



Department
for Business
Innovation & Skills

BIS RESEARCH PAPER NUMBER 211

Leadership and Management Skills in
SMEs: Measuring Associations with
Management Practices and
Performance

Non-technical report

MARCH 2015

RESEARCH

The views expressed in this report are the authors' and do not necessarily reflect those of the Department for Business, Innovation and Skills.

Department for Business, Innovation and Skills

1 Victoria Street

London SW1H 0ET

www.gov.uk/bis

Research paper number 211

March 2015

Professor James Hayton

Enterprise Research Centre/Warwick Business School

This is a non-technical report.

It is intended to present the headline findings of the research in a straightforward and accessible way.

More comprehensive findings, details of the methodology used and the full data underpinning the reported analyses can be found in the main research report.

Contents

Contents	4
Executive Summary	6
Leadership and management skills in UK SMEs	6
This research	6
Key findings.....	7
The prevalence of under-developed skills and non-implementation of best practice.....	8
Associations between skill sets, management practices and performance.	8
Which businesses could achieve the greatest benefits from improved L&M skills?	8
Relevance of the findings.....	9
Introduction	10
Leadership and Management Skills	11
Management Practices in SMEs.....	12
Methodology.....	14
Sample	14
Measuring Skills & Practices.....	14
Survey Implementation	15
Achieved Sample	15
Findings	18
Distribution of Performance across Size Categories.....	18
Distribution of Skills across Size Categories.....	20
Distribution of Management Practices across Size Categories	23
Linking Skills, Management Practices, and Performance	30
Skills and Management Practices.....	30

Strategic Management.....	31
Human Resource Management	31
Summary.....	31
Skills, Management Practices, and Performance and Growth.....	32
Turnover.....	32
Productivity.....	32
Growth.....	32
Mediating Relationships: linking skills, practices and performance	33
Size Differences	33
Sector Differences.....	34
Discussion.....	37
Skills and Performance	37
Key differences	37
Limitations	38
Conclusion	39

Executive Summary

Leadership and management skills in UK SMEs

There is an increasingly widespread view that deficiencies in leadership and management and skills (L&M skills) are a key constraint on business performance in the UK, especially for SMEs. However, the available evidence relating to UK SMEs is limited and partial.

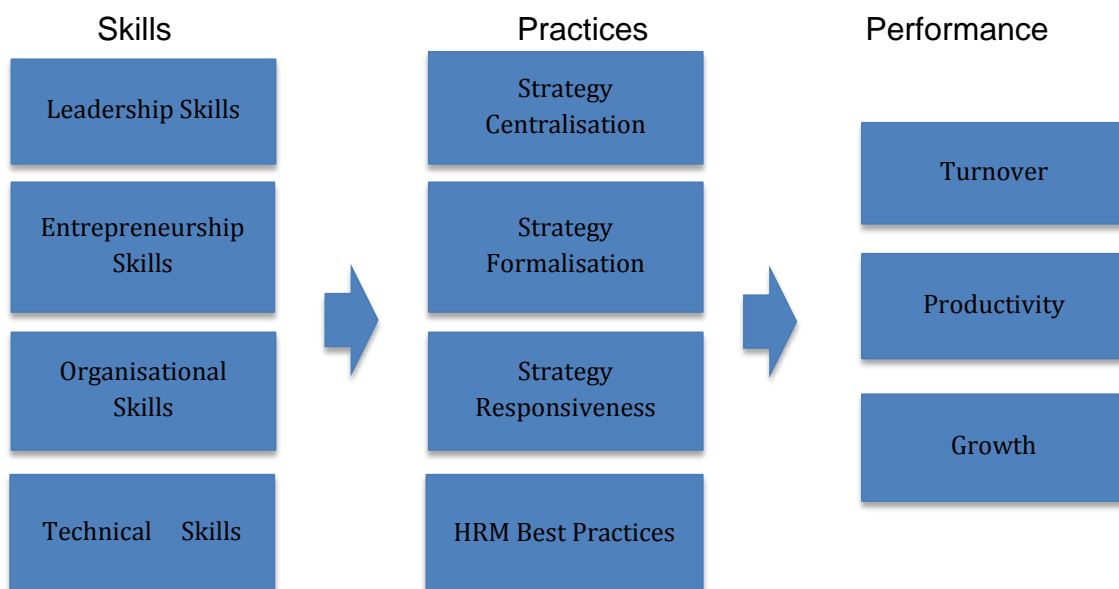
Recent data from the Chartered Institute of Personnel and Development shows that nearly three-quarters of SMEs in England report a deficit in L&M Skills. It has also been demonstrated that effective management practices help explain differences in firm level performance and underlie international variations in economic performance. However, there is very little evidence showing whether or how skills influence the adoption of management best practices or how they ultimately shape business performance in the SMEs.

This research

This research involved a survey of approximately 2500 English SMEs with between five and 250 employees across all sectors of the economy. It examined the associations between L&M skills and the implementation of management best practices and how these factors are related to business performance and employment growth.

The SME sector is very diverse and the different skills sets and best practices most relevant to individual businesses vary according to the nature of the business and the context in which it operates. To accommodate this broad scope, the research considered four widely relevant dimensions of management and leadership skills and four sets of management practices. These skills and practices were related to three measures of firm performance: turnover, productivity and employment growth (see figure A).

Figure A: A framework of skills, practices and firm performance



Leadership skills – motivating and influencing others and delegating work.

Entrepreneurship skills – identifying customer needs, technical or market opportunities, and pursuing opportunities.

Technical Skills – expertise in a technical or functional area, developing technically superior solutions

Organisational Skills – organising resources, coordinating tasks.

Strategy formalisation - the extent to which there are formal processes in place for planning and setting strategy.

Strategy responsiveness - the extent to which strategic planning is adaptive in response to new information from a wide variety of sources including employees.

Strategy centralisation - the extent to which strategic planning is conducted by a small group or an individual

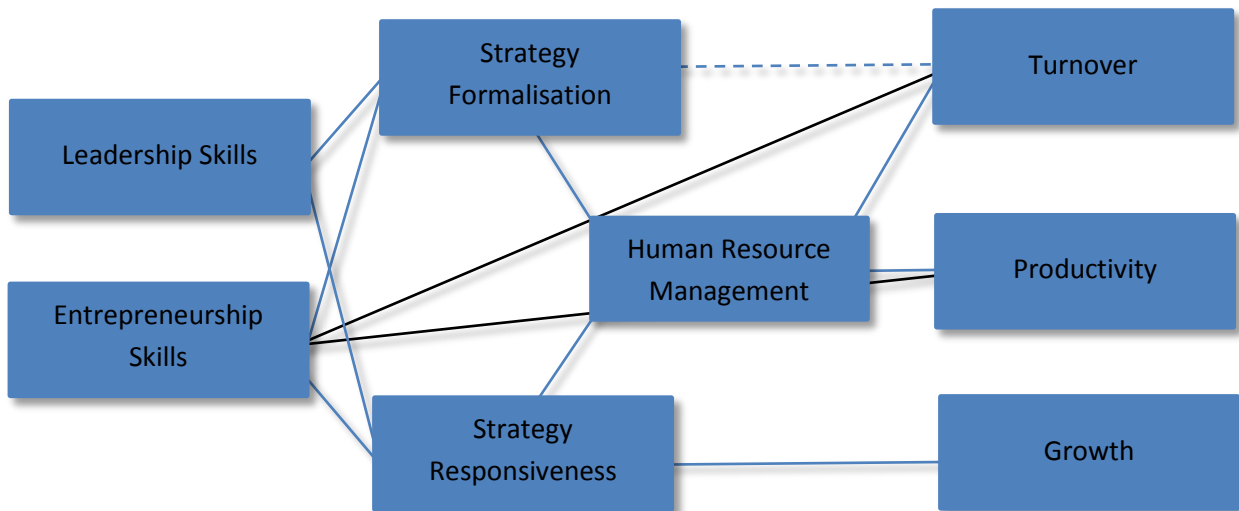
Human Resource Management best practices – selective staffing, investments in training, variable compensation, employee ownership, performance management, information sharing, and employee participation in decision-making.

Key findings

The research findings show that skills levels and the adoption of best practices are uneven across the SMEs sector and that there are long tails of businesses with poorly developed skills and which do not use management best practices.

The research also shows that variations in leadership and management skills are associated with variations in SME performance; both directly and indirectly through an increased propensity to adopt management best practices. The findings also show which dimensions of L&M skills and which elements of management best practice most closely associated with improved performance outcomes (see figure B).

Figure B: Linking skills to performance: positive associations identified between skills sets, management practices and performance outcomes.



All lines shown are positive and statistically significant associations at $p < .05$ except dotted line which is significant at $p < .10$. Black lines depict direct associations between skills and performance. Control variables and negative associations are not shown.

The prevalence of under-developed skills and non-implementation of best practice.

- The data shows that for most skills and practices, there are **'long tails'** of businesses that have relatively **under-developed skills and which fail to implement best practices**.

Associations between skill sets, management practices and performance.

- The skill sets most consistently and strongly associated with good management practice and SME performance are **entrepreneurship skills** and **leadership skills**.
- Across all firm types and contexts, the **entrepreneurship skills** of top managers are positively and significantly associated with turnover and productivity.
- **Leadership and entrepreneurship skills** are positively related to strategy formalisation and responsiveness – key drivers of performance and growth.
- **Strategy formalization** is positively associated with turnover while **strategy responsiveness** is positively associated with firm growth.
- **Best practice strategic management** is also related to the implementation of best practices in **human resource management** (HRM) - which are in turn, positively and significantly associated with turnover and productivity.
- **Skills differences are more important than structural (e.g. industry sector) and contextual factors (e.g. ownership, age and size)** for explaining the 'long tail' in implementation of best practices.

Which businesses could achieve the greatest benefits from improved L&M skills?

- The overall impact of L&M skills on firm performance tend to be particularly strong for firms with between five and 19 employees.

- The impact of HRM practices on performance is strongest among businesses with between 50 and 99 employees.

Relevance of the findings

These findings are policy relevant. They provide an evidence-based rationale for possible policy development and an informed basis for thinking about what policy options might be appropriate. The results clearly demonstrate that L&M skills are relatively under-developed in many SMEs. This is important because they also show that well-developed skills and the adoption of associated management best practices are positively related to firm performance. In this sense, the evidence shows that under-developed L&M skills and a widespread failure to adopt management best practices are constraining the performance and growth of a large number of English SMEs.

The estimates of skills used in the study are self-reported by the owner/managers interviewed. This is important because it testifies to a recognised need for development amongst these individuals.

The research also informs thinking about the possible policy options available. It demonstrates which aspects of L&M skills are the most important in terms of improving firm performance, which practices are influential, and which categories of business might achieve the greatest benefits from skills-enhancing investments.

Introduction

Historically, public policy related to business performance and growth has tended to focus on tangible measures such as improving access to finance, encouraging and enabling the use of business support and reducing regulatory burdens. However, there is a growing recognition that other less tangible factors such as management knowledge and skills and the implementation of best management practices also represent important drivers of growth.

There is evidence that many owners and senior managers in English SMEs recognise that their skills are underdeveloped¹. Recent research has also shown that relative to firms in the United States, there is a 'long tail' of firms that do not implement best management practices and also that variations in the adoption of world-class practices may have significant implications for the performance of firms and whole economies². This represents both a challenge and an opportunity for significant improvement in the growth prospects of UK enterprises.

While there is consensus concerning the value of human capital for performance, especially in early stage ventures³, existing evidence has focused on broad proxies for human capital such as education and experience. Existing research has little to say about whether specific leadership and management skills play a significant role in the development of effective management practices, or which skills might be most important in improving firm performance in UK SMEs. In order to further examine these issues, we have conducted a large-scale study designed to evaluate the relationship between leadership and management skills, management practices, and performance in small and medium sized enterprises (SME) in the UK.

This non-technical report summarises key findings for the English SMEs included in this research (more detailed findings are available in the full research report).

¹ CIPD Annual Learning and Talent Development Survey Report 2012

² Bloom, Nicholas, Christos Genakos, Raffaella Sadun, and John Van Reenen. "Management practices across firms and countries." *The Academy of Management Perspectives* 26, no. 1 (2012): 12-33.

³ Unger, Jens M., Andreas Rauch, Michael Frese, and Nina Rosenbusch. "Human capital and entrepreneurial success: A meta-analytical review." *Journal of Business Venturing* 26, no. 3 (2011): 341-358.

Leadership and Management Skills

A skill is the ability to do something effectively. Skills involve systems of specific behaviours that help achieve an objective or standard of performance. There are numerous typologies of managerial skills. However, in an enduring and influential framework, Katz proposed three dimensions of human, conceptual, and technical skills⁴:

- Human, or 'leadership skills' include communication, influence, coordination and cooperation with others.
- Conceptual or 'organisational skills' reflect an understanding of the wider organisation, strategy, structure, and its functioning as a whole within the environment.
- Technical skills are those specific skills required for performing a specialized task and often involve working with 'things' rather than working with people.

These three dimensions capture the full spectrum of specific skills required by managers in large organisations and are now a widely accepted approach to classifying managerial skills in general terms⁵.

In addition to Katz's three dimensions, research conducted in an SME context highlights an additional dimension of skills that is particularly relevant to smaller organizations. Entrepreneurial skills involve the identification of opportunities, the marshalling of needed resources, the ability to organize a new venture, and the communication of an entrepreneurial vision.

There is some evidence of a link between managerial and technical skills and profitability; and between entrepreneurial skills and growth⁶. There is also consistent evidence of an association between human capital (education and experience) and entrepreneurial success and firm growth, especially for younger firms⁷. However, so far there is limited evidence on the effect of specific skill sets on performance outcomes. Even so, there is

⁴ Katz Robert, L. "Skills of an effective administrator." *Harvard Business Review* 52 (1974): 94.

⁵ Richard E. Boyatzis. *The competent manager: A model for effective performance*. John Wiley & Sons, 1982; Peterson, Tim O., and David D. Van Fleet. "The ongoing legacy of RL Katz: An updated typology of management skills." *Management Decision* 42, no. 10 (2004): 1297-1308.

⁶ Chandler, Gaylen N., and Erik Jansen. "The founder's self-assessed competence and venture performance." *Journal of Business venturing* 7, no. 3 (1992): 223-236; Baum, J. Robert, and Edwin A. Locke. "The relationship of entrepreneurial traits, skill, and motivation to subsequent venture growth." *Journal of applied psychology* 89, no. 4 (2004): 587; Baum, J. Robert, Edwin A. Locke, and Shelley A. Kirkpatrick. "A longitudinal study of the relation of vision and vision communication to venture growth in entrepreneurial firms." *Journal of Applied Psychology* 83, no. 1 (1998): 43; Baum, J. Robert, Edwin A. Locke, and Ken G. Smith. "A multidimensional model of venture growth." *Academy of management journal* 44, no. 2 (2001): 292-303.

⁷ Unger et al., "Human Capital and Entrepreneurial Success: a Meta-Analytical Review."

reason to expect that the association between skills and performance will often be an indirect one, acting through the development of effective management practices⁸.

Management Practices in SMEs

The available evidence suggests that managerial practices are an important intermediate link in the chain between L&M skills and performance and growth in SMEs. Firm performance and growth are dependent upon the development of organisational capabilities, for example, for organisational control, continuous improvement, innovation, and market development. The skills of the management team drive and shape decisions to make the investments in developing these capabilities. There is evidence to suggest that an important aspect of management practice is the capacity of acquiring, organisation and mobilising resources⁹. Two types of practice are of universal applicability across industry sectors and relevant to these capabilities: strategic management and human resource management (HRM). According to the 2013 Growth Accelerator Annual Report, the two most commonly cited concerns of SME owner-managers are business strategy (cited by 40 per cent) and people skills (cited 39 per cent).

Strategic management capabilities vary across firms and are an important driver of performance¹⁰. Through business strategy managers provide direction, motivate and inspire, evaluate and control, empower and enable, or endorse and sponsor performance enhancing practices. In turn, strategic management capabilities are expected to be associated with firm performance, in firms of all sizes¹¹. There is also extensive evidence of the relationship between HRM and firm performance¹². The bulk of this evidence suggests that effective HRM influences performance by enhancing employee commitment, reducing staff turnover and thereby promoting efficiency and effectiveness which improves productivity. There is evidence that this performance benefit of HRM also applies to SMEs¹³.

⁸ Baum and Locke, "The Relationship of Entrepreneurial Traits, Skill, and Motivation to Subsequent Venture Growth."

⁹ *ibid.*

¹⁰ Hart, Stuart, and Catherine Banbury. "How strategy-making processes can make a difference." *strategic management journal* 15, no. 4 (1994): 251-269; Ebben, Jay J., and Alec C. Johnson. "Efficiency, flexibility, or both? Evidence linking strategy to performance in small firms." *Strategic Management Journal* 26, no. 13 (2005): 1249-1259; Stalk, George, Philip Evans, and Lawrence E. Sgulman. *Competing on capabilities: the new rules of corporate strategy*. Vol. 63. Harvard Business Review, 1992; Floyd, Steven W., and Bill Wooldridge. "Middle management involvement in strategy and its association with strategic type: A research note." *Strategic Management Journal* 13, no. S1 (1992): 153-167.

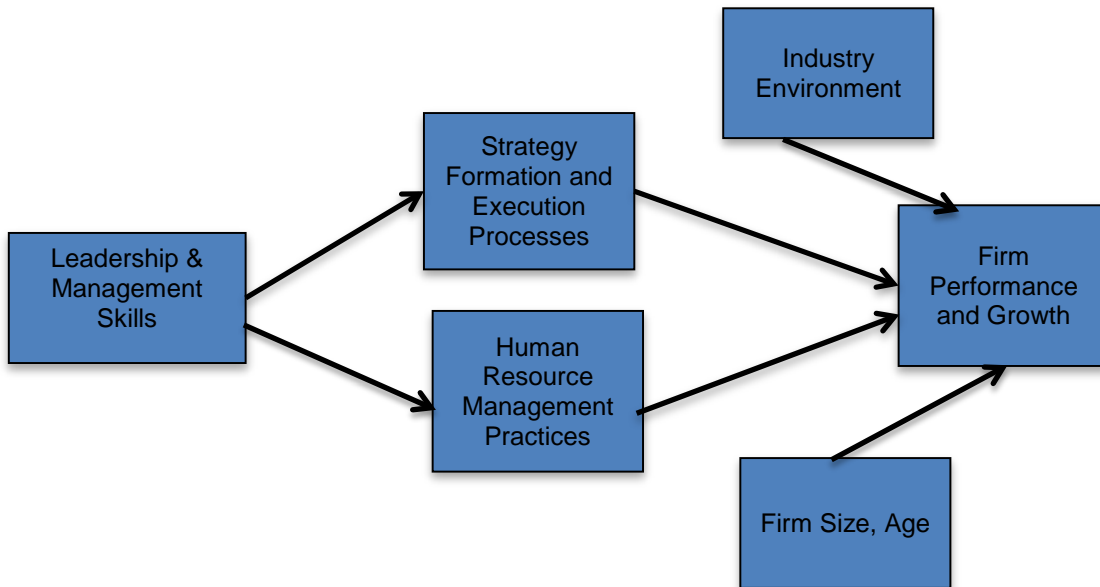
¹¹ Ebben and Johnson, "Efficiency, Flexibility, or Both? Evidence Linking Strategy to Performance in Small Firms."

¹² Combs, James, Yongmei Liu, Angela Hall, and David Ketchen. "How much do high-performance work practices matter? A meta-analysis of their effects on organisational performance." *Personnel Psychology* 59, no. 3 (2006): 501-528.

¹³ Hayton, James C. "Strategic human capital management in SMEs: An empirical study of entrepreneurial performance." *Human resource management* 42, no. 4 (2003): 375-391; Way, Sean A. "High performance work systems and intermediate indicators of firm performance within the US small business sector." *Journal of management* 28, no. 6 (2002): 765-785; Messersmith, Jake G., and James P. Guthrie. "High performance work systems in emergent organizations: Implications for firm performance." *Human resource management* 49, no. 2 (2010): 241-264.

We designed this study to evaluate the associations among these variables: the L&M skills of senior managers, the approach to strategic management and HRM, and measures of firm performance (turnover, productivity, and firm growth). The conceptual framework guiding this work is depicted in Figure 1.

Figure 1: Linking Leadership and Management Skills, Practices and Performance



Methodology

Sample

The study reported here is part of a larger project in which samples were also drawn for Scotland and Northern Ireland. Here we only present the details and results of the English sample. We drew our sample from the Inter-Departmental Business Register (IDBR) and excluded from the sampling frame units of multi-site workplaces with a total of more than 250 employees, and subsidiaries of domestic or international businesses.

We employed a disproportionate stratified sampling strategy, in which we oversampled large firms relative to smaller ones. The rationale for this strategy was to enable us analyse the relationships of interest for different sizes of firm, by ensuring sufficiently large subsamples for all industry sectors, regardless of their size. A strictly random sample of firms with 5-250 employees, while being representative of the population, would have resulted in too few responses in the range of 50-250 employees.

Measuring Skills & Practices¹⁴

Leadership & Management Skills: We measured the four dimensions of skills using a multi-item questionnaire that has been successfully used in prior research. Several steps were taken to assess the reliability and validity of the responses, including cross-checking responses with a second member of the management team of a large sub-set of responding companies. The four dimensions measured were:

- **Leadership skills** – motivating and influencing others and delegating work.
- **Entrepreneurship skills** – identifying customer needs, technical or market opportunities, and pursuing opportunities.
- **Organisational skills** – organising resources, coordinating tasks.
- **Technical Skills** – expertise in a technical or functional area, developing technically superior solutions.

Strategic Management Practices: We used a set of items that capture the dimensions of strategy formation and strategic management identified in prior research¹⁵.

- **Strategy centralisation** -the extent to which strategic planning is conducted by a small group or an individual.
- **Strategy formalisation** - the extent to which there are formal processes in place for planning and setting strategy.
- **Strategy responsiveness** - the extent to which strategic planning is adaptive in response to new information from a wide variety of sources including employees.

¹⁴ Survey questions are reported in the full technical report.

¹⁵ Hart and Banbury, "How Strategy-Making Processes Can Make a Difference."

Human Resource Management practices - we employed a set of questions reflecting all major elements of the HRM system known to be associated with firm performance¹⁶, including staffing, training, incentive compensation, employee ownership, performance appraisal, information sharing and participation in decision making.

Survey Implementation

Interviews were conducted by a market research company (TNS/BMRB) using computer assisted telephone interviewing. By design, telephone interviews lasted approximately 20 minutes or less to avoid respondent fatigue and still enable the collection of all relevant data. The target respondent was the chief executive officer in the organisation or another member of the senior management team.

Achieved Sample

A total of 2,948 interviews were conducted in England. These included 371 interviews with a second senior manager in businesses that had a 'senior management team'. (A further 934 interviews were conducted in Northern Ireland and Scotland but these data are not included in this report). Our achieved sample included approximately equal numbers of respondents from five size-bands (5-9, 10-19, 20-49, 50-99, 100-250 employees) and 11 industry groupings¹⁷ (Figures 2 and 3).

¹⁶ Combs, Liu, and Hall, "How Much Do High-Performance Work Practices Matter? a Meta-Analysis of Their Effects on Organisational Performance."

¹⁷ A & B (Agriculture; Forestry & Fishing + Mining and Quarrying)
C (Manufacturing)
D&E (Electricity, Gas, Water supply etc)
F (construction)
G (Wholesale & Retail)
I (Accommodation & Food Services)
H&J (Transportation, Storage, Communications)
K (Financial & insurance)
L,M,N (Real estate, Professional Services)
P&Q (Education and Health)
R&S (Arts and Recreation)

Figure 2: Percentage of achieved sample in each size band
 (actual percentage in English business population with 5 to 250 employees)

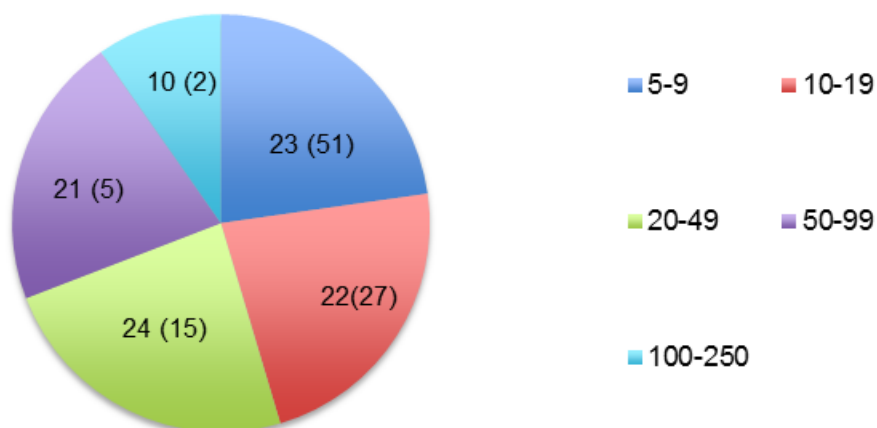
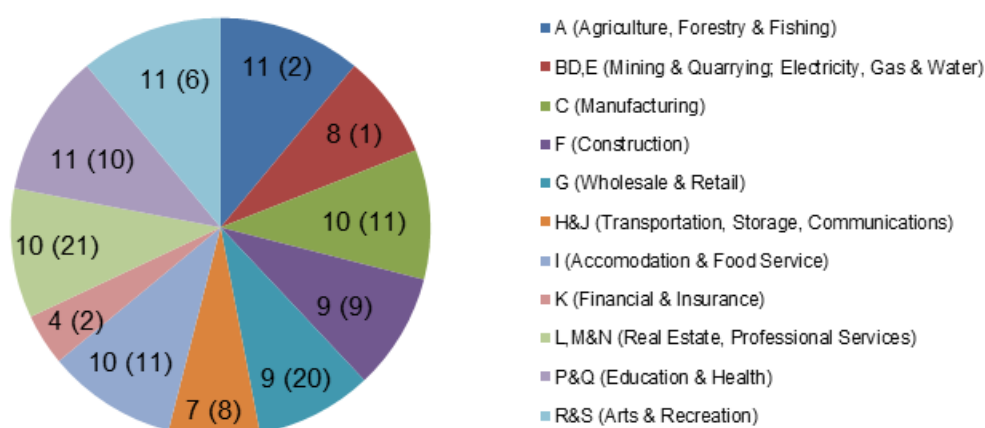


Figure 3 Percentage of the achieved sample in each sector
 (actual percentage in English business population with 5 to 250 employees)

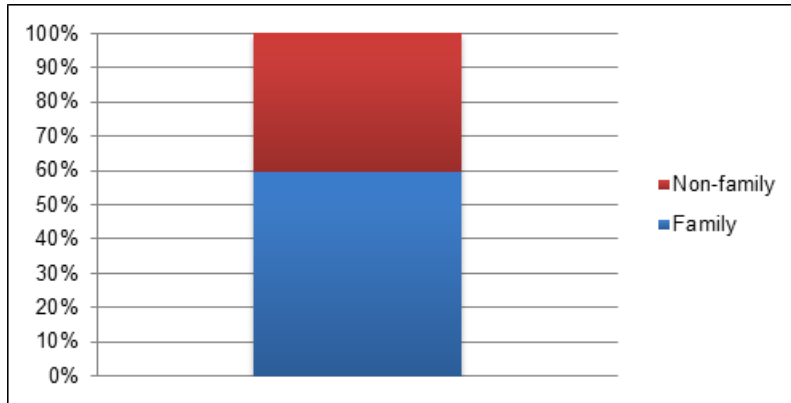


Age distribution of respondent firms - Firms in the sample were of wide ranging ages. The earliest was founded 1900, and the newest were founded 2013. The median founding year was 1998, and the modal year was 2002.

Family ownership - Family ownership is important because of the extensive evidence that family owned firms tend to lag behind non-family firms in terms of the use of best management practices. Accordingly, we established whether respondent firms were family owned. The criteria used to categorise respondents as family or non-family owned businesses is that the respondent must self-identify as a family firm, and then answer affirmatively either that one or more family member is in the management team or that a family member is expected to be the successor to the CEO. Approximately 60 per cent of respondents indicated that they were family firms (Figure 4). This compares to an estimate of 62 per cent in the 2012 Small Business Survey.

Figure 4: Proportion of Family Firms

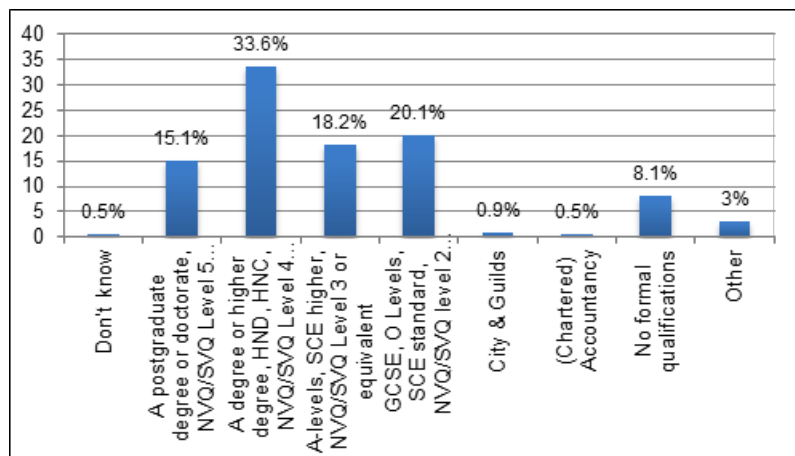
Criterion: Self-identify as family firms, and either one or more family member is in the management team, or a family member is expected to be the successor to the CEO



Attitudes to growth - Respondents were asked about their attitudes to growth. Specifically whether a 25 per cent increase in the number of employees would be viewed as positive, negative or neutral. They were then asked whether a 100 per cent increase would be positive, negative or neutral. Growth was not universally viewed as desirable. Nearly 20 per cent of respondents did not view any growth as positive, and nearly 40 per cent did not view high growth (100 per cent) as positive. Nevertheless, there were generally positive attitudes towards growth.

Educational attainment - Data on the highest level of education indicates the highest proportion of top managers in the survey possessed a first degree or equivalent (figure 5). For all degree holders, the most commonly studied area of the highest degree held was Business, Finance and Law (42.7%).

Figure 5: Highest educational attainment



Findings

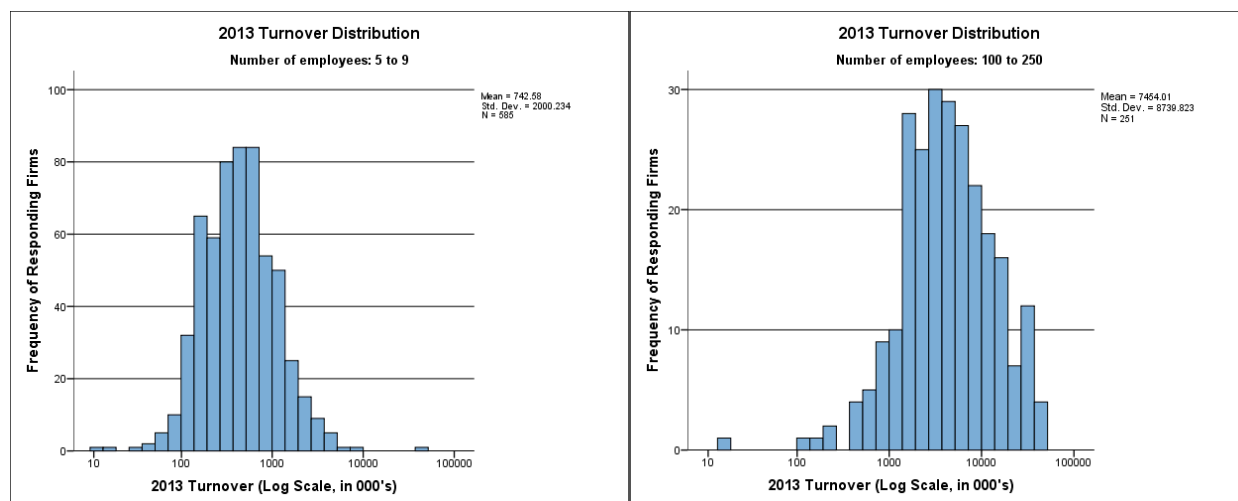
In this section we report the descriptive data on the three performance metrics included in the analysis (turnover, employment growth and productivity) and compare them across the five firm size categories. We identify differences that are statistically significant. We then present the data describing the distribution of L&M skills and the use of management best practices amongst the surveyed businesses. In the final section of this chapter, we outline the associations found between L&M skills, best practices, and performance outcomes.

Distribution of Performance across Size Categories

We measured performance on three important metrics: turnover, productivity and growth. These data were obtained from the Inter Departmental Business Register.

Turnover: (£'000s 2013) as would be expected, is higher with each size category. The difference across size bands is statistically significant. The distribution of turnover naturally tends to be skewed strongly to the lower end of the scale. If plotted on a linear scale the values tend to cluster towards the left of the scale with a tail of the small proportion of firms that perform above the average. We present the distributions using a log scale on the X-axis in order to show more clearly the mean and variation of the distribution around the mean. To illustrate, in figure 6 below we show the distribution for firms with between 5 and 9 employees, and between 100 and 250 employees.

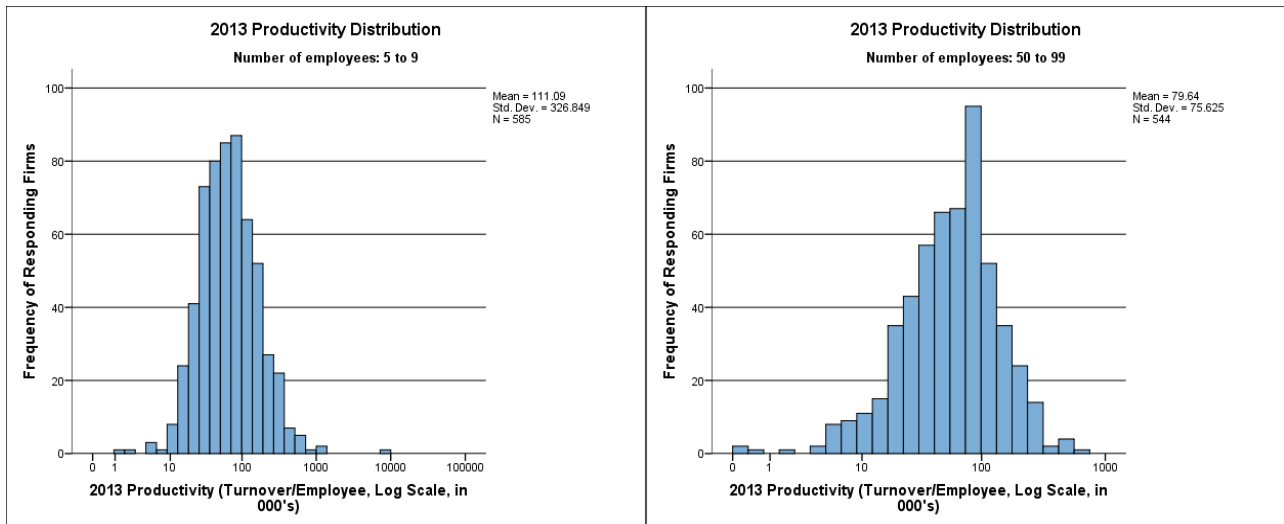
Figure 6: Distribution of Turnover by Firm Size



Productivity: (Revenues per employee, £000s 2013) it is generally recognised that revenues per employee increase as firms become larger. This is typically based on comparisons of firms across the entire population. However, in this sample we have only examined SMEs. In this data, we find that productivity is lower in the two largest size

categories than the smallest. Furthermore these are statistically significant differences¹⁸. Figure 7 illustrates the distribution of productivity in two size categories (5-9 employees and 50-99 employees). As with turnover, we present the data on a logarithmic scale on the x-axis to more clearly show the mean and variation of the distribution. If these data were depicted using a linear scale the productivity figures would be skewed towards the left end of the scale with a long tail representing a small number of high performers in terms of superior productivity.

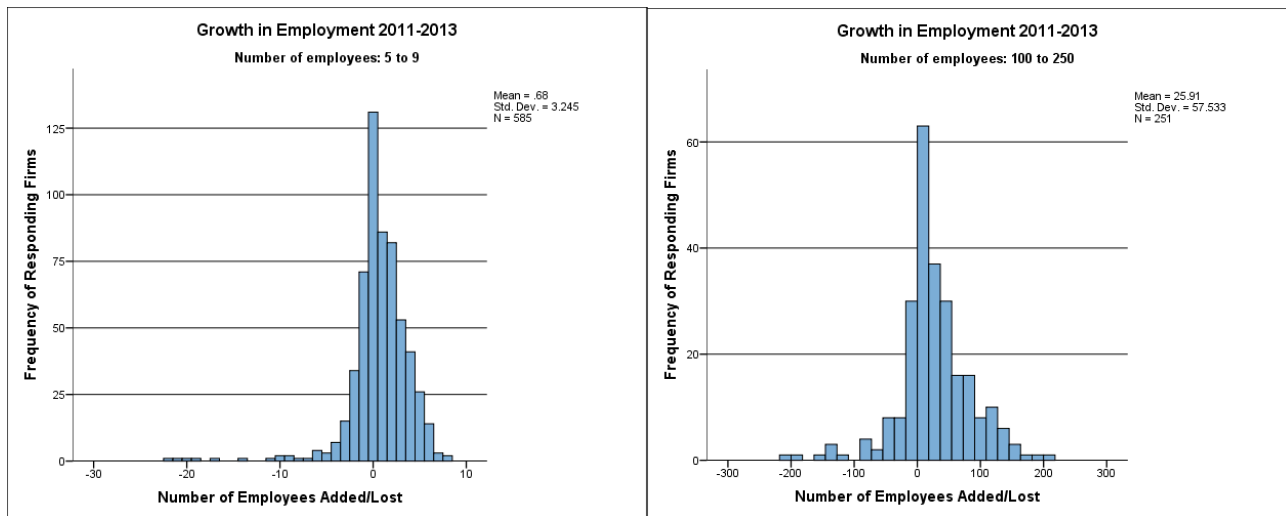
Figure 7: Distribution of Productivity by Firm Size



Growth: We measured growth in terms of the change in number of employees from 2011-2013 (number of jobs added). As would be expected, growth by this measure is higher in the largest group of firms compared with the smaller firms. There is a statistically significant difference between size bands. There is also increased variation in the number of jobs added/lost in larger firms versus smaller (figure 8).

¹⁸ It is possible that these differences are a result of sampling strategy. The first stage of the sampling frame was the IDBR, but the selected firms were cross-checked for their presence in the Fame database to allow cross validation of some measures. Furthermore, the sample is not proportional, but is stratified to obtain a sufficiently large number of responses in each size category. This non proportional sampling strategy may therefore overstate the difference in productivity by increasing the relative number of firms in larger categories – and thus the statistical power of any comparisons. However, we do observe a statistically significant, negative correlation between turnover and firm size (number of employees) across the sample.

Figure 8: Distribution of Employee Growth by Firm Size



Distribution of Skills across Size Categories

Skills were measured using self-reported scores for a range of statements (items) relating to each skill dimension. For each statement, respondents scored themselves using a five-point scale ranging from 1='strongly disagree' to 5='strongly agree'. We then established that there was a high correlation among pairs of items representing the same dimension (and a significantly lower correlation between pairs of items representing different dimensions). When we were satisfied with the validity of the items for each dimension, we created an overall score for each skill using the mean of the responses to the relevant items. This means that skills ratings for each skill-set are described on a five-point scale ranging from a minimum of 1 to a maximum of 5. Higher scores represent higher subjective evaluations of skills on each dimension. We can interpret a score of 1 as very bad, 2 as bad, 3 as neutral, 4 as good, and 5 as very good. Thus ratings of 4 and above are desirable.

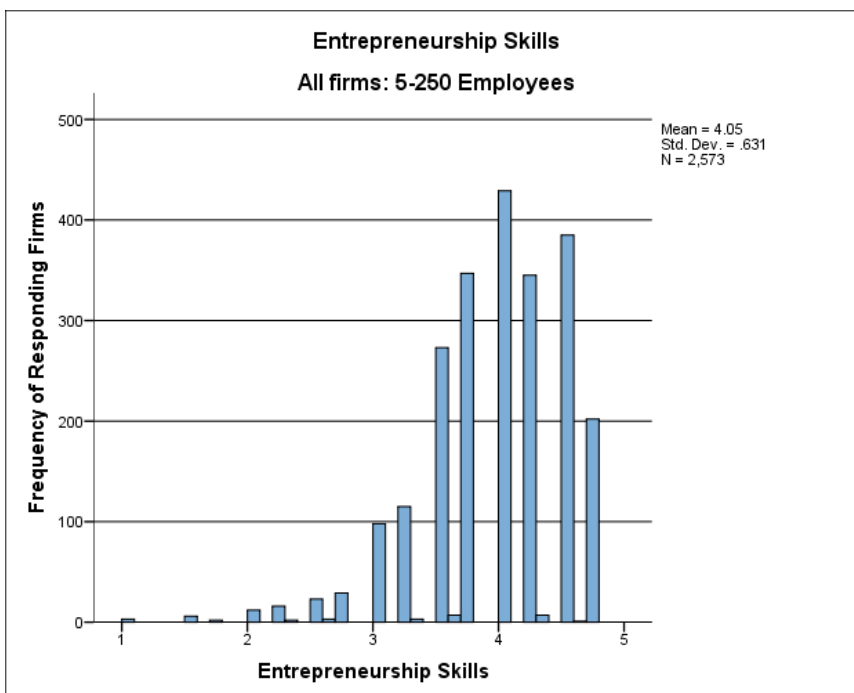
Leadership skills: There are no statistically significant differences between size categories in terms of leadership skills. The mean value of close to 4 out of a possible 5 suggests a relatively high self-evaluation across the board (equivalent to a rating of 'good'). However, there is also a good degree of variation among respondents. There is a notable 'long tail' of firms, with some rating themselves as low as 1 (equivalent to a rating of 'very bad'). Only half of the firms in the sample fall above the desirable level of 'good'. This distribution is illustrated graphically in Figure 9 for all firms in the sample.

Figure 9: Distribution of Leadership Skills



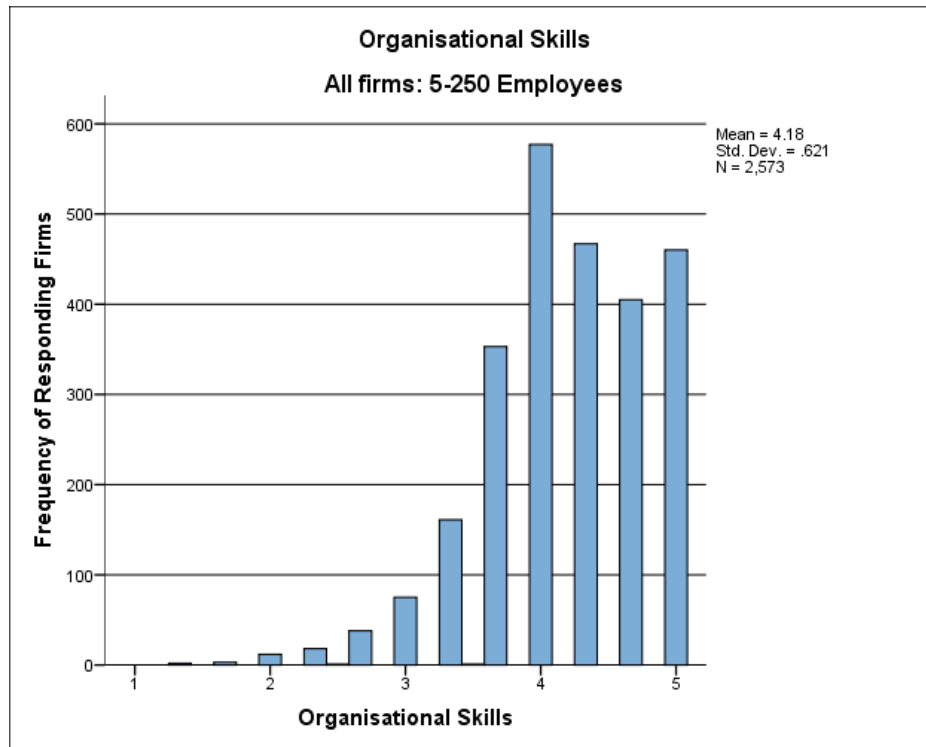
Entrepreneurship skills: There are no statistically significant differences between size categories in terms of entrepreneurship skills. As with leadership, the mean value is around 4 out of 5, with slightly less variation among respondents in their self-evaluations than for leadership skills. Again, we observe that half of the firms in the sample fall below the desired level of 'good' on entrepreneurship skills. Figure 10 illustrates the distribution for all firms in the sample.

Figure 10: Distribution of Entrepreneurship Skills



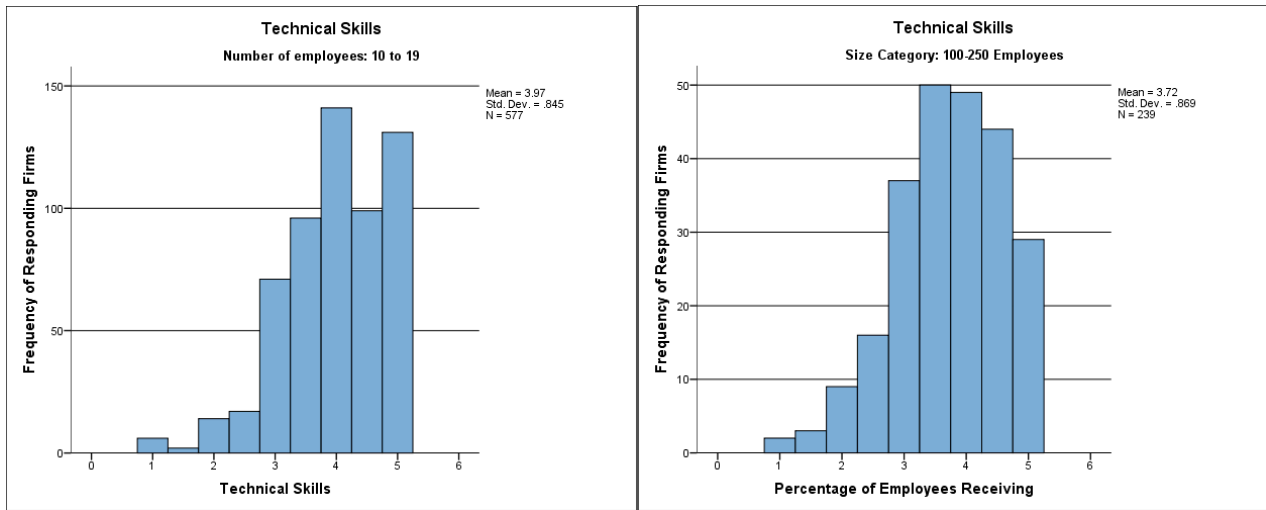
Organisational skills: There are no statistically significant differences between size bands in terms of organisational skills. Respondents tended to rate this skill set most highly of the four skill dimensions, with a mean value of close to 4.2 out of 5, and with a moderate degree of variation across individuals. Once again, we observe a substantial proportion of firms falling below the level of 'good' on this scale. Figure 11 illustrates this with the distribution of organisational skills across all firms in the sample.

Figure 11: Distribution of Organisational Skills



Technical skills: Large firms (100-250 employees) report significantly lower technical skills than smaller firms (5-49 employees). This is illustrated graphically in the distributions in Figure 12. Overall, this was the skill set receiving the lowest average ratings, but also with the highest degree of variation across respondents as shown in the standard deviation values. A substantial portion of firms, more than fifty per cent, rate themselves below the level we interpret as 'good'.

Figure 12: Technical Skills by Firm Size



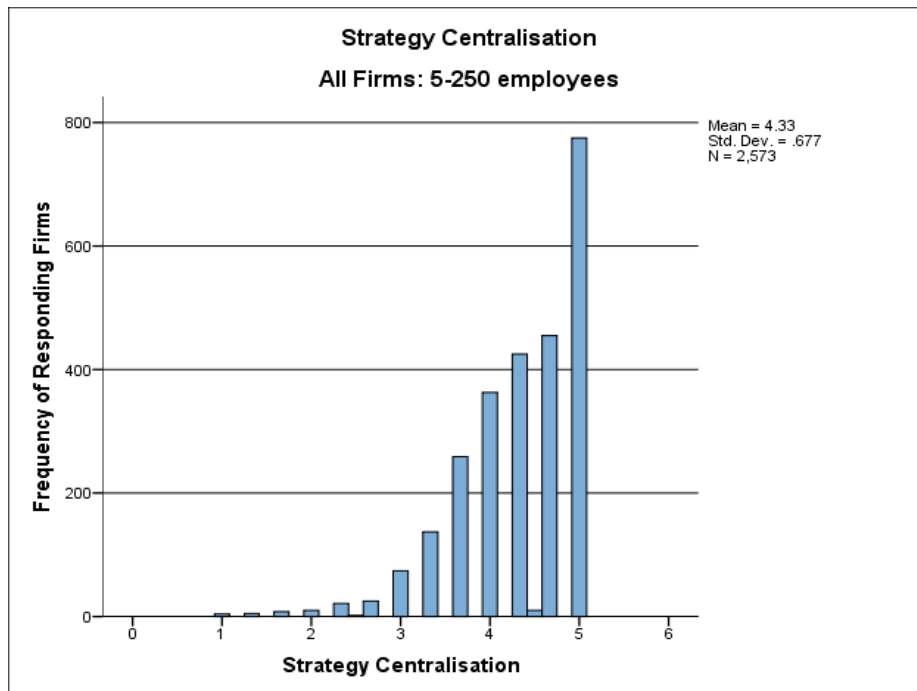
Conclusion: There is no discernible difference in self-reported skills levels across size categories. However, even after accounting for the inevitable inflation of self-reported skill levels, we find a significant degree of variation across respondents with clear evidence of a long tail of firms reporting below average levels of skills in each dimension. Comparison of ratings by two respondents from the same firms confirms agreement on the ratings of management team skills. In a later section, we evaluate whether this variation in self-reported skill levels is associated with the long tail of performance. In the next section, we report the distribution of management practices.

Distribution of Management Practices across Size Categories

Management practices were measured using a subjective rating instrument with multiple items representing each dimension of practices. As with skills, measures of strategic management practices were assessed using a five-point response scale ranging from 1='strongly disagree' to 5='strongly agree'. We created an overall score for each of the three dimensions of strategic management practice using the mean of the responses to the relevant items. This means that strategic management practices are described on a five-point scale ranging from a minimum of 1 to a maximum of 5. Higher scores represent stronger agreement on each dimension such that a value of five means that the respondents strongly agree that their strategy can be described as centralised, or formalised, or responsive. A value of three reflects a neutral (neither agree-nor disagree) and a value of 1 reflects a strong disagreement – i.e. the item is definitely not descriptive of that organisation.

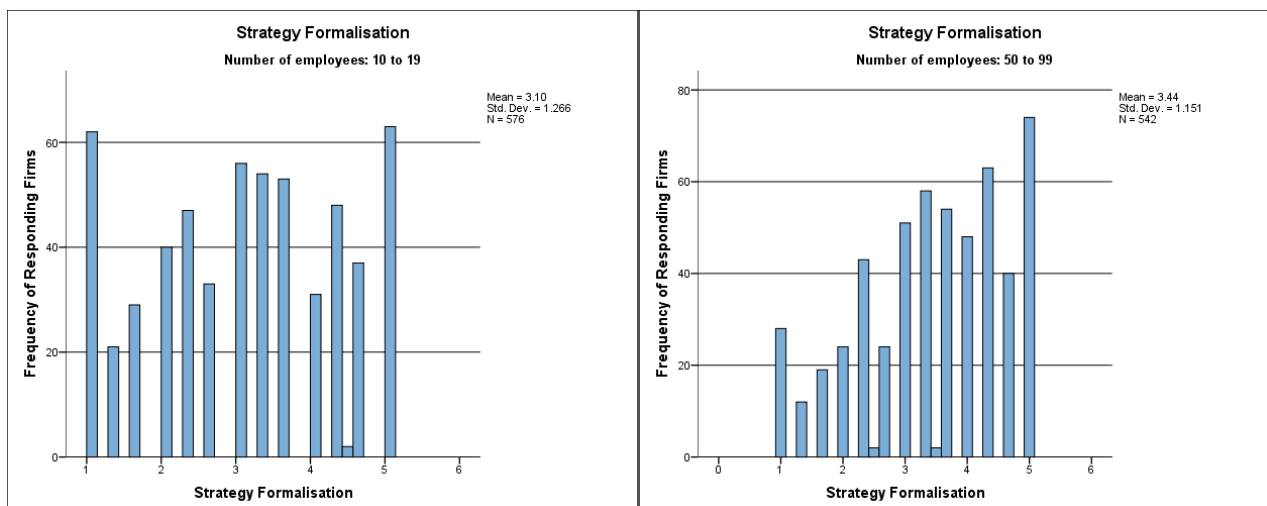
Strategy Centralisation: There are no differences across size categories in terms of the centralisation of strategy. In all SMEs in this dataset, there was a clear tendency towards centralisation of strategy formulation. Nevertheless, there is a meaningful portion of firms that report neutral or even lower ratings on this dimension of practice.

Figure 13: Strategy Centralisation



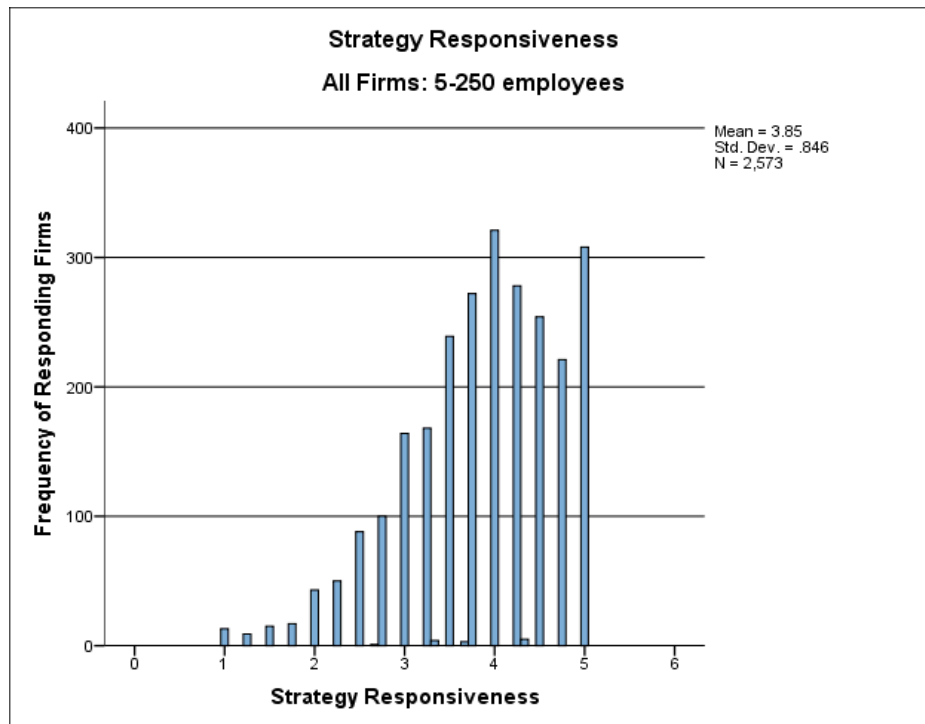
Strategy formalisation: Strategy becomes increasingly formalised at each larger size category (statistically significant difference). However, there is considerable variation within categories, as illustrated in Figure 14, below. There is a low degree of formalisation in strategic management overall: the mean value is close to 3 (neutral) for the smallest firms, and only 3.64 for the largest firms in the study.

Figure 14: Strategy Formalisation by Firm Size



Strategy responsiveness: There are no statistically significant differences across size bands in terms of the responsiveness of strategic management in the sampled firms. The mean level of responsiveness is moderate (between ‘neutral’ and ‘agree’). There is also a wide range of variation across firms, even within size categories, as illustrated in the two examples below (figure 15). A substantial proportion fall below the neutral level into disagree – indicating a low degree of responsiveness in terms of managing strategy.

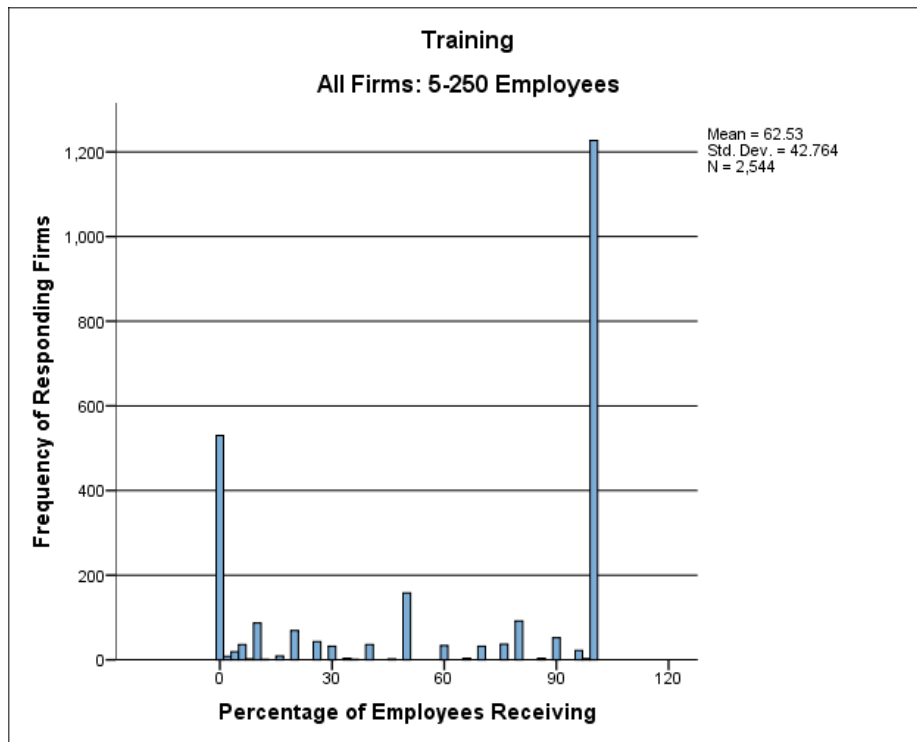
Figure 15: Strategy Responsiveness



Measures of HR practices were also based upon subjective rating scales. However, unlike the questions concerning skills and strategic management, the response format for HR practices was the percentage of employees covered by each HR practice. Pairs of related individual items were grouped and an average percentage score calculated. Thus the variable training reflects two items relating to the provision of specialised and generic training. The variable for staffing reflects the average of two items concerning the use of structured interviews and the use of standardized tests. We also grouped the two items for the use of variable pay and employee ownership, and for the use of employee participation and information sharing. In all cases the strength of the correlations between these pairs of questions justified this averaging of scores. The variables then provide an indicator of the extent of coverage of all employees by these HR practices in terms of training, staffing, performance appraisal, variable pay and participation. Although we break HRM down into these five dimensions for this descriptive analysis, we subsequently created an index of overall HRM sophistication by summing the scores across all of the items into a single measure.

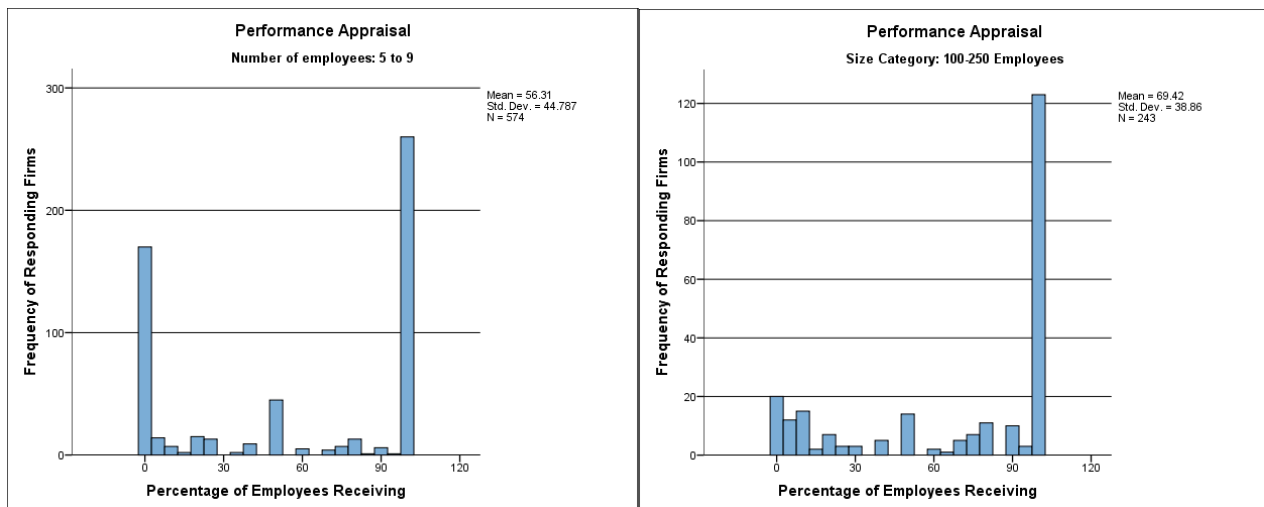
Training: There are no statistically significant differences across size categories in terms of the proportion of employees receiving specialised and general skills training in the sampled firms. There is wide variation in practice, and the average across the sample is a little over 60 per cent of employees receiving training provision. However, it is clear that approximately half of the sampled firms provide training to all employees, and the remainder vary widely in the coverage of training provision. This is illustrated in figure 16 below for all firms in the sample combined.

Figure 16: Training Coverage



Performance Appraisal: As might be expected, in the smallest firms significantly fewer employees are covered by performance appraisal than larger firms. However, there are no statistically significant differences among the other size categories in terms of the proportion of employees receiving performance appraisals. As illustrated in the examples in figure 17, particularly in smaller firms, the distribution is ‘bi modal’ with firms either covering all or no employees. This makes interpreting the mean somewhat misleading. This bi modal distribution suggests wide variation in practice.

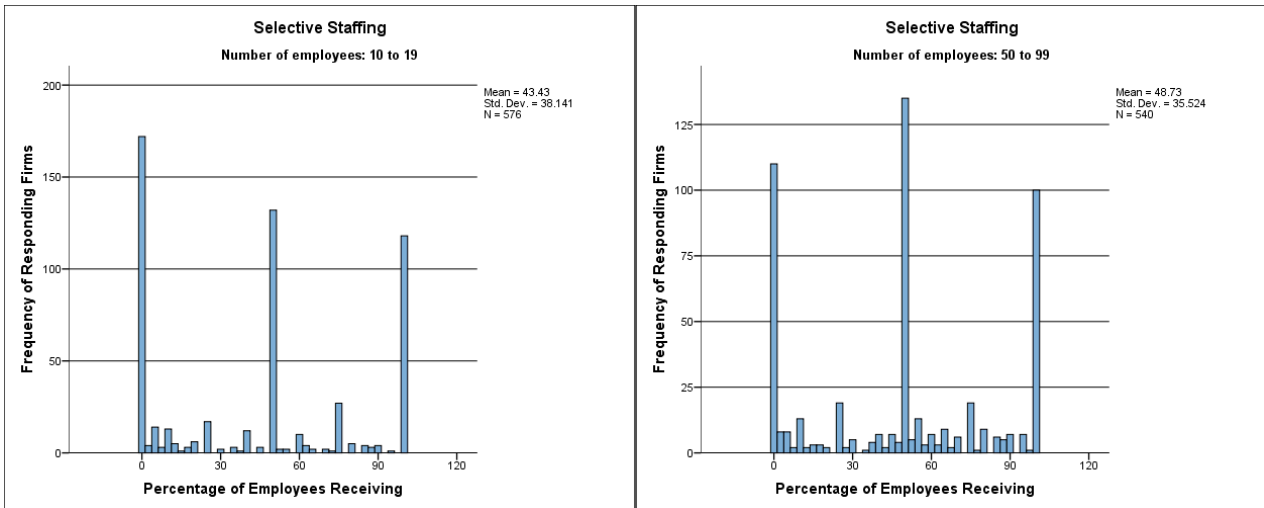
Figure 17: Performance Appraisal Coverage by Firm Size



Selective Staffing: The data suggest that the adoption of selective staffing practices increases for firms with more than 20 employees to a degree that is statistically significant.

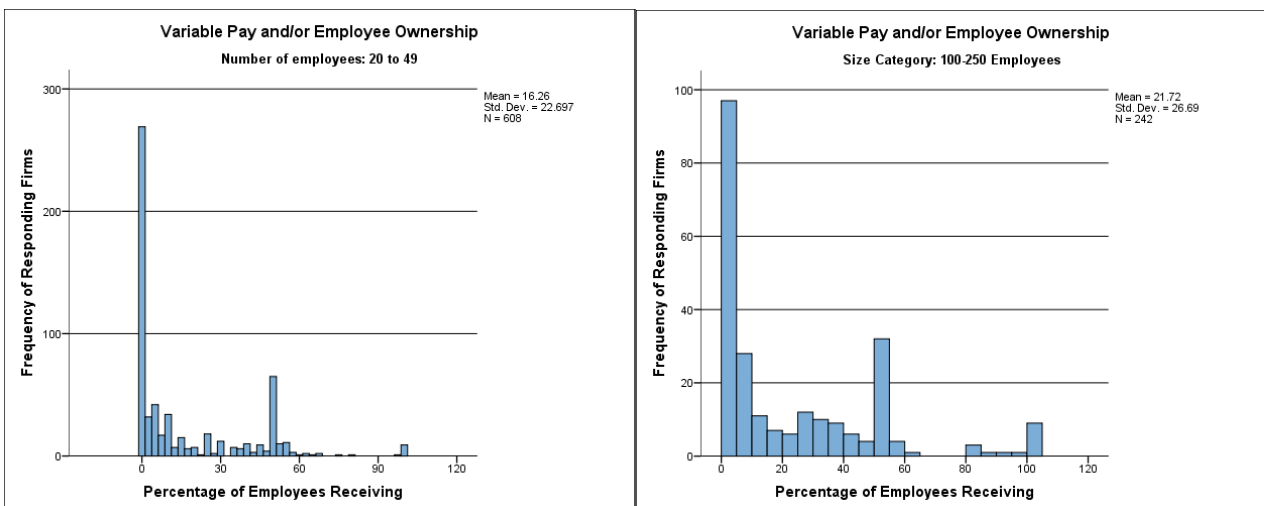
Above the threshold of 20 employees there are no further statistically significant differences in terms of the proportion of employees hired using selective staffing practices. In firms with more than 20 employees, mean coverage is close to 50 per cent of employees. However, as shown in the illustrative examples in figure 18, there is a high degree of variation within groups and selective staffing practices are equally likely to not be used at all.

Figure 18: Selective Staffing Coverage by Firm Size



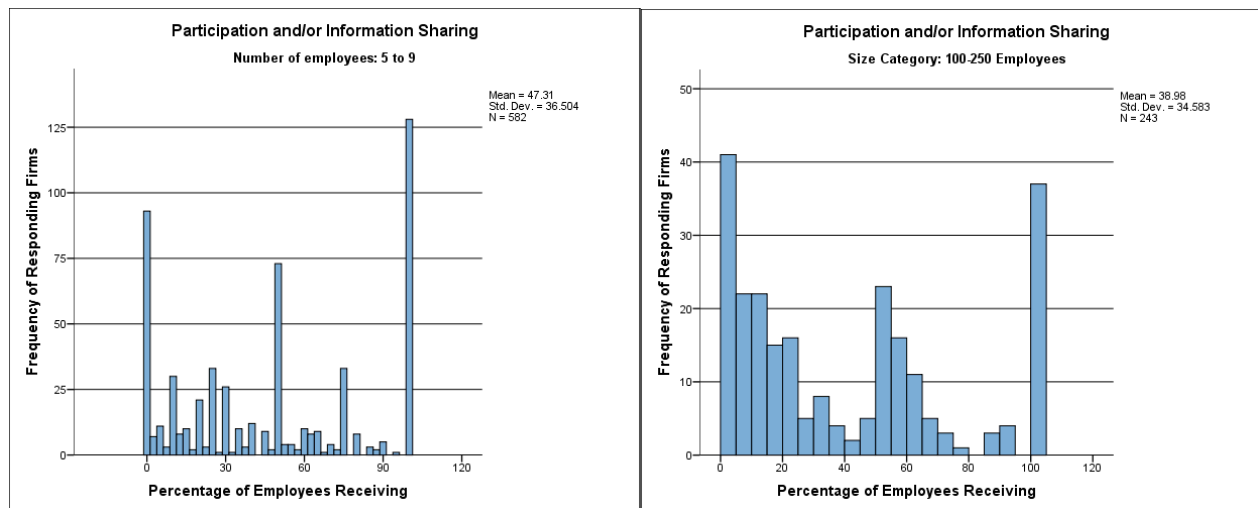
Variable pay and Employee Ownership: The data suggest that the adoption of variable pay and employee ownership increases significantly for firms with more than 99 employees. Below that threshold there are no statistically significant differences in terms of the proportion of employees offered variable pay and/or employee ownership. The mean value overall is low, typically below 20 per cent of firms, and the variation is also quite low. In general, these are atypical compensation policies for SMEs in this sample. This is clearly illustrated in figure 19, which shows the distribution of these practices in firms with 20-49 and 100-250 employees.

Figure 19: Variable Pay and Employee Ownership Coverage by Firm Size



Information Sharing and Participation: firms in the smallest size band are statistically more likely to share information with employees and engage them in participative decision making than any other category. Above that threshold there are no statistically significant differences in terms of the proportion of employees who are engaged in participative decision-making. These differences are described graphically in figure 20. The mean value is around 40 per cent of firms, although the variation around that mean, even within size bands, is high.

Figure 20: Information Sharing and Participation Coverage by Firm Size



Conclusion: taken together, the data on distribution of management practices suggest generally low up-take of practices such as formalised strategy, and many of the so-called 'high performance' HR practices such as information sharing, participation in decision making, training, variable rewards, and employee ownership. This confirms other evidence that there is a 'long tail' of SMEs not employing management best practices in these domains.

How many businesses are we talking about?

In the UK 99.9% of the population of all firms are SMEs (5.2 million firms). However, according to the most recent Business Population statistics published by the UK Department for Business Innovation and Skills, only approximately 1.27 million of these SMEs have any employees.

The mean level of entrepreneurship skills on our 5-point scale is 4.05. This indicates that the average respondent generally agrees that they have good entrepreneurship skills when compared with others. However, this also means that 600,000 firms would be expected to score themselves below this average level, and that over approximately 200,000 firms would score below 3.4 on a 5 point scale (indicating overall a neutral rating on skills or worse). This bottom 16% falls significantly below the mean level and therefore has substantial opportunity for improvement in entrepreneurship skills. The pattern is consistent across the other three dimensions of skills.

With respect to management practices, we can take strategy formalisation as an example.

The mean level of strategy formalisation is 3.2 (close to neutral or 'neither agree-nor-disagree' on our 5 point scale). The variation in strategy formalisation is very wide across all SMEs, and the bottom 16% of firms indicate that they *disagree or strongly disagree with all questions* relating to strategy formalisation (scoring at 2.0 or below on our five point scale). In other words, we estimate that there are over half a million SME employers that are not currently taking a formalised approach to strategic management. As shown in the next section, strategy formalisation has significant associations with performance outcomes.

These data indicate there is substantial room for improvement in both skills and management practices across a wide swathe of the UK population of firms.

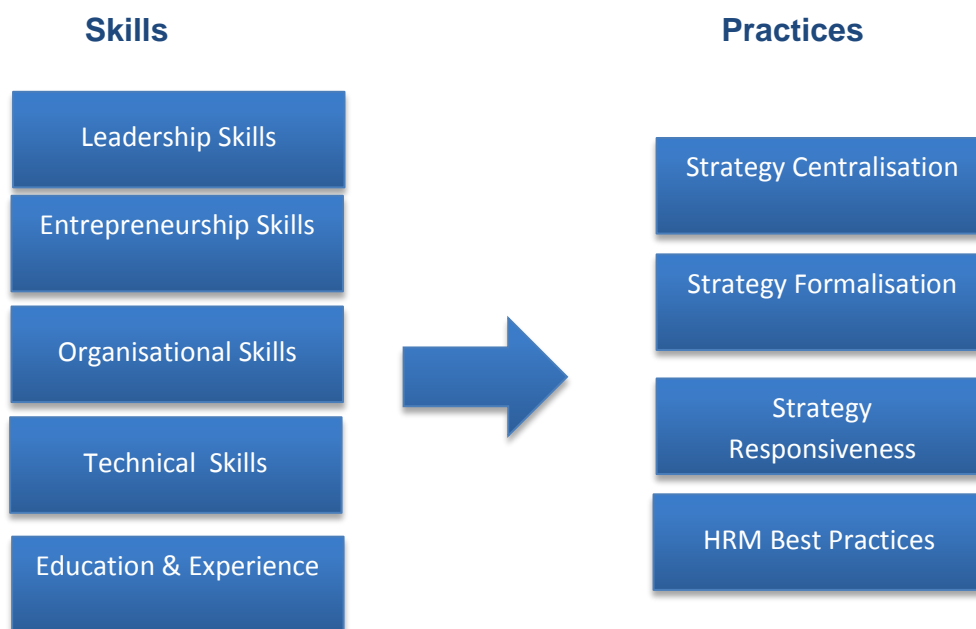
Linking Skills, Management Practices, and Performance

The central question driving this research is whether there is an association between L&M skills and firm performance. We have already noted that strategic management and HRM practices represent intermediate variables in the causal chain from skills to firm performance. What this means is that these management practices can be viewed as the outcome variables with respect to skills. However, management practices are also predictors of performance outcomes. Therefore, we report the results in two stages. The first stage examines the associations between the skills measures and the management practices. In the second stage of our analysis, we estimate the association for skills and practices together with the performance outcomes we are interested in.

Skills and Management Practices

A major reason why L&M skills are of interest is because of their expected association with the implementation of effective management practices. The full detailed results of all analysis are presented in the technical report. The relationships being examined in this first stage of analysis are summarized in Figure 21.

Figure 21: The potential associations between skills and management practices



In the following sections we summarise the statistically significant associations observed between skills and management practices after controlling for the influence of industry sector, firm size, age and ownership structure. Each of these factors is likely to impact the extent to which firms have developed good management practices in terms of strategy and HRM. For example, we found that as firms get older, holding all other factors constant, they are less likely to implement management best practices. That is, experience (at least at the firm level) does not appear to be the best teacher. We also found that, holding all

else constant, family firms were less likely to employ management best practices than non-family firms. While these other factors are potentially interesting, in the following sections we focus on the main effects between skills and practices after controlling for the influence of these other variables.

Strategic Management

We found that the four skill sets are each associated with strategic management in SMEs as follows:

- **Leadership skills** are positively related to strategy centralisation, formalisation and responsiveness.
- **Entrepreneurship skills** are positively related to strategy centralisation, formalisation and responsiveness.
- **Technical skills** are positively related to strategy centralisation, formalisation and responsiveness, but to a lesser degree than leadership and entrepreneurship skills.
- **Organisational skills** are positively associated with strategy centralisation only.

The main findings regarding education and experience are:

- **More experienced leaders**, in terms of managing their own businesses, are more likely to report a centralised approach to strategic planning.
- **Management team size** is positively associated with formalisation.
- **International experience** is positively associated with strategic responsiveness.

Human Resource Management

In order to evaluate the association between skills and the implementation of HRM, we created an index of 'best practices' in terms of compensation, staffing, performance management, employee participation and training and development. Controlling for family ownership, size, age and sector, the results indicate:

- **Leadership skills, entrepreneurship skills, and technical skills** are all positively associated with implementation of HRM best practices.
- **Organisational skills** are unrelated to HRM.
- **Education level, prior ownership experience and international experience** are each positively associated with HRM, as is the size of the management team.

Summary

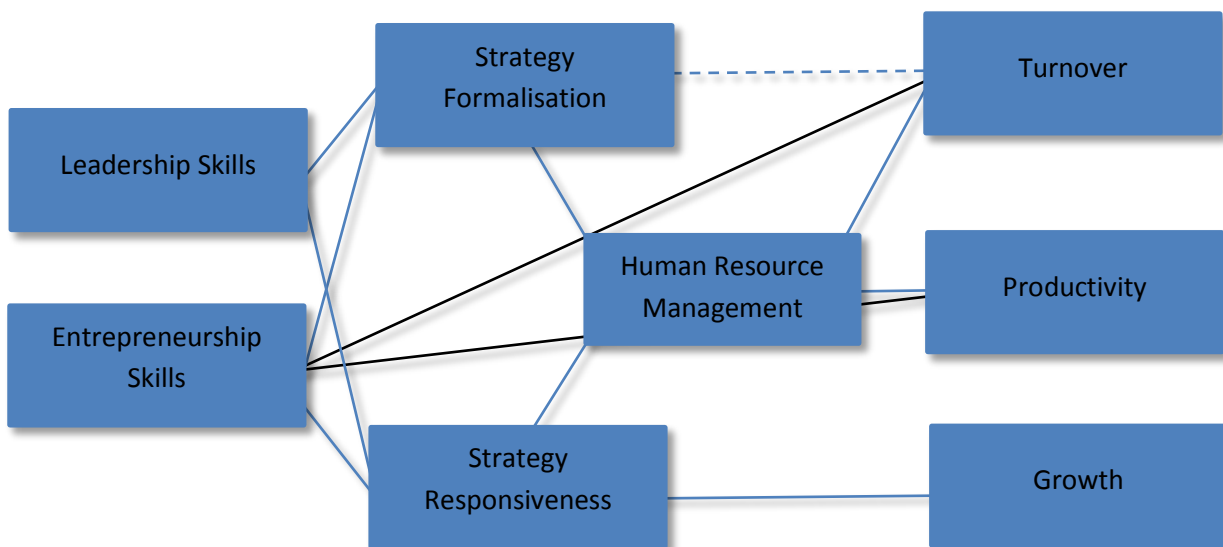
Skills are associated with both strategic management and HRM, as would be expected. However, not all skills are equal. The most consistently and strongly associated skill sets are entrepreneurship and leadership, with a smaller role played by technical skills and almost no effect of organisational skills.

Before interpreting these results further, it is worth reviewing two additional sets of results: the association between skills, practices and performance outcomes; and the mediating role played by management practices in translating skills into performance.

Skills, Management Practices, and Performance and Growth

We next extended the analysis to include the three measures of performance: turnover (2013), productivity (2013) and employment growth (change in number of employees 2011-2013). Figure 22 summarises the variables of interest included in this analysis. In the following summary we focus on the positive and statistically significant associations. Unsurprisingly, industry sector is significantly related to turnover, productivity and growth. Age and size are also positively associated with turnover. All of the following results control for these significant influences as well ownership (family versus non family).

Figure 22: Linking skills to performance; associations between skills, management practices and performance outcomes.



Turnover

- **Entrepreneurship skills** are positively related to turnover.
- **Strategy formalisation** is positively associated with turnover (although statistically only marginally).
- **HRM** is positively related to turnover.

Productivity

- **Entrepreneurship skills** are positively and significantly associated with productivity.
- **HRM** is positively associated with productivity.

Growth

- **Strategy responsiveness** is positively associated with growth.

Mediating Relationships: linking skills, practices and performance

To deepen our understanding of these relationships further, we assessed whether L&M skills influence performance and growth indirectly through their impact on management practices. This is a test of the basic premise described in the introduction: L&M skills drive performance *through* their influence on the adoption of management best practices. With a few exceptions, our analysis provides support for this mediating role of practices between L&M skills and performance. In summary we found evidence that the strategic management and HRM practices serve as mediating mechanisms for the association between entrepreneurship skills and firm performance.

Negative associations

The analysis identified two statistically significant negative associations between management best practices and performance. These were between strategy responsiveness and both turnover and productivity. These findings should not be interpreted as meaning that strategy responsiveness is not an appropriate and effective strategy for many businesses. Strategic responsiveness implies adapting strategic goals to new information. It also requires changing direction and possibly developing new capabilities in response to new market realities. It would be expected that this would incur costs, reducing productivity, and either cause, or be caused by declining turnover.

In addition, we found a negative association between leadership skills and turnover and productivity. We believe the negative associations may be explained by observation that leadership is positively associated with strategy responsiveness which itself is negatively associated with these outcomes.

Thus while exerting a positive influence on strategic management practices, the net result of leadership skills is an apparent negative association with performance. However, this result might solely reflect what is an expected negative influence of strategy responsiveness on short run performance rather than the negative effects of leadership *per se*.

Size Differences

When analysed separately, we observed distinctly different patterns of observed relationships across different size categories.

- 100-250 employees:
 - No significant associations between skills, practices and any performance measures
- 50-99 employees:
 - Technical skills are positively associated with productivity
 - HRM positively associated with turnover and productivity
- 20-49 employees
 - Technical skills positively associated with turnover and productivity
 - Strategy formalisation positively associated with growth
- 10-19 employees
 - Entrepreneurship skills positively associated with turnover and productivity

- 5-9 employees:
 - Entrepreneurship skills positively associated with turnover and productivity
 - Strategy formalisation positively associated with turnover and productivity

It is clear that entrepreneurship skills are particularly impactful for smaller firms (5-19 employees), while technical skills become more important for mid-sized firms (20-99 employees). For smaller firms it is the skills associated with identifying and pursuing opportunities that are most strongly associated with performance. In mid-sized firms, technical and functional skills tend to be more significant for performance.

Across a variety of size categories we find significant impacts for strategy formalisation and responsiveness, while the strongest benefits from HRM appear to arise for firms with between 50 and 99 employees.

For the largest SMEs (100-250 employees) skills and practices are not significantly associated with performance metrics. This may occur because the link between the characteristics of individual managers and firm performance becomes more remote as organizations become more complex. It might also be a function of the relatively small size of this sub-sample (approximately 250 firms) and consequently less statistical power to detect relatively small associations between these variables.

Sector Differences

We compared individual sectors against the rest of the sample. Here we highlight the major differences where any were observed for the variables of central interest.

Entrepreneurship Skills

While positively related to performance outcomes in the sample as a whole, entrepreneurship skills exhibit no direct relationship in Sectors F (Construction), and Sector I (Accommodation and Food Services).

Entrepreneurship skills are more influential on strategic responsiveness in Sector LM&N (Real Estate and Professional Services) than the sample as a whole, but are unrelated to responsiveness in Sector K (Financial Services and Insurance)

Formalised Strategy

In Sector H & J (Transportation, Storage and Communication) and in Sector I (Accommodation and Food Services) the relationships between formalised strategy and turnover and productivity are more strongly positive than the sample as a whole.

Human Resource Management

HRM is more significantly associated with growth in Sector C (Manufacturing) than in the wider population.

Family Firms

The analysis included a measure of whether or not responding firms are family firms. This is important because of extensive evidence which shows that family firms lag behind non-family firms in terms of professional management and the adoption of HRM practices.¹⁹

We labelled a firm as a family business if respondents first self-identify as a family firm, and then answer affirmatively either that one or more family member is in the management team or that a family member is expected to be the successor to the CEO. Approximately 60 per cent of respondents indicated that they were family firms.

The results of this study are consistent with prior evidence in that we find that being a family firm is negatively associated with the formalisation of strategic management, with the use of performance appraisal, careful employee selection processes, the use of variable incentive pay, employee ownership, information sharing and employee participation in decision making. These differences are statistically significant. However, we also note there are no statistically significant correlations between family firm status and measures of firm performance.

Correlates of Skills

An interesting question to ask is whether there are particular correlates of skills in terms of personal experience, work history, education level or field of study.

The data indicate there is no significant association between the level of education and the self-reported skills of these executives. However, among those respondents with a university level qualification (representing 48% of the sample) we do find a clear pattern of relationships. A degree in business, finance or law is positively correlated with the level of entrepreneurship skills. A degree in STEM subjects is positively correlated with technical skills. Social science degrees are significantly correlated with higher levels of leadership skills.

In addition, international experience is positively correlated with both entrepreneurship skills and with technical skills. On the other hand, business ownership experience and overall work experience are the only correlates of higher levels of organisational skills.

These observations suggest that although formal education overall may not guarantee the presence of key skill sets, the specific field of study pursued in higher education can be a meaningful driver of skills profiles.

¹⁹ Astrachan, J.H. and Kolenko, T.A. (1994), "A neglected factor explaining family business success: human resource practices", *Family Business Review*, Vol. 7 No. 3, pp. 251-62; Reid, R. S., & Adams, J. S. (2001). Human resource management—a survey of practices within family and non-family firms. *Journal of European Industrial Training*, 25(6), 310-320; De Kok, J. M. P., Uhlaner, L. M. and Thurik, A. R. (2006), Professional HRM Practices in Family Owned-Managed Enterprises. *Journal of Small Business Management*, 44: 441–460.

What do these findings mean for SME owners and managers?

The evidence is strongly supportive of the notion that entrepreneurship skills are positively associated with good strategic management practices, good HRM practice, and ultimately firm performance. The benefits of entrepreneurship skills appear in terms of both revenues and growth, as well as indirectly with productivity via its effect on good people management practices.

An important practical takeaway from this research is that owner managers should understand the fundamental benefits of a formal approach to strategic planning, communication, and adaptation, as well as being able to connect HRM practices to the strategic planning process. Support for the development of good practices in these areas is widely available from both public and private providers, ranging from universities to consultants, and including business support advice from Local Enterprise Partnerships and business development programmes such as the Growth Accelerator programme (<http://www.growthaccelerator.com/>).

The results also indicate that skills matter, but not all skills matter equally. Given limited resources, especially time, SME owner-managers may benefit most significantly from ensuring that their entrepreneurship skills and leadership skills are well polished. The benefits of these skill sets are felt most strongly in improved strategy formalisation and strategic flexibility. This suggests that either direct investments in knowledge and skills with respect to strategic management, or investments in more general understanding of entrepreneurial processes such as opportunity recognition, business modelling and market development are expected to be beneficial.

Of course, this begs the question, 'can entrepreneurial skills be taught'? Fortunately, there is growing evidence that entrepreneurship skills are trainable, and that such training can impact both knowledge and personal efficacy with respect to key entrepreneurial tasks. Entrepreneurship education is becoming widespread and is accessible not only within schools, further education and higher education institutions, but is also accessible through established sources of business support.

References:

Henry, C., Hill, F., & Leitch, C. (2005). Entrepreneurship education and training: can entrepreneurship be taught? Part I. *Education + Training*, 47(2), 98-111.

Kantor, J. (1988). Can entrepreneurship be taught?: A Canadian Experiment. *Journal of Small Business & Entrepreneurship*, 5(4), 12-19; Katz, J. A. (2007). Education and Training in Entrepreneurship.

Discussion

We have sought to identify associations between L&M skills, management practices, and measures of firm performance and growth with a view to providing evidence of use for policymaking in the areas of skills and business growth. A further objective was to identify differences in associations within specific strata of the population, by sector and size.

While there are numerous leadership taxonomies the majority of these are designed with a view to understanding leadership in large organisations. There has been only a limited body of work identifying the common and unique features of L&M skills in an SME context. However, the limited research does suggest some commonalities in terms of the dimensions (leadership/human influence, organisation/administrative/resource allocation, technical skills). In addition, the SME specific research does suggest the need to consider entrepreneurship as a distinct skill set. Entrepreneurship includes opportunity identification and exploitation and there is a significant body of work that addresses this sub domain of management activity.

The four dimensions of leadership, entrepreneurship, organisational and technical skills are independent of one another so that summing them to create an index would not be useful. A summative index would allow the four dimensions to compensate for one another. This would not be appropriate since the different dimensions are observed to hold different relationships across outcomes.

Skills and Performance

While the measure of L&M skills captures four dimensions, we find that two of these stand out in terms of explaining performance outcomes: leadership and entrepreneurship. Of these, entrepreneurship skills present the most stable pattern of relationships: they are consistently positively related to both turnover and productivity. A long tail in terms of entrepreneurship skills of SME leaders can explain the long tail of SME performance in terms of turnover, productivity and growth.

The effect of L&M skills operates indirectly through the implementation of management best practices in strategy and HRM. We found particularly significant associations among leadership, entrepreneurship, strategy formalisation, responsiveness and performance. The formalisation and responsiveness of strategic management practices significantly mediate the influence of leadership and entrepreneurship on turnover and productivity.

L&M skills have both direct and indirect associations with performance. Practices in part reflect the impact of skills, but do not fully account for their impact on performance. We also find that while the associations between skills and practices tend to be positive, the relationship with performance outcomes is more complex.

Key differences

While the analytical models tested hold true across the sample, the data clearly suggest some differences by size and sector. Entrepreneurial skills are most important for firms between 5 and 19 employees. Technical skills become more important for firms with

between 20 and 99 employees. Strategy formalisation and responsiveness play a significant role across most size categories, while HRM appears most important for those mid-sized SMEs with between 50 and 99 employees.

The differences across sectors suggest that different skill sets may exert different influences on outcomes. These may be caused by both importance and opportunity. The importance of different skill sets is expected to vary, for example based upon the dynamism and rate of change in an industry (entrepreneurship), variations in labour intensity (leadership) or organisational complexity (organisational skills). On the opportunity side, sectors are not facing the same environments – some have more growth opportunities than others, and there are variations in the ways in which growth opportunities might be pursued (market penetration versus new market development). This also suggests that a deeper analysis is required, going beyond the relatively holistic analysis reported here.

Limitations

The study has examined a highly diverse population, in terms of both size and sector. This population also varies in terms of ownership (family vs. non family), and management structure (individual owner managers vs. teams). We have controlled for these differences both by design (stratified sampling) and statistically by modelling the influence of these factors in addition to the variables of interest. However, these differences have significant implications not only for the relationships between L&M skills, practices and outcomes, but also the ways in which these variables can be effectively operationalised in a single study. We have sought to overcome this challenge by examining a limited set of relatively general management practices (strategy and HRM). The evidence suggests that this approach has worked. However, it does also mean that further examination of the association between L&M skills and other practices would be of value. In particular, some practices may be more relevant for growth through market penetration (e.g., operations management, total quality, continuous improvement) than for growth through the identification and exploitation of new market opportunities (e.g., financial capabilities, market development, organisational learning).

It is quite possible that the timing of this study, conducted not long after a period of economic contraction, may have dampened the relationships between skills and growth. Certainly the performance and growth measures will have been impacted by the macroeconomic conditions. To the extent that these conditions cause reduced variation in the performance metrics for all firms, we would expect to see weaker correlations between skills and practices and these outcomes. In this light, we might interpret the relationships observed as being a conservative estimate of the importance of L&M skills for performance.

Conclusion

This study demonstrates that L&M skills do matter in predicted (and a few unpredicted) ways for explaining performance and growth in SMEs. Of all of the dimensions measured, the most important predictor of positive performance is entrepreneurship skills. L&M skills are more strongly associated with good management practices than more distant measures of performance outcomes. This is to be expected, given the impact of a wide range of uncontrollable factors on the ultimate performance of a firm. The evidence is strong that good management is predictive of economic development. The present research confirms that skills are associated with the adoption of good management practices.

These findings suggest an evidence-based rationale for possible policy development. The descriptive data indicate that L&M skills are relatively under-developed in many SMEs. However, these skills are associated with the adoption of associated management best practices - which themselves are positively related to firm performance. The evidence therefore indicates that under-developed L&M skills and an associated widespread failure to adopt management best practices may be constraining the performance and growth of a large number of UK SMEs. The results also provide suggestions regarding the policy options available. That is, the study has identified which aspects of L&M skills are the most important in terms of improving firm performance, the management best practices that are most influential, and also which categories (sectors and size bands) of business might achieve the greatest benefits.



© Crown copyright 2015

This publication is licensed under the terms of the Open Government Licence v3.0 except where otherwise stated. To view this licence, visit nationalarchives.gov.uk/doc/open-government-licence/version/3 or write to the Information Policy Team, The National Archives, Kew, London TW9 4DU, or email: psi@nationalarchives.gsi.gov.uk.

Where we have identified any third party copyright information you will need to obtain permission from the copyright holders concerned.

This publication available from www.gov.uk/bis

Contact us if you have any enquiries about this publication, including requests for alternative formats, at:

Department for Business, Innovation and Skills
1 Victoria Street
London SW1H 0ET
Tel: 020 7215 5000
Email: enquiries@bis.gsi.gov.uk

BIS/15/95