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**SWP 15/88 ESTABLISHING A SMALL FIRMS DATA  
BASE:  
THE EXPLORATORY INVESTIGATION**

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**ABSTRACT**

Results from a pilot survey of sixty-nine firms is presented to show the range and quality of empirical data that is currently being collected by the Cranfield Enterprise Research Centre (CERC). This pilot survey forms the first stage of a project to monitor annually the strategic profile of a large sample of small firms.

## **ESTABLISHING A SMALL FIRMS DATA BASE: THE EXPLORATORY INVESTIGATION**

### **INTRODUCTION**

Over the past ten years the British economy has experienced a severe erosion of its manufacturing base and, with it, a rapid increase in unemployment. In response to this, Government has sought new ways to revive industries and create new jobs. One potential solution emerged in 1979 when David Birch [1] of Massachusetts Institute of Technology [USA] reported that small firms were contributing some 80% of net job gains. In the UK, with unemployment growing to unacceptable levels, this result was largely responsible for accelerating the growth of the now well established "small firms industry"- an infrastructure of advice, assistance, legislation and education, most of which is entirely new.

Despite this activity, however, little is known about the growth process of the new or small firm, or about those factors which contribute to success or failure. Nevertheless, bookshelves are filled with a plethora of "how to" literature, much of which is based upon subjective observations rather than grounded in a research tradition. Indeed much of the small firm research work which has been conducted in the UK has been either regional or based upon very small samples: very little is longitudinal. Moreover, most recent studies have concentrated upon the new firm rather than those which are currently trading [2]. As a result it has often been difficult to draw a clear general picture of the small business environment and its changes over time, and thus to make calculated policy decisions.

The Cranfield Enterprise Research Centre (CERC) was established to provide research expertise in the fields of entrepreneurship and small business in order to study current issues and problems. A major objective of CERC is to provide a partnership between the academic world, the entrepreneur, the policy-makers and the advisory network. In order to achieve these aims the Centre approaches these issues in three ways:

- a. By studying the entrepreneur and his or her firm.

- b. By studying the interface between the entrepreneur and his commercial network of customers and suppliers.
- c. By evaluating policies to develop enterprise both at the local and national level.

The major problem encountered in attempting to monitor the effect of strategies for enterprise is the lack of regularly available and comprehensive data on the complex mix of factors which contribute to the development and growth of the small firm. The Cranfield Small Firms Data Base (CSFDB) was established in response to this need.

### **THIS STUDY**

The aim of the project is to produce a complete annual audit of the firm, and the relationship to the commercial network within which the firm trades. To this end, the data required is wide ranging and includes:

1. Performance Measures
2. Employment Profile
3. Ownership Structure
4. Balance Sheet Structure
5. Product Width and Depth
6. Customer and Supplier Profiles
7. Manufacturing, Marketing and Financial Strategies
8. Management Structure
9. Location Choices
10. Contact with the Local and National Assistance Organisations

#### **(a) Problems of Data Collection**

Clearly participation in the project is a major undertaking for the owner-manager. Moreover, it is generally realised that the small firm owner is notoriously suspicious of academics. Therefore in order to collect detailed data two forms of sponsorship have been sought -

financial sponsorship and conduit sponsorship. Conduit sponsors are those organisations which are currently working with the small firm, and which agree to collect data from a sample of their client firms each year.

Twenty-five organisations, both conduit and financial sponsors, participated in the planning of the pilot study. They fall into three broad groups -

- a. National Accounting Firms and Clearing Banks
- b. Local Economic Development Units and Enterprise Agencies
- c. Membership Organisations

**(b) Size of the Data Base**

A demographically representative sample of small firms would have been desirable but unfortunately the appropriate population data was not available. Therefore, a pragmatic approach has been taken to the building of the data base through the use of a variety of conduit sponsors. In this way, it is intended that the national organisations will compensate for any geographical bias, whilst the local organisations will compensate for any industrial and size biases. The initial size of the data base will be determined in negotiation with individual members of the conduit group.

**(c) Size of Firms in the Sample**

There is no common agreement as to the boundaries of the "small firm" sector. According to the purpose, statistical definitions range up to 500 employees and to £100 million sales revenue. In managerial terms, a small firm has been defined as one in which the essential management functions are performed by one person - the owner.

It is the purpose of the data base to allow the study of the firm as it grows from an owner-operated company to a "professionally-managed" company. In the initial stages, comparative studies of firms at different stages of growth will be possible. However, over time, individual longitudinal studies will be possible. Unfortunately, little guidance, other than casual empiricism, is available as to the appropriate size range which would include firms at all

stages. Therefore, the initial study will examine firms employing between 5 and 200 employees, and this decision will be monitored in the light of further data.

#### (d) Turnover of Firms

Whilst it is the intention that firms should continue to provide information for the data base longitudinally, it is clear that some will withdraw each year. However, this data in itself will be of value. Thus, three other data bases will run alongside the main project:

1. a 'death' cohort which will analyse those firms which have ceased trading during the year.
2. a 'growth', cohort which will continue to track the high flying firms.
3. an 'unwilling' cohort of those firms which simply wish to withdraw, which will afford an opportunity to monitor for bias.

### **THE PILOT STUDY**

A pilot study was set up in the summer of 1986 to test the viability of both the questionnaire and the system for data collection. Four conduit sponsors were involved in the exercise - two local authorities [Haringey Economic Development Unit and Wandsworth Economic Development Unit] and two accounting firms [Robson Rhodes and Grant Thornton]. The choice of London based organisations was for logistical reasons although the data was drawn from companies nationally. A questionnaire was designed by the pilot study group taking into account both the width and depth of data considered appropriate, and the likelihood of obtaining the data from their small firm clients. Sixty-nine small firms participated in the pilot study and this paper reports the data collected from the pilot study.

### **THE CHARACTERISTICS OF THE FIRMS IN THE PILOT SURVEY**

Though the size of the pilot survey is small it is diverse, and consequently a number of interesting results can be drawn from it. The sample of 69 firms had the following characteristics:

Industry -	42% manufacturing and 49% services firms.
Legal Entity -	85% were incorporated and only 9% were a partnership. Of the incorporated companies, 79% were independent firms and 13% and 7% were subsidiary and holding companies, respectively.
Age -	42% were established in the last decade and a further 22% were established more than fifty years ago. The age of the surveyed firms ranged from a minimum of 6 months old to a maximum of 211 years old.
Employment -	21% had a total employment size less than 11 employees whilst a further 22% had more than 50 employees. The employment size of the surveyed firms ranged from a minimum of 2 employees to a maximum of 228 employees (11 firms did not give full information to this question).
Sales -	32% had a level of sales less than £500,000, 29% had sales between £500,001 and £1 million. The level of sales ranged from less than £100,000 to greater than £10 million.
Profit -	73% made a profit in the last financial year, 8% had broken even and 19% reported a loss.

This paper analyses the differences between surveyed firms in terms of industrial sector, level of sales for the last financial year and the level of profitability for the last financial year.

#### **(a) OWNERSHIP AND EMPLOYMENT PATTERNS**

The main type of full-time employment found in the firms was, not surprisingly, semi-skilled followed by skilled and unskilled employees. A similar pattern was exhibited for part-time employees but in this instance there were markedly less professional and managerial employees. In terms of casual employees the skilled employment base ranged from 1 to 500 employees. Conversely, the semi-skilled casual employment base ranged from 1 to 40 employees and the unskilled casual employment base ranged from 2 to 30 employees. Surprisingly, only a small number of people related to the owner of the business were employed in the surveyed businesses, indicating over time a large number of the surveyed firms had diversified their employment base.

Over 47% of total manufacturing employment was in firms between 21 and 50 employees in size. In contrast, employment in the service sector was relatively evenly spread across the employment size categories. Not surprisingly, firms which had low levels of sales had a tendency to be smaller in employment size, whilst a significant number of firms which had levels of sales greater than £1 million also employed over 50 employees. There was no particular bias in the size of firm which was trading either at a loss or a profit.

Sixty-two per cent of current majority owners and 59% of senior executives were first generation and this applied to both services and manufacturing firms. However, firms which had sales £500,000 or less were usually first generation majority owners whilst firms which had levels of sales greater than £1 million were third generation or older owners and senior executives.

Forty-three per cent of companies had 2 shareholders/partners although a further 23% did have more than 5 shareholders/partners, manufacturing firms having a greater tendency for fewer owners than services firms. This distinction is reflected in the bi-polar ownership structure of firms of various sizes and performance.

One of the aims of the study was to identify the managerial structure of the firm, and to monitor changes over time. The most common functions which were the responsibility of separate individuals were as follows: general management, sales, purchasing, personnel and marketing. Moreover, the most common managerial functions operating within the firms which



were the responsibility of separate individuals were as follows: accounting, finance, general management and purchasing.

## **(b) PRODUCT BASE**

The diversity in the product base of surveyed firms and in the customer and supplier profiles is in part explained by the variety of industries studied - manufacturing firms showing much less diversity and activity than services firms. However, this data does highlight the danger in assuming homogeneity within the small firm sector

In terms of the geographical location of the majority of customers it was found that 69% of customers and 64% of suppliers were within the same region as the firm. However, this data must be viewed with caution because the pilot study indicated that, in fact, categories overlapped and the question was changed in the final questionnaire. Nevertheless, the patterns exhibited were more diverse than expected. Moreover, there was no significant difference between manufacturing and services firms, although the data did suggest that firms which had sales less than £500,000 had locally orientated networks of customers, whilst firms which had higher levels of sales were more nationally orientated; firms with lower levels of sales relied more upon local suppliers (within the county) rather than regional or national suppliers. Also, those firms which had made a profit had over 41% of their customers within the same region as their small firm. In contrast, over 38% of the firms which had made a loss had the majority of their customers located in nationwide locations. Over 45% of the firms which had made a profit had nationally located suppliers. Conversely, the majority of the firms which had made a loss were more locally-orientated and dependent upon suppliers located within the region.

## **(c) COMPETITION**

The majority of small firms saw themselves competing with other small firms, although surprisingly, 23% of firms had no idea about the employment size of their major competitor. Moreover, the majority of major competitors for manufacturing firms were either less than 50 employees in size (42%) or greater than 1,000 employees in size (26%). In contrast, the employment size of the majority of service firms major competitors were found to be between 50 and 99 employees. Firms which had levels of sales greater than £500,000 had a tendency to compete with firms of more than 50 employees. Also, firms which had made a profit generally had major competitors which were less than 100 employees in size whilst 45% of the firms which had made a loss had major competitors less than 50 employees in size.

#### **(d) TECHNOLOGY BASE**

##### **(i) Technology of Production Systems**

For those manufacturing firms in the sample, small batch or unit production was the dominant production process (62%) followed by a large batch or mass production (17%) and process production (17%). Sixty-one per cent of firms used a manual technology for each of the major product lines although some 17% of companies had adopted computer numerically controlled technology.

Whilst a number of surveyed firms were based on old traditional technologies, a number of others had introduced the latest pieces of production equipment. The mean age of the oldest piece of production equipment was 170 months (approximately 14 years old) and the age of equipment ranged from a minimum of 6 months to a maximum of 360 months. In contrast, the mean age of the youngest piece of production equipment ranged from a minimum of 1 month to a maximum of 96 months.

##### **(ii) Technology of the Administrative Base**

The survey identified that manual controls were the major type of technology used in the administrative systems of surveyed firms. This was especially the case with regard to personal

records, quality control, stores and cash flow control. A number of firms stated that they used personal computers but only a small minority of firms used a computer mainframe or computer bureau. Indeed the number of personal computers/word processors per firm ranged from none to 33 with the average being 3. They were used quite extensively for creditors, sales ledger, invoices and management accounts. Both manufacturing and services firms had at least one personal computer/word processor used by a range of people but secretarial and clerical and accounting staff in services firms had slightly greater access to more than two computers. Moreover, it was interesting to note that the most profitable firms had members of staff which had access to more than one computer.

#### **(e) FINANCIAL DATA**

The surveyed firms ranged from very small to quite large firms in terms of sales for the last financial year (excluding VAT) - 10% of firms had sales less than £100,000, 21% had sales between £100,001 and £500,000, 29% had sales between £500,001 and £1 million and 37% had sales greater than £1 million with over half the firms in both sectors showing levels of sales greater than £500,000.

The mean percentage of sales revenue accounted for by their major product was 76%. It would seem that the majority of the surveyed firms appear to rest their fortunes on a single product or service.

Seventy-three per cent of firms claimed that they had made a profit whilst only 19% of firms stated that they had made a loss in the previous financial year with service firms being more profitable than manufacturing firms. Moreover, 44% of manufacturing firms recorded a trading profit/loss between zero and £25,000. In contrast, over 33% of services firms recorded a level of trading profit/loss in excess of £75,000.

The majority of firms rated their company's performance as above average relative to their competitor; 44% of firms claimed their performance on this measure was good or very good and; 85% of firms claimed they expected to increase their sales next year whilst only 5%

of firms expected a decrease. The majority of firms were forecasting a moderate increase in profitability and only 7% of firms anticipated a decrease in profitability. However, in terms of forecast levels of growth most firms were slightly less optimistic, expecting a moderate increase. In fact, 77% of firms anticipated an increase in the level of growth compared to only 1% anticipating a substantial decrease.

In terms of the type of payment adopted for company assets it was found that the majority of firms preferred to own their own assets, rather than lease or hire them, especially with regard to plant/equipment and personal vehicles.

On average, 52% of total costs accounted by variable costs was reported but ranging from a minimum of 5% to a maximum of 92%. It was interesting to note that over 64% of service firms recorded a variable cost base between 1% and 50% in contrast to only 38% of manufacturing firms. In fact, 38% of manufacturing firms claimed that variable costs ranged between 51 and 70%. There were no significant differences recorded between manufacturing and services firms in terms of sales, marketing, training, rent, rates, insurance and research and development fixed costs and they mainly ranged between 1% and 5%.

With the current concern over personal and product liability, the extent of insurance cover was of particular interest. A number of firms had the usual types of insurance policy: buildings (91%); theft, flood, etc (87%); plant/equipment (86%); life of owners/partners (52%); and product liability (46%). However, only 45% of firms had owners/directors personal liability insurance and of these marginally more service firms than manufacturing firms were covered. Conversely, it was found that significantly more manufacturing firms had product liability cover; life of owners/partners insurance; credit insurance; theft, flood, etc insurance; buildings insurance; plant/equipment insurance; and other insurance. Interestingly, firms which had levels of sales in excess of £1 million usually held a wide range of insurance policy cover even with regard to owner/directors personal liability insurance. Moreover, firms which had made a profit tended to hold the following types of insurance policy: life of owners/partners; creditors; ECGD; theft, flood, etc; buildings; and plant/equipment. However, those firms which had made a loss tended to have had owners/directors personal liability; and other insurance policies.

#### **(f) MANAGEMENT OF THE FIRM**

With regard to the frequency of a variety of planning meetings no particular pattern emerged when the data was further analysed by both industry and size of firm.

Only a few firms conducted regular training programmes and half stated that their management teams and workforce had either had irregular training or, no training at all. The most interesting result was that the most frequently cited sources of irregular management training was either the company itself or a trade association closely followed by consultants, whilst the leading sources of irregular training for the workforce was the company, customers/suppliers, further education institutions and consultants. Moreover, no significant differences were reported between manufacturing and services firms. However, the larger firms which had levels of sales in excess of £1 million had provided some form of regular or irregular training for management; firms which had low levels of sales either provided no management training at all or at least modest amounts of irregular training. For the workforce no particular pattern was apparent. It was interesting to find that 43.5% and 50.0% of the firms which had made a profit or a loss, respectively had provided no training for management. Similarly, 40% and 38.5% of the firms which had made a profit or a loss, respectively had not provided any form of training for their workforces. Moreover, 93% of all firms surveyed stated that they had not applied for their staff to be sent on training schemes run by local or central government in the last three months.

Despite the financial success of surveyed firms, 77% recorded that they had never conducted a formal market research survey. Ten of the eleven firms that had undertaken market research during the last year had conducted the study themselves. The cost of the studies ranged from zero up to £10,000 and only 3 firms had gained any form of subsidy. Whilst the sample is very small, some results which justify further study emerge. For example, manufacturing firms which had undertaken a survey had a marked tendency to have conducted it during the last year; over 83% of the firms which had made a profit in the last

financial year had never conducted a research study; and only 63% of the firms which had made a loss had never conducted a research study.

#### **(g) SOURCES OF HELP**

Contrary to expectation 78% of surveyed firms had no contact at all with a local Small Firm Assistance Agency; of the rest only 4% had any regular contact with 17% describing their contact as irregular. Of the smaller number of firms which had contacted a local Small Firm Assistance Agency only 46% had been satisfied with the assistance given and 27% of firms claimed they were unsatisfied. In order to explore the type of assistance networks which the owners used, they were asked who they had consulted during the past three months and the general nature of help sought. Despite popular myth, by far the most commonly used sources of advice and information, were the accountant, the bank and the solicitor, with the accountant being seen as a further source of consulting assistance. Executives were also asked to rank the three most useful sources of help in solving commercial problems during the past three months. From the survey results it was clear that the owner/manager continues to rely upon the commercial network of customer, supplier, accountant, bank and other business contacts for commercial advice.

#### **PERSPECTIVES ON THE MAIN SURVEY**

This paper has outlined the background to CERC, the objectives of CERC, the variety of financial and conduit sponsors contacted, the research methodology adopted and the structure of the small firms data base. A brief discussion of the main findings of the pilot study undertaken has been detailed in order to indicate the range of information that is being collected as well as the future potential of this longitudinal data base.

The pilot survey also uncovered a number of findings which might have direct relevance to the issues that were originally identified as areas for investigation. It must be stressed that the size of the pilot survey did unfortunately limit the relevance of a number of issues which was not totally unexpected. The low statistical power of a number of the presented results is due to the small number of firms interviewed in the pilot survey.

On the basis of the main survey of small firms a regular series of detailed reports will be produced and published in the future covering a wide range of issues and areas of concern. It is anticipated that the size of the data base will grow in the future as the data base and CERC become more widely known and appreciated by practitioners as well as small firm owners.

## **REFERENCES**

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