

The Comparative Performance of Small Manufacturing Companies Located in the Mid West and Northern Ireland

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Abstract: Specific dimensions of the performance and characteristics of a matched sample of small manufacturing firms in the Mid West of Ireland and Northern Ireland are compared. The analysis examines comparative growth rates, markets, price and non-price competitiveness, premises, machinery, labour and productivity. Findings are contrasted with earlier comparisons of the two parts of Ireland with British mainland regions.

I INTRODUCTION

This paper is one of a series comparing the performance, characteristics, and problems affecting small firms located in peripheral regions of Britain and Ireland. The object is to isolate and assess the importance of locational disadvantages arising from manufacturing in peripheral regions (e.g., higher transport costs to distribute to wider markets) with the aim of identifying how those disadvantages constrain the growth of firms, and thereby suggest policy initiatives which may be taken by Development Agencies to remove constraints. Comparisons of performance and recommendations take account of

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existing grants and other assistance made available by Agencies to remove constraints and encourage employment growth in these locations. In this paper samples of companies in two parts of Ireland, the Mid West and Northern Ireland are contrasted. Those regions share both similar geographic remoteness and generous small firms development agencies. The approach uses a sample design based on matching pairs of firms (Daly, Hitchens, Wagner, 1984; O'Farrell and Hitchens, 1988b, Peck, 1985) in Northern Ireland and the Mid West region of Ireland and by comparing markets served, machinery used, labour force characteristics, quality and price competitiveness of products seeks to isolate their impact on company performance measured by firm growth rates.

II CONCEPTUAL ISSUES

Mason and Harrison (1985, pp. 4-51) have identified the "need for some detailed studies of the . . . role and growth of new and small firms in contrasting regional environments" and have called for "an examination of the locational and structural characteristics of 'successful' small firms". They have also argued that whereas there is now substantial research on the new firm formation process, equivalent research on the relative performance of small firms in different regions is virtually non-existent (Mason and Harrison, 1985, p. 5).

The local milieu may be an important influence upon the prospects for small firm growth and expansion: growth impediments are likely to vary in nature and scale between different regions. Venture capital availability is more limited in peripheral areas due to the centralisation of the lending institutions and the distorted perception of risk by banks. Lower rates of economic growth and lower levels of income inhibit the opportunities for small firm expansion based upon local and regional markets; and small firms in the periphery may face less severe competition than those in core regions.

Small firms in peripheral regions also suffer technical impediments to growth reflected in lower rates of innovation compared with similar sized firms in core regions (Oakley, Thwaites and Nash, 1982). Labour supply bottlenecks – especially shortages of apprentice-trained craftsmen and managerial staff – vary between regional and sub-regional economies and may be a serious constraint upon growth. Del Monte and Giannola (1986, p. 286) have also argued that one of the major impediments to the expansion of small firms in peripheral regions is that the process of division of labour is constrained primarily through a restricted supply of organisational and managerial skills.

As a firm grows it will need to change its organisational structure for which it needs to employ the right people to implement the change. If the firm is

not able to obtain the appropriate people because the skills are not available in the area it will not change its organisational structure and therefore its growth will be retarded. Del Monte and Giannola (1986, p. 286) also suggest that firms in less prosperous areas will be more vertically integrated than those in developed regions and that this lack of specialisation reduces the competitiveness and growth of local firms. Hence policies aimed at providing regional development grants and soft loans will in themselves not address impediments arising from supply-side shortages of appropriate skilled workers and management.

Fothergill *et al.*, having reviewed the evidence on industrial costs and profitability, concluded that, although costs of labour and raw materials do not vary between urban and rural locations, the profitability of manufacturing firms in conurbations (except London) is below the levels observed in their surrounding hinterlands. They suggest that inadequate premises in cities impair operating efficiency and are the most probable cause of lower profits in the conurbations.

Small independent firms are less well equipped than multi-plant organisations to anticipate and avoid impediments and also to resolve them: not only are their own problem-solving resources fewer, but their limited management capacity may also constrain their access to external public and private resources; while these latter resources may also be more scarce and of lower quality in peripheral areas. Such environmental impediments may impact differentially upon various kinds of business.

At present an adequate explanatory framework within which to analyse the growth of the small owner-managed manufacturing enterprise has not been developed (O'Farrell and Hitchens, 1988a). We are still seeking a theory which will simultaneously explain the infrequency of the phenomenon and account for the major processes underlying growth and we argue that this crucially depends upon the competitive framework and the firm's ability to foresee and adjust to competition.

Florence (1953, pp. 64-65) wrote that "Many small firms survive because they give the precise and reliable service required by customers, particularly in jobbing for producer customers . . . They promise firm delivery dates . . . and keep their promise: they produce the exact unstandard quality and design (usually unreasonably) required." It appears that Florence, among many others, tended to implicitly assume that small firms are able to manufacture to the precise design, quality and price required in specific market segments. The research evidence presented in this paper suggests that such an assumption is unjustified and that inadequate design, poor quality and lack of price competitiveness are major factors constraining the growth and threatening the survival of many small firms.

The key argument of this paper is that a major reason (possibly the most

important one) why most small firms close or fail to expand is that they are manufacturing products that the market does not want, i.e., they frequently do not optimise the price/quality relationship for the segment(s) of the market towards which their product(s) are targeted.

III METHOD AND SAMPLING FRAME

Analyses are based on a sample of 36 Northern Irish firms and 27 Mid West companies operating in four manufacturing sectors – engineering, furniture, clothing and miscellaneous trades. Northern Ireland firms were sampled first and matched at the second stage with firms randomly selected in the Mid West. A mix of 27 different industrial activities are involved. In a number of cases (and especially in the engineering sector) the industrial activity is represented by more than one company in Northern Ireland matched with a single counterpart in the Mid West (an imbalance, in part, reflecting differences in the size of the industrial base in the two parts of Ireland). Matching has been as close as possible with respect to product description, employment size category, and broad age group. The choice of industries incorporates a broad cross section of manufacturing techniques and skills while the selection of firms making essentially tradable products ensures that their growth is not wholly constrained by local or regional demand.

Table 1 sets out those trades in which the 63 companies have been matched, and upon which the following analysis and discussions are based.

Table 1: *Number of Firms Matched by Trade*

| | <i>Northern Ireland</i> | <i>Mid West</i> |
|-----------------------|-------------------------|-----------------|
| Precision Engineering | 11 | 6 |
| Castings | 3 | 2 |
| Other Engineering | 4 | 4 |
| All Engineering | 18 | 12 |
| Clothing | 9 | 8 |
| Knitwear | 3 | 2 |
| All Clothing | 12 | 10 |
| Furniture | 4 | 3 |
| Miscellaneous | 2 | 2 |
| | 36 | 27 |

IV ANALYSIS

Small Firm Growth

The central question addressed by the research is how does the firm's location influence its performance. Table 2 compares one aspect of firm performance between the two regional samples: the growth of firms over the period 1982 to 1986/7. The table presents four measures of growth: Part A shows growth in employment and in real sales,¹ while Part B of the table shows the percentages of firms reporting growth in employment and real sales. The numbers of companies included in these measures differs according to whether satisfactory employment and/or sales data were reported. The table shows that measured either by growth achieved (Part A) or the percentage of firms reporting growth (Part B), Mid West firms in all sectors outperformed their Northern Irish counterparts.²

Table 2: *Small Firm Growth*

| Part A: Percentage growth in sample companies 1982-1986/7 | | | | |
|---|--------------------------|-----------------|--------------------------|-----------------|
| | <i>Employment Growth</i> | | <i>Real Sales Growth</i> | |
| | <i>North</i> | <i>Mid West</i> | <i>North</i> | <i>Mid West</i> |
| Engineering | -8.5 | 48 | 40 | 79 |
| Clothing | 19 | 99 | 32 | 110 |
| Furniture and Miscellaneous | -34(26)* | 48 | 34 | 140 |
| All sectors | -22(6)* | 61 | | |
| Number of firms | 28 | 27 | 33 | 27 |
| Average size of firm (employees) | 24 | 18 | | |

| Part B: Per cent of companies sampled reporting growth in: | | | | |
|--|-------------------|-----------------|-------------------|-----------------|
| | <i>Employment</i> | | <i>Real Sales</i> | |
| | <i>North</i> | <i>Mid West</i> | <i>North</i> | <i>Mid West</i> |
| Engineering | 35 | 67 | 61 | 75 |
| Clothing | 33 | 90 | 67 | 89 |
| Furniture and Miscellaneous | 38 | 80 | 44 | 100 |
| All sectors | 39 | 78 | 58 | 81 |
| Number of firms | 28 | 27 | 33 | 27 |

*When exceptionally high negative growth rates reported by two firms are *excluded from the sample recalculations are shown in parentheses.*

1. Deflated by official British and Irish producer price indices.

2. Northern Irish firms were interviewed in 1986 and Mid West firms in 1986/7 while growth was recorded from 1982 (for those firms in existence from that date). In principle Mid West firms had longer to grow, however, a glance at the figure shown in Table 2 indicates that the factor is not of importance.

The average size and age of companies in the Northern Irish sample differs from that of the Mid West firms. On average the Northern Ireland firm employed 25 persons while in the Mid West 18 persons were engaged, and all but one of the Mid West firms was formed since 1970 compared with two thirds of the Northern Irish companies. Both these factors, company age and size affect the interpretation of the growth rates shown in Table 2. A separate calculation allowing for differences in age and size of firm indicated that those factors do not influence the interpretation of the table.

The remainder of the paper examines markets served, product competitiveness, and the qualities of plant, machinery and labour engaged at factories in these two parts of Ireland.

Markets Served

The growth of firms is partially dependent upon access to suitable markets, one aspect of which is geographic. Neither Northern Ireland nor the Mid West are at the centre of industrial concentrations within the British Isles and the question arises as to how that separation affects growth. Table 3 sets out the geographic extent of the markets served by the firms in the two regions. It shows that on average Northern Irish firms are more dependent on the regional market while there is a similar dependence on the local market. There are variations between sectors, in engineering Mid West companies are more

Table 3: *Geographic Structure of Small Firm Markets: Percentages of Sales to Local, Regional and Export Markets*

| | <i>Local*</i> | | <i>Regional**</i> | | <i>"Exports and GB***"</i> | |
|---------------|---------------|-----------|-------------------|-----------|----------------------------|-----------|
| | <i>NI</i> | <i>MW</i> | <i>NI</i> | <i>MW</i> | <i>NI</i> | <i>MW</i> |
| Engineering | 39 | 61 | 73 | 70 | 27 | 9 |
| Clothing | 15 | 13 | 37 | 20 | 63 | 38 |
| Furniture | 70 | 48 | 100 | 63 | 0 | 5 |
| Other trade 1 | 0 | 33 | 5 | 67 | 95 | 20 |
| 2 | 44 | 10 | 95 | 33 | 5 | 67 |
| All | 34 | 38 | 63 | 53 | 37 | 22 |
| Sample size | 34 | 26 | | | | |

*Local includes sales within 20 miles of the factory.

**Regional is defined as within the Mid West and within NI.

***N. Irish sales to GB are included with exports in this column.

Note: Figures show the percentages of total sales in each trade sold at various distances. Regional Sales include local sales. Percentages shown under "regional" and "exports and GB" sum to 100 in the case of NI small firm sales. Companies in the Mid West also sell to extra regional Republic of Ireland markets, shown in Table 4, hence for MW firms "regional" plus "exports and GB" plus "extra regional Irish Trade" sum to 100.

Table 4: *Exports and Extra Regional Trade*
(percentages of sales volume)

| | <i>Extra Regional Irish Trade</i> | | <i>Trade With GB</i> | | <i>Exports Outside British Isles</i> | |
|-----------------|---------------------------------------|-----------|--------------------------|-----------|--|-----------|
| | <i>NI</i> | <i>MW</i> | <i>NI</i> | <i>MW</i> | <i>NI</i> | <i>MW</i> |
| Engineering | 2 | 21 | 21 | 5 | 4 | 4 |
| Clothing | 4 | 42 | 45 | 24 | 14 | 14 |
| Furniture | 0 | 32 | 0 | 5 | 0 | 0 |
| Other 1 | 37 | 13 | 54 | 20 | 4 | 0 |
| 2 | 5 | 0 | 0 | 0 | 0 | 67 |
| All | 4 | 25 | 27 | 12 | 7 | 9 |
| Number of firms | 11 | 19 | 12 | 7 | 6 | 7 |

dependent on local buyers, while in clothing and furniture trades Northern Irish companies are more dependent on regional custom.

Table 4 analyses the firms' extra regional sales in three categories: trade within Ireland as a whole, with GB, and exports outside the British Isles. It shows that on average the Mid West companies depend more for their custom upon Ireland while Northern Irish companies sell more to GB. Export sales accounted for a broadly similar proportion of total sales from the two regions undertaken by a similar proportion of companies (23%). They included a large number of Mid West products sold to the comparatively soft Irish-American market. The geographical spread also reflects the source of the growth of the Mid West firms, with the majority of companies reporting no material change in the extent of their markets over the last five years. Only 15 per cent of firms visited attributed growth to entry into GB, Northern Ireland and US markets. In the majority of cases no change was recorded with, for example, engineering companies dependent for growth on local multinationals. Thirty-seven per cent of the Northern Irish sample recorded a change in the geographic extent of their markets, in half the cases a decline in overseas or GB markets was experienced and the remainder attributed their growth to entry or greater penetration of principally overseas exports or ROI markets. The net result of those changes as presented in Table 3 indicates a similar dependence for custom on home markets.

Such a dependence was not considered a constraint on future growth by Mid West firms. They were optimistic and only a quarter of firms sampled believed there to be a market constraint on their future growth compared with half their Northern Ireland counterparts. The Northern Ireland shortfall occurred in all sectors but was greatest in the furniture and engineering trades. That Northern Irish pessimism was expressed despite the fact that 40 per cent of firms sampled, compared with 44 per cent in the Mid West, took active steps to develop their businesses by introducing new products, new tech-

niques or by entering new markets. In general, engineering companies effected changes in techniques while clothing firms changed designs and tried to establish new markets. The net result of these changes was an increase in employment of 72 per cent at the Mid West companies and one of just 14 per cent at the Northern Irish firms.

Transport Costs

Table 5 examines the importance of transport costs in selling to wider markets as a possible explanation for the regional concentration of sales found in the two parts of Ireland (a concentration which is greater than that typical of two regions in Britain – South Wales and Scotland: Hitchens and O'Farrell, 1987; O'Farrell and Hitchens, 1988.) The percentages shown are costs incurred in reaching major extra regional markets, which in the main are distant Irish markets from the Mid West and GB markets from Northern Ireland. The figures indicate that transport costs expressed as a percentage of the value of goods sold are similar and small.

Table 5: *Transport Costs to Major Markets Outside the Region*
(percentages of the sales value of goods sold)

| | <i>NI</i> | <i>MW</i> |
|-------------|-----------|-----------|
| Engineering | 1.3 | 1.2 |
| Clothing | 2.3 | 1.8 |
| Furniture | 5.0* | 6.1 |
| Other | 3.0 | 2.3 |
| Sample size | 12 | 17 |

Note: Percentages for Northern Ireland refer to costs incurred in transport to a mainland market, while MW figures are quoted for Irish markets outside the MW.

*Transport costs to Dublin.

Where, as in a few cases, comparisons were possible of transport costs to mainland British destinations those incurred by Mid West (engineering and clothing) companies were about double those quoted by Northern Irish proprietors.

Comparatively few logistic problems of supplying customers at a distance were mentioned by Mid West proprietors, perhaps because less was being sold beyond Ireland, the main difficulty where it was said to occur involved completing the required export documentation, and "difficulty of breaking into" the British market.

Northern Irish engineering proprietors complained of difficulties with customer liaison with regard especially to queries arising over drawings, in

the other trades problems with the *ease* of delivery of products (including theft in transit) and *ease* of access to customers were cited.

About one-third of Northern Irish companies and one-seventh of their Mid West counterparts were involved with North-South trade. Three Mid West firms claimed to have encountered some resistance by buyers in Northern Ireland to purchasing products manufactured in the Republic of Ireland while Northern Irish companies were more concerned with the risks involved in giving credit to companies in the Republic, and although bad debts were not a problem reported by proprietors in the Mid West, slow (90 day) payment was said not to be uncommon.

Raw Materials

Problems arising from the need to import raw materials was a more particular worry for Mid West proprietors especially as regards delays, lack of choice and the effect on cash flow of the need to pay VAT at "point of entry". This problem was intensified, it was said, by the poor quality of materials available at home. Specific mention was made of the poor yarn, wool, packaging, brochures, bottles, dyeing, chipboard, etc., often quoted apologetically as good reasons for not "buying Irish".

The delivery charge was often included in the cost of items imported but where they were quoted separately by Mid West firms, were found to be higher than comparable delivery charges reported in Northern Ireland. However, in engineering such costs were said to be "irrelevant" in relation to the cost of the component made.

Most Northern Irish firms sourced from outside the Province complained similarly of consequent problems arising from a lack of choice and difficulties in obtaining "odd ball" materials. A comparison of the delivered prices of 11 inputs to Northern Irish firms indicated that they paid no price premium over their South East England counterparts (Hitchens and O'Farrell, 1987).

Achieving repairs presented more problems to Mid West firms. Engineering companies complained of the need to use British service agents to repair complex machinery, and that their remoteness implied a high repair charge. This was in contrast to the experience of Northern Ireland companies who used local firms to repair their (mainly computer numerically controlled, CNC) machinery.

Marketing

Active marketing techniques including the use of agents, salesmen, and advertising (other than Yellow or Golden pages) were said to be adopted by 62 per cent of companies in the Mid West compared with 37 per cent of their matched Northern Irish counterparts, where recommendations and word of

mouth were more likely to be relied upon. Mid West firms had the additional advantage over and above their Northern Irish counterparts of a possibility of inclusion in the National Linkages Programme.

Product Price and Quality Comparisons

We examined the quality and price competitiveness of products produced by firms in the Mid West and in Northern Ireland. The method of testing involved asking the proprietor of a matched company to evaluate and price the product made by his counterpart in another region. In practice the research procedure involves showing several samples made by firms in different regions of Britain and Ireland to each businessman. This method has the advantage of preserving the anonymity of the region in question. Several firms in each region evaluated and quoted a price on the product made in the other region. In general, the quality assessments were highly consistent while price quotations were subject to somewhat greater variation.

Price and quality evaluations of products were sought from both mainland British producers and producers in Ireland. In this section multiregional comparisons are made to analyse the central question of price and quality competitiveness within a wider British Isles context. Results of comparisons made between Northern Ireland and South Wales (Hitchens and O'Farrell, 1987) and the Mid West and Scotland (O'Farrell and Hitchens, 1988c) are drawn upon. Price and especially quality competitiveness are critical to selling on wider British markets. Table 6 summarises the results; it shows in Part A price

Table 6: *Evaluation of Price and Quality of Products Made by Firms in Northern Ireland and the Mid West*

| <i>Part A Evaluation by Mainland Companies</i> | | | | |
|--|-----------------------|-----------------------|--------------------|------------------------------|
| <i>Products</i> | <i>Product Source</i> | <i>% Poor Quality</i> | <i>% Expensive</i> | <i>Number of Evaluations</i> |
| Engineering | NI | 82 | 67 | 21 |
| | MW | 40 | 65 | 59 |
| Clothing | NI | 92 | 40 | 25 |
| | MW | 40 | 71 | 35 |
| <i>Part B Evaluation by Irish Companies</i> | | | | |
| Engineering | NI | 46 | 56 | 16 |
| | MW | 30 | 71 | 23 |
| Clothing | NI | 50 | 50* | 19 |
| | MW | 47 | — | 18 |

*Confined to 6 price quotations on locally sold products.

and quality evaluations of Northern Irish and Mid West products made by respectively their Welsh and Scottish counterparts. Part B is confined to evaluations by firms in the two parts of Ireland.

The normal procedure when evaluating differences in the quality and price performance of matched firms in two regions would be to employ a sign test (O'Farrell and Hitchens, 1988b) with the probabilities associated with observed counts determined by reference to the binomial distribution. It is not appropriate to apply this test to the Northern Ireland Mid West comparison since the Mid West products were not judged by matched firms in Northern Ireland but by larger competitive enterprises (see below). However, in the Northern Ireland/South Wales comparison, Hitchens and O'Farrell (1988) showed that there were significant differences at the $P < 0.01$ levels in the quality of both engineering and clothing products manufactured.

Price and Quality Evaluations made by British Mainland Producers

Part A of the table shows that Irish suppliers of engineering products are comparatively expensive irrespective of whether they are sourced in the Mid West or Northern Ireland as judged by the quotations made on their sample products by matched Welsh and Scottish engineering companies. About two-thirds of the prices actually charged by the Irish companies are above the quotations made by counterpart Mainland companies. A current exchange rate of IR£ = £0.92 is used as a basis for comparison although the price quotations are not particularly sensitive to alternative rates (O'Farrell and Hitchens, 1988). Northern Irish clothing was found to be comparatively more price competitive when judged by Welsh manufacturers while clothing from the Republic is more expensive as judged by matched Scottish firms.

A similar exercise was conducted on product quality and Part A of the table shows that in 40 per cent of evaluations Mid West engineering and clothing products were not worked on to the same standard as their Scottish counterparts and the proprietor of the matched mainland company would note a deficiency in the sample which would not be considered representative of work carried out on his shopfloor. Northern Irish products were criticised for the same reason in 82 per cent and 92 per cent of product evaluations in the two industries (by the Welsh mainland counterparts), i.e. double the proportion of times of those of their Mid West counterparts.

Price and Quality Evaluations Made by Firms in N. Ireland and the Mid West

The indications of a lack of price and quality competitiveness of products manufactured by sample firms in Northern Ireland and the Mid West as judged by British mainland small firm owners raises the question of the value which can be placed on the judgement of proprietors in the two parts of Ireland, especially with regard to quality competitiveness (the importance of which

has been stressed in earlier papers (Hitchens and O'Farrell, 1987; O'Farrell and Hitchens, 1988c)). Clearly the quality judgements especially of the Northern Irish companies sampled are likely to be especially unreliable given our findings³ and a decision was taken to have Mid West products assessed by larger fully competitive firms in Northern Ireland producing exclusively for multi-regional markets. Table 6b shows that the price and quality assessments made by those firms are consistent with the evaluations made by British mainland companies, namely that 30 per cent and 47 per cent of engineering and clothing products were judged of poor quality and 71 per cent of engineering products were uncompetitive on price. Businessmen were reluctant to quote a price, in either part of Ireland, on clothing products especially where there were differences in fabric, style or fit even though the product itself, e.g., youths' trousers was well matched.

Mid West sample companies were shown Northern Irish products and their assessments must be interpreted in the light of the judgements made of their own products shown in Part A of the table. Hence the quality assessments of the Northern Irish engineering and clothing products at 46 per cent and 50 per cent, considered of poor quality, is below the proportion criticised by British mainland producers reflecting the fact that 40 per cent of Mid West products were also criticised by British mainland producers. The price quotations made on Northern Irish engineering products indicated that 56 per cent were uncompetitive on price which is consistent with neither region being competitive within the wider context of the British mainland market.

What was the nature of the criticisms on quality? In most cases the problem indicated was one of poor workmanship as a consequence of a lack of skill or supervision and of poor finish especially with regard to attention to detail. In the main an examination for fundamental problems, for example by measurement of engineering pieces, could not be made without reference to the original detailed drawings, nor were clothing products measured for size or "fit", or electronic components tested. Products were visually inspected.

Premises, Machinery and Labour Force Comparisons

We examined the comparative cost and quality of the firm's main assets: its buildings, machinery and labour. These are considered below.

Buildings and Machinery: Several features of factory premises were compared. Column 1 of Table 7 shows that square feet of space available to each person employed in the business was greater in Northern Ireland than the Mid West, and except in the case of the furniture sector large differences were

3. While the table focuses on judgements made by Welsh proprietors about Northern Ireland products similar comments have been made by matched producers in East Anglia and Scotland.

Table 7: *Characteristics of Premises*

| <i>Trade</i> | <i>NI/MW Ratios of:</i> | | | |
|--------------|---|-----------|--|-----------|
| | <i>Factory Space per Person Engaged</i> | | <i>Rent and* Rates per Square Foot</i> | |
| Engineering | 1.44 | | 0.37 | |
| Clothing | 1.80 | | 0.30 | |
| Furniture | 1.07 | | ** | |
| Other | 1.86 | | 0.37 | |
| | <i>NI</i> | <i>MW</i> | <i>NI</i> | <i>MW</i> |
| Sample size | 36 | 27 | 16 | 20 |

*IR£=£0.92.

**All owned in Mid West.

recorded. Seventy-six per cent of this sample of Mid West factories was rented compared with 55 per cent in Northern Ireland. Two-fifths of Northern Irish proprietors complained about the condition of their premises especially with regard to their age, repair and maintenance compared with many fewer – 15 per cent in the Mid West sample.

Column 2 of the table indicates that rent and rates paid in Northern Ireland are considerably lower per square foot of space than in the Mid West (a result which is insensitive to alternative exchange rates), and while Northern Irish companies were at a cost advantage in this respect relative to mainland companies Mid West rent and rates were found to be no greater than those paid in GB.

Machinery and Equipment

We asked proprietors to state the age of their machinery and to itemise that equipment which was technologically most up to date. Table 8 makes a comparison of the vintages of machinery at the businesses in each Irish region.

It shows that in the engineering, clothing and miscellaneous trades the proportion of machines under 5 years old is similar in the two regions, while in the furniture trade Mid West firms had comparatively younger machines (and with the exception of the clothing trades Mid West companies also have more machinery which is under 10 years old).

Comparisons of technologically up to date (computerised) equipment showed more CNCs in engineering in Northern Ireland: on average one such machine was available to 4.5 persons engaged in the business compared with one for every 13 persons at the matched Mid West engineering plants. In clothing too Ulster firms were found to have more computerised machinery than their Mid West counterparts.

Table 8: *Vintage of Machinery*

| | <i>Northern Ireland</i> | | <i>Mid West</i> | |
|---|-------------------------------|---------------------------|--------------------------|---------------------------|
| | <i>(per cent of machines)</i> | | | |
| | <i>Under 5 Years</i> | <i>Under 10 Years</i> | <i>Under 5 Years</i> | <i>Under 10 Years</i> |
| Engineering | 36 | 48 | 38 | 66 |
| Clothing | 61 | 94 | 56 | 64 |
| Furniture | 38 | 55 | 68 | 80 |
| Miscellaneous | 70 | 70 | 87 | 100 |
| Number of firms with machines under stated age | 30 | 32 | 21 | 23 |
| Sample size | NI: 34 | MW: 26 | | |

A comparison was made of the additional employment enjoyed by Mid West and Northern Ireland engineering companies investing in new techniques (essentially CNC); it indicated an employment growth of 66 per cent at the Mid West firms compared with minus 8 per cent at comparable Northern Irish engineering companies.

The availability of generous levels of grant aid was the main explanation for the modern equipment found at both the Mid West and Northern Irish companies. Three-quarters of companies in the Mid West received capital grants on new investment of between 45 and 60 per cent, and while all but 12 per cent of companies in the Northern Irish sample received capital grants, 54 per cent of them received the more generous Selective Financial Assistance. Half the Mid West companies would not have purchased some of that machinery in the absence of grants and in Northern Ireland too many purchases would not have been made, without the assistance, but in Northern Ireland alone no association was found between business growth and the acquisition of modern equipment.

Labour

We compared the cost of labour, productivity and a number of qualitative characteristics of the labour force employed at the companies in the two regions. The results of this comparison help identify reasons for the lack of competitiveness of products and the better growth performance of Mid West companies relative to their Northern Ireland counterparts.

Pay, Skills and Training

Table 9 shows the ratio of wages paid in each broad sector based on identical grades of labour employed at the matched plants: skilled toolmakers, machinists, semi-skilled persons, etc. The table shows that in the engineering

Table 9: *Comparative Wages Paid by Sector*

| <i>Ratio MW/NI</i> | |
|--------------------|--------------|
| Engineering | 1.39 |
| Clothing | 1.15 |
| Furniture | 0.96 |
| Other | 1.00-1.20 |
| Sample size | NI: 32 MW:24 |

Note: An exchange rate of IR£1 = £0.92 is taken. Ulster wages have been raised by official indices to align times of interview.

and clothing sectors wages paid are higher in the Mid West while in the furniture and miscellaneous trades pay ranged from near equality with Northern Ireland to 20 per cent above the Northern Irish rate.

The proportion of persons designated skilled differed slightly between the matched pairs. Some 12 per cent of the labour force were trainees at Mid West factories compared with 10 per cent in Northern Ireland. In both regions the availability of training grants is an important incentive to train and incidentally provide a source of cheaper labour. Seventy per cent of Mid West companies were in receipt of training grants at the time of the interview.

Recruitment, Turnover and Absenteeism

Difficulties in recruiting suitable persons were mentioned in both samples, with "willingness to work" a problem which particularly affected Northern Ireland companies. Specific mention of a deficiency in the underlying education and training of recruits was made by a number of Mid West engineering companies, especially with regard to computer training (for CNC). The quality of teaching on AnCO courses was questioned while in Northern Ireland too, criticism was levelled at the quality of instruction carried out at Government Training Centres.

Skill shortages were found, on average, to be less acute in the Mid West where 14 per cent of companies reported a problem compared with 24 per cent of their Northern Irish counterparts. There were sectoral differences in the numbers reporting difficulties: in Northern Ireland engineering companies were particularly affected – reflecting differences in the numbers of apprentices being trained – while in the Mid West a more acute shortage was found at clothing factories, a consequence of their faster growth. In addition, a number of firms in both regions reported difficulties in attracting suitably qualified management.

Labour turnover was higher, averaging 16 per cent at the Northern Irish companies and just half that, 8 per cent, in the Mid West. Twice as many

Northern Irish companies (26 per cent) quoted labour turnover rates in excess of 20 per cent while more than two-fifths reported an annual rate exceeding 10 per cent, compared with 27 per cent of their Mid West counterparts. High turnover rates were concentrated in the clothing and furniture trades.

Absenteeism was a problem facing a tenth of Northern Irish (mainly clothing) factories and in those cases it was measured to exceed 10 per cent of available days lost. No problems of excessive absenteeism were reported by Mid West proprietors where 44 per cent of companies compared with 52 per cent in Northern Ireland claimed that numbers of days lost were either negligible or "unmeasurable". No Mid West proprietor complained of poor time-keeping compared with three owners in the Northern Irish sample.

Labour Force Difficulties

Problems arising from an unsatisfactory level of skill employed on the shop floor were identified by about a quarter of Northern Ireland proprietors and were evidenced by high scrap rates, inability of employees to "do the job" and "carelessness". Those problems were especially concentrated in the engineering sector. Only one precision engineer in the Mid West reported low standards of skilled personnel and a lack of computer expertise for CNC but the reports made on Mid West products by British manufacturers (listed above) imply a skill, training or supervisory deficiency in the Mid West (albeit not as great as that suggested by the Northern Ireland products). It was also implied by the way Mid West managers were uncritical of products shown them which were thought defective by their British counterparts.

Labour force difficulties arising from a poor attitude to the job was recognised by approximately another quarter of Northern Irish companies instanced by a "lack of interest in the work" and on subsequent disciplinary action "problems with industrial tribunals". Those difficulties were concentrated in the furniture and clothing trades, and among semi-skilled persons at 'miscellaneous' engineering companies. Such attitudinal difficulties were reported by only 7 per cent of proprietors of firms in the Mid West sample. Managers there were a good deal more positive than their Northern Irish counterparts about the attitudes and abilities of their labour force. Where there were difficulties they were localised.

Productivity

The fewer complaints made by Mid West proprietors did not signal higher labour productivity (or an absence, just a diminution, of quality problems). We collected data on annual sales and material costs which in principle enable a productivity comparison to be made between companies in the two regions. Using data of this kind, the correct procedure to make a productivity estimate is to standardise the financial measure of output between the two regions

Table 10: *Ratios of Mid West:Northern Ireland Comparative Labour Productivities by Sector*

| | MW/NI | Sample Size | |
|-------------|-----------|-------------|----|
| | | NI | MW |
| Engineering | 0.95-1.14 | 18 | 11 |
| Clothing | 0.86-0.99 | 10 | 9 |

using "average value ratios" (Smith, Hitchens, Davies, 1982; Smith and Hitchens, 1985). Such ratios have been derived from the price quotations made on products manufactured in the two regions. Table 10 shows the range of productivity estimates which resulted.

The estimates indicate unambiguously lower productivity at Mid West clothing companies while the range shown for engineering suggests an uncertainty as to where the productivity superiority lies. There is some indirect evidence in support of the general thrust of these findings. In clothing only 42 per cent of companies visited in the Mid West employed a piece work incentive scheme compared with 70 per cent of their counterparts in Northern Ireland. Such schemes are known to dramatically raise output. In engineering 92 per cent of companies in the Mid West were found to work overtime compared with 55 per cent of their Northern Irish counterparts. One Northern Irish firm said "production control depends upon how busy we are" and although that is suggestive of a source of better productivity the measure should be corrected for the longer hours worked in the Mid West. Operating in the opposite direction were a number of adverse productivity comments made by Limerick engineers regarding the need to "push" apprentices (of which they had many) along; at one factory a shortage of hand tools, especially spanners, "we only have two for nine machines", was said to waste time.

Finally, 44 per cent of Northern Ireland managers emphasised the need to manage output compared with just under a third of their Mid West counterparts. That difference partly reflects contrasts in labour force difficulties, noted above but also the measured productivity gaps.

Performance and Management Training and Nationality

Contrasts in work experience and qualifications of management may go some way towards explaining the reported differences in product quality. Three-quarters of the proprietors of Mid West engineering companies were trained either by multinationals (a half) or in Britain or the USA (a quarter) compared with just a third of Ulster proprietors. Arguably an international or inter-regional training experience is of a higher standard or wider breadth. Significantly fewer criticisms were made of products manufactured by Mid

West firms owned, managed or supervised by individuals trained at an MNE or with work experience abroad (O'Farrell and Hitchens, 1988c).

In the clothing and furniture trades about three-quarters of Mid West proprietors had received direct technical training in their industry – as designers, tailors, cutters, joiners, etc., compared with just 43 per cent of their Northern Irish counterparts. (Others had changed their trade or occupation from engineering to furniture making, farming to clothing, etc.)

Finally, just over 20 per cent of firms in the Mid West sample were run successfully by Continental European owners, compared with fewer – half that number in the Northern Irish sample, and it is interesting to note that those Mid West owners expanded their employment (between 1982 and 1987) by 40 per cent more than the average for the sample as a whole.

Reactions to Development Agencies

Proprietors were asked how helpful they thought the local development agency was in assisting their business development. Forty-five per cent of firms sampled in Northern Ireland were satisfied in their dealings with the Local Enterprise Development Unit (LEDU) compared with 78 per cent with Shannon Development (SFADCo) in the Mid West: those proportions broadly reflect the numbers securing grant aid from the agencies in the two regions.

Some discontent was expressed about “paperwork, red tape and bureaucracy” associated with obtaining those grants. In Northern Ireland, there was a feeling of arbitrariness in deciding who qualified: “you have to be an Englishman to tell them a pack of lies”; but it was on the matter of (direct) business advice and support that a much sharper contrast emerged: “LEDU is poor on advice for small firms”, Shannon Development were variously described as “experienced people”; “nothing but praise for Shannon”. Half the Mid West sample had attended business courses run by Shannon Development too. While discontent with agencies is not unusual in the United Kingdom, the interviewers were impressed by the need for immediate advice and support expressed by many businessmen and the favourable image that SFADCo has developed in this regard.

Proprietors were also asked to rate the business advice received from bank managers and accountants. Three-quarters of Northern Irish businessmen found their bank managers helpful while only a half of their Mid West counterparts did so. A similar proportion, about seven-tenths were satisfied with the advice received from their accountants. Taking the three sources of advice together small companies in the Mid West of Ireland benefited more than did their Northern Ireland counterparts.

V SUMMARY AND DISCUSSION

The main purpose of the paper has been to compare the performance, competitiveness, and characteristics of a sample of small manufacturing companies located in Northern Ireland and the Mid West of Ireland. The paper makes direct comparisons between 27 matched industrial activities involving in total 63 small firms manufacturing mainly engineering, clothing, knitwear and furniture products. The sample size is small but the conclusions are suggestive of areas for further fruitful investigation. The study forms part of a series of comparisons of the performance of small firms in different regions of Britain and Ireland and seeks to identify growth constraints with a view to making policy recommendations which can be adopted by the relevant development agencies.

Special interest attaches to the comparisons between these two regions because, although politically and economically separate, they have in common generous schemes to grant aid small companies. Both share a similar remoteness from major UK markets too.

In this summary we contrast the findings emerging from this paper with those obtained from the earlier comparisons of the two parts of Ireland with British mainland regions (Hitchens and O'Farrell, 1987; O'Farrell and Hitchens, 1988c). The principal constraint on growth isolated is one of a lack of competitiveness of both Mid West and Northern Irish products. Mid West products were not, on average, price competitive on British markets and many Northern Irish products were uncompetitive too. The quality of products manufactured in both Irish regions varied more than did those of companies sampled in either Wales or Scotland and most faults were found with Northern Irish products.

Lack of product competitiveness did not affect the growth performance of Mid West firms; they were largely dependent upon the Irish market for sales and grew on the custom of *local* multinational companies, and on product features particular to the Irish market including design, insignia, CMT, government contracts, etc. Some growth was achieved with sales to the "soft" ethnic Irish-American market, but little was exported to GB. Northern Irish companies contracted over the period under consideration. The Northern Ireland market provided no growth opportunities and the lack of quality competitiveness made difficult the penetration of British mainland markets on which Northern Irish companies were markedly more dependent than their Mid West counterparts. A better penetration of extra regional markets was achieved by matched mainland British companies than by either of their Irish counterparts.

A less competitive market with less discriminating buyers, and partially protected from import competition, because of size and remoteness (though

not transport costs), explains the continuing survival of many firms. Both Mid West and Northern Irish companies recognised similar numbers of direct competitors but they numbered between one-third and one half those recognised by counterpart mainland British firms. Firms from both parts of Ireland considered that the main requirement of the market place was for a quality product but just 17 per cent of firms in Northern Ireland and 25 per cent in the Mid West claimed to have a competitive advantage based on quality compared with three-fifths of their Welsh and Scottish counterparts. Perhaps this implies some recognition on the part of Irish proprietors of the lack of quality performance of their products, and with less competition less pressure to achieve an improvement.

In comparison with the Mid West companies in Northern Ireland were at a competitive advantage as regards space and cheapness of premises, while companies in both parts of Ireland had more space and paid no more for factories than their counterparts in Scotland and Wales. The age of machines was found to be similar in the two parts of Ireland and more modern than that found at similar Welsh and Scottish firms. Northern Irish firms had more computerised machinery than their Mid West counterparts despite their poorer performance. Large capital grants from SFADCo and LEDU encouraged the purchase of that machinery, much of which would not have been bought without their assistance, and equipment which, judged by that found adequate at Welsh and Scottish factories, was not always strictly necessary for the purposes of the business.

Productivity in Northern Ireland was superior to that in the Mid West in the clothing sector, and similar or inferior in the engineering sector (the measured difference was inconclusive). Comparatively poor productivity at Mid West and Northern Irish companies was noted when comparisons were made against mainland British firms. Wages paid at current exchange rates indicated that pay at Mid West companies was higher than at Northern Irish companies (and mainland factories too). The poor productivity combined with higher wages at Mid West companies must explain much of the lack of price competitiveness of products on British markets, and poor productivity noted at Northern Ireland firms has a similar but lesser impact on the competitiveness of a number of Northern Irish products.

Manufacturing problems arising from an unsatisfactory *level* of skill and poor work attitudes identified more frequently by Northern Irish proprietors and evidenced by a higher level of labour turnover and absenteeism found there would go some way towards explaining the quality deficiency of many of the products sampled. The type of criticism made of Mid West products, though fewer in number, suggested the same cause, although in that sample a deficiency in the skills of proprietors was suggested too by their inability in a number of cases to recognise faults in defective products shown to them.

Companies whose owners were trained at a multinational company or abroad (or whose supervisory staff were so trained) produced products less frequently criticised on points of finish, and there were more such firms in the Mid West sample than in the Northern Irish sample. In addition, those companies which were owned by foreign nationals performed in every way better than did their indigenous counterparts in both regional samples (O'Farrell and Hitchens, 1988c).

These findings suggest a number of policy recommendations for consideration by the development agencies. Most important is the need for a greater concentration on the human assets of the businesses. The association found between better product quality and background training of proprietors and managers suggests that a policy to selectively back small firms should pay close attention to the skills and abilities of grant applicants. A policy designed to selectively grant aid immigrant foreign (and British) entrepreneurs would be beneficial to employment creation in both Irish regions, too. Agencies should also recommend and closely monitor appropriate training schemes to ensure that the required standards of skill are achieved. Management training courses designed to improve production efficiency would contribute to a narrowing of the productivity gap.

A better monitoring of purchases of grant aided machinery is recommended to ensure that the equipment bought is appropriate for the purposes of the business. A raising of the proprietor's awareness of the higher quality standards required to sell on external markets is suggested, perhaps linked where appropriate to the introduction of quality control systems (such as BS 5750). A number of factories visited in the Mid West had adopted or were beginning to introduce the IS300 system.

Businessmen in Northern Ireland felt that LEDU were particularly weak as regards advice and that the agency encouraged them only up to the point of making a grant offer. An advisory service would help those businessmen make better decisions and by showing a continuing interest encourage them to take the risks necessary to develop those companies.

REFERENCES

- DALY, A., D.M.W.N. HITCHENS, and K. WAGNER, 1984. "Productivity, Machinery and Skills in a Sample of British and German Matched Manufacturing Plants", *National Institute Economic Review*.
- DEL MONTE, A., and A. GIANNOLA, 1986. "Relevance and Nature of Small and Medium Sized Firms in Southern Italy", in D. Keeble and E. Wever (eds.), *New Firms and Regional Development in Europe*, London: Croom Helm, pp. 275-298.
- FOTHERGILL, S., M. KITSON, and S. MONK, 1982. "The Profitability of Manufacturing Industry in the UK Conurbations", Working Paper No. 2, Industrial Location Research Project, Department of Land Economy, University of Cambridge.

- FLORENCE, P.S., 1953. *The Logic of British and American Industry*, University of North Carolina Press.
- HITCHENS, D.M.W.N., and P.N. O'FARRELL, 1987. "The Comparative Performance of Small Manufacturing Firms in Northern Ireland and South East England", *Regional Studies*, 21(b), pp. 543-553.
- HITCHENS, D.M.W.N., and P.N. O'FARRELL, 1988. "The Comparative Performance of Small Manufacturing Companies in South Wales and Northern Ireland", *Omega* 15.5 (forthcoming).
- MASON, C.M., and R.T. HARRISON, 1985. "The Geography of Small Firms in the UK: Towards a Research Agenda", *Progress in Human Geography*, 9, pp. 1-37.
- O'KEY, R.P., A.T. THWAITES, and P.A. NASH, 1982. "Technological Change and Regional Development: Some Evidence on Regional Variations in Product and Process Innovation", *Environment and Planning A*, 14, pp. 1073-1086.
- O'FARRELL, P.N., and D.M.W.N. HITCHENS, 1987. "A Production Oriented Explanation of Small Firm Growth: Towards a Conceptual and Policy Framework", *Heriot Watt University*.
- O'FARRELL, P.N., and D.M.W.N. HITCHENS, 1988a. "Alternative Theories of Small Firm Growth: A Critical Review", *Environment and Planning A* (forthcoming).
- O'FARRELL, P.N., and D.M.W.N. HITCHENS, 1988b. "Inter Firm Comparisons in Industrial Research: The Utility of a Matched-Pair Design", *Tijdschrift Voor Economische En Sociale Geografie* (forthcoming).
- O'FARRELL, P.N., and D.M.W.N. HITCHENS, 1988c. "The Relative Competitiveness and Performance of Small Manufacturing Firms in Scotland and the Mid West of Ireland: An Analysis of Matched Pairs", *Regional Studies* (forthcoming).
- PECK, F.W., 1985. "The Use of Matched-Pairs Research Design in Industrial Survey", *Environment and Planning A*, 17, pp. 981-989.
- SMITH, A.D., D.M.W.N. HITCHENS, and S.W. DAVIES, 1982. *International Industrial Productivity*, Cambridge University Press.
- SMITH, A.D., and D.M.W.N. HITCHENS, 1985. *Productivity in the Distributive Trades*, Cambridge University Press.