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Reading Sami Moisiö's Geopolitics of the Knowledge-Base

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Review Forum

Reading Sami Moisió's *Geopolitics of the Knowledge-Based Economy*, Routledge, London and New York (2018). xi + 182 pp.; bibliog; index. US \$145.00 (hardback), US \$27.48 (ebook) ISBN: 9781138821996, US\$ 47.95 (paperback) ISBN 978-0-367-87131-4.

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Review Forum

Reading Sami Moisio's *Geopolitics of the Knowledge-Based Economy*, Routledge, London and New York (2018). xi + 182 pp.; bibliog; index. US \$145.00 (hardback), US \$27.48 (ebook) ISBN: 9781138821996, US\$ 47.95 (paperback) ISBN 978-0-367-87131-4.

1. Introduction

Christian Sellar

In early 2018, around the time of its release, Sami Moisio's latest book appeared on several online databases with the incorrect title of *Geopolitics of the Knowledge-Based Society*. Most online sellers soon corrected the mistake, substituting *Economy* for *Society*. The error, however, was a telling one, indicating the difficulty of thinking about the (geo)political and the economic as intimately related categories. Regardless of the initial confusion, geographers soon recognized the value of Moisio's contribution, which was recently awarded the prestigious RSA Routledge Best Book Award for 2019. This award indicates the importance of Moisio's empirically grounded theorization of that politically charged marker of advanced Western economies, the 'knowledge-based economy'.

With the goal of further teasing out the relationship between the geopolitical and the economic, Moisio and the five of the authors of this review forum convened in April 2019; soon thereafter, the organizers invited Martin Jones to join the conversation. The venue of the initial meeting was an author-meets-critics panel at the Annual Meeting of the American Association of Geographers in Washington, DC. The panel included scholars with varying research agendas relating to state theory, transnational bureaucracies, and the interplay between economic activities and politics at multiple scales. Together, the forum participants tackled the relatively slim – 182 pages including the index and bibliography – but conceptually rich book, whose seven chapters develop the notion of *knowledge-based economization* (KBE)

The book's introduction sets the stage by developing Çalışkan and Callon's (2009) notion of economization to refer both to the material processes of knowledge-intensive capitalism and the discursive processes underpinning it. The central argument of the book is that knowledge-based economization has a crucial geopolitical dimension. In a nutshell, Moisio argues that two entangled processes shape contemporary geopolitics: on the one hand, the traditional *realpolitik* of states' territorial power; and, on the other hand, the imagined hubs and flows of capital that produce 'territories of wealth' (p. 7). This argument runs contrary to established views that pit the traditional geopolitics of competing, territorialized states against a newer, (neo)liberal world order characterized by networks and flows of information and capital.

The following chapters develop this argument and provide empirical evidence for it. Chapter 2 analyses the knowledge-based economy as a multi-faceted concept that indicates the growing significance of knowledge as a factor of production. Rather than taking the 'economy' as a pre-

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59 given notion, this chapter looks at economization as a process by which knowledge-intensive
60 capitalism is constituted by both discourses and practices. Chapter 3 develops an understanding
61 of geopolitics as an effort by OECD countries to re-construct cities, regions, states, and
62 supranational entities like the European Union according to models of the knowledge-based
63 economy. In this chapter the author fully develops the argument that the distinction between
64 geopolitics and geoeconomics is fundamentally flawed. Chapters 4 through 8 discuss different
65 ways that the knowledge economy has become imbricated in, and constitutive of, geopolitics in
66 the post-Fordist period. Chapter 4 is dedicated to the role of experts. It shows how leading
67 academics generated the discourses and spatial imaginaries that made the knowledge-based
68 economy possible by connecting people with institutions across established scales. Chapter 5
69 explains how such connections happened, i.e. how discourses centred on ‘network societies’
70 contributed to the production of new geopolitical subjects. Chapters 6 and 7 are empirical
71 chapters. Both build on fieldwork and documents collected in Finland, focusing respectively on
72 the recasting of Aalto University as a producer of transnational labour, and on the Guggenheim
73 Museum in Helsinki as an example of the role of urban spaces in geopolitics. Chapter 8
74 concludes the book, reiterating the argument that the knowledge-based economy is a new
75 strategy in an established geopolitics in which states strive to produce territories of wealth and
76 power.
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81 Three major themes emerge from the commentaries that push forward a research agenda on
82 the geopolitics of the economy. First, contributors discuss how the geopolitics of economic life
83 plays out beyond the Northern European context highlighted by Moisio. Both Paul Adams and
84 June Wang argue that KBE ‘looks different’ from the perspective of states that claim
85 superpower status, like the US, Russia and China. Adams argues that each one of these cases
86 ‘reveals several distinct ways of integrating geopolitics and knowledge that diverge from the
87 particular (Finnish) form of “knowledge-based economization” outlined by Moisio. Delving
88 deeper into the Chinese case, Wang looks at the Sino-American trade war and China’s revival of
89 the Silk Road as a deployment of both “soft power” techniques to encourage flows of
90 knowledge and capital, and “hard power” techniques that we more commonly associate with
91 traditional geopolitics.
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95 Second, contributors attentively and critically engage Moisio’s conceptualization of KBE. Chris
96 Gaffney questions the treatment of concepts central to discussions of KBE, such as ‘state’,
97 ‘urban’, and ‘city geopolitics’. City geopolitics, and especially the role of universities, features in
98 both Gaffney’s and June Wang’s piece. By looking at the negotiations between various layers of
99 government to promote higher education in China, Wang invites further unpacking of the
100 ‘policy discourses that serve knowledge-based economization’, which are ‘full of negotiations
101 among respective interests.’ Martin Jones calls for deeper attention to the interactions
102 between the knowledge-based economy and the cultural political economy, while Merje Kuus
103 calls for an updated discussion of political space and state power based on recent works on
104 geoeconomics and international political economy. Kuus also calls for more grounded empirical
105 work that explores the varying spaces of KBE. Third, mostly through Joe Painter’s thought-
106 provoking essay, this forum invites further investigations of the ‘dark’—that is, unethical and
107 damaging— consequences of KBE. Painter especially argues that the progressive veneer of KBE
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115 actually masks the deteriorating working conditions, environmental degradation, and gendered
116 exploitation wrought by 'innovation'.
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119 Moisio's response dedicates a section to each theme. He begins by pointing out that traditional
120 territorial geopolitics and KBE are actually enmeshed in state strategies. Addressing Kuus'
121 critique, he points out that the book purposefully focuses on key scholars and public
122 intellectuals who were instrumental in framing the imaginaries underpinning such heightened
123 competition. Rejecting Gaffney's position, he provides a thorough discussion of city geopolitics
124 and the rescaling of state structures to accommodate new forms of competition in the
125 knowledge-based economy. Embracing Wang's position, he highlights the negotiations involved
126 in states' attempts to produce, territorialize, and capture the value of KBE. Moisio also argues
127 that his book is about establishing a more productive conversation between heterodox political
128 economy, urban studies and political geography. The latter is especially visible in the second
129 section of the response, which addresses the geographical specificities of KBE beyond Europe.
130 Here, he shows that crucial elements of KBE are enmeshed within traditional geopolitics. In
131 doing so, he shows that KBE is promoted by, but not necessarily coincidental with, neoliberal
132 policies and attitudes. Such a complex relationship between KBE and neoliberalism provides a
133 point of entry to explore the dark, damaging side of KBE highlighted by Painter. Moisio notes
134 that as a political-economic process, KBE has been socially divisive, rooted in and generative of
135 oftentimes hidden forms of uneven development. Taken together, the commentaries and the
136 author's responses show this book's potential for trailblazing a new field of research on the
137 boundaries between political geography, urban studies and heterodox political economy. Thus,
138 I join the authors of this commentary in thanking Sami for his hard work and for sparking
139 further conversation both within and outside of the discipline about the spatial dimensions of
140 the contemporary political economy.
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146 **2. The knowledge-based economy and crisis semiosis**

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148 *Martin Jones*
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150 This is an ambitious and timely book indeed. Sami Moisio is interested in the global project of
151 the knowledge-based economy and the complex and contingent ways in which economic
152 imaginaries of competitiveness, skills, intellectual capital, high-technology clusters, flexible
153 specialization, and knowledge-driven workers come together in, and shape, cities and regions.
154 The Lisbon Strategy, devised in 2000 and replaced by the Europe 2020 Strategy, for instance,
155 aimed to make the European Union the most competitive and dynamic knowledge-based
156 economy in the world, capable of providing sustainable economic growth, creating more and
157 better jobs, and fostering greater urban and regional social cohesion. Situating knowledge is
158 important. Moisio is based in Helsinki, Finland, where he has observed spatial planning,
159 cohesion policies, and economic competitiveness strategies—all of them central to the Finnish
160 growth model—unfolding within a KBE framework.
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171 The purpose of the book is to define and explain how the knowledge-based economy, rather
172 than a stable given, is created and recreated through contested discursive and material
173 practices. The book, in effect, lays out for its readers the political economy of the knowledge-
174 based economy. To achieve this, Moisio offers an expanded definition of geopolitics that
175 stretches beyond the traditional concerns with territorial expansion, nationhood, and
176 boundaries and borders to include 'geoeconomics'. The twin processes of our contemporary
177 condition, then, are not mutually exclusive, but take place simultaneously and may be
178 entangled, generating various context-specific spatial formations (as in Finland), as well as
179 tensions and contradictions. In other words, Moisio suggests, territorial competition and the
180 purportedly boundless neoliberal world of knowledge-intensive capitalism are not mutually
181 exclusive; rather, they are parallel developments that co-constitute the contemporary
182 geopolitical condition. This is an important and powerful argument, and Moisio should be
183 congratulated for tackling it.
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187 Moisio unpacks this argument with a methodological concern for the 'geopolitical constituents'
188 (or moments, perhaps) of knowledge-based economization that operate through different
189 kinds of social practices and particular ideational elements. The book scrutinizes the subtle
190 ways in which knowledge-based economization has shaped the material and interior
191 dimensions of people's lives in Finland, and in Europe more broadly, over the past twenty years.
192 Early in the book, Moisio integrates key ideas and literatures from various fields and offers
193 conceptual clarifications on how this knowledge-based economization operates. To bring
194 together discursive and material readings of the knowledge-based economy, Moisio draws on
195 the 'cultural political economy' (CPE) approach, which is offered up as the central theoretical
196 foundation of the book. CPE is an emerging post-disciplinary approach that highlights the
197 contribution of the cultural turn (signalling a concern with semiosis or meaning-making) to the
198 analysis of the economic and the political, and articulation and embeddedness of the economic
199 and the political in broader sets of social relations. CPE, then, studies the semiotic construction
200 of economic, political (and social) realities. As applied to knowledge-based economization, the
201 CPE approach highlights three constitutive dimensions: geopolitical discourses, the production
202 of geopolitical objects in calculative practices, and geopolitical subjects.
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206 The deployment of the CPE conceptual framework works unevenly throughout the book. Some
207 chapters are better than others in their application of CPE for understanding the knowledge-
208 based economy. Chapters 4 and 5 for instance refer little to CPE and instead offer a more
209 conventional political economy critique of how 'expert knowledge' on the knowledge-based
210 economy is produced. Moisio critiques Porter's work on economic clustering and knowledge-
211 intensive competition to show how management discourse has been produced and
212 disseminated into the realm of politics in recent decades. We get an insight into how
213 management knowledge is economically and politically constructed at a general level, but the
214 specifics of how state projects and related struggles articulate and generate meaning is less
215 evident. The constitutive interplay between knowledge-based economization,
216 subjectivity/subject formation and political space requires more attention.
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Chapters 6 and 7 do offer more substantive and grounded exploration of the book's central conceptual concerns. Chapter 6 looks at the materialization of the knowledge-based economy in the higher education sector and examines the production of geopolitical subjects in this sector. Moisio analyses the case of Aalto University in Finland to demonstrate the links between the knowledge-based economy and its place-making dynamics ('re-territorialization' as he calls it). Rich empirical discussion centres on the role of performance indicators, league tables and other parameters of neoliberalization. This discussion explores how agency plays out with regard to neoliberal state practices and the making of geopolitical subjects through notions of skills, occupation, and 'relevant' outputs from the labour market. This discussion substantively demonstrates how previously nationally scaled Finnish universities are in a process of being turned into transnational sites of learning and how CPE can help to unpack this. These themes continue in Chapter 7, which demonstrates the ways in which knowledge-based economization materializes in cities through governing strategies, agency, and struggles. The book's conclusion offers a synthesis of the two states of the geopolitical that characterise the contemporary condition: territorial geopolitics and the geopolitics of the knowledge-based economy. It revisits the relationship between neoliberalization and knowledge-based economization, and it makes some observations on the limits, possible policy failures, tensions, contradictions, and crisis tendencies of KBE, projecting issues for future research on the socio-spatial equalities inherent to knowledge-based economization.

Rich in interdisciplinary engagement and empirical reflection, *Geopolitics of the Knowledge-Based Economy*, for this reader, represents the most comprehensive overview written by a geographer of the knowledge-based economy. Sami Moisio should be congratulated for producing such an ambitious and timely book, which genuinely breaks new ground and which should inspire readers to take this project further by unpacking other critical dimensions of advanced neoliberalism. Still, whilst the book achieves its twin objectives of expanding our understanding of geopolitics beyond traditional matters of territorial expansion, interstate competition, and statecraft, it falls short of providing a coherent deployment of cultural political economy to understand the specifics of our present conjuncture. Demonstrating the power of CPE would require Moisio to take more seriously notions of crisis and contradiction—moments of disruption, transformation, destruction and creation that are connected to the broader dynamics of capitalism. This can be undertaken in three cuts.

First, analysis needs to focus on the knowledge-based economy as a moment of 'crisis semiosis', whereby state agents identify and construct the knowledge-based economy, with specified lines of action over different time frames and spatial horizons. Second, the challenge is then to relate this to 'crisis symptomatology', that is, to identify the range of policy interventions that draw on past experiences but that may also require some forgetting to ensure a 'correct' intervention. Third, more attention to contingency is critical, as crisis and state response therein is not a single event but a contingent series of connected events that open up avenues of action, choice, constraint, and resistance. Moisio's discussion of higher education economization comes closest to this analysis, but future work is needed to unpack the multifarious ways in which semiosis (sense-making and meaning-making) and construal (symptomatology in the context of how problems are constructed and solutions articulated) are

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283 deployed in restructuring the state across its many dimensions. This would enable the analysis
284 of how objects of regulation and governance are co-constituted, and more importantly, how
285 they are contested and how they may fail.
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289 **3. Knowledge-based economization and the entanglements of place**

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291 *June Wang*
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293 At the time of writing this review, the Trump administration had just barred Huawei, the
294 Chinese tech giant, from engaging in business with American firms in the name of national
295 security—a move that hearkens to the 1980s when the United States restricted the access of
296 Japanese semiconductor producers to the US market. These Sino-American tensions on trade,
297 many warn, risk escalating to a new cold war, if not an actual hot war. This prospect renders
298 *Geopolitics of Knowledge-Based Economy*, by Sami Moisio, a timely source for exploring the
299 political geography of the knowledge-based economy. The knowledge-based economy is a
300 buzzword that has been popularised by politicians, policymakers and economists for more than
301 three decades. Turning a critical eye to this discourse, Moisio’s book provides a systematic
302 examination of the emergence of knowledge-based economization, which he describes as a ‘a
303 spatial process of state transformation’ (p. 41).
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307 Situated in a burgeoning field of scholarship that links the political and the economic,
308 *Geopolitics of Knowledge-Based Economy* sheds light on two key processes: (1) economization,
309 which entails material processes of knowledge-intensive capitalism and the discursive
310 construction of imaginary and objectifying practices (Çalışkan and Callon, 2009); and (2) the
311 post-Westphalian imagining of the world as a network consisting of urban hubs, network
312 regions, and economic zones (Agnew and Corbridge, 1995). Drawing upon a cultural political
313 economy approach (Jessop and Sum, 2010) and the concept of a transnational state apparatus,
314 Moisio argues that knowledge-based economization is a political process through which the
315 networked state apparatus produces the spatial orders associated with knowledge-intensive
316 capitalism.
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319 Moisio artfully reveals the genealogy of the geopolitics of knowledge-based economisation,
320 supporting his arguments with data collected from two decades’ worth of observation. The
321 book’s creative examination of the flow-and-hub imaginaries in knowledge-intensive capitalism
322 starts with the circulation of scholarly concepts and policy paradigms among academics, policy
323 makers and consultants. Drawing on critical insights into management literature, Moisio traces
324 the origins of several terms that have become popular among policymakers, such as
325 ‘competition’, ‘competitiveness’, ‘cluster’ and ‘national innovation system’. This new
326 terminology speaks to the dismantling of conventional understandings of territoriality based on
327 the possession of natural resources and to the construction of new ideas of economic territory
328 based on the competitive performance of firms. At the same time, these concepts nationalise
329 interlocal competitions while prompting the nation-state to restructure itself. Next, the book
330 provides a critical analysis of Manuel Castells’s (2000) concept of the network society and its
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339 application to policy discourses. In the network society, Castells argues, the 'newest
340 international division of labour' is patterned not on national boundaries, but on networks that
341 connect hubs of economic flows. Those who are on the network (rather than cut off from it, as
342 many people are) share certain skills, behaviours and orientations. Situated in a crisis of
343 economic stagnation, policy makers in developed economies have quickly reoriented their
344 policy paradigms in favour of the creation and territorialisation of these intangible human
345 resources. As advocated by new policy discourses on the future-oriented, knowledge-based
346 economy, knowledge workers are constantly self-adapting to shifting network connections, as
347 well as to interlocal competition among high-value producers within their respective territories.
348 By unravelling these entangled scholarly concepts and policy paradigms, Moisis identifies three
349 key components for his framework: the geopolitical discourse on inter-territorial competition,
350 the geopolitical subjects of knowledge workers, and the reconfiguration of state spaces as
351 geopolitical objects.
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355 The book then moves to the making of geopolitical subjects within knowledge-based
356 economization, using the case of the Finnish higher education to illustrate how regulatory
357 reform of universities re-shapes the subjectivity of knowledge workers. This section is followed
358 by a discussion of city geopolitics that probes the relationship between the city and the state
359 and the shift from the regional to the urban scale of development in Europe. Here, the book
360 offers a compelling account of the reterritorialization of state spaces amidst knowledge-based
361 economization. Drawing upon concepts of competitiveness and the network society, the post-
362 Fordist state prioritises appropriation of intangible resources in the production of wealth and
363 power. This, in turn, rests on new territorial logics that seek to create an ecosystem for
364 knowledge workers. In this way, universities and creative cities become crucial nodes in the
365 hub-and-flow territorial framework. Throughout this discussion, Moisis pushes geographers to
366 consider space seriously by exploring how seemingly placeless terms like 'knowledge',
367 'innovation' and 'knowledge worker' can be territorialised as geopolitical units, thereby
368 commanding space in ways that we normally associate with state action.
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372 The book draws insightful linkages between a number of complex phenomena: the culture of
373 auditing and ranking that permeates countries, cities and universities; the reform of higher
374 education; and the shaping of geopolitical subjects in the new economy. Moisis convincingly
375 demonstrates that the widely recognized neoliberalization of universities involves important
376 geopolitical calculations that are related more to solidifying state power than to creating a
377 placeless, cosmopolitan class of educated global citizens. Nevertheless, the policy discourses
378 that serve knowledge-based economization are not always neatly packaged, but rather, are full
379 of negotiations among respective interests. In other words, the reterritorialization of state
380 authority, as it unfolds in the everyday spaces of knowledge workers and the knowledge
381 economy, is full of chaos and conflict (Painter, 2006). Readers will surely benefit from more
382 empirical studies that drill into the mundane, everyday lives of geopolitical subjects, and that
383 highlight cases of success *and* failure, to avoid a monolithic reading of territorial governance.
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387 While Moisis illustrates his argument very well in the context of Finland and the EU, his
388 discussion of economization only hints at more heterogeneous patterns in the knowledge-
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based economy. As Mitchell (2002, p. 7) cautions, rethinking the economy should not ‘take certain historical experiences of the West as the template for a universal knowledge’. For instance, the new Sino-American cold war has encouraged the two superpowers to exercise both ‘soft power’ techniques that encourage flows of knowledge and capital, and ‘hard power’ techniques that we more commonly associate with traditional geopolitics. China’s imagined revival of historical Silk Road to support Chinese enterprises embodies this tension. While the new transcontinental Silk Road will be built, in part, with new communication technologies, it needs to be safeguarded by a second, maritime Silk Road that involves the construction of military infrastructure along the South China Sea. How these twin geopolitical processes—one set associated with the territorialized state and the other with hub-and-flow imaginaries—are playing out in China is distinct from how they are playing out in Finland. While Moisio acknowledges the entanglement and simultaneity of these twin processes, his exploration of these entanglements, and the different territorial arrangements they produce, remains limited in the book. The different ways the knowledge-based economy might be manifesting itself through, and shaping, state practices in non-European contexts deserves more serious attention.

4. Show me the flows!

Christopher Gaffney

The Geopolitics of the Knowledge-Based Economy provides readers with a compelling lens through which to examine the dynamic vectors of social and spatial development as they course through and restructure the global economy. Moisio is well-versed in the traditional narratives that recount the seemingly inexorable shift towards neo- and eventual anti-liberalism in the Global West. He builds upon these narratives by analysing the contemporary period within his knowledge-based economization (KBE) framework. By grounding theory in the physical production of new spaces and human subjectivities in geopolitically strategic cities, KBE tilts our analytical gaze just far enough off-centre to reveal new spatial forms and social practices while maintaining a connection to the historically situated and contingent nature of geopolitics. Moisio calls for a ‘city geopolitics’: a politics whose flux capacitor is housed in universities that produce the ultimate global commodity – knowledge.

As seen through the lens of KBE, knowledge-driven geopolitical changes pass through the state as it seeks to develop new economic forms in a globalized environment defined by increasing competition between cities and states to produce and attract knowledge. The state, by directing flows of resources towards an increasingly homogenous ‘spatial planning’ of knowledge production centres, shapes and triggers an emergent, spatially relational geopolitics. These novel forms of reterritorialization are facilitated by the trans-nationalization of the state, activated through knowledge sharing and transfer. This movement is conditioned by the hub-and-flow imaginaries of the global economy, as Castells described in the 1990s. These imaginaries locate cities as geopolitical actors on par with nation-states, presenting political,

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451 legal, and territorial challenges to the practice of state-centric geopolitics. Within these cities,
452 high-profile knowledge production centres complement other forms of urban bling (museums,
453 waterfront developments, stadia, shopping zones, glass-box internationalist starchitecture, and
454 the like) to attract an ever more mobile, creative, and knowledgeable workforce – Richard
455 Florida’s ‘creative class’ (Florida, 2002).
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458 It is within this multi-vectored web of relations that Moisio positions ‘knowledge’ as a
459 commodity, product and structural agent. The sites of knowledge production are universities
460 where the professoriate, staff, students, and administrators are actively producing new geo-
461 political subjectivities by sending students (knowledge-carrying subjects) into a global network
462 where flows are vectorized through university-city hubs. Knowledge is the food, fuel, and piping
463 of the global economy, and all political considerations must course through it and the hyper-
464 mobile, creative subjects (Finnish engineers, in this case) that are the focus of Moisio’s
465 attentions. For its part, the state is not where it used to be nor doing what it used to do, but has
466 taken on new forms and roles, shapeshifting to the contours of the urban geo-realities it helped
467 call into being. It does this by directing state resources (over-accumulated capital) to knowledge
468 production centres (urban universities), willingly ceding its territorial imperative to the forces of
469 knowledge-dependent global capital. The state is the historical link to geopolitics, a politically
470 agential role which, Moisio argues, is being supplanted/taken over/dominated by cities.
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474 If one is looking for a way of explaining the rise of urban universities as essential nodes in the
475 production of value, KBE makes intuitive sense. However, if we deepen and extend the analysis
476 there are several inconsistencies that weaken its potential as an analytical framework. The first
477 is that the categories of analysis are not sufficiently clear. ‘The state’ does not get the nuanced
478 treatment that it deserves. The word ‘state’ is used nearly 300 times in the book, and while I
479 appreciate that the unpacking of ‘state’ is not possible at every juncture, its analytical edge was
480 too quickly blunted. This is problematic because the ‘state’ plays such a central role in the
481 argument for KBE and has historically been key to understanding geopolitics. While I know
482 Moisio, and perhaps others, will not see it this way, the state in this treatment appeared as a
483 quasi-natural force, emptied of people (with the exception of Chapter Six). Similarly, ‘city’ and
484 ‘urban’ are interchanged with abandon, with little discussion of the metropolitan, multi-nodal,
485 suburban, or regional urban structures.
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489 Because of the lack of clarity in these two concepts, it is difficult to project the analytic lens of
490 KBE beyond the confines of research universities in the Global West. I could not connect much
491 of what I read in this book to university systems in Latin America, for example. I could
492 extrapolate the economic role of ‘knowledge’ to the proliferation of for-profit private
493 universities that offer technical training and bachelor’s degrees. It would be interesting to read
494 KBE from university contexts in which it may not be so obvious that state policy differentiates
495 space to conform to the ‘locational preferences of transnational capital’. Moisio’s effort to
496 demonstrate the veracity of this kind of broad proclamation beyond the Finnish context
497 remains incomplete.
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507 One of the best elements of Moisió's tome is the way it made me think about my role as a
508 performative cog in the knowledge-production machine. In the middle chapters, I was seriously
509 ready to question my geopolitical subjectivity, but I was frustrated in my attempt as the
510 discussion was largely based on Castells's writings from the 1990s. This increased my suspicions
511 that KBE was not altogether descriptive of a new paradigm, but an extension of Castells's and
512 Florida's ideas into the second decade of the 21st century.
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515 For those of us who work in globally situated, private universities, Moisió's observation that
516 'institutions of higher education have hence been increasingly re-imagined and harnessed as
517 growth-facilitating political institutions but also as resources in the profit-seeking strategies of
518 private companies' (p. 88), rings loudly true. We are clearly involved in the training of workers
519 who have already demonstrated their hyper-mobility by studying for years at a time in a foreign
520 land. The professoriate is also highly mobile, connecting cities across the globe through
521 research, lectures and conferences. Each of these professorial spaces is spatially related to
522 another and reflects, to greater or lesser degrees, the integration of a given faculty (and their
523 university spaces) into global knowledge circuits. But again, what of universities without
524 resources of this kind that operate in contexts such as Cuiabá and Rostov-on-Don, or the well-
525 documented immobilities of adjunct professors in the USA? A mapping of these flows and nodal
526 points would fortify the argument.
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530 While there is much that is novel about the current phase of globalization, historical-
531 geographical analysis shows that the globalization that we are experiencing is not
532 unprecedented. If 'discourses of the knowledge-based economy constantly contribute to the
533 making of the knowledge-based economy in its own image', then closer examination of
534 knowledge-based discourses in other geographical and historical contexts might reveal that
535 urban networks have always been 'pivotal spaces of value creation' (p. 116). Further to this
536 point, I may be old-fashioned, but a book about geopolitics that does not have a map (or series
537 of maps) is missing something important. The expression of circuits of capital through static,
538 low-resolution pictures was nearly as frustrating as seeing a PowerPoint slide of Florida's 2002
539 creative class theory in 2019. Many of the relationships that Moisió describes cannot be
540 succinctly or completely represented in text, but surely there are more effective mechanisms
541 available. If KBE has theoretical purchase, then the flows, nodes, circuits, and vectors of the
542 model can be expressed through more dynamic visualizations.
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547 **5. Toward the political geographies of geoeconomic ideas**

548
549 *Merje Kuus*
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551 Relatively few geographers, it seems to me, focus on the intersections between geoeconomics
552 and geopolitics to examine the mutual constitution of these realms. The term 'geoeconomics'
553 does figure occasionally in the geopolitics literature, as do 'political economy' and 'international
554 political economy'. But relatively few in-depth, empirical studies examine how, in specific
555 terms and in particular places, geopolitical and geoeconomic ideas and processes intersect and
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intertwine. Geographers tend to work either in political or economic geography rather than risk explicitly straddling these sub-fields.

Sami Moisio's book attempts to provide an in-depth, empirically grounded analysis of the geopolitical imaginaries that are constitutive of the fabled knowledge-based economy. Moisio shows that the 'knowledge' in knowledge-based economy includes specific geopolitical tropes and assumptions. In the process he tackles other important themes, including neoliberalization and the extraterritorial linkages of cities. It is a big task to synthesize all these themes, and he is to be commended for taking on the challenge.

Finland offers an excellent case for the study of these themes. It consistently ranks as one of the most innovative economies globally, and its state education system is praised as among the best in the world. For years, according to *The Economist's* editorial team, the tongue-in-cheek moniker for Finland in European Union (EU) circles in Brussels was 'No Problems, Nice Phones'. There is a geopolitics to that story: Finnish innovation strategies were spurred in part by the loss of Soviet markets in the 1990s and the deep recession that followed. Through the 1990s, the country lifted itself from its post-Cold War economic malaise to become the land of Nokia, with its 'Connecting People' tagline. All this was achieved in a neutral country with low military expenditures—the source of much Research and Development (R&D) spending in many rich countries. When it comes to knowledge-based economy, Moisio is writing from the belly of the beast.

The main strength of the book lies in its synthesis of several strands of work that too often stand apart, including research on geoeconomics, statecraft, neoliberalism, the ideological hegemony of competitiveness, and the role of universities in this hegemony. Because Moisio attempts so much, he needs to be highly selective with the literatures and examples he uses. In some places, however, Moisio leaves out so much that he does injustice to the existing scholarship. Moreover, for a study on such a timely topic, his discussion of the transformation of state power seems out-of-date. Moisio takes the 1990s as his starting point, but he says rather less about today. Where are we today with respect to the habitual territorial assumptions about power? Not in the uncritical state centrism of the 1990s, it seems to me (e.g. Häkli, 2013; McConnell et al., 2017; Reid-Henry et al., 2010). What have we learned about geoeconomics since that decade (e.g. Flint and Zhu, 2019)? What has scholarship in the International Political Economy (IPE) vein taught us? How is the concept of affect relevant to our understandings of subject-formation in knowledge-intensive settings? How has scholarship on the transnational networks of state agents shed light on the internationalization of the state? And what about the literatures on the 'know-where' of geopolitical ideas (Agnew, 2007) and on the neoliberalisation of the university (Morrissey, 2015)? In short, many of the intersections that Moisio seeks do exist in the literature, but he leaves a great deal of the relevant theoretical territory unexplored.

Likewise, Moisio spends a fair bit of space on Richard Florida and Manuel Castells while giving little attention to other gurus of the knowledge-based economy—for instance, Jeremy Rifkin and Paul Krugman. It is worth remembering that Edward Luttwak, who coined the idea of

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619 geoeconomics, was a scholar of grand strategy first of all—Geopolitics with a big G. We do not
620 need to agree with Luttwak to acknowledge his insight on the mutual constitution of
621 geopolitical and geoeconomic competition.
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624 Given what an excellent case Finland is, I was hoping to see more about that case. The
625 Guggenheim Helsinki and the use of Scandinavian design in the branding of the Finnish
626 economy would have been attractive foci of discussion. The decline of Nokia is hardly
627 mentioned, though it is a crucial backdrop to the story Moisiso tells. In this century, Finland is
628 known in EU circles not for Nokia but for the Finns Party, a populist political force.
629 Geopolitics—that is, specific territorial ideas about what kind of country Finland is and how it
630 should relate to the rest of the world—is central to the emergence of populism in Finland.
631 Again, these geopolitical concepts and ideas are not explored in the book.
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634 The fieldwork comes across more in passing than in detail. For example, Moisiso mentions Aalto
635 University and its affective atmosphere. But there is much more to say. The university's
636 website, for instance, looks much like that of a Silicon Valley firm, with a familiar mix of themes
637 relating to innovative engineering and aspirational design. It also bears a close resemblance to
638 an IKEA advertisement (or Marimekko, or Aarikka)—all pale wood, open spaces, and bold happy
639 colours. Moisiso interviewed several high-level people at Aalto University, who provided him
640 with typical soundbites. Soundbites can be very useful for laying out the affective atmosphere
641 at hand. As a reader, however, I wanted Moisiso to linger longer in the brightly coloured, happy
642 spaces of soundbites and to tell us more about the production and legitimation of these spaces.
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646 I recognize that it is all too easy for a reader to ask for more elaboration and unpacking. Every
647 author needs to make trade-offs in what to include and leave out. My comments here relate to
648 the specific trade-offs made in this book, and my aim is to highlight some of the strands of
649 thought opened up by that book. Moisiso's study is an exciting, if occasionally too wide-ranging,
650 synthesis of economic and political geography. It offers a valuable contribution to the still scant
651 geographical literature on geoeconomics, and I hope that it inspires more work in that vein.
652 Just like contemporary geographers do not associate the term geopolitics exclusively with Karl
653 Haushofer, there is no reason to defer to Edward Luttwak in our analysis of geoeconomics. It is
654 time for geographers to claim the term geoeconomics as their own. Moisiso's book is a step in
655 that direction. His intervention comes at the right time. There are signs that interest in
656 geoeconomics is on the rise, not least because of the vivid example of geoeconomic power
657 provided by China's Belt and Road Initiative. Today's Nokia tells us that 'We create the
658 technology to connect the world'. How such knowledge-based connections are imagined,
659 planned, and practiced by companies, governments, and other geopolitical actors, ought to
660 receive a great deal more attention from political geographers. Moisiso's is an important voice in
661 that discussion.
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663 **6. The dark side of knowledge-based economization**

664 Joe Painter
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675 Sami Moisiso's book offers a fascinating perspective on how knowledge-based economization
676 (KBE) is entangled with geopolitical power. Formerly, Keynesian welfare states in the Global
677 North sought the development of bounded national territories. In spatial terms this included a
678 regional division of labour: different regions specialised in research and development, finance,
679 resource extraction, manufacturing and so on. While some regions prospered more than
680 others, inter-regional competition was limited – each region contributed to the national whole.
681 Geopolitics involved rivalry between (groups of) nation-states, rather than regions. The shift to
682 KBE brings a new geography. Now, economic actors operate inter- and trans-nationally, while
683 cities and regions compete against each other (including within the same national territory) for
684 investment and highly skilled, mobile labour. Instead of playing different roles in a sub-national
685 division of labour, cities and regions compete in the same knowledge-intensive arena.
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689 For Moisiso the new 'hub and flow' geographies of KBE are fundamentally political: the
690 information economy does not herald the complete replacement of geopolitics with
691 'geo-economics'; and territorially organised and institutionalised power has by no means given
692 way entirely to the power of corporations and markets. His argument is elaborated through
693 discussion of the changing nature of state institutions, the role of experts, the formation of
694 geopolitical subjects, the transformation of higher education, and the growing importance of
695 cities in the knowledge economy.
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698 The book shows the continuing value of the regulationist tradition of geographical political
699 economy and demonstrates how the sometimes-abstract formulations of Jessop and Sum's
700 (2010) cultural political economy can be used productively to illuminate the power relations of
701 economic change in specific places. It emphasises process and becoming (hence
702 'economization' not 'economy') and the unevenness of new geopolitical formations. Moisiso is
703 no cheerleader for KBE. Nevertheless, the book perhaps underplays some of KBE's
704 contradictions and systemic limits just when they are becoming increasingly apparent. These
705 include the negative impacts of innovation on the demand for labour and on working
706 conditions, the environmental consequences of KBE, the unequal gendering of knowledge
707 work, and the implications for the institutions of knowledge production, such as universities.
708 This commentary considers these aspects of the darker side of knowledge-based
709 economization.
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712 At the heart of KBE is innovation: the application of knowledge to technical and social
713 problems. Under the KBE paradigm innovation drives output and productivity growth. In the
714 hegemonic discourse of KBE, it also drives growth in employment and household incomes. But
715 here is a paradox: increased productivity can cut demand for labour, and thus reduce
716 employment. Automation is well advanced in manufacturing but is increasingly important in
717 services too, threatening both high- and low-skilled work. Complex professional decision-
718 making requires lengthy education and training. Yet skilled labour in medicine, law,
719 accountancy, risk management, banking and investment is increasingly vulnerable to
720 replacement by artificial intelligence. There is already evidence of the routinisation of
721 professional work in countries pursuing KBE. If KBE is unable to sustain its promise of high-skill,
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731 high-wage employment for a growing proportion of the workforce, its legitimacy and viability as
732 an economic model will be questioned.
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735 Knowledge-driven innovation is also implicated in the deterioration of working conditions. The
736 growing 'gig economy' is enabled by digital innovation through ride-sharing apps, food delivery
737 services, and the tracking of 'self-employed' parcel couriers. Algorithmic management of
738 workers is increasing, while ubiquitous connectivity enables an 'always on' work culture in
739 many sectors (including, regrettably, universities), with dismal consequences for employees'
740 mental and physical health. KBE also has significant implications for the health of the planet.
741 Although 'knowledge' appears immaterial, it depends on vast, environmentally costly, material
742 infrastructures. From rare earth metals in smartphones, to plastic casings on cables, and
743 energy-hungry server farms operated by Google and Amazon, the knowledge-based economy is
744 much less green than its advocates suggest. The electricity consumption for the production,
745 distribution, and storage of the Bitcoin cryptocurrency *alone* equals that of Switzerland (BBC,
746 2019). Above all, KBE involves a restless search for new sources of growth and capital
747 accumulation. As the climate crisis is a defining geopolitical issue of our time, it is a little
748 surprising to find no mention of KBE's environmental implications in the book.
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752 Gender is another lacuna in Moisió's analysis. The gendering of knowledge work is striking.
753 STEM disciplines are male dominated to varying degrees. Most business leaders in the
754 knowledge economy are men, as are the majority of consultants and policy advisers in the field.
755 This gender imbalance is not unique to the knowledge-driven stage of capitalism, but it is at
756 odds with the progressive and inclusive rhetoric that often accompanies the hegemonic
757 discourse of KBE. The gendering of knowledge production matters to the kinds of knowledge
758 that are produced, and how and for whom knowledge is produced. It matters also to wider
759 systems of production and reproduction. Fordism relied on the dominance of the nuclear family
760 and a gendered division of labour in the home and the workplace. The Keynesian policy goal of
761 full employment meant full-time jobs for men, enabled by married women who did not work
762 outside the home, or who worked on a part-time basis. KBE has changed the gendering of
763 labour. Moisió's account shows convincingly how cities and regions compete to attract a new
764 cadre of knowledge workers who are oriented to global (rather than purely national)
765 educational and professional networks. While a growing proportion of these KBE workers are
766 women, the creation of this hyper-mobile, highly skilled workforce has been enabled by
767 oppressive, frequently racialised, gender relations in the form of poorly paid working-class and
768 migrant women, who provide childcare, cleaning, cooking and sexual services, often with few
769 rights or labour protections. Their labour, too often unnoticed, is part of the socio-economic
770 infrastructure that affords global mobility to elite knowledge workers.
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774 With the rise of KBE, Moisió explains, the production of knowledge has become generalised,
775 spreading beyond its traditional redoubts in higher education into the wider economy through
776 technology firms, private laboratories, consultancies and digital platforms. Nevertheless,
777 universities remain central to KBE. Moreover they are integral not only to the production of
778 knowledge, but also to the generation of distinctive subjectivities –individualised, self-
779 monitoring, global in outlook, and acculturated to market rationality. Universities, including my
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787 own, emphasise the acquisition of transferable skills and the compilation of personal portfolios
788 recording individual performance, attributes, goals and values. There is nostalgia among some
789 for a golden age, in which universities were communities of scholars pursuing knowledge for its
790 own sake. In fact, from the nineteenth century onwards, many universities were founded to
791 engage in applied research and technological innovation for the purpose of economic growth
792 and territorial expansion. Furthermore, academia has always been riven by power relations,
793 vested interests and competition. But it has also, at least occasionally, provided scope for
794 alternative world views and critical thinking and spaces of relative autonomy from instrumental
795 and market logics. Such counter-hegemonic elements are being squeezed out in the service of
796 knowledge-based economization. Academics who may be minded to promote KBE because of
797 the central role it appears to give their profession and institutions should be careful what they
798 wish for!
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802 In short, the impact of knowledge, channelled through innovation, is not inherently progressive,
803 and nor are its costs and benefits evenly shared. More fundamentally, the knowledge-based
804 economy does little to address the threat to knowledge posed by populist politicians who
805 question the role of value, knowledge, and truth. Voters in the 2016 Brexit referendum in the
806 UK were told that we have 'heard enough from experts'. The Bolsonaro government has
807 moved to de-fund the humanities and social sciences in the Brazil's universities. In 2019 the
808 Republican governor of Alaska cut state support to the University of Alaska by 40% (later
809 reduced to 20%). Policy debates are informed by reports and social media postings from 'think
810 tanks' that are funded by corporate donors with undeclared interests and agendas. Major
811 players in the information economy such as Facebook and Twitter are charged with playing fast
812 and loose with truth, distorting public debate, and enabling the corruption of democratic
813 processes. The expertise of computer programmers is used to develop algorithmic modes of
814 governance that operate largely beyond the awareness—and thus beyond the knowledge—of
815 those who are being governed. If knowledge is power and power corrupts, is a knowledge-
816 based economy everything we ever wanted? Will it usher in an era of reduced working time,
817 ecological renewal and cultural fulfilment, or, will it exacerbate our most pressing social,
818 political and environmental problems?
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821 822 **7. The Peril and Promise of Politically Useful Knowledge**

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824 *Paul C. Adams*
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827 Researchers have often fallen into a "territorial trap," assuming that state territories have the
828 power to make things happen, and that social, political, and economic life is "contained within
829 the territorial boundaries of states" (Agnew, 1994, p. 77). If geographers of the twentieth
830 century fell headlong into the territorial trap, geographers of the twenty-first century may err in
831 the opposite direction, seeing cross-border networks, multi-scalar assemblages, and
832 unbounded flows everywhere they look. This pushes us to see major global power struggles
833 shifting away from territorial geopolitics and taking the form of economic competition as states
834 become increasingly porous, vestigial relics of a past time. Is this outlook a clearer perspective,
835 or can it be a new trap, no less insidious than the old?
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845 A partial answer is that nationalism continues to offer political leverage, even as cross-border
846 communications increase. Authoritarian leaders have recently been elected (or re-elected) in
847 the Philippines, Hungary, Russia, Turkey, India, Israel, the United States, and elsewhere. These
848 leaders and their parties focus on hardening borders to keep out 'undesirables', while
849 oppressing and marginalizing internal Others. Ironically, far right politicians benefiting from
850 xenophobia depend on cross-border flows of money, data, and ideology. Nationalism reaches
851 beyond geometrically bounded territories to materialize what McCannell (2010, p. 756), in a
852 somewhat different context, refers to as 'dispersed sites of territorialised power'. It appears
853 that however much the world economy violates territorial spaces and undermines the
854 sovereign state, 'there are continuing powerful social pressures "from below" to keep it in
855 place' (Agnew, 2010, p. 782).
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858 All of the foregoing suggests the need to explore how territoriality in general, and nationalism
859 in particular, draw strength from boundary-crossing flows. Sami Moisio helps illuminate the
860 paradox whereby flows of money and information transcend national borders, while states use
861 such flows for nationalist objectives. To some degree, this process recalls the scalar
862 conundrums often discussed by geographers: social-political processes evident at one scale can
863 look different, and can mobilize processes, at other scales. Offering examples from Finland,
864 Moisio shows how knowledge-based economization *scales down* in a bid to *scale up*, and vice
865 versa. For example, Aalto University is celebrated as a model of Finland's 'entrepreneurial
866 mentality', scaling up from the campus to the nation; meanwhile, debates around the proposed
867 Guggenheim Museum in Helsinki revolved around a belief that museums should encapsulate
868 and promote national identity.
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871 Expanding on these insights, I would suggest that if we focus our gaze outside of Europe the
872 geopolitics of the knowledge economy are apparent everywhere but varied in character.
873 Considering states with historical claims to 'superpower' status reveals several distinct ways of
874 integrating geopolitics and knowledge that diverge from the particular (Finnish) form of
875 knowledge-based economization outlined by Moisio.
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879 In the US, we see a retreat of federal and state governments from investment in science and
880 education. Governmental funding for higher education has fallen on a per-student basis for the
881 past decade (Mitchell, Leachman, Masterson and Waxman, 2018). The budget of the National
882 Science Foundation (NSF) has stagnated since 2005 despite a 50% increase in the GDP of the US
883 over in that time (Hourihan and Parkes 2017). US Department of Energy's funding priorities
884 show 'skepticism of federal technology programs and hostility to climate research; a general
885 interest in scaling back even fundamental science; and a desire to increase investment in
886 defense-related activities' (ibid., n.p.). Science has been attacked by powerful political forces in
887 the Trump Administration, the Republican Party and conservative media, reflecting a shift
888 toward geopolitics as the strategic control of knowledge—a shift also marked by Trump's
889 overtures toward similarly-minded authoritarian regimes.
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Russia is also under the leadership of politicians and wealthy individuals who view knowledge flows strategically. The Russian approach employs hacking and digital disinformation, and ‘[l]ong-distance, contactless actions against the enemy are becoming the main means of achieving combat and operational goals’ (Gerasimov, 2013 [2016]). This is a form of knowledge-based geopolitics, but one that constructs other countries as targets for surveillance and manipulation rather than as potential partners or legitimate competitors. This weaponization of knowledge (Mazzetti and Benner, 2018) differs strikingly from the knowledge-based competition driving knowledge-based geopolitics in Europe.

China, in contrast, treats knowledge as a global resource that that is useful for acquiring economic hegemony. The so-called ‘Great Firewall of China’ creates the impression of impenetrability, but the Chinese government is investing heavily in absorbing foreign knowledge. Some 660,000 Chinese students are currently studying abroad, with one in ten receiving scholarships from the Chinese government, state-controlled businesses, or public universities (Sina, 2019; Ministry of Education, 2016). Knowledge is treated as a valuable commodity the state can absorb from beyond its borders. As China strategizes to import knowledge, it has surpassed the World Bank as the world’s leading overseas development lender, with funding provided by the China Development Bank, Export-Import Bank of China, and Asian Infrastructure Investment Bank. Such investment facilitates flows of raw materials to Chinese industries and flows of Chinese manufactured goods to foreign markets (Yeh, 2016: 276).

Moisio is right to interpret major cities as ‘flow and network-articulations’ that not only coordinate flows of money and information but also serve as geographical sites within which the competitive advantages of nations are produced’ (p. 158). He is also right to stress the knowledge-based economy as a contemporary phenomenon with geopolitical implications. However, the strongly contrasting approaches of former and emerging geopolitical powers indicate that geographers must look for radically different responses to various historical and geographical contingencies and must be cognizant of the differing ideas of, and attitudes toward, ‘knowledge’ that are embedded within different geopolitical strategies.

8. Response: On geopolitical dimensions and the future of knowledge-based economization

Sami Moisio

I am grateful to Christian Sellar for organizing this forum and to the contributors for providing insightful feedback on my book. In this response, I discuss three issues that I consider pertinent in pushing the discussion of the geopolitics of knowledge-based economization further: 1) the concept of knowledge-based economization and its geopolitical features; 2) the process of knowledge-based economization beyond the OECD-sphere; and 3) the socially and spatially divisive nature of current knowledge-based economization.

Towards a geopolitical analysis of knowledge-intensive capitalism

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955 It is typical to associate the concept of geopolitics with military strategy, natural resources and
956 territorially rooted identity politics. Of course, this world of geopolitics has not ceased to be
957 important. My book, however, deciphers another world of geopolitics: one which is structured
958 around 'hub and flow imaginaries' concerned with the world of economic value production in a
959 context of so-called knowledge-intensive capitalism.
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962 Since the 1980s many local and nation-state governments have expressed a will to shift from
963 natural resource-based economies toward knowledge-based economies. This has become
964 visible particularly in the OECD sphere, but it has also taken various forms beyond that context.
965 In my book, I seek to make some of the geopolitical aspects of the actually-existing
966 knowledge-based economy conceptually visible. The goal is therefore to disclose the
967 geopolitical dynamics of influential Silicon-Valley worldviews, imaginaries and practices of
968 capitalist development.
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971 A major goal of my book is to develop the concept of knowledge-based economization. In my
972 view, the process of knowledge-based economization emerged gradually from the 1970s
973 onwards and took an increasingly geopolitical form in the 1990s. This peculiar geopolitical form,
974 while territorial, was based less on contests for natural resources and military supremacy than
975 on the advantageous placement of the political community in global value chains.
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978 The process of knowledge-based economization is premised on a geopolitical narrative
979 according to which political communities are struggling on a global economic stage. In such a
980 process, cities, regions and states are envisioned and re-worked by politicians, civil servants,
981 consultants, developers and speculators as spaces or 'platforms' of innovation, talent, creativity
982 and entrepreneurship. I scrutinize a variety of spaces—technopoles, national and regional
983 innovation systems, clusters, creative cities, start-up cities, smart cities, learning regions, new
984 learning environments of universities, innovation ecosystems, among others—not as mere
985 reflections of knowledge-intensive capitalism but rather as its geopolitical constituents. *Contra*
986 Chris Gaffney's interpretation of my work (expressed in this review forum), I understand 'city
987 geopolitics' to be a much broader phenomenon than 'politics whose flux capacitor is housed in
988 universities that produce the ultimate global commodity – knowledge.' In particular, the
989 concept of city-geopolitics refers to the urbanization of the state and associated state-spatial
990 restructuring in contemporary neoliberal knowledge-based economization.
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993 The concept of knowledge-based economization highlights how certain forms of expert
994 knowledge are significant constitutive elements in the process of knowledge-intensive
995 capitalism. Since the 1980s certain academic theories on the spatiality of the new economy of
996 innovation have played a significant role in the constitution of the knowledge-based economy
997 as an actually existing economy. In particular, I identify the role played by epistemic circuits of
998 business management scholars, urban economists and management consultants in the
999 geopolitical 'knowing' and scripting of knowledge-intensive capitalism as both a global and city-
1000 centred drama of competition and competitiveness. Merje Kuus asks why I provide a detailed
1001 analysis of such scholars as Michael Porter and Richard Florida but leave other management
1002 gurus such as Jeremy Rifkin or Paul Krugman untouched in my analysis. For sure, Rifkin and
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1011 Krugman have been dealing with knowledge-intensive capitalism in their work, but it is unclear
1012 that an in-depth analysis of their ideas would have altered my main arguments regarding the
1013 geopolitical dimensions of such economization.
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1016 Knowledge-based economization is ultimately about the circulation and accumulation of capital
1017 and associated spatio-political regulation by the state. The concept of knowledge-based
1018 economization seeks to render visible the role of the nation-state that figures prominently in
1019 bringing about knowledge-intensive capitalism. In the process of knowledge-based
1020 economization, different kinds of political forces come together in the name of the state and, in
1021 so doing, produce new 'strategic-selectivities' (Jessop, 1990) of the state. June Wang argues
1022 aptly that I conceptualize knowledge-based economization as a political process whereby the
1023 networked and increasingly transnational state apparatus attempts to master, territorialize and
1024 nationalize the purportedly relational spaces of 'global' knowledge-intensive capitalism. She
1025 has understood my strategic-relational perspective to the state, in my view, better than Chris
1026 Gaffney, who seems to be rattling doors that are already open. Following Jessop and others, I
1027 argue in the book that the 'state is a material consolidation of a relationship of forces which at
1028 a given time also makes it more responsive to particular strategies' (p. 38). Against this
1029 background, I find Gaffney's suggestion that I treat the state as a 'quasi-natural force'
1030 perplexing.
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1034 The state-orchestrated territorialization of knowledge-intensive capitalism happens primarily
1035 through the operationalization of major cities and urban spaces more generally; this
1036 urbanization of capital (or capitalization of cities) inheres in the process of knowledge-based
1037 economization. In addition, the circulation and accumulation of capital is realized in, and made
1038 possible by, educational and other societal practices that seek to develop specific forms of
1039 human capital. The subordination of education to the human-capital needs of the global
1040 knowledge-based economy is thus a fundamental characteristic of knowledge-based
1041 economization. Moreover, knowledge-based economization occurs in objectifying calculative
1042 practices, such as competitiveness indices, that construe and reify cities, regions and states as
1043 units of fierce inter-spatial competition in the age of innovation. In short, knowledge-intensive
1044 capitalism is about the strategic production of both space and human capital.
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1048 Developing the geopolitical analysis of knowledge-based economization that I have outlined
1049 above requires putting political geography, urban studies and heterodox political economy
1050 literatures into dialogue (see Moisiso, 2019). Recent research that seeks to overcome the
1051 boundaries between urban studies, political geography and economic geography highlights the
1052 territorial and statist, but also entrepreneurializing and urbanizing, nature of contemporary
1053 knowledge-based economization (see Moisiso and Rossi, 2019). In my view, if human geography
1054 is to be valuable across the social sciences, it must continue to dismantle these borders.
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1056 *On the geographical variegation of knowledge-based economization*

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1059 In his commentary, Paul Adams argues that knowledge-based economization looks different if
1060 we focus our gaze outside of Europe, particularly if we turn to states with historical claims to
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'superpower' status, such as the United States, Russia, and China. Accordingly, each of these states has set a distinct course, none following the knowledge-based economization path that I outline in my book.

China is an interesting case for many reasons, not least because of the government's grand-scale attempts to make the state the world-leading developer and utilizer of robotics, artificial intelligence and related digital technologies. One may interpret the government's emerging concerns over the production of human capital as signalling the operation of knowledge-based economization, as I have defined it, in China. This effort has clearly structured the economic and educational strategies as well as the investment policies and urban development schemes of the Chinese state. However, these policies and schemes are not exact copies of policies and schemes that have been tailored in Europe or elsewhere. Moreover, as Wang points out, the policy discourse serving knowledge-based economization in China is not always neatly construed but rather reflects negotiations among particular interests.

China is also producing the new geopolitics of knowledge-intensive capitalism in other ways. During the past two years or so, journalists, pundits and academics have remarked that governments are increasingly treating tech giants as if these firms represented the 'national interests' of their 'host states'. States such as the US and China, for instance, are launching policies through which they seek to own and protect intellectual property as if it were fixable to territory. In this geopolitical process, states such as the US and China seek to divide the world into spheres of 'technological influence'. In such a geopolitical contest, the US government supports 'American' companies such as Intel, Microsoft, Cisco, Oracle and Google, in their attempts to construct critical technological infrastructures for digitalization in various corners of the world. The Chinese government, in turn, assists 'Chinese' corporations such as ZTE and Huawei in constructing technological infrastructures abroad. For China and the US, the struggle for geopolitical dominance takes place through competition between critical technologies and infrastructures provided by 'national champion firms'. As part of this territorial struggle over technological influence, some states have already barred some Chinese corporations as agents of Chinese state power. For instance, the Australian government prohibited Huawei from supplying 5G networks on its territory due to concerns that China would be able to hack the country's power grid. All this indicates that the securitization of technological development is a significant element of contemporary knowledge-based economization.

In the context of the US, one is able to observe ongoing attempts to educate globally literate geopolitical subjects. Similarly, cities, regions and states in the US continue to compete for talent, tech investments, and companies, and to market themselves as perfect locations for key activities of knowledge-intensive capitalism. But as Adams points out, recent political developments in the US have challenged the neoliberal knowledge-based economization. Current political discourse rejects the ideal of an 'open' and 'diverse' world, and President Trump's travel ban and associated visa restrictions have made it more difficult for some foreign 'creatives' to travel to the US. These and other recent developments in the US may indicate that we are witnessing, as Nancy Fraser (2019) suggests, a challenge to the hegemony of

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‘progressive neoliberalism’. In such a view, we are not witnessing the deterioration of the Silicon Valley neoliberal worldview; rather, we are seeing a deepening division and competition between distinctive cultural-moral-ideological-political formations and associated geopolitical worldviews.

My book deals with the so-called advanced capitalist states. But the process has manifested itself in other, perhaps less obvious, geographical contexts and sites. To illustrate, Pascucci’s (2018) study on Syrian refugee youths at the King Hussein Business Park, in Amman, Jordan, demonstrates how the training of young people contributes to knowledge-based economization in contexts of displacement. This study shows that young Syrian refugees pursuing IT training in ‘coding boot camps’ in Jordan are enmeshed in a new educational field of refugee professional training, and that Silicon Valley-inspired knowledge-based economization has entered into a surprising marriage with humanitarianism. In sum, my book may represent OECD-centrism, but the process of knowledge-based economization I conceptualize in the book is interestingly visible in other contexts, too. I nonetheless agree with my critics who argue that it is important to develop the concept of knowledge-based economization beyond the Global West.

Towards more inclusive knowledge-based economization?

The knowledge-based economy is often represented as a clean and progressive form of development when compared with the purportedly dirty world of energy-guzzling manufacturing, resource extraction and patriarchal Fordist-Keynesian statecraft. While I focused on the production of more elite sites of KBE, I certainly agree with Painter that there is a dark side of knowledge-based economization. Some of the internal contradictions of knowledge-based economization are becoming increasingly apparent. These include gender injustices and deleterious impacts on the environment. The dark side of knowledge-based economization brings other troubling phenomena to the fore, including ‘hyper nudging’—a form of privatized state governance that uses data supplied and/or analysed by tech companies to promote ‘good behaviour’ among citizens. An equally troubling feature of the knowledge-based economy is uneven geographical development and the marginalization of entire places and segments of the population. This is the reverse side of the spatial clustering and spatial concentration tendencies inherent in the current processes of knowledge-based economization.

Crisis tendencies of the knowledge-based economy as a regime of accumulation are becoming increasingly evident. These emanate from a variety of contradictions inherent in the process of knowledge-based economization. I mention only one of these: In its dominant neoliberal form, the process of knowledge-based economization produces tremendous amounts of wealth for some segments of the populace and some places while placing others on the social and geographical margins. As a political-economic process, knowledge-based economization has thus been highly divisive, socially and geographically, by nature. Indeed, two decades ago, right-wing conservatives James Dale Davidson and William Rees-Mogg (1999) dealt with what they termed revolutionary change from industrial societies to ‘information societies’ through which

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1179 'ideas become wealth'. In their view, this shift would bring about a city-centred and
1180 competition-centred world characterized by a deep divide between winners and losers.
1181 Accordingly, the winners would be transnational 'cognitive elites' with high incomes and
1182 increasingly trans-local relations. The losers would be people who have difficulties coping with
1183 the new transnational world of the knowledge-based economy. They warned that the
1184 deepening inequalities between the winners and losers would end up turning those on the
1185 bottom of the pyramid towards highly revanchist nationalist politics. Their prophecy has
1186 gradually become reality.
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1190 The process of knowledge-based economization has the capacity to abandon certain
1191 populations and to situate them outside political normativity. Indeed, the rise of neoliberal
1192 knowledge-based economization is associated with the emergence of 'places that do not
1193 matter' (Rodríguez-Pose, 2018) and 'people who do not matter'. The recent rise of populist,
1194 authoritarian-nationalist and nationalist-revanchist politics within the OECD sphere can at least
1195 partly be understood as a response to the neoliberal processes of knowledge-intensive
1196 capitalism. In such a view, we are witnessing the revenge of the world of manufacturing and
1197 manual labour and proletarianized knowledge-workers (including those people operating in the
1198 new brave 'platform economy') who do routine work with precarious contracts. Making the
1199 process of knowledge-based economization more inclusive, more just, and more progressive
1200 remains one of the challenges of our time.
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1203 One important theme for future research on knowledge-based economization is how the
1204 state operates in seeking to produce and maintain the conflictual and crisis-mediated
1205 course of capital accumulation in the context of knowledge-intensive capitalism. I agree
1206 with Martin Jones that it is essential to scrutinize the various political efforts to preserve and
1207 maintain the core semiotic and material elements of the knowledge-based economy as a
1208 regime of accumulation in the face of its emerging crises. It is equally important to scrutinize
1209 the potential shifts within Silicon Valley views of the world and of capitalism itself (as well as
1210 associated technological and social innovations), and to analyse the moral, cultural, and
1211 intellectual authority of the geopolitical imaginaries that characterize knowledge-based
1212 economization. These important themes can be analysed from a number of analytical
1213 perspectives and with the help of dynamic visualizations.
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