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Industrial Districts and Networks: Different Modes of Development of the Furniture in Ireland

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7. Industrial Districts and Networks: Different Modes of Development of the Furniture Industry in Ireland?

**David Jacobson, Kevin Heanue and Ziene
Mottiar**

1. INTRODUCTION

The Irish economy has obtained in the last few years the title 'Celtic Tiger'. Not all experts agree with this. Sweeney (2000), among others, has argued in favour of the notion but O'Hearn (1998) is more sceptical of the appropriateness of the implied comparison with the East Asian tiger economies. There is general agreement that Ireland has successfully attracted foreign direct investment (FDI), particularly from the United States, and particularly in industries like electronics (including computers), software and pharmaceuticals, all industries in which there are relatively high R&D expenditures. There is less agreement on such questions as how technologically advanced the activities of the multinational corporation (MNC) subsidiaries in Ireland are. It is also unclear as to how embedded they are into the Irish economy. These uncertainties exist, notwithstanding a great deal of attention to these issues in the popular press, among state institutions and in the academic journals (Barry and Bradley 1997).

Among the doubts about the Irish economy is the extent to which indigenous firms are capable of surviving in the increasingly open trading environment in Europe. Employment in Irish-owned manufacturing firms declined by 23 per cent between 1973 and 1998 (while employment in foreign-owned manufacturing firms increased by 105 per cent - see Table 7.2 below). The following table provides some clear evidence of this decline in one such industry. It also shows, on the other hand, what appears to be an arresting of this decline in the 1990s. The increase in 1991 is largely accounted for by the change in the NACE¹ category, plastic and metal furniture having been excluded from 'furniture' up to then and included from

then on. But there is clear decline up to 1990 and increase from 1991 onwards².

Table 7.1 Employment in the furniture industry in Ireland, selected years 1982-1998

	1982	1986	1990	1991	1994	1998
Employment	4,360	3,505	3,119	3,776	4,037	6,130
No. of Estabs./Units	403	253	212	245	269	315
Empl. per Estab./Unit	10.8	13.9	14.7	15.4	15.0	19.5

Note: NACE 467 from 1982 to 1990, NACE Rev.1 3611-5 from 1991 on. NACE Rev.1 3611-5 includes plastic and metal furniture.

Source: CSO, Census of Industrial Production, various years.

Given the relative paucity of work on ‘traditional’ sectors³ we concentrate in this paper on an example of such a sector, namely the furniture industry. We begin with a brief outline of Irish industrial policy in general. Towards the end of this section we turn to a specific aspect of recent industrial policy, namely network policy. In the next section we briefly describe and compare two examples of the organisation of production in the furniture industry, the wooden furniture industrial district in County Monaghan and the TORC⁴ network in Dublin, Wicklow and Cork. Finally, we consider the implications of these two developments for theory and policy in Ireland. The main aims of the paper are to examine the development of the furniture in the context of policy changes, and to compare two different forms of industrial organisation in the furniture industry in Ireland.

The County Monaghan example is an industrial district while the TORC network is more widely dispersed. The theoretical context is therefore one resting on such issues as the spatial limits of agglomeration in a small economy, and the differences between agglomerations and networks. Implications for policy include support for networking in general, and not just among spatially proximate firms.

2. IRISH INDUSTRIAL POLICY

There have been three main broad development strategies adopted in Ireland over the period since independence in 1922. Each was closely related to the types of policies that were being adopted by other countries. Between independence and 1932 the policy was one of agriculture-led growth. This was basically a free trade policy. Opposition to this grew over the decade and, together with a shift to protectionism in the early 1930s in all Ireland's trading partners, led to a change in government and policy in 1932.

From 1932 until around 1958 Irish governments followed a policy of import-substituting industrialisation (ISI). Virtually anything that could be produced in Ireland was given protection, and industrial output and employment grew. This was true for most traditional industries like furniture, clothing and footwear, but also for relatively new industries like car assembly. Where there were significant increasing returns to scale either the government should have been more interventionist, and selected a small number of firms to support, or less interventionist, allowing efficient foreign firms access to the Irish market. Car assembly, for example, although assembling some 40 different models by the 1960s, ceased as soon as possible after the removal of protectionism.

During the 1950s protectionist policies reached their limit. With the exception of one or two larger companies, indigenous firms were in general producing only for the protected local market. Capital goods and manufactured sub-assemblies in virtually all sectors were imported. Industrial stagnation led to unemployment and emigration. However, the absence of strong, competitive firms in the traditional manufacturing industries - like furniture, and clothing and footwear - resulted in reluctance to open up the economy.

Eventually, responding both to the internal stagnation and to the external availability of mobile capital, new, outward-looking policies were introduced in 1958. A strategy of export-led growth (ELG) was adopted, based on encouraging foreign direct investment (FDI), gradually removing protectionism, and providing incentives for firms to export.

The ELG policies - particularly low corporate profit tax rates and capital grants - were generally successful, in that they attracted FDI, reduced unemployment, and arrested the deterioration in the balance of payments. They also paved the way first for entry into an Anglo-Irish Free Trade Agreement in 1966, and subsequently into the European Economic Community (EEC) in 1973. However, over the decade or so following entry into the EEC, it became clear that while employment in subsidiaries of MNCs was increasing, employment in indigenous firms was declining. (This trend has broadly continued since then - see Table 7.2).

Table 7.2 Employment in manufacturing in Ireland, by ownership

	1973	1980	1998
Irish	166,000	161,000	128,000
Foreign	56,000	82,000	115,000
Total	222,000	243,000	243,000

Source: O'Malley, 1985, Table 1.1; CSO, *Census of Industrial Production, 1998*.

The decade of the 1970s was marked globally by oil crises, but these were not identified as the cause of the problem. Both international consultants (Telesis 1982) and some local experts (e.g. O'Malley 1985) were convinced that what was required was a shift in industrial policy, to favour MNC subsidiaries less and indigenous firms more.

A White Paper on Industrial Policy in 1984 did indeed lead to change, though not as substantial a change as had been suggested. A National Linkage Programme - which had mixed results - and a Company Development Programme were introduced. Sector specific policies began to be adopted, aimed at identifying already successful firms in each sector and assisting them, rather than providing blanket assistance at lower levels, for larger numbers of firms. These new policies were applied both to traditional sectors like furniture, and to advanced technology industries like electronics.

A second consultancy exercise to examine Irish industry and industrial policy was published in 1992. The Culliton Report's major recommendations included the reorganisation of the industrial development organisations into two main agencies, one of which should specifically address the development needs of indigenous, Irish-managed industry (Culliton 1992). The report also contained an innovative proposal, informed by the work of Porter (1990), to change the focus of industrial policy towards promoting the growth of industrial clusters around niches of national competitive advantage. These recommendations have to varying extents been adopted. Crucially, for our purposes, together with a new national focus on innovation systems and learning (STIAC 1995), they led to the adoption of a Pilot Inter-firm Co-operation Programme (the 'Pilot Network Programme') in 1996⁵.

The policy changes since the mid-1980s have had some impact. O'Malley (1998) argues that since 1987 the performance of Irish-owned firms has improved considerably, relative not only to Ireland's own historical experience but also compared to that of industrial countries in general.

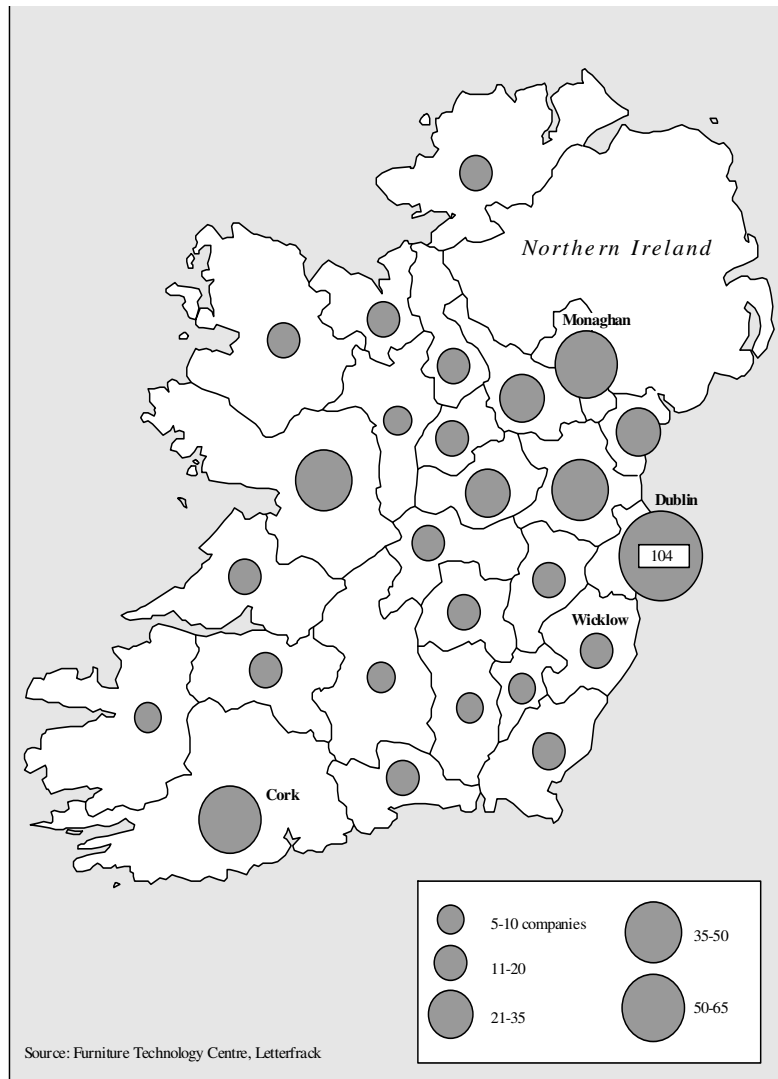
(Others, including O'Hearn 1998, remain doubtful about whether there has been a fundamental change in the strength of the indigenous sector.)

In the next section of this paper we examine the furniture industry, focusing in particular first on the wooden furniture industrial district in County Monaghan, and then on a small network, established in the Pilot Network Programme.

3. THE FURNITURE INDUSTRY IN IRELAND

Table 7.1 shows that there were in 1998 (the latest year for which data are available) 315 firms providing employment for 6,130 people. The Census is based on firms employing three or more people, so very small firms of two or less are excluded. The following map, Figure 7.1, shows the distribution of wooden furniture firms, including very small ones, by county. (The numbers are estimates, based on a database kept by the Furniture Technology Centre in Letterfrack.) Dublin, in the middle of the eastern seaboard, is by far the largest population centre, and is also the location of the largest number of furniture firms (104). Other large population centres include County Cork (the southernmost county) and County Galway (in the middle of the western seaboard) which also, as expected, have relatively large numbers of furniture firms. The main surprise is County Monaghan, a border county with Northern Ireland. Ranking 21st in terms of population, County Monaghan ranks third after Dublin and Cork in terms of the number of furniture firms.

Figure 7.1 Distribution of furniture companies in Ireland, by County, 1997



3.1 The Industrial District in County Monaghan⁶

There has been a concentration of wood-working in Monaghan for hundreds of years (Mottiar 1997). The current cluster of firms, mainly in or near

Monaghan town and its northern hinterland, originate in large part from the firm John E. Coyle, established in 1936. A total of more than 75 per cent of the furniture firms in the district are run by men who served apprenticeships in Coyles, or in firms set up by men who had served their apprenticeships in Coyles.

There are varying levels of co-operation among furniture firms in the district. The best known formal co-operation in the district occurs between McNally and Finlay, and Sherry Brothers, two of the larger firms. These firms jointly manufacture the Rossmore range of furniture. Their jointly employed designer designs products for each firm. Instead of specialising in particular products for the range, they each produce the same goods and then compete on the market. Thus they co-operate to have the products designed, sell under the same brand name and in Ireland use the same agents (in the UK they are more competitive and have different agents). This arrangement appears to be successful for both parties. Moreover, the difficulties of altering such a long-standing agreement would be complex and are likely to encourage continued compliance.

Most of the smaller firms produce inputs for the two or three larger firms. In some cases this is based on a 'putting out' relationship, where the larger firm supplies the materials, and the subcontractor machines them into the required shape and size and returns them as completed components to the larger firm.

Informal co-operation includes lending machinery (particularly hand-tools) and sharing information about customers who have not paid their bills. In one case, where two firms both produce a similar product, they both refrain from poaching each other's customers.

Close proximity, competition as well as formal and informal co-operation⁷, close inter-firm relationships - both horizontal and vertical - and people having been trained in one firm then establishing their own firms, are all characteristics of the industrial districts of the 'Third Italy', about which so much has been written in the last 20 years (see Jacobson and Mottiar 1999, and references therein). These industrial districts are based on industrial agglomeration and are embedded in various institutional and commercial ways into their local environments. Jacobson and Mottiar (1999) have shown that while some of the normal characteristics of industrial districts are absent from the County Monaghan furniture industry, the elements described above, together with a professional milieu and an awareness of mutuality of interest, are sufficient to designate this agglomeration as an industrial district.

How did the furniture industry - and the Monaghan industrial district in particular - respond to the changes in industrial policy? Following two decades of protectionism, the furniture industry was virtually untraded by 1960 (see below, Table 7.3). In the new, more open market, some firms

declined or went out of business, some start-ups came into the industry, and the more efficient of the old firms grew. By 1980 a quarter of the output of the Irish industry was being exported (Table 7.3). At the same time the local market became more import penetrated, following the shift to ELG. This intra-industry specialisation is typical of trade development following liberalisation (Jacobson and McDonough 1998). It is explained by the fact that certain types of furniture - not manufactured locally - are popular in the local market, and other types of furniture - manufactured locally - are marketed primarily in the Northern Irish and British markets. A disproportionately large part of the exports have been accounted for by the Monaghan industrial district, and this has been at least in part a consequence of the substantial grant aid received by the Monaghan firms from the development agencies.

Table 7.3 Performance of the furniture industry in Ireland, selected years 1960-1996

	Imports as % of furniture market	Exports as % of output	Exports/ Imports
1960	1.0	6.8	8.00
1973	23.0	8.0	0.29
1980	44.9	24.5	0.40
1985	48.4	31.7	0.50
1990	63.8	54.1	0.67
1996	41.3	35.3	0.77
1998	42.3	28.4	0.54

Sources: CSO, Trade Statistics of Ireland, Division 82; CSO, Census of Industrial Production, various years.

Grant aid to firms was, and still is, conditional upon those firms being exporters. The Monaghan companies - particularly the larger ones - being relatively successful, obtained state support and became the main sources of exports of furniture from Ireland. Enterprise Ireland (whose remit is to focus on the development of indigenous firms) has provided substantial grant aid, particularly to the largest of the Monaghan companies, John E. Coyle. The purpose of the most recent grant package was to assist the firm in developing new processes and products in the modular furniture area, particularly for the British market. These developments have, however, not yet had the expected results in that modular furniture by Coyles has not yet broken into the British market.

In relation to quality and design, it should be pointed out that the main Monaghan products are relatively low-priced reproduction furniture, based on panel material such as MDF (medium density fibreboard). Technology is advanced but not fully utilised due to skill shortages. Innovations are based primarily on small design changes - for example in the colour of the veneers.⁸

Among the important questions are whether there are limits to growth in the Monaghan industrial district, and what if any the relationship is between these limits and industrial agglomeration. In addition, are there opportunities for growth for the Irish furniture industry outside the Monaghan industrial district?

The most recent data suggest the timeliness of such questions. As Table 7.3 shows, in the late 1990s there has been a decline in the proportion of output exported (and in the export-to-import ratio) back to 1980s levels; at the same time, import penetration has remained relatively low. Given the continuing rapid growth of the Irish market it may be that the increase in demand is more than absorbing the local industry's capacity for expansion. Moreover, the Irish market is growing much more rapidly than the target markets abroad, so it would be surprising if there was not a decrease in the proportion of Irish output being exported.

Fundamental questions are timely because the policies appropriate under conditions of stagnation and unemployment may be different from those appropriate under conditions of rapid industrial growth. Just as stagnation shows weaknesses in industrial production systems, so may incapacity to respond rapidly and flexibly to growing markets.

3.2 The TORC Network⁹

A possible alternative (or addition) to the support for existing agglomerations and in particular the successful firms within those agglomerations, is to support firms to develop networks. As mentioned above, the Irish government - through the local development agency - introduced a Pilot Network Programme (PNP) in 1996. The PNP - involving 17 networks and a total of 31 SMEs (small and medium enterprises) - aimed to encourage small firms to co-operate in activities they were unable to undertake individually due to their small scale. The objective of the PNP was to put in place some of the resources needed to facilitate and establish formal networks of the 'Danish' type (Rosenfeld 1996), to help the networks devise joint solutions to common problems and to evaluate the results. The general principles guiding the Pilot phase of the programme were:

1. Networks should consist of at least three firms (SMEs) and not more than eight. A network could include one multinational or large scale Irish firm, or one foreign firm or third level college.
2. Networks could be developed on a sectoral basis, in customer/supplier chains, or in a technology or market sector.
3. The objective of each network should be to create new business or to increase the competitiveness of the firms involved.
4. Once established, the activities to be undertaken by the network would be a matter for agreement among participating firms.

Funding was provided to cover the costs of training network brokers, the participation of Danish experts in the formation of a network, network set-up costs, publicity and management of the programme. A manager and three network brokers were appointed within Enterprise Ireland to run the programme. SMEs were identified for potential inclusion in the programme using a number of sources. Although some of the SMEs had been involved previously in formal or informal co-operation arrangements, they were not selected on that basis.

There were few networks in Ireland prior to the introduction of the PNP and those few were characterised by low levels of interaction. The main benefit of the PNP for SMEs was that it enabled the companies to work together as a team on the strategic development of new business opportunities. Although a high proportion of SMEs are interested in participating in a network programme of longer duration, companies from the same industrial sector frequently have difficulty co-operating because of competitive rivalry between them. Notwithstanding this, and in spite of a weak history of inter-firm co-operation in Ireland, the PNP demonstrated that networking could be advanced by following the 'Danish' model. The use of trained network facilitators was found to be the most important feature of this method.

One network of furniture firms was included in the PNP. Having been set up under this programme, it now continues to grow. It consists of three firms: D.F. Caulfield in Dublin, Castlebrook Furniture and Design in Wicklow and O'Donnell Designs in Cork. Although, Caulfields and Castlebrook are located only 20 miles from each other, they had not previously co-operated in any way and the owners did not know each other personally. In contrast, notwithstanding the 200 mile gap between O'Donnells and the other two companies, the owner of O'Donnells personally knew the owner of Caulfields, and had met the proprietor of Castlebrook on an international trade visit organised by the industrial support agencies. The network operates in the hotel bedroom furniture sub-sector.

All three firms were established in the 1970s or early 1980s, all are small, employing 14 (Caulfields), 25 (Castlebrook) and 30 (O'Donnells) people, and all have been producing hotel bedroom furniture in recent years. As independent entities, the three firms are heavily dependent on the Irish market. A small part of their output is exported primarily to the United Kingdom, with even smaller amounts to Germany, Russia and Estonia.

The network was initiated by Enterprise Ireland, the state agency responsible for indigenous industrial development. First O'Donnells and Caulfields were invited to become involved in the Pilot Network Programme. Following some discussion these two identified a third participant - Castlebrook - which joined the network. Both O'Donnells and Caulfields were aware of this company by reputation alone, particularly in relation to its professionalism and the quality of its work.

The three firms, after participating in the facilitation phase of the network programme, agreed to set up a product development and marketing company as a joint venture, which they registered under the trade name TORC. Following market research, three new hotel bedroom product ranges were designed and copyrighted, promotional material was developed and the products were launched at a London show in December 1998. A part-time manager for the network, who works two/three days a month was appointed and is paid for by the network. There is also a sales manager, who works as an agent and is paid on a commission basis. Each of the three companies has the capability to make the entire product range. As TORC is a product development and marketing firm rather than a production entity, an invitation to tender for business must be passed on to one of the three companies. Which particular company fulfils any particular order depends on availability although there is an understanding that the opportunity to fulfil an order will rotate among the three firms. Whichever particular firm is fulfilling a contract is the one that deals with the customer.

The network members suggested that there were three main reasons for joining the network¹⁰. First, the individual firms had already acknowledged that as separate entities they lacked the required critical mass and resources to enter the United Kingdom hotel furniture market in a significant way. Second, the firms felt that the three companies working together would be able to obtain assistance (grants for marketing, R&D, design etc.) from industrial support agencies that would be unavailable if they applied separately. This was particularly important for access to export markets. Third, there was a common perception among the companies that the recent expansion of the Irish contract furniture market, fuelled by the property boom of the past five years, was reaching its peak and therefore it was prudent to plan for market diversification¹¹. O'Donnells had already begun an in-house programme to focus on the UK and had completed some contracts.

Caulfield's experience outside Ireland was mostly in continental Europe and a particular concern of this company was in the development of marketing tools.

The members of the network meet face to face once a month to monitor progress and ascertain availability for work. One of the first items on the agenda for each meeting is what jobs should be priced, and who should price them. More frequent scheduled physical meetings only arise in exceptional circumstances. However, there is telephone, fax or email contact between the network members two to three times a week.

The network is so far successful, having obtained a number of contracts. The three partners have together developed a strategic plan, have submitted proposals to appropriate agencies for assistance - for example in training¹² - and have gained from each other's experience. The other two, for example, have gained from Castlebrook's experience in outsourcing components. Their activities within TORC represented an increase of 5.5 percent in the firms' total turnover.

All three companies - independently of the TORC network - have had and continue to have significant links with the relevant state and industry institutions. They have all received capital and/or employment grant assistance in the past from Enterprise Ireland or its predecessor. In addition, O'Donnells and Caulfields were involved - with three other Irish firms and a Danish design and marketing company - in a previous network project in the early 1980s. It failed primarily due to downturns in the target markets. All three proprietors have participated in trade visits abroad instigated by various industrial support agencies; most of these visits took place in the mid- to late 1980s. The owners of O'Donnells and Caulfields have also participated in various ways in the development of training and education for the furniture industry.

The current relationships of the TORC network firms with Enterprise Ireland include Caulfields' and O'Donnells' involvement in Company Development projects, the latter having obtained approval for an R&D investment. In addition, O'Donnells is about to start a World-Class Business Cluster initiative with Enterprise Ireland, and Castlebrook has also applied to be involved in this initiative. All three firms are members of the National Furniture Manufacturers Association (NFMA). The proprietors of both O'Donnells and Castlebrook are participating in PLATO¹³ - the Small Business Development network.

This multiplicity of contexts in which the activities of the TORC firms intersect, does not imply an absence of competition. They continue to regard each other as competitors on the Irish market (albeit in slightly different quality and quantity sub-sectors) though they have an informal agreement about the nature of competition. Although the firms' main market is in the

same geographic area, they pursue non-aggressive practices towards each other and, for instance, pass on tender information if they feel it is more appropriate for one of the others. Outside Dublin and the east coast, each of the firms tends to focus on particular areas of the country.

In relation to subcontracting, Castlebrook has been most active. Up to 50 percent of its manufactured content is outsourced, though it controls the finishing process itself. At least two small furniture making enterprises in a 10 mile radius owe the majority of their turnover to component production for Castlebrook. O'Donnells also engages to some extent in subcontracting, obtaining veneered panels from a number of suppliers in different EU countries and semi-processed panels and turned components from two Irish companies, one in Tipperary and one in Wexford, neither spatially proximate as conventionally defined. In addition, the TORC firms have begun to subcontract within the network. O'Donnells has some experience subcontracting for Caulfields, and Castlebrook is doing work for O'Donnells.

Many of these elements of interaction among the three members of TORC suggest comparison with the Monaghan industrial district and industrial districts in general. There is both competition and co-operation, there is a range of organisational settings in which the proprietors of the network firms have interacted, and, not least, there is evidence of learning from each other. An aspect of industrial districts which is missing in the TORC network, but which is fundamental both in Marshall's (1890) original formulation and in the application to 'the Emilian model' (Brusco 1982) is close proximity.

4. THEORETICAL AND POLICY IMPLICATIONS

Industrial agglomeration is a process whereby firms cluster together spatially in order to derive certain benefits. These benefits are external economies - they arise from activities, relationships or developments outside the firm and outside the market (Jacobson et al., forthcoming). They are untraded benefits. In the case of the Monaghan industrial district, for example, the proximity of the many furniture firms in the area is a key factor in their survival, and additional firms have set up there because it is already a concentration of furniture manufacturers. Many of the firms are spin-offs from Coyles; this suggests an element of serendipity - they set up in that place because they already lived there. However, the presence of up- and downstream firms and the availability of an appropriate labour force, are among the factors generating economies of agglomeration. In recent years new firms have been set up in Monaghan by proprietors who have come from other places in Ireland.

Economies of agglomeration are present in the case of the Monaghan industrial district; other externalities - such as the process of learning from each other's differences - have arisen from the shared experiences of the TORC proprietors both within the network and in the state agency and educational organisation contexts. These other externalities are usually associated with industrial agglomeration. Can the firms in the TORC network, even if up to 200 miles apart, be considered to be deriving economies of agglomeration?¹⁴ The spatial limits of economies of agglomeration depend to some extent on the size of the industry, its technology and the nature of the production system, the types of raw materials and sub-assemblies, and the nature of the transport system. It may be that as technologies - especially information and communication technologies - change and transport systems improve, the range within which economies of agglomeration can arise increases. On the other hand, such Marshallian notions as knowledge about an industry being 'in the air' and this resulting in rapid diffusion of innovations, may require the tighter agglomeration of a concentrated and homogeneous labour force.

Arita and McCann (2000) provide some recent econometric evidence on the issue of the spatial limits of agglomeration. They suggest that economies of agglomeration consist of both formal and informal information flows. Based on an examination of industrial alliances in the US semiconductor industry, they provide evidence that the strength of formal information flows is less geographically constrained than may be expected. Specifically, in their study, the strength of formal inter-firm information exchanges does not differ statistically between situations in which the firms are in the same place, and those where they are within one day's return journey by air. This is not to say that there is no distance effect; beyond a one-day return journey by air, increasing geographical distance is indeed associated with a falling intensity in formal information exchanges.

There are important differences between this case and the TORC example. In Arita and McCann's (2000) study, the technology, production and transport systems are quite different to the furniture industry. However, the evidence of a distance effect beyond one day's return journey in the US semiconductor industry, raises the possibility that there may be unexpected distance effects in other industries.

Ironically, this proposition is supported by a recent description of Italian industrial districts. Irrespective of the spatial limits of industrial districts, on which Lazerson and Lorenzoni (1999) are 'agnostic', they show that 'leading firms' in industrial districts forge relationships with other firms, both local and distant, and they suggest that this engenders increasing flexibility in the district's responsiveness to markets. They call for further 'research into the combined effects of geography and relationships on firms'. For our purposes,

these arguments at least lend credence to the contention that the TORC network could be benefiting from economies of agglomeration.

Turning now to the implications for policy, the contrast is between first, the policy of assisting individual companies that have already shown evidence of success, and, second, the policy of encouraging networks. In the last few years the first has been applied in the case of Coyles, with mixed success; Coyles has not yet achieved the expected results. The second has generated the TORC network which, so far, is successful. From a cynical perspective it could be argued that the proprietors of the TORC network have simply behaved as rent seekers. Indeed, from this perspective the very formation of the TORC joint venture could be seen as a consequence of rent seeking. Even if this is the case, however, if the consequence is the development of a successful network that would not otherwise have arisen, then the policy may be justified.

5. CONCLUSION

We have, in this paper, examined the development of the furniture in the context of policy changes, and compared two different forms of industrial organisation in the furniture industry in Ireland. What emerges is that there appears to have been an element of cumulative causation in the relationship between state support and the Monaghan industrial district. As the furniture industry grew in the area, and industrial policy changed to focus to an increasing extent on firms that already had provided evidence of competitiveness - particular in export markets - so the support for Monaghan firms grew. Other than the two-firm Rossmore example, however, there is no evidence of the type of inter-firm networking that has been the basis of the TORC joint venture. In addition, although individually many of the Monaghan firms have had dealings with the state agencies, TORC is a better example of firms being embedded in a rich institutional environment (Granovetter 1985; Grabher 1993). The TORC proprietors, as we have shown, have interacted - and, ultimately, co-operated - in such a wide range of organisational contexts that they have developed a shared perspective on strategy. They are, to use the language of networks, realising their complementarity potential by being compatible (see endnote 10).

While we are hesitant to generalise from the particular examples discussed here, it is at least appropriate to raise questions, such as whether support for individual companies within industrial agglomerations is a strategically correct policy. The organisational integration (Lazonick 1991; Lazonick and West 1995) expressed in the financial commitment of the three TORC companies to the network is not evident among the Monaghan firms. It may

be a factor in the success of the network and may constitute a weakness in the Monaghan industrial district. We would agree with Lazerson and Lorenzoni's (1999) cautious conclusion: 'Although we have no evidence, it is very likely that an individual firm's survival is very much connected to the relationships it has forged with other firms'. This should, arguably, be recognised in all industrial policies.

REFERENCES

- Arita, T. and P. McCann (2000), 'Industrial alliances and firm location behaviour: some evidence from the US semiconductor industry', *Applied Economics*, **32**, pp. 1391-1403.
- Barry, F. and J. Bradley (1997), 'FDI and trade: the Irish host-country experience', *Economic Journal*, **107**, pp. 1798-1811.
- Best, M.H. (1990), *The New Competition*, Cambridge: Polity Press.
- Brusco, S. (1982), 'The Emilian model: productive decentralization and social integration', *Cambridge Journal of Economics*, **6**, pp. 167-184.
- Culliton, J. (1992), *A Time for Change: Industrial Policy for the 1990s*, Report of the industrial policy review group, Dublin: Stationery Office.
- Economides, N. (1996), 'The Economics of Networks', *International Journal of Industrial Organization*, **14** (6), pp. 673-699.
- Grabher, G. (ed.) (1993), *The Embedded Firm: On the Socioeconomics of Industrial Networks*, London: Routledge.
- Granovetter, M. (1985), 'Economic action and social structure: the problem of embeddedness', *American Journal of Sociology*, **91** (3).
- Jacobson, D. and Z. Mottiar (1999), 'Globalization and modes of interaction in two sub-sectors in Ireland', *European Planning Studies*, **7** (4), pp. 229-245.
- Jacobson, D. and T. McDonough (1998), 'International trade and european integration', in Eamon O'Shea and Michael Keane (eds), *Core Issues in European Integration*, Dublin: Oak Tree Press.
- Jacobson, D. and D. O'Sullivan (1994), 'Analysing an industry in change: the Irish software manual printing industry', *New Technology, Work and Employment*, **9** (2), pp. 103-114.
- Jacobson, D., K. Heanue and C. van Egeraat (forthcoming), 'Industrial agglomeration' in W. Lazonick (ed.), *IEBM: Handbook of Economics*, London: Thomson.
- Lazerson, M.H. and G. Lorenzoni (1999), 'The firms that feed industrial districts: a return to the Italian source', *Industrial and Corporate Change*, **8** (2), pp.235-266.
- Lazonick, W. (1991), *Business Organization and the Myth of the Market Economy*, Cambridge: CUP.

- Lazonick, W. and J. West (1995), 'Organizational integration and competitive advantage: explaining strategy and performance in American industry', *Industrial and Corporate Change*, 4 (2), pp. 229-270.
- Mottiar, Z. (1997), *Industrial Districts and Industrial Clusters Compared: Applications to Ireland*, Unpublished PhD thesis, Dublin City University.
- NESC (1996), *Networking for Competitive Advantage*, Report No. 100, Dublin: National Economic and Social Council.
- O'Hearn, D. (1998), *Inside the Celtic Tiger*, London: Pluto Press.
- O'Malley, E. (1985), 'The performance of Irish indigenous industry: some lessons for the 1980s', in J. Fitzpatrick and J. Kelly (eds), *Perspectives on Irish Industry*, Dublin: IMI.
- O'Malley, E. (1998), 'The revival of Irish indigenous industry 1987-1997', Economic and Social Research Institute Seminar paper, Dublin.
- Porter, M.E. (1990), *The Competitive Advantage of Nations*, London and Basingstoke: Macmillan.
- Rosenfeld, S. (1996), 'Does cooperation enhance competitiveness? Assessing the impacts of inter-firm collaboration', *Research Policy*, 25, pp.247-263.
- Sweeney, P. (1999), *The Celtic Tiger: Ireland's Continuing Economic Miracle*, Dublin: Oak Tree Press.
- STIAC (1995), *Making knowledge work for us*, Report of the Science, Technology and Innovation Advisory Council, Dublin: Stationery Office.
- Telesis (1982), *A Review of Industrial Policy*, NESC Report No. 64, Dublin: NESC.
- White Paper on Industrial Policy* (1984), Dublin: Stationery Office.

NOTES

1. NACE is the Eurostat 'activity nomenclature', or system for classifying industrial activity.
2. The increase after 1991 is based primarily on wooden furniture production; metal and plastics as a proportion of total furniture in fact declines from 25 per cent in 1995 to 21 per cent in 1998.
3. Jacobson and O'Sullivan (1994) on printing and Jacobson and Mottiar (1999) on furniture and printing are among the exceptions.
4. Torc is the Irish word for a twisted metal necklace or armband in Celtic design.
5. The Pilot Network Programme is discussed in detail in section 3.2 below.
6. The material on the furniture industrial district is based on Mottiar, 1997.
7. On the importance of the presence of both competition and co-operation see Best, 1990.
8. There is also a small number of firms producing solid, hard wood products, including bar counters manufactured and exported for Irish pubs all over the world.
9. The information in this section was obtained from interviews during July and October 1999 with the three furniture firms in the TORC network, the Manager

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- of the Pilot Network Programme from Enterprise Ireland and the TORC network manager.
10. These reasons are all consistent with the idea in network theory (see Economides, 1996) that there is complementarity among the partners that generates externalities in production networks. For TORC to be a network, as defined in theory, there must be greater profit through working together than there would be if the three firms operated individually. However, to realise the externalities, the partners must also be compatible. The extent to which the partners in a network are compatible can often only be shown over time.
 11. Note that the network was formed in 1997/8. The most recent information available on the growth of the industry is presented in Tables 1 and 3 above. However, it is clear that the building boom continued beyond the TORC firms' expectations.
 12. Under the government and EU-funded SKILLNETS programme
 13. PLATO supports owner-managers of SMEs to develop their management skills facilitated by leading local companies. To date, approximately 980 small companies and over 90 of Ireland's leading firms are involved in PLATO networks across Ireland.
 14. At the workshop in Jerusalem at which the first draft of this paper was presented, an American participant considered 200 miles to be well within the range for industrial agglomeration while a British participant expressed the view that much smaller distances were required for industrial agglomeration.