

Organizing 'the firm' in industrial geography I: networks, institutions and regional development

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I Introduction: towards a pluralistic view of industrial geography?

I want to begin the first of my three annual progress reports on industrial geography by claiming that industrial geography, at least as I know it, has done very well within the geographical and, perhaps even, the wider social-scientific discourses. I am pleased the subdiscipline has lived up to the concluding remark by Taylor (1986: 412) in his progress report some 14 years ago that industrial geography was 'alive and well and encouragingly contentious'. In this and two other reports, I aim to sustain my optimism with an indulgence in the most recent studies which have contributed towards a more *pluralistic* industrial geography. Although I have taken 'the firm' as a fundamental category to define the arbitrary boundary of industrial geography, I am more than happy to situate 'the firm' within the context of wider social relations, political-economic processes and environmental change (see also Barnes, 1996a; Hayter, 1997; Lee and Wills, 1997; Schoenberger, 1997; Barnes and Gertler, 1999; Sheppard and Barnes, 1999; Clark *et al.*, 2000).¹ In my view, the firm in industrial geography goes beyond being an economic entity; it is also a sociospatial construction embedded in broader discourses and practices (Yeung, 1998a; see also Oinas, 1997; Taylor, 1999). This reconfiguration of our conceptions of the firm in industrial geography therefore helps us to make sense of the diverse and plural range of industrial geographical studies in the past few years (see also Thrift and Olds, 1996; Schoenberger, 1998).

My pluralistic view of the firm and industrial geography, however, poses a significant problem for writing my progress reports because there may be some overlap with the material and studies chosen for review by other recent progress reports on political economy (Barnes, 1995; 1996b; 1998) and geographies of money and finance (Leyshon,

1995; 1997; 1998), and by two recent reports/proceedings on the status of economic geography (Glasmeier, 1999a; Harrington *et al.*, 1999). While I shall concentrate in this report on recent studies of the organization of the firm in industrial geography through such concepts as *networks*, *institutions* and *regional development*, I have in mind two themes for the next two reports: 1) the social regulation of the firm through labour markets shaped by ethnicity, gender relations and social practices; and 2) the connection between the firm, the global economy and the global environment. I have chosen the organization of the firm, broadly conceived, as the theme for this report not only because it is the richest cluster of theoretical and empirical work in industrial geography, but also because it has made the most important contribution to public policy debates throughout North America, western Europe and Asia. The next three sections examine recent studies of the complex inter-relationships between firms and networks, firms and institutions, and firms and regional development.

II Firms and networks

My interest in revisiting this theme can be traced back to one of my earliest academic publications on networks (Yeung, 1994) and to Malmberg's (1994) review of industrial geography in this journal. Since our articles appeared, a significant stream of theoretical and empirical contributions has been published to shed light on the intricate relations between firms and their embedded networks. These recent geographical studies of firms and networks clearly demonstrate that industrial geography is more than just 'the study of networks of information change' (ÓhUallacháin, 1991: 73). Industrial geographers are increasingly concerned with the sociospatial organization of industrial firms and their networks. In fact, many of these recent geographical studies have drawn theoretical insights from such key works as Camagni (1991), Amin and Thrift (1992), Dicken and Thrift (1992), Cooke and Morgan (1993), Grabher (1993) and Thrift and Olds (1996). Several key strands of recent literature on firms and networks can be identified at various spatial scales of analysis: 1) the organization of networks; 2) firms and networks in geographical agglomeration; and 3) the impact of networking on flexible production systems.

The first strand of literature essentially examines *different types of networks*, their organizational attributes and contributions to firms' competitiveness. Although the network literature has become a 'terminological jungle in which any newcomer may plant a tree' (Nohria, 1992: 3), I view networks as both a governance structure and a process of socialization through which disparate actors and organizations are connected in a coherent manner for mutual benefits and synergies. Defined in this way, there can be many types of networks, ranging from business networks to supplier commodity chains, production networks and innovative networks. Whereas business networks tend to be organized through informal ties and socialization processes, the levels of formality and bureaucratic control tend to be higher in supplier commodity chains, production networks and innovative networks. Business networks, for example, are often based on interpersonal ties (Yeung, 1997; 1998b; Olds and Yeung, 1999), informal information flows (Malecki and Tootle, 1996; Perry and Goldfinch, 1996; McDade and Malecki, 1997; Walcott, 1999), resource sharing (Perry and Goldfinch, 1996; Perry, 1999) and decentralized learning and knowledge (Amin and Cohendet, 1999). These

networks are often embedded in localities with very strong institutional legacies and linkages (Grabher and Stark, 1997a; 1997b; Perry, 1999; Grotz and Braun, 1997), although Amin and Cohendet (1999) recently question the adequacy of a firm's dependence on local tacit knowledge in the face of radical shifts in markets and technologies.

On the other hand, networks are increasingly deployed as a sourcing and production strategy. Recent studies have shown that power relations in supplier commodity chains tend to privilege downstream distributors and retailers rather than upstream producers and manufacturers (Glasmeier and Kibler, 1996; Mason and McNally, 1997; Hartwick, 1998; Hayward *et al.*, 1998; Barrett *et al.*, 1999; Doel, 1999; Hughes, 1999; Dicken and Hassler, 2000). In the case of OEM (original equipment manufacturers) arrangements and subcontracting, there is limited evidence to suggest the emergence of hierarchical networks between major manufacturers and their functionally integrated suppliers (Phelps, 1996; Cho, 1997a). Other studies have investigated the role of 'network externalities' in facilitating information flows, production sharing and diffusion of technologies (Capello and Nijkamp, 1996; Cecil *et al.*, 1996; Ettliger and Patton, 1996; Park, 1996; Staber *et al.*, 1996; Cornish, 1997a; 1997b; Izushi, 1997; Ivarsson, 1999; Walcott, 1999). These externalities are particularly important for the (re)production of innovative networks in specific places and regions (Grotz and Braun, 1997; Pratt, 1997; van Geenhuizen and van der Knapp, 1997; Lawson *et al.*, 1998; Oerlemans *et al.*, 1998).

A second and related literature extends beyond network analysis and examines the geographical outcome of networking among industrial firms. These recent studies have shown that *spatial agglomeration* and the formation of territorial production networks are clearly important and, yet, often overlooked aspects of network analysis (Malmberg *et al.*, 1996; Malmberg, 1996; 1997; Malmberg and Maskell, 1997; Maskell and Malmberg, 1999). In their recent theoretical contributions to industrial geography, Storper (1997a; 1997b; 1997c) and Scott (1998) argued convincingly that territorial development is significantly embedded in networks of relational assets and geographical proximity particularly at the local and regional scales such that 'territorialization is often tied to specific interdependencies in economic life' (Storper, 1997a: 20) (cf. Ellison and Glaeser, 1999). Their theoretical arguments are situated in the latest intellectual and policy debate about globalization and its multifaceted implications for local and regional development (Cox, 1997; Yeung, 1998c; Kelly, 1999; Olds *et al.*, 1999). There is, however, a significantly wide spectrum of recent empirical studies, some in favour and others against these theoretical arguments for agglomeration tendencies. In their earlier studies of metal-working firms and users of advanced manufacturing technology in North America, Harrison *et al.* (1996) and Gertler and DiGiovanna (1997) did not find strong evidence of agglomeration economies. To a large extent, however, these findings are complicated by modes of acquiring market intelligence (Cornish, 1997a; 1997b), sector (Coe and Townsend, 1998), size class (Sweeney and Feser, 1998; Fuellhart, 1999), foreign ownership (Ivarsson, 1999) and the level of urbanization (Krmenc and Esparza, 1999; Mitra, 1999; Aoyama, 2000). Yet other empirical studies (e.g., Forrant and Flynn, 1998; Maskell, 1998; Pinch and Henry, 1999) offered a discursive construction of knowledge and skills embedded in agglomeration economies of western Massachusetts' largest metal-working manufacturers, the Danish wooden furniture industry and the British motor sport industry.

Thirdly, apart from their spatial ramifications, the formation and transformation of

industrial networks have important implications for the *organization of production systems*. In particular, the long-standing debate on the emergence of post-Fordist flexible production systems since the early 1980s has continued to receive much attention from a healthy stream of recent empirical studies in industrial geography (Cho, 1997b; Eng, 1997; Norcliffe, 1997; ÓhUallacháin, 1997; Jin and Stough, 1998; Leslie and Butz, 1998; ÓhUallacháin and Wasserman, 1999) and in related disciplines (e.g., Hirst and Zeitlin, 1996; Sabel and Zeitlin, 1996; Boyer and Durand, 1997). In many of these studies, the flexible specialization thesis has been challenged by an alternative interpretation of the institutional and geographical foundations of production systems in which there is no inevitable transition from one mode of production systems (e.g., vertical integration) to another mode (e.g., flexible specialization). Empirical studies by ÓhUallacháin (1997) and ÓhUallacháin and Wasserman (1999), for example, emphasized the variable nature of corporate organizational responses to elevated levels of supply uncertainty and high transaction costs. We often observe the simultaneous existence of both mass production for scale economies and flexible specialization for scope economies *even* in the same industry located in similar localities and regions. In other economies (e.g., Hong Kong), the existence of flexible specialization does not presuppose mass production, but rather it requires an appropriate social and institutional context in which social divisions of labour are strongly embedded in interpersonal networks and relationships (Eng, 1997; Yeung, 1999). Exactly how this institutional context comes about is an issue I want to address in the next section.

III Firms and institutions

In addition to the analysis of firms and networks in recent industrial geography literature, there appears to be a resurgence of research interest in the role of *institutions* in promoting firm growth and regional transformation. Key concepts such as 'institutional thickness' (Amin and Thrift, 1994), 'institutional capacity' (Phelps and Tewdwr-Jones, 1998) and 'institutional spaces' (Jones, 1998a) have begun to emerge in the geographic literature on firm formation and regional development. The real policy issue here is to organize strong sets of local institutions in both private and public sectors for at least three specific purposes. First, for those relatively 'footloose' industrial firms, strong 'institutional thickness' may help to embed them in specific localities and regions and to reduce their tendencies for relocation. Strong institutional presence may therefore lower the risks of 'hollowing-out' as a result of industrial restructuring. Secondly, for those relatively sluggish localities, building institutional capacity represents a process of industrial revitalization which both induces new firm formation and growth and enhances the competitiveness of existing firms. Thirdly, localities with strong growth track records may reinforce their growth potential and innovative capacities through stronger institutional presence. Keeble *et al.*'s (1998) recent study has shown the importance of Cambridge University and other support and training agencies in facilitating collective learning and networking among innovative technology-based small and medium enterprises in the Cambridge region.

Too much 'institutional thickness', nevertheless, is not necessarily a good thing either. Bennett (1997a: 332) cautioned that '[a] dense network or strong institutional structure is no use economically if it is anti-growth'. Similarly, Scott (1998: 110) argued that 'not

all forms of institutional thickness provide an automatic guarantee of economic dynamism. Indeed, institutional thickness can be a positive hindrance to development and growth where stubbornly dysfunctional attitudes and habits are firmly locked into the local economic system'. He cited the case of the Los Angeles jewellery industry to justify his cautionary claim (see also Berndt, 1998, for the case of Ruhr firms in Germany). Other researchers have also argued that there may be contradictions in the politicization of local and community-based economic initiatives, e.g., competition among localities, local differentiation and organizational fragmentation of economic agencies within localities (Eisenschitz and Gough, 1996; Cox and Wood, 1997; MacLeod, 1997; Ward, 1997; Filion, 1998; Huggins, 1998). In a comparison of 'institutional thickness' in Cardiff and Sheffield, in the UK, Raco (1998: 986, emphasis in original) noted that 'for those *excluded* from the new institutional arrangements, the "collectivisation" of social and economic life means little more than a clouding of policy making processes and the truncation of grounds for opposition'. It appears that 'institutional thickness' is a double-edged sword in so far as firm growth and regional development are concerned.

To unpack the spatial nature and processes of building institutional capacity, I shall delve briefly into a related strand of empirical literature which is concerned with the formation and the role of a particular local set of private institutions – business associations, trade organizations and chambers of commerce. These private sector institutions have both the potential and the capacity to promote a sense of shared group identity and to strengthen the voice of local firms, e.g., in the case of the Lace Market Manufacturers Association in the Nottingham Lace Market (Crewe, 1996). Studies by Bennett (1997b; 1998a; 1998b; 1998c; 1999) have also shown that voluntary local business associations in Britain are most effective if their spatial reach is confined to small geographical areas. Local business associations are not merely 'luncheon clubs'. Rather, they act as local business clubs and play an important role in informal business advice as well as developing contacts and marketing networks. They are, however, vulnerable to competition from public sector service providers which receive state subsidies. On the other hand, the larger and government-approved business associations tend to be much better resourced and capable of working with the government to develop services and membership. These empirical findings imply that while small chamber development can be encouraged at the local level, public policy should continue to be directed at increasing the geographical scale and service scope of the larger chambers and business associations (see also Glasmeier, 1999b).

IV Firms and regional development

How do firms and institutions propel regional development in practice? This is the final issue I wish to address in this report. Although the literature on high-tech manufacturing and its impact on regional development has shown signs of maturing since the late 1980s (ÓhUallacháin, 1989), the issue of firms, regulation and regional development remains a significant research area in industrial geography over ten years later (Allen *et al.*, 1997; Braczyk *et al.*, 1997; Simmie, 1997; Barnes and Gertler, 1999; see also Chandler *et al.*, 1998). Coincidentally, three recent monographs by Storper (1997b), Cooke and Morgan (1998) and Scott (1998) have made a very strong plea for *regions* as the central

unit to analyse how the 'associational economy' defines the coming shape of global production, competition and political order (cf. MacLeod, 1998). This associational economy is a repertoire in which intermediate associations (e.g., business networks, trade associations, labour unions, civil associations and so on) are empowered to foster social and economic development and political stability. At the forefront of this theoretical debate on regional development is the *regulationist approach* which has been popularized in geography through the work of Tickell and Peck (1992), Amin (1994) and other third-generation regulation theorists (e.g., Jones, 1998b). Krätke (1999) has critically summarized the regulationist conceptual framework for regional studies as one which emphasizes the socioeconomic patterns of interaction, interfirm linkages and industrial labour relations, supportive institutions and politics in a region (see also Digiovanna, 1996; MacLeod, 1999). In brief, he stressed that this analytical framework can 'give key importance to the *regional differentiation of social systems of regulation* and at the same time integrate certain partial approaches to regional research' (Krätke, 1999: 690, emphasis in original).

Another theoretical perspective on regional development is the 'new' *endogenous growth theory* critically reviewed by Martin and Sunley (1998) (see also Webber, 1998; Webber and Rigby, 1999). This theory of regional development represents a radical departure from the conventional neoclassical approach by introducing increasing returns into the production function in order to determine the long-term growth rate within the model. Three variables of these increasing returns are endogenous capital investments that generate externalities, intentional human capital that generates 'knowledge spillovers' and Schumpeterian endogenous innovations. These variables develop unevenly across the space economy and are locally and regionally differentiated. To Martin and Sunley (1998: 220), this endogenous growth theory is a good 'reminder to economic geographers not to be seduced by an institutional foundationalism which excessively privileges "non-economic" institutional explanations of spatially uneven economic growth'. But they also caution us of the key limitations of the theory: its obsession with the formal derivation of general growth equations and its failure to capture the importance of the socioinstitutional context and embeddedness of regional economic development. These weaknesses are precisely the strength of the regulationist perspective on regional development. Amin and Cohendet (1999: 101) also question the exclusive logic of endogenous growth theory: 'the only pathway to both economic competitiveness and regional prosperity lies in the mobilization of endogenous assets' (see also Izushi, 1997, for a case in Japan, and Hayward *et al.*, 1998, for the case of New Zealand).

What, then, are the main foci of recent empirical studies in industrial geography on regional development? Three issues are particularly visible: small and innovative firms, industrial districts, and regional change. First, *small firms* and *innovative firms* continue to be the key focus of empirical research for many industrial geographers. These firms are deemed dynamic and can make crucial contributions to regional development (cf. Harrison, 1994; Ettlinger, 1997). A series of empirical contributions by researchers from the Cambridge University-based ESRC Centre for Business Research (e.g., Keeble and Bryson, 1996; Keeble, 1997; Cosh and Hughes, 1998) found that small firms in Britain's peripheral and outer southern regions grew faster and were more innovative than those in the south east in the late 1980s. By the mid-1990s, however, this trend was reversed in favour of southeast England. The pattern of small firm growth and innovation

resembled divergence in regional development, with the north–south divide persisting in the UK (see also Coe, 1998).

Other studies of innovative high-tech firms have demonstrated their continual vital role in, to use Florida's (1996) term, 'regional creative destruction'. Florida's (1996) study has shown that even in a region suffering from chronic economic decline (the US Midwest), new forms of production organization can take root through the influx of transplant manufacturers which have transferred new production systems to the older industrial region. Large, and sometimes foreign, manufacturers tend to act as hubs in broader production complexes and accelerate the diffusion of new forms of production organization through their supplier networks. The key to regional development is therefore not the size of the firm *per se*, but rather the social and technical organization of the firm (see also Ettlinger, 1997). Concurring with the case of the UK, it seems appropriate to accept the conclusion that 'simplistic metaphors of regional growth and decline, which served theory so well in the past, can no longer account for the full richness of regional economic transformation – an ongoing, evolutionary process in which many, varied outcomes are possible' (Florida, 1996: 332; see also Rigby and Essletzbichler, 1997; Alderman, 1998a; 1998b; Cooke *et al.*, 1998; Gray and Parker, 1998; Rigby and Haydamack, 1998; Walcott, 1998). This variability in regional outcome relates to the issue of *complexity* in an innovative milieu which is both path dependent and influenced by chance occurrences with cumulative consequences (Cooke and Morgan, 1998; Garnsey, 1998; Scott, 1998).

Secondly, one of the most lasting strands of empirical literature in industrial geography during the past two decades has been geared towards testing this idea of an 'innovative milieu' by examining the formation and transformation of *industrial districts*. Some of these studies are concerned with defining different types of industrial districts (Gray *et al.*, 1996; Markusen, 1996; Park, 1996; Cho, 1997b; McDade and Malecki, 1997; Kipnis and Noam, 1998; Staber, 1998; Wang and Wang, 1998). Other researchers are becoming highly critical of the industrial district literature as a success story and as a universal model for policy initiatives. Staber (1996), for example, argued that methodological problems (e.g., static research designs) in most empirical work on Baden-Wurttemberg and other industrial districts have led to the failure to understand fully the logic of industrial districts as very dynamic models for endogenous regional economic development (see also McCann, 1997 vs. Turok, 1997). His own research on textile-clothing firms in Baden-Wurttemberg showed that, contrary to predictions derived from the industrial district model, horizontally and vertically integrated firms there have outlived more specialized firms (Staber, 1997; 1998). Other studies have also shown the importance of external linkages to the dynamics and transformation of industrial districts (Izushi, 1997; Amin and Cohendet, 1999; Winder, 1999). The crucial question, as it stands, concerns the differential spatial scales through which industrial districts are constructed and analysed.

A final strand of empirical literature goes beyond firms and industrial districts to analyse the impact of *industrial change* on regional development. Some of these studies of industrial change have focused on developed countries in North America and western Europe (Gough and Eisenschitz, 1996; Hudson, 1997; Essletzbichler *et al.*, 1998; Gray and Parker, 1998). A majority of them, however, have focused on emerging economies in Asia (Brohman, 1996; Langdale, 1997; Hart-Landsberg and Burkett, 1998; Perry and Tan, 1998; Poon and Perry, 1999; Dicken and Hassler, 2000; Yeung, 2000) and

Africa (Carmody, 1998; Hart, 1998; Rogerson and Rogerson, 1999). What seems to be emerging from these empirical studies is a well grounded critique of neoliberal economic orthodoxies which have presumably contributed to misleading interpretations of regional development at the discursive level and severe industrial decline in many developing economies/regions at the policy level. There is now greater attention to the multiple historical and institutional trajectories of capitalist developments in these emerging economies. This focus on divergence in regional and national developmental trajectories seems to be an exciting area for future theoretical and empirical research in industrial geography.

V Conclusion: what about public policy?

If we take a more pluralistic view of industrial geography, this report has clearly shown the versatility and dynamism of theoretical advancement in, and the empirical relevance of, the subdiscipline during the past few years. A more balanced evaluation of this literature will be offered in my final report. What, then, can industrial or, if you wish, economic geographers do to change the economic world in which we live? This brings us to the pressing issue of the policy relevance and the public agenda of our work in a changing and globalizing era. I am happy to conclude that, despite some recent concern with the policy relevance of human geography (Peck, 1999), many of the theoretically informed empirical studies in this report have a strong public policy orientation. This policy relevance ranges from the strong impetus provided by geographers working with local economic development authorities in North America and western Europe to the involvement of geographers in shaping business strategies and practices at the firm level. Having said that, there is clearly a need for industrial and economic geographers to be much more proactive in influencing public policy debates and setting policy agenda. I would like to echo Peck's (1999: 133) view that 'some policy research may be atheoretical, dull, vacuous and less than exotic, but even in these straitened times it remains one of the ways to effect change . . . [Indeed], it underlines the need for the kind of "deep" policy analysis that questions the parameters, presumptions and premises of policies, rather than just their outcomes'. Meanwhile, industrial geography has moved on beyond the 'economic' to incorporate more 'culture' and 'society'. This recent rejuvenation of industrial geography will be the focus of my next report.

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Note

1. My use of inverted commas to describe 'the firm' implies that I do not accept the neoclassical economic definition of the firm as a pure economic and transactional entity to organise modern economic life. For purposes of simplicity, I shall use inverted commas only once at the beginning of this report. All my subsequent references to the firm imply 'the firm' unless otherwise specified.

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