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REGIONAL INNOVATION SYSTEMS IN THE GLOBAL INFORMATION TECHNOLOGY INDUSTRY: THE NON-INTERNATIONALISATION OF GREEK SMEs

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1. Introduction

Economic competitiveness is today, more than ever, related to business innovation capacity. Given this fact, the present paper offers an insight into the contemporary pattern of innovativeness of small and medium size enterprises (SMEs), which often represent the most dynamic actors in national economies. The findings presented here, and the related theoretical notions, are discussed from the aspect of *regional diversity in the context of a globalised sector*: the information technology (IT) industry. The strategies of Greek SMEs [1] are compared to those of their IT counterparts in three European countries (U.K., Italy, Israel) and two East Asian countries (Taiwan, Korea). Furthermore, an in-depth analysis of the Greek IT SMEs, based on a qualitative survey[2], is also presented (Palaskas & Arapoglou, 2000).

Globalisation has expanded through capital internationalisation - primarily in the form of the multinational corporation (MNC) - over the last decades. Technological advancement has further sustained the prevalence of global firms. At the same time, under the conditions of global competition, regional growth is often selectively enhanced. Globalisation reinforces the importance of regional agglomerations and the integration of their most dynamic sectors within international networks (Castells, 1996; Cooke, 1995). Despite convergence between nations, intra-industry trade - among advanced areas in particular - is increasing today and accounts for the majority of global output, trade and foreign investment (Storper, 1997).

[1] Targeted Socio-Economic Research (TSER) project (FP5-EC): "SMEs in Europe and East Asia – Competition, Collaboration and Lessons for Policy Support", Greek Report by T.Palaskas & V.Arapoglou, Panteion University, March 2000

[2] PhD thesis: "A study of Regional Diversity in a Global Industry – The Greek IT sector", by M.Tsampra, Department of Geography, King's College, University of London, 2000

Specialisation and competitiveness are the key factors explaining the success of regional industrial agglomerations (Tsampra, 2000).

The Information Technology (IT) industry offers a particularly good example of the dual process of global convergence and regional diversity. Global convergence is imposed through the international domination of a few large IT multinationals. At the same time, however, it coexists with regional divergence. Local and regional forces define different IT production structures, levels of investment and R&D, learning and innovation processes in different localities and regions. Such differentiations lay in the region-specific assets of human relations, codes of practice and specialised knowledge. (Storper, 1997)

The following Section 2 outlines the key theoretical concepts concerning *innovation and competitiveness* in the context of *regional/national-global relations*. It also discusses methodological issues for the analysis of innovation and relates innovativeness to socio-economic embeddedness and territorialised interdependencies. Section 3 presents the quantitative analysis of a cross-country study of SMEs' innovation and competitiveness. The qualitative analysis of local and international ties of the Greek IT industry is presented in Section 4. The final Section 5 offers concluding remarks.

2. Regional Challenges in a Global Economy: Innovation and Competitiveness

The principle of 'comparative advantage' cannot predict any more the exchanges of goods between countries of similar resource endowments, which today constitute the bulk of world and OECD trade (Martin & Sunley, 1996). The 'new geographical economics' (Krugman, 1991, 1995) focuses on the role of increasing returns and externalities in the localisation of industry (alternatively to 'comparative advantage'), the location-trade relationships and the significance of the historical path in regional growth. On these grounds, the traditional explanatory models have often been abandoned for an approach adopting the concepts of *learning economy* and *innovation systems*.

The world 'core' and 'periphery' are today redefined by critical factors such as *innovation*, *technology transfer*, *industrial clusters* and the *internationalisation of local production systems* (Scott, 1988; Cooke, 1988; Dunford et al, 1992; Komninos et al, 1998). Several regional agglomerations have emerged as nodes in the global networks of increasingly powerful MNCs (Amin & Thrift, 1992). Contemporary regional economic competitiveness

rests strongly on the successful interlinking of local and regional networks, with global networks of innovation and production (De Vet, 1992).

The emergence, or persistence, of regional growth is often predicated upon networks of SMEs *embedded* within the local milieu, which accomplish co-ordination, adjustment and innovation by enhancing international knowledge spillovers (Amin & Thrift, 1992; Grabher, 1993). For many theorists the *milieu* (Aydalot & Keeble, 1988; Camagni, 1991, 1992; Maillat et al, 1993) is a *network* of regional actors such as producers, researchers, decision-makers, and mechanisms or processes fostering technological and organisational innovation. It has been also described as the territorial version of *social and economic embeddedness* (Granovetter, 1985).

The *learning economy* theory (Lundvall & Johnson, 1992) interprets the changes in contemporary economic competitiveness, and explains its most advanced forms, by focusing on *networks* and *knowledge spillovers*. Networking and learning capacity is the outcome of greater economic reflexivity; those firms, sectors, regions and nations which can learn faster or better become competitive because their knowledge is scarce, and therefore not easily imitated by, or transferred to, competitors via codified and formal channels (Cooke & Morgan, 1991).

The term *learning* refers specifically to product-based technological learning, which is different from technology imitation in production processes (Storper, 1997). It stresses the importance of technological change in product adaptability as the principle competition pattern. The notions of *learning processes* and *knowledge spillovers* involve invisible territorialised synergies embedded in networks of actors, such as the circulation of experienced and expert staff in the local labour market (Scott, 1998; Storper, 1995, 1997). Innovation is attained through flexible networking among business units, professional capacity, supporting institutions and market specialisation.

Such networking is based on principles of professional synergy, interactive learning and hence loose coupling among agents, which generate positive externalities in contemporary economic systems (Grabher, 1993). These positive externalities which agglomerations offer to firms are increasingly based on the interaction of socio-economic mechanisms. They lay in transactions which include traded and untraded interdependencies - such as the exchange of knowledge or ideas - often embedded in human relational and communication processes (Storper, 1997).

To some authors (Audrech, 1998) the 'paradox of the localization of knowledge spillovers in an era of telecommunication revolutions' is explained by 'local embeddedness'. The geographic boundaries that restrain 'the spatial extent of spillovers' should be attributed to the 'knowledge embodied in skilled workers' and to the 'costs of transmitting tacit knowledge over a distance'. This argument implies that *untraded interaction* and the development of *tacit knowledge* require spatial proximity, whereas formal and *codified knowledge* can spread to, or can be acquired from international sources. Nonetheless the force shaping the typology of new industrial districts is argued to be mainly related to *non-local embeddedness* (Park, 1996).

Within these theoretical considerations, the technological effort inside the firm and the linkages with external actors and markets, are the two main factors shaping the innovation outputs of firms. The in-house effort is most often measured in terms of expenditures, investments or employment in R&D activities, and in shares of scientists, engineers, and qualified technicians in total employment. Two main strands of argument are identified in the discussion of the relation of the intrafirm technological efforts and the use of external knowledge resources.

The first suggests that knowledge spillovers discourage firms from investing in R&D. Non-innovative firms can imitate and make use of such spillovers with low cost; thus, strong ties with external knowledge resources compensate for (substitute) the internal effort. This implies that the external economies of clusters or industrial districts favour only incremental innovations or routine changes. The alternative argument suggests that internal effort enhances the firm's absorptive and learning capacity. Accordingly, firms are motivated to conduct R&D in order to develop their capacity for capitalising external knowledge. In this way, SMEs in particular, with negligible investment in R&D, can produce significant innovative outputs through their capacity to benefit from the knowledge of neighbouring actors (large firms, universities, etc).

In research, this line of thought has expanded from the role of internal effort or external linkages in a firm's innovativeness, to the role of the local or international ties in a production system's innovativeness and competitiveness. The debate has focused on *whether*, and *how*, local and international linkages enhance the innovativeness and competitiveness of firms: through *technological upgrading and innovative practices*, or through *low cost strategies*? Empirical research findings are controversial. In any case, the specification of a

measurement for innovation is required. 'Objective' measures of innovation output used in research, such as R&D and patents, underestimate small scale and informal activities. Therefore, new direct measures, involving 'subjectivity', have been developed by means of surveys (Brower & Kleinknecht, 1996; OECD, 1996).

In his path breaking studies, Mark Grannoveter (1985, 1992) introduced the concept of 'embeddedness' to denote the socio-economic relations that determine one amongst many different possible outcomes. In this sense, the 'embeddedness' approach (entailing local and international ties) encompasses both formal and informal, traded and untraded, knowledge transactions. 'Proprietary' knowledge and 'contractual' technology are intermediaries and tools that facilitate knowledge transfer, considered to enhance the volume of interaction and extend the geographic reach of networks (Murdoch, 1995).

'Volume' (intensity) and 'reach' ability are two crucial dimensions of embeddedness that can be measured quantitatively (Bridge, 1997). Volume is the number of contacts an actor has, while reach ability is measured by the number of steps required to reach a specific contact. Grannoveter (1992) substantiated that frequent interactions between actors generate 'trust' in networks; this makes information exchange not only 'cheap' but also 'richer, more detailed and accurate'. Technology and knowledge exchange is built on trust and on previous 'layers' of codified knowledge transmission that constitute traditional elements of the local system (norms of exchange, exhibitions, etc.) (Murdoch, 1995). Far reaching networks are considered to be more effective than thick networks; this is the so-called 'strength of weak ties' (Grannoveter 1985, 1992).

3. Quantitative Analysis: the Strength of Weak International Ties?

The theoretical and methodological concepts discussed in the previous section were applied to the quantitative analysis of the impact of *innovation output* and *embeddedness* on the *economic performance* of SMEs. The fieldwork was carried out in four European countries - the UK, Greece, Italy and Israel - and two Asian countries - Korea and Taiwan. The international sample consisted of 230 small and medium size enterprises (SMEs) in the information technology (IT) industry. On the international scale, we identified the determinants of competitiveness and innovativeness of firms, using econometric techniques.

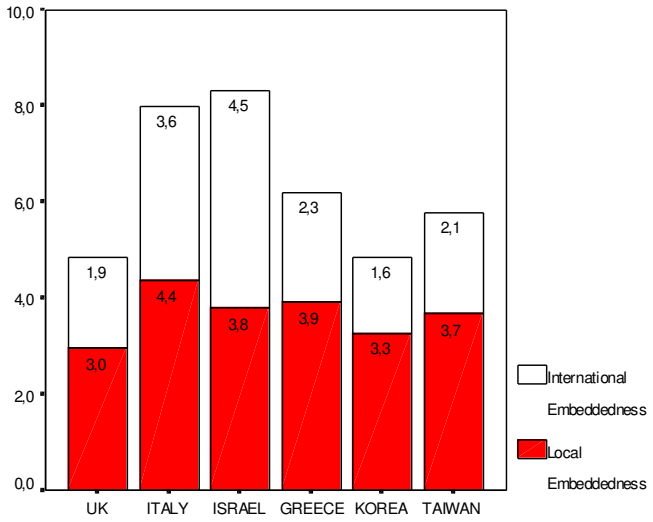
We tested *whether* and *how* the different levels of technological development influence the strategies and performance of SMEs in the IT industry. The interviewed firms

were asked to quote their share of sales generated by innovative products. The innovation output of the firms was assessed. Product innovation was distinguished from processing and organisation innovation. Finally, innovations at the firm level were distinguished from innovations at the industry level.

The frequency of the firm's collaboration with local and international actors was rated on a 1 to 10 scale. According to the previous discussion, this rating provides a measure for *volume*, while the classification of actors in local and international quantifies the network's *reach ability*. The mean scores for local and international actors were taken as measures of local and international embeddedness, respectively (see Figure 1). The role of formally exchanged - not just transmitted but traded - information and codified knowledge in the network's consolidation was also examined. The survey questionnaire obtained information about patents, loyalties, licensing, adapted accounting procedures, business partnerships and so on.

The analysis of descriptive statistics of networking capacity of the IT firms in each of the six countries under consideration indicated that generally their international ties are weaker than their local ties, with the exception of Israel. The high internationalisation of Israeli firms should be attributed to the strong links they have developed with research and finance institutions and customers in the USA. The Italian firms on the other hand, rely more on local ties than the rest of the sample. Asian firms also appear to be less embedded in the international environment and more embedded in the local context. These observations are illustrated in the following Figure 1:

Figure 1: Local and International Embeddedness

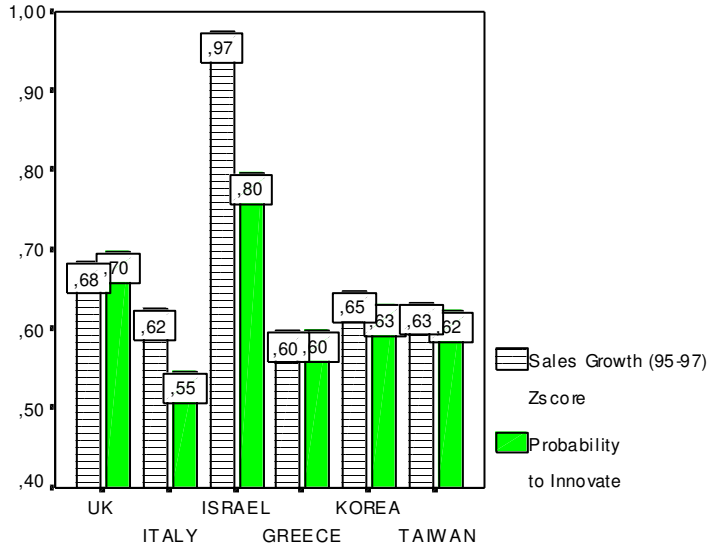


Source: Targeted Socio-Economic Research (TSER) project: "SMEs in Europe and East Asia – Competition, Collaboration and Lessons for Policy Support", FP5-EC

In terms of economic performance and competitiveness, the Israeli firms were ranked first and the Greek firms last. It was established that the economic performance of SMEs depends on their ability to commercialize and promote innovation in the local market and to export to niche markets abroad. The economic performance of SMEs, measured by the growth of total sales and also by the share of sales of new products to total sales, is determined by international embeddedness and economies of scale (size of the firm). Inter-firm linkages - particularly with customers - and relationships with the IT multinationals, were found to be crucial for the transformation of the SMEs into 'innovative mediators' in the long chain linking suppliers to customers.

According to the econometric estimate, the most important determinants of innovation in the IT industry are the investment in human capital (R&D expenditures per employee), knowledge embodied in skills (share of scientists and engineers), adoption of process technologies and licensing. Innovativeness has been defined as the probability of introducing a product innovation. In the following Figure 2, the Israeli firms are ranked first, while the Greek and Italian firms fall behind the Asian SMEs:

Figure 2: Innovation and Performance of SMEs



Source: Targeted Socio-Economic Research (TSER) project: "SMEs in Europe and East Asia – Competition, Collaboration and Lessons for Policy Support", FP5-EC

The research findings indicated the existence of channels of technological diffusion from the international to the local level, based on the adoption of technology processes and licensing. Although product innovations are often incremental, they encompass both in-house effort and know-how transmission from multinationals. The in-house effort relates to the firm's experimentation with, and adaptation of, imported technologies. Innovative firms are mainly foreign technology users.

The tested frequency of interactions with local actors is not statistically significant. This implies that local ties *do not* contribute to knowledge spillovers and innovation. The nature of local ties is determined by competition rather, than collaboration. Furthermore, there is no evidence of any influence of geographic proximity on 'the costs of transmitting tacit knowledge'.

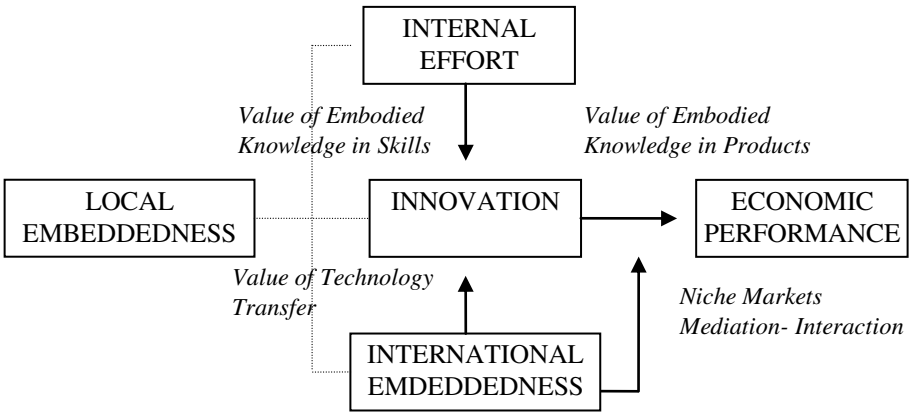
Endogenous knowledge embodied in products is protected by, and at the same time protects, market niches. The firms' competitive advantage against local and international competitors rests on their capacity to assimilate new processes and design new products. This is a function related to their local and international ties.

In conclusion, the 'strength of the weak international ties' refers to the 'internationally traded knowledge'. It is proprietary rather, than tacit knowledge, that should be taken into account for the IT industry's regional performance. This knowledge is embodied in process

technologies; it is protected by property rights in the transfer of process technologies; it is embodied in skills contracted in the labour market and utilized in internal effort; and it is embodied in products which create niche markets.

The quantitative cross-country comparison illustrated a gloomy picture for the future prospects of Greek SMEs in the global context of the IT industry. By international standards, Greek IT firms present a low rate of innovation and growth of sales, and a limited export orientation and willingness for collaboration. In Figure 3, the *bold arrows* indicate the significance of the relationships verified in the quantitative analysis; while the *dot lines* indicate the relationships that have not been confirmed.

Figure 3:



4. Qualitative Analysis: Local and International Ties of the Greek IT industry ?

The theoretical concepts of the local and international ties of firms already discussed, are integrated within a qualitative research approach to the Greek IT industry. The main objective was to identify the specific local conditions, which define regional diversity and competitiveness. The empirical survey involved questionnaires to 230 Greek IT firms and 50 in-depth interviews with SMEs producing software (SW), manufacturing/ assembling hardware (HW), and generally value-adding to IT products. The findings have a notable complementarity with the previously presented results of the quantitative cross-country analysis.

The qualitative analysis focused upon the identification of interfirm networks enhancing technological spillovers and innovation in the Greek IT industrial agglomeration.

The empirical findings indicated that Greek IT firms have a low rate of local and international embeddedness, with the exception of a few medium size firms which have either established ties with multinational IT corporations, or have managed to control a moderate share of small local IT firms. Consequently, the type of such ties and the conditions, which sustain or restrain their creation, were examined.

The competitive advantages of Greek IT firms were examined in the context of the structure of the Greek production system and the local business milieu. The historically formed and inherited characteristics of the Greek production system affect the indigenous IT production and market, its levels of investment and R&D, and learning and innovation processes. The empirical findings indicated that, despite the human resources' potential and ability to respond effectively to the requirements of the local market's specialised niches, the 'territorialisation' of the Greek SMEs - which has historically secured them from the pressures of international competition - often becomes a barrier to their future survival.

(a) Local inter-firm networks and technological spillovers

Vertical networking among Greek IT firms at the local level is limited. The largest volume of inter-firm interaction takes place between local producers and users or customers. The local market's demand for versatile products and diverse services implies product customisation. The flexible specialisation of the Greek IT industry is a consequence of the structure of the overall Greek production system. It is related to the low degree of standardisation of its economic activities, the small size of the market and its fragmented entrepreneurship, cultural and institutional conditions such as the complicated taxation and bureaucratic practices, the local entrepreneurial flexibility and so on.

These characteristics have a significant impact on the production and consumption patterns of the indigenous IT industry. They sustain a broad diversity of IT activities responsive to the fragmentation of the local market with the concomitant diversity of consumer demand. Moreover, the flexibility of the Greek SMEs' skilled labour and production organisation enables them to undertake customisation at a low cost. Because of this, the decentralisation and externalisation of several skilled tasks and processes - i.e. product customisation, installation, technical support, and training - by the larger indigenous IT firms, often favours the smaller firms.

However, during their mature phase, large firms tend to standardise their production processes and their products, in order to minimise their costly - in terms of time and money invested - customisation processes. Outsourcing takes place only when it is required by the customer, on the basis of the complementarity of activities (e.g. in system integration); otherwise large IT firms rely on their own production units. As the interviews revealed, collaboration and outsourcing is pursued by the larger IT firms merely for maintaining their large-scale consumption basis in the market: marketing their products and supporting their users without exhausting their own resources.

Cases of inter-firm collaboration based on personal relations of trust that go beyond the occasional partnerships dictated by time pressure, are scarce. The interviews verified that Greek IT firms avoid transferring know-how related to their product development to any partners, in order to prevent out-of-firm leakage. They keep all their resources centralised on the development of their most highly skill-intensive, and consequently most profitable, tasks. Such inter-firm relations, the role of small business units in product specialisation and differentiation, and the local innovation structures, do not suggest in any case a 'flexible specialisation district atmosphere'.

Thus, the positive externalities which specialisation can accomplish are limited due to the restricted exchange of ideas and information. The potential for *spin-offs* and new *start-ups* through further vertical disintegration is restricted. No sign has been found of any extensive formation of 'innovation networks' based on the larger firms' restructuring towards know-how and technology-intensive activities, utilising the innovativeness of small firms by building up network-relations to them.

(b) Relations with the big IT MNCs

The weak international link of the Greek IT firms are rather striking and run contrary to what one would have expected for a knowledge-intensive globalised sector. The low rate of collaboration of the indigenous firms with either international customers or IT producers reflects their orientation towards the national and local market - especially in the case of the software houses. A moderate average volume of collaboration has been established with international IT suppliers. This collaboration, however, concerns the licensing or purchasing of process technologies for software development, rather than the promotion of international software products in the local market.

The capacity of the indigenous software houses to develop customised and 'versatile' products is their competitive advantage over the standardised and 'rigid' products of their international competitors. The comparative advantages which consolidate the place of the Greek IT firms in the domestic market are based on the high quality and reliability of their products and support services, and on their competitive prices compared to international brand-name products distributed in the Greek market by IT MNCs. More specifically, indigenous IT products have lower production cost, and consequently lower price, while the related service charges of local firms are cheaper than those provided to customers by the Greek subsidiaries of IT multinationals.

Foreign MNCs' subsidiaries operating in the Greek market cannot therefore be considered as significant competitors of the local SMEs, in this sense. Specialisation in the particular requirements of the local market's several segments is not profitable for the multinational firms, which produce large-scale standardised products and multi-purpose platforms for broad use. Internationalisation of the indigenous IT firms lays in their collaboration with global IT firms on the basis of low-cost high-quality consulting, for example, in making international IT products adaptable and affordable to the newly opened markets of Eastern and Central Europe, where MNCs seek to expand.

5. Concluding Remarks

The synthesis of the quantitative and qualitative analysis of the innovation capacity of SMEs in the IT industry points towards the following interpretation. The examination of firms on a cross-country scale indicated that innovation is strongly determined by the 'internationally traded knowledge', which is assimilated through in-house learning processes. The characteristics of regional innovation systems in the IT industry are determined by the transfer of proprietary knowledge rather than by spillovers of tacit knowledge. Local linkages have a weaker impact on the firms' innovativeness than the international. Inter-firm or collective learning effort is limited, and based mainly on supplier-customer interactions.

In the case of Greece, indigenous IT production is almost exclusively oriented towards local demand, and this results in the high territorialisation of the Greek IT industry, low international competition, and low international flows in the local IT market. The Greek IT SMEs capture niches of the domestic market, mainly on the basis of original specialised software products and low-cost service provision. The capability of IT multinationals to

respond with alacrity to particular local needs is limited. Nonetheless, global supply oligopolists attain control through intangible assets, such as brand-name awareness, etc.

In conclusion, the Greek IT innovation system is unable to respond – both in terms of quality and quantity - to demand beyond the local or regional borders. It is highly territorialised and does not have the required dynamism to become internationalised and integrated within the global innovation chain.

REFERENCES

Amin, A. & Thrift, N. (1992), "Neo-Marshallian Nodes in Global Networks", International Journal of Urban and Regional Research, 16.

Arapoglou, V., Palaskas, T., Tsampra, M. (2000), "Innovation, Competitiveness and Embeddedness in the Global Information Technology Industry: the Local and International Ties of the Greek SMEs", working paper.

Audretsch, D. (1998), "Agglomeration and the location of innovative activity", Oxford Review of Economic Policy, 14: 18-29

Aydalot, P. & Keeble, D. (eds) (1988), High Technology Industries and Innovative Environments: The European Experience, London: Routledge

Bridge, G. (1997), "Mapping the terrain of time-space compression: power networks in everyday life", Environment and Planning D: Society and Space, Vol.15.

Brower, E. & Kleinknecht (1996), "Firm size, small Business Presence and Sales of Innovative Products: a micro-econometric analysis", Small Business Economics

Callon, M. (1991), "Techno-economic networks and irreversibility", in J.Law (ed), A Sociology of Monsters: Essays on Power, Technology and Domination, London: Routledge

Camagni, R. (ed.) (1991), Innovation Networks: Spatial Perspectives, London: Belhaven Press

Castells, M. (1996) The Rise of Network Society, Oxford: Blackwell.

Cohen, W. & Levinthal, D. (1989), "Innovation and Learning: the Two Faces of R&D", The Economic Journal, vol.99

Cooke, P. (1995) "Innovative regional clusters: the automotive and electronics industries in Wales", Regional Industrial Research, No.19, CASS/UWCC, Cardiff

Cooke, P. (1988) "Flexible integration, scope economies, and strategic alliances: social and spatial mediations", Environment and Planning D: Society and Space, vol.6, no.3.

Cooke, P. & Morgan, K. (1991), "The Network Paradigm: New Departures in Corporate and Regional Development", paper presented at international conference on Europe after Maastricht, Lemnos, Greece, 2-5 September

De Vet, J. (1992), "Globalization, Local and Regional Competitiveness", STI Review, 13

Dunford, M. & Kafkalas, G. (eds) (1992), Cities and Regions in the New Europe: The Global-Local Interplay and Spatial Development Strategies, London: Bellhaven

Grabher, G. (1993), "Rediscovering the Social in the Economics of Interfirm Relationships", in G.Grabher (ed), *The Embedded Firm*, London: Routledge

Granovetter, M. (1985), "Economic Action and Social Structure: The Problem of Embeddedness", American Journal of Sociology, Vol.91, No 3

Grannoveter, M. (1992), "Economic Institutions as Social Constructions: A Framework of Analysis", Acta Sociologica, vol.35

Komninos, N. & Sefertzi, E. (1998), "Neo-industrialisation and peripherality. Evidence from regions of Nothern Greece", Geoforum, Vol.29: 1

Krugman, P. (1995), Development, Geography and Economic Theory, MIT Press

Krugman, P. (1991), Geography and Trade, Cambridge, MA: MIT Press.

Larsson, S. & Malmberg, A. (1999), "Innovations, Competitiveness and Local Embeddedness. A study of Machinery Producers in Sweden", Geographisca Annaler, Vol.81B (1)

Lundvall, B.Å., & Johnson, B. (1992), "The Learning Economy", Journal of Industry Studies, 1, 2:23-42

Maillat, M., Quevit, M. & Senn, L. (eds) (1993), Milieux Innovateurs et Reseaux d'Innovation: Un Defi pour le Developpement Regional, Neuchatel: EDES

Martin, R. & Sunley, P. (1996), "Paul Krugman's Geographical Economics and its Implications for Regional Development Theory: A Critical Assessment", Economic Geography, 72 (3)

Murdoch, J. (1995), "Actor-Networks and the Evolution of Economic Forms: Combining Description and Explanation in Theories of Regulation, Flexible Specialisation and Networks", Environment and Planning A, Vol.27

OECD (1996), Innovation, Patents and Technological Strategies, Paris: OECD

Palaskas, T., Arapoglou, V. (2000), "SMEs in Europe and East Asia: Competition, Collaboration and Lessons for Policy Support", Report for Greece, Targeted Socio-Economic Research (TSER) financed by the EC.

Park, S. (1996), "Networks and Embeddedness in the Dynamic Types of New Industrial Districts", Progress in Human Geography, 20, 4.

Scott, A.J. (1998), Regions and the World Economy, New York: Oxford University Press

Scott, A.J. (1988), New Industrial Spaces, London: Pion

Storper, M. (1997), The Regional World: Territorial Development in a Global Economy, New York: The Guildford Press.

Storper, M. (1995) "The resurgence of regional economies, ten years later: the region as a nexus of untraded interdependencies", European Urban and Regional Studies, 2 (3): 191-221.

Storper, M. (1992) "The limits to globalization: Technology districts and international trade", Economic Geography, 68: 60-93.

Tsampra, M. (2000), A study of Regional Diversity in a Global Sector: The Greek Information Technology Industry, PhD thesis, Department of Geography, King's College, University of London