

CHAPTER 3: RESEARCH METHODOLOGY EMPLOYED IN THE STUDY

3.0 INTRODUCTION.

3.0. 1. Chapter 1 set out the rationale for this empirical confirmatory study of the determinants of effective exporting, operationalised export performance, presented a model thereof, and developed a series of hypotheses for testing. It also made a case for conducting the research in the UK Knitting Industry, whose chief characteristics and markets were described in detail in Chapter 2.

3.0. 2. Building on the output from Chapter 1, this chapter begins with data requirements and sources, goes on to develop the methodology for the study, and reports on its conduct. Data preparation and objectives for analysis are also described. Overall, it addresses the first and second elements of Moser's three broad groups of survey methodological problems: from whom to collect the data, what methods to use for collection, and how to process, analyse and interpret it. (*Moser, C. A. et al, 1971, p 53*).

3.0. 3. The research was conducted from a positivist perspective. It takes *'The view that knowledge is hard, objective and tangible (and) will demand of researchers an observer role, together with an allegiance to the methods of natural science...'* (*Cohen, L. et al, 1994, p6*).

3.0. 4. The discussion and development of the research methodology is split into these six parts:

- Data requirements and the target population;
- Main data collection methods;
- Selection of the sample;
- Design of questionnaire/ survey instrument; .
- Conduct of the survey and follow-up
- Preparation of the data and objectives for analysis

3. 0. 5. Minimising measurement error. It will be useful to digress briefly at this point to highlight the importance of minimising measurement error throughout the project. This is a key requirement for sound research and its achievement demands that close attention be paid in particular to the achievement of reliability and validity. These two interlinked concepts are defined as follows:

Reliability: A measure is reliable to the extent that it gives consistent measurements in situations that are comparable (*Fowler, F.J., 1993, p69*). Reliability varies inversely with random error...It is a necessary but not a sufficient condition for validity (*Diamantopoulos, A., et al, 2000, p33/34*).

Validity: Validity is indicated when the answers extracted by a given measure correspond to what the researcher was attempting to measure (*Fowler, F.J., op cit, p69*). The validity of any specific measure is shown by the degree to which it is free of both systematic and random error (*Diamantopoulos, A., et al, op.cit., 2000, p33*).

3. 0. 6. Random error, (one of the two main determinants of accuracy), or chance variation, arises in a range of conditions, including sampling and measurement, and tends to be self- correcting. The main sources of systematic error (which is not) may lie in the characteristics of the measuring instrument (eg questionnaire), process (eg interviewer), or respondent (*Diamantopoulos, A., op.cit. ,p34*). In each of the sections that follow care is taken to remedy as far as possible the causes of error that apply. But there is also a general need for the project's sound administration throughout. We now move on to its first stage.

3. 1 DATA REQUIREMENTS AND THE TARGET POPULATION

3. 1. 1. We may usefully commence this section with two questions: 'What type of data did the research require' and, 'Where could it be obtained?'. The answer to the first is of course that the nature of the data required flowed from the objective of the research which sought to identify the determinants of effective exporting in the UK knitted apparel sector. Thus broadly what was needed were data relating to companies' export performance and how they conducted their exporting activities. More specifically, the main focus of the information gathering needed to be chiefly on the dependent and independent export performance variables. The IVs are operationalised below, in the questionnaire.

3. 1. 2. Turning to the second question, the required data would have to come, directly or indirectly, from some or all of those United Kingdom knitting manufacturers, operating in one or both of the cut & sewn and fully fashioned subsectors of the industry, who were exporting knitted apparel (but not knitted fabric) to one or more overseas markets.

3. 1. 3. Data availability: A further question was whether the required performance data were already available, in primary or secondary form, or would they have to be extracted by the researcher. As Moser observes, 'if no suitable frame exists, one may have to be constructed' (*op.cit.*, p158). Unsurprisingly perhaps there were no indications that suitable UK knitting sector data were already available. First, taking academic studies, only three on exporting by the UK knitting industry were found in the literature search. Two of these (Tookey, D., 1964, 1975) — were very old; another, comprising case studies, was regional (Johnsen, R.E., et al, 1999); a fourth study, by Crick (Crick, D. et al, 1995), was merely exploratory in nature and was not confined to knitted apparel. More relevant was our related 1989 study (See Chapter 4) but it too was dated. Though useful in other ways, none of the 5 could supply basic input for the study. Second, existing official statistics for the

knitting sector –whose shortcomings were described in Chapter 2, could not provide required information either. There was thus a need to collect new data specifically designed for the requirements of this present study, by undertaking our own research among UK knitting exporters; and the necessary first step was to seek to identify this population.

3. 1. 4. The Population Of UK knitting exporters. Sound survey research requires that as many as possible of the relevant total population units are identified and included (without duplication) in the survey process. If the number of those identified falls significantly short of the full population, a serious potential for error arises. Those excluded from consideration may well differ in important respects from those that are investigated. If they do, the findings from the study will be distorted (*Cohen, L., et a, op.cit, p 87*). Moser lists this shortfall, together with non-random sampling and failure to locate some elements/refusals as the key sources of systematic non-compensating error (*Moser, C.A. 1971. p 79*). And these difficulties can be made more explicit. As was argued earlier (Chapter 1), doubts about the completeness of the sampling frames used by a number of the studies reviewed by Zou and others casts doubt on the reliability of those studies' conclusions.

Thus whether the research seeks to embrace all of the population or only a part of it, serious error may enter in to the extent that the full, or close to full, population has not been located.

3. 1. 5. However, for the UK knitted apparel industry there was no known pre-existing list of exporters. Lists, at least those publicly available, are partial ones. Of these, the industry's main export body, UK Fashion Exports, lists in its annual handbook; *The Fashion Buyer's Guide To Britain*, exporting firms from both the knitting and clothing industries. Not included are those knitting exporters who have resigned or were never

members. And, as with all similar lists, its erosion is a continuous process. It could not have been a suitable sampling frame for this research.

3. 1. 6. To identify an adequate target population/sampling frame, the present study, with input from industry leaders, searched thoroughly all known and probable sources for current UK knitting exporters, in hard copy and on the Internet. Where doubts existed about the precise sub-sector *ethnicity* of a firm, cross checks were made, by telephone and by using other lists, and some names were deleted. A key guiding principle of the search and assessment was to minimise population coverage errors in the form of one or more of omissions, duplications or wrongful inclusion of units (*Statistics Canada, 2008, D/L; Stevens, R.E. et al, 2006, p174*). The net outcome of this very rigorous and time-intensive process is tabulated in Table 3.1. Overall, and despite problems, these 196 companies were considered to comprise the great majority of the UK exporters of knitted apparel, bringing the sampling frame into near-coincidence with the target population. (In fact, they were later found to overstate both somewhat).

3. 1. 7. One difficulty with most of the data sources used was the very limited amount of detailed information available on the export performance of these firms. Such data could have expanded the survey research design options, but their absence is not thought to have limited the scope or effectiveness of the project.

3. 1. 8. Summary: This section defined the target population, indicated why new research was required, outlined the difficulties that stem from any failure to locate all members of the population of interest; and, through an intensive search, identified a sampling frame of 196 UK exporters of knitted apparel. It also described briefly the chief forms and sources of measurement error in research. In the next section the main methods of data collection are considered and that for use in the present project decided.

Table 3.1: UK knitting exporters at end-2000: sampling frame sources of data

<u>Source</u>	<u>No of Firms</u>
Leicester County Council	87
UK Fashion Exports	61
Scottish Enterprise (Regional sublists)	24
Nottingham Clothing Observatory (NCO)	24
Industrial Development Board (NI)	5
London Agent (Group of Scottish Firms)	5
' Key British Enterprises' (Dun & Bradstreet,2000)	5
TradeUK: Official British National Exporters Database (May 2000)	3
— Other Internet	1
Welsh Development Authority	1
Other	1
<u>Total</u>	217
Less (mainly NCO) non-knitting sector	21
UK Knitting Exporters: Sampling Frame	196

3. 2. MAIN DATA COLLECTION METHODS

3. 2. 1. Overview: Having identified the most comprehensive population of knitted apparel exporters possible, it is appropriate now to move on to review the main data collection methods and to select that which appears to be best suited to our research project.

3. 2. 2. The main collection methods are listed as: experimental; observational; longitudinal/panel; and point cross-sectional survey. The latter, conducted by one or more of mail questionnaire, face-to-face, or telephone interviews might take the form of a census or a sample survey.. Each of these is assessed below- against the background of three relevant criteria: effectiveness in demonstrating causality; avoidance of bias; and an acceptable level of response at an affordable cost.

3. 2. 3. (i) The experimental method, the paradigm for the natural sciences, can be a valuable means of investigating causality:

The essential feature of experimental research is that investigators deliberately control and manipulate the conditions which determine the events in which they are interested. At its simplest the experiment involves making a change in the value of one variable – called the independent variable- and observing the effect of that change on another variable–called the dependent variable (Cohen, L.,. op cit, p164)];

More sophisticated versions of the method can include eg `double blind' procedures, use of placebos and the random allocation of subjects to experimental and control groups.

3. 2. 4. It is not a feasible approach for use in knitted apparel export performance research for at least four reasons. First, it would not be realistic, partly on resource grounds, to expect to set up a knitted apparel exporting `test-bed' where the effects of different variables could be tested for their impact on export performance; second, nor could the researcher expect a UK exporter of knitted apparel to surrender control of all or part of its export activity so that the researcher could experimentally test different approaches. Third, it appears even less likely that the number of firms required for representativeness would participate. Finally, multiple interacting causes and effects, many of which may not be

within the control of firms, are characteristic of management and marketing and we could not hope to model these realistically in any experimental set-up. Overall, the experimental method is clearly not a feasible option for our research - though it is probably the best suited of the available methods to the investigation of causality.

3. 2. 5. (ii) Observational research, a further data collection route, has been defined as follows: *Observational research is the systematic process of recording the behavioural patterns of people, objects or occurrences without questioning or communicating with them. (University of Idaho, 2008. D/L)*

3. 2. 6. Seeking necessary data either by observing at arm's length or by actually joining the group the researcher is studying (participant), a methodology often found in sociology and anthropology, can be an effective way of investigating how actions and events take place; where, for example, respondents may not have the required information or may not be able to recall it clearly (*Moser, C.A. et al, op cit, P244 et seq*). This form of research can also help to avoid the problems that can stem from sole reliance on self-reported data (*University of Idaho, op cit, 2008*).

3. 2. 7. Observed actions can indeed often speak louder than words; but may still leave unanswered the motivation for them- and the nature of the attitudes and opinions of the actors involved. This form of investigation can involve other problems and disadvantages, especially those of the risk of observer bias, the impossibility of recording past behaviour, and the difficulty of locating a random selection of respondents. And, as Brown explains, the phenomenon being investigated must not only be observable but actually be observed several times (to establish reliability) (*Brown, L: LAB19@ Cornell. Edu, 2008, D/L*).

And Moser stresses the general difficulty of distinguishing clearly between observation, inference and interpretation (*Moser, C. A., et al, op.cit, p 253*).

3. 2. 8. For a variety of reasons, observational research, too, does not seem to be well-suited to this research project. First and foremost, our target respondents can be expected to be very knowledgeable on the subject of the research and tapping in to this `database' is mainly a matter of, first, persuading them to take part and then asking the right questions, not of watching what they do. [Here it may also be noted that firms' self-reported performance data are likely to be quite reliable (*Leonidou, L.C., 2002, p56*), diluting one reason for the use of observation]. Next, and partly for this reason, negotiating with the selected companies extended periods of access to their operations is likely to be difficult – and in any case their exports-related activities may well be discontinuous. Finally, the cost in time and money of conducting observational research in a considerable number of dispersed companies is likely to be prohibitive – and far beyond the resources of this research.

3. 2. 9. (iii) Longitudinal /Panel: method of data collection:What is probably the most common form of the longitudinal/ panel approach involves the collection of required data, at two or more points in time, from a panel/ sample of respondents who have been carefully chosen, on relevant criteria (eg income, education, age), to be representative of the area (eg consumer goods purchases) in which the researcher is interested. Contrasting with this secular version is the static cross-sectional sample survey, conducted at one point in time(or over a relatively short period).

3. 2. 10. One important advantage of the panel approach is its ability to collect data on trends in (eg) product purchases over a period. Another is its key role in inference and the investigation of causality; for example, effects cannot precede their causes. Finally, data collected from a panel at two points in time generally achieve a greater level of precision in measuring change than would two independent survey samples of the same size. To these may be added the fact that, as the panel will have an extended life, the overhead costs of setting it up will be absorbed, not by one but by a series of surveys.

3. 2. 11. But there are also general disadvantages with this collection method. One is the difficulty (though not unique to it) of selecting and achieving the representative sample of respondents required. A second main concern lies in the attrition of panel members over time, for a variety of reasons, including loss of interest, loss of contact, death and emigration. Thus, an important problem is how to keep the panel properly representative. Third is conditioning; through their participation in the work of the panel, members may change in outlook and other ways to the point where they are no longer good proxies for the target population they are intended to represent. (*Moser, C.A. op cit., p137 et seq*).

3. 2. 12. Although, the panel method's apparent suitability for investigating the causal determinants of effective exporting makes it a plausible option, its use as the main data collection method does not appear feasible – for compelling reasons additional to our limited resources. One is the extra difficulty that may be expected in persuading exporting knitters to provide extensive data not merely on one but on two or more occasions. Next, and arising from this probability, it seems unlikely that a representative selection of firms would agree to participate-; (indeed- and this might also apply equally to the experimental and observational collection methods- it might only be possible to secure the participation

of a handful of firms; a few case studies would neither represent the sector nor generate the range and depth of data required by this research). Finally, the time required may be unacceptable; longitudinal data requires at least two collections and probably more before its full benefits emerge.¹

3. 2. 13. Of the background method selection criteria mentioned above (Para 3.2.2), the avoidance of bias is a continuing concern throughout the project. Turning to the others, it is clear that the experimental, observational and longitudinal data collection methods would be, *cet. par.*, suitable for investigating causality and demonstrating it if found. However, and apart from specific reasons given above, all three of them fail on acceptable level of response and cost.

3. 2. 14. (iv) Cross-sectional: Given that none of these three collection methods could be employed, it was not possible to investigate causality directly. Moreover, as case studies would not answer, it was clearly necessary to have a representative selection of exporting firms and to employ the point cross-sectional approach to data collection, under which the required data are collected at one point in time rather than at discrete intervals. This method does have the merit of greater speed than the three foregoing, mainly because data collection and analysis can usually be completed more quickly. We now turn to an assessment of the 3 main options for collecting our cross-sectional data. Their chief strengths and weaknesses are set out in Table 3.3.

¹ Our 2007 responses from a random selection of 8 of the firms participating in the original 2001 survey, covering largely the same ground, could be seen as a panel providing data on two occasions.

3. 2. 15: Prominent among the factors we needed to consider before deciding the most appropriate route(s) were five. First, the broad amount of information required (*Cohen, L. et al, op cit., p 92*). Second, the implications for the available resources of the likely size

Table 3. 2: Chief merits and demerits of the other 3 main collection methods.

Factor/ Aspect	(1) Mail	(2) Personal Interview	(3) Telephone Interview
Sample size/ dispersal	Unimportant	Limited by numbers	Better coverage than (2)
Gaining Cooperation	Less effective	Probably best, mostly	Risk refusal / low rapport
Scope:probe/ clarify	Very limited	Extensive scope	Fair scope
Consultation by Resp.	Extensive scope	Very limited scope	Very limited scope
Interviewer error	None	Possible	Possible
<u>Questionnaire:</u>			
- measurement scope	Full	Full	Limited
- o/ended questions	Seldom useful	Well-suited	Suited
- document length	Reasonable scope	Reasonable scope	Often shorter than (1),(2)
Survey Duration	Several months	<(1), > (3)	Shortest of the three
Response rate	Tend lowest	Likely highest	Likely higher than mail
Cost	Generally cheaper	Highest	Cheap/ cheaper than (2)

Notes:

(i). Table 3. 3 is the writer's composite interpretation of the treatments of surveys given by C. Moser et al (1971); F J Fowler (1993); V. Barnett (1991); L.Cohen et al (1994); and L. England et al (1986)

(ii) `Consultation by Resp.` means with other people and/ or records. `Interviewer error' is intended to cover both bias/ misinterpretations plus distorted answers from Respondents.

(iii) Ratings are not of course rigid eg mail response rates can be improved by various means.

and dispersion of the survey companies. Third, the benefits of respondents having sight of the document. Fourth, the motivating of respondents to consult company records where

possible. Finally, the desirability of reducing variability and promoting uniformity in research practice.

3. 2. 16: Against these criteria, two of the three main approaches were seen not to be realistic options. On resources grounds alone, it was clearly not possible to conduct face-to-face interviews with a representative group of exporters. And, although a telephone survey does not involve travelling expenses, the expected length of the questionnaire together with the likely dispersion of the survey firms implied very substantial telephone costs. Moreover, each firm would have had to be telephoned, the survey 'sold' to them, and, then or later, willing respondents' motivation maintained for an hour or more - by a disembodied voice. These are formidable obstacles.

3. 2. 17. Thus, primarily on resource, survey instrument length and dispersion of exporters grounds, the best option was judged to be a mail survey, to be supplemented by telephone follow-up. Choosing the mail route also fortified the trend, welcomed by Zou (*Zou, S., 1998, p 340*), towards making this the standard survey method for export performance research. It could also, given good design and other incentives, be expected to produce a useful number of completed questionnaires without the need to press further the survey firms.

3. 2. 18. Summary: In this section all of the main data collection methods were assessed. The three best suited to the investigation of causality- experimental, observational and longitudinal methods- were judged to be impracticable on cost and other grounds, as was the face-to-face interview approach. The method chosen was that of the mail questionnaire, to be conducted in the form of a point cross-sectional survey and supplemented by

telephone follow-up. The next section is concerned with the scale, coverage, depth and focus of the field research

3.3 SCALE, COVERAGE, DEPTH AND FOCUS OF THE RESEARCH

3.3.0. Overview: This section considers and decides upon the scale, coverage and focus of the survey, under the subheadings of : census or sample; broad mix of companies required; unit of analysis; and target company respondent .

3.3.1. (i) Census or sample: Having chosen the mail survey data collection method , to be augmented by telephone follow-up and carried through by a point cross-sectional survey, it is timely to consider the matter of scope. The next issue therefore was whether to conduct a full census of the 196 exporters shown in Table 3.1, or to survey only a proportion of these.

3.3.2. A cost/ benefit assessment of the two approaches identifies the main advantages of the census as: first, that, because calculations are based on data from the full population, sampling variability does not occur; and, second, detailed information is available on small subgroups of interest. On the negative side, the census will be more expensive to conduct, take longer, require more rigorous management and control, and make greater demands in requiring responses from every unit in the target population.

3.3.3. By contrast, the sample approach, which embraces only part of the population, will be cheaper, faster, impose a less onerous response burden and lend itself to better monitoring and quality control. Two main disadvantages are: first, that unlike the census, sampling variability does occur hence data may not be as precise; and the sample may not be large enough to provide required detailed data on relevant population subgroups

(Statistics Canada, 2008: D/L March, 2008). However, both approaches are of course susceptible to bias.

3. 3. 4. So which method should this project have adopted? As indicated above, a survey of the full population confers major benefits but also imposes heavy demands, even with a relatively small sampling frame such as ours. Arising from the problems seen to stem from low response rates in earlier research (See Chapter1), high priority was given in this project to realising an acceptable response level- of more than 50 per cent. In the light of previous experience and the literature, it was anticipated that other response-promoting necessary steps would have to be complemented with fairly intensive survey follow-up. Given our paucity of resources and the demands made by other non-research commitments, it was clear that 196 firms could not be followed-up effectively in an acceptable time period. It was thus important to avoid the *'classic mistake of putting too many resources into a large sample and too few into managing non-response'* (Young, J., 2005, p188.). Therefore it was decided to survey a sample of the population of UK knitted apparel exporters, and not to conduct a census.

3. 3. 5. (ii) Broad mix of companies required: While the design of the sample is discussed in detail below, it is appropriate to mention some of its main requirements here. It needed to include firms from all of the main size bands, from small to large, and product groups; outerwear, underwear and hosiery. In turn, products would need to represent the full variety of sector output in terms of gender, fashion, fibre, price and brand/contract. Ideally, it should also have included a range of export performances by the constituent companies- but as this information was not available with the sampling frame, the availability of these data waited on the receipt of returned questionnaires. Available sampling frame data suggested that this information would be extracted by the survey.

3. 3. 6. (iii) Unit of analysis: It is convenient at this point to digress briefly to discuss the appropriate unit of analysis. As indicated earlier (See Chapter 1) and assumed above, the focus of the survey research was at micro or firm-level rather than that of the export venture (one product/one market). However, leading scholars in the field favour the export venture, claiming that, except for small firms with only one product line: .. *...using the firm as the unit of analysis can result in inaccurate measurements of strategy and performance variables in studies that target medium and large firms with diversified business portfolios.* (Cavusgil S. T. et al, 1994 quoted in Zou, S., et al, op cit 1998, p341).

3. 3. 7. There can indeed be justified grounds for concern where the products are clearly diversified — not merely differentiated (George, K.D., et al, 1981, pp 56,100-101) — and export markets are also diverse; and indeed we have already expressed it earlier in regard to the impact of cross-sectoral variability on the soundness of survey results. (Chapter 1). However, this risk must be qualified by theoretical and practical factors. First: *Firm-level studies may be appropriate for small firms that often have only one product line...*(Zou, S., et al, op.cit, p 341). But it must be stressed that in the UK knitting industry this exclusion applies generally; predominantly, apparel firms have only one product line— apparel. Second, to the extent that all of our survey knitting exporters serve other EU markets, there will be less market diversity because of the *Single European Market*². Third, although there may be exceptions, it seems unlikely that many knitted apparel exporters would be in a position to provide required data at the export venture level. Fourth, Buckley & Casson's (1985) theory of internalization supplies a theoretical justification for the firm-level approach. (Cavusgil, S. T. et al, op cit.,1994, p 3). Finally,

the preponderance of firm-level export studies gives potentially much greater scope for insightful comparisons than do the relatively few export-venture ones that are known *to* exist so far. For these combined reasons, the focus in this research was placed on the firm, not the export venture, as the unit of analysis.

3. 3. 8. (iv) Target company respondent: To minimise the risk of bias it was clearly desirable to target the mail shot at the most relevant manager in each company, rather than leaving its recipient to chance³. On the face of it, the most appropriate recipient would seem to have been the export director or export manager. There were, however, three compelling reasons for deciding otherwise. One was that our survey sample could be expected to include numerous small knitting companies, many of whom were unlikely to have specialist export managers or directors. Next, the managing director was almost certainly best placed to paint a rounded picture of his firm's exports in the context of its operations as a whole. Finally, seeking to persuade the MD directly would 'play' to their sense of the fitness of things and if persuasion was achieved, the questionnaire could be passed on internally to the right specialist with the MD's *imprimatur* attached. The target recipient within the survey firms was therefore its managing director, (to be addressed by name). Although we arrived at this decision on the grounds indicated, it is perhaps not surprising to find that other surveys, including Crick (*Crick, D., et al, 1995, p 14*) made the same decision for similar reasons.

3. 3. 9. Summary: In this section we considered four aspects of the coverage and focus of the survey. Chiefly on resource grounds and the need to maximize response, we opted for

² Though diverse enough to justify our treating them, in this research, as separate export markets. See Ch 2.

³ The risk of common method variance is addressed below.

a sample rather than a census survey; described company and product characteristics which would need to be adequately represented in the sample; confirmed that the focus would be on export performance at firm, not export venture, level; and decided that the mail questionnaire should be addressed to the managing directors of sample firms. We now move on to the selection of the sample.

3.4. SELECTION OF THE SURVEY SAMPLE

3.4.0. Overview: This section begins with a recognition of the many sampling and non-sampling problems associated with the sampling process. Next it discusses the two main categories of sampling method and makes a choice. Third, it considers and decides upon sample size. Fourth, it takes steps to improve sample precision.. Finally, it chooses the specific sampling technique and then selects the sample- which is displayed in tabular form.

3.4.1. There is an extensive literature dealing with the key aspects, including the complexities and problems associated with the selection of firms for survey. Thus Moser *et al*, (1971), Kalton (1983), and Barnett (1991) all give extensive coverage to this element of research. As noted above (Para 3.0.5 *et seq*) , those that were of most concern to us in this sampling-based project related primarily to measurement error and fell into the categories of reliability and validity. We now turn to a consideration of the two main approaches to sample selection: probability and non-probability methods.

3.4.2. Probability and non-probability sampling methods: Taking the second of these two major divisions, the main non-probability methods are four: Convenience sampling, in which sampling units are chosen because they are readily accessible: Purposive samples are selected with a specific objective in mind and without concern for their

representativeness. Quota samples are chosen to meet some pre-specified criteria believed to apply to the target population, with freedom to select among all that align with these criteria. With Judgemental samples the researcher first makes a judgement on what constitutes a representative sample of the population of interest and then assembles the sample by choosing units considered to fit in. (*Diamantopoulos, A., et al, 2000, p14*).

3. 4. 3. Of these four non-probability sampling methods, the judgemental version was the only one with a possible *prima facie* claim to suitability. Such non-random samples of companies may have strong practical value, yielding very useful information about the characteristics and practices of their members. This was, for instance, the method chosen by NEDO EDCs for their survey-based guides for clothing (*NEDO, CEDC, 1979*), wool textiles (*NEDO, WTEDC, 1980*); and the knitting supply chain project (*NEDO, KEDC, 1987*). All three studies benefited from much sound existing data, were designed and guided by experts, and were influential. But, even with this pedigree, a second, testing-out stage was envisaged for the last of these.⁴

3. 4. 4. . Despite the great utility of expertly-designed judgemental samples, they crucially lack the external validity that justifies statistical inference. Because of the subjectivism involved in the selection process, in both cases, it is not possible validly to extrapolate the findings from a study of the sample to the population from which it was drawn, nor to estimate sampling error (*Fowler, F.J., 1993, p 27*) . External validity can only

⁴ And a similar degree of caution about judgemental samples was exercised in respect of an EU-wide study, of which the writer (post-NEDO) conducted the survey of the UK Electronics industry. In the report cited this entire study was described as a 'pilot-project'. [New Industrial Subcontracting in Europe. First results. European Communities, 1997]

be achieved by the use of random selection methods. As this study builds on previous cross-sectional research and requires external validity, it had to collect its data via a randomly selected sample of knitting exporters. (We have already noted that a census was not feasible: para 3.3.1). Our next steps were to decide upon sample size, consider how its precision might be increased and to choose the method by which the sample was selected.

3.4.5 **Sample Size:** At the general level there is no obviously right size for a random sample, whether as a minimum proportion of a known population or otherwise (*Fowler, F.J., : op cit, p33*). But if it is too large it will imply a waste of resources and if too small it is likely to yield an estimator of inadequate precision (*Barnett, V., 1991, p31,32*). There is, however, a rough benchmark for the minimum size: *Thus a sample of 30 is held by many to be the minimum number of cases if the researchers plan to use some form of statistical analysis on their data...(Cohen, L., at al, op cit.,1994., p89)*. We set our sights higher. But any decision on size has to take account of a range of factors. Chief among these are the need for it to be large enough, net of likely refusals and other non-responses, to provide the necessary degree of precision while facilitating all desired data analyses, within the resource constraints applying. Two main approaches to deciding size are 'required precision' and 'available resources'.

3.4.6. If we take the first of these, sample size can be derived from the level of precision (which increases with sample size) required in the estimators (eg from sample mean to population mean) to be drawn from the sample. We might first set the standard error at, say +/-1% and a 95% confidence level. From the formula for the SE of a percentage, $se \% = \sqrt{pq/n}$, sample size can be derived by substitution (*Ilersic, A.R.,*

1964, p 265). But this applies to simple situations only and there are two other complicating factors: for a stratified sample a different formula is needed; and given that our final sample will inevitably comprise a significant proportion of the 200-strong sampling frame, the *finite population correction (fpc)* will be applicable.

3. 4. 7. The ‘required precision’ approach is, *ceteris paribus*, feasible only in the case of single variables or if there is one estimator only that is of prime interest from the perspective of the research. In our present multi-faceted study of the determinants of effective export performance there are many apparently equal competitors. In this case it was not clear there was any rational means of selecting a variable on which to base the standard error precision limit nor any good reason for selecting one of the many available over another; hence our sample size could not be found by this means. We also kept in mind here that the focus of this research project was to test hypotheses about population parameters, not to estimate these parameters (See also Chapter 1 on this dichotomy).

3. 4. 8. Nor was there any point in seeking to arrive at required sample size by making detailed estimates of minimum numbers of cases required for the analysis of subcategories of data (already done in broad terms). Other things were not equal. Of the range of factors noted in para 3. 4. 5. , one— the available research resources— was a determining factor. Our aim was therefore to select the largest sample that could be afforded and to seek to maximise its precision. On this basis, the target sample size was set at 100 — about half of the sampling frame — in the expectation that this would provide a net final sample of 60-80 exporting firms.

3. 4. 9. Size stratification: As our sample was thus likely to be somewhat smaller than optimal, it was desirable to enhance its precision by other means. To this end, if the

sampling frame could be stratified by a variable — eg region, size— that was closely related to the purpose of the survey a significant increase in the precision of estimators could be gained⁵. Variability in the frame arises of course both within and between strata. But the subsamples are selected entirely within strata; hence inter-strata variability will be eliminated. (*Moser, C.A., et al, op cit., p 85*).

And Kalton has this to say:

The benefits of stratification derive from the fact that the sample sizes in the strata are controlled by the sampler rather than being randomly determined by the sampling process (Kalton, G.,1983, p 19)

3. 4. 10. As might be expected, strata need to be mutually exclusive, collectively exhaustive, with each member of the sampling frame appearing in one stratum only (*Newbold, P., 1991, p 798*). The greater the differences between the means of the various strata, the lower will be the variation and hence the greater the precision of the estimators. Put another way, the greater the heterogeneity between and the greater the homogeneity within strata the greater will be the precision (*Kalton, G. op cit. P21*).

3. 4. 11. Because stratifying by a variable unrelated to the objective of the research will provide no gain in precision (Para.3. 4. 9), it was of course important to select one that was. Knitting exporters were stratified on the basis of their relative sizes, as measured by employee numbers: very small (1-49); small (50-99); medium (100-399); and large (400+). Stratification by size was considered relevant and helpful for two reasons: First, it reflects the variety in the scale and quality of resources — management, finance and otherwise—

⁵ Considered to apply equally to our testing of hypotheses about population parameters, not estimating them.

which the firms can bring to bear on their exporting activities⁶. Second, stratification in this form ought also to *help* meet Zou et al's concern about possible confounding owing to differing characteristics of medium and large-sized firms, minimal though that risk is here (*op.cit.*, 1998, p 353). With strata mean values of respectively 22 (12), 65 (14), 186 (82), and 1263 (1122), they are unlike enough to ensure worthwhile gains in precision [bracketed figures are standard deviations]. Finally, because of the very small number of large firms (only 10), we felt justified in adding a single extra firm from this stratum without the need to depart from our use of a uniform sampling fraction (sample proportional to numbers).

3. 4. 12 Sample Selection: Three prime options for the selection of our half-sampling frame-sized stratified random sample were sampling with replacement, sampling without replacement (also known as simple random sampling -SRS) and systematic sampling. (Cluster sampling, a two-stage process in which a small number of geographical areas are first selected randomly and then a census of all units within each conducted, was not considered necessary or appropriate, partly because of the high geographical concentration of the industry).

3. 4. 13. The third option, systematic sampling, is really quasi-random sampling, in that only the first selection is chosen at random and when it has been made, all subsequent elements in the sample will also have been determined; each will be separated from its neighbour by the constant interval set by the sampling fraction for each stratum (*Moser, C. A. et al, op cit, p 81*). With systematic sampling, unlike simple random sampling, the probabilities of different sets of elements being included in the sample are not all equal-

⁶ We do of course investigate later (Ch.5) whether export performance is correlated with firm size.

hence the SRS standard error formulae are not directly applicable (*Kalton, G. op cit, p 18*). But provided the sampling frame excludes internal regularities, and is arranged in essentially random order, a systematic sample will approximate to the simple random one; and, as Barnett comments, it is then possible to combine sound sampling with administrative convenience (*op cit.,p 35*).

3. 4. 14. Although our sampling frame, arranged in alphabetical order, was believed to meet fully the 'essentially random order' condition, 'administrative convenience' did not weigh heavily when, as here, the sample size did not exceed 100 firms. That being so, we preferred simple random to quasi-random sampling and opted for the 'without replacement' form, chiefly on the grounds that it produces more precise estimators than its 'with replacement' counterpart (*Moser, C.A., et al: op cit., P 81*).

3. 4. 15 The completed sample: Our survey sample, overall almost a 50 per cent proportion of the sampling frame, was selected, in the same proportion and in turn, from

Table 3.3 : Sample Firms & Products: Relation To Sampling Frame & Its Products.

<u>Size:</u>	<u>Firms</u>			<u>Products</u>			
	<u>Sample</u>	<u>Sampling Frame</u>	<u>(%)</u>	<u>O/wear</u>	<u>U/wear</u>	<u>Hosiery</u>	<u>Multi-Product</u>
V. Small*	55	110	50	44	5	9	5
Small*	12	24	50	6	3	4	2
Medium*	27	54	50	19	4	6	2
Large*	6	10	60	5	1	3	1
Totals	100	198	—	74	13	22	10
S.Frame	—	—	—	100	9	37	14
S as % of SF	—	—	—	74	144	59	71

Notes: (i) * V.Small (1-49); Small (50-99); Medium (100— 399) and Large (400+) employees- sizings used by the Hosiery and Allied Trades Research Association (HATRA).
(ii) In the 'Large' stratum the 50 per cent ratio has been exceeded because of the very few firms therein.
(iii) The above sample reflects the geographical distribution of the UK knitting industry.
(iv) In Chapter 4 sampling-frame firms are re-classified into small, medium and large size bands.

the very small, small, medium and large strata of the sampling frame, by the simple random sampling method, using random numbers drawn from statistical tables (*Lindley, D.V. et al,*

1953, p12,13), after each firm in the four strata had been given a unique identification number.⁷ Table 3.3 above sets the sample in the context of the sampling frame, showing its representativeness in terms of firm sizes and products.

3. 4. 16 Summary: Main factors influencing sample size were considered above. The compromise value of '50 per cent of sampling frame' was decided upon, chiefly on grounds of limited researcher resources and with the aim of ensuring an adequate net sample size. To reduce variability and increase the precision of the sample, the sampling frame was divided into four strata, based on company size, after which a uniform sampling fraction was adopted. Then the simple random sampling method was chosen. Finally, using proportional sampling, the appropriate number of firms was selected from each of the four size-based sampling frame strata.

3. 5. DESIGN OF THE QUESTIONNAIRE / SURVEY INSTRUMENT.

3. 5. 0 Overview: This section indicates how the information needs of the survey were established, describes main questionnaire design criteria, and reports on the pre-test /pilot testing of the instrument.

3. 5. 1. Questionnaire Design: The overall design of the questionnaire stemmed of course from its primary purpose, which was to collect, via a postal survey of the selected sample exporters, enough relevant information to test the 11 hypotheses bearing on the determinants of effective exporting in the UK knitted apparel sector (Chapter 1). The related second aim was to create a self-explanatory instrument whose appearance, structure, content and length would be fully intelligible to the recipients and enhance

⁷ In Chapter 4 survey sample firms are re-classified into small, medium and large size groups.

motivation to respond. And the completed questionnaire had also of course the task of operationalising the independent variables.

3. 5. 2. General structure: In line with Cohen's advice, our first step was to identify the main field research subtopics and then to itemise the questions relating to each. (*Cohen, L. et al, 1994, p92*). The subtopics identified and listed below; and the detailed questions relating to each – the content of subsections- were formulated in the light of the literature review, the 11 hypotheses developed in Chapter 1 and our 1989 research. Main sources for subsection content are shown in Annex 5

Subtopics

- | | |
|-----------------------------|-----------------------------------|
| (i) Company particulars | (ix) Export markets |
| (ii) Main technology | (x) Promotion |
| (iii) Products ⁸ | (xi) External services |
| (iv) Export organisation | (xii) Performance & profitability |
| (v) Export history | (xiii) Marketing & distribution |
| (vi) Information sources | (xiv) Main benefits & obstacles. |
| (vii) Product pricing | |
| (viii) Market selection | |

3. 5. 3. Although the design focused centrally on the variables of most direct and explicit relevance to the testing of the hypotheses, it also provided for the collection of other information that gave greater perspective on company operations and was also likely to have a bearing on export performance. The main instances are: (i), (ii), (iii) and. (xiv). Taking (iii) for example, a firm exporting high-price luxury garments appears likely, other things being equal, to require a larger number of export markets than one selling volume

⁸ Product information at our level of detail seems rarely to appear in export studies.

products of a more 'commodity' nature. And exporters' motivation to export may well be affected by the numbers of benefits and obstacles to exporting they perceive (xiv).

3. 5. 4. Questionnaire: Layout, structure, order and length: Consonant with common sense and experience, buttressed by expert advice, we sought to enhance intelligibility and to encourage responses by producing a professional-looking layout and employing a rational structure comprising a series of appropriate subsections (based on the above subtopics), presented in logical order (*Cohen, L., op.cit.,p 92-96*). Acceptable length varies with the population being studied (*Fowler, F.J., op.cit. ,p 103*). While length was not considered a major constraint for the knitting sector, our questionnaire was made as short as possible consistent with obtaining all of the required information. Its drafting probably benefited from the writer's experience with numerous surveys at NEDO.

3. 5. 5. Questions: Main criteria for drafting: The questions and their characteristics needed of course to resonate with the design criteria specified in the opening section. Overall, the document had to motivate response by facilitating easy and rapid completion by respondents while also contributing to ease of editing, coding and data analysis. In addition to the use of clear, simple and unambiguous language, key relevant factors included: question types, length, wording, order and accuracy. As it is an overriding consideration, we may usefully look at the last of these first.

3. 5. 6. (i) Accuracy: Fowler explains that reliability can be greatly improved, and some improvement in validity achieved by: asking all respondents precisely the same question;

ensuring that all have exactly the same understanding of the question; and that all have also a clear understanding of how to answer it adequately. On the latter, he recommends that each respondent is given a list of well-specified answers to select from- thus removing one needless source of measurement unreliability (*Fowler, F.J., op.cit., p78, 79*). Account was taken of all three in drafting. (Validity is discussed further below).

3. 5. 7. (ii) Types of question: Most scholars advise against the use, in self-completion questionnaires, of open-ended questions (*eg Fowler, F.J., op cit, p100; Cohen, L., op. cit. p96*). Moreover, appropriate closed questions, in their three main forms: dichotomies, multiple choice and scale- simplify the task facing a respondent and reduce the time required. For the researcher they also assist the data management process. A related consideration is the ability to use parametric statistical procedures. (But because they constrain the respondent and the categories listed may not be comprehensive, there can be a loss of information).

3. 5. 8. Our question types largely followed scholarly advice. Most of the total (130) were closed, including: simple dichotomy (51), ordinal scale (28), multiple choice (22), numerical (20) and numerical scale (4). We also felt justified in the inclusion of some 5 open-ended questions, on the grounds that the subject matter would be well-known to the respondents, as would technical terminology. Almost all of our questions sought factual (concrete, not abstract) information. And, in accordance with expert advice that as many pre-tested questions as possible be employed (*Rodeghier, M., op.cit., p10*), more than half of ours had been used before (in 1989).

3. 5. 9. (iii) Length of question: Among experts, views vary on length. Fowler stresses the risk of ambiguity when questions are unreasonably short (*Fowler, F.J. op.cit, p71*); Rodeghier suggests that 20-25 words is close to an upper limit (*Rodeghier, M. op.cit., p10*); while Marton–Williams points out that the *content* is important- a long question can be perfectly acceptable if it usefully repeats concepts along the way (*Marton-Williams, J.,1986, p114*). It may reasonably be concluded that questions need not be longer than is required to convey a clear picture of what is sought.- a guiding principle in our drafting.

3. 5. 10. (iv) Wording and order; In a questionnaire intended for managing directors of knitting companies, on industry related topics, there is much less need to struggle over wording than would be necessary in a survey of the general population. But simplicity, clarity and lack of ambiguity remain guiding principles, as does the desirability of perceived logical progression within subsections. The latter requirement needs to be qualified a bit. In the final draft there was some (deliberate) staggering of the order of subsections, with also some splitting of related questions between them.

3. 5. 11. Pre/ Pilot Testing: . With the need for validity particularly in view, experts concur on the value of pre-and /or pilot testing of the instrument as a prelude to the main survey. Moser considers that the testing of the questionnaire's adequacy is probably the most important function of the pilot survey (*Moser, C.A., et al, op cit, pp 48-51*). And Oppenheim argues strongly for a thorough pilot testing of all questions, all changes and indeed other aspects of the survey (*Oppenheim, A. N., 1992, p 47 et seq.*)- but it may be doubted if his ideal is often achievable in practice. It was not in this case.

3. 5. 12. Our pre-survey testing of the questionnaire comprised two stages. In the first it was assessed for overall suitability by a range of senior people familiar with the UK knitting industry: the director of the sectors's national trade association; two recently retired managing directors of knitting manufacturing firms; the export director of a major knitting firm; a market research specialist; and a NEDO statistician with considerable experience of industrial surveys. The second, pilot, stage consisted in face-to-face interviews conducted by the writer with four serving managing directors of respectively a small, two medium-sized and a large knitting manufacturer whose products collectively embraced outerwear, underwear and hosiery. This subsample of exporting firms had been chosen judgementslly.

3. 5. 13. Some minor suggestions for improvement were made by each of our pre-test assessors, though all felt that the structure and content of the document were generally right. There was, however, a strong majority view that its length would be an obstacle to its completion by sample firms. Though we felt this view to be too pessimistic, some limited shortening, together with further sharpening of layout and content, was achieved. The pilot test had not pinpointed any areas where further significant changes were needed. Draft and final versions of the survey questionnaire are, with that for 2007, at Annex 3.

3. 5. 14. The nature and scale of our assessment is thought to compare adequately with the means by which a number of academic researchers established validity. For example, one group based their instrument on the results from relevant previous studies plus preliminary interviews (*Cavusgil, S. T, et al, 1994, p6, 10*). Katsikeas et al, who had been advised on content by four businessmen, three government officials and two academics, pre-tested and refined their questionnaire in interviews with some export executives

(Katsikeas, C. S., et al, 1996, p16). Zou pre-tested his questionnaire with 6 export executives and several suitable academics, later again administering it to similar executives (Zou, S. et al, 1998b, pp 42-43). And Shoham also tested for content validity along very similar lines to these three examples (Shoham, A., et al, 1998, p117).

3. 5. 15. In the light of the literature review, the above assessment process, its high proportion of previously-used questions, and the practices therein of scholars, it was concluded that the validity of our questionnaire had been sufficiently established. That should clearly have been the case in respect of Content validity, one of the main validity categories. But we would argue strongly that this should also qualify as overall validity, on the grounds that the second category, Construct validity, which relates primarily to abstract concepts, has little relevance here. It will be recalled (Para 3. 5. 8) that almost all of our questions were factual ones. They were thus conceptually narrow and concrete, with a low level of abstraction. Cooper crisply illustrates the spectrum from the concrete and specific to the abstract and general (Cooper. H., 1998, p13, 15).

3. 5. 16. Common method variance/ bias: This form of measurement error, on whose incidence there is little consensus among scholars, is the amount of spurious covariance shared among variables arising from the common method used to collect the data (Malhotra, N.K., et al, 2006, p1). In the case of self-completion questionnaires it may occur because of a respondent's disposition to give similar answers to multiple items between which there is no true correlation (NCSU, Statnotes, p1, PA765: D/L July08). Among its many possible causes are social desirability, ambiguity of wording and issues relating to the content and length of any scales used (Podsakoff, P.M. et al, 2003, p882). It matters because the spurious co-variances it generates produce measurement artefacts that

tend to mask the true relationships between the variables of interest- and thus to obstruct their accurate measurement.

3. 5. 17. Although some estimates of the (average) incidence of CMV/B in marketing – the closest analogue to our research area- (15.8%) are much lower than in some other – more abstract- domains (eg attitudes; 40.7%) (*Malhotra, N.K. op.cit., quoting Cote & Buckley (1987)*), it was clearly important to minimise this form of measurement error in our research. If we take the most often cited causes: it is not considered that this research offered much scope for responses based on social desirability⁹ – and we certainly tried to ensure that no cues inviting this were given to respondents. In this context, it will be seen that, in the questionnaire, the subtopics were staggered and many key questions were dispersed between them. Second, most of our questions were factual (See Para 3. 5. 8. above) and concrete, with a low level of abstraction. These measures were not therefore either ‘difficult’ or ‘ambiguous’ and respondents seemed less likely to interpret them subjectively –leading to random or personalised systematic responses (*Podsakoff, P.M., op.cit., p883*). And, in line with Fowler’s strictures (Para 3. 5. 6.above), ambiguity had been minimised here. Finally, the small number of scales used (4) and their content was not thought to provide much scope for a biased response by respondents. Overall- and bearing in mind the widespread use of telephone follow-up (see below)-, it was not felt that common method variance/ bias presented any serious problem here.

3. 6 CONDUCT OF THE SURVEY

3. 6. 1. Overview: Having described in the preceding section the development of the survey questionnaire, we now proceed to report on the conduct of the survey, under these

⁹ A form of servility not thought to be characteristic of many UK knitted apparel manufacturers

headings: incentives to encourage response; launch and duration; follow-up of firms; survey response rate; and testing for non-response bias.

3. 6. 2 Incentives to encourage response: In this element of the research, too, a key concern continued to be the minimisation of measurement error, with here a primary focus on the major source of systematic error represented by non-response; understood as relevant target respondents who fail or decline to participate. Unsurprisingly, Fowler considers that the level of response obtained in a survey is a measure of the effectiveness of its overall management (*op cit.1993, p119*). That effectiveness clearly includes the provision of incentives to participate as well as appropriate follow-up.

3. 6. 3. Relevant in any study, such incentives were seen as particularly important in this one, given the pessimism of industry specialists about the prospects for exporters' participation at a very dire time for the knitting industry. We adopted, therefore, in the cover letter and document, a multi-sided approach: describing the project and its importance; showing our existing affinity with knitting manufacturers; detailing our past work for the industry; mentioning the endorsement of the main industry trade association; promising a £25.00 raffle prize donation to a charity of the winner's choice¹⁰; offering a summary copy of the findings; and pledging full confidentiality. A prepaid envelope for the return of the questionnaire was of course enclosed. As noted above, much effort had been invested in making the questionnaire reasonably appealing to the recipient, including the use of good quality paper with a glossy finish. Copy 'letters of invitation' and 'reminder' are in Annex 2- as is the 'letter of invitation' for the 2007 follow-up mini-survey.

¹⁰ Although 'over the past 50 years an accumulation of research has shown that financial incentives improve survey response rates'. (*Dillman, D.A., et al, 2001, p1*), direct payments to our target respondents were thought unlikely to incentivise them – even if such funds had been available.

3. 6. 4. Scale and duration of the mail survey: The survey of manufacturing exporters of knitted apparel, including telephone and mail follow-up, was conducted within the overall period 1 November 2000 to 22 March 2001. Table 3.4 shows the pattern of the main mailing, with response data set out in Table 3.5.

Table 3.4 : Distribution of main November 2000 mailing to selected sample firms.

FirmSize\ Date	1	2	3	4	5	6	7	8	9	13	14	15
Smallest	1	18	6	—	12	5	1	5	4	3	-	-
Smaller	—	—	5	—	—	1	1	4	1	—	—	—
Medium	—	—	7	3	—	5	8	1	3	—	—	—
Large	—	—	—	—	—	2	4	—	—	—	—	—
Total	1	18	18	3	12	13	14	10	8	3	=	100

3. 6. 5. The 100 questionnaires that had been despatched by mid-November were later augmented, piecemeal, by a further 37, comprising 34 replacements and 3 spares, all likewise stratified random selections. The total of 36 replacements were for those sample firms who had been found to be either defunct (18), non-knitters (11), or non-exporters (7). Therefore they were not valid members of the sampling frame in the first place and could legitimately be replaced in order to maintain an adequate sample size . Firms which

remained valid selections at the time of the survey but in the event declined, or otherwise failed to participate, were not of course replaced; to have done so would have given a false response rate. Copy questionnaires were sent to a few firms who had mislaid the originals

3. 6. 6. While there does not appear to be any agreed limit in the literature for the maximum allowable duration for a postal survey, it should clearly be conducted as expeditiously as possible to minimise the risk that respondents might experience different

Table 3.5: Time Distribution Of Responses To Survey Mailshot.

<u>Response Periods (Days)</u>	<u>Q*</u>	<u>R*</u>	<u>NR*</u>	<u>Sum</u>	<u>Firm Size \</u>	<u>Initial Reminders</u>		
1 to 9	9	1	1	11		<u>R0</u>	<u>R1</u>	<u>R2</u>
10 to 19	8	-	2	10				
20 to 29	10	2	5	17	Small	9	58	28
30 to 39	8	7	9	24	Medium	7	20	9
40 to 49	6	3	2	11	Large	2	4	2
50 to 59	3	1	3	7	<u>Total</u>	18	82	39
60 to 69	3	2	4	9	-----			
70 to 79	3	1	4	8				
80 to 89	3	2	1	6	[*Q = Completed questionnaires;			
90 to 99	11	3	3	17	*R = Declined to participate in survey			
100 to 109	2	5	—	7	* NR= Not relevant: Dissolved, or non-			
110 to 119	3	1	—	4	knitter, or no longer exports]			
120 to 135	2	2	2	6				
<u>Total</u>	71	30	36	137				

trading conditions. Hence a watch was kept out for major specific economic and other factors and trends that might affect the fortunes of target firms during the duration of ours. — over and above the very difficult trading conditions facing the industry. None were observed. In the context of an acceptable survey duration, it is interesting to note that

another project (interviews) extended over a full year (*Cavusgil, S.T. et al, 1994, p11*).

Nonetheless, shorter durations, where feasible, are to be preferred.

3. 6. 7. **Follow-up:** Overall, a quarter of (final) sample firms completed and returned their questionnaires without the need for further prompting. The remaining three-quarters of actual respondents needed one or more reminders – in some cases up to 10 (Table 3.5 – which also shows initial reminders). This follow-up process, which extended over most of the period, was conducted predominantly by telephone; and it is the writer's firm belief that the personal contact had a major influence on the survey outcome; (also the view of at least one other researcher:

'Approximately 20 per cent of the landowners who granted access did so in response to telephone calls after attempts by mail failed.' (*Lesser, V.M., 2001, p 639*)). In the course of follow-up no obvious differences were perceived between early or later respondents, or, for that matter, refusers (only two of whom were rude). The overall impression gained- which could of course have been mistaken- was that for the majority work pressures bore heavily.

3. 6. 8. **Survey response rate:** If our survey sample were taken to comprise the sum of refusals, irrelevants and actual responses (137), then the achieved response rate would have been 52 per cent (51.8) — a rate that should be acceptable, albeit not a stimulating result. However, the firms who were found not relevant to the survey were not part of the target population and could not only be replaced (Para 3.5.5) but also denied any claim to feature in response-rate calculations. (*See eg Robertson, C., et al, 2000, Sec. 4*). Thus our effective sample, net of the irrelevant, comprised 101 firms (71 full responses and 30 refusals), giving a response rate of 70 per cent (70.3). This is an acceptable rate and much higher than, for example, those of a number of the 15 studies assessed in Chapter 1.

Interestingly, it also reaches the response limit at or above which (at least) some official governmental bodies are readily disposed to circulate their survey results statistics (*Young, J, 2005, p188*)

3. 6. 9. Testing for Non-Response Bias: This form of bias arises of course when the proportion of the selected firms or individuals who do not respond differ significantly in respect of relevant characteristics from those who do. And it is the more serious the larger the proportion of non-respondents. As well as minimising non-response, we should seek information on the characteristics of the non-responders to assist in assessing how much they differ from those who do. The assumption should never be made that there is no difference (*Moser, C. A., et al, op.cit., p167- 169*)

3. 6. 10 . Although our achieved response (70%) is an acceptable one, it is, nonetheless, advisable to assess as far as is possible the nature of the 30 firms (equal to 42% of the achieved response) who did not return completed questionnaires. This was done in two ways: first by *T-tests* on early and late responses and, second, by examining additional data on the 30 firms who declined to participate in the survey.

3. 6. 11. (i) T-Tests: Turning to the first of these, deriving mainly from the work of Armstrong & Overton (1977), the rationale for this *t-test* procedure is that late respondents are more like non-respondents than their earlier counterparts hence any significant difference between early and late respondents is likely to indicate the existence of non-response bias (*Parente, R., Rutgers. Edu, 2005, p2*).

3. 6. 12. The following procedure was followed: First, elapsed days were calculated for all 71 returned questionnaires and these data entered into the Data Editor, alongside their 'parent' cases. Next, these data were sorted to display the elapsed days in ascending sequence. Then, two groups of 15 each - 'earliest' (3-15 days) and 'latest' returns (84-134 days)- were selected with the aim of maximising means differences (rather than splitting total responses in half, as some other studies- with similar numbers of test variables to ours, had done (e.g Parente, R. *op.cit.*, p2). Finally, each question in the main survey questionnaire was numbered sequentially to provide a sampling frame, from which subsequently a random sample of 31 variables was chosen. All cases other than the 30 selected for testing were deleted from the Data Editor and the variables suitably tagged for grouping. An independent sample *T-Test* was then performed in SPSS v 14, with *alpha* set at 0.01-, in view of the large number of calculations involved.

3. 6. 13. None of the differences in means was significant at the selected *alpha* of 0.01. Three variables: colouring ($p=.072$); price separately ($p=.082$); ideal number of markets ($p=.092$) came nearest to being significant, and the rest were very far off indeed. It was not, however, possible to conclude therefrom with certainty that non-response was not a problem

3. 6. 14. There may however be two grounds for concern regarding the usefulness of this early /late response t-test procedure, when used with mail surveys. One is the recognition now that various (often autonomous) factors, unquantifiable by the researcher, affect the timing of a questionnaire's arrival with a particular respondent and its despatch therefrom . That being so, inferring respondents' attitudes from 'round trip' time would appear to be at least unreliable. It is not then perhaps surprising that 'the literature examining the

differences between early and late respondents remains inconclusive' (Zuma, I.B. et al, 2003, p136). The second concern consists in doubts about whether this test ever works; in the numerous examples of its use which the writer has seen, none had found significant differences between the 'early' and 'late' respondents, even where achieved response rates were very low [eg Zou, S., et al, 1997, p113 (9.3%) : Ah-Fock, S.L.D., 2003, p187,188 (14.4%)]. (See also Annex 1). Presumably survey target populations are not homogeneous. If this test of non-response is ineffective there is some danger that its use may confer on studies with unacceptably low response rates a spurious respectability. In the present instance it was felt advisable to augment it with a further assessment of the data available on the survey sample non-responders.

3. 6. 15. (ii) Company data: For this second assessment these were the main sources of information used: sampling frame, survey sample returned questionnaires, 1989 survey, trade association (KIF) membership list, UK Fashion Exports membership lists, telephone conversations with some firms and personal knowledge of the firms and industry. Some of these data were incomplete.

3. 6. 16. We first compared this group of firms with the respondents in three respects: size distribution, products and export markets served. It will be seen that the patterns are not dissimilar. (See also Tables 4.9/ 4.10.)

Table 3. 6: Comparison of Responding and Non-Responding Firms

(a) Size distribution of firms				(b) Products				
	Small	Medium	Large		O/wear	U/wear	Hose	Multi
Sample	41	21	9	Sample /Firms	43	4	15	9
Expected	17	9	4	Expected	18	2	6	4
Actual (NonR)	16	12	2	Actual (NonR)	19	2	6	3
				Product ratios				
				Sample	10.8	1	3.8	2.3
				Non Response	9.5	1	3.0	1.5

(c) Export markets served:

3. 6. 17. As was shown in Chapter 4, for the sample as a whole Western Europe was the most popular export destination, followed by N.America and the Far East (Table 4.14). The ten non-responding firms for which export market information is available fell very much into the mainstream of destinations: All of them were exporting to W.Europe and one additionally to the Far East.

3. 6. 18. Other information : Four of the Non-responding firms had supplied much information about themselves when participating in the 1989 survey, which showed them to be pretty representative of their subsectors and of the industry as a whole. There is no good reason for thinking that their relevant characteristics had changed in the meantime. When telephoned, three other firms attributed their failures to respond entirely to work pressures. Finally, sampling frame data together with that contained in the two trade association membership booklets and the writer's knowledge of the UK knitting industry discovered no marked differences between responders and non-responders in our survey.

3. 6. 19. Taking all of the foregoing data into account, there did not therefore appear to be any significant risk of non-response bias affecting the results of this survey.

3. 6. 20. Summary: This section has reported sequentially on the nature of the incentives used to motivate response; the launch of the fieldwork and its duration; how firms were pursued for responses; the scale of response actually achieved; and the nature of the twin methods used to test for non-response bias- and the outcome of these.

3. 7. PREPARATION OF THE SURVEY DATA FOR ANALYSIS

3. 7. 1 Having completed the description of the survey's conduct, it is time to turn to the preparation for analysis of its data output. Editing, data coding and data entry are of course the three essential sequential operations that supervene between the receipt of respondents' questionnaires and analysis/ results interpretation. There is no shortage of advice on best practice in the performance of all three functions. We turn first to the editing process.

3. 7. 2. Editing: This commonsensical but vital function is variously described. Roughton sees it generally as one of correcting or removing obvious logical or factual errors from the questionnaires, with special emphasis on missing data, incorrect logic, misunderstandings and/ or erroneous answers. (Roughton, G.W., 1986, pp 274-277). Cohen et al (*op cit*, p 102) state the aim as being that of identifying and eliminating errors made by interviewers or respondents, and they also quote Moser's view that it is a search for completeness, accuracy and uniformity.

3. 7. 3 All completed questionnaires, including the few that recorded telephone interviews, were each edited by the writer in one continuous operation, at the close of the survey. Questionnaires, numbered serially from 1— 71, were assessed sequentially, each from beginning to end. The main emphasis, in what was a searching and comprehensive examination, was placed on spotting missing information, logical inconsistencies and errors of various kinds.

3. 7. 4. No serious problems came to light during this assessment. The most general shortcoming, affecting most questionnaires, was some missing information. In the main

this took the form of widely scattered small gaps in the completeness of responses; often failures to tick a specific item within subsections. There were no contradictions, nor did the responses suggest that questions had not been properly understood. Only two respondents failed to include adequate answers to the few open-ended questions. And two firms declined to provide data identifying their specific export markets, but it proved possible to fill in almost all of these by a process of inference based on separate information and replies given to subsequent questions. The impact of data shortfalls on effective sample size was recognised (*Diamantopoulos, A. et al, op.cit., p 69*), so almost all other missing data were obtained in follow-up telephone calls to the firms concerned. The very few gaps that remained were expected to have a negligible effect on the survey's validity, mainly because they concerned answers to questions that were useful but not central to the survey's aims (eg technology). To have pursued them relentlessly might have put at risk answers that were essential.

3. 7. 5. Coding: Clearly the great mass of information contained in the completed questionnaires needed to be simplified before it could readily be analysed. The process by which this is done is data reduction, or coding. This Fowler defines as consisting in a set of rules for translating questionnaire answers into a set of numbers and vice versa (*op cit, p 125*). The Market Research Society sees coding as the translation of survey responses into an analysable form, usually for computer, in such a way that the survey data should be an accurate representation of the original data. (*MRS, 1983, p3*). Cohen et al describe the primary task of coding as being that of giving a code number to each answer (*op.cit., p102*). And in Rodeghier's view the challenge is to create a set of codes that are comprehensive, can be applied consistently, and that create a reasonable number of distinct

categories.(*op. cit.*, p 50). As with editing, these various perspectives illuminate a common core.

3. 7. 6. At a less conceptual level, broad criteria for a sound coding system were needed together with advice on how to implement them. On the former, Fowler holds that there are three main requirements:the system/ coding frame must provide for missing data; it must have consistency, in ensuring that the same code is always applied to the same type of response; and it must use real world numbers where possible -eg age 45 (*op cit*, p 125). Barnet explains that the object of scaling data is to transform a response (or a combination of responses to some related questions) to a numerical coding which is interpretable and will justify formal statistical analysis (*Barnet, V, 1991, p 74*).

3. 7. 7. There is general agreement among the authorities that the essential prelude to preparing the coding frame is to select randomly a proportion of completed questionnaires and to make a detailed listing of the answers therein. For open-ended questions, Pallant recommends carefully scanning all answers to identify common themes. (*Pallant, J., 2001, p14*). Cohen et al advises the making of a frequency tally of the range of responses in a random sample comprising 10 per cent or more (*op cit, p102*). The Market Research Society considers the proportion should range from 10 — 25 per cent but that it ought to include all questionnaires if fewer than 100 (*op. cit. p11*). We selected a random sample of 10, or some 14 per cent of the total. Our coding frame, less elaborate than that needed for team use, was constructed without difficulty .

3. 7. 8. Data Entry: The various responses to the questions included in the 71 completed survey questionnaires were coded readily and entered directly into the SPSS Data Editor.

Separate files were initially created for each of the main questionnaire subdivisions. Each subdivision was then taken in turn, beginning with 'Particulars Of The Firm', and the data for each case was entered before moving on to the next subdivision. At the end of each line of input, all of the data in that line was checked immediately for accuracy. The process was completed and the results of the field research among our survey sample of UK knitting manufacturing exporters was ready for analysis.

3. 7. 9. Summary: In its eight main sections, this chapter has described the development of the methodology for the field research among UK knitting exporters, the conduct of the survey and follow-up, the editing and coding of the questionnaires and the entry of the data for analysis. In more detail, it has defined the survey population, developed a sampling frame, opted for a postal survey, chosen the sampling method in the form of a stratified simple random sample, and developed a suitable questionnaire for the research. It has also described the conduct of the research, its duration, follow-up and the response rate achieved. Finally, it has given an outline of the data editing and coding processes, concluding with a description of the data entry.

3. 7. 10. Data analysis objectives and sequencing: The broad objective of the data analysis is of course to seek to identify the main determinants of effective exporting of UK knitted apparel by careful testing of the 11 hypotheses developed in Chapter 1. This process begins with the presentation of the survey data in frequency distribution and similar form (Chapter 4). Next, selected Independent variables are subjected to Pearsonian correlation in Chapter 5. Then several appropriate multivariate techniques are used to test the hypotheses. And, finally, main findings and conclusions from the research overall are presented in Chapter 7.

