THE USE AND IMPACT OF BUSINESS ADVICE BY SMES IN BRITAIN: AN EMPIRICAL ASSESSMENT USING LOGIT AND ORDERED LOGIT MODELS

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Abstract

This paper assesses the effect of differences in types of client on the use and impact of business advice by SMEs in Britain using new survey evidence from the Cambridge ESRC Centre for Business Research Survey of 1997. The survey, covering over 2500 respondents, is the largest and most definitive assessment available in Britain. Moreover, the survey allows an assessment of the full range of the providers of external advice, the private sector, business associations and various public sector bodies, as well as the fields of advice. Using multivariate logit models we find that size of firm, rate of growth and innovation appear to be the main variables influencing the likelihood of firms seeking external advice, both from different sources and from different fields. Other variables which are investigated include, age, profitability, skill levels, manufacturer/services, and exporter/non-exporter. Ordered logit models of the impact of the advice demonstrate that there are significant differences between clients' perceived impact of advice and the sources of advice they use, chiefly as a result of firm size, and to a lesser extent for growth, innovation and export levels.

Keywords:

business advice, Business Link, consultancy, logit, ordered logit

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1. Introduction

External advice is an important element of business activity and its use has been strongly linked to successful business growth and a number of other attributes of the firm. However, within the study of external business advice and small and medium sized enterprises (SMEs) there has generally been an absence of a comprehensive multivariate approach that simultaneously controls for all the main explanatory factors that may influence the use and impact of business advice. Also, most previous studies tend to focus on small samples and only a limited range of advice sources. This paper uses logit estimation techniques of a large scale survey to examine the effect of systematic client differences on the utilisation of external business advice by source and field of advice of SMEs in Britain. In the estimation of the impact of advice ordered logit techniques are used, because the dependent variable is ordinal i.e. a perceived impact of 4 cannot usually be thought to be twice as high as a perceived impact of 2. The empirical analysis in the paper assesses the influence on advice use and impact of: the age, employee size, rate of employment growth, profitability, and skill levels of the firm, as well as a series of dummy variables which measure whether the firms are manufacturing/services, exporters/non-exporters, or are novel process innovators/non-innovators.

A key contribution of the paper is comparisons between different sources and fields of advice for their impact and use. In particular, we are concerned to establish whether there are significant differences between the use and impact levels of public sector and private sector suppliers, and within the private sector between specialist professionals, supply chain links, friends and relations, and business associates. We

seek to establish how these suppliers of advice differ in impact and may be used by different types of SMEs.

The paper is organised as follows. Section 2 briefly discusses the data and sample. Section 3 provides a background and overview of the sources of external advice which the respondents evaluated, as well as our hypotheses and the variables which we investigate. Section 4 reports the logit and ordered logit model results of both the use and impact of the sources and fields of external advice. In section 5 a conclusion assesses the implications of our findings.

2. Data and sample

The sample used to estimate the extent of use and impact of external business advice by source and field of advice is drawn from the 1997 Cambridge ESRC Centre for Business (CBR) survey of SMEs in Britain. This survey is the most recent wave of large scale surveys, undertaken in previous years in 1991, 1993 and 1995. In the 1997 Survey the use of external advice is a significant addition to the methodology. The sampling framework is drawn from the Dun and Bradstreet (D & B) UK Marketing database. The D & B database is a credit rating of firms and offers a number of advantages: it is kept up-to-date continuously, provides the addresses and telephone number, names and functions of executives, the firm's legal status, as well as standard industrial classification and the number of employees. The target sample of 2500 SMEs consisted of 1500 manufacturing and 1000 business service SMEs. The comparatively higher number of manufacturing firms was selected in order to obtain usable numbers of hi-tech as well as conventional firms (Bullock and Hughes, 1998). The survey covers all manufacturing activities. The business service activities include advertising, management, technical and professional consultancy and telecoms services. The CBR sample aimed to obtain a manufacturing stratified sample split in the ratio 60:30:10 across the employment bands

1-49, 50-199 and 200-499, respectively. Whilst for business services the target was 75:20:5. The survey sample was more highly weighted towards medium and larger sized SMEs than the national numbers of firms in order to obtain large enough numbers in each size group for comparison purposes. The overall response rate was 25.4%. The respondent rates have been systematically compared in terms of age, employment, turnover, pre-tax profit and legal status, and there is no evidence of response bias (Bullock and Hughes, 1998).

3. Variables and Background

In the CBR Survey, the use of external advice is defined as being linked with meeting the business' objectives (which were surveyed in the immediately preceding questions), and respondents were prompted that they should interpret advice as excluding basic information provision. An extensive review of previous studies of external business advice and the background of the different sources and fields of external advice can be found elsewhere (See Bennett and Robson, 1998; 1999; Bennett et al., 1994), but a brief description of the main characteristics is still required.

There have been a number of previous studies of sources of business advice which have shown that private sector suppliers are the chief sources of advice, and in rank order consist of: accountants, banks or solicitors, and then business associations or consultants (see Keeble et al., 1992; Curran and Blackburn, 1994; Barclays, 1994; CBI, 1994; Doggett and Hepple, 1995; MORI, 1994; Bank of England 1996; Lloyds/SBRT, 1998; Bennett and Robson, 1999). Public sector sources vary considerably in use depending on their focus and eligibility criteria. Storey (1994 Table 8.6), covering the period up to 1992, found that the use of any support agency varied from 1% to 55% of businesses, with most studies finding less than 10% of businesses using public sector sources. Exceptions to this are the study by Smallbone et al. (1993), the

SBRC (1992) survey results for 1991 (Keeble and Bryson 1996), and the Keeble et al. (1992) survey of 1991. The latter found that the DTI Enterprise Initiative was used by over 30% of SMEs, with significant differences between areas. The CBI (1994), in a survey of their members, also found the Enterprise Initiative used by 55% of businesses surveyed. The results of these surveys are confused by different sampling frames and different controls for the influence of other factors, but firm size is usually an important factor influencing the extent to which external advice is sought, with the most major differences occurring between the smallest classes (see Curran and Blackburn, 1994; Doggett and Hepple, 1995; 3i/MORI, 1996).

There have also been wide ranging estimates of the use of fields of advice and consultancy, ranging from low level estimates of 9% for advice on staffing matters by Barclays Bank (1994), and general advice reported by DE (1991 a,b) for owner-managed companies. Other studies, however, show that between 90% and 95% of businesses use external advice from one source or more (see e.g. O'Farrell et al., 1992, 1993; Birley and Westhead, 1992; Smallbone et al., 1993). The SBRC (1992) survey found 85.8% of firms using at least one area of business external advice in 1991, the CBI (1995) found an 85% use, and MORI (1994) found 60%, both in 1994.

This wide range of values of reported usage of external advice can probably be explained by the very difficult samples selected. Firstly, taking the Barclays and DE Surveys, these contain a very high proportion of micro businesses (under 5 employees) and self-employed, and may also include startups. In comparison, the other research cited tends to have a broader spread of sizes with a greater emphasis on SMEs above 5 employees and established businesses. This indicates that the demand for external advice between fields, as between sources, is strongly correlated to the size of the businesses surveyed. Hence, in a detailed statistical analysis of manufacturing businesses, O'Farrell et al.

(1993) demonstrate that the two most crucial explanatory variables of the extent to which firms seek outside help are firstly, business size, and secondly, the types of advice sought. The use of external advisors increases from about 30% for firms of 1-59 employees to about 70% for firms with over 200 employees. This relative rate of increase by firm size is fairly consistent across all fields of advice analysed, but the extent of use of advice varies considerably by field being lower for advice on external CAD/CAM, graphic design and exporting, but higher for advice on computer systems, quality control, training provision and advertising/marketing. O'Farrell et al. find that other significant factors explaining the extent of external advice are the firm's age (the older the firm the less it uses advice), the ownership structure (where overseas subsidiaries and independent plants use external advice less), growth rate (declining firms use more external advice), production systems (continuous flow production system plants use more external advice), and exporting (exporters use more external advice).

Generally, the most frequently sourced external fields of supply of advice are taxation and financial management, computing, training, advertising and marketing, and business strategy, but SBRC (1992), Marshall et al. (1993), O'Farrell et al. (1993), Atkinson (1994), Keeble and Bryson (1996), Hitchens et al. (1996) and Bryson et al. (1997) show that there are differences of emphasis for different types of firm, by size, sector etc., for each service field. For example, firms in the manufacturing sector make much greater use of externally sourced production systems advice.

In previous studies we have analysed differences in extent of use of different sources and fields of external advice (Bennett and Robson, 1998, 1999). Here we focus on factors lying behind differences between firms in their use and impact of different sources and fields. For the case of most private sector sources there is no specific targeting by suppliers of sources and fields on different types of business. But we do know that

for the case of business friends or relatives there may be a marked focus on smaller firms. Given the financial constraints on SMEs, particularly smaller SMEs, business friends and relatives are likely to be able to offer advice which in some cases can be of a high quality at relatively low cost. The role of local friends and networks can be particularly important in the startup and early growth stages, often associated with accessing capital or helping implement standard business planning, marketing, and financial control procedures (Curran and Blackburn, 1994). For most public sector sources there are eligibility or other criteria that do seek to target supports on certain types of firm by size, growth orientation and other features.

The CBR Survey explores the main range of private, social, government and other agencies for respondent assessment. Among the public sector agencies a wide range of general and specialist advice is offered. Enterprise Agencies predominantly provide advice and consultancy to startups and micro-firms related to business strategy, finance and government grants. Training and Enterprise Councils (TECs) and their Scottish equivalent of Local Enterprise Companies (LECs) are synonymous with the provision of training and skills, but about 16% of their budget is allocated to business development and advice services, particularly as a gateway to other TEC programmes such as Investors in People (IiP), National Vocational Qualifications (NVQs) and Modern Apprenticeships (Bennett, et al., 1994). The Scottish LECs have similar emphases, but also have a concern with business development in large businesses rather than training per se with a larger budget for SME support than in England or Wales. In Wales, the Welsh Development Agency (WDA) and Development Board for Rural Wales (DBRW), and in England the Rural Development Commission (RDC) also play a role in addition to TECs.

Business Link (BL) is a government initiative developed since 1992 in England, becoming fully operational from late 1996. BLs took on the

successor programme to the Enterprise Initiative, relabeling it initially as the “BL Diagnostic and Consultancy Service”, focusing on businesses of less than 250 employees, particularly those with growth potential (DTI, 1995). However, this service was rapidly repackaged into a more integrated structure within which personal business advisors (PBAs) were the chief consultants. BL’s objective is to offer local advice and consultancy services to SMEs. The prime target up to 1998 and at the time of our survey was firms of 10-200 employees in size who have growth potential. Since 1998 startup firms have also been targeted. BLs have targets for fee income and this feature also helps to account for their different approach to the provision of advice services. In Scotland and Wales there is less emphasis on a ‘one stop shop’ and more on a ‘first stop shop’ with referral to other agents with no targets for fees. The emphasis of BLs in England on fee targets has ramifications for the trust relationship between BL advisors and clients. Indeed, it has been questioned whether BL services incentivise prominence to the advisor’s fee targets rather than the needs of the client (See Ernst and Young, 1994; HoC, 1996; Sear and Agar, 1996). Potentially this mechanism will feed through to how the PBA and other BL advisors operate and how their impact is assessed by clients.

As well as questions concerned specifically with use of advice, the CBR survey also included a set of questions which allow the construction of a series of variables to define the background of the SMEs which enables the development of a better understanding of the characteristics of SMEs in relation to advise. We now outline these variables and our ex ante expectations of the relationships between these variables and the use and impact of sources and fields of advice.

Firstly, there is the age of SMEs. Extremely young firms such as start-ups would be expected to need substantial external advice and assistance, but our data sample generally deliberately excludes this category of firms, focusing on established businesses. However, even

after the startup stage it would be expected that the older a firm, the more experience that the management will have accumulated, especially for owner-managers, and this could reduce the need to seek external advice. Alternatively, as firms mature and their markets evolve, management may lack the knowledge and skills in new key areas and have to resort to some form of advice, either of a general nature or perhaps to target specific needs.

Secondly, there is the size of the firm, which we measure by the number of employees. Whilst the management of smaller SMEs has specific needs which may require higher levels of external advice, it can be argued that the larger the size of the SME the greater will be the number of problems and specific needs it experiences which will result in firms needing more external advice. Thus we expect a positive relationship between firm size and the probability of seeking advice.

Thirdly, we have the profitability per employee. We have mixed expectations of the relationship of profitability with the use of external advice. Unprofitable firms often have extensive problems, in areas such as cash flow, bad debts, and intense market competition, which leads them to need higher levels of advice. But highly profitable firms, which have greater resources and often greater rates of growth, may have more need to adapt their businesses and develop new markets and products and therefore have to turn to outside help at a higher frequency in order to try and preserve or increase their market lead.

Fourthly, we include the percentage rate of employment growth which the firm had experienced over the three previous years. As with profitability, we have mixed expectations. Those firms who have suffered set-backs and have had to downsize may need to seek advice to a greater extent. However, firms which are enjoying positive growth may have adaptation problems associated with the need to develop new

management and organisational structure which necessitates external support.

Fifthly, in order to capture the skill level of the firm we use the percentage of the workforce who were employed in the following capacity: managerial, technologists, scientists and higher professionals, technicians and lower professionals. It could be expected that a comparatively low skilled firm may have a higher need to 'buy' in advice in technical areas where they lack expertise. But, it could also be the case that those firms which have a relatively high-skill composition are better able to recognise the potential to use external assistance and use it more.

Lastly, we include three dummy variables to control for differences between the manufacturing/services sectors, exporter/non-exporter and innovator/non-innovator. Ex ante we have no specific expectations as to whether these manufacturer/service or exporter/non-exporter dummy variables would have significant roles explaining levels of advice on impact in the logit and ordered logit models. Innovation, however, is expected to have a considerable role in influencing the use and impact of advice. Innovation is defined as those firms who had introduced a process innovation which was not only new to the firm but also the firm's industry: "a novel process innovation". It is possible that innovative firms have a workforce who perform all the tasks which management require; alternatively, it could be the case that by virtue of being at the forefront of their industry with more needs to adapt and change, these firms have more need for advice.

4. Results

The estimation results of the logit model for whether or not a respondent has used external business advice by source are presented in Table 1. The slope coefficients represent the changes in the logit estimates for a

change of one unit in the independent variable. In the following discussion we first report assessment scores of advice, then fields in which advice is sought, and then finally their impact. In each case we are using the logit estimates to explore the range of variables that may explain differences in the type of firm seeking advice for each source or field. As an exploratory analysis, we do not expect all variables to be significant and do not seek to estimate a final best fit equation.

4.1. Sources of advice

In general, firm size, innovation and being an exporter are the three most highly significant explanatory variables. It is also apparent that the significant explanatory variables differ greatly between advice sources. However, this finding is not unexpected as we are dealing with a wide range of sources of advice, each of which has different specific capacity and marketing objectives. There is also a large and potentially diverse user community. Hence, it is important here to relate each estimate in Table 1 to the characteristics of the different suppliers.

Looking first at accountants and banks, older firms are less likely to seek external advice, and novel process innovators are more likely to seek advice. In both cases this is in line with our prior expectations. For solicitors and banks there is a positive relationship between firm size as well as growth with seeking advice. Thus, it is the larger firms and growing firms which tend to be more likely to use solicitors and banks. Profitability, and manufacturing/services are not significant explanatory variables for any of the three main private sector sources of advice. Skill level is highly significant for solicitors, and novel process innovation is a significant variable in explaining the use of accountants and banks.

The use of business friends and relatives is more likely with exporters, novel process innovators and growing firms, and declines with firm size. The role of business friends or relatives as advisors draws on the wider

social networks of the owners and managers of SMEs. That small firms are more likely to use this source fits with our hypothesis that it is the high level of trust and confidentiality and comparatively low level of price which facilities the use of business friends and relatives, particularly in the early stages, although age itself, whilst negative, is not statistically significant. Perhaps, with larger firms there is a 'crowding out' process of friends and relatives whereby the managers of SMEs are able to switch from using the business friends and relatives of the owner to other more specialist and expensive sources of advice. This remains a speculative explanation as our data does not allow us to test this hypothesis.

Manufacturing firms are more likely than service firms, and innovating firms are more likely than non innovating firms, respectively, to use the firm's suppliers as external advisors. Exporting firms and younger firms are more likely than non-exporters and older firms to use customers for advice. This may reflect the fact that the managers of younger firms are less sure of their products and need more feedback than managers in older firms who have accumulated a greater feel for their products or services and users. Alternatively, it could be speculated that because of market pressures the managers of younger firms are keen to provide goods and services of the highest quality as they endeavour to maintain and increase output and market share. The users of Customers and suppliers are both significantly associated with novel process innovators. For the private sector, novel process innovation is an important variable, significant for 5 out of the 6 sources, analysed above, at the 10 percent level or better.

In the case of consultants their usage is explained by the size and level of skill of the firm. Generally, where significant, skill levels have a positive relationship with use of advice.

Turning to the trade and professional associations and Chamber of Commerce, size is the main explanatory variable. This is a logical result with the association advice broadly in line with membership proportions. The membership levels of these bodies tends to increase strongly with firm size (Bennett, 1998). Manufacturing firms are also less likely than service firms to use trade or professional associations, whilst use of Chambers is positively but weakly related to exporting which is to be expected as Chambers are the main national source of exporting services.

Finally we turn to examine the public sector sources of advice. There is a significant negative relationship between profitability and the use of Local TECs, BL, Business Shop and Connect and RDC or RAs. It is also negative for LECs, but not statistically significant. Hence, most of the public sector advice sources are more likely to attract the unprofitable firms as clients. It appears that firms with problems look for help from the public services. Manufacturing firms are more likely than service sector firms to seek advice from Local Enterprise Agencies, TECs, BL, Business Shop or Connect, and the RDC or other regional agencies. Exporting firms are more likely than non-exporters to use TECs and more likely to use BL. Novel process innovators are more likely to use Local Enterprise Agencies, TECs, and the RDC. Older firms are less likely to use BL, TECs and Local Enterprise Agencies. Whilst size has a highly significant positive relationship with use of BL and TECs.

Overall, these estimates indicate some important contrasts between sources of supply. Age, firm size and sector all appear significant only for certain sources and with variable signs. Firm size is the most generally significant. This suggests a level of service specialisation among these suppliers to different types of firm. Skill level, where significant, always has a positive sign, indicating that those firms with the highest skill levels are also those that are most likely to supplement their expertise with additional advice from the two specialists of

solicitors and consultants. Process innovation is a positive explanatory factor for seven of the sources of supply and not statistically significant for any negative relationship. This confirms among the prior expectations that adaptation of business to process change is likely to increase the need for external advice. This is chiefly focused on private sector supplies, enterprise agencies, TECs and the RDC.

The most significant contrast between suppliers is the role of the profitability variable. Whilst it is never significant for private sector sources, it is significant and negative for five out of six of the public sector sources and for Chambers of Commerce. This confirms that businesses with problems are the ones chiefly driven to seek advice from public advice sources and the closely linked local suppliers of the Chambers of Commerce. It is also profitability problems rather than growth record which is the chief feature explaining use of public sector advice. Growth record is never statistically significant for public sector sources, whilst it is positive for all private sector sources, and significant for three out of seven of these sources.

4.2. Fields of advice

Attention is now turned to the fields of business advice. Unfortunately the CBR questionnaire did not allow the matching of fields of advice with their source. This notwithstanding, the results are reported in table 2. Size and innovation are again consistently the main significant explanatory variables. Size is statistically significant and positively increases the probability of use for all fields of advice, with the exception of advertising. The strong role of the explanatory variable of size is in line with earlier research. The fact that the size variable was not statistically significant for advertising may be explained by it being a service which needs to be used by firms of all sizes.

Innovation is a statistically significant explanatory variable with positive sign for advice on management organisation, marketing, market research, staff training and development, taxation and financial management, product or service design, and new technology. Given the nature of the innovation variable it is logical to expect a relationship with the later two fields of advice, but the results show that innovation is a fairly widespread stimulus to seek external advice across most fields.

Skill also appears to have an important role, significant for 5 out of 12 fields of advice. Skill has a positive and statistically significant relationship with the probability of using management organisation, staff recruitment, staff training and development, market research, and product or service design. These results suggest that the greater the skill composition of a firm, the more that the managers are aware and willing to seek external advice.

Profitability per employee is statistically significant for three fields of advice: positively for taxation and financial management and computer services, and negatively for business strategy. Thus, it is those firms who are unprofitable who seek external advice with business strategy, hoping that outside assistance will allow the firm to maximise its position relative to its market, and then facilitate a reversal of their fortunes. In contrast, higher profitability stimulates greater financial and taxation advice, and advice in computer services.

Growth is positively statistically significant at the 1 per cent level for the fields of staff recruitment, and staff training and development. Given that growth is measured in terms of employment growth it is logical to find that firms experiencing higher rates of growth are more likely to use fields of advice which are associated with the development and recruitment of people to their organisation.

Manufacturing firms are more likely than service sector firms to use product or service design. Exporters are more likely than non-exporters to use market research, and product or service design.

4.3. Impact

The impact of each source and field of advice is assessed by respondents on a 5-point scale from 1 (no impact) to 5 (crucial impact). Because of this ordering relationship an ordered logit model is used to assess the relation of the impact assessment to differences between firms. As before, our emphasis on exploratory analysis means that we report the estimates for all variables and not the best predictive model.

4.3.1. Sources of advice

The results of the ordered logit model for impact by source are presented in table 3. Looking at the 5% level of significance, few firm type variables are of major statistical significance in explaining the level of client impact assessment of advice, and even fewer at the 1% level. Size, growth and exporters appears to be the main explanatory variables leading to differences in impact levels.

Looking at private sector specialists of accountants, solicitors and banks, there is a positive relationship between firm size and the clients' assessment of the impact of the advice. Rate of growth also has a positive and statistically significant relationship with the impact of advice for accountants and solicitors. Growth is a significant explanatory variable in the assessment of the impact of advice from business friends and relations. The negative relationship between size and impact of business friends and relatives is explained by these sources tending to be more likely to be used by small firms.

For customers, novel process innovation and rate of growth are both significant at the 5 percent level. But, for suppliers, novel process innovation is the only significant variable.

The respondents' results also include whether they had received a site visit for the use of consultants, business associations and the public bodies, with the exception of RDC/RAs. The inclusion of the site visit variable allows a better interpretation of the mode of interaction in the provision of advice between client and customer.

For consultants, there is a highly significant and positive relationship between size, profitability, and site visit with the clients' impact assessment. Also, for exporters there is a negative relationship between exporters and clients' impact assessment. In other words, it is the larger, more profitable, and exporting firms, and those who have received a site visit, who tend to record higher impact assessments of consultants' advice.

Exporting and receiving a site visit are the two statistically significant explanatory variables of the impact of chambers of commerce. Given that chambers are primarily sources of information, representation and lobbying where there advice is chiefly for exporters, the regression results are consistent with this focus.

For trade and professional associations there is a lack of a statistically significant relationship between receiving a site visit and the clients' perceived assessment of the impact of the advice. This result can perhaps be explained by the clients using a site visit for a different purpose than the tailoring of the advice service.

For local enterprise agencies, TECs and BL the existence of a site visit significantly increases the client's assessment of the impact of advice. This result suggests that with these sources there is likely to be a strong

and intensive degree of interaction between client and customer which has the effect of tailoring the service to the client's needs resulting in a better service and hence higher impact.

With the exception of the site visit variable there are very few statistically significant explanatory variables at the 5 per cent or better level for local enterprise agencies, local TECs, LECs, and BL. Exporters are more likely than non-exporters to record higher impact for services provided by BL. Clients' assessment of the impact of LECs was more likely to be higher for growing firms and unprofitable firms.

For the RDC, more skilled firms and manufacturing firms are associated with higher impact assessment, whilst profitability has a negative relationship with the client's assessed impact of advice from the RDC. This result perhaps can be explained by the firms not receiving a grant that they sought, or the value of the grant being less than expected.

An overall assessment of the factors explaining impact suggests that firm size and site visits are the most important general features of firms leading to higher impacts. In the private sector growing firms tend to have a higher impact for advice, and in the public sector non-exporting firms usually have higher impacts. But in general it is an important finding that there are few highly statistically significant features of firms that affect the impact of advice from different sources. This tends to suggest that the market for external advice is not highly segmented by client type. Instead, firms choose their suppliers with respect to their individual needs on a case-by-case basis with relatively small influence from their profit, trading conditions and other features of the firm.

This finding should be set against the more general pattern of impacts between suppliers. As reported in Bennett and Robson (1999), all the highest impact suppliers are in the private sector, average of 2.70 and above. In contrast all the lowest impact suppliers are in the public sector,

average of 2.43 or below. This suggest that it is choice of supplier type and the general quality of their advisors that is the chief feature explaining impact differences, not differences between firms in choice of different suppliers.

This conjecture was tested in the current analysis by running two types of Analysis of Variance (ANOVA) tests. The first sought to assess whether there was any relation between supplier sources. An ANOVA was undertaken to assess whether there was any significant relationship between the impact of using any one source, and if the business had used any one of the other sources. This was repeated for each source, one at a time. The tables of results are voluminous and are not reported because of lack of space. No statistically significant results were found. This confirms the conjecture that the impact of a supplier choice is largely independent of the role of any other advisors used. In the case of Business Link and Business Shop/Connect this finding is controversial because there is supposed to exist a network of referral for clients using these services to other advisors in both the public and private sectors. The results here suggest that this is not occurring. Moreover, referral between suppliers is in general an aspect of supply of advice that appears **not** to occur, or if it does, it has no influence on the impact of advice received from the advisors used second, third, and so on.

A second ANOVA was then undertaken of the influence of supplier type on impact, controlling for the effects of sector, exporting and process innovation, with age, growth record, size and skill levels as covariate controls. These estimates are summarised in Table 4. They assess the significance of supplier type on impact whilst also controlling for most other major explanatory variables. The results show that differences in supplier type are highly significant in explaining differences in impact. Indeed, of the significant contributions to explaining impact differences, supplier type is by far the largest overall contributor to the explained

sum of squares Other variables that are significant are the growth rate of the firm, technical skill levels and employee size of the firm.

An important finding in Table 4 is also that the sector, exporting/non-exporting and process innovation variable are not significant when supplier type is included. This suggests that there is a strong intercorrelation between the type of supplier used and its sector, exporting and innovation record. This is borne out in the two-way interactions in Table 4 which are statistically significant. The two-way interactions show that sector, exporting, innovation and supplier choice are all intercorrelated. Behaviourally this is to be expected since we know that choice of supplier is closely dependent on the perceived needs for advice and the fields that each supplier covers.

As in our earlier assessments, we are undertaking an exploratory analysis, so that we do not re-estimate the ANOVA to eliminate intercorrelation. However we can use the results of Table 4 to conclude that supplier type is one of the most important influences on impact of external advice.

4.3.2. Fields of Advice

Lastly, we focus on the impact of fields of advice, shown in Table 5. Size and rate of growth are the two main explanatory variables. Size is statistically significant at the 10 per cent or better level for 8 out of 12 fields of advice: business strategy, management organisation, marketing, market research, public relations, staff recruitment, staff training and development, and taxation and financial management. Growth is statistically significant for 6 out of 12 fields of advice: advertising, public relations, new technology, staff recruitment, staff training and development, and taxation and financial management. Thus, in general, greater client assessment of impact is associated with larger firms and growing firms.

The clients' assessments of impact of advice by field show few variables other than size and growth which have statistically significant effects in different fields of advice. Skill and sector have no statistically significant relationship with client assessment of impact. Exporting is statistically significant at the 5 per cent level and has a negative relationship with advice on business strategy and management organisation. Novel process innovation is also significant at the 5 per cent level for the fields of new technology and staff training and development, and in both cases has positive sign.

The analysis of influences on impact across the various fields of advice is very much in line with the analysis of impacts for different sources. In both cases there are few statistically significant explanatory factors. Hence, in both cases we can infer that the impact of advice is not highly segmented between types of client for the type of advice that is sought. Businesses of all types tend to register a similar range of impacts irrespective of the type of firm they use. Where there are significant explanatory features these are chiefly related to firm size. In all cases, except the use of friends and relatives, where there is a statistically significantly negative relationship, the influence on impact of firm size is a positive relationship. This is indicative of large firms having a generally stronger experience of either framing their own needs, or of dealing with external advisors, so that they can better target the advice they seek onto their internal needs. Smaller firms are generally less able to do this. As a secondary influence, growth firms, and to a lesser extent novel process innovators and non-exporters, also appear able to better manage their use of external advice to receive higher impacts.

In the case of fields of advice there is a slightly narrower range of overall impacts than there is for sources. Bennett and Robson (1998) demonstrate that the mean impact across all fields of 2.93 is significantly exceeded by advice on new technology, computer services, and

production and service design. It is significantly below for advertising, staff recruitment and market research. Comparing these results with Table 5 suggest that there is little systematic relation between the overall level of impact and the ability to explain impact by systematic differences between business.

5. Conclusion

In this paper we have sought to assess whether systematic differences between clients influence the use and impact of a diverse range of providers of external advice, and the level of use and impact of the fields of advice sought. Using a logit estimator for the use of external advice by both source and field, size and innovation are shown to be the two chief significant explanatory variables. Interestingly, profitability is found to have a negative relationship with the usage of the public sector sources of local TECs, Business Link, Business Shop and Connect and the RDC. This result indicates that the clients of these sources tend to be seek advice when they are in difficulties. The ordered logit estimates of the impact of external advice find that chiefly size, and then to a lesser extent growth, innovation and non-exporting are the main explanatory variables by both source and field of advice.

The conclusions of the paper tend to parallel those of other smaller sample studies that show size of business as the most important explanatory variable in explaining level of use by source and field (e.g. O'Farrell et al., 1993). However, our results differ in showing, through the multivariate analysis, that other variables are of lesser significance once size differences are controlled for. Thus we find that age and exporting have relatively small influence for use of most fields compared to O'Farrell et al. But in common with O'Farrell et al. we find major differences between fields and source of advice in the level of use. We also demonstrate that growth record, level of innovation and sector have important influences on choice of some sources and fields of

advice. The conclusions are thus in line with other studies that have emphasised the importance of firm size as a major influence in the use of external advice, but we also demonstrate the significance of a wide range of other variables, confirming the importance of segmentation of the market for advisors by a variety of firm-type characteristics.

Impact assessment has been much less common in previous research than surveys of level of use. Where impact has been measured, firm size has again been shown as the main explanatory variable (e.g. Doggett and Hepple, 1995; MORI, 1994). Our analysis has been able to show that size is indeed the chief systematic factor that relates characteristics of the firm to the level of impact of advice assessed by the client. We also show that other variables, other than growth record, have limited significance in inducing systematic differences in impact for either sources or fields of advice.

An important finding from the ANOVA of suppliers is that the impact received from one supplier does not appear to influence the impact received from other suppliers used by the firm: the choices are independent. In the case of Business Link this indicates that the referral process is either not working or, if it is, it has no effect on impacts. The ANOVA has also demonstrated that it is choice of supplier that chiefly influences level of impact, though choice itself largely depends on growth, size, exporting and innovation with which choice of supplier is intercorrelated.

An important conclusion of our findings is, therefore, that the choice of source and field of advice is highly segmented. This suggests that supplier sources are fairly highly specialised to different types of firm, and that once they have been selected the advice they receive chiefly leads to impact in line with supplier type rather than firm type. This in turn suggests that the market for choice of supplier may be working fairly efficiently in the sense that sorting and filtering of demand-supply

decisions directs clients to the source/field of advice fairly efficiently by firm type, in that few systematic differences between firms exists in impact received within each supplier category. The range of impacts reported by clients is therefore explained chiefly by the different types of supplier quality related to the types of services demanded, not systematically to client differences.

The exception to this is the strong positive influence of firm size on impact, and to a lesser extent of firm growth and innovation. The influence of each of these variables suggests that firm size may be acting as a surrogate for the level of internal experience or expertise. The more efficient framing of the internal needs for which advice is used should lead to higher impact assessments; firm size seems to be the chief feature explaining the internal variations in capacity to use external advice effectively. The secondary influence of firm growth and innovation suggest that it is those firms which are changing or growing most rapidly that can best frame their needs and manage their advisors.

Table 1. Estimates of a logit model of the expectation of seeking external business advice, by supplier source. (* significant at 1% level; ** at 5% level; * at 10% level).**

	Accountant	Solicitor	Bank	Business Friend/ Relative	Customers	Suppliers
Age	-0.00418*	-0.00338	-0.00847***	-0.00336	-0.00510**	-0.00338
	(0.00252)	(0.00225)	(0.00222)	(0.00247)	(0.00221)	(0.00225)
Log no. of employees	-0.014034	1.0440***	0.37042***	-0.47118***	0.15257	0.03821
	(0.13720)	(0.11613)	(0.11045)	(0.11187)	(0.10532)	(0.10884)
Profit per employee	0.00131	0.00472	-0.00303	-0.00541	-0.00025	-0.00179
	(0.00577)	(0.00445)	(0.00451)	(0.00450)	(0.00428)	(0.00451)
Rate of Growth	0.00116	0.00182**	0.00122*	0.00141***	0.0008	0.00068
	(0.00090)	(0.00073)	(0.00066)	(0.00054)	(0.00053)	(0.00048)
Manufacturing/ Services	0.25973	-0.08692	0.23147	-0.05789	-0.07499	0.41830***
	(0.18109)	(0.14719)	(0.14393)	(0.14506)	(0.13929)	(0.14535)
Export	0.08892	0.06367	-0.29770**	0.33828***	0.24531**	0.15955
	(0.16352)	(0.12971)	(0.12906)	(0.13041)	(0.12340)	(0.12663)
Skill	-0.00032	0.00595***	-0.00014	0.00189	0.00174	-0.00314
	(0.00271)	(0.00221)	(0.00214)	(0.00215)	(0.00208)	(0.00218)
Novel Process Innovator/ Non-innovator	0.51372**	0.18798	0.28924*	0.31115**	0.42386***	0.58305***
	(0.20590)	(0.15074)	(0.14908)	(0.14395)	(0.13998)	(0.14055)
Constant	1.3518***	-1.23926***	0.17855	-0.20201	-0.37396*	-0.80781
	(0.25951)	(0.21509)	(0.20698)	(0.20840)	(0.20163)	(0.21059)
N	1337	1337	1337	1337	1337	1337
Log-likelihood	-605.3	-842.0	-861.0	-847.2	-909.4	-869.7
% Correctly Classified	82.80	66.34	63.87	65.30	55.65	61.56

TABLE 1. ESTIMATES OF A LOGIT MODEL OF THE EXPECTATION OF SEEKING EXTERNAL BUSINESS ADVICE, BY SUPPLIER SOURCE.
(*** SIGNIFICANT AT 1% LEVEL; ** AT 5% LEVEL; * AT 10% LEVEL) (CONTINUED).

	Consultants	Local Chamber of Commerce	Trade/ Professional association	Local Enterprise Agency	TEC	LEC	Business Link	Business Shop & Connect	RDC
Age	-0.00133	-0.0004	0.00293	-0.01047**	-0.00623**	-0.00278	-0.00703***	-0.06521	-0.00213
	(0.00220)	(0.00234)	(0.00217)	(0.00407)	(0.00259)	(0.01866)	(0.00261)	(0.04372)	(0.00485)
Log no. of employees	0.8262***	0.3071**	0.62185***	-0.08040	0.87960***	0.54841	0.37997***	0.98654	0.26520
	(0.11336)	(0.12243)	(0.11282)	(0.14922)	(0.13229)	(0.55916)	(0.12449)	(0.78342)	(0.24324)
Profit per employee	0.0003	-0.00964*	-0.00036	-0.01575**	-0.01747**	-0.03388	-0.01140*	-0.12160**	-0.01379*
	(0.00466)	(0.00567)	(0.00469)	(0.00743)	(0.00766)	(0.03553)	(0.00594)	(0.06127)	(0.00828)
Rate of Growth	0.00077	-0.00012	-0.00084	0.00082	-0.00019	0.00317	0.00004	0.00066	0.00071
	(0.00052)	(0.00055)	(0.00057)	(0.00052)	(0.00056)	(0.00197)	(0.00054)	(0.00199)	(0.00073)
Manufacturing/	-0.23175	0.27516	-0.51665***	0.34635*	0.45965**	1.05339	0.65810***	2.86471**	0.705515*
Services	(0.14873)	(0.16806)	(0.14946)	(0.19891)	(0.17889)	(0.76309)	(0.17322)	(1.31782)	(0.36486)
Export	0.054208	0.25784*	-0.10576	0.08130	-0.24675*	1.08875*	0.36930***	-0.23684	0.22204
	(0.12967)	(0.14181)	(0.13233)	(0.17124)	(0.14763)	(0.66135)	(0.14131)	(0.84234)	(0.28139)
Skill	0.00467**	-0.00073	-0.00092	-0.00225	0.00054	0.01465	-0.00014	0.02319	0.00213
	(0.00225)	(0.00253)	(0.00226)	(0.00296)	(0.00272)	(0.01167)	(0.00259)	(0.01488)	(0.00521)
Novel Process Innovator/ Non-innovator	-0.03164	-0.04576	0.08452	0.52217***	0.35674**	0.90718	0.02097	-2.14246	0.72132***
	(0.14541)	(0.16004)	(0.14698)	(0.17881)	(0.15909)	(0.71411)	(0.15885)	(1.33762)	(0.27136)
Constant	-1.6585***	-1.70142***	-1.13523	-1.63051***	-2.25450***	-3.35194***	-1.73512***	-4.59757	-4.07833***
	(0.22348)	(0.24768)	(0.21698)	(0.28818)	(0.27803)	(1.19831)	(0.2602)	(1.71996)	(0.53694)
N	1337	1337	1337	1337	1262	75	1220	117	1337
Log-likelihood	-839.0	-733.2	-823.0	-552.8	-674.8	-35.62	-711.7	-28.5	-257.2
% Correctly Classified	64.32	75.09	66.64	84.67	74.17	72.00	69.67	91.45	94.8

TABLE 2. ESTIMATES OF A LOGIT MODEL OF THE EXPECTATION OF SEEKING EXTERNAL BUSINESS ADVICE, BY FIELD OF ADVICE.
(*** SIGNIFICANT AT 1% LEVEL; ** AT 5% LEVEL; * AT 10% LEVEL).

	Business strategy	Management organisation	Marketing	Market research	Advertising	Public relations	Product or service design
Age	-0.00337	-0.00204	0.00181	0.00060	0.00189	-0.00004	0.00177
	(0.00235)	(0.00250)	(0.00219)	(0.00252)	(0.00212)	(0.00264)	(0.00247)
Log no. of employees	0.58961***	1.00271***	0.36405***	0.69730***	0.03903	1.01788***	0.25333*
	(0.11765)	(0.13414)	(0.11296)	(0.1365)	(0.10488)	(0.14387)	(0.13261)
Profit per employee	-0.01932***	-0.00487	-0.00404	-0.00324	-0.00368	0.00217	0.00491
	(0.00674)	(0.00573)	(0.00481)	(0.00575)	(0.00439)	(0.00622)	(0.00543)
Rate of Growth	0.00081	0.00019	0.00039	0.0003	0.00047	0.00101*	0.00037
	(0.00051)	(0.00051)	(0.00049)	(0.00052)	(0.00047)	(0.00056)	(0.00051)
Manufacturing/Services	-0.05630	0.08698	-0.1314	-0.04106	0.13731	-0.29117	0.58642***
	(0.15561)	(0.17915)	(0.15074)	(0.18600)	(0.13888)	(0.18836)	(0.18639)
Export	0.05614	-0.20479	-0.00927	0.32716**	0.13375	-0.10654	0.36916**
	(0.13485)	(0.15168)	(0.13248)	(0.15764)	(0.12270)	(0.16337)	(0.15197)
Skill	0.0027	0.00592**	0.0013	0.00746***	-0.00012	0.01031	0.00849***
	(0.00236)	(0.00273)	(0.00227)	(0.0028)	(0.00207)	(0.00286)	(0.00271)
Novel Process Innovator/ Non-innovator	0.17112	0.26548*	0.35561**	0.41374**	0.15901	0.03256	0.5401***
	(0.14806)	(0.16074)	(0.14385)	(0.16274)	(0.13809)	(0.17608)	(0.15804)
Constant	-1.51734	-2.8076	-1.30468***	-2.89281	-0.38220*	-3.14512	-2.80466***
	(0.23679)	(0.28212)	(0.22166)	(0.29233)	(0.20151)	(0.30498)	(0.28809)
N	1329	1329	1329	1329	1329	1329	1329
Log-likelihood	-789.0	-657.0	-815.4	-621.1	-913.8	-585.0	-655.2
% Correctly Classified	68.92	78.18	67.95	80.14	53.12	81.87	79.01

TABLE 2. ESTIMATES OF A LOGIT MODEL OF THE EXPECTATION OF SEEKING EXTERNAL BUSINESS ADVICE, BY FIELD OF ADVICE.
(*** SIGNIFICANT AT 1% LEVEL; ** AT 5% LEVEL; * AT 10% LEVEL) (CONTINUED).

	New technology	Computer services	Staff recruitment	Staff training and development	Taxation and financial management
Age	0.00157	-0.00264	-0.00017	-0.00262	-0.00016
	(0.00219)	(0.00222)	(0.00228)	(0.00235)	(0.00216)
Log no. of employees	0.27013**	0.87976***	1.357***	1.55753***	0.21712**
	(0.11092)	(0.1131)	(0.12384)	(0.12617)	(0.10903)
Profit per employee	-0.00639	0.00849**	0.00492	0.00390	0.01665***
	(0.00490)	(0.00466)	(0.00493)	(0.0046)	(0.00560)
Rate of Growth	0.00029	0.00004	0.00264***	0.00213***	0.00088
	(0.00048)	(0.00049)	(0.00071)	(0.00074)	(0.00058)
Manufacturing/Services	-0.20933	-0.13168	-0.06897	-0.07058	-0.12654
	(0.14710)	(0.14445)	(0.15782)	(0.15545)	(0.14302)
Export	0.01975	0.14694	-0.09821	-0.09963	0.09508
	(0.13024)	(0.12794)	(0.13520)	(0.13499)	(0.12661)
Skill	0.00308	-0.00162	0.00816***	0.00656***	0.00197
	(0.00220)	(0.00215)	(0.00241)	(0.00236)	(0.00214)
Novel Process Innovator/ Non-innovator	0.77644***	0.10505	0.17470	0.39895**	0.43241***
	(0.14061)	(0.14732)	(0.14974)	(0.15530)	(0.14803)
Constant	-1.09551***	-0.71251***	-2.63308	-2.19866***	-0.15761
	(0.21631)	(0.20838)	(0.25064)	(0.23677)	(0.20913)
N	1329	1329	1329	1329	1329
Log-likelihood	-837.6	-856.4	-785.1	-790.2	-876.5
% Correctly Classified	65.46	65.09	68.47	68.77	60.50

TABLE 3. MULTIVARIATE ESTIMATES OF AN ORDERED LOGIT MODEL OF THE CLIENT ASSESSMENTS OF IMPACT OF ADVICE, BY SUPPLIER.
(* significant at 1% level; ** at 5% level; * at 10% level).**

	Accountant	Solicitor	Bank	Business Friend/Relative	Customers	Suppliers
Age	0.00020	-0.00251	0.00085	0.00073	-0.00080	0.00342
	(0.00209)	(0.00239)	(0.00254)	(0.00349)	(0.00284)	(0.00305)
Log no. of employees	0.21373**	0.64223***	0.33852***	-0.42241**	0.24470*	-0.09994
	(0.10631)	(0.13286)	(0.12235)	(0.16292)	(0.13514)	(0.15310)
Profit per employee	0.00327	0.01132*	0.00787	0.00254	0.00533	-0.01262
	(0.00442)	(0.00619)	(0.00602)	(0.00725)	(0.00615)	(0.00784)
Rate of Growth	0.00125**	0.00160***	0.00042	0.00159***	0.00128**	0.00015
	(0.00049)	(0.00055)	(0.00049)	(0.00054)	(0.00054)	(0.00052)
Manufacturing/Services	-0.14744	-0.25748	0.16439	0.04481	-0.05985	0.19315
	(0.14129)	(0.17164)	(0.15703)	(0.21187)	(0.18016)	(0.21356)
Export	-0.03024	0.05808	-0.13436	0.13319	0.14333	-0.17397
	(0.12201)	(0.14564)	(0.13810)	(0.19681)	(0.15886)	(0.17545)
Skill	-0.00089	0.00177	-0.00228	-0.00295	-0.0004	0.00146
	(0.00211)	(0.00264)	(0.00237)	(0.00297)	(0.00263)	(0.00319)
Novel Process Innovator/	0.16114	0.17143	-0.10803	0.020231	0.37531**	0.32176*
Non-innovator	(0.13504)	(0.15810)	(0.15235)	(0.19845)	(0.16608)	(0.18636)
N	1087	763	828	464	636	513
Log-likelihood	-1487.5	-1073.8	-1217.7	-620.4	-865.9	-694.9

TABLE 3. MULTIVARIATE ESTIMATES OF AN ORDERED LOGIT MODEL OF THE CLIENT ASSESSMENTS OF IMPACT OF ADVICE, BY SUPPLIER.
(* significant at 1% level; ** at 5% level; * at 10% level) (continued).**

	Consultants	Local Chamber of Commerce	Trade/ Professional association	Local Enterprise Agency	TEC	LEC	Business Link	RDC
Age	-0.00198	0.00840	0.00063	-0.00096	-0.00310	0.04139	0.00067	0.00706
	(0.00311)	(0.00822)	(0.00472)	(0.00620)	(0.00359)	(0.03939)	(0.00363)	(0.00809)
Log no. of employees	0.53732***	0.15098	0.40218*	0.15649	0.37357*	2.24147*	0.05945	-0.06762
	(0.16724)	(0.37094)	(0.22683)	(0.27272)	(0.20991)	(1.29170)	(0.19620)	(0.46004)
Profit per employee	0.01785**	-0.0342	0.01655	-0.02817	-0.01582	-0.01623**	0.00138	-0.11582**
	(0.00772)	(0.02205)	(0.01036)	(0.01842)	(0.01663)	(0.08297)	(0.011)	(0.05615)
Rate of Growth	0.00051	0.00124	0.00035	0.00226*	-0.00035	0.01194**	-0.00042	0.00228
	(0.00049)	(0.00205)	(0.00174)	(0.00119)	(0.00116)	(0.00486)	(0.00101)	(0.00236)
Manufacturing/Services	-0.04721	-0.30647	-0.24498	0.30141	0.25664	1.2082	-0.50666*	1.91699***
	(0.21531)	(0.51652)	(0.29817)	(0.34558)	(0.28801)	(1.91928)	(0.30420)	(0.71994)
Export	-0.52367***	0.83047**	-0.07112	-0.24842	-0.42579*	-3.15237*	0.55156**	-1.76047***
	(0.18609)	(0.37433)	(0.27556)	(0.28944)	(0.22609)	(1.6870)	(0.21945)	(0.54985)
Skill	0.00187	-0.00737	-0.01023**	0.00544	-0.00251	0.03242	-0.00753*	0.02940***
	(0.00329)	(0.00736)	(0.00448)	(0.00526)	(0.00475)	(0.02517)	(0.00440)	(0.011)
Novel Process Innovator/	-0.07892	0.04721	0.00112	0.18565	0.26759	-1.32514	0.05123	0.4463
Non-innovator	(0.20098)	(0.50142)	(0.31268)	(0.30739)	(0.23928)	(1.18759)	(0.23543)	(0.5394)
Site Visit	0.62636***	0.70341**	0.27923	0.64528**	0.89189***	0.84381	1.10540***	NA
	(0.21652)	(0.37148)	(0.30746)	(0.27345)	(0.22666)	(1.22516)	(0.22977)	
N	485	129	246	197	318	25	358	65
Log-likelihood	-687.9	-150.5	-298.7	-268.51	-433.4	-22.4	-491.6	-82.3

Table 4. Analysis of variance of impact of advice from each source controlling for the influence of other variables (* significant at 1% level, ** significant at 5% level).**

	Sum of Squares	d.f.	F
Main effects	469.16	15	30.66***
Sector	1.32	1	1.30
Exporter	0.30	1	0.30
Process innovator	0.11	1	0.11
Supplier type	455.59	12	37.21***
Covariates	71.05	4	17.41***
Growth rate	40.40	1	39.60***
Technicial skills	5.11	1	5.01**
Age	0.78	1	0.77
Employee size	18.52	1	18.16***
2-way interactions	76.99	39	1.93***
3-way interactions	39.84	37	1.05
4-way interactions	9.34	12	0.76
Explaining sum of squares	888.36	107	8.09***
Total sum of square	**7962.43**	**7046**	**-**

TABLE 5. MULTIVARIATE ESTIMATES OF AN ORDERED LOGIT MODEL OF THE CLIENT ASSESSMENTS OF IMPACT OF ADVICE, BY FIELD.
(* significant at 1% level; ** at 5% level; * at 10% level).**

	Business strategy	Management organisation	Marketing	Market research	Advertising	Public relations	Product or service design
Age	-0.00624*	-0.00305	-0.00288	-0.00124	0.00012	-0.00007	0.00149
	(0.00320)	(0.00386)	(0.00304)	(0.00346)	(0.00269)	(0.00369)	(0.00375)
Log no. of employees	0.61603***	0.565**	0.33887**	0.48576**	0.15468	0.42533*	0.03647
	(0.17596)	(0.22604)	(0.17044)	(0.22015)	(0.14439)	(0.23345)	(0.22732)
Profit per employee	-0.00781	-0.00969	-0.02055**	-0.01035	0.00097	0.0016	0.00165
	(0.00650)	(0.01423)	(0.00926)	(0.01181)	(0.00549)	(0.01159)	(0.01025)
Rate of Growth	0.00022	0.00134	-0.0001	0.00051	0.00156***	0.00147**	0.00079
	(0.00077)	(0.00111)	(0.00086)	(0.00080)	(0.00055)	(0.00062)	(0.00084)
Manufacturing/Services	0.07570	0.10895	-0.28158	-0.31756	0.19532	-0.04429	-0.08834
	(0.23080)	(0.27498)	(0.22564)	(0.29025)	(0.18779)	(0.32063)	(0.29709)
Export	-0.38931**	-0.45295*	0.12452	0.24774	0.07934	0.03434	0.40381
	(0.19549)	(0.2329)	(0.19268)	(0.25673)	(0.16555)	(0.2539)	(0.25416)
Skill	0.00241	0.00060	0.00067	0.00083	-0.00199	-0.00085	-0.00741*
	(0.00355)	(0.00443)	(0.00345)	(0.00450)	(0.00282)	(0.00496)	(0.00433)
Novel Process Innovator/	-0.06857	0.24952	0.19297	0.05879	0.24328	0.13561	0.40932
Non-innovator	(0.20993)	(0.24109)	(0.20736)	(0.24714)	(0.17839)	(0.27486)	(0.25078)
N	403	289	417	254	606	235	269
Log-likelihood	-569.7	-423.3	-583.0	-356.4	-821.6	-339.1	-376.6

Table 5. Multivariate estimates of an ordered logit model of the client assessments of impact of advice, by field. (* significant at 1% level; ** at 5% level; * at 10% level) (continued).**

	New technology	Computer services	Staff recruitment	Staff training and development	Taxation and financial management
Age	-0.00674**	-0.00008	0.00007	0.00390	-0.00182
	(0.00335)	(0.00267)	(0.00294)	(0.00263)	(0.00259)
Log no. of employees	0.2294	0.12175	0.52936***	0.32275**	0.36539***
	(0.16413)	(0.1373)	(0.17314)	(0.152)	(0.12771)
Profit per employee	-0.00373	0.01373**	0.01075	-0.00054	0.00608
	(0.00561)	(0.00561)	(0.00815)	(0.00815)	(0.00553)
Rate of Growth	0.00150*	0.00056	0.00154***	0.00154***	0.00152***
	(0.00082)	(0.00054)	(0.00058)	(0.00059)	(0.00053)
Manufacturing/Services	-0.01960	-0.20281	-0.13436	-0.10809	-0.00630
	(0.22007)	(0.17339)	(0.20862)	(0.18669)	(0.16605)
Export	-0.17599	-0.09706	-0.00557	-0.077	-0.21763
	(0.19969)	(0.14905)	(0.18068)	(0.15623)	(0.14472)
Skill	0.00425	-0.00121	0.00074	0.00235	0.00067
	(0.00324)	(0.00265)	(0.00332)	(0.003)	(0.00251)
Novel Process Innovator/	0.40143**	0.14455	0.24898	0.33347**	-0.19082
Non-innovator	(0.18654)	(0.15971)	(0.18429)	(0.16642)	(0.15543)
N	458	749	506	662	764
Log-likelihood	-611.0	-1015.1	-719.9	-877.9	-1090.7

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Appendix I Definitions of Variables

Age	The age of the firm in years
Log no. of employees	The log of the number of employees
Profit per employee	The profitability per employee in thousands of Pounds
Rate of Growth	The percentage rate of employment growth which has occurred during the three previous years
Manufacturing/Services	Dummy=1 if the firm is in manufacturing
Export	Dummy=1 if the firm is an exporter of goods or services
Skill	The CBR data set provides a breakdown of the workforce into the following six occupational groups: (i) managerial, (ii) technologists, scientists and higher professionals, (iii) technicians and lower professionals, (iv) clerical and administrative, (v) skilled manual, and (vi) semi-skilled and unskilled labour. Skill is defined as the percentage of the workforce who are employed in the first three occupational groups.
Innovator/Non-innovator	Dummy=1 if the firm is an innovator. Novel Process Innovators are those firms which have introduced a process innovation which is not only new to the firm but also the firm's industry.