

**World city network research at a theoretical impasse: On the need to re-  
establish qualitative approaches to understanding agency in world city  
networks**

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# **World city network research at a theoretical impasse: On the need to re-establish qualitative approaches to understanding agency in world city networks**

## **Abstract**

From the late 1990s, the establishment of a new relational 'turn' in the study of world city connectedness in globalization has run parallel to the wider relational turn occurring in economic geography. Early work, built firmly upon a qualitative approach to the collection and analyses of new inter-city datasets, considered cities as being constituted by their relations with other cities. Subsequent research, however, would take a strong quantitative turn, best demonstrated through the articulation of the inter-locking world city network (ILWCN) 'model' for measuring relations between cities. In this paper, we develop a critique of research based around the ILWCN model, arguing that this 'top down' quantitative approach has now reached a theoretical impasse. To address this impasse, we argue for a move away from Structural approaches in which the firm is the main unit of analysis, towards qualitative approaches in which individual agency and practice are afforded greater importance.

**Key words:** World city networks; inter-locking network; qualitative methods; relational economic geography; agency; practice

## Introduction

From the late 1990s, the establishment of a new relational 'turn' in the study of the theoretical and empirical dynamics of world city connectedness in globalization ran parallel to the wider relational turn occurring in economic geography. At the forefront of this turn was the Globalisation and World Cities (GaWC) research network ([www.lboro.ac.uk/gawc](http://www.lboro.ac.uk/gawc)), a virtual network of researchers, co-Directed by Peter Taylor and Jonathan Beaverstock (then of Loughborough University, in the United Kingdom) in 1997/8, with the express mission of studying cities 'relationally'. Taking inspiration from the work of Saskia Sassen (1991, 1994) on advanced producer services and Manuel Castells' (1996) work on *The Network Society*, the relational approach developed by GaWC argued that cities were not defined by what was contained *within* them, but rather what flowed *through* them (Beaverstock et al, 1999a and b). Cities are understood as more than just basing points for global capital – they can be read more fundamentally as *process* (Beaverstock et al., 2000; 2002), defined by what flows through them: money, information, people, knowledge, and many other things besides (see, Castells, 1992). Given that GaWC was at the forefront of leading the 'relational' turn in economic geography, it is curious that their work was neglected by Boggs and Rantisi (2003) and other economic geographers (e.g. Yeung, 2003; 2005a and b) in their conceptual discussions of this turn in the early 2000s (as we will discuss later in the paper).

Early work by GaWC built firmly upon a qualitative approach to the collection and analysis of new inter-city datasets, compiling, archiving and mapping firms' international office networks from London, and later New York city (see, Beaverstock et al, 1999a, 2003). Indeed, Taylor's (1997) early work on hierarchical tendencies amongst world cities and Beaverstock et al's (2000) relational approach to studying world cities both had qualitative data at the heart of their methodologies to sketch out new approaches to mapping world city connections, based firmly on relational rather than attribute data. During this period of data collection, the proliferation of the World Wide Web and the establishment of individual firm websites made this data mining, from an array of advanced

producer service firms (as defined by sassen, 1991, 1994), possible to an extent which had not been before in this field of study (see, Daniels, 1993).

In the period 1996 to the early 2000s, much of the published work on inter-city relations in globalization had qualitative approaches as the mainstay to data collection and analyses (content analysis of firm websites and newspapers/trade magazines; and semi-structured interviews) which produced 'grounded theory' on which was established the pioneering work on so-called 'world city networks' (Beaverstock, et al. 2002). These early relational approaches set the theoretical building blocks for the notion of a new global urban architecture that is the 'inter-locking', with the pioneering 'roster of world cities' as an urban paradigm shift from Friedmann's (1986) 'world city hierarchy' (see, Beaverstock et al, 1999a; 2002).

In the early 2000s, however, GaWC's research into world city networks would take a strong 'empirical' or 'quantitative' turn, driven by Peter Taylor's specification of a new, numerical inter-locking world city network (ILWCN) 'model' for predicting the connectivities of cities (Taylor, 2001). The central tenet of this model is that the organisational networks of global service providers and other firms with worldwide reach can serve as a proxy for both embodied and virtual flows that link particular sectors of city economies across space. The development of this model has been trailblazing, not only in its approach to measuring the new connectivities of the world city order emerging in contemporary globalisation, but also in successfully addressing the paucity of relevant data and associated empirical deficit that had become the 'dirty little secret' of world cities research (Short et al., 1996). Indeed, this was one of the key aims of the GaWC research network upon its foundation (see, Beaverstock et al, 2000; Taylor, 1997). Although its main value continues to be in the measurement of world city networks constituted by advanced producer services firms, more recently the ILWCN model has also been successfully employed to measure alternative globalisations, for example those being driven by global media (Kratke and Taylor, 2004; Hoyler and Watson, 2013) and international sports federations (Roels *et al.*, 2012). However, despite these successes, the ILWCN model has also attracted many dissenting voices because of its Structuralist

bias and predictive approach to measuring the strength of, essentially, one-sector (producer services) city-networks (Robinson, 2002, 2005; Smith, 2003a).

In this paper, we develop our own critique of quantitative approaches based on this ILWCN model, arguing that these empirical approaches, which have dominated world city network research for over a decade, face an impasse in terms of their ability to take research on world city networks forward conceptually or methodologically. Our provocation is that GaWC's model-based phenomenal 'hit factory'<sup>i</sup> for providing measurements of the spatialities of city-connectivities has now reached the point of diminishing marginal returns when considering advancements in theory. We advocate that the ILWCN architecture is one of pattern over process or, to borrow a phrase from Lee (2002), could be neatly summed up as, "Nice maps, shame about the theory". The aim of our intervention is to make the case for the re-establishment of qualitative approaches for the study of ILWCNs, in order to re-engage with 'theory-building' beyond the incremental Structuralist approach. Such approaches, which have for too long been left in the shadow of their quantitative counterparts, can liberate quantitative world city network research from its theoretical impasse. A return to qualitative approaches we argue, can revitalise research on inter-city relations through theorising world cities and their relational networks 'from below' (Beaverstock, 2007), and by moving research away from Structural approaches towards more innovative conceptual and empirical approaches in which the individual agency and practice are afforded more importance.

The paper is structured in three main sections. In the first, we provide a brief evaluation of the strengths and limitations of Taylor and colleagues' (see, Derudder et al, 2010; Taylor et al, 2012) ILWCN model, briefly outlining both its key contributions and major critiques. In closing this section, we argue that the use of this model, and associated measurement of the world city network 'from above', has reached a theoretical impasse. In the second section of the paper, we re-visit the theoretical ground laid down by the relational turn in economic geography, arguing the need to take greater account of agency and power in our theorisations of inter-city networks. Here we consider the issue of the firm as a principal unit of analysis in economic geography. Building on this, in the

third section, we set out our case for a return to a qualitative approach to theorising inter-city relations and world city networks 'from below'. Such an approach, we argue, is necessary to fully unpack the complexities of world city networks; that is to take account of *agency* and *practice* in the formation of networks. We conclude the paper by examining the potential for a mixed-method template for the study and analysis of inter-locking world city relations which draws on both quantitative and qualitative approaches.

### **The ILWCN Model at a Theoretical Impasse**

The formal specification of the ILWCN for world cities is given by Taylor (2001). The model is unusual in that it has three levels. At the nodal level are cities; at the net level is the global economy, consisting of all nodes and links; and there is also a sub-nodal level comprising of firms as the agents of world city network formation. It is considered that as advanced producer service firms have expanded worldwide in contemporary globalisation, office networks have become central to providing a seamless service to corporate clients. It is the working flows between these offices, for example in the form of internal communications, knowledge transfer and the movement of highly-skilled people that are considered to constitute the world city network (Taylor 2004; Taylor et al. 2011). The main measure of importance in this model is *network connectivity*.

This relational quantitative approach developed by Taylor and other GaWC scholars (most prominently Ben Derudder, Michael Hoyler and Frank Witlox) has undoubtedly opened up new theoretical and empirical perspectives on the articulation of world cities within global networks of flows of capital, people and knowledge (Derudder, 2008). The approach of studying world city networks from 'above' has been crucial in establishing the importance of intercity linkages and connectivities in understanding pattern in the global economy. Over more than a decade, the substantive work of GaWC has been based around this ILWCN model - now a well-tested empirical foundation for research - to develop an enviable and world class track record of identifying numerical change in the structure and connectivity of the world city system. However, the ILWCN

model has received much criticism from both a conceptual and empirical stance for its Structural determinism and predictive approach to measuring the strength of connectivity networks, both by post-structuralist scholars advocating a actor-network approach to studying world city networks (Smith, 2003a and b; Smith and Doel, 2011) and by others interested in quantitative measures of world city connectivity (Neal, 2012). Unsurprisingly, Peter Taylor (2006; 2014) has always consistently addressed such challenges with incisive and meaningful pronouncements which in our view have actually helped to refine and polish writings on the premise of the ICWCN.

It is not our intention in this paper to review these challenges, which have been well developed and debated elsewhere, or to delve deep into the specification of the ILWCN model. Rather, we wish briefly to outline our own critique of the continuation of quantitative analyses based around the ILWCN model. This critique centres not on any belief that the fundamental propositions of the model are flawed in some way; rather it is centred on our belief that world city research drawing on this model, in its continual and incremental corroboration of Sassen's (1991, 1994) notion that cross-border relations are characteristic features of global cities, has remained in something of a theoretical impasse since the mid-2000s. Specifically, the impasse to which we refer is the inability of quantitative model-based approaches to contribute any more to our understanding of the world city network, above simply taking empirical 'snapshots' of a hierarchical network of inter-city relations at a point in time, based upon assumed relational connectivity power-relations between a firm's offices, and using these snapshots to identify hierarchical and connectivity changes in the global urban system over time (see for example Taylor and Aranya, 2008; Derudder et al, 2010).

While we consider such studies as having significant value in mapping the changing pattern of contemporary globalization, this quantitative approach has very little to contribute to process- or practice-based discussions which attempt to explain why certain socio-economic processes are located and performed in particular cities; why changes in network connectivity are taking place; and the content and meaning of intercity flows and relations (Lai, 2012). It can say nothing, for example,

on the complexities of knowledge networks; it cannot explain geometries of power-relations; and it cannot attempt to understand how locational preferences might relate to traded and untraded interdependencies. Furthermore, in retaining a focus on the firm and its complex of offices/subsidiaries as the main unit of analysis, it can say nothing about the ways in which these firms penetrate new markets through more flexible modes of 'non-presence', for example: strategic alliances/networks; franchises; and business travel (Beaverstock, 2011). In concentrating on and emphasising the cities in the networks, the actual networks in which cities are entangled have remained hidden (Smith, 2007).

The ILWCN model's inability to make a 'leap' forward in theory also rests on an inability to fully understand the complex strategy and organization of the main unit of analysis: the advanced producer service firm. In economic geography and business and management, extant studies of strategy in knowledge intensive business or professional services explore the value-added of 'professionals' in the firm (e.g. advertising creatives, consultants, lawyers, accountants, wholesale, investment bankers) rather than the return on FDI in the geographical spread of offices *per se* (see, Alvesson, 2004; Lowedahl, 2000). As knowledge and expertise are embodied in the economic practice and performativity of labour, the firm's 'professionals' are the main assets to achieve its strategic goals. 'Professionals' earn fee income as opposed to the sunk costs of the office. Moreover, as these professionals work closely with clients, often in ephemeral project teams or in direct secondments, mapping a firm's global presence and strategic world-city connectivities using the office (and assumed power-relations) as the only unit of analysis can negate the significance of its 'non-presence' in a market, especially in a sector of the world economy which rests on the ability of the firm's internationally mobile professionals to deliver services at the point of demand i.e. in co-location with the client (see, Beaverstock and Hall, 2012; Faulconbridge, 2010, Faulconbridge *et al.*, 2008; Hodgson *et al.*, 2011; Jones, 2007).

More fundamentally, beyond the firm, at a theoretical level further research based around the ILWCN model can do little to advance understandings of world city networks in the urban system



because the overriding emphasis is on measuring *structure* at the expense of *agency*. The lack of attention to agency in current world city research seems somewhat surprising given that early conceptual statements by GaWC researchers (Beaverstock *et al.* 2002; 128) proposed the development of a “truly relational approach,” which recognises how, “world cities are brought into being through the conjoint actions of the attendants who maintain the world city network”. However, a more careful reading reveals that missing from their list of ‘attendants’ – firms, sectors, states and cities – are *individuals*. It is to this particular issue - the tension between structure and individual agency, and how this tension informs approaches to research, that we wish to engage within the next section of the paper. To do so, we revisit the ground of the relational turn in economic geography.

### **Revisiting the Relational Turn in Economic Geography**

Over the last two decades, a ‘relational turn’ (Storper, 1997; Boggs and Rantisi, 2003; Jones, 2013) has occurred within geography, with relational approaches becoming ever more influential, not only in terms of what geographers study, but also how they study it (Murdoch, 2006). Increasingly space, place and time have come to be seen in relational terms, as “co-constituted, folded together, produced through practices, situated, multiple and mobile” (Amin, 2002). The establishment of new relational thinking, *vis-à-vis* the theoretical and empirical dynamics of world city connectedness and relations in globalization, has run parallel to this wider relation turn in Geography. Within this ‘turn’, a number of shifts can be identified.

Firstly, it is apparent that within economic geography there is now a broad concern with economic actors and how their social network relations at different spatial scales shape the geographies of economic performance. As Boggs and Rantisi (2003) outline, at an ontological level the relational turn ascribes a greater role to the agency of individual economic actors than to economic structures. As such, there has been a broad shift in emphasis from structure to agency. This challenges models of scales based on top-down vertical imaginaries, and instead emphasises an

ontology composed of more complex, emergent spatial relations. Marston et al. (2005: 424) argue for the discarding of vertical ontologies and, in their place, propose a 'flat ontology' that requires, "sustained attention to the intimate and divergent relations between bodies, objects, orders and spaces ... [which] ... must be rich to the extent that it is capable of accounting for socio-spatiality as it occurs throughout the Earth without requiring prior, static conceptual categories". This social understanding of the economy is positioned in contrast to previous vertical conceptions of the global capitalist economy.

Leitner and Miller (2007) argue however that a flat ontology does not account for power hierarchies and the production of inequalities. They argue that these relationships create differential opportunities and constraints for practices of individual and collective agents. Moreover, economic agents operate within a context of institutions, norms and rules that condition their choices and relations (Boggs and Rantisi, 2003; see, also Sunley 2008). For Jones (2009: 498) socio-spatial relations are produced neither through structural determinism nor through a spontaneous voluntarism, but through a, "mutually transformative evolution of inherited spatial structures and emergent spatial strategies within an actively differentiated, continually evolving grid of institutions, territories and regulatory activities". Thus, while in the relational turn there has been a broad shift from structure to agency, structure still matters, albeit it is viewed as the outcome of multiple actions and actants.

Secondly, and associated with the above, there has been a methodological shift (Boggs and Rantisi, 2003) from the macro-level of institutions and regulatory frameworks to the micro-level of agents and their inter-relations. In economic geography, the firm has generally been considered to be the elementary unit of collective commercial agency, largely unproblematised as unitary and coherent actors (Yeung, 2003; Maskell, 2001; Taylor and Asheim, 2001), with transnational corporations in particular assumed to be key actors in producing global shift (Dicken, 2011). However, more recently the relational turn has seen the centrality and reification of the firm being challenged. Grabher (2002), for example, has argued that the integrity of the firm as a basic

analytical unit is being undercut by organisational practices that are built around projects involving a multiplicity of organisational and personal networks. This given, Grabher (2002) argues there is a pressing need for new relational conceptions of economic activity. For Yeung (2003: 451), the 'firm' is hence a, "messy constellation of multiple identities, contestation of power, and shifting representations," with Sunley (2008: 5), asserting that, "what we thought to be homogeneous units are, in fact, internally fractured and heterogeneous". Yeung (2003; 2005b) argues that monolithic 'black box' conceptions of this crucial analytical category need to be revised, and there is a need for a relational conception of the firm as social networks in which actors are embedded in on-going power relations and discursive processes.

As Dicken et al. (2001) assert, networks are neither purely organisational forms nor structures – rather they are, "relational processes, which, when realised empirically within distinct time- and space-specific contexts, produce observable patterns in the global economy" (Dicken et al., 2001: 91). Thus, a relational perspective on economic geography explicitly draws attention to the importance of economic actors and how, when and where they act and interact in space (see, also, Bathelt and Glückler, 2003). Viewing networks as relational processes also requires us to recognise that while networks are manifested at a multiplicity of geographical scales, they do not consist of unbounded flows and connections; rather they are at the same time embedded within particular territories (for more on the debate regarding relationality and territoriality, see, Amin, 2002, 2007; Jones, 2009). Dicken et al. (2001) argue therefore that an understanding of the global economy must incorporate multiple scales of economic (along with political, cultural and social) relations, and that too often a particular (for example local) or bifurcated (for example global-local) geographical scale is used in ways that "obscure the subtle variations within, and interconnections between, different scales" (2001: 90). In network formation and networking processes, there is a complex intermingling of geographical scales. A relational view of social actors and their networks, they therefore argue, must always be sensitive to the geographical scales at which they operate. As

Jessop et al. (2008) argue, territories, places, scales and networks must be viewed as mutually constitutive and relationally intertwined dimensions of socio-spatial relations.

Thirdly, the relational turn has seen a shift away from the firm, as an abstract entity, as the key analytical focus, towards a focus on social actors (Ettlinger, 2003; Yeung, 2005a and b), in particular individuals within firms and how their interests coincide with or diverge from the material interests of the firm, and the implications this has for firm practices (Boggs and Rantisi, 2003). Empirical work has demonstrated that individuals may form networks within and outside firms that can either advance the interests of their employers (see, Amin and Cohendet, 1999) or prioritise personal interests over those of their employers (see, Christopherson, 2002). As Boggs and Rantisi (2003: 112) emphasise, “the logics that inform workplace practices cannot be understood solely in narrow economic terms or in terms of one single rationality, and accordingly, cannot be unconsciously equated or conflated with those of the ‘firm’”. However, as Granovetter (1985) argues, individuals do not act atomistically without context. Rather, their identities and resource capabilities are co-constituted by their relations with other actors (Boggs and Rantisi, 2003) and their decisions are always shaped by the structure of social relations with other actors and shared institutional conditions (Bathelt and Glückler, 2005).

These relational resource capabilities include power. Power is also a collective capacity, created and embedded through network relations, for which actors are dependent upon a set of related actors – that is to say that it is that power *relational effect*, and outcome of social interaction (Allen, 2003). Bathelt and Glückler (2005) outline how those actors who are viewed as having power are able to build and develop their networks by enrolling other actors; Allen (1997) and Taylor (1996) have termed this as ‘power as relationships’. Dicken et al. (2001) and Yeung (2003; 2005a and b) suggest that a central component of a relational analysis is recognition of the existence of differential power relations within actor-networks. Powerful and active actors play a key role in driving networks and making things happen. Their ability to do so is dependent upon their control of key physical, political, economic, social, and technological resources. However, while the control of

resources is necessary in order to have power, it is not a sufficient condition for the ascription of power to an actor. The increasing adoption of Actor Network Theory approaches in economic geography has revealed how power is the relational effect of the capacity to influence, and the exercise of this capacity, through actor-specific practice (Yeung, 2005a and b; Dicken et al., 2001; Allen, 1997). Power can therefore be defined as a relational and emergent concept manifested through practice.

In this section of the paper, we have followed Boggs and Rantisi (2003) in identifying three key shifts associated with the relational turn. It is perhaps surprising, then, given the 'relational turn' in the study of world cities, that research has remained stubbornly and entirely at odds with these shifts; rather than grappling with agency, it is widely criticised for its Structuralist underpinnings; rather than attempting micro-scale analysis of networks, it considers networks predominantly at the macro-scale; and rather than focusing on social actors, research focuses almost exclusively on the firm as main analytical unit. It is relational only in the sense that it is concerned with flows between cities (and even then, only expected/assumed connectivities); it is not concerned with actual or real flows shaped and constituted by the relationships between individuals, or how such relationships give actors power and influence. As such, while the relational turn in world cities research has run parallel to the relational turn in economic geography, it has not mirrored it. In the following section of the paper, we propose an alternative research agenda, based around qualitative approaches, which engages with the theoretical, conceptual and methodological shifts of the new relational economic geography in a meaningful way.

### **Re-Establishing Qualitative Approaches: 'Grounding' Theory in Agency and Practice**

Standing at odds with this new relational economic geography, the ILWCN says nothing about social actors, their agency, or their micro-networking practices. As Parnreiter (2014) argues, while the notion that cities function as organizing nodes of the world economy is now widely accepted, little is still known about the actual *practices* of management and control exercised in global cities

and the associated knowledge flows and agencies in command and control. Given the Structuralist underpinnings of much of the current research of world city network, many scholars working at the macro-level of the global economy have tended to, “downgrade and underestimate the importance of everyday human practices” (Smith, 2003a; 38). As Jones (2008a) argues, the Structuralist legacy in economic geography has resulted in the conceptualising of structures as wielding agency beyond the scale of the individual, with agency and power being apportioned as the property of the firm. This, Jones (2008a; 76) argues, means that:

“The actual practices of social interaction: decision-making, deal brokering, personal relationships, and so on – are left in the untheorized ‘background context’ of a theoretical story being told around a black-box conception of collectivized agency”.

As Smith and Doel (2011) assert, agents are not simply relays, they are transformers – their actions *make* a difference. Recognising the centrality of individual action in network formation is to central understanding world city networks ‘from below’.

Human agency often comes to be viewed only as an effect of globalising processes (trade, production, communications) rather than as a vital logic that effects global phenomenon (Ong, 1999). This has resulted in abstract and inhuman accounts of world city network formation (Smith 2003a), and a separation of scales between ‘the global’ and ‘the individual’. Making such a distinction between scales is of course highly problematic; the complex ‘space of flows’ between cities in globalisation is composed of multiple scalars of movement, performance and unequal, uneven and partial connections and flows (see, Thrift, 1998; Smith, 2003b). Thus, in conceptualising and measuring the world city network from above, the ILWCN model fails to capture the complex processes of agency-driven networking and connectivities between cities in contemporary globalisation.

While Taylor's (2001, 2004; Taylor et al, 2012) three-level model of the world city network made the important step of identifying firms as key agents in the formation of world city networks so as not to reify cities (which of course have no agency in themselves), it falls into the trap of reifying 'the firm'. Much like cities, the global firms that constitute the world city network do not have agency in themselves; rather they are given agency through individuals within the firm – from "the dominant managerial elites" (Castells, 2000; 443) that make strategic business decisions to the hyper-mobile expert labour who inter-face with clientele across the globe on a daily basis (see, Beaverstock, 2011). Links between world cities are constituted by billions upon billions of micro-networks of multifarious and infinite social connections and people and information flows. These micro-networks generate a multitude of different micro-world city networks operating simultaneously and at different speeds in the time-spaces of contemporary globalisation (Beaverstock, 2007a and b; 2011). In our conceptualisations of world city networks, it is crucial that we understand them as being constituted in this way.

But the theoretical impasse goes beyond the inability to recognise the importance of agency, to a more fundamental issue with ontological claims made with regards to relationality. From the ILWCN model perspective, it is argued that relationality should be primarily viewed between cities, or more specifically, between firms in different cities. While the flows of capital, people and knowledge between cities are undoubtedly central to city network formation and maintenance, a preoccupation with relationality *between* cities has to some degree obscured understandings of relationality *within* cities. Viewing networks as relational processes also requires us to recognise that while networks are manifested at a multiplicity of geographical scales, they do not consist of unbounded flows and connections; rather they are at the same time embedded within particular territories (Amin, 2002, 2007). However, this is not a call for static conceptions of firms as being based in particular locales or the study of 'locational factors' of the type which could be regressed into an equation; rather we need to view cities as sites of situated yet transitory economic *practices* and *performances*. A relational approach then, centred firmly on process and practice, would look to

generate concepts around the dynamic practices that constitute economic action and produce firms *in places* (see, Jones, 2008a) – for example untraded interdependencies and local knowledge networks – and how these practices occur interdependently with practices that stretch beyond the local (see for example qualitative studies of networks of knowledge and learning in London and New York undertaken by Faulconbridge, 2007a and b; and Watson, 2008) creating ‘global’ cities and linking cities together in networks. The global reach of large firms –understood as constellations of network relations, or as ‘circulatory networks’ (Amin, 2002) - is then, we would argue, located in a particular kind of economic space: a ‘space of practices’. Such a conception of space allows us to go beyond conceptions of ‘spaces of flows’ to begin to consider the ways in which relationality *within* and relationality *between* cities become mutually constituted through strategic agency.

Considering the above discussion of agency and practice, it becomes clear how ‘top down’ quantitative approaches concerned with structural relations between cities can only ever give us a partial, and very limited, picture of world city networks, due to the way in which they are unable to sufficiently theorise individual agency and the ‘space of practices’ in which network relations emerge. Rather, we argue that a qualitative, ‘bottom-up’ micro-systems conceptualisation is necessary to fully unpack the complexities of world city networks, given that global-level networks are made and re-made through the actions and agency of individuals – that is to say they are an outcome of process and practice. Qualitative approaches are, we argue, a necessity if we are to understand the individual agency that is not well captured at the firm level; to understand embodied economic practice and how actors beneath the scale of the firm as an organisation interact in complicated ways and how actors associate with each other to produce economic outcomes (Jones, 2008a). Qualitative approaches can be sensitive to the degree of complexity of associations between different actors and agents in the global economy; they involve a commitment to understand the perspectives of social actors being studied. In this sense, a qualitative, micro-systems approach, we suggest, will allow for the development of new theory that is ‘grounded’ in the specificity of the



individual processes and practices through which networks are formed across a range of spatial scales – what Amin (2002) terms a ‘sociology of practices’.

Theoretically, such an approach represents a move away from a primary concern with the ‘space of flows’ – a concern with that which flows between and through cities – to a ‘space of practices’ which considers how practices that occur both within and between cities are mutually constituted and result in particular patterns in the world city network. This opens up new lines of theoretical questioning and research beyond those concerned with inter-city flows of which frame current quantitative approaches. In this regard, we wish here to identify three areas of work which are of particular pertinence to the discussion presented in this paper. First, answering questions regarding the *actual practices* of management and control exercised in global cities, and *how* producer services are means for the management and control of global operations of firms would allow scholars to more fully engage with the central arguments presented by Sassen (2001) regarding global city formation (Parnreiter, 2014).

Second, in undertaking qualitative micro-scale studies of the practices occurring within particular firms and cities - practices that constitute economic action and *produce* firms in places (see, Jones, 2008a, 2013) - we can begin to uncover why certain socio-economic processes are located and performed in particular cities (see for example Jacobs *et al.*, 2011 on port cities) and explain diversification and specialisation in the world city network and the meaning of particular intercity relations, which to date quantitative approaches have been able to map but not explain (see for example Taylor *et al.*, 2002).

Finally, qualitative approaches allow the possibility of answering questions regarding the role of forms of business organisation other than firm office and subsidiary networks - including ‘non-presence’ strategies such as strategic alliances and franchises, and flexible and temporary organisation structures found in project work – in the formation of world city networks, something which quantitative approaches have as yet been unable to capture in their measurements. These are just a few examples - there are many more theoretical questions which require answering, many of

which we do not yet know. In the true spirit of a grounded theory approach, we do not believe in a relational approach being an *a-priori* theoretical framework, but rather suggest that it is to qualitative empirical work that we should look to provide new theoretical insights.

In making the call for the re-establishment of qualitative approaches to studying agency in the world city network, we are of course aware that qualitative approaches did not disappear in the face of the quantitative 'turn'. In the shadow of global-level quantitative analyses, high-quality micro-level qualitative research has been progressing (see Beaverstock et al, 2005; Cook et al, 2007; Henry et al 2002; Klagge and Peter, 2011; Pain, 2008a, 2008b; Parnreiter, 2010). In this sense, the type of 'grounded' theory development for which we call is well underway. One particularly fertile area of research in which a qualitative approach has been particularly pronounced in the implicit grounding of new understandings in inter-city relations has been in the field of highly-skilled transient international labour migration associated with the notion of 'transnational' or 'global' work in producer services' firms (see, Beaverstock, 2007b; Jones, 2008b) which (re)produce micro-networks between firms, clients, cities and financial services clusters. World city networks scholars have not just been concerned with the agency of transnational 'elites' (see for example, Faulconbridge, 2008; Sklair, 2005), have however only been fixated with mobile elites in advanced producer services. Research has focused, for example, on the agency of mobile high technology workers (see, Harvey, 2011; Saxenian, 2006), academics (see, Jons, 2011) and business educationalists (see, Waters, 2009) in the making of micro-world city networks, couched in the discourses of organization studies, transnationalism and transnational urbanism. More recently, the 'mobilities' turn (Sheller and Urry, 2005) has made interesting interventions into understandings of the functioning of organizational spatial relations between firms and cities in the guise of theorising business travel (see, Faulconbridge *et al.*, 2009), the stretching of business education knowledge over time and space (see, Hall and Appleyard, 2011) and talent management and the competitiveness of countries, regions and cities (see, Boeri *et al.*, 2012).

The above examples demonstrate the ways in which qualitative approaches provide a means of collecting *practice*-based findings on different inter-city attributes and relationalities, which can add significant originality and knowledge to understanding the dynamics of the world city network, 'from below'. Such studies have enriched our understandings of the flows and networks of capital, people and knowledge that transform cities in globalisation, and demonstrate how qualitative approaches can take our theoretical understanding of the dynamism of world city networks forward in more than an incremental manner. The greater use of qualitative approaches to the study of the agency of world cities and their multiple networks can offer fresh perspectives on intercity relations by examining the content of networks and the rationale and practices of financial actors, rather than relying on aggregate firm-level data (Lai, 2012). But, they are not only important in this respect; process-based findings are essential if geographers and world city scholars are to be able to intervene with policy formation and debate, both at the individual city and wider urban-system scale.

### **Concluding remarks**

In this paper, we have argued that the highly influential ILWCN model has now reached its maximum theoretical value as a conceptual tool for developing our understanding of the global urban system. The mapping and re-mapping of world city connectivities, based on analysing incremental changes in advanced producer service firm offices networks and assumed connectivity functions and relations, continue to advance understanding of pattern and structure in contemporary globalization. But, there is an urgent need to inject a new and original lease of theoretical life, drawn from analyses of individual agency and practice, into conceptualisation of the ILWCN, if they are to make a substantial leap forward and address our 'thin on theory' provocation.

In particular, we have suggested that there is a need to embrace the innovations of the new relational economic geography in our conceptual approaches to studying inter-city relations. The alternative research agenda for which we argue aims to move research away from the abstract level

of the firm as the main unit of analysis, by considering the embodied economic practice of the individual, the 'professionals' that make the advanced producer service firm 'tick'. As Samers (2002: 399) suggests, a theoretical move to studying world cities from below, "seems a necessary task, lest our understanding of 'global cities' be confined to simply ranking them, outlining business networks, or categorizing their characteristics". Central to such an approach would of course be the 'elite, corporate interview' (see for example, Herod, 1999; McDowell, 1998, Schoenburger, 1991) undertaken with key strategists and decision-makers (of President, Vice-President, CEO and partner-level) in organisations (firms, institutions). This corporate elite actively create and restructure world city networks through their control and management of the firm (intra-firm) across borders and their global-local relationships (inter-firm) with clients, customers, suppliers and institutions (as espoused by recent specialists of advanced producer services, for example, Bryson and Daniels, 2007; Cook et al, 2007; Faulconbridge, 2007b; Jones, 2007; Sassen, 2013).

Importantly, we wish to emphasise that in making the call for a new research agenda based around the re-establishment of qualitative approaches, we are not suggesting that there is no longer any place in world cities research for research based on quantitative methods. The research being undertaken by the scholars of the ILWCN model continue to provide valuable insights into temporal change in the structure of the world city network. The use of an increasingly varied 'tool-kit' of quantitative analysis techniques is allowing for various nuances of the world city network to be revealed, including world regionalisation (see, Taylor et al, 2012; Hoyler and Watson, 2012); shifting hierarchical and regional tendencies (Liu *et al.*, 2013); and world city cliques (Derudder and Taylor, 2005). Furthermore, building on earlier work by Alderson and Beckfield (2004), quantitative network analysis techniques are being usefully applied to world city networks to measure the centrality and power of cities within urban networks (Neal, 2011, 2012; Watson, 2012).

Rather than one approach taking dominance – as has occurred with quantitative methods over the last decade – we suggest that a combination of quantitative *and* qualitative methods, focused at either the firm level and/or the level of the individual, will allow for the most holistic

understanding of world city networking processes. In doing so, we are left with sense of *deja-vu*; in a methodological ‘statement of intent’ produced in 2000 at the beginning of the GaWC project (Beaverstock et. al 2000) the importance of a mixed-method approach was emphasised but not sufficiently advanced in subsequent research. If one reads the preface to Peter Taylor’s (2004) *World City Network*, it is clear that in developing the ILWCN model, Taylor only ever intended quantitative analysis to be one strand of GaWC’s work on the world city network. It was intended to provide extensive research into the patterning of the world city network that would give the context for intensive (qualitative) studies of inter-city processes. Innovative and intensive qualitative approaches can complement, refine, and challenge the results of extensive model-based quantitative measurements of the world city network.

In closing, we not only make the call for the re-establishment of qualitative approaches that can provide more nuanced understanding of agency in world cities and their network-building tendencies, but lay down the challenge for world city researchers to develop an innovative mixed-method ‘template’ for the study and analysis of world city relations in, now, a highly volatile world.

## References

- Alderson, A.S. and Beckfield. J. (2004), Power and position in the world city system. *American Journal of Sociology*, 109 (4), pp. 811-851
- Allen, J. (1997), Economies of power and space. In Lee, R. and Wills, J. (eds.) *Geographies of Economies*. London: Arnold, pp. 59-70
- Allen, J. (2003), *Lost Geographies of Power*. Oxford: Blackwell
- Amin, A. (2002), Spatialities of globalisation. *Environment and Planning A*. 34, 385-399
- Amin, A. (2007), Re-thinking the urban social. *City* 11, pp. 100-114
- Amin, A. and Cohendet, P. (1999), Learning and adaption in decentralized business networks. *Environment and Planning D: Society and Space* 17, pp. 87-104

- Alvesson, M. (2004), *Knowledge Work and Knowledge Intensive Firms*. Oxford: Oxford University Press
- Bathelt, H. and Glückler, J. (2003), Toward a relational economic geography. *Journal of Economic Geography* 3, pp.117-144
- Bathelt, H. and Glückler, J. (2005), Resources in economic geography. *Environment and Planning A* 37, pp.1545-1563
- Beaverstock, J.V. (2007a), World city networks from below: International mobility and inter-city relations in the global investment banking industry. In: Taylor, P.J., Derudder, B., Saey, P. and Witlox, F. (eds.) *Cities in Globalization: Practices, Policies, Theories*. London: Routledge, 52-71
- Beaverstock, J.V. (2007b), Transnational work: Global professional labour markets in professional service accounting firms. In: Bryson, J. and Daniels, P. (eds.) *The Handbook of Service Industries*. Cheltenham: Edward Elgar, 409-431
- Beaverstock, J.V. (2011), German cities in the world city network: some observations. *Raumforschung und Raumordnung* 69 (3), pp. 213-217
- Beaverstock, J.V., Doel, M.A., Hubbard, P.J. and Taylor, P.J. (2002), Attending to the world: competition, cooperation and connectivity in the world city network. *Global Networks* 2 (2), pp. 111-132
- Beaverstock, J. V. and Hall, S. (2012), 'Competing for talent': Global mobility, immigration and the City of London's labour market *Cambridge Journal of Regions, Economy and Society* 5 (2), pp. 271-288
- Beaverstock, J. V., Smith, R. G. and Taylor, P. J. (1999a) A roster of world cities. *Cities* 16 (6), pp. 445-458
- Beaverstock, J.V., Smith, R.G., and Taylor, P.J. (1999b), The long arm of the law: London's law firms in a globalizing world-economy. *Environment and Planning A* 31, pp. 1857-1876

- Beaverstock, J.V., Hoyler, M., Pain, K. and Taylor, P. J. (2005), Demystifying the Euro in European financial centre relations: London and Frankfurt, 2000-2001. *Journal of Contemporary European Studies* 13 (2), pp. 143-157
- Beaverstock, J.V., Smith, R.G., Taylor, P.J., Walker, D.R.F., and Lorimer, H. (2000), Globalization and world cities: some measurement methodologies. *Applied Geography* 20, pp. 43-63
- Beaverstock, J. V., Smith, R. G. and Taylor, P. J. (2003), The global capacity of a world city: A relational study of London. In: Kofman, E. and Youngs, K. (eds.) *Globalization: Theory and Practice*. London: Continuum, 223-236 (2nd edition)
- Boeri, T., Brucker, H., Docquier, F and Rapoport, H. (eds) (2012), *Brain Drain and Brain Gain. The Global Competition to Attract High-Skilled Migrants*. Oxford: Oxford University Press.
- Boggs, J.S. and Rantisi, N.M. (2003), "The 'relational turn' in economic geography" *Journal of Economic Geography* 3 (1), pp. 109-116
- Bryson, J. and Daniels, P W. (2007), *The Handbook of Service Industries* Cheltenham: Edward Elgar
- Castells, M. (1992), *The Informational City*. Oxford: Wiley-Blackwell
- Castells, M. (1996), *The Rise of the Network Society*. Oxford: Blackwell
- Castells, M. (2000), *The Rise of the Network Society*. 2<sup>nd</sup> Edition. Oxford: Blackwell
- Christopherson, S. (2002), Project work in context: regulatory change and the new geography of media. *Environment and Planning A* 34, pp. 2003-2015
- Cook, G., Pandit, G., Beaverstock, J., Taylor, P. and Pain, K. (2007), The Role of Location in Knowledge Creation and Diffusion: Evidence of Centripetal and Centrifugal Forces in the City of London Financial Services Agglomeration *Environment and Planning A* 39 (6), pp. 1325-1345
- Daniels, P. W. (1993), *Service Industries in the World Economy*. Oxford: Blackwell.
- Derudder, B. (2008), Mapping global urban networks: a decade of empirical world cities research. *Geography Compass* 2, pp. 559-574
- Derudder, B. and Taylor, P.J. (2005), The cliquishness of world cities. *Global Networks* 5 (1), pp. 71-91

- Derudder, B., Taylor, P.J., Ni, P., De Vos, A., Hoyler, M., Hanssens, H., Bassens, D., Huang, J., Witlox, F., Shen, W. and Yang, X. (2010), Pathways of change: shifting connectivities in the world city network, 2000-08. *Urban Studies* 47 (9), pp. 1861-1877
- Dicken, P. (2011), *Global Shift: Mapping the Changing Contours of the World Economy*. Sixth Edition. London: Sage
- Dicken, P., Kelly, P.F., Olds, K. and Yeung, H.W. (2001), Chains and networks, territories and scales: towards a relational framework for analysing the global economy. *Global Networks* 1 (2), pp. 89-112
- Ettlinger, N. (2003), Cultural economic geography and a relational and microspace approach to trusts, rationalities, networks and change in collaborative workplaces. *Journal of Economic Geography* 3 (2), pp. 145-171
- Faulconbridge, J. (2007a), Stretching tacit knowledge beyond a local fix? Global spaces of learning in advertising professional service firms. *Journal of Economic Geography* 6 (4), pp. 517-540
- Faulconbridge, J. (2007b), London and New York's advertising and law clusters and their networks of learning. *Urban Studies* 44 (9), pp. 1635-1656
- Faulconbridge, J. (2008), Managing the transnational law firm. A relational analysis of professional systems, embedded actors and time-space sensitive governance. *Economic Geography*, 84 (2) pp. 185-210
- Faulconbridge, J. (2010), TNCs as embedded social communities: transdisciplinary perspectives *Critical Perspectives on International Business* 6, (4) pp. 273-290.
- Faulconbridge, J., Beaverstock, J.V., Derudder, B. and Witlox, F (2009), Corporate ecologies of business travel: working towards a research agenda. *European Urban and Regional Studies* 16 (3) pp. 295-308
- Faulconbridge, J., Beaverstock, J. V., Muzio, D. and Taylor, P. J. (2008), Global law firms: Globalization and organizational spaces of cross-border legal work. *Northwestern Journal of International Law and Business* 28, 3, 455-488.



- Grabher, G. (2002), Cool projects, boring institutions: temporary collaboration in social context. *Regional Studies* 36 (1), pp. 205-214
- Granovetter, M. (1985), Economic action and social structure: the problem of embeddedness. *American Journal of Sociology* 91, pp. 481-510
- Hall, S. and Appleyard, L. (2011), Trans-local academic credentials and the (re)production of financial elites. *Globalisation, Societies and Education* 9 (2), pp. 247-264
- Harvey, W. (2011), British and Indian scientists moving to the United States. *Work and Occupations*, 38 (1), pp. 68-100
- Henry, N., McEwan, C. and Pollard, J. (2002), Globalization from below. Birmingham – postcolonial workshop of the world? *Area*, 34 (2), pp. 117-127
- Herod, A. (1999), Reflections on interviewing foreign elites: Praxis, positionality, validity and the cult of the outsider *Geoforum*, 30 (4), pp. 313-317.
- Hodgson, D., Muzio, D., Faulconbridge, J., Beaverstock, J.V. and Hall, S. (2011), Towards corporate professionalization: The case of project management, management consultancy and executive search *Current Sociology* 59 (4), 443-464.
- Hoyler, M. and Watson, A. (2013), Global media cities in transnational media networks. *Tijdschrift voor Economische en Sociale Geografie* 104 (1), pp. 90-108
- Jacobs, W., Ducruet, C., and Langen, P. (2010), Integrating world cities into production networks: the case of port cities. *Global Networks* 10 (1), pp. 92-113
- Jessop, B., Brenner, B., and Jones, M. (2008), Theorizing socio-spatial relations. *Environment and Planning D: Society and Space* 26, pp. 389-401
- Jones, A. (2007), More than managing across borders? The complex role of face to face interaction in globalizing law firms. *Journal of Economic Geography* 7 (2), pp. 223-246.
- Jones, A. (2008a), Beyond embeddedness: economic practices and the invisible dimensions of transnational business activity. *Progress in Human Geography* 32 (1), pp. 71-88

- Jones, A. (2008b) The rise of global work. *Transactions of the Institute of British Geographers*, 33 (1), pp. 12-26
- Jones, A. (2013) Geographies of production I: Relationality and the 'practice' shift in economic geography *Progress in Human Geography* online doi: 10.1177/0309132513502151
- Jones, M. (2009), Phase space: geography, relational thinking, and beyond. *Progress in Human Geography* 33 (4), pp. 487-506
- Jons, H. (2011), Transnational academic mobility and gender. *Globalisation, Societies and Education*, 9 (2), pp. 183-209
- Klagge, B. And Peter, C. (2011), Changes in the German urban system – a financial-sector perspective. *Raumforschung und Raumordnung* 69, pp. 201-211
- Krätke, S. and P. J. Taylor (2004), A world geography of global media cities. *European Planning Studies* 12, pp. 459-477
- Lai, K. (2012), Differentiated markets: Shanghai, Beijing and Hong Kong in China's financial centre network. *Urban Studies* 49 (6), pp. 1275-1296
- Lee, R. (2002). 'Nice maps, shame about the theory?' Thinking geographically about the economic. *Progress in Human Geography* 26 (3), pp. 333-355
- Leitner, H. and Miller, B. (2007), Scale and the limitations of ontological debate: a commentary on Marston, Jones and Woodward. *Transactions of the Institute of British Geographers* 32, pp.116-125
- Lowendahl, B. (2000), Strategic Management in Professional Service Firms. Copenhagen: Copenhagen Business School
- Liu, X., Derudder, B., Csomós, G., and Taylor, P.J. (2013), Mapping shifting hierarchical and regional tendencies in an urban network through alluvial diagrams. *Environment and Planning A* 45 (5), pp. 1005-1007
- Marston, S.A., Jones III, J.P. and Woodward, K. (2005), "Human geography without scale." *Transactions of the Institute of British Geographers* 30, pp. 416-432

- Maskell, P. (2001), The firm in economic geography. *Economic Geography* 77 (4), pp. 329-344
- McDowell, L. (1998), Elites in the City of London: some methodological considerations. *Environment and Planning A* 30 (12), pp. 2133-2146
- Murdoch, J. (2006) *Post-Structuralist Geography: A guide to Relational Space*. London: Sage
- Neal, Z. (2011), Differentiating centrality and power in the world city network. *Urban Studies* 48 (13), pp. 2733-2748
- Neal, Z. (2012), Structural determinism in the inter-locking world city network. *Geographical Analysis* 44, pp. 162-170
- Ong, A. (1999), *Flexible Citizenship: The Cultural Logics of Transnationality*. London: Duke University Press
- Pain, K. (2008a), Spaces of practice in advanced business services – rethinking London-Frankfurt relations. *Environment and Planning D: Space and Society* 26 (2), pp. 264-279
- Pain, K. (2008b), Examining core-periphery relationships in a global mega city region – The case of London and the South East of England. *Regional Studies*, 42 (8), pp. 1161-1172
- Parnreiter, C. (2010), Global cities in global commodity chains: exploring the role of Mexico City in the geography of global economic governance. *Global Networks* 10 (1), pp. 35-53
- Parnreiter, C. (2014), Network or hierarchical relations? A plea to redirecting attention to the control functions of global cities *Tijdschrift voor Economische en Sociale Geografie (TBC)*
- Robinson, J. (2002), Global and world cities: a view from off the map. *International Journal of Urban and Regional Research* 26 (3), pp. 531-554
- Robinson, J. (2005), Urban geography: world cities, or a world of cities. *Progress in Human Geography* 29, pp. 757-765
- Roels, A., Derudder, B. and Witlox, F. (2012), International sport federations in the world city network. *Journal of Sports and Social Issues* doi:10.1177/0193723512455929
- Samers, M. (2002), Immigration and the global city hypothesis: towards an alternative research agenda. *International Journal of Urban and Regional Research* 26 (2), pp. 389-402

- Sassen, S. (1991), *The Global City*. Princeton, NJ: Princeton University Press
- Sassen, S. (1994), *Cities in a World Economy*. London: Pine Forge Press
- Sassen, S. (2013), *Cities in a World Economy*. London: Sage
- Saxenian, A. (2006), *The New Argonauts: Regional Advantage in a Global Economy*. Cambridge, MA: Harvard University Press
- Schoenburger, E. (1999), The corporate interview as a research method in economic geography. *The Professional Geographer* 43 (2), pp. 80-189.
- Sheller, M. and Urry, J. (2006), The new mobilities paradigm. *Environment and Planning A* 38 (2), pp. 207-226
- Short, J., Kim, Y., Kuss, M. and Wells, H. (1996), The dirty little secret of world cities research. *International Journal of Urban and Regional Research*. 20, pp. 697-717
- Sklair, L. (2005), The transnational capitalist class and contemporary architecture in globalizing cities *International Journal of Urban and Regional Research*, 29 (3), pp. 485-500
- Smith, R.G. (2003a), World city actor-networks. *Progress in Human Geography* 27 (1), pp. 25-44
- Smith, R.G. (2003b), World city topologies. *Progress in Human Geography* 27 (5), pp. 561-582
- Smith, R.G. (2007), Post-Structuralism, power and the global city. In: Taylor, P.J., Derudder, B., Saey, P. and Witlox, F. (eds.) *Cities in Globalization: Practices, Policies, Theories*. London: Routledge, 258-270
- Smith, R.G. and Doel, M.A. (2011), Questioning the theoretical basis of current global-city research: structures, networks and actor-networks. *International Journal of Urban and Regional Research* 35 (1), pp. 24-39
- Storper, M. (1997), *The Regional World: Territorial Development in a Global Economy*. New York: Guilford Press
- Sunley, P. (2008), Relational economic geography: a partial understanding or a new paradigm? *Economic Geography* 84 (1), pp. 1-26

- Taylor, M. (1996), Industrialisation, enterprise power, and environmental change: an exploration of concepts" *Environment and Planning A* 28, pp. 1035-1051
- Taylor, M. and Asheim, B. (2001), The concept of the firm in economic geography. *Economic Geography* 77 (4), pp. 315-328
- Taylor, P.J. (1997), Hierarchical tendencies amongst world cities: a global research proposal. *Cities* 14, pp. 323-332
- Taylor, P.J. (2001), Specification of the world city network. *Geographical Analysis* 33 (2), pp. 181-194
- Taylor, P.J. (2004), *World City Network: A Global Urban Analysis*. London: Routledge
- Taylor, P.J. (2006) Parallel Paths to Understanding Global Inter-City Relations. *American Journal of Sociology* 112 (3), pp. 881-894.
- Taylor, P. J. (2014) A Research Odyssey: from Interlocking Network Model to Extraordinary Cities *Tijdschrift voor Economische en Sociale Geografie (TBC)*
- Taylor, P.J. and Aranya, R. (2008), A global 'urban roller coaster'? Connectivity changes in the world city network, 200-2004. *Regional Studies* 42 (1), pp. 1-16
- Taylor, P.J., Ni, P., Derudder, B. Hoyler, M., Huang, J. and Witlox, F. eds., (2011), *Global Urban Analysis: A Survey of Cities in Globalization*. London: Earthscan.
- Taylor, P.J., Derudder, B., Hoyler, M., and Ni. P. (2012), New regional geographies of the world as practised by leasing advanced producer service firms in 2010. *Transactions of the Institute of British Geographers* doi: 10.1111/j.1475-5661.2012.00545.x
- Taylor, P.J., Walker, D.R.F., Catalano, G. and Hoyler, M. (2002). Diversity and power in the world city network. *Cities* 19 (4), pp. 231-241
- Thrift, N. (1998), Distance is not a safety zone but a field of tension: mobile geographies and world cities. In Gravesteyn, S.G.E., Griensven, S. and de Smidt, M. (eds.) *Timing Global Cities*. Utrecht:
- Waters, J. (2009), In pursuit of scarcity: transnational students, 'employability' and the MBA *Environment and Planning A* 41 (8), pp. 1865-1883

- Watson, A. (2008), Global music city: knowledge and geographical proximity in London's recorded music industry. *Area* 40 (1), pp. 12-23
- Watson, A. (2012), The world according to iTunes: Mapping urban networks of music production. *Global Networks* 12 (4), pp. 446-466
- Yeung, H.W. (2003), Practicing new economic geographies: a methodological examination. *Annals of the Association of American Geographers* 93 (2), pp. 442-462
- Yeung, H. W. (2005a), Rethinking relational economic geography. *Transactions of the Institute of British Geographers* 30, pp. 37-51
- Yeung, H. W. (2005b), The firm as social networks: an organizational perspective. *Growth and Change* 36 (3), pp. 307-328

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<sup>i</sup> We use the term 'hit factory' in this context to draw parallels between the production-line approach of GaWC's quantitative analyses, and Stock Aitken Waterman, a UK song-writing and record producing trio, whose production line-like output and similar song structures led to them being referred to as the 'hit factory', which produced a significant number of world-wide 'pop' hits during the late 1980s and early 1990s.