8 Global city/world city

Ben Derudder, Anneleen De Vos and Frank Witlox

Introduction

For one thing, the contributions to this book collectively show that in the last few decades researchers have begun to analyse the emergence of a transnational urban system centred on a number of key cities in the global economy. Taken together, the different approaches in this literature are loosely united in their observation that cities such as New York, London, and Hong Kong (increasingly) derive their importance from a privileged position in transnational networks of capital, information, and people. There is, in other words, a growing consensus that under conditions of contemporary globalization an important city 'is no longer identifiable for its stable embeddedness in a given territorial milieu. It is instead a changing connective configuration with variable actors which can be thought of as "nodes" of local and global networks' (Dematteis, 2000, p. 63).

However, despite this broad agreement, there are equally obvious differences in the way in which this global urban system has been conceptualized. For instance, it is clear that Sassen's influential 'global city' approach is presented as a specific analytical construct rather than as a mere attempt to refine existing approaches. In the revised edition of *The Global City*, Sassen (2001a, p. xxi) states that '[w]hen I first chose to use [the term] global city I did so knowingly – it was an attempt to make a difference.' This attempt to discriminate is most commonly targeted against another important approach in particular, i.e. John Friedmann's (1986) 'world cities'. Sassen (2001a, p. xxi) stresses for instance that although it may be the case that "most of today's major

global cities are also world cities" there may just as "well be some global cities today that are not world cities in the full, rich sense of that term."

The overall aims of this chapter are (i) to single out the key characteristics of both oft-used approaches to understanding cities in the context of a global urban system, and (ii) to show that it is indeed relevant to distinguish between both (and therefore also other) approaches rather than retreating into sweeping notions of 'the position of cities in global networks'. Obviously, other conceptualizations than world cities/global cities have been devised, including 'global city-regions' (Scott, 2001) and 'global megacity-regions' (Hall and Pain, 2006). As these concepts explicitly incorporate a broader city-regional dimension, they are discussed in the next chapter, which deals with spatial transformations of cities under conditions of contemporary globalization. In addition, it needs to be emphasized the overall usefulness of *conceptualizing* cities as nodes in transnational networks has been rejected on postmodern grounds (see MP Smith, 2001; RG Smith, 2003; Robinson, 2006), which has led to the emergence of notions such as 'cities in globalization' (Taylor et al., 2007) and 'ordinary cities' (Robinson, 2006). In this chapter, however, we proceed under the assumption that a proper conceptualization of the key driving forces/processes underlying the formation of global urban networks is both possible and useful, and thereby focus on what have arguably become the two most commonly used concepts (i.e. Friedmann's 'world cities' and Sassen's 'global cities').

The twofold objective of this chapter is reflected in its structure: (i) the next section discusses and compares the key tenets of Sassen's/Friedmann's theoretical work, after which (ii) we emphasize the importance of keeping these analytical differences in mind by comparing the results of empirical analyses of the structure of transnational city networks. In the conclusions, we briefly revisit the implications of our line of argument for the study of the global urban network.

Key concepts

Friedmann's 'world cities'

The world city concept can be traced back to two interrelated papers by Friedmann and Wolff (1982) and Friedmann (1986)[1]. Both texts framed the rise of a global urban network in the context of a major geographical transformation of the capitalist world-economy. This restructuring, most commonly referred to as the 'New International Division of Labor', was basically premised on the internationalization of production and the ensuing complexity in the organizational structure of multinational enterprises (MNEs). This increased economic-geographical complexity requires a number of command posts in order to function, and world cities are deemed to be the geographical emanations of these command posts. The territorial basis of a world city is hereby more than merely a CBD, since '[r]eference is to an economic definition. A city in these terms is a spatially integrated economic and social system at a given location or metropolitan region. For administrative purposes the region may be divided into smaller units which underlie, as a political or administrative space, the economic space of the region' (Friedmann, 1986, p. 70).

Friedmann (1986) tries to give theoretical body to his 'framework for research' by (implicitly) framing it in the context of Wallerstein's world-systems analysis, hence the title of Knox and Taylor's (1995) *World Cities in a World-System*. As is well known, Wallerstein (1979) envisages capitalism as a system that involves a hierarchical and a spatial inequality of distribution based on the concentration of relatively monopolized and therefore high-profit production in a limited number of 'core' zones. The division of labour that characterizes this spatial inequality is materialized through a tripolar system consisting of core, semi-peripheral and peripheral zones. The prime purpose of the world city concept is that it seeks to build an analytical framework that searches to deflect attention from the role of territorial states in the reproduction of this spatial inequality (Brenner, 1998, p. 4). Territorial states have, of course, been prime actors in the

unfolding of this uneven development, but drawing on the work of Mann (1986) and Dodgshon (1998), it can be put forward that the world-economy is radially rather than territorially managed. This means that the economic and political power of core territories is in fact spatially structured along well-defined routeways that link centres of control via available authorative and allocative resources. Hence, what is commonly labelled as 'core' in world-systems analysis does not necessarily consist of a series of 'strong' territorial states, but of a hierarchy of major and lesser centres (i.e. world cities) that thereupon diffuse their status and function over a wider area and at different scales (Dodgshon, 1998, p. 56).

In other words: despite 'being largely studied through its mosaic of states (...) the modern world-system is defined by its networks' (Taylor, 2000, p. 20), and world cities are the nodes in such networks of power and dominance. Apart from being the economic power houses of the world-system, world cities are also locales from which other forms of command and control are exercised, e.g. geopolitical and/or ideological-symbolical control over specific (semi-)peripheral regions in the world-system. Miami's control position over Central America is a case in point here (Grosfoguel 1995). Friedmann (1986, p. 69) reminds us, however, that 'the economic variable is likely to be decisive for all attempts at explanation', whereby major importance attaches to corporate headquarters and international financial institutions and agencies. Although the presence of a business services sector and/or a well-developed infrastructure seems to be required, the latter are conceptually less important, since they are necessary but not sufficient conditions in the formation of a network of world cities.

Global cities

The global city concept can be traced back to the publication of Saskia Sassen's *The Global City* in 1991. Sassen proposes to look afresh to the functional centrality of cities in the global economy, and

she does so by focusing on the attraction of producer service firms to major cities that offer knowledge-rich and technology-enabled environments. In the 1980s and 1990s, many such service firms followed their global clients to become important MNEs in their own right, albeit that service firms tend to be more susceptible to the agglomeration economies offered by city locations. These emerging producer service complexes are at the root of global city-formation, which implies a shift of attention to the advanced servicing of worldwide production. Hence, from a focus on formal command power in the world-system, the

> emphasis shifts to the *practice* of global control: the work of producing and reproducing the organization and management of a global production system and a global market-place for finance (...) Power is essential in the organization of the world economy, but so is production: including the production of those inputs that constitute the capability for global control and the infrastructure of jobs involved in this production (Sassen, 1995, pp. 63-64, her emphasis).

Through their transnational, city-centered spatial strategies, producer service firms have created worldwide office networks covering major cities in most or all world regions, and it is exactly the myriad connections between these service complexes that gives, according to Sassen (2001a, p. xxi), way to the 'formation of transnational urban systems.' This urban network, Sassen (1994, p. 4) argues, results in a new geography of centrality that may very well cut across existing North/South divides. Hence, rather than reproducing existing core/periphery patterns in the world-economy, this network may break through these divides.

The focus on urban agglomeration economies has a major implication for the territorial demarcation of global cities. Rather than being structured in mutual dependence to a hinterland, the functional centrality of global cities becomes 'increasingly disconnected from their broader

hinterlands or even their national economies' (Sassen 2001a, p. xxi). To territorially demarcate global cities, Sassen (2001b, p. 80) opts 'for an analytical strategy that emphasizes core dynamics rather than the unit of the city as a container–the latter being one that requires territorial boundary specification.' This does not necessarily imply that the functional centrality in global cities is a simple continuation of older centrality patterns as in New York City, since the territorial basis can consist of 'a metropolitan area in the form of a grid of nodes of intense business activity, as we see in Frankfurt and Zurich' (Sassen 2001a, p. 123). It is nonetheless clear that the proper unit of analysis may very well be smaller than the 'metropolitan region'. Tokyo as a global city, for instance, is the 'Tokyo Metropolis' rather than the larger 'Tokyo Metropolitan Region' or the 'National Capital Region' (Sassen 2001a, p. 371).

Summary

Table 8.1 summarizes the gist of both theoretical approaches. Although each concept has been refined and/or revised in other contributions, it seems fair to state that the table gives a balanced overview of the conceptual core of each term: (i) Friedmann's world cities are centres of dominance and power, while (ii) Sassen's global cities are production centres for the inputs that constitute the capability for global control. These different starting points thereupon give way to diverging perspectives on the main features of a city as node in transnational networks: the city's prime function, the key agents in the urban network, the alleged structure of the network as a whole, and the territorial basis of the city-as-node.

One can argue back and forth on the profoundness of the differences summarized in Table 8.1, but it seems clear that there is an unambiguous need to distinguish between both concepts. For instance, one can anticipate that the overall network will have a very different structure. While a network of world cities is expected to reproduce 'traditional' core/periphery-patterns across the

world-economy, a network of global cities is expected to cut across such divides. In other words: it is not unlikely that erstwhile 'semi-peripheral' cities such as Shanghai, São Paulo, and Seoul are well-connected global service centers (i.e. global cities) without being major power centers in the world-economy (i.e. world cities). Hence, rankings of world cities and global cities may be expected to diverge rather than converge. To further explore this assertion, the next section presents a systematic comparison of the empirical operationalization of both theoretical frameworks.

[PLEASE INSERT TABLE 8.1 HERE]

Comparing both concepts

Empirical research into the formation of global urban networks has relied on a wide variety of data sources. Perhaps the most innovative studies in this context have come from the study of transnational urban networks through the lens of globalizing firms. Two often cited examples are the research pursued by the Globalization and World Cities group and network (GaWC, www.lboro.ac.uk/gawc) and a series of papers by Alderson and Beckfield (2004, 2010 with Sprague-Jones).

GaWC researchers have developed a methodology for studying transnational urban networks based on the assumption that advanced producer service firms 'interlock' cities through their intra-firm communications of information, knowledge, plans, directions, advice, etc. to create a network of global service centers (Taylor, 2001). Building on this specification, information was gathered on the location strategies of 175 global service firms across 525 cities in 2008 (Taylor et al., 2011; Derudder et al., 2010). Applying the formal social network methodology set out in Taylor (2001), this information was converted in a relational matrix, which can then be analyzed with standard network-analytical tools. The key indicator that can be derived from such an exercise is a

city's global network connectivity' (GNC), i.e. a measurement of how well a city is inserted in the office networks of globalized service firms.

Alderson et al. (2010), in turn, analyze links between 6308 cities based on the organizational geographies of the 500 largest multinational firms and their subsidiaries for the year 2007. For each firm, the location of the firm's headquarters and subsidiaries was used to create a directional relational matrix. Based on this dataset, a number of connectivity measures can be computed, including 'outdegree connectivity' (the number of ties 'sent' from a city) and 'indegree connectivity' (the number of ties 'received' in a city). Both indicators have a different meaning, but here we assume that a simple combination of both (= aggregation of the number ties sent from/arriving in cities) gives a good indication of a city's degree of insertion in the corporate networks of multinational firms.

Both empirical approaches obviously exhibit a notable parallel in that their analysis of the structure of the global urban network is based on an assessment of the networked location strategies of firms with transnational fields of activity (Derudder, 2006). Put differently: it is suggested that a meaningful measurement of transnational inter-city relations can be derived from intra-firm connections between different parts of a firm's holdings - Alderson and Beckfield (2004, pp. 813-814) consider this to be a 'key relation' in 'an MNE-generated city system', while Taylor (2004, p. 9) argues that it is 'firms through their office networks that have created the overall structure of the world city network.' The main difference between both approaches obviously lies in the type of firms used throughout the analysis: GaWC-researches focus on the location strategies of *producer services firms*, Alderson et al. (2004) use information on the geography of *multinational corporations irrespective of the exact nature of their activities*.

The latter bifurcation is of interest here, as both studies clearly refer to the core tenets of the key analytical constructs outlined before: GaWC papers such as Derudder et al.'s (2010) draw on Sassen's work[2], while Alderson et al. (2010) primarily work in the spirit of Friedmann. To examine

the empirical parallels/differences between both networks, here we focus on the 130 well-connected cities that were singled out in the Derudder et al. (2010) analysis[3]. The results are summarized in Figure 8.1 and Table 8.2. The figure plots cities through a two-letter code (e.g. NY for New York, KU for Kuwait and NS for Nassau; see Appendix) based on their connectivity scores in Derudder et al. (2010) and Alderson et al. (2010). The X-axis represents the connectivity of a city in the corporate networks of multinational firms (standardized score after logging this connectivity to deal with the skewness of the distribution). The Y-axis represents the connectivity of a city in the corporate networks of globalized APS firms (standardized score after logging this connectivity to deal with the skewness of the distribution).

[PLEASE INSERT FIGURE 8.1 HERE]

[PLEASE INSERT TABLE 8.2 HERE]

Regressing both connectivity measures shows that although they are clearly related ($R^2 = 40{,}5\%$), there are also notable differences between both networks. Table 8.2 shows some notable examples by listing the 10 largest deviations from the regression line. Large positive values imply that a city is proportionally more connected in the office networks of globalized service firms than in the networks of multinationals per se (and thus exhibit more global city- than world city-formation); large negative values imply that a city is proportionally more connected in the networks of multinationals than in the office networks of globalized service firms (and thus exhibit more world city- than global city-formation)

Taken together, the patterns that emerge from Table 8.2 and Figure 8.1 clearly confirm the split between both approaches. Cities such as St. Louis, Detroit and Cologne are well-connected in corporate networks of multinational firms, mainly because of the presence of one or more headquarters of multinational firms with numerous ties across the world (i.e. the traditional ‘core’ in

Wallerstein's scheme). However, this functionally is not matched by globalized service function. Cities such as Shanghai, London and Dubai, in turn, are well-connected service centres that are – in proportional terms – not as well-connected in the corporate networks of the world's largest multinational firms. This lists consists of cities from the 'traditional core' which have come to assume a key role in the servicing of global capital (e.g. Hong Kong and London), but also 'semi-peripheral cities' that have come to act as major service centres in the global economy (e.g. Buenos Aires and Kuala Lumpur). Referring back to Table 8.1, it is clear that the assumption of a network of world cities reproducing traditional core/periphery patterns and a network of global cities cutting across this divide is indeed noticeable. As a consequence, being precise about the key drivers/processes behind network integration of cities at the global scale does matter.

Conclusion

Not that long ago, Taylor (2004, p. 33) argued that the 'world city literature' was characterized by its 'theoretical sophistication and empirical poverty.' One effect of this 'evidential crisis was the failure for there to emerge any agreement on just which cities are world or global cities and which fail to qualify' (p. 39). This clearly comes to the fore in his comparison of 16 different rankings of 'world cities, global cities, and international financial centres from different sources' (pp. 39-41). Taylor (2004, p. 39) noted that there are only four cities all 16 studies agree upon (London, New York, Paris, and Tokyo), while there are seventy-eight other cities that at least one source names in its ranking. This profound disagreement, Taylor thereupon suggested, reflects the failure of this literature to provide precise empirical specifications of the various concepts.

In the past few years, different research groups have risen to this challenge. It is, however, clear that despite the innovativeness of their analytical approaches and data collection, the disagreement on the broader structure of the networks has not been resolved. In this chapter, we

have argued that at least a part of this enduring empirical disagreement can be attributed to *meaningful theoretical differences in the conceptualization of a global urban network*. The key point here is that the commonsensical observation that cities such as London, New York, Tokyo, and Paris, invariably feature at the apex of the various rosters of 'world cities' and 'global cities' does not imply that these (and other) concepts are interchangeable. On the contrary, the differences summarized in Tables 8.1 and 8.2 suggest that a proper specification of the key drivers/processes behind general notions such as 'global urban networks' and 'globalized urbanization' is of the utmost importance.

References

Alderson, A.S. and Beckfield, J. (2004), 'Power and position in the world city system', *American Journal of Sociology*, **109** (4), 811-851.

Alderson, A.S., J. Beckfield and J. Sprague-Jones (2010), 'Intercity relations and globalisation: the evolution of the global urban hierarchy, 1981-2007', *Urban Studies*, **47** (9), 1899-1923.

Brenner, N. (1998), 'Global cities, glocal states: global city formation and state territorial restructuring in contemporary Europe', *Review of International Political Economy*, **5** (1), 1-37.

Dematteis, G. (2000), 'Spatial images of Europan urbanization', in A. Bagnasco and P. Le Galès (eds), *Cities in Contemporary Europe*, Cambridge: Cambridge University Press, pp. 48-73.

Derudder, B. (2006), 'On conceptual confusion in empirical analyses of a transnational urban network', *Urban Studies*, **43** (11), 2027-2046.

Derudder, B., P.J. Taylor, P. Ni, A. De Vos, M. Hoyler, H. Hanssens, D. Bassens, J. Huang, F. Witlox, W. Shen and X. Yang (2010), 'Pathways of change: shifting connectivities in the world city network, 2000-08', *Urban Studies*, **47** (9), 1861-1877.

Dodgshon, R.A. (1998), *Society in Time and Space: A Geographical Perspective on Change*, Cambridge: Cambridge University Press.

Friedmann, J. (1986), 'The world city hypothesis', *Development and Change*, **17** (1), 69-83.

Friedmann, J. and G. Wolff (1982), 'World city formation: an agenda for research and action', *International Journal of Urban and Regional Research*, 6 (**3**), 309-344.

Grosfoguel, R. (1995), 'Global logics in the Caribbean city system: the case of Miami', in P.L. Knox and P.J. Taylor (eds), *World Cities in a World-System*, Cambridge: Cambridge University Press, pp. 156-170.

Hall, P. and K. Pain (eds) (2006), *The Polycentric Metropolis: Learning from Mega-City Regions in Europe*, London: Earthscan.

Knox, P.L. and P.J. Taylor (eds) (1995), *World Cities in a World-System*, Cambridge: Cambridge University Press.

Mann, M. (1986), *The Sources of Social Power (Volume I: A History of Power from the Beginning to AD 1760)*, Cambridge: Cambridge University Press.

Robinson, J. (2006), *Ordinary Cities: Between Modernity and Development*, London: Routledge.

Sassen, S. (1994), *Cities in a World Economy*, Thousand Oaks, CA: Pine Forge Press.

Sassen, S. (1995), 'On concentration and centrality in the global city', in P.L. Knox and P.J. Taylor (eds.), *World Cities in a World-System*, Cambridge: Cambridge University Press, pp. 63-78.

Sassen, S. (2001a), *The Global City: New York, London, Tokyo*, Princeton, NJ: Princeton University Press, 2nd edition.

Sassen, S. (2001b), 'Global cities and global city-regions: a comparison', in A.J. Scott (ed.) *Global City-Regions: Trends, Theory, Policy*, Oxford: Oxford University Press, pp. 78-95.

Scott, A.J. (2001), 'Globalization and the rise of city-regions', *European Planning Studies*, **9** (7), 813-826.

Smith, M.P. (2001), *Transnational Urbanism*, Oxford: Blackwell.

Smith, R.G. (2003), 'World city actor-networks', *Progress in Human Geography*, **27** (1), 25-44.

Taylor, P.J. (2000), 'World cities and territorial states under conditions of contemporary globalization', *Political Geography*, **19** (1), 5-32.

Taylor, P.J. (2001), 'Specification of the world city network', *Geographical Analysis*, **33** (2), 181-194.

Taylor, P.J. (2004), *World City Network: A Global Urban Analysis*, London: Routledge.

Taylor, P.J., B. Derudder, P. Saey and F. Witlox (eds) (2007), *Cities in Globalization: Practices, Policies and Theories*, London: Routledge.

Taylor, P.J., P. Ni, B. Derudder, M. Hoyler, J. Huang and F. Witlox (eds) (2011), *Global Urban Analysis: A Survey of Cities in Globalization*, London: Earthscan.

Wallerstein, I. (1979), *The Capitalist World-Economy*, Cambridge: Cambridge University Press.

List of abbreviations

AA	Amman	DH	Doha	LN	London	RM	Rome
AD	Adelaide	DS	Düsseldorf	LX	Luxembourg	RY	Riyadh
AK	Auckland	DT	Detroit	LY	Lyon	SA	Santiago
AL	Almaty	DU	Dubai	MB	Mumbai	SB	Saint Petersburg
AM	Amsterdam	DV	Denver	MC	Manchester	SD	San Diego
AS	Athens	ED	Edinburgh	MD	Madrid	SE	Seattle
AT	Atlanta	FR	Frankfurt am	ME	Melbourne	SF	San Francisco
BA	Buenos Aires		Main	MI	Miami	SG	Singapore
BB	Brisbane	GN	Geneva	ML	Milan	SH	Shanghai
BC	Barcelona	GT	Guatemala City	MM	Manama	SJ	San José

BD	Budapest	GU	Guadalajara	MN	Manila	SK	Stockholm
BG	Bogota	GY	Guayaquil	MP	Minneapolis	SL	Saint Louis
BJ	Beijing	GZ	Guangzhou	MS	Moscow	SN	Santo Domingo
BK	Bangkok	HC	Ho Chi Minh	MT	Montreal	SO	Sofia
BL	Berlin		City	MU	Munich	SP	São Paulo
BM	Birmingham	HK	Hong Kong	MV	Montevideo	SS	San Salvador
BN	Bangalore	HL	Helsinki	MX	Mexico City	ST	Stuttgart
BR	Brussels	HB	Hamburg	NC	Nicosia	SU	Seoul
BS	Boston	HM	Hamilton	ND	New Delhi	SY	Sydney
BT	Beirut	HS	Houston	NR	Nairobi	SZ	Shenzhen
BU	Bukarest	IS	Istanbul	NS	Nassau	TA	Tel Aviv
BV	Bratislava	JB	Johannesburg	NY	New York	TK	Tokyo
CA	Cairo	JD	Jeddah	OS	Oslo	TL	Tallinn
CC	Calcutta	JK	Jakarta	PA	Paris	TP	Taipei
CG	Calgary	KL	Kuala Lumpur	PD	Portland	TR	Toronto
CH	Chicago	KR	Karachi	PE	Perth	VI	Vienna
CN	Chennai	KU	Kuwait	PH	Philadelphia	VN	Vancouver
CO	Cologne	KV	Kiev	PL	Port Louis		
CP	Copenhagen	LA	Los Angeles	PN	Panama City	WC	Washington, DC
CR	Caracas	LB	Lisbon	PR	Prague	WL	Wellington
CS	Casablanca	LG	Lagos	QU	Quito	WS	Warsaw
CT	Cape Town	LJ	Ljubljana	RI	Riga	ZG	Zagreb
DA	Dallas	LM	Lima	RJ	Rio de Janeiro	ZU	Zurich
DB	Dublin						

Table 8.1 Key tenets of Friedmann's 'world cities' and Sassen's 'global cities'

	World cities	Global cities
Key author	Friedmann	Sassen
Function	Powerhouse	Center for servicing of global capital
Key agents	Multinational corporations	Producer service firms
Structure of the network	Reproduces (tripolar) spatial inequality in the capitalist world-system	New geography of centrality and marginality cutting across existing core/periphery patterns
Territorial basis	Metropolitan region	Traditional CBD or a grid of intense business activity*

Note: The spatial demarcation depends on the specific form of the territorialization of the core dynamics behind global city-formation. This implies that both the continuation of traditional CBDs (New York) as a new pattern centered on a grid of intense business activity (Zürich) is possible. However, the proper unit of analysis is clearly smaller than the 'metropolitan region' as a whole (see body of text for further elaboration).

Table 8.2 Connectivity in APS networks versus connectivity in MNE networks – regression residuals

	City			*City*	
1	Shanghai	1,71	1	St Louis	-3,22
2	Hong Kong	1,61	2	Hamilton	-2,84
3	Moscow	1,56	3	Philadelphia	-2,46
4	Singapore	1,52	4	Cologne	-2,35
5	Sydney	1,39	5	Detroit	-2,25
6	Milan	1,37	6	Minneapolis	-1,97
7	London	1,33	7	Nassau	-1,95
8	Buenos Aires	1,28	8	Edinburgh	-1,83
9	Kuala Lumpur	1,20	9	Calgary	-1,79
10	Dubai	1,19	10	San Diego	-1,78

Figure 8.1 Connectivity in APS networks versus connectivity in MNE networks

Note: For city names, see list of abbreviations

Notes

[1] There are earlier uses of this term, but Brenner (1998, p. 5) notes that these uses reflected the "territorialization of the urbanization process on the national scale: the cosmopolitan character of world cities was interpreted as an expression of their host states' geopolitical power."

[2] The straightforward designation of GaWC studies as research into 'global cities' should, however, be somewhat nuanced. It can, for instance, be noted that the empirical rationale of most GaWC research starts from a critique of Sassen's global city concept for its bias towards a limited number of cities, hence the use of the 'cities in globalization' terminology in Taylor et al. (2007). Thus although Sassen's process is used in GaWC studies, it can be said that they do try to bypass her concept of 'global cities'.

[3] In practice, Derudder et al. (2010) focus on 132 cities. However, here we work with 130 rather than 132 cities as the scores for Rotterdam/Amsterdam and Antwerp/Brussels were combined for practical reasons.