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## Visualising the operating behaviour of SMEs in sector & cluster: evidence from the west midlands

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# **VISUALISING THE OPERATING BEHAVIOUR OF SMES IN SECTOR & CLUSTER: EVIDENCE FROM THE WEST MIDLANDS**

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## **ABSTRACT**

This paper concerns itself with a study of the operating behaviour of Small and Medium Enterprises (SMEs) belonging to two manufacturing sectors within the English Region of the West Midlands. One sector has been deemed part of a 'cluster' by recent Government sponsored research. The other sector has not been associated with clusters by policy, yet is still concentrated in the inner city areas within the West Midlands. The paper demonstrates how firms operate with regards to 'clustering' behaviour in both a sector and in a cluster. The preliminary evidence not only points to a pattern to their operation, but also subtle relationships that point to positive relationship between increased inter-firm relationships and a more 'successful' business. It also shows, different types of clustering behaviour can be observed within the same cluster in a single place. Interestingly, this behaviour is found to be similarly stratified across one sector considered to be part of an established cluster, as well as one sector reasoned not to be functioning as a such.

# **VISUALISING THE OPERATING BEHAVIOUR OF SMES IN SECTOR & CLUSTER: EVIDENCE FROM THE WEST MIDLANDS**

## **INTRODUCTION**

This paper concerns itself with a study of the operating behaviour of Small and Medium Enterprises (SMEs) belonging to two manufacturing sectors within the English Region of the West Midlands. One sector has been deemed part of a 'cluster' by recent Government sponsored research. The other sector has not been associated with clusters by policy, yet remains a significant employer, especially of ethnic minorities within the region, concentrated in the inner city areas within the West Midlands. The aim of this paper is to demonstrate how SMEs operate with regards to 'clustering' behaviour in both a sector and in a cluster. The preliminary evidence not only points to a pattern to their operation, but also subtle relationships that exist to encourage a more 'successful' business. It also shows if following a cluster thesis, different types of clustering behaviour can be observed within the same cluster in a single place. Interestingly, this behaviour is found to be similarly stratified across one sector considered to be part of an established cluster, as well as one sector reasoned not to be functioning as a such.

This paper is developed from a wider investigation undertaken by Oxford and Coventry Universities on behalf of the European Union 5<sup>th</sup> Framework Programme. The project was concerned with regional adjustment strategies to technological change in the context of European integration. In particular, the study focused on small and medium sized enterprises (SMEs) in labour intensive industries in peripheral or 'vulnerable' regions across Europe. There were several partner countries other than the UK including Ireland, Spain, Greece and Italy. For the UK, the West Midlands was chosen as the region of investigation as it had a representation of the four sectors chosen to be the focus of the examination. The four manufacturing sectors chosen across the EU were automotive components, clothing manufacture, electronic components and footwear/leather manufacture. This paper is concerned only with those sectors studied by the authors in the West Midlands, namely automotive components and clothing manufacture.

The structure of the paper is as follows. The first part will discuss the definitions of sector and of cluster, the latter obviously a term that has gained credence in recent years. The second part will set the scene with regard to the two sectors in question within the West Midlands, with partial discussion of Government policy towards

clusters, which began with the 1998 Competitiveness White paper '*Building the Knowledge Driven Economy*' (DTI 1998) which is one of the first references to clusters in central government policy, then to the DTI 'Cluster map' (DTI 2001) and the West Midlands Regional Development Agency strategy. The third part will observe how firms in clusters have been represented in previous literature, considering the evidence for different types of clusters and firm behaviour existing within the 'cluster theory'. The fourth part will consider the empirical evidence in terms of six case studies, three from each sector. These case studies reveal the operating behaviour of the firms to be stratified in that there seem to be different 'levels' of operation; engendering subtle relationships between success and factors such as interaction with the wider business environment. This behaviour is apparent whether it be a cluster or sector. The fifth part concludes that implications for policy at this stage are somewhat unresolved and require more research, but it does provide an interpretation how SMEs operating in two manufacturing sectors (one as part of a cluster) might be visualised- perhaps forming a framework for the identification of an appropriate business support strategy.

## **SECTOR VS. CLUSTER: DEFINITIONS**

The terms sector and cluster have become interchangeable in recent years. It is not the purpose of this paper to debate this; however, for the purposes of this paper, an attempt will be made to tease the terms apart. The aim is to make the distinction between the two with reference to recent developments in Government policy.

Traditionally, the definition of sector has been based on a classification of industries that has been borne from custom and practice over the last few hundred years. Originally, economists were concerned with only two areas of the economy, farming and manufacturing. The modern view of defining industries or sectors has been influenced by the Fisher-Clark model (Fisher 1939, Clark 1940). This model principally compartmentalised industries into a system based on a simple hierarchy of farming and mining (primary), manufacturing (secondary) and services etc. (tertiary). Today, sectors are defined using the current Standard Industrial Classification (SIC) which still follows the basic principles of this hierarchy, defining businesses by their function or what they produce. However this classification or definition of sectors has in the past been criticised. They are inflexible, unable to embrace changes in industries within the economy. More importantly they do not take account of

increasingly blurred distinctions between goods and service production (Marshall & Wood 1995).

Clusters in contrast are not defined by this Standard Industrial Classification, rather they consist of a group of inter-related firms built around not just an end product, but a similar technology or end market. The latter implies an emphasis towards supply chain linkages (upwards and downwards) that transcend the traditional boundaries defining sectors, linking the producer of the raw materials, the manufacturer and the distributors and retailers. Associated with this is a support structure consisting of research and development, training and education, capital and policy support.

Michael Porter (1990) can be regarded as introducing the concept of the industrial or 'business cluster' to the mainstream business and policy dialogue. He describes a range of specialised industries and services which transcend the usual sectoral boundaries, yet are locally concentrated. His work, he claims, is based on a global empirical analysis of highly competitive local agglomerations:

*"Geographic concentrations of interconnected companies, specialised suppliers, service providers, firms in related industries, and associated institutions (for example, universities, standards agencies, and trade associations) in particular fields that compete but also co-operate"* (Porter 1998, p197).

There are some required feature of clusters that distinguish them from a definition as sectors; their geographical concentration in region, cities or state & their co-operation or sense of common interest.

Porter's work has come to represent the definitive explanation of clusters for policy makers not only in the UK, but by global institutions such as OECD and the World Bank. Porter's interpretation has been central to UK Government reports and has been included in the Regional Economic Strategies (RES) of several UK Regional Development agencies- a discussion of which will be included in the next section.

## **CLUSTER & SECTOR IN THE WEST MIDLANDS**

The West Midlands was chosen to be the focus in the UK of the wider European study. The West Midlands has a long history heavily associated with manufacturing industries and has earned a reputation as the 'industrial heartland' of the UK, having large concentrations of manufacturing within its borders (the latest figures from the Office of National Statistics for 2000 illustrate; 21 per cent of employment in the West Midlands is in manufacturing compared to 15 per cent for the UK average).

Therefore the region was well placed to be the focus of the original study of four manufacturing sectors.

This paper is concerned with the results of the study solely related to two sectors- automotive components (the manufacture of parts for vehicles including everything from wheels, brakes, transmissions, engines to car bodies) and clothing manufacture (including fashion, work wear and protective clothing). However, automotive components manufacture is also considered to be part of an established cluster within the West Midlands, whereas clothing manufacture is not, yet it is not necessarily an unimportant employer in the region.

Statistically, the West Midlands are identified as having the greatest concentration of all automotive firms (including vehicle assembly, as well as body & component manufacture) of any English region. Measurements using the SIC for 2000 indicate that the West Midlands represent just over one- fifth (21%) of the total amount of *firms* in all of the English regions. Its nearest rival, the South East only represents 15 *per cent* of the total. Automotive component companies on their own, have a tendency to be even more concentrated in the West Midlands having almost double the amount of components companies, of any other English region. The West Midlands represents 23 *per cent* of the total number of component firms in the English regions. Its nearest rival the North West has 13 *per cent* of the total number of firms.

In February 2001, the Department of Trade & Industry (DTI) produced a first assessment of clusters in the UK, 'Business Clusters in the UK' (DTI 2001). This was the first empirical work undertaken by the Government since the inclusion of the concept cluster in central Government policy in the 1998 Competitiveness White paper (DTI 1998). In this they constructed a 'cluster map' of the UK pinpointing an 'established' automotive cluster in the West Midlands, including in this cluster automotive component manufacture. The primary method of measurement was the use of Location Quotients (LQs). A simple measure of concentration using numbers employed to measure the relative concentration of an industry in a given location or region. For example:

$$LQ = 3.1$$

$$\frac{\text{employment in automotive components in West Midlands}}{(34,173)} \div \frac{\text{total employment in West Midlands}}{(2,269,813)} = 0.0150554$$

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$$\frac{\text{employment in automotive components in GB}}{(121,726)} \div \frac{\text{total employment in GB}}{(24,966,747)} = 0.0048755$$

By using the UK as the average proportion, the LQ of greater than 1.0 signifies an over-representation while a measure of less than 1.0 indicates under-representation of a particular industry in a given region, as measured by numbers of *employees* (not firms).

Using the then latest figures of a 1999 survey, the cluster map identified large parts of the West Midlands as having LQs of greater than 2, for the manufacture of automotive components *and* vehicle assembly. (In some cases this LQ was up to a value of 17 for automotive components alone and 35 for car assembly). Therefore it was concluded that the existing, greater than normal, localised concentration of employment in these sectors represented the presence of an automotive cluster within the West Midlands (DTI 2001).

At the regional level, the recently revised Regional Economic Strategy (RES), 'Creating Advantage' (published in 2000) for the West Midlands Regional Development Agency, *Advantage West Midlands* (AWM), has reaffirmed the belief that a cluster of automotive industries exists within its borders. The revised strategy, *Agenda for Action* published in January 2001, goes further than the previous 'pre-cluster map' RES, accepting the idea that a 'cluster' is more than just a collection of sectors, recognising the role of interconnectedness and co-operation. The original strategy identified 'target sectors' on which to focus the economic development drive—one of these was the automotive sectors. Presently, a shift in emphasis can be discerned towards the idea of cluster and what was termed the automotive *sector* has developed into 'transport technologies' *cluster*.

'Transport technologies' is one of ten proposed clusters which AWM intends to aid in their development of the region. The clothing sector is not one on them. The DTI cluster map did not identify the clothing manufacture as a 'cluster' in the West Midlands as the location quotient did not indicate an over-representation of clothing employment<sup>i</sup>. Nevertheless, clothing firms are still to be found in localised concentrations in the region that are difficult to quantify with methods such as location quotients, yet they are still considered to be an important source of employment within metropolitan areas, especially for ethnic minorities (Husband & Jerrard 2001). They are important enough to warrant local initiatives such as the Coventry Clothing Partnership, which have so often have been the source of much support and funding from the European Union.

The West Midlands are the fourth largest region for the number of clothing companies, representing 12% of the total amongst the English Regions. Its near neighbour the East Midlands has the highest concentration of employment of the English regions and was identified as having a cluster of clothing manufacture by the Cluster map.

This study is derived from observations of the different types of operating behaviour of firms in both the cluster of automotive components, and in a sector which has localised concentrations, clothing manufacture. The next section considers previous analyses of the operating behaviour of locally concentrated or clustered firms.

## **OPERATING BEHAVIOUR OF FIRMS IN CLUSTERS**

This section discusses operating behaviour of geographically concentrated firms, sometimes referred to as clusters or as displaying clustering behaviour. Even though a distinction between cluster and sector was made previously, the two terms are now regularly interlinked. The following literature review largely relate to the concept of 'clusters' or firms which are geographically concentrated, regarded as clusters

Despite the apparent dominance of the Porter model of clusters in Government policy, a more attentive inspection of the literature reveals an almost inexhaustible discourse on the subject. This body of work both pre-dates and post-dates Porter's work and the more refined aspects that they bring to the debate are often overlooked. There is a raft of literature especially within economic geography which strives for a more sophisticated definition. Some have criticised this definition as being too simplistic, for example, Martin & Sunley (2001) argue clusters in Porter's sense are so poorly defined as to be able to include all economic activity.

The idea of clusters, we argue is no more than a re-discovery of the 'industrial district' a concept developed by nineteenth-century economist Alfred Marshall (1890) who observed the geographic concentration of particular industries. For Markusen (1996) the definitive 'Marshallian district' is constructed of small, locally owned, embedded firms. Trading and networking amongst these firms is substantial within the district. External to the district these links with other companies are low. Co-operation between firms is high. They will often share the risks & costs with innovations or projects, but can still remain in competition. Fuelling the development of 'local cultural identity or bonds' within the district. The focus for the business community is local. Markusen uses the Italian example, Emilia-Romagna as the



embodiment of this district. However, the concept of clusters to be labelled as ‘chaotic’ (Martin & Sunley 2001) and it be accused as having lack of clarity and definition<sup>ii</sup>. In the last decade this prompted several studies to emerge suggesting there exists not one single type of cluster as prescribed by Marshall or Porter, but that these clusters can operate as hybrids.

Notably, Markusen (1996) rejects the notion of the only one type of cluster operation and proposes three types in addition to the traditional view of a ‘Marshallian district’ (the basis on which most cluster concepts are perceived): the ‘hub and spoke’, ‘satellite platform’ and ‘state anchored’<sup>iii</sup> cluster. This work is based on a large-scale empirical analysis of firms in the US. In her paper, Markusen provides greater detail on her proposed typology, however for the purpose of this study which has to show there exist more than one type of cluster, only a summary of the aspects are described. Markusen concludes that it is rare for a cluster to exist in a ‘pure’ form, as derived from the Marshallian thesis. Even rarer still to have just one type of cluster behaviour to occur in a single locality. Markusen suggests one or more elements of these models may exist in a locality, especially in large metropolitan areas<sup>iv</sup>.

More recently, Gordon & McCann (2000) have added to this debate by postulating an alternative form of cluster behaviour. They argue, where Markusen (1996) has an approach based on *spatial structure*, instead their approach, concentrates on internal aspects of *process* and *inter-firm relationships*. They propose three basic forms of clustering: ‘Pure agglomeration’ model, ‘Industrial-complex’ model and ‘Social-network’ model. The model of pure agglomeration reflects the Marshallian model and is founded on Marshall’s three key rationales for firms to concentrate in the same locality, namely a specialized pool of labour, the existence of infrastructure and the flow of information and ideas. Co-operation and collaboration between rival firms are non-existent in this model. Neither is long-term, linkages, relationships or loyalties between customers and suppliers:

*“The system is without any particular observable organisations or interagent loyalty, and simply functions as an ecology of activities benefiting from proximity”*(Gordon & McCann 2000,p517).

The industrial complex model has elements of the previous model, yet is distinct from the pure agglomeration model in that trading linkages are slightly more sophisticated and a set of contacts exist between customers and suppliers within the district. These linkages are essentially stable, long-term relationships and static. The third model

described by Gordon & McCann is the social network model. Although this model exhibits some characteristics of the previous two models, it has a more complex set of relationships between firms. This model differs from the previous two as its function is central to social networks or interpersonal relationships which are outside of the firm's core business remit. They often can 'transcend firm boundaries'. Firms in this model are more importantly willing to work together as a collective towards mutually beneficial goals. Together this fosters a 'sense of common interest' towards the cluster and space which it occupies. Although Gordon & McCann visualise these three type-ideals, they nevertheless conclude that 'actual clusters may contain elements of more than one type' (p528) and that these elements may actually co-exist within localities.

This review quite starkly reveals that there exists no single homogenous model for the way in which clusters or the firms within them operate. Markusen (1996) represents diversity in cluster behaviour using firm size and spatial structure, Gordon & McCann (2000) concentrate on process and inter-firm behaviour. Nevertheless, both come to the consensus there exists not one type of cluster behaviour, but several beside that prescribed by Marshall (1890) and Porter (1990). They also conclude that these types may occupy the same locality, perhaps acting as a hybrid of several types in an actual cluster.

## **METHODOLOGY**

A database of companies across the whole region was constructed for each sector using information from relevant business institutions in the region such as the Chamber of Commerce and Business Links and the local Universities. From this database of 160, a sample of 80 companies was chosen at random and were contacted in Spring 2001. A target response rate of 20 companies was achieved for each of the two sectors.

The 40 firms were subject to an in-depth interview with a senior management representative. The interviews were semi-structured using a questionnaire constructed of closed and multiple-choice questions, but annotated with results from free-form discussion with the interviewee to yield more qualitative data. The questionnaire explored: the scale of linkages with suppliers and distributors; co-operation with other firms; the type of production; research and development; adoption of technology; skills development of the workforce; utilisation of institutional support and operation

in and awareness of the 'corporate or regional environment'. The study did not originally intend to measure cluster behaviour in detail, neither did the questionnaire specifically aspire to measure in-depth the value-chain or flows of inter/intra-firm information. Clusters by definition are constructed not only from business firms, but also trade associations, trade unions and governmental institutions and these were not subject to a separate study. Nevertheless, the business firms links and interactions with other firms and trade associations and government pertaining to operating behaviour regarded as significant element of clustering, were identifiable.

## **RESULTS & CASE STUDIES**

The results were varied (see also Battersby *et al* 2001) nevertheless a number of distinct cases emerged from the data. Six case studies, three automotive component firms, three clothing firms are discussed as typical examples. The characteristics of the cases can be summarised allowing for three case study 'types' to be tentatively constructed, revealing some resemblances to previous attempts at conceptualising the operating behaviour of geographically concentrated industries or clusters. The conceptualising of the following case studies was influenced the above examination of the operating behaviour of clusters, especially that of Gordon & McCann (2000) discussion.

### **Firms in Automotive Components 'cluster'**

**Case 1-** This company was micro sized, employing just six people. It was a family run business with the owner also managing the day-to-day operation. The company operated under a standardized production method, producing machined parts with little or no innovation in products since the company's inception. The local market remained the most important and it did not export overseas. Investment in new technology was minimal or non-existent. The company relied on internal personnel for research and development, if it was undertaken at all. There was little or no training of staff, if there was it was done 'on-the-job'. There was no readily defined, long-term relationship or sharing of information with customers or suppliers, while co-operation or collaboration with other competitors did not take place. There was no pro-active search for business. Most work undertaken was 'bit-work', short-term contracts from the large assemblers. This business was usually generated after larger companies' suppliers failed to deliver. This allowed the company to remain flexible, however, finances remained unsecured. Compounding this was an ignorance of

market intelligence or competitors and a general lack of awareness towards the corporate environment in the region. The firm was unaware of various institutional development funds available for training and development and had no links with local education establishments. Sales of the company's products had stagnated; the amount of sales had remained static for the last three years. Competition had been keenly felt from lower cost producers overseas. Perceived future regional prospects for the sector and the company were pessimistic: "[The sector] will probably survive in a much more leaner and efficient form, but unfortunately we won't be part of it". This company was not expected to survive in the next decade.

**Case 2-** Firm 2 was also a small manufacturer of machined parts using standardised production methods but specialises in more complex, higher order components, such as gears, suspension and braking systems. It is also owner managed. It had recently diversified its product base and out-sourced certain functions such as paintwork. Total sales for the firm for the previous three years decreased but turnover and profitability increased. It had continually invested in and adopted new technology, especially in ICTs and B2B (business to business) networks, resulting in a demand for higher skilled employees.

Research and development activities were mainly undertaken in house, but the firm had sought assistance from the local university. Contracts, especially the long-term type were actively sought, often at the expense of lucrative but uncertain temporary work. It had regular trading links and shared information with its customers and suppliers, however, it did not collaborate with its competitors within or outside of the region. Its main market was within the region but it did export inter-regionally and at the supra-national level; exports of this kind had increased in the previous three years. The firm participated in business development programmes and appeared to have a greater awareness of the corporate environment and opportunities within and external to the region: *"The EU are our neighbours not foreigners"*. Competition in the sector had been irrefutably experienced from low cost overseas competitors, especially in South East Asia. The perceived future prospects for the sector in the region were subdued, including a market contraction, however, for the company perception was more encouraging for a survival if the firm could remain competitive.

**Case 3-** Firm 3 was a small manufacturer of customized or niche aftermarket products and services, sitting at relatively high level in the value chain. The firm performs at many different levels, as manufacturer of components, sub-assembler and as technical

research service provider. The market for these products and services was regional, national and international. It was also owner managed as a partnership with other family members. In response to changes in these markets the firm had left existing markets and sought others, resulting in a new product departure and diversification into LPG conversions, specifically to take advantage of the reawakened interest in energy conservation. It also acquired another company to extend its product range. As a result sales and employment had risen markedly in the previous three years. Lower level technical functions of the company had been outsourced to concentrate on core business. The company routinely invested in new technology as part of the business plan, especially in ICTs and B2B networks. Research and development was an on-going process, utilising internal staff and exploiting links with industry associations and local universities. Institutional support was also utilised for research and development as well as training and expansion of the premises.

The firm shared information and collaborated with not only customers and suppliers but also competitors. Longer-term contracts between larger companies existed, but the company seemed to retain enough autonomy and security to remain flexible enough to collaborate at will without repercussions, “*We will work with other people [firms] just for the experience alone*”. The firm was also active in the region, involved with local schools, promoting engineering as a career path. The company had been little affected by overseas competitors being a market leader in its field. Overall, the company perceived its future and the future of its market/sector optimistically. It expected sales to increase, and employment in sales and marketing to grow.

### **Firms in the Clothing ‘Sector’**

**Case 4** This was a small company employing just 15 people, the majority being female and drawn from the family and the local community. The production process was highly standardized, producing low value-added fashion-wear for the mass-market. There is no design or ‘in-house’ manufacturing. The company was purely a Cut-Make-Trim (CMT) facility, dependent upon work coming through agents, suppliers of the fabrics, who are located outside the local economy. The firm’s agents were increasingly sourcing work overseas leaving the firm isolated and vulnerable, left to pick up irregular bottleneck, quick turnaround, short-run production work where profit margins are minimal. The firm was locked in to CMT dependency with there being no attempt to break out of this and diversify. The firm was not prepared to

take the investment risk, alongside increasing overheads, remaining content with the knowledge that work will continue to materialise. There appeared to be a general lack of awareness of other market opportunities.

There had been some investment in new premises and machinery, using internal funds, in an attempt to improve quality and efficiency of production, thereby increasing chances of getting better orders from agents. Investment in ICTs is not deemed necessary given the nature of the business operation. Products were mainly destined for local or regional markets. There was a limited national market but no products were exported overseas. Training of staff was minimal being carried out exclusively in-house, on-the-job, often by the Director. The firm had suffered from low-cost competition from overseas producers, increasingly located in Eastern Europe as prices are being driven down by high-street retailers. As a result sales had stagnated. The firm is still increasingly vulnerable, facing an uncertain future as competition in the low-value sector intensifies.

**Case 5-** This was a micro family-owned company employing just five people who were exclusively drawn from within the family, and the local community. The firm suffered from low-cost overseas competition whilst being entrenched in the low valued-added, mass-produced fashion-wear market. To address this situation the company had recently invested significantly in new plant and equipment in order to accommodate a new product line, as it had diversified into a niche textile market demanding customized production. It had also invested in computer equipment in order to improve business efficiency but lacked the training, and at the same time the awareness of training opportunities, to gain full benefits from this investment.

The company was linked into the local economy through its supplier, buyer and distribution networks, though there were no formal business-to-business networks. The local/regional markets were the most important for the firm's products, but diversification had opened up new opportunities in the wider national market. The firm did not export overseas.

Over the past three years total sales had significantly decreased as the firm had downsized. The move away from mass-production into a niche market had led to greatly reduced capacity and hence the displacement of employees. At the same time unit labour costs had increased as the national minimum wage legislation was enforced.

The up-skilling of the workforce primarily took place in-house, although industry-organised programmes and EU funded training schemes had proved invaluable as the company had introduced multi-skilling for its reduced workforce. The firm had not accessed external funds or participated in any business development initiatives. This may be down to awareness but could also be linked to a dependency upon social networks. Future prospects for the company were cautiously optimistic given the shift into a new higher-value market. However, increased labour costs remain an issue given the ever-increasing threat of overseas competition. It is also important that the firm benefits from support and advice to enable it to keep abreast of new market opportunities.

**Case 6-** A small sized family-owned company. It employs forty staff the majority of which are female. Whilst the workforce is not exclusively drawn from the local community this remains the most important source. The firm operates in higher value-added markets manufacturing 'own-label' protective clothing for the workplace using a customised production process. The firm diversified its activities away from mainstream fashion to make the most of new market opportunities. The firm's suppliers and markets were national and international although the national market is the most important.

The firm had invested heavily in new plant and equipment and information technology in recent years in developing its existing product lines as well as developing entirely new products. The firm has adopted computerised inventory control, CAD/CAM, marketing technology and email. There were no formal business-to-business networks. The adoption of in-house product design technology is seen as the most important development in recent years in boosting R&D capacity. In addition, the firm recently formed an alliance with a US company enabling it to exploit high-tech fabric designs utilising nano-technology. The firm benefited from working with local business advisors, accessing funds from Government and the EU. It appeared to be well linked with local networks and opportunities. Employment in the firm remained fairly constant although sales were boosted by a series of new orders from within the UK and on the continent. On this basis, the firm is well placed to continue to grow in a niche market where there is little direct competition locally. By operating in the higher-quality end of the value-chain the firm is less susceptible to competition from overseas producers.

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**Table 1: SUMMARY OF FEATURES**

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**FIRM A**

No collaboration or sharing of information with competitors or suppliers, maybe customers.

Small or micro sized

Standardized production process producing low technologically sophisticated goods

Little or no diversification.

Little or no investment in technology, especially not ICTs.

Regional or local markets the most important. Did not export

Little or no research and development

Training of staff almost non-existent

Suffered from low cost overseas competitors.

Temporary contracts, firm used as a fallback by larger corporations

Little or no relationships or trading links with customers & suppliers- company is isolated

No or minimal knowledge of support institutions or participation in business development support programmes

Sales decreased or stagnated

Company faces uncertain future in an uncertain market

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**FIRM B**

Share information with customers and suppliers, but do not collaborate with competitors

Actively cultivate long-term customer contracts

Small or medium sized

Standardized production of low to medium technologically sophisticated goods, some diversification into customised products

Investment in new technology, especially ICTs

Sales decreased (due to downsizing or retrenchment), remained the same or slow increased

Regional market still most important, but national and supra-national markets also important

Suffered from low cost overseas competitors

Some functions outsourced- concentrate on core business

Research, development and training mainly in house, but some links with local Universities

Greater awareness of opportunities and some participation in institutional business development programmes

Future prospects for the company cautiously optimistic, but for the market- pessimistic

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**FIRM C**

Shared information with not only customers and suppliers but also competitors

Trading links and long term relationships with customers and suppliers, without losing flexibility in collaboration

Small sized company

Actively seeks new experiences (learning company??)

Production process is customized or providing niche products, and sometimes services

At a relatively high level on the value chain

Diversified into leading edge technologies and technical services

Outsourced functions to concentrate on core business

Acquirement of another firm to gain new skills or increase product range

A programme of continuous investment in new technology

Research and development undertaken in house and in conjunction with local educational establishments and trade associations

Institutional support utilized

Awareness of larger business environment including a corporate social responsibility to sector/ region

Perceived growth future for both firm and market/sector

May be a leading company in its specialised field with little or no competition



When the cases are taken in their entirety there were more contrasts to be made of the firms within the clothing sector and within the automotive component cluster themselves, than across sector and cluster. An examination of firm behaviour in both sector and cluster reveals subtle relationships between the sophistication of the relationship with suppliers, customers and competitors and the 'success' of the business. For example, the more sophisticated the relationship with suppliers, customers and competitors: the more positive the outlook for future sales and employment growth; the more informed and aware of market knowledge and the business environment; the more likely to have wider links within the region outside of the business environment; more likely to have links with local universities; more likely to have an external view as well as an internal view of the region; the higher up the value chain, more sophisticated/customised the product; the more diversified the firm; offering not only products but also technical services; the more likely to have invested in new technology, especially ICTs; the more likely to have outsourced lower order functions; the more secure the business; the more likely to be a market leader.

From these relationships three ideal types Firm A, B & C (see Table 1) can be constructed reflecting the differences and level of sophistication of the operating behaviour of the firms and the other characteristics associated with typical examples.

## **CONCLUSION**

The resulting preliminary analysis in this paper reveals how firms in two different sectors, one considered to be part of a cluster one not, might be comprehended in the West Midlands.

The firms in the study displayed a levels of sophistication in their inter-firm behaviour reflecting the three ideal types described by Gordon & McCann (2000), e.g. Firm A, (no interactions with competitors or customers etc.) vs. 'pure agglomeration; Firm B (works with customers & suppliers, not competitors) vs. 'industrial complex'; Firm C (collaborates with competitors, interacts with other agencies within region) vs. 'social networks'. Notably, this level of sophistication has a seemingly positive relationship with their 'success', e.g. those firms who were more co-operative with other firms tended to be higher up the value-chain, more innovative, perhaps a market leader and generally have a more optimistic view of its future and the future of its line of business, than those that were less collaborative. Most notably firms operate a within

three-tiered approach not only co-exist in the same region but the same industrial sector- somewhat confirming the notion that no cluster exists in pure form, but often is a collection or hybrid of many different ideals in one space (Markusen 1996, Gordon & McCann 2000).

Interestingly, the study also showed that despite the attempt to perceive clusters differently or as something more than sectors, the contrasts in operating behaviour between firms in the clothing sector and automotive component cluster were minimal and in fact revealed firms in the *sector* to behave remarkably similar way those in the *cluster*.

What implication does this have for cluster and/or sector support policy? Stating implications for policy at this stage would be somewhat premature. This would require more research and a rigorously defined method of measurement of the linkages within the region. Feser & Bergman (2000) comment that there is a general lack of data on linkages within clusters while Krakke (2002) extends this to argue that a suitable method of analysis of regional clustering is also lacking.

Krakke also advocates a 'quality analysis' of networks and this study does, however, provide a more qualitative interpretation how SMEs, operating in a manufacturing sector/cluster, might be visualised and assessed, perhaps forming a framework for testing or for the identification of appropriate business support strategy. Especially since Martin & Sunley (2001) argue that the concept of clusters has yet to be 'rigorously tested and evaluated' in general.

One angle of investigation is the perceived folly of using size of employment (as defined by a sector definition!). Cluster definitions which have been solely based on size and scale of particular industries have been warned against. Rosenfeld (1997) maintained that successful clusters may be made up of inter-related industries that may not be remarkable in terms of numbers employed. For example he identifies many seemingly strong cottage- industry type clusters existing in rural areas. In this case the firms clothing sector which was deemed to be not a cluster because of an under-representation in employment, yet they displayed similar behaviour to those component firms deemed to be operating within a cluster.

Nevertheless, recent development in cluster policy in the UK has tended to ignore these apparent caveats of clusters and pursued a 'less complicated' or simplistic definition, determined by industrial/sectoral definitions and location quotients. Recently, Benneworth & Whitehead (2001) adroitly argued that cluster policy

pursued by most RDAs has been accused of being a ‘re-badging’ of existing sector policy.

Perhaps the visualisation of clusters should not be solely founded on a sectoral basis, but perhaps around independent identification of ‘inter-related industries’ which have well founded roots in the region’s skills and capability base. This paper also begins to question the logic of using ‘sector’ as a means to compartmentalize RDA cluster policy and to ask whether a more sophisticated manner of visualising clusters based somewhat on work already present rather than a restriction to pure sectors would have a greater impact for policy, with further study, ultimately perhaps influencing policy in the West Midlands and beyond.

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<sup>i</sup> A location quotient measure places a value of 0.9 for the whole of the region e.g.

employment in clothing in West Midlands/total employment in West Midlands  
(7,827) (2,269,813) = 0.0034483

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employment in clothing in GB/total employment in GB  
(92,712) (24,966,747) = 0.0037134

LQ = 0.9

<sup>ii</sup> The wealth of material is in part due to the concept’s pedigree. Since its rediscovery, cluster theory has been formulated from, influenced by and associated with a range of other themes and concepts (see Gordon & McCann 2000 for discussion). These include: Growth Poles; Innovative milieux; Social Embedded Networks, Learning Regions and Regional Innovation Systems (Perroux 1950; Granovetter 1985; Aydalot 1986; Florida 1995; Cooke & Morgan 1998; Maillat & Kebir 1999). The prima facie for each notion alludes to similar qualities (namely geographic proximity as the enabler) yet each contributes a discrete aspect to the debate, placing emphasis on varying notions ranging from the possession of knowledge to social interactions or networks (a more detailed discussion of each concept may be useful but it is not our intent to expatiate here).

<sup>iii</sup> *Hub-and-spoke districts* comprise an industrial area heavily influenced by a few major local firms, surrounded by their dependent suppliers, like spokes on a wheel. These major firms are not embedded locally and have instead a global focus, with substantial inter-linkages with other firms outside of the district. A *Satellite industrial platforms* structure is dominated by large externally owned branch plants. These branch plants are relatively autonomous facilities but a part of a larger multi-plant system. They have limited interaction with suppliers within the district, most trading and networking takes place externally, with other plants in the multi-plant system and especially with headquarters. *State-anchored industrial districts* are composed of a large public or non-profit establishment, such as a university or government defence laboratory, acting as the anchor for other local businesses in the district.

<sup>iv</sup> Most recently, Coe (2001) has argued for the existence of a hybrid of Markusen’s districts as Marshallian-satellite, based on research into the Vancouver film industry

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