7. Networks and chains
7.1

Global cities, global commodity chains and the geography of core-ness in the capitalist world-system

Christof Parnreiter

Introduction

World-systems analysts have always been guided by a concern with the ways in which uneven development is organized. It is therefore no surprise that two of the main globalization literatures, which aim at scrutinizing the structures and the *modus operandi* of the world-economy, have been engendered by world-systems analysis: global commodity chain and global city research. In the former, the world-systems analysis legacy is direct. Departing from the insight that the unit of analysis is a key strategic research decision, Hopkins and Wallerstein conceptualized the world-economy as cross-border, firm-based transactions rather than as inter-state transactions. They “invented the term ‘commodity chains’ to underline a basic process of capitalism: that it involved linked production processes that had always crossed multiple frontiers and that had always contained within them multiple nodes of controlling labor. Further, we believed that a close study of such chains would indicate how and why surplus-value was distributed among its appropriators, and hence explain how the system of ‘unequal exchange’ worked in practice” (Wallerstein 2000: 221).

In global city research, the legacy of world-systems analysis is less direct (probably because the city has been ignored by many world-systems analysts). While some early contributions to the global city debate did embed their research into world-systems analysis, it was largely absent from Sassen’s work on that topic (Sassen 1991). She did, however, reject the nation-state as a “naturally given” unit of analysis. This idea is also central to Taylor’s (2004) examination of the world city network, which is defined as an interlocking network in which the relations between world cities are created by the intra-firm flows in the producer service sector (comprised by financial, legal, consulting, insurance etc., services). These services are crucial to global city research, because they are seen as key instruments for the management and control of the cross-border flows that characterize the world-economy (Sassen 1991). Building on world-systems reasoning about core-periphery relations, explorations of the world city network have defined producer services as core activities and world cities as places where these are located (Brown et al 2010; Taylor 2004).

Yet, despite their common theoretical background, the two literatures have developed with little cross-referencing. This mutual unawareness is unfortunate, because it is only through...
integration that the limitations of each research strand can be overcome. I maintain that integrating global commodity chains with global city research can improve world-systems analysis by illuminating the geographies of core-ness.

Limitations and ways to overcome them

The literatures on global commodity chains and on global cities are amongst the most effective tools for a critical analysis of contemporary globalization. While it is beyond the scope of this paper to enlist all their insights, I shall briefly outline some of their weaknesses in order to expound how and why integrating the two literatures will advance our understanding of uneven development (for more detailed accounts and references see Brown et al 2010; Parnreiter 2010).

As regards the global commodity chains approach, a first limitation is the poor assessment of the chains’ geographies. Although the critique that “despite the spatial connotations of the concept, there has been little work on systems of provision from a geographical perspective” (Leslie and Reimer 1999: 403) was raised more than a decade ago, and despite some recent efforts to fill the void (e.g., Hughes and Reimer 2004), spatialized analyses of commodity chains are still rare. Due to this deficit, two of the three dimensions identified by Gereffi (1994: 96–97) as being constitutive for this research field remain underexplored: we know little about the territoriality of commodity chains, and our understanding of input-output structures of value-adding activities is constrained by the lack of information on the geographies of these input-output structures. Even in the case of the best explored dimension—the governance of global commodity chains—the question of where governance is exercised is commonly reduced either to an identification of so-called headquarter-cities or to a discussion of the different types of the lead firms’ power and their impacts on upgrading. A second main shortcoming is the limited scope of analysis. Most studies have explored primary goods or industrial commodities, while the service sector has been treated only marginally. Producer services in particular have barely received attention. This is a significant omission with conceptual repercussions, because “without the integrating and coordinating function fulfilled by services, global commodity chains would not be viable” (Rabach and Kim 1994: 123).

As regards global city research, one main shortcoming is that many studies are devoted to major cities in high income countries, while the nodal functions of cities in middle or low income countries have received as little attention as have the connections between global and non-global cities. It is a significant void that the analysis of connections between cities has not transcended the scale of the world city network, which in 2008 comprised 129 Alpha, Beta, and Gamma World Cities. While Alpha world cities are, due to their sizeable and globalized cluster of producer service firms, “very important” to link major economic regions and states into the world-economy, Beta World Cities are “important” in that respect and Gamma World Cities either articulate smaller regions or states (GaWC 2010). Certainly global city studies need to address these leading cities and their interrelations, because it is from there that the world-economy is managed and controlled (Sassen 1991). Yet, it is equally important to grasp the many links between the global and the countless non-global, but yet globalized cities. I understand these to be the countless cities around the world that are shaped by their role to produce for global markets, but which have no management or control functions. Ciudad Juárez in Northern Mexico, for example, has been thoroughly shaped by the automotive, computer, and electronic industries located there, though the “city” has no hand in the governance of these chains. Thus, if the basic idea of a global city is that it articulates local, regional, and national economies into the world-economy (Friedmann 1986; Sassen 1991) then global cities are not only mutually constituted, as stressed by Taylor (2004). Rather, the world city network is built upon ramifications that link global cities to the
many “ordinary cities” (Robinson 2006; for an assessment of Robinson’s critique of global city research see Parnreiter 2011), where much of the low paid work is supplied that is as vital to the reproduction of global capitalism as is the provision of high-paid producer services.

To support the contention that the shortcomings of both literatures can be overcome by integrating global commodity chains and global city research, I will briefly turn to a case study. In the last three decades, productive capacities in Mexico (e.g., in the automotive and electronic industries) have been transformed into export platforms that serve the United States and Canadian markets. This deep integration of plants and cities in Mexico into global production networks has been analyzed by a number of authors who applied the global commodity chains (or a related) paradigm. While these studies offer many insights, the aforementioned shortcomings of global commodity chains research are also evident.

In the case of automotive chains, for example, producer services are widely ignored, except a brief reference Lee and Gason (1994: 235–36) make to advertising expenses. The authors, however, do not treat advertising as an essential component of the automotive chain, nor do they examine wherefrom it is supplied. The second main objection—the limited geographical assessment—also applies in this case. Most studies think of space as a container (either “Mexico” or specific cities) which is “filled up” with the automotive industry. Additionally, geography comes into play as physical distance or, more precisely, as the cost of overcoming it. In sum, the geographies of input-output relations within the automotive industry are at best cursorily addressed. We lack hence a spatialized analysis of the integration of different labor processes into the chains, and that is why the studies fail to comprehend the complexities of the geographies of core- and periphery-forming processes along the automotive chains in Mexico.

Before addressing how global city research can mitigate this deficit, I will briefly delineate global city formation in Mexico City. Since the 1980s, when the economy in Mexico was once again being reoriented toward the world market, Mexico City underwent a deep transformation, which is characterized by a concurrent decline of manufacturing and the rise of producer services. Concomitant with the growth and concentration of producer services in the country’s capital, the headquarters of the main companies operating in Mexico have become ever more centralized in Mexico City (Parnreiter 2002, 2010). In addition, Mexico City’s producer service sector is firmly inserted into the world city network, which is what makes Mexico City an “Alpha-World City” (GaWC 2010). Mexico City has thus been changing from a predominantly national production center, catering to and integrating the domestic market, to a hinge between economic activities carried out in Mexico and the world market.

Now, why should integration of global city and global commodity chains research mitigate the deficits of each literature? To begin with, I contend that the voids left by the research on the Mexican segments of global automotive chains can—at least to a certain extent—be filled by resorting to the core ideas of global city research. Firstly, this literature draws attention to producer services. For example, the Mexico City offices of the “Big Four” global accountancy firms (Deloitte, Ernst & Young, KPMG, PricewaterhouseCoopers) provide various services for automotive companies (Deloitte works for GM, Ernst & Young for Nissan, KPMG for Chrysler, PricewaterhouseCoopers for Volkswagen, Ford and Grupo Carso, a Mexican agglomerate that amongst other things produces auto parts). In legal services, the Mexico City office of Holland & Knight, one of the biggest law firms worldwide, has worked, among others, for Toyota, Volvo, Grupo Carso, and for the global electronic company Jabil, which supplies the automotive industry in Mexico. Thus, a “side glance” at the global city research would help commodity chains analysts to comprehend that the automotive industry in Mexico makes use not only of peripheral labor processes, but also of core activities such as producer services, which are supplied not from one of the new industrial cities, but from the country’s capital.
It therefore becomes clear why integrating global city research into global commodity chains analysis also helps to overcome the second identified weakness of global commodity chains research, namely the poor treatment of the chains’ geographies. The aforementioned examples draw attention to specific inputs into the automotive chains and to the particular places wherefrom these inputs are provided. In other words: the forward linkages of global producer service firms to companies in automotive chains can be spatialized as service flows from clearly delineated “global city spaces” within Mexico City to cities like Hermosillo, Saltillo, Puebla, Aguascalientes, or Toluca, where the plants for export production have been built. Though this spatialization of one particular sequence of the value-adding chain is, of course, not the “whole geography,” the example refines our geographical knowledge, demonstrating that the automotive chains running through cities in central and Northern Mexico also run through Mexico City. In summary: because producer services are provided in Mexico City to the automotive industry, the city is a critical node in all these chains. Due to this input of core activities in chains that in general rely on “cheap labor power and imported inputs,” (Dussel Peters 2008: 24), Robinson’s (2006) critique of global city research can be countered thus: yes, Mexico City is on the map of global cities, and it is there because firms in Mexico City contribute to the fulfilment of global cities functions.

Firstly, the service flows from firms in Mexico City to companies in other Mexican cities, which operate in various global commodity chains that emanate, run through or end in Mexico, contribute to the management of these production networks. They also contribute to the second main global city function, namely the governance of these chains. Mexico City is the center of governance for production networks within Mexico and for the few global commodity chains emanating from Mexico. As regards influences on value creation and distribution within the “Mexican segments” of other global commodity chains, the scope of influence of “Mexico City” (i.e., of local affiliates of TNCs and local offices of global producer service firms) is, however, restricted, namely to issues such as taxes, labor laws, and unions, where the need for in-depth knowledge of local conditions is required (Parnreiter 2010).

As to the aforementioned critique that global city literature “privileges” a few cities in high-income countries, the broadening of research to a place like Mexico City certainly represents an advancement. This is, however, not sufficient, because the thesis of global city formation remains an assumption as long as there is no evidence for connections reaching from the global city sectors in Mexico City to all the Mexican cities where “material” production for the world market is carried out. Put differently: a high concentration of producer services does not per se make a global city. As Sassen has frequently indicated, it is only a city’s capacity to export headquarters, financial, legal, and other producer services which points toward capabilities for servicing and controlling global operations of firms. Yet, if it is critical to empirically identify such city-to-city service flows, then it is obvious why integration with global commodity chain research is beneficial: the consumers of producer services are companies that need financial, legal, auditing, and other services in order to sustain their operations in the different global commodity chains they are integrated into. Bringing the perception of global commodity chains analysts closer to global city researchers allows the latter to grasp that global cities articulate regional, national, and international economies because they are service nodes in numberless commodity chains. Therefore, global city formation takes place precisely because—and only because—these cities are linked through the export of producer services to all the other places, where non-core activities (e.g., the assembling of auto parts) are carried out.

The conclusion derived from the empirical analysis of global commodity chains and global city formation in Mexico bear important analytical implications that go well beyond an accurate geographical description of production networks. In particular, the finding that core-forming labor processes are supplied from Mexico City points to the need to resume the debate on the
geography of core-ness in the world-system and to deepen it. The most appropriate way to do that is bringing cities back into world-systems analysis (Smith 2003), and, above all, bringing global city and global commodity chains research together.

### Specifying the geography of core-ness

In world-systems analysis, “core” and “periphery” result from divisions of labor, which split up production processes into distinct segments that are assigned different valences (expressed in a differentiated share in the whole value-adding process). For Wallerstein (2000: 139–140), the decisive factor in this unequal distribution of the accumulated surplus is that some producers manage to “achieve various kinds of temporary monopolies.” The important point here is that this social division of labor goes along with geographical division of labor. Core and peripheral processes are neither evenly nor randomly distributed. Because producers in some places are for several reasons more successful in establishing and defending monopolies than producers elsewhere, the geography of core-periphery relations is highly uneven, split into places where core activities are concentrated and places where peripheral activities predominate (Brown et al 2010).

Due to their relative monopolization, core activities are rare and highly demanded by producers in many different commodity chains. Accordingly, many commodity chains coalesce in the places where core activities cluster. This idea allows us to conceptualize what in geographical terms makes a center: “[S]ome areas appear as cores or centers, in virtue of the many relational sequences leading from or to them, while others appear as the hinterlands of these centers in virtue of the small number of relations leading from or to them and locating them as arenas of world-system activities.” (Hopkins and Wallerstein 1977: 114) After having introduced the concept of commodity chains, Wallerstein (1983: 30) specified that “commodity chains have not been random in their geographical directions. Were they all plotted on maps, we would notice that they have been centripetal in form. Their points of origin have been manifold, but their points of destination have tended to converge in a few areas. That is to say, they have tended to move from the peripheries of the capitalist world-economy to the centers or cores.”

Yet, Wallerstein did not elaborate what was precisely meant by “zones” or “areas.” This sketchiness in his geographical diction is astonishing, particularly in the light of his plea to carefully consider the unit of analysis. The fact that Wallerstein did not expand on the role of cities in the organization of uneven development is particularly striking considering that by the time world-systems analysis was introduced, Andre Gunder Frank had already put forward a spatialized concept of the “development of underdevelopment”: “Just as the colonial and national capital (...) become the satellite of the Iberian (and later of other) metropoles of the world economic system, this satellite immediately becomes a colonial and then a national metropolis with respect to the productive sectors and population of the interior. (...) Thus, a whole chain of constellations of metropoles and satellites relates all parts of the whole system from its metropolitan center in Europe or the United States to the farthest outpost in the Latin American countryside. (...) we find that each of the satellites (...) serves as an instrument to suck capital or economic surplus out of its own satellites and to channel part of this surplus to the world metropolis of which all are satellites” (Frank 1969: 6).

Unfortunately, this very lucid account of the role of cities in the making of uneven development found little resonance in world-systems analysis (see Smith 2003: 114 for this “short history of a promising perspective”). Nevertheless, it deserves little fantasy to grasp how well Frank’s hint at cities matches up with Wallerstein’s notion that commodity chains come together in the “centers.” What Frank suggests (unfortunately without empirical backing) is, firstly, that the transfer of resources along commodity chains is organized in cities. Secondly, he evokes that this
organization of uneven development is not accomplished from a limited number of core cities. Rather, Frank insinuated that the transfer of resources is based on innumerable connections between cities of different size, importance, and reach. This is exactly what has recently been proposed more elaborately by Parnreiter (2010) and by Brown et al (2010: 29), who argue that the “creation and (unequal) distribution of value along commodity chains is organized in and governed from world cities.”

This brings me back to the aforementioned question as to why core activities cluster in a limited number of places, and to the related question of why these places are cities. If core-ness is the result of the successful formation of (temporary) monopolies, then the question of what kind of entry barriers can be erected in order to keep potential rivals out becomes critical. Wallerstein (1999: 63) refers primarily to the state: “What are the services that capitalists need of the state? The first and greatest service is protection against the free market.” In a free market, high profits at a specific node in a commodity chain would attract further entrepreneurs, whereby competition would be increased and profits decreased. A free market is, thus, an adverse environment for the maintenance of monopolies. Among the things a state does to protect its “own” producers are legal constraints (e.g., patents, import/export prohibitions), direct or indirect (e.g., for infrastructure) subsidies, the offer of not paying certain costs (e.g., pollution) and, last but not least, the deployment of direct violence. Though the recent state interventions to save big business from the effects of the crisis 2008/9 have proven Wallerstein correct that the “state still matters—to the entrepreneurs above all” (ibid.: 75), it is important to emphasize that the state is not the only unit and scale that matters with regard to entry barriers. The contention here is that cities are key places for keeping potential rivals out, because important entry barriers are intimately related to cities.

A first city-related entry barrier exists where producers need access to capital intensive infrastructure. Harvey has frequently highlighted that capital accumulation is based not only on the mobility of capital (i.e., on overcoming distance), but also on the production of space. It is therefore that “capitalism creates a physical landscape of roads, houses, factories, schools, shops, and so forth in its own image” (Harvey 1985: xv). Yet, because this physical landscape is expensive, its elements are sensitive to economies of scale and, consequently, clustered at specific places, namely cities. According to Harvey (ibid.: 190), it “is impossible to imagine such a material process [the circulation of capital, C.P.] without the production of some kind of urbanization as a ‘rational landscape’ within which the accumulation of capital can proceed. Capital accumulation and the production of urbanization go hand in hand.” Cities are thus seen as resource complexes of socially created assets, which support production, consumption and hence further accumulation: “The stock of fixed capital and of consumption fund assets does (...) provide a solid form of wealth that can be used to produce and consume more wealth” (ibid.: 144).

If access to capital intensive infrastructure is a decisive factor governing whether or not a firm can incorporate itself into commodity chains, then Harvey’s line of reasoning suggests that the entry barrier “control over capital intensive infrastructure” has a specific geography. Because producers in cities can rely on infrastructure provided by others (the national and/or local state), they enjoy advantages vis-à-vis non-urban rivals. Yet, the more capital intensive the infrastructure is, the fewer cities will provide this advantage, and the more competitors will be excluded from commodity chains. Monopolization, which results from controlling expensive infrastructure, is thus bound to specific cities.

A similar point can be made regarding innovative capacity. Rather than dealing with the question of how important innovation has historically been to the (geographical) shifts of the centers of the world-economy (for different accounts see Modelski and Thompson 1988; Arrighi 1994), I am concerned here with the issue of why some producers in some places are more efficient than others in launching what Schumpeter (1987 [1934]) called “new combinations.”
Similarly to Harvey (though departing from a different theoretical origin), Jacobs has argued that cities are the drivers of economic growth because of the greater incentives to address ever new problems resulting from size and density: “[T]hese grave and real deficiencies [of cities; C.P.] are necessary to economic development and thus are exactly what makes cities uniquely to economic life” (Jacobs 1970: 86; emphasis added). Cities are vibrant because they face continuous challenges, and the resulting innovative capacity is what distinguishes them from towns and rural areas: “[A]t the core of all processes of city growth is this root process … [of] adding new kinds of work to other kinds of older work” (ibid.: 50–51).

The important point here is the relationship between innovations (“adding new work”) and monopolies. In his attempt to “wed” Jacobs’ theorizing of city-ness with world-systems analysis, Taylor (2006: 1987) highlights that the search for “new work” is driven by the promise of extra-profits that accrue to innovations: “New work is not available to competitors; it is in innovation monopolies where the largest profits are made.” From this reading of Jacobs’ work, a similar conclusion to the one drawn above may follow. There is a specific geography of innovations, because entrepreneurs in Jacobs’ “dynamic cities” will breed more of Schumpeter’s “new combinations” than their competitors in less vibrant cities, towns, or rural areas. Conversely, the literature on product life-cycles suggests that a product that moves toward standardization creates less technological rent and is therefore shifted to peripheries. Otherwise, cities/regions that stick to this standardized product will descend to peripheries. In sum, monopolization, which results from innovation, is as bound to specific cities as is monopolization developed from access to capital intensive infrastructure.

In brief: monopolization of economic activities—and hence core-ness—is in many cases a city-specific process. Accordingly, many commodity chains coalesce in cities in search of these rare core labor processes, and that is why cities constitute the centers of the capitalist world-system. This does not mean that “city” is the only adequate geographical scale for defining centers (the deployment of direct violence to protect entrepreneurs against competition is, for example, strongly related to the “national territory,” even if entrepreneurs are clustered in cities). Nor does it mean that “city” refers exclusively to global cities. Global commodity chains are sustained through the inputs of various core labor processes, of which some—namely producer services—are supplied from global cities, whereas others (e.g., Research & Development) might stem from other cities.

Concluding remarks

In this article, I have argued that integration of global commodity chains and global city research is needed in order to overcome the weaknesses of each of the research strands. Summarizing the arguments put forward here, my first assertion is that all commodity chains run through global cities, because they necessarily include those core-formation processes (producer services) which are produced and traded in global cities. From this follows, secondly, that each global city constitutes a node for numerous commodity chains. This multi-nodal function is the reason for the overall centrality of global cities in the world-economy. Thirdly, I contend that all cities are connected via global commodity chains to the world city network (even if their own input into the chains is constituted by peripheral labor processes), because cities are unavoidably integrated into commodity chains (e.g., city-hinterland connections and/or inter-urban flows), and because all commodity chains run through global cities (see above). It results, fourthly, that the World City Network is built upon ramifications of operations across different scales through macro-regional and national to local.

My second main contention is that integration of global commodity chains and global city research is apt to deepen our understanding of the geographies of core-ness in the capitalist
world-system. Though I totally agree with Smith (2003: 113) that “it is so important to bring cities and urbanization back into world-system studies,” Frank’s claim suggests the need to specify this call. Frank (1969: 6) did not point to cities in general, but to those cities that serve as instruments to suck economic surplus from one place and to channel it to another. If global cities are “highly concentrated command points in the organization of the world economy” (Sassen 1991: 3) which have the “capacity to create the means of control of value creation and distribution and the power to deploy them” (Brown et al 2010: 29), then it becomes obvious that they constitute the nodes wherefrom the “development of underdevelopment” is governed.

References


7.2

Trade, unequal exchange, global commodity chains

World-system structure and economic development

David A. Smith

Introduction: Unequal exchange

The question of what determines the wealth of nations is a very old and basic issue in social science (Smith 1776). Almost as ancient is the discussion of how nations might gain some “comparative advantage” in trade (Ricardo 1817). Skepticism about the idea that countries will automatically benefit and experience economic growth and development if they specialized in trading the products in which they have a putative advantage led to the formulation of the idea of “unequal exchange” by the progenitors of the world-system approach.

In contemporary sociology and social science, these questions are more familiarly framed as issues of economic “development” and a bundle of other social changes that are often presupposed to accompany this process. Why did certain countries and regions become wealthy and “industrialized” over the past two centuries, while others fell behind? In the twenty-first century we still see yawning chasms of material inequality between different parts of the world (as well as within them). What explains these world inequalities? And, perhaps more pertinently, what can be done to overcome them? Is “industrialization” still a viable economic growth strategy for poor countries in today’s era of globalization and worldwide “restructuring”? Or does the contemporary conjuncture demand new strategies that go beyond a transition to manufacturing and increasing “value added” production? Do the experiences of some large and very “successful” nations (like China and India) tend to obscure the continuing economic stagnation in many other underdeveloped countries and areas? This brief essay examines these debates about the dilemma of development and the perpetuation of global inequality in today’s world-system, with a particular focus on trade, global commodity chains, and unequal exchange.

Emmanuel (1972) and Amin (1974) argued that the essence of core exploitation of the poor, underdeveloped regions of the periphery is transmitted through the unequal trade of low-value and less-processed goods from the periphery in exchange for expensive finished products from the core. Mandel (1975) accepted the idea that “the average productivity of labor” between countries is crucial, but categorically rejected the claim that particular commodities are intrinsically important, since it is not the material product itself that is crucial, but the labor process that
produces it. Later, Stephen Bunker (1984) directly challenged this labor-based approach to unequal exchange, arguing that the environmental costs in peripheral economies dependent on resource extraction should also be considered:

I believe that the unbalanced flows of energy and matter from the extractive peripheries to the productive core provide better measures of unequal exchange in a world economic system than do flows of commodities measured in labor and prices.  

(Bunker 1984: 1018)

This approach re-emphasized particular commodities, claiming that extractive product flows are important in core exploitation of the periphery for the extrinsic reason that they led to environmental drain and depletion.

**Industrialization and the NIDL**

Another late twentieth-century turn in the debate on the nature of unequal exchange came from arguments about an emergent “new industrial division of labor” (NIDL) (Frobel et al 1980). Consistent with the main contours of this argument were descriptions of a new “global assemblyline” (Feuntes and Ehrenreich 1984) arguing that there was a de-industrialization of the previously advanced core nations (Bluestone and Harrison 1982; Caporaso 1981) through “capital flight” to the low-wage peripheral or semiperipheral areas beginning as early as 1960 (Ross and Trachte 1990; see also Dicken 2007). Today the existence of a NIDL in the late twentieth century is a widely accepted fact. Poor countries are the now the undisputed centers for manufacturing, particularly for low-cost consumer goods (with China as the veritable “workshop of the world”); there is little doubt that there has been a meteoric rise in industrial production, employment, and exports from these regions in recent decades.

But what does this mean for economic growth in these places? Post-World War II era “modernization theory” uncritically assumed that industrialization was the motor of economic development—modernization and industrialization were inextricably intertwined. But today the idea that more investment and/or employment in manufacturing signals the beginning of some sort of “take off” into development (cf. Rostow 1960) seems increasingly implausible as the search for low-wage workers for export production to cost-conscious US consumer markets seems more like a “race to the bottom” (Chan 2003; Korten 1995). Instead, some see empirical evidence that the rise of manufacturing in non-core regions of the world since 1960, instead of leading to “manufacturing miracles” of economic growth and material convergence between the First and Third World, resulted in a persistant North–South divide in per capita income (Arrighi et al 2003). Others suggest that data show poor countries are closing the gap between themselves and rich nations (Firebaugh 2003; but see Korzeniewicz and Moran 2009 for a counter argument) and claim that industrialization is, indeed, still a key generator of economic growth (Firebaugh 2003). The problem with measuring global shifts in manufacturing is that everything from garment sewing factories to semiconductor production, shipbuilding and aerospace, or chemical processing is conflated into the “manufacturing” category. But, of course, we know that the global geography of these disparate industries is very distinct (see Dicken 2007); presumably their developmental impacts where they are located are also very different. Perhaps because of data limitations, there is a tendency to oversimplify this debate (is industrialization good or not?) when the real issue concerns the qualitative nature of industrialization as it occurs in historically poor countries.

Of course, the rise of non-core manufacturing for export, albeit in specific industrial niches, did create a very different pattern of worldwide commodity trade in the past half century, with low-
wage manufacturing goods, in particular, tending to flow from the poor peripheral regions of the world-economy toward the core markets. It was during the emergence of this NIDL that we saw the rise of a number of newly industrializing countries (NICs). Manufacturing for export was hailed as the secret to rapid economic growth of countries like South Korea and Taiwan in the so-called East Asian economic miracle (Gereffi and Wyman 1990; World Bank 1993). However, we need to closely examine the nature of the manufacturing activities occurring in particular economies and the specific linkages between manufacturing enterprises, global markets, and local, state and transnational capital. Some of the NICs (particularly in East Asia) successfully engaged in “industrial upgrading” in which there is a shift from commodities like textiles, apparel, and footwear to “higher value-added items that employ sophisticated technology and require a more extensively developed, tightly integrated local industrial base” (Gereffi 1992: 92). This might include production of computers, semiconductors, numerically controlled machine tools, VCRs, televisions, etc. However, many peripheral countries remain primarily export platforms for simple low-technology, labor-intensive goods made by low-wage unskilled workers.

Global commodity chains

This focus on an increasingly integrated global economy where countries fill distinct export niches and where industrial upgrading seems to be the only viable option, led Gereffi to argue that global commodity chains (GCCs) should be the key analytical construct (Gereffi 1990; Gereffi and Korzeniewicz 1990). There are parallels between the idea of GCCs and the value chains of economist Michael Porter (1990) or the production chains of geographer Peter Dicken (2007). But Gereffi grounds his initial conceptualization in world-system analysis, drawing on Hopkins and Wallerstein’s (1986: 159) definition of a commodity chain as “a network of labor and production processes whose end result is a finished commodity.” Elaborating further, “A GCC consists of sets of interorganizational networks clustered around one commodity or product, linking households, enterprises and states to one another within the world-economy … (it is) the sequential stages of input acquisition, manufacturing, distribution, marketing and consumption” (Gereffi et al 1994: 2).

A thorough GCC analysis of particular commodity chains requires some detailed knowledge of the specific qualities of the commodity itself, which is why much research on commodity chains are case studies (see Gereffi and Korzeniewicz 1994 op. cit.; similar for case studies of extraction in “the Bunker vein” see Cicantell et al 2005, op. cit.) In network terms, these commodity chains are described as consisting of a number of “nodes” that comprise the pivot points in transformation sequences: extraction and supply of raw materials, the stages of industrial processing, export of goods, and final marketing (Gereffi and Korzeniewicz 1990). Each node is connected to other nodes of related activity and the local, regional, and world economies are seen as ever more intricate web-like structures of these GCCs, creating spatially bounded structures of varying scales.

Some commodity chains are simple: the production of a soft drink can involves extraction of bauxite from a mine, a smelting sequence that produces first alumina, then aluminum, and the fabrication of the container itself. Others, however, are complex. In an early illustration of a commodity chain, Hopkins and Wallerstein (1986) detailed the raw materials and processes of industrial transformation necessary to build an eighteenth-century wooden sailing ship. The process involves the procurement of several key raw materials that make up the hull, mast, sail, ropes, etc.—and then production sequences of varying complexity and length to make the components, leading to final assembly in a shipyard, and distribution to various end users. Of course, the commodity chain (now assuredly “global”) for something like a modern automobile is even more intricate.
Most recent research on production networks and commodity chains tends to focus on consumer goods sold in retail stores (Appelbaum and Smith 2001; Gereffi 1994). Shining the spotlight on these final stages of particular GCCs has been extremely fruitful, as scholars have learned a great deal about the promise and perils of industrial upgrading strategies. But we also need to go back to the beginning of the commodity chain process and focus on the initial procurement of raw materials. Bunker reminded us that extraction (via either mining, harvesting of forest products, or agriculture) is extremely critical since this not only provides essential inputs to all finished goods but is also the source of basic energy production and infrastructural construction in contemporary society (Bunker 1985; Bunker and Ciccantell 2005). The emerging “modes of extraction” in peripheral areas of the global system also promotes a form of unequal exchange and leads to what Bunker calls “progressive underdevelopment” (Bunker 1985). John Talbot (2004) recently provided a particularly comprehensive and elegant argument about how the political economy of global coffee production could be grounded in precisely this sort of “from the beginning” global commodity chain analysis.

Ultimately, global inequality and Third World development/underdevelopment are defined by the positions societies (or their firms, localities, extractive reserves, or “industrial districts”) occupy in these multiplex networks of worldwide economic production and exchange. All commodities undergo a sequence of transformation from raw materials to finished products. Heavy industrial products (like metals) may end up as girders in buildings, the bow of a ship, the foundation of a highway, or the pilings of a deep-water port. Some strategic raw materials may be processed into military hardware or weapons systems. For consumer products (the overwhelming focus of the existent GCCs literature), commodities end up as packaged and marketed goods. In all of these cases, the processes of transformation and transportation lead to geographic linkages and connections that in a real material sense create a spatially bounded structure for the world-economy. In the global economy of the late twentieth century, these “export networks and export niches are becoming key units of analysis in the contemporary global manufacturing system” (Gereffi 1992: 90).

Differential profit and surplus are generated at various nodes along these commodity chains. But these patterns are not uniform. While there may be a tendency for the highest profits and the most surplus extraction to occur at the later points along the commodity chain, this is not always the case. Instead, this pattern can vary across particular commodities (or even across nodes producing the same commodities in different ways). There may also be a tendency for the production nodes with the highest process technologies, turning out the most sophisticated and innovative products, to be the places where the most profits/surplus are captured.

However, while this may have been the assumption of some early conceptual approaches to “the commodity question” and unequal exchange (Emmanuel 1972) and some efforts to measure “levels of processing” in international trade (Firebaugh and Bullock 1986; Jaffee 1985), Gereffi and other recent proponents of global commodity chain approaches, claim that things are not quite this simple. Global commodity chains are more than just sequences of production. There is a need to understand how both marketing of products (particularly to highly profitable core consumer markets) and coordination and control of the integrated global production/marketing networks are crucial. Indeed, it is now clear that for leading edge consumer goods, the marketing and “command and control” functions are where the big profits are made, while actual manufacturing is much less lucrative. On the other hand, it is also important to understand that there are a number of “logistical” processes that must be coordinated and controlled for those heavy industrial goods that, in a very concrete sense, make up the foundation of the contemporary global economy. Here “marketing” may not be critical in the same way—but “command and control” (tempered by things like the physical properties of the materials, the cost of transporting them, business strategies to “corner the market,” and ensure supply of strategic commodities, etc.) may still be paramount.
Levels of processing and structural inequality in the world-system

World-systems and dependency theorists argue that the structure of the world-economy creates international inequality. Generalizing from a long-term macro historical comparison, Immanuel Wallerstein claimed that dominant (core) countries rose to ascendency as a direct result of their exploitation of non-western (peripheral) regions. Through colonization, core states enriched themselves and simultaneously retarded the growth of peripheral states by forcing them onto political and social paths that made technological advancement and competition with the core difficult, if not impossible (Wallerstein 1974). The contemporary mechanisms of growth (or the lack thereof) are bound to the notion that the world-system is composed of hierarchically organized zones (core, semiperiphery, and periphery) that perform different functions in the international division of labor.

The defining characteristic of world-system zones is the extent to which they are involved in core or periphery production processes. According to Chase-Dunn, the underlying analytic basis of this territorial hierarchy is the distinction between core production and peripheral production. Core production is relatively capital intensive and employs skilled, high wage labor; peripheral production is labor-intensive and employs cheap, often politically coerced labor.

(Chase-Dunn 1998: 77)

Thus, historically, core countries’ production regimes are the ones that pioneered the move into industrial production and are primarily capital intensive, while peripheral countries regimes are primarily labor-intensive or based on the export of raw materials. Conceptually, the core/periphery distinction is one of a continuum, such that those countries that have a relatively equal mix of core- and peripheral-production processes are labeled semiperipheral and reside between core and periphery countries in the hierarchical structure.

Prior to 1960, this international division of labor was relatively simple: core countries specialized in manufactured goods that were exported abroad, and peripheral countries specialized in raw materials and food stuffs for core markets (Dicken 2007; Mittelman 2000). The effects of this international division of labor were also relatively simple. Countries that specialized in manufacturing remained on the cutting edge of technological innovation and industrial capacity, which gave them an advantage in generating wealth through product innovation. Countries that specialized in raw material and agricultural extraction were disadvantaged in terms of their ability to generate wealth and develop modern industry, and were vulnerable to highly fluctuating prices for raw materials on the world market (Galtung 1971).

But with the rise of the NIDL this long-term historical pattern was fundamentally altered. Today the spread of manufacturing to peripheral areas is very uneven, and the consequences of industrialization in the places where it occurs are less likely to lead to sustainable economic growth and development than in the past. While “manufacturing” is a variegated phenomenon, the spread of factories to peripheral areas of the world-system is often associated with low wages in these regions, perpetuating a “race to the bottom” rather than industrial upgrading.

My colleagues and I have used formal multiple network analysis to analyze the structure of the world-system, in general, and the patterns of international commodity trade, in particular, beginning with data from the 1960s. Some of the earliest network analyses of international trade yielded empirical confirmation of the core-periphery hierarchy (Nemeth and Smith 1985; Smith and White 1992; Snyder and Kick 1979). These and other studies also found a positive relationship
between structural position in the world-system and economic growth (Kick and Davis 2001; Kick et al. 2000; Nemeth and Smith 1985; Snyder and Kick 1979). They also demonstrated empirically that a country’s structural position in trade networks is related to its specific economic role in the international division of labor (Nemeth and Smith 1985; Smith and White 1992).

More recent findings suggest that the structure of the world-economy still conforms to this overall core-semiperiphery-periphery layering (Mahutga 2006; Mahutga and Smith 2011). In these analyses, the structure of international trade conforms to a clear core/periphery structure from 1965 to 2000. Contrary to claims that globalization is primarily characterized by the homogenous spread of “industry” to historically poor countries, the main dimension of core/periphery hierarchy continues to be differentiated by relatively advanced industry at the upper end of the hierarchy versus less advanced industry at the lower end. Confirming world-system expectations, upward mobility is exceedingly rare, even during recent decades of massive change and global restructuring. Indeed, there are also changing mobility patterns over time. During the last two decades of the twentieth century there appears to be less upward mobility than occurred in the 1960s and 1970s, suggesting that “globalization,” rather than spreading wealth and facilitating development, may be creating barriers for nations that are at the lower rungs of the global economy (Mahutga 2006; Mahutga and Smith 2011).

In fact, we find two types of “peripheralization” in recent years: first, there is one based on a specialization in low-wage, labor-intensive manufacturing (as predicted by the NIDL thesis and the idea of a global assemblyline). But we also find that some peripheral areas are becoming increasingly specialized in raw material exports. Like the light manufacturing regimes highlighted in the NIDL literature (Frobel et al. 1980), these peripheral extractive economies can be very exploitative, underpinning a particular pernicious form of unequal exchange (Bunker 1985; Bunker and Ciccantell 2005).

Conclusion

Our results also have implications for broader debates about industrialization’s effectiveness as a development strategy across the peripheral zone of the world-system. One of the current “hot” debates within comparative sociology is over the trends and directions in global inequality (Firebaugh 2003; Korzeniewicz and Moran 2009). Consistent with some research focusing specifically on China and India (Hung and Kucinskas 2011), our results suggest that the rapid growth of these two countries may distort the overall picture of attenuated world-system polarization and inequality—and may not be very practical “models” for other so-called “less developed countries.” Indeed, the trade profiles of China, India (and a few other East Asian NICs) demonstrate that they could become obstacles to the growth of other poor countries by effectively “out-bidding” them for inclusion into the global production chains of transnational corporations (Choi and Smith 2010; Gereffi and Memedovic 2003; Schrank 2004). While it may be possible to statistically manipulate available data to show that there is declining “total world inequality” or at least, some overall reduction in between–country GDP per capita (Firebaugh 2003), it is almost certain that the effect disappears when China and India are removed from consideration (Hung and Kucinskas 2011). And by promulgating a rosy image of “declining world inequality,” we are potentially obscuring the fact that recent globalization has been characterized by very slow economic growth in most poor countries (Milanovic 2005). The dynamism of the few should not be confused with the stagnation of the many, otherwise sociologists become apologists for the global neoliberal project, which is essentially about corporate profits, not about genuine sustainable development.
References


Global cities and world city networks

Michael Timberlake and David A. Smith

“World cities,” according to Peter Hall, who introduced the concept in his book of that title (1966), are the metropolitan regions in which is conducted a disproportionately large share of the world’s business. They are typically the centers of government, they are big in terms of population, they are wealthy, and they are centers of high culture. Because world cities are centers of trade and government, business and finance, and attract disproportionate numbers of professionals and the wealthy, they also generate transportation hubs, such as large airports, which provide global linkages. Hall illuminated the world city (WC) concept with seven qualifying city-regions: London, Paris, Randstad Holland, Rhine-Ruhr, Moscow, New York, and Tokyo. Most of the early WC research was case study oriented (cf. Abu-Lughod 1999; Hall 1966; King 1990; Sassen 1991) but these world cities (Hall 1966; Friedmann 1986) and “global cities” (Sassen 1991) are typically categorized, at least implicitly, on the basis of their roles in various relational networks that are planetary in scope. The more recent quantitative studies (cf. Alderson and Beckfield 2004; Smith and Timberlake 1995b; Taylor 2004) are explicit about the networked character of the world urban system and the WC hierarchies that emerge based on those links. At a general theoretical level, the key network connections usually fall into a few functional categories: economic, cultural, social, and, less frequently, political, and they may take the form of material, human, and informational exchanges.

The research identifying empirical WC networks is based on various, imperfect representations of these general constructs. It shows how the world’s great cities are increasingly interconnected through organizational ties (e.g., as sites for headquarters and regional offices for global firms) and by the flows of capital, information, and people. Thus, researchers conceptualize these cities as members of a single system of cities, and like most systems, the world’s city system is hierarchical, with some cities filling more globally central roles in these organizational and flow networks than others. Systematic WC researchers began with basic mapping of global urban hierarchies but moved to explaining (a) why and how the hierarchy changes and (b) why and how cities are different in relation to their place in the hierarchy. After more than 15 years of systematic, comparative, and (recently) longitudinal research, we know what the world city network (WCN) looks like at multiple points in time, using multiple measures of connectivity, understanding that specific patterns of centrality and hierarchy differ with time period and the particular network relation which the research considers. However, the shifts are ordered, constrained, matters of degree, and tied to familiar world-system processes and structures.
An emerging perspective on world cities in a global hierarchy

Central to the rise in WC research was the growing influence of the world-system perspective on urbanization and development through the late 1970s and 1980s. Foreshadowed by Gunder Frank’s imagery of “chains of constellations of metropoles and satellites” in Latin America (1966: 6) and Castells’ framing of “dependent urbanization” (1977: chapter 3), Walton (1977) and Roberts (1978) developed arguments about how city growth in the poorer world regions is shaped by the historical context of a region’s initial incorporation into the capitalist world-system, as well as subsequent changes in its role in the world-economy. By the early 1980s, Walton (1982) and Chase-Dunn (1984) published essays that systematically laid out the “urbanization in the world-system” approach and established a research agenda. Timberlake’s edited volume (Timberlake 1985) provided the most comprehensive effort to develop this perspective with contributors exploring how either national urban patterns (e.g., Nemeth and Smith, 1985) or particular cities’ growth trajectories (e.g., Chase-Dunn 1985) were linked to unequally structured economic and power relations operating across countries and globally; Sassen’s (1985) essay on capital mobility and labor migration prefigured her later work on global cities. Almost simultaneously, this world-system approach to framing urbanization and development issues began appearing in journals in the form of historical case studies (Feagin 1985; Smith 1987) and a plethora of quantitative cross-national analyses (Bradshaw 1987; Kentor 1981; London 1987; London and Smith 1988; Meyer 1986; Timberlake and Kentor 1983).

In the meantime, Friedmann (1986, 1995) and Sassen (1991) developed more nuanced analyses of WCs. A 1993 conference organized by Knox and Taylor, brought together sociologists, geographers, and urban planning scholars working on world cities (Knox and Taylor 1995). The resulting edited volume established an interdisciplinary project focused on the study of WCs and WCNs. Building on Friedmann’s landmark 1986 paper, “The World City Hypothesis,” the editors argued that world cities are, to varying degrees, integrated into a broader world-economy which is capitalist, with cities being “key” to the extent that they are important “basing points” for capital. The nature of integration varies according to the different characteristics of each city (e.g., immigration, economic polarization, etc.). Other crucial insights included: the global system of cities is hierarchical in terms of the relative network centrality of the constituent cities (e.g., Friedmann 1995; Lyons and Salmon 1995; Smith and Timberlake 1995a, 1995b); WCs compete for centrality in this hierarchy (e.g., Friedmann 1995; Knox 1995); and the WC hierarchy imperfectly and inconstantly mirrors the world-system position of national societies in the core/periphery hierarchy (Sassen 1995; Taylor 1995). Some authors (e.g., Sassen 1998: 197–202) suggest a secular decoupling over time while others (e.g., Taylor 1995) claim that there have been cyclical realignments of the two hierarchies. Cities are sites where organizations, such as firms, may choose to locate production and command/control functions. When more firms site more activities in particular cities, those cities become more central to the global system of cities. With centrality in globally important organizational networks, key cities become increasingly important as global centers for other commonplace human activities: commerce, immigration, tourism, business travel, consumption, and so on. These activities often “hang together” spatially, rendering an overall global hierarchy of cities.

Measuring world city-ness: From attributes to relations

Research on city systems has a long history (e.g., Duncan et al 1960; Ross 1987), and though it has always relied on theories featuring relational concepts (e.g., dominance), its execution was mainly
based on cities’ attributes, usually population size, but sometimes some other characteristic, such as their number of Fortune 500 headquarters (e.g., Cohen 1981). A relational operationalization of far-flung urban systems was more difficult because it is harder to find quantitative measures of interaction than to estimate attributes such as city population sizes. Meyer (1986) made a valuable early effort, examining international banking headquarters and subsidiaries in Latin American, North American, and European cities. Smith and Timberlake (1995b, 2001) located data on international inter-city air travel to derive a global network with London, Paris, Frankfurt, and New York at the top. Soon, Taylor and other researchers at the Globalization and World Cities research center (GaWC; http://www.lboro.ac.uk/gawc/) developed a relational world city data set based on the locations of headquarters and back offices of top producer services firms (cf., Taylor et al 2002) while Alderson and Beckfield (2004) compiled data on multinational enterprise (MNE) headquarters-subsidiary linkages across more than 3,000 cities. Carroll (2007) operationalized the global urban hierarchy in terms of corporate board of director interlocks among Fortune 500 firms in order to study the relationship between cities and global class formation. Derudder and Witlox improved upon our air passenger flow data with a more complete representation of the city-to-city volume of travelers across a larger number of cities for 2000 (see Derudder and Witlox 2005). Presently, researchers are working on assembling network data representing a myriad of city-to-city linkages for multiple time periods.

Critiques from within and without WC Scholarship

World Cities versus Global Cities? Many researchers working within this tradition freely exchange the terms “world city” and “global city.” Derudder (2006) suggests that the empirical research on world cities is often based, unwittingly, on divergent theoretical guideposts. While we have used the term “world cities” to describe places that are integrated into a worldwide network of urban areas and are relatively and to varying degrees important to the operation of the global economy, Sassen uses the term “global city” and consciously distinguishes it from world cities, especially as developed by Friedmann. Derudder argues that whereas Friedmann is concerned about identifying cities that are relatively dominant in terms of global economic power, Sassen is focused on cities that control production because they are the sites for advanced producer services—financial, creative, and highly skilled professional services that not only operate globally, but in fact make “globalization” as we know it possible (cf., Sassen 1998, Ch. 7; Taylor 2011). Friedmann envisages global urbanization in terms of economic power in general (including through manufacturing/production) while Sassen emphasizes global cities as key sites for global control (particularly as providers of advanced producer services). Derudder goes on to show that the empirical studies of the hierarchical international networks of cities often draw haphazardly on these two divergent theoretical paths to justify their analyses and frame their findings. While it is important to specify carefully how the particular relational data that scholars use is connected to key concepts in this literature, there are good conceptual rationales for examining various city-to-city global flows that transcend the Friedmann/Sassen conceptualizations and can capture dimensions of WC-ness not limited to the original formulations. WC scholarship is still at a stage where it is more important to be catholic and inclusive of different efforts than to impose a theoretical orthodoxy.

World Cities off the Map. The research on the WCN creates “maps” locating cities of rich countries atop the world-system’s city system. This raises the suspicion that the WCN project is biased in leaving huge cities of the global South “off the map” (Robinson 2002). While non-core world cities were not the central focus of most early WC research, the theoretical thinking behind this research offers opportunity to understand all cities. Conceptualizing the whole WCN gives us an excellent way to explore how the “megacities” of poor countries “fit” into the global
hierarchy—and gives us some new traction in exploring the meaning (or “effects”) of how these places are located both in terms of the WC system and the core/periphery hierarchy of national states. Urban areas that hold places on lower rungs of the WCN and are also located in the peripheral zone of the world-system may be doubly disadvantaged. WC scholars have begun conceptualizing city dynamics in terms of the articulation of their structural positions in these other global structures.

**The WC Polarization Thesis.** Friedmann’s “world city hypothesis” (1986) argued that polarization in terms of social inequality was a necessary concomitant of WCN position. The claim that the most dominant places in the global urban hierarchy are also centers of some of the global economy’s most severe and intractable contradictions—home, simultaneously, to enormous wealth and power and to marginalization and poverty—is also echoed in other scholar’s work (e.g., King 1990; Sassen 1991). Indeed, growing socioeconomic polarization in New York, London, or Tokyo should give pause to those “boosters” who argue that WC status is “good” for most urban residents—data seem to belie this rosy view. However, the precise mechanism linking high WC status to inequality is rather vague: Sassen claims that the presence of so many upper-income professionals in global cities creates pressure for “gentrification” (which displaces poorer people from affordable housing) while also generating demand for low-wage, even “informalized” jobs to service the needs of those wealthy elites. But there is also recent evidence that there is a long-term secular rise in inequality (associated with “global neoliberal” policies) all over the world today (Korzeniewicz and Moran 2009). Is the polarization really more pronounced in world cities, and even if it is, what is the evidence specifically linking this condition to WCN position?

Abu-Lughod’s book *America’s Global Cities: New York, Chicago, and Los Angeles* (1999) documents each city’s deep global connections through the very sorts of mechanisms described by Sassen as defining her quintessential global cities. Abu-Lughod builds the case that all three make the grade as global cities by Sassen’s criteria and all are highly polarized, but she locates the sources of these inequalities in the culture and history of each city rather than its role in the WCN. Hamnett (1998) also challenges the WC polarization thesis, arguing that WCs are experiencing increased demand for high wage professional occupations, but there is, in fact, weakening demand for low-wage work. “Professionalization” rather than “polarization” characterizes more globally central cities in the current international division of labor. Hill and Kim (2000), studying East Asian cities, also object (and question the notion of convergent structural features for global cities), and Hill and Fujita (2003) concur, arguing that differences in the nature and policies of the state provide better explanations of relative levels of WC polarization than WCN position.

**Recent empirical research**

**Growing Inclusiveness.** A significant amount of recent research focuses on world cities that are beyond the core. For instance, Pirie (2010) shows how the South African cities of Johannesburg and Capetown are integrated into the global urban hierarchy via airline connections and shows that these cities are increasingly linked with cities all over the world, but particularly with cities within Africa, Asia and the Middle East. Córdoba Ordóñez and Gago (2010) perform a similar analysis of Latin American aerial connectivity to show the growth and the degree of cohesion of the region’s “internal” urban networks, as well as its extensive ties to the world urban network in the period 1970–2008. Still, African cities have been “neglected” relative to the great number of studies on world cities that are being produced, as are Middle Eastern cities (but see Bassens et al 2009 for a recent exception). Except for some key places (e.g., Hong Kong) Asian cities have been neglected.
as well, but this is rapidly changing. David Meyer’s (2000) masterful case study of Hong Kong as a global metropolis was followed by Shin and Timberlake’s work (2000) showing that from the 1990s onward, there was rapid mobility for East Asian cities. Recent scholarship also documents global city formation processes in Taipei (Kwok 2005), Shanghai (Wassertrom 2008), and re-examines Hong Kong’s long history as a Chinese global city. Ma and Timberlake (2008) note the rapid rise of Beijing and Shanghai from 2000 to 2005.

New relational measures over more time periods. Following the relatively early work that systematically operationalized the WC networks mentioned above, many other efforts are underway to assemble network-like data representing additional city-to-city linkages. Matthiessen et al (2010) estimate the significance of cities as “knowledge centers” in terms of the locational affiliations of authors of important scientific journal articles. Their research gives us a sense of the relative importance of different city-regions as knowledge centers and looks at this in the mid-1990s and again several years later to get some sense of change. The empirical urban hierarchy they find is distinctive in some ways—but London and Tokyo-Yokohama are at the top in both time periods and just below in the more recent period are the San Francisco area, New York, Boston, and Los Angeles in the United States, Osaka in Japan, and Paris and the Amsterdam city-region (with Beijing rising rapidly in the most recent period). Several years ago, Sassen (2002) and Garcia (2002) called for increased scrutiny of the roles of global cities in the emerging architecture of global digital networking. Choi et al (2006) took up this challenge in their analysis of WC air transport and internet backbone links, finding that the two networks are highly correlated, with London in the most dominant position in both. Vinciguerra et al (2010) recently developed a spatial model of network evolution to examine the European internet infrastructure. It is very likely that digital networks will be a fertile topic for future WC network research.

WC network studies are increasingly longitudinal as well as involving more and different types of linkages. One of the first over-time studies of WC networks was our paper documenting shifts in cities’ ranks based on changing patterns of airline passenger flows among pairs of the top 30 world cities for six one-year time periods beginning in 1977 and ending in 1997 (Smith and Timberlake 2001). London, Paris, and New York were consistently in the top four cities, joined by Frankfurt (a major air “hub,” to be sure, but probably also a significant global city, too). Tokyo ranked high in 1991 but declined thereafter, while other East Asian cities ascended the hierarchy in the 1990s, consistent with that region’s economic dynamism at the end of the twentieth century. Data limitations restricted such studies until recently. In 2010 a special issue of the journal, Urban Studies (Derudder et al 2010), published several longitudinal WC network studies using relational data. Alderson et al (2010) examine the MNE headquarter-subsidiary network over a 26-year time span and find that the hierarchical roster of world cities as measured by various types of network centrality “reshuffle” considerably, (though the very top cities remain consistently dominant) with some “control functions” becoming somewhat more centralized in the final two decades of the twentieth century. They also examine changes in the correspondence between cities’ location in the world-system of nations (e.g., core, semiperiphery, and periphery) and their hierarchical positions in the WCN and find a close correspondence in each time period, with almost no significant change across the time periods studied (1981–2007) except that semiperipheral cities are more likely to be upwardly mobile. Using data on air passenger flows among about 200 cities from 1977–2007, Mahutga et al (2010) also examine the extent to which the global city hierarchy is increasingly centralized and changes in the correspondence between global cityness and world-system position of the countries in which they are located. They found that the network of airline passenger flows is becoming less centralized. More passengers are flying to and from more cities in the world, producing a less hierarchical network. Consistent with Alderson et al they find that core
cities are far more likely to rank higher in the system of cities than cities located in countries of the periphery and semiperiphery. In addition, cities in countries of the periphery are less likely to be upwardly mobile than cities elsewhere, but cities in the semiperiphery are somewhat more likely to have become more globally central over time than cities in the core (and far more likely than cities in the periphery). Moreover, East Asian cities are more likely to have increased their world cityness than other cities, and this effect is independent of world-system position. Derudder et al (2010) map shifts in the degree of global network connectivity of some three hundred cities, using the GaWC data on advanced producer services. From 2000 to 2008 the chief findings, in summary fashion, are that cities in the United States declined, and key cities in Asia, the Middle East, and Eastern Europe became significantly more connected over this period. Orozco-Pereira and Derudder (2010) use the same GaWC data to explain the changing positions of cities in the WCN from 2000 to 2004 in terms of several hypotheses that are represented in their analysis by different independent variables. They show that cities located in countries with higher levels of international trade are more likely to advance in the WCN, as are cities with greater air passenger and telecommunications connectivity and cities larger in population size. Interestingly, “being there first” does not seem to help explain increases in hierarchical position: the lagged dependent variable, measured four years earlier, has no effect on the measure of change.

Conclusions

WC research has exploded in recent years, with scholars producing numerous case studies of specific cities, comparative studies of a few cities, and quantitative comparative studies of a great number of the world’s prominent cities. Most of the theoretical underpinnings of this research rely on notions of how cities are involved in global processes and how this involvement links them to global systems of cities. The conceptual schemes for exploring world cities are relational, and explicitly or implicitly evoke social networks. The objectives of the research include describing how particular cities embody the characteristics of world cities, how cities compete for WC position, how the cities of the world map onto the world-system’s city system, the extent to which the ordering of cities changes on the global hierarchy, why it changes, and whether relative position on the hierarchy matters for social structure and social relations within cities. This research increasingly employs diverse indicators of how cities are networked and the more recent analyses are more likely to examine changes over time.

Across these dynamic studies we see ascendance of some cities, including the rise of particular Asian and Middle Eastern cities, for example. Other studies stress that the “reshuffling” in the WCN is taking place without as much true change in terms of cities from the bottom tiers of the world-system rising to the top tiers of the WCN. For example, a recent study of the regional and global connectivity of Latin American cities is consistent with the “reshuffling-without-change” conclusion (Córdoba Ordóñez and Gago 2010). While cities may be more intensively interconnected, the patterns characterizing these connections even in the most recent periods are consistent with old notions of “dependent urbanization.” Likewise African cities are, in general, still “off the map,” although specific cities are becoming increasingly networked to other neglected but dynamic regions. On the other hand, some Asian cities are rising in terms of WC hierarchies, with a few likely to contend for global city status in the coming years. Yet these rising cities are hardly evidence for the sort of decoupling of the global city system from the world-system of nation states posited by some. The most mobile cities of Asia and the semiperiphery are located in strong, developmental states that are deliberately pushing their leading cities toward the top of the global hierarchy.
References


Michael Timberlake and David A. Smith

7.4

How individuals shape global production

Frederick William Lee

The contemporary literature on the organization of transnational production is dominated by firm- and meso-level research such as the global commodity and value chains paradigm. In economic sociology the global value chains (GVCs) paradigm has characterized the contemporary literature and defines the extant knowledge. GVCs research emphasizes the economic motivations for participating in the world-economy and considers the unequal distribution of value in parallel with the distribution of labor within global production networks as sociogenic and representative of the unequal power relations within the world-economy.

In recent years, many Chinese production and manufacturing firms (e.g., OEMs) have achieved disintermediation in the way that they participate in the world-economy. The Chinese export manufacturing industry has become prominent for achieving success in industrial upgrading and disintermediation at the global level, and this is primarily achieved through industrial learning, such as the evolution from OEM to global original design manufacturing (ODM), and then brand development, such as the evolution from ODM to original brand manufacturing (OBM), for example, Haier and Hisense in the electronics sector. Chinese firms have also achieved industrial upgrading through the acquisition of foreign firms, for example, Lenovo’s buyout of IBM’s personal computing business. Many Chinese firms, including both large enterprises and small and medium sized enterprises (SMEs), have achieved end-to-end disintermediation of their export supply chains, and a prominent example is the Chinese computer firm Lenovo, a partially listed state-owned enterprise (i.e., a “red-chip” corporation), which has achieved global end-to-end disintermediation through retailing Chinese-made computers direct from its factories to global end consumers through internet retailing. Lenovo’s case is typical of the large Chinese firms (typically red-chip) and industrial upgrading. However, what is more interesting is that small privately owned Chinese enterprises have also achieved global end-to-end disintermediation of their export supply chains, and one prominent way that this has been achieved is through the immigrant entrepreneurship of the Chinese.

A flaw of the extant knowledge is that sociological studies of GVCs have been firm-centric and have not considered the significance of individuals and their agency within the global organization of firms and production. In fact, GVCs analysis, which has been firm-centric, posits that firms seek out industrial upgrading to “move to more profitable and/or technologically sophisticated capital- and skill-intensive economic niches” (Gereffi 1999: 51–52). Hence, the research has premised economic explanations of industrial upgrading and disintermediation (which can be understood as a variant of industrial upgrading). This is a problem, because the way in which the world-economy
is organized is as much sociogenic as it is economic, and Bair (2005) argues that the literature should focus more attention on the social nature of the GVCs within the contemporary world-economy through contextualizing chains within the wider social, historic, and political-economic conditions in which they exist. For instance, explanations of disintermediation may be enriched beyond the economic considerations of firms to incorporate the agency of entrepreneurs and the impact of social forces that shape the agency of entrepreneurs. This is important, as social forces have already been demonstrated to be significant for determining the participation of firms in the world-economy. For instance, dialectal and provincially derived ties have been found to impact upon the organization of the Chinese furniture export supply chain throughout the business networks of the Chinese Diaspora (Lee 2010).

As GVCs researchers posit that economic motivations, such as the retention of value and industrial learning, motivate firms to seek out industrial upgrading and disintermediation, they have largely excluded what motivates the individuals that control the firms and operate within GVCs to seek out disintermediation. This is inadequate for understanding how contemporary supply chains evolve, because the disintermediation of GVCs may result from non-economic forces such as immigrant entrepreneurship. The agency of individuals—that is, the volition of entrepreneurs—is highly pertinent to global supply chains, and the decisions they make concerning their personal lives can shape transnational business networks, the organization of global production and the distribution of labor and goods as well as profit. Lee (2010) demonstrated that non-economic motivations, such as personal preference for the “lifestyle” in Australia, may be the ultimate motivation of Chinese immigrant entrepreneurs in the Sydney furniture industry who have facilitated the disintermediation of the Chinese export industry (Lee 2010: 53). This means that firms are not the only agents that can shape the contemporary world-economy, and the agency of individuals shape the concatenation of economic actors and value inputs in the contemporary world-economy. Thus, the significance of individual agency needs greater recognition in the sociological literature on GVCs and transnational production.

Overall, the GVCs literature should explore the ways that non-firm actors and non-economic motivations operate in the world-economy as a way of enhancing sociological paradigms for understanding the global organization of production. The current GVCs literature does not elucidate the significance of non-firm actors, specifically individuals and their agency, and this is a barrier to fully developing the knowledge of the contemporary world-economy and society. Moving on, the GVCs research should encompass individual agency and the social dynamics that arise from the larger—often global—contexts as key concerns for GVCs scholarship, and this will allow researchers to provide better answers to existing questions and ask new questions about GVCs and their existence at the nexus of the global and the local and as the product of both individual agency and firm- and meso-level dynamics.

References


The world city hypothesis formulated by John Friedmann (1986) opened a new strand of research that focuses on the positions of cities, including large Asian cities in the global network of cities (Knox and Taylor 1995). The Globalization and World Cities project (GaWC) and other researchers found that Asian super-cities such as Tokyo, Singapore, and Shanghai have relatively central positions in the global city system (Beaverstock et al 1999; Friedmann 1995; Shin and Timberlake 2000; Smith and Timberlake 2001). Asian world cities have increased their centrality and density of connectedness in the flows of trade, people and information, forming a discernable regional city system, which suggests three theoretical ramifications. First, as Sassen (1991) explains, the dispersion and spatial concentration of the global economic activities happen simultaneously. The rising Asian world cities play the roles of overseeing their globalizing economies, and reveal increased polarization within cities. Second, there are diverse modes of interactions between global force and the roles of nation-states in regional networks. Given that Asia became an important regional axis of world-economy, what Giovanni Arrighi (1998) calls “the rise of Asia,” it is important to understand the roles and relations among Asian cities with various historical legacies and vast hinterlands through the contextual lens of rising Asia and the larger structure of the world-system (Taylor 2004). Third, Asian world cities have become spatial sites producing trans-local communities and identities with increased time-space compression that brings new types of political processes and cultural subjectivities (Harvey 1996; Sassen 2007).

Tokyo remains a global commanding center with strong trans-regional connections despite economic stagnation of recent decades (Jacobs 2006). Singapore is a key nodal city of Southeast Asia in intermediary trades and investment for high tech and finance. The Singaporean state’s energetic social engineering and its highly visible championing of “Asian values” has had a significant impact on development within Singapore and as a model for other Asian polities (Salaff 2004). Seoul maintains a close link with Tokyo and, as China has emerged strongly in the global economy, it now has stronger connections with Chinese cities. Seoul has come to perform the role of “crucial intermediary” through which manufacturing orders of electronics and clothing from the United States and Japan flow to the low-wage manufacturing sites in free trade zones of Indonesia and China. As a destination of tourism, Bangkok competes with Singapore in inter-regional connectedness in Southeast Asia, and Mumbai (Bombay) has risen to become a center of film and software industries.

China’s global cities (Beijing, Guangzhou, Hong Kong, and Shanghai) have rapidly developed despite the efforts of central planners to spread development toward smaller cities and other regions (Ma and Timberlake 2008). Beijing concentrates on political function of foreign policy, alliances and managing relations with the “Great Powers,” while Shanghai attracts foreign
investment and boasts the third largest stock market in Asia behind Hong Kong and Tokyo (World Federation of Exchange 2008). Shanghai, as China’s globalizing gate city, evidences the shift of state policy away from manufacturing production with strong regional and domestic connections toward flexible producers’ services of finance, insurance, and real estate (Chen and Zhou 2009). Hong Kong is the city of light manufacturing and financing in Asia, overshadowing Shanghai in its connections beyond the regional economy. The future of Hong Kong will depend in part on political decisions by the governments in Hong Kong and Beijing (Meyer 2000). Rapid integration of China’s economy into the global economy has produced a significant increase in inequalities within Chinese cities and among regions.

Asian world cities do not simply stand in a world city system as intermediaries for New York, London, and Tokyo; rather, they compete and cooperate with each other. Research agenda for Asian world cities in the future include: trans-local communities and identities with new political processes and cultural subjectivities; positive and negative impacts of time-space compression on city (re)development from globalization and global restructuring; social consequences of deepening inequality within cities; and mapping out the emerging Asian city system with data on flows and interactions among the cities.

References


The Internet promised to usher in many revolutions. The debate on what it has and will deliver is still ongoing and consensus is far from sight. Surprisingly, considering the prominent role that information and communication tools (ICTs) have played in delivering the current world-system, the world-system scholars are not among the most active participants of that discussion.

ICTs have accompanied the world-systems since the very beginnings of human history; *homo sapiens* were using mnemonic tools—painting caves, engraving sticks, and stacking stones—for tens of thousands years. Where scribes were recording business transactions in clay tablets filled with cuneiforms, or where printing presses were busily churning copies of the Bible and other works, the elites—not the scribes themselves, but rather, the priests, the nobility, and the kings who ordered them—reaped the benefits from the power given to them by their monopoly on the flow of information, propaganda, and censorship.

However, such monopoly was useful not only to individuals; it empowered the entire world-system. Commenting on the birth of the modern world-system, Wallerstein (1999) noted that the technology, notably advances in transportation and communication, was one of the major factors that allowed Europe—later, the West—to become the system’s core region. As Pomeranz (2000) wrote, it was a time of Great Divergence; a time of improvements in maritime technology and the spread of printing presses throughout Europe. The former provided the tools needed to break the Middle Eastern lockdown of European trade. As European merchants and soldiers gained direct access to Americas and Asia, Europe was propelled from a periphery into a nearly unchallenged hegemon of the new world-system. The latter resulted in a growing deluge of steadily cheaper printed materials; the resulting growth in literacy transformed Europe into the one place in the world where the notion of progress became normal. The technological advancements, having found a receptive ground in a society, began a virtuous spiral: after printing came the telegraph, then the telephone, radio, television … All those ICTs were first developed and deployed in the core, which had decades if not centuries of near monopoly on their use.

On the surface, the newest branch of ICTs, the Internet, is no different. It began as a US military project (ARPANET). It relies on expensive technology and skills that are hard to come by in the poor periphery, and it is most widely used in the developed core.

Yet while existence of a global digital divide cannot be denied (Chen and Wellman 2004), there are some interesting counter-trends underneath the surface. The Internet is no longer the bastion of the English-speaking West. According to Internet World Stats, in mid-2004, 26 percent of English-speakers had Internet connection, and constituted 36 percent of Internet users, way
ahead of the Chinese, of whom only 8 percent had Internet access, constituting 13 percent of Internet users. In late 2009, Internet penetration among English-speakers was 39.5 percent and they accounted for 27.7 percent of the Internet population, while in China, the Internet has spread to almost 30 percent of the population, with Chinese accounting for 22.6 percent of the internauts worldwide. In 2007, Arabic became one of the 10 most widely used languages on the Internet, with the number of Arabic Internauts growing twice as fast as that of the Chinese, at a staggering rate of 2500 percent. According to Alexa, in 2009, two Chinese sites—Baidu, a search engine, and QQ, a communication portal, have broken into the Internet Top 10 most popular sites, previously an English-only list. At least 80 percent of articles in Wikipedia, the online encyclopedia, are in languages other than English.

The Internet is still evolving; sites such as Wikipedia, YouTube, and Facebook are just a few years old. Semiperiphery and periphery countries are catching up to the cores, and may be getting ahead by bypassing obsolete ICTs. In countries with weak infrastructure, landlines are rare—but mobile phones use has surged, as putting up cell towers is more efficient then laying cables. Where the Internet has been introduced only recently, people are beginning their cyber-experience not with email or static websites but with Web 2.0 applications like social networks.

The Internet is not limited to state or corporate actors. As it is becoming cheaper and more user-friendly, it is increasingly used by individuals and transnational NGOs focusing on the inefficiencies of the modern world-system. Traditional authorities are trying to retain control, and their efforts should not be underestimated (Lessig 2006), but if history is any guide, the growth of literacy and access to ICTs have been tied to empowerment of previously underprivileged actors. And when we consider the Internet’s efficiency in asynchronous many-to-many communication, it could be argued that no ICT developed since the printing presses has been so versatile, and friendly to individuals and small groups, as the Internet.

History shows us that technology was one of the key forces that helped to usher in the current world-system. The global digital divide still tilts the balance to the core, but the gap is closing, as the Internet, still evolving, is rapidly penetrating the peripheries. When better ships and printing presses developed in a periphery, they propelled it toward centuries of core hegemony. Since then, the core has had almost absolute control over ICTs. The Internet is breaking that pattern. As the economies of regions such as China and India are churning on, and their populations are rapidly becoming digitally literate, could we be witnessing another periphery-core shift? We may find it beneficial to look closer at how this is shaping the current—and the future—world-system.

References
