - as first conceived by the RSA City Growth Commission (2014: 20) - as providing the potential to generate economic counter-weights to the economic centrality of Greater London (essentially agglomeration, but a diffuse spatial rendering of it). Such spatial imaginaries do not automatically become effective, however (O'Brien, 2019). In this paper, indeed, we have framed polycentrism as a latent spatial imaginary, that is sporadically deployed - through an agglomeration-infused logic – through deeply complex regional and national politics, which must negotiate or overcome prevailing logics for sub-national economic development. The notion of a polycentric urban region is a spatial imaginary in waiting, in some senses; an idea of a sub-national economic space that has never truly fallen off the policymaking radar, yet has never

really taken off either. The image of two distinct city-region's remains dominant, yet the seductive potential of the two cities acting in concert continues to spur policy initiatives in various forms.

References

Archer MS (1982) Morphogenesis versus structuration: on combining structure and action. *British Journal of Sociology*, 33(4): 455–483.

Bailey N and Turok I (2001) Central Scotland as a Polycentric Urban Region: Useful Planning Concept or Chimera? *Urban Studies*, 38(4): 697-715

Bailey N, Docherty I and Turok I (2002) Dimensions of city competitiveness: Edinburgh and Glasgow in a UK context. In Begg, I. (ed) *Urban competitiveness: policies for dynamic cities*, 135-160. Bristol: Policy Press.

Boschma R (2005) Proximity and Innovation: A Critical Assessment. *Regional Studies*, 39(1): 61-74

Bristow G (2005) Everyone's a 'winner': problematising the discourse of regional competitiveness. *Journal of Economic Geography*, 5(3): 285–304,

Burger M and Meijers E (2012) Form Follows Function? Linking Morphological and Functional Polycentricity. *Urban Studies*, 49(5): 1127–1149.

Civil Aviation Authority (2018) 2018 passenger survey report. Available at: https://www.caa.co.uk/uploadedFiles/CAA/Content/Standard_Content/Data_and_analysis/Datasets/Passenger_survey/T05_2018.pdf [accessed 22/6/20]

Clark G (2016) Cities, global cities and Glasgow - some reflections. University of Strathclyde International Public Policy Institute (IPPI), Occasional Paper.

Davoudi S (2003) EUROPEAN BRIEFING: Polycentricity in European spatial planning: from an analytical tool to a normative agenda. *European Planning Studies*, 11(8): 979-999.

Docherty I, Gulliver S and Drake P (2004) Exploring the Potential Benefits of City Collaboration. *Regional Studies*, 38(4): 445-456.

Ernst and Young (2013) Edinburgh Glasgow Improvement Programme. Final business case, October.

Fedeli V, Feiertag P and Harrison J (2020) Invoking New Metropolitan Imaginaries: What Type of Metropolitan Region for What Kind of Metropolitan Planning and Governance? In Zimmerman K, Galland D and Harrison J (eds.) *Metropolitan Regions, Planning and Governance*. Switzerland: Springer.

Finch P and Cann R (2013) Linking Glasgow and Edinburgh – The Glasgow Edinburgh Collaboration Initiative. AECOM. Available at: http://starconference.org.uk/star/2013/FinchCann.pdf [accessed 22/6/20]

Glaeser EL (2005) Four Challenges for Scotland's Cities. In Coyle D et al (eds.) *New Wealth for Old Nations: Scotland's Economic Prospects*, 73-95. Princeton: Princeton University Press.

Glaeser EL (2011) *Triumph of the City*. London: Macmillan.

Glasgow City Council (2010a) Glasgow – Edinburgh Collaboration Initiative. Report for the Business and the Economy Policy Development Committee, 2 June.

Glasgow City Council (2010b) GECI Framework for Action. May.

Graham DJ (2007) Agglomeration, Productivity and Transport Investment. *Journal of Transport Economics and Policy*, 41(3): 317-343.

Granqvist K, Sarjamo S and Mäntysalo R (2019) Polycentricity as spatial imaginary: the case of Helsinki City Plan. *European Planning Studies*, 27(4): 739-758.

Harrison J (2020) Seeing like a business: rethinking the role of business in regional development, planning and governance. *Territory, Politics, Governance*, online first April 8.

Harrison J and Growe A (2014) When Regions Collide: In What Sense a New 'Regional Problem'? *Environment and Planning A*, 4(10): 2332-2352.

Haughton G and Allmendinger P (2015) Fluid Spatial Imaginaries: Evolving Estuarial City-regional Spaces. *International Journal of Urban and Regional Research*, 39(5): 857-873.

Hincks S, Deas I and Haughton G (2017) Real Geographies, Real Economies and Soft Spatial Imaginaries: Creating a 'More than Manchester' Region. *International Journal of Urban and Regional Research*, 41(4): 642-657.

Hoole C and Hincks S (2020) Performing the city-region: Imagineering, devolution and the search for legitimacy. *Environment and Planning A*, 52(8) 1583–1601.

Jackson J (2019) National Planning Framework 4 – The Essentials! Scottish Government blog. Available at: https://blogs.gov.scot/planning-architecture/2019/10/08/national-planning-framework-4-the-essentials/ [accessed 23/6/20]

Jessop B (2016) Territory, Politics, Governance and Multispatial Metagovernance. *Territory, Politics, Governance*, 4(1): 8-32.

Jessop B, Brenner N and Jones M (2008) Theorizing sociospatial relations. *Environment and Planning D: Society and Space*, 26: 389-401.

Jonas AEG (2012) Region and place: Regionalism in question. *Progress in Human Geography*, 36(2): 263–272.

Jones M (2009) Phase space: geography, relational thinking, and beyond. *Progress in Human Geography*, 33(4): 487-506

Jones M and Jessop B (2010) Thinking State/Space Incompossibly. *Antipode*, 42(5): 1119-1149.

Katz B and Bradley J (2013) *The Metropolitan Revolution: How Cities and Metros Are Fixing Our Broken Politics and Fragile Economy*. Washington, DC: Brookings Institution Press.

Lever WF (1991) Deindustrialisation and the Reality of the Post-industrial City. *Urban Studies*, 28(6): 983-999.

McGeoch A (2019) The economic rise of the east: Scotland's powerhouse region. Fraser of Allander Institute blog, 28 October.

McGregor A, Glass A and Greig M (2001) Spreading the benefits of growth. Training and Employment Research Unit, University of Glasgow. Unpublished report, June.

MacKinnon (2012) Reconstructing scale: Towards a new scalar politics. *Progress in Human Geography*, 35(1): 21–36.

MacKinnon D (2020) Governing uneven development: the Northern Powerhouse as a 'state spatial strategy'. *Territory, Politics, Governance*, online first April 7.

Martin R, Pike A, Tyler P and Gardiner B (2016) Spatially Rebalancing the UK Economy: Towards a New Policy Model? *Regional Studies*, 50(2): 342-357.

Meijers EJ (2008) Measuring Polycentricity and its Promises. *European Planning Studies*, 16(9): 1313-1323.

Meijers EJ and Burger MJ (2017) Stretching the concept of 'borrowed size'. *Urban Studies*, 54(1): 269–291.

Muthumala A (2020) 'Levelling up': How can economic growth and prosperity be measured across UK regions? House of Commons Library Insight, 3 March. Available at: https://commonslibrary.parliament.uk/insights/levelling-up-how-can-economic-growth-and-prosperity-be-measured-across-uk-regions/ [accessed 23/6/20]

Münter A and Volgmann K (2020) Polycentric regions: Proposals for a new typology and terminology. *Urban Studies*, online first.

O'Brien (2019) Spatial imaginaries and institutional change in planning: the case of the Mersey Belt in north-west England. *European Planning Studies*, 27(8): 1503-1522.

O'Brien P and Pike A (2019) 'Deal or no deal?' Governing urban infrastructure funding and financing in the UK City Deals. *Urban Studies*, 56(7): 1448–1476.

Parr JB (2004) The Polycentric Urban Region: A Closer Inspection. *Regional Studies*, 38(3): 231-240.

Parr JB (2005) Parr (2005) Perspectives on the city-region. *Regional Studies*, 39(5): 555-566.

Parr JB (2008) Cities and regions: problems and potentials. *Environment and Planning A*, 40: 3009-3026.

Parr JB (2017) The Northern Powerhouse: a commentary. *Regional Studies*, 51(3): 490-500.

Peck J and Sheppard E (2010) Worlds Apart? Engaging with the World Development Report 2009: Reshaping Economic Geography. *Economic Geography*, 86(4): 331-340.

Phelps NA and Ozawa T (2003) Contrasts in agglomeration: proto-industrial, industrial and post-industrial forms compared. *Progress in Human Geography*, 27(5): 583–604.

Purves G (2019) Strategic development in Scotland. Report for the UK2070 Commission, April. Available at: http://uk2070.org.uk/wp-content/uploads/2019/04/Strategic-Development-in-Scotland-Graeme-Purves-April-2019.pdf [accessed 23/6/20]

RSA City Growth Commission (2014) Unleashing metro growth: final recommendations of the City Growth Commission, October. London: RSA City Growth Commission.

Rosenthal SS and Strange WC (2008) The attenuation of human capital spillovers. *Journal of Urban Economics*, 64(2): 373-389.

Scottish Executive (2002) Review of Scotland's Cities: The Analysis. Edinburgh: Scottish Executive.

Scottish Executive (2004) National Planning Framework for Scotland. Edinburgh: Scottish Executive.

Scottish Financial Enterprise (2018) Scotland's Financial Services Expertise. October.

Scottish Government (2007) The government economic strategy. Edinburgh: Scottish Government.

Scottish Government (2009) National Planning Framework for Scotland 2. Edinburgh: Scottish Government.

Scottish Government (2014) Scotland's Third National Planning Framework. Edinburgh: Scottish Government,

Scottish Government (2019) 7 City Regions – Summary Data. Available at: https://www.gov.scot/publications/city-regions-summary/ [accessed 22/6/20]

Transport Scotland (2019) Transport and Travel in Scotland 2018. Available at: https://www.transport.gov.scot/publication/transport-and-travel-in-scotland-results-from-the-scottish-household-survey-1/ [accessed 22/6/20]

Turok I (2004) Sources of City Prosperity and Cohesion: The Case of Glasgow and Edinburgh. In Boddy, M. and Parkinson, M. (eds.) *City Matters: Competitiveness, Cohesion and Urban Governance*, 13-31. Bristol: Policy Press.

Turok I (2006) Book review of 'New Wealth for Old Nations: Scotland's Economic Prospects'. *Journal of Regional Science*, 46(4): 810-812.

Turok I and Bailey N (2004a) Twin track cities? Competitiveness and *cohesion* in Glasgow and Edinburgh. *Progress in Planning*, 62: 135–204.

Turok I and Bailey N (2004b) The theory of polynuclear urban regions and its application to central Scotland. *European Planning Studies*, 12(3): 371-389.

van Meeteren M, Poorthuis A, Derudder B and Witlox F (2016) Pacifying Babel's Tower: A scientometric analysis of polycentricity in urban research. *Urban Studies*, 53(6): 1278–1298.

Vandermotten C, Halbert L, Roelandts M and Cornut P (2008) European Planning and the Polycentric Consensus: Wishful Thinking? *Regional Studies*, 42(8): 1205-1217.

Varró K (2014) Spatial Imaginaries of the Dutch–German–Belgian Borderlands: A Multidimensional Analysis of Cross-Border Regional Governance. *International Journal of Urban and Regional Research*, 38(6): 2235-2255.

Waite D (2017) Asset servicing at a second-tier financial centre: Framing embeddedness through mechanisms of the firm-territory nexus. *Geoforum*, 80: 1-12

Waite D and Morgan K (2019) City Deals in the polycentric state: The spaces and politics of Metrophilia in the UK. *European Urban and Regional Studies*, 26(4): 382–399.

Waite D, Whyte B and Muirie J (2019) From an agreeable policy label to a practical policy framework: inclusive growth in city-regions. *European Planning Studies*, online first 24 November.

Walker D (2008) When two become one. The Guardian, 1 October. Available at: https://www.theguardian.com/society/2008/oct/01/glasgow.edinburgh.connectivity [accessed 22/6/20]

World Bank (2008) World Development Report 2009: Reshaping Economic Geography. Washington, DC: World Bank.

Appendix 1 – List of interviewees

Interviewee	Positions
1 – Academic	At a Scottish university
2 – Policy advisor	In a Scottish Government agency
3 – Policy advisor	In a Scottish university
4 – Former policy advisor	Former policy advisor in Scottish Government agency
5 – Policy advisor	Local authority in Scotland
6 – Policy advisor	Scottish Government body
7 – Former policy advisor	Former development agency role
8 – Former policy advisor	Former planning role
9 – Lead of private sector body	Chief Executive
10 – Academic	At a Scottish university
11 – Policy advisor	In a Scottish Government agency
12 – Policy advisor	In a Scottish Government agency

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[i] Here, the Glasgow city-region includes: Glasgow City, North Lanarkshire, South Lanarkshire, Inverclyde, East Renfrewshire, Renfrewshire, East Dunbartonshire, West Dunbartonshire; Edinburgh city-region includes the Lothians – east, west and mid, Fife and the Borders.

[ii] A number of data sources offer perspectives here. First, Transport Scotland (2018: 72), reporting data from the Scottish Household Survey, presents a picture of journey origins and destinations by local authority area (for a combined period 2014-18). This suggests still limited interaction between the two city-regions, with less than 1% of trips that start in Glasgow ending in Edinburgh (0.8%). Conversely, of all trips starting in Edinburgh, 0.9% end in Glasgow. Origin-destination patterns for authorities in both city-regions, such as North and South Lanarkshire (Glasgow) and the Lothian authorities (Edinburgh), present similar ranges. The aforementioned statistics captures more than commuting, and include trips taken for shopping, for example. Commuting patterns are also exhibited in the report, which links area of residence with area of work. The percentage of employed workers who reside in Glasgow but work in Edinburgh is 1.1%. Conversely, 0.8% of employed workers who reside in Edinburgh work in Glasgow. Commuting linkages across other city-region local authorities (as above), suggest higher interactions. For example, of employed workers residing in North Lanarkshire 1.6% commute to Edinburgh, and 4% to the Lothians; the same metric for South Lanarkshire to Edinburgh is 1.7% and 2.2% to the Lothians. Though far outweighed by inter-city-region commuting (e.g. around 30% of employed people who live in the Lothians work in Edinburgh), the insight here is that interactions between the wider areas of the city-region appear marginally higher than interactions between the core areas themselves. Airport passenger statistics, presented by the Civil Aviation Authority (2018), show passengers using the airport and where, in terms of local authority areas, the passengers reside. This shows how hub infrastructure is used across the central belt. This data highlights that Edinburgh airport is used more by passengers with an address in Glasgow (3.2%), than Glasgow airport is used by passengers with an address in Edinburgh (1.8%). Edinburgh airport's position to the west of Edinburgh, on the way to Glasgow effectively, may be a contributing factor. Other insights on linkages can be dawn from business case projections. Relevant to this case, the rail investments between Glasgow and Edinburgh hinge on projections of heightened rail passenger use between the cities (as a result of the infrastructure improvement) (EY, 2014), though this may displace other modes to some degree also. In summary, the data and insights above suggest the view of Bailey and Turok (2001: 697) which pointed to two "separate city-regions" is still very much in tact. In terms of settlement sizes, data show Glasgow sustaining its positions as the largest city-region in Scotland. Travel-to-work area populations show Glasgow at 1.286 million, compared with Edinburgh at 716,000 (as at 2017) (Scottish Government, 2019). The core city local authorities within the city-regions are more comparable, Glasgow City recording 626,000 compared with the City of Edinburgh at 518,500 (as at 2018; Nomis/ONS population estimates). A summary of evidence from the Fraser of Allander Institute highlighted the continued "economic rise of the east" (based on local authority data) (McGeoch, 2019). In this respect, population growth is outpacing that observed in Glasgow, whilst employment rates since the Great Recession tell a similar story. Indeed, Edinburgh exhibits characteristics of fast growth in urban development: notable population and employment growth, but challenges with housing affordability (relative to the rest of Scotland) (McGeoch, 2019). In summary, whilst the balance of overall size still favours Glasgow, Edinburgh is eating away at the differential.

[iii] Across the rest of the central belt, a mix of SNP and Labour administrations, often minority, are in place.