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Governing polycentric urban regions

John Harrison ^a, Michael Hoyler ^a, Ben Derudder ^{b,c}, Xingjian Liu ^d
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ABSTRACT

Widely recognized as an empirical reality, an important analytical framework and a normative goal for territorial development policies, polycentric urban regions (PURs) are the subject of concerted international interest among those charged with planning and governing cities and regions. And yet, why does so much research on cities and regions not really engage with the PUR concept? With the aim of renewing debates surrounding the governance of PURs and the polycentric model of spatial development, we reveal a significant body of hidden research before proceeding to identify dimensions of a future PURS+ research agenda which has critical governance questions at its centre.

KEYWORDS

polycentric urban region; urban and regional policy; urban governance; regional planning

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1. INTRODUCTION: WHY POLYCENTRIC URBAN REGIONS?

'Polycentric urban regions' (PURs) are an empirical reality, an analytical framework and a normative goal for territorial development policies. Empirically, they extend far beyond paradigmatic examples – such as the Dutch Randstad (Zonneveld & Nadin, 2021) – with one-quarter of the European population, and one-third of Europe's urban population, living in a PUR (Meijers et al., 2018). Analytically, the PUR framework is international in scope with the spatial vocabulary of PURs invoked to explain territorial developments in Europe (European Observation Network for Territorial Development and Cohesion (ESPON), 2005; Hall & Pain, 2006), and increasingly beyond, in North America (Sweet et al., 2017), Latin America (Fernández-Maldonado et al., 2014), Africa (Kanai & Schindler, 2019) and, more than anywhere else, China (Cheng & Shaw, 2018, 2021; Huang et al., 2016; Liu et al., 2018). In policy arenas, polycentric development has garnered considerable attention for framing territorial politics and governance around the normative goal of achieving spatially balanced territorial development.

Questions around how to govern PURs are not new (Hall, 1967; Parr, 2004; Van Meeteren, 2022). PURs have long been championed as an innovative way to manage urban–rural relations and pursue regional–territorial development. However, what we see today – and arguably for the

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first time – is a concerted global interest in planning and governing PURs, albeit institutionalized unevenly across space and time. For example, the polycentric model for territorial policy, governance and development has been deeply enshrined in European policy since the 1990s, when polycentricity became the core concept underpinning the newly established European Spatial Development Perspective: ‘the concept of polycentric development has to be pursued, to ensure regionally balanced development, because the EU is becoming fully integrated in the global economy’ (European Commission, 1999, p. 21). Unlike other policy concepts that tend to wax and wane in popularity, a decade later the European Commission reaffirmed ‘polycentric and balanced territorial development’ to be their first priority for the development of the European Union, and a ‘bridging concept’ for achieving the combined goals of ‘territorial cohesion’ and ‘territorial competitiveness’ (also referred to as ‘balanced competitiveness’) (European Commission, 2011, p. 6). To this day, the advice to European policymakers reinforces the centrality of PURs to territorial governance and development:

Giving up attempts to build the ‘Kingdom of Everything’ in one place ... polycentric development is *not* about cities making massive investments in order to grow bigger. Instead it is about building linkages and joining forces with neighbouring cities and towns in order to ‘borrow’ size and quality, to create a stronger critical mass and ensure positive spill-over effects for the development of wider regions.

In this way, polycentric development can contribute to reducing regional disparities at all levels, specifically to avoid further excessive economic and demographic concentration within the core areas at EU and national scale, and to revitalising less densely settled and economically weaker regions. In the long run, polycentric development contributes to making cities and regions more resilient and diversified, which strengthens the competitiveness of Europe in the global economy. (ESPON, 2020, p. 2)

From a research perspective, the late 1990s and early to mid-2000s provided fertile ground for debating the planning and governance of PURs. Despite being almost exclusively European in focus, the international influence of the European spatial development perspective ensured this period proved to be the heyday for PUR related research (Phase 1) (Davoudi, 2003; Faludi & Waterhout, 2002; Hall & Pain, 2006; Meijers, 2005). The next decade then witnessed a resurgent interest in city-regions, underpinned by theories of agglomeration and reflected in increasingly spatially selective policy models, many of which ran counter to the notion of spatially balanced territorial development (Phase 2) (Glaeser, 2011; Organisation for Economic Co-operation and Development (OECD), 2007). It highlighted how policymakers were coming to harness city-regionalism (polycentric or otherwise) as a critical geopolitical device for promoting international competitiveness (Jonas & Moiso, 2018). Of late, however, we are once again seeing a renewed interest in the polycentric model of spatial development to balance efficiency and equity by promoting the capacity to achieve international competitiveness externally while maintaining territorial integrity internally (Phase 3) (Iammarino et al., 2019; Li & Jonas, 2019).

Today, PURs are front and centre of new intellectual and practical debates (Derudder et al., 2022). Unlike the first phase, this renewed interest in PURs is a more-than-European endeavour. We only need to look to China, where the 2014–20 National Plan on New Urbanization signalled a paradigmatic shift away from the previously dominant ‘provinces’, to recognize ‘city clusters’ (*chengshiqun*) as a central policy concept (Wu, 2016). These urban agglomerations are defined as PURs, that is, densely interconnected cities with complementary economic profiles. Moreover, the internationalization of PURs is increasingly reflected in global urban policy, notably the New Urban Agenda: ‘We will support the implementation of integrated, polycentric and balanced territorial development policies and plans, encouraging cooperation and mutual support among different scales of cities and human settlements’ (UN-Habitat, 2016, p. 24).

The starting point for this special issue is that although the rapid growth in, and breadth of, PURs-related research has clearly invigorated this research field, in practice it is often built on surprisingly limited comprehensive evidence (Caset et al., 2021; Natalia & Heinrichs, 2020; Shu et al., 2020). ‘Polycentric puzzles’ persist (Hoyle et al., 2008) and for all the emphasis on the more economic aspects of measuring, modelling and accounting for the growth dynamics of PURs recently (Derudder et al., 2022), urgent questions remain about the veracity of polycentric development as a spatial policy tool, and the governance of PURs.

2. IS THE PUR CONCEPT MISSING IN ACTION?

A key question guiding this special issue is: Why does so much research on urban regions not really engage with the PUR concept? More specifically: why does research in, on or about polycentric urban regions often fail to engage with the PUR concept? In this journal alone, outwith this special issue, recent research by Mackinnon (2020) on the UK’s Northern Powerhouse, Harrison (2021) on the Liverpool–Manchester Atlantic Gateway Strategy, Soijnivaara (2021) on networked models of urban–regional governance in Finland; Valler et al. (2020) on the Oxford–Cambridge Arc, and Williams et al. (2021) on the Delhi–Mumbai Industrial Corridor all mobilize alternative spatial and conceptual vocabulary to discuss what are effectively PUR developments. Paradoxically, the one paper that marshals the PUR concept does so to emphasize ‘polycentric absences’ (Welsh & Heley, 2021). So what is going on? Are PURs as important as we, and others, think they are? In our view, the short answer is yes. PURs are important precisely because they are an empirical reality, a popular policy concept for pursuing balanced territorial development, and an established analytical framework. However, this does not mean PURs – either as concept, approach, method, goal or model – are, or even should be, important in all circumstances. For sure, what it does mean is that PURs are the subject of much critical scrutiny.

Most critical is: [h]ow can we establish an academic debate on whether polycentric urban systems enhance economic competitiveness if we do not even have consensus on what a polycentric urban system is? (Van Meeteren et al., 2016, p. 1279; Münter & Volgmann, 2021; Rauhut, 2017). A basic definition of PURs is a region with multiple, relatively proximate centres, where development across these centres is mutually beneficial and balanced.¹ Importantly, there is no threshold by which a region is polycentric. All regions with reasonably closely spaced urban centres will exhibit some degree of polycentricity (Green, 2007). Therefore, it is the synergy, cooperation and complementarity between the centres which matters – in effect, how polycentric regions are – and the resulting territorial development implications.

Many argue that the value of the PUR concept lay precisely in its malleability to be widely applicable. In policy terms this is an undoubted advantage. Political leaders and policymakers find it expedient to have spatial vocabulary with progressive connotations and easily deployed. While this makes concepts such as PURs popular, the consequence is that the term can often hide more than it reveals. Indeed, you could argue that the PUR concept loses some of its appeal the moment you start defining it. This has been the focus of much PURs research over the past two decades and rather than retrace these well-worn tracks, the contribution of this special issue is to reveal what has, all too often, remained *hidden*. As already noted, there is a significant body of PURs research that is easily missed given it does not deploy the PURs concept. It certainly would not be picked up in any bibliometric exercise. What we are talking about then is PURs+. By revealing some of what is hidden we extend the scope of PURs research, opening the way for a renewed agenda which has critical governance questions at its centre.

3. DIMENSIONS OF A FUTURE PURS+ RESEARCH AGENDA

The contributions to this special issue are not your typical PUR research papers. Largely absent are the predictable visualizations of polycentricity and the latest spatial imaginaries appearing in policy documents. Indeed, most contributions do not engage with policy and strategy documents. So, where is the territorial politics and governance of PURs we hear you ask? The answer is that the contributions do not take territorial politics and governance as their starting point. Apart from Waite (2021, in this issue) revisiting Bailey and Turok's (2001) classic paper on PURs as a planning concept for Glasgow–Edinburgh, governance is the end point rather than the start point. Emphasis is therefore placed on the implications for, rather than implications of, governing PURs.

In this special issue the PURs+ agenda takes four forms. First, it *extends the thematic foci* of PURs research to consider polycentricity in relation to real estate (Pain et al., 2020, in this issue), enclaves (Phelps et al., 2020, in this issue) and ports (Van den Berghe et al., 2022, in this issue). As the latter argue, this is not simply extending the focus for the sake of it: 'Given the resemblances between PURs and polycentric port systems, the wider aim of this study is therefore to move beyond urban systems when discussing polycentric development' (Van den Berghe et al., 2022, in this issue).

Second, the contributors look beyond the PURs concept to explain polycentric urban development – and the governance thereof – via *an extended range of spatial vocabulary and conceptual framings*. To explain polycentric port systems, Van den Berghe et al. (2022, in this issue) borrow 'emergence' from relational and complexity theory to examine relations between the three dimensions of polycentric systems (morphological, functional, institutional). Likewise, Phelps et al. (2020, in this issue) mobilize emerging ideas around 'enclave urbanism' to show how extant PURs research on functional polycentricity risks 'conflat[ing] intra- and intercity linkages with enclave-to-enclave linkages, despite the potentially very different qualities of the linkages involved – including their governance (planning, regulation and administration)'. In a third example, Waite (2021, in this issue) mobilizes Jessop et al.'s (2008) Territory–Place–Scale–Network (TPSN) framework to argue how traditional considerations of polycentricism at the network–place interface 'cursorily discard the morphological elements' (p. 13) essential to understanding the territorial politics and governance issues facing PURs. Meanwhile, finally, and related, Pain et al. (2020, in this issue) argue for this topographical as well as topological approach to PURs research when bringing back questions of urban density as they relate to the spatial configuration of commercial office investment and capital flows. Connecting all the accounts here is a single overriding concern: the governance of PURs requires more expansive and inclusive interpretations of polycentricism. Moreover, and extending this one stage further, Pain et al. (2020, in this issue) attest to the methodological challenges this presents. Capturing the complexity of the conflicted territorial politics of the PUR space of governance remains, in their words, 'problematic' and therefore requires an 'exploratory approach'. This does not necessitate finding all the answers, but it can 'assist with filling theoretical and empirical gaps' and, in their own research, 'indicate potentials for incorporating real estate and topologically and topographically refined density definitions and metrics in future urban and regional analysis' (p. 14).

Third, it *weakens the link between PUR governance and planning/policy documents*. This is significant given the near-constant policy churn in pursuit of spatial economic growth and the ease with which PURs can be marginalized in policy by powerful scalar forces pushing alternative development models. With Waite (2021, in this issue) highlighting failings in the top-down policy imposition of the PUR idea, it is perhaps unsurprising that Wittwer (2020, in this issue) approaches regional cooperation in Swiss PURs from a bottom-up perspective, arguing:

A bottom-up view of cooperation provides perspective on the challenges of planning and governing PURs. It goes beyond top-down planning strategies by considering the factors that actually enable or

impede the successful implementation of strategies that aim to create spatially balanced territorial development in a polycentric context. (p. 16)

Connecting to broader debates on the practice of regional planning occurring outside formalized planning structures (Harrison et al., 2022), PURs have the capacity to act as an important binding mechanism for overcoming difficulties presented by more rigid forms of regional administration. Van den Berghe et al. (2022, in this issue) are equally quick to emphasize how the ‘high-degree of morphological and functional polycentricity’ evident in the Dutch–Belgian Amsterdam–Rotterdam–Antwerp (ARA) cross-border polycentric port region ‘is not the intended result of formalized spatial planning’ and ‘nor did ARA ever become a frame of reference among planning agencies’. This allows the authors to present a significant challenge to researchers of PURs:

Within the PUR literature, the existence of a polycentric urban system is too often considered a top-down planning exercise, while the true agents of the unfolding polycentric system are firms and households. This focus on non-public sectors is especially important to understand the development of functional relations (flows) between polycentric systems. Our case study shows that private actors often lead the way, and public government follows, in different ways at different levels. (pp. 15–16)

To further emphasize this point, Van den Berghe et al. draw an important distinction between the Rhine–Scheldt Delta (RSD) and ARA:

While RSD is mainly an academic analytic concept, the ARA as a coherent region does not originate from a public policy vision, territorial planning document or by planning by design. The concept of the ARA is the explicit geographical reference for physical delivery of oil products in commodity futures and forward contracts traded both off and on commodity exchanges. (p. 3)

What is most revealing about this whole story, however, is that the ARA case study overlays two PUR archetypes: the Dutch Randstad and the Flemish Diamond. Only by putting the latter firmly in the background does it allow the hidden PUR to take centre stage.

Finally, and aptly, there is the *territory–politics–governance nexus* that runs through all the contributions. This is no more evident than in Li et al.’s (2022, in this issue) exploration of how negotiations over bridge building in China’s Pearl River Delta politicizes the PUR. They reveal how the bridge connecting Guangzhou and Dongguan changed its name from the original proposal favouring the relatively neutral ‘Second Humen Bridge’ or ‘Shatian Bridge’ (the landing site on the Dongguan side) to the eventual ‘Nansha Bridge’ (landing site of the Guangzhou side), which favoured the territorial branding strategy and regional ambition of Guangzhou. More broadly, the territorial politics of governing the Pearl River Delta PUR is reflected in bridges connecting the more economically advanced cities of Guangzhou, Hong Kong and Shenzhen, with the relatively less privileged cities of Dongguan, Zhuhai and Zhongshan. Even though the demand for a bridge connecting Hong Kong with Shenzhen is high, Hong Kong is shown to be willing to connect with its less competitive neighbour, Zhuhai, but reluctant to build regional transport infrastructure with what is seen to be a direct competitor, Shenzhen. While this does not necessarily imply resistance to the fundamental principle of forming ‘infrastructure alliances’ to the mutual benefit of competitor cities within a PUR (Wachsmuth, 2017), it certainly does show that the more powerful the cities the more difficult it is to negotiate and institute a growth alliance.

Standing in stark contrast to investment in flagship physical infrastructure connections between major cities, Wittwer’s (2020, in this issue) analysis of how and why some small and medium-sized towns in PURs decide to cooperate, while others do not, in a Swiss context less

influenced by top-down planning than other European and non-European countries reflect the plurality in approach for considering the territory–politics–governance nexus in PURs research. Despite Wittwer’s alternative starting point, the same research finding emerges. PURs can be a useful binding device in any context, but to understand why centres choose to cooperate, while others do not, requires a systematic consideration of potential costs and benefits for each place. From a territorial development perspective, it is only by knowing where the obstacles to polycentric cooperation are vis-à-vis where the costs and benefits make cooperation describable that policymakers can begin to adequately plan with PURs.

Beyond the four specific dimensions of a future PURs+ research agenda derived from the contributions to this special issue, we would argue that wider societal and environmental changes will lead to a resurgence of interest in the governance of PURs. This new phase is already being characterized by intense scrutiny of the role density and connectivity play in the spread of Covid-19 (Connolly et al., 2021; Dodds et al., 2020; McFarlane, 2021). Increasingly, attention is focused on the shifting spatialities of pandemic urban regions and their potential post-pandemic futures. PURs are going to be central to this debate because a ‘polycentric model might be more flexible in accommodating necessary post-Covid changes, by spreading out economic activity while retaining connectivity and some aspects of centrality’ (Kleinman, 2020, p. 1137). At the same time, PURs as a concept has been intimately tied to mobility and work patterns, which have seen dramatic and potentially enduring change. If questions about the governance of PURs have typically focused on challenges of fragmentation and cooperation/competition (Hoyler et al., 2006), we now have to add significant uncertainty about the short-, medium- and long-term future polycentricity of urban regions. At a time when critical governance questions are being asked, not only about the pandemic but the ongoing climate crisis for example, PURs are once more being offered up as potential model for future territorial development. While the jury is still out on the polycentric model as a normative goal, this special issue highlights how PURs as a concept and approach are essential for understanding the governance of cities and regions in the current moment.

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NOTE

1. These centres are typically cities, but our use of ‘centres’ here is deliberate. ‘Centres’ is a more neutral term that allows the extension of the polycentricity concept beyond the urban. In this way it recognizes that the starting point for a polycentric system is not exclusively cities – for example, the starting point for Van den Bergh et al. (2022, in this issue) is a port system, with the crucial point being that the subject under investigation may or may not be based within cities.

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REFERENCES

- Bailey, N., & Turok, I. (2001). Central Scotland as a polycentric urban region: Useful planning concept or chimera? *Urban Studies*, 38(4), 697–715. <https://doi.org/10.1080/00420980120035295>
- Caset, F., Derudder, B., Van Migerode, C., & De Wit, B. (2021). Mapping the spatial conditions of polycentric urban development in Europe: An open-source software tool. *Geographical Analysis*, <https://doi.org/10.1111/gean.12313>
- Cheng, H., & Shaw, D. (2018). Polycentric development practice in master planning: The case of China. *International Planning Studies*, 23(2), 163–179. <https://doi.org/10.1080/13563475.2017.1361318>
- Cheng, H., & Shaw, D. (2021). Polycentric development and the formation of edge urban areas in China’s mega city regions: Case study of Nansha, Guangzhou. *International Journal of Urban and Regional Research*, 45(6), 1009–1027. <https://doi.org/10.1111/1468-2427.13045>
- Connolly, C., Keil, R., & Ali, H. (2021). Extended urbanisation and the spatialities of infectious disease: Demographic change, infrastructure and governance. *Urban Studies*, 58(2), 245–263. <https://doi.org/10.1177/0042098020910873>
- Davoudi, S. (2003). Polycentricity in European spatial planning: From an analytical tool to a normative agenda. *European Planning Studies*, 11(8), 979–999. <https://doi.org/10.1080/0965431032000146169>
- Derudder, B., Meijers, E., Harrison, J., Hoyler, M., & Liu, X. (2022). Polycentric urban regions: Conceptualization, identification and implications. *Regional Studies*, 56(1), 1–6. <https://doi.org/10.1080/00343404.2021.1982134>
- Dodds, S., Castan Broto, V., Detterbeck, K., Jones, M., Mamadouh, V., Ramutsindela, M., Varsanyi, M., Wachsmuth, D., & Woon, C. Y. (2020). The COVID-19 pandemic: Territorial, political and governance dimensions of the crisis. *Territory, Politics, Governance*, 8(3), 289–298. <https://doi.org/10.1080/21622671.2020.1771022>
- European Commission. (1999). *European Spatial Development Perspective: Towards Balanced and Sustainable Development of the Territory of the European Union*.
- European Commission. (2011). *Territorial Agenda of the European Union 2020 – Towards an Inclusive, Smart and Sustainable Europe of Diverse Regions*.
- European Spatial Planning Observation Network (ESPON). (2005). *Potentials for Polycentric Development in Europe* https://www.espon.eu/sites/default/files/attachments/fr-1.1.1_revised-full_0.pdf.
- European Spatial Planning Observation Network (ESPON). (2020). *Polycentric Territorial Structures and Territorial Cooperation: Polycentric Development Potentials* https://www.espon.eu/sites/default/files/attachments/ESPON_policy_brief_polycentricity_071016_FINAL_0.pdf.

- Faludi, A., & Waterhout, B. (2002). *The making of the European Spatial Development Perspective: No masterplan*. Routledge.
- Fernández-Maldonado, A., Romein, A., Verkoren, O., & Parente Paula Pessoa, R. (2014). Polycentric structures in Latin American metropolitan areas: Identifying employment sub-centres. *Regional Studies*, 48(12), 1954–1971. <https://doi.org/10.1080/00343404.2013.786827>
- Glaeser, E. L. (2011). *Triumph of the city*. Macmillan.
- Green, N. (2007). Functional polycentricity: A formal definition in terms of social network analysis. *Urban Studies*, 44(11), 2077–2103. <https://doi.org/10.1080/00420980701518941>
- Hall, P. (1967). Planning for urban growth: Metropolitan area plans and their implications for south-east England. *Regional Studies*, 1(2), 101–134. <https://doi.org/10.1080/09595236700185131>
- Hall, P., & Pain, K. (2006). *The polycentric metropolis: Learning from mega-city regions in Europe*. Routledge.
- Harrison, J. (2021). Seeing like a business: Rethinking the role of business in regional development, planning and governance. *Territory, Politics, Governance*, 9(4), 592–612. <https://doi.org/10.1080/21622671.2020.1743201>
- Harrison, J., Galland, D., & Tewdwr-Jones, M. (eds.). (2022). *Planning regional futures*. Routledge.
- Hoyler, M., Freytag, T., & Mager, C. (2006). Advantageous fragmentation? Reimagining metropolitan governance and spatial planning in Rhine Main. *Built Environment*, 32(2), 124–136. <https://doi.org/10.2148/benv.32.2.124>
- Hoyler, M., Kloosterman, R., & Sokol, M. (2008). Polycentric puzzles – Emerging mega-city regions seen through the lens of advanced producer services. *Regional Studies*, 42(8), 1055–1064. <https://doi.org/10.1080/00343400802389377>
- Huang, X., Li, Y., & Hay, I. (2016). Polycentric city-regions in the state-scalar politics of land development: The case of China. *Land Use Policy*, 59, 168–175. <https://doi.org/10.1016/j.landusepol.2016.08.037>
- Iammarino, S., Rodríguez-Pose, A., & Storper, M. (2019). Regional inequality in Europe: Evidence, theory and policy implications. *Journal of Economic Geography*, 19(2), 273–298. <https://doi.org/10.1093/jeg/lby021>
- Jessop, B., Brenner, N., & Jones, M. (2008). Theorizing sociospatial relations. *Environment and Planning D: Society and Space*, 26(3), 389–401. <https://doi.org/10.1068/d9107>
- Jonas, A. E. G., & Moisisio, S. (2018). City regionalism as geopolitical processes: A new framework for analysis. *Progress in Human Geography*, 42(3), 350–370. <https://doi.org/10.1177/0309132516679897>
- Kanai, J. M., & Schindler, S. (2019). Peri-urban promises of connectivity: Linking project-led polycentrism to the infrastructure scramble. *Environment and Planning A: Economy and Space*, 51(2), 302–322. <https://doi.org/10.1177/0308518X18763370>
- Kleinman, M. (2020). Policy challenges for the post-pandemic city. *Environment and Planning B: Urban Analytics and City Science*, 47(7), 1136–1139. <https://doi.org/10.1177/2399808320950252>
- Li, Y., & Jonas, A. E. G. (2019). City-regionalism as countervailing geopolitical processes: The evolution and dynamics of Yangtze River Delta region, China. *Political Geography*, 73(1), 70–81. <https://doi.org/10.1016/j.polgeo.2019.05.014>
- Li, Y., Wu, M., Derudder, B., Ng, S. Y. P., & Liu, X. (2022). Politicizing the polycentric urban region: Bridge connection negotiations in the Pearl River Delta, China. *Territory, Politics, Governance*, 1–17. <https://doi.org/10.1080/21622671.2022.2039276>
- Liu, X., Derudder, B., & Wang, M. (2018). Polycentric urban development in China: A multi-scale analysis. *Environment and Planning B: Urban Analytics and City Science*, 45(5), 953–972. <https://doi.org/10.1177/2399808317690155>
- Mackinnon, D. (2020). Governing uneven development: The Northern Powerhouse as a ‘state spatial strategy’. *Territory, Politics, Governance*, 9(5), 1–23. <https://doi.org/10.1080/21622671.2020.1743202>
- McFarlane, C. (2021). Repopulating density: COVID-19 and the politics of urban value. *Urban Studies*, <https://doi.org/10.1177/004209802111014810>
- Meijers, E. (2005). Polycentric urban regions and the quest for synergy: Is a network of cities more than the sum of the parts? *Urban Studies*, 42(4), 765–781. <https://doi.org/10.1080/00420980500060384>
- Meijers, E., Hoogerbrugge, M., & Cardoso, R. (2018). Beyond polycentricity: Does stronger integration between cities in polycentric urban regions improve performance? *Tijdschrift Voor Economische en Sociale Geografie*, 109(1), 1–21. <https://doi.org/10.1111/tesg.12292>

- Münter, A., & Volgmann, K. (2021). Polycentric regions: Proposals for a new typology and terminology. *Urban Studies*, 58(4), 677–695. <https://doi.org/10.1177/0042098020931695>
- Natalia, V., & Heinrichs, D. (2020). Identifying polycentricism: A review of concepts and research challenges. *European Planning Studies*, 28(4), 713–731. <https://doi.org/10.1080/09654313.2019.1662773>
- Organisation for Economic Co-operation and Development (OECD). (2007). *Competitive cities in the global economy*. OECD.
- Pain, K., Shi, S., Black, D., Blower, J., Grimmond, S., Hunt, A., Milcheva, S., Crawford, B., Dale, N., Doolin, S., & Manna, S. (2020). Real estate investment and urban density: Exploring the polycentric urban region using a topological lens. *Territory, Politics, Governance*, 1–20. <https://doi.org/10.1080/21622671.2020.1837665>
- Parr, J. (2004). The polycentric urban region: A closer inspection. *Regional Studies*, 38(3), 231–240. <https://doi.org/10.1080/003434042000211114>
- Phelps, N., Miao, J. T., & Zhang, X. (2020). Polycentric urbanization as enclave urbanization: A research agenda with illustrations from the Yangtze River Delta region (YRDR), China. *Territory, Politics, Governance*, 1–20. <https://doi.org/10.1080/21622671.2020.1851750>
- Rauhut, D. (2017). Polycentricity – one concept or many? *European Planning Studies*, 25(2), 332–348. <https://doi.org/10.1080/09654313.2016.1276157>
- Shu, X., Han, H., Huang, C., & Li, L. (2020). Defining functional polycentricity from a geographical perspective. *Geographical Analysis*, 52(2), 169–189. <https://doi.org/10.1111/gean.12195>
- Soininvaara, I. (2021). The spatial hierarchies of a networked state: Historical context and present-day imaginaries in Finland. *Territory, Politics, Governance*, 1–20. <https://doi.org/10.1080/21622671.2021.1918574>
- Sweet, M. N., Bullivant, B., & Kanaroglou, P. S. (2017). Are major Canadian city-regions monocentric, polycentric, or dispersed? *Urban Geography*, 38(3), 445–471. <https://doi.org/10.1080/02723638.2016.1200279>
- UN-Habitat. (2016). *Habitat III – New Urban Agenda*.
- Valler, D., Jonas, A. E. G., & Robinson, L. (2020). Evaluating regional spatial imaginaries: The Oxford–Cambridge Arc. *Territory, Politics, Governance*, 1–22. <https://doi.org/10.1080/21622671.2020.1851751>
- Van den Berghe, K., Peris, A., Meijers, E., & Jacobs, W. (2022). Friends with benefits: The emergence of the Amsterdam–Rotterdam–Antwerp (ARA) polycentric port region. *Territory, Politics, Governance*, 1–20. <https://doi.org/10.1080/21622671.2021.2014353>
- Van Meeteren, M. (2022). A prehistory of the polycentric urban region: excavating Dutch applied geography, 1930–60. *Regional Studies*, 56(1), 7–20. <https://doi.org/10.1080/00343404.2020.1800629>
- Van Meeteren, M., Poorthuis, A., Derudder, B., & Witlox, F. (2016). Pacifying Babel’s Tower: A scientometric analysis of polycentricity in urban research. *Urban Studies*, 53(6), 1278–1298. <https://doi.org/10.1177/0042098015573455>
- Wachsmuth, D. (2017). Infrastructure alliances: Supply-chain expansion and multi-city growth coalitions. *Economic Geography*, 93(1), 44–65. <https://doi.org/10.1080/00130095.2016.1199263>
- Waite, D. (2021). Agglomeration is in the eye of the beholder: The changing governance of polycentricism. *Territory, Politics, Governance*, 1–19. <https://doi.org/10.1080/21622671.2021.1886978>
- Welsh, M., & Heley, J. (2021). Rural regionalism in the 21st century: A tale of no cities. *Territory, Politics, Governance*, 1–20. <https://doi.org/10.1080/21622671.2021.1916579>
- Williams, G., Mahadevia, D., Schindler, S., & Chattaraj, S. (2021). Megaprojects, mirages and miracles: Territorializing the Delhi–Mumbai Industrial Corridor (DMIC) and state restructuring in contemporary India. *Territory, Politics, Governance*, 1–22. <https://doi.org/10.1080/21622671.2020.1867630>
- Wittwer, S. (2020). Voluntary regional cooperation in Swiss polycentric regions. *Territory, Politics, Governance*, 1–20. <https://doi.org/10.1080/21622671.2020.1837663>
- Wu, F. (2016). China’s emergent city-region governance: A new form of state spatial selectivity through state-orchestrated rescaling. *International Journal of Urban and Regional Research*, 40(6), 1134–1151. <https://doi.org/10.1111/1468-2427.12437>
- Zonneveld, W., & Nadin, V. (eds.). (2021). *The Randstad: A polycentric metropolis*. Routledge.