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1. EMERGING NODES IN THE GLOBAL ECONOMY: AN INTRODUCTION

1.1 NODES, NETWORKS AND FLOWS IN THE GLOBAL ECONOMY

The 'global economy' is increasingly perceived as a catch-all phrase. It evokes vastly divergent emotions ranging from resentment and anger over poverty and sustainability to pride and admiration over technological progress and human ingenuity. For all its fuzziness (Markusen, 1999), globalization does however convey two major shifts that pervade much of the economic and spatial change taking place in the world economy. The first relates to the notion of scale. Whether distance has died or simply been minimized (Cairncross, 1997), globalization has redrawn the limits on spatial interaction. The second relates to the seamlessness of the world economy. Globalization has led to the obliteration or neglect of borders. A truly global economy implies the unfettered flows of people, goods and services for whom regional or national boundaries are increasingly irrelevant.

Both of these processes impact on places. Paradoxically, they lead to the glorification of some, such as the global or world cities, and the demise of others. At one and the same time, the uniqueness of some locations is highlighted while the identities of many others are merged into an amorphous mass. But just how different is this to the 'global economy' of previous eras? Did not previous rounds of globalization, from the Renaissance to the Industrial Revolution have similar effects both on the scale of interactions and the flows between locations and on the fortunes of those places in which they originated?

The answer to this question underlies the motif of this volume. While the contemporary global economy may be doing very much the same as in the past but at greater intensity, the nature of relations between the places comprising the global economy has changed radically. The rise to prominence of Florence in the Renaissance period or Manchester in the Industrial Revolution simply served to elevate these locations within the given hierarchy of global places. The role, fate and fortune of places was determined by their place in this hierarchy. The implicit theme of this book is that the perception of the global economy as an hierarchical structure is of limited utility. While hierarchies have formed the mainstay of explanatory frameworks in economic geography ranging from central place theory, through location theory and core-periphery relations, we suggest that this construct breaks down when faced with phenomena that are structured as networks. Many of the

contemporary processes driving the global economy are inherently network-based. The network metaphor therefore forms the main unifying concept of this volume.

While the network has been used increasingly as an explanatory framework in studies of social, economic and spatial relations (Cooke, 1988; DeBresson and Amesse, 1991; Powell, 1990), less attention has been focused on the functions of the nodes that comprise the network. Our conception of the roles of cities in global networks differs from that adopted in recent studies. For us, these nodes are not 'mid-level' places in a global hierarchy (Sassen 2002) or 'second-tier' cities beyond the metropolitan area (Markusen, Lee and DiGiovanna 1999). Rather, they are temporal and volatile forms of engagement with the global economy conducted from key locations. Due to the network structure in which they are organized, the same place can function at one and the same time as global node and a parochial location.

Our central thesis is that in the current round of globalization, places (cities, metropolitan areas or city-regions) selectively function as nodes within networks. In this respect, we draw on the network paradigm that sees synergetic relations between places in a manner similar to those between firms (Camagni, 1993; Camagni and Salone, 1993). We do not attempt to formalize the resultant network topography but in common with this literature we recognize that the network relations of places are not independent of the firms located in these places (Taylor, 2001). Consequently, our approach is to analyze the process of network formation through in-depth studies of leading sectors in two different contexts. On this basis we extract more general insights into the operation of networks and the functioning of nodes, for example, network formation drawing on the case of high tech nodes (Chapter 6).

The notion of a 'node' implies constant interaction with other units such as places, firms, households etc. The value of a node lies in its connectivity with other nodes. The denser the level of inter-connectedness the more receiving, transmitting and processing the node can accomplish. Underlying this conceptualization of places as nodes, is the recognition that places come to be characterized by the specialized economic function that they fulfill in the global economy.

The implications of this perspective are far reaching. First, this view suggests a relational view of the global economy (Beaverstock, Smith, Taylor, Walker and Lorimer, 2000). The importance and centrality of a node is defined by its relations to other nodes. The upshot of this view, is that static rankings based on leading indicators while highly prevalent in the literature, are less than adequate. Instead, it is more useful to look at interaction between nodes by observing the flows between them. Movement of capital, telecommunications traffic, international investment, market information, cultural goods and highly skilled labor can all be used to proxy these flows. The boundaries of these flows define the topography of the network. The efficiency gains derived from organizing interaction as a network rather than as a hierarchy, derive from the increasing returns that network organization affords. This point is developed further below (Chapter 6). However, at this juncture it is poignant to note that proximity is not a sine qua non of network formation and there is even empirical evidence that supports the contention that geographical dispersion makes for greater network efficiency (Kilkenny, 2000). A further important theme arising from a network perspective is that node centrality in a network derives from

relations with other nodes. The more the interaction, the more central the node. This emphasis on the role of returns to scale should hardly be ignored. It links network formation to a burgeoning literature that emphasizes the role of increasing returns in urban and metropolitan development (Krugman, 1991).

Second, we posit a high degree of flexibility and temporality in the economic functioning of places. The prominence (or decline of a node) is not necessarily contingent on the attributes of the node itself. Nodes assume different levels of importance over time determined by their interactions with other nodes. Thus places functioning as nodes are less likely to be subject to the vagaries of technological lock-in and path dependence than places whose centrality is determined by their position in the urban hierarchy. This is not to say that historic accidents and idiosyncratic events cannot trigger off a unique growth process of a node in a given place. Rather, we are simply asserting that in a network configuration, the chances of a whole system locking-in to a sub-optimal form of operation is much less likely than in a tightly structured and hierarchical chain of interactions.

Third, the network approach broadly ascribes to the 'space of flows' thesis (Castells, 1989, 1996). The level, frequency and intensity of flows between nodes, defines their place in the global economy. Places are defined by "what flows through them, rather than what is fixed within them" (Beaverstock *et al.*, 2000, p.47) These flows can relate to skilled labor (Chapter 6), international finance (Chapter 5), foreign direct investment (Chapter 4) and so on. It is important however, not to overstate the role of flows. Nodes are also real places with distinctive characteristics, development histories and attributes that distinguish them from each other. Their emergence on the global arena is as likely to affect their urban development as it is their economic development. As both a repository of flows and a very real location, a tension can exist in the emerging node. In certain instances the flow aspect dominates, as argued for example in the Israeli high tech case (Chapter 6). In other instances, the concrete place function determines the character of the node, as in the case of activity grounded in physical movement of goods (Chapters 7,9) or the consumption of tourism or cultural amenities (Chapters 10-12).

Fourth, a stress on nodes suggests multi-positioning in the global economy. If networks govern the interaction between places, then places can be global in one respect and local in another. The same location can engage in multiple roles, functioning as a global node in a given network but as a parochial center in other aspects of its economic development. It is this potential dualism that gives nodes their particular identity despite the global forces fashioning (and homogenizing) them. Given the process-led focus of our investigation, we treat Frankfurt and Tel Aviv as the prism through which these developments can be viewed. For this reason we are less interested in accurately delimiting the spatial boundaries of the nodes. In general we adopt the metropolitan region or city-region definition as the spatial unit of analysis (Scott, 2001). Our focus on process rather than particular city development per se, also highlights the direction of causality in the relationship between globalization and node emergence. On the one hand, we recognize the primordial relationship in which global forces cause the emergence of nodes and view nodes as a reflection of these forces. On the other hand, cognizant of nodes as



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