ERC
Enterprise Research Centre

Exporting, ambition, finance and SME performance: Exploratory analysis of the Longitudinal Small Business Survey 2015 and 2016

ERC Research Report

July 2017

www.enterpriseresearch.ac.uk

Exporting, ambition, finance and SME performance: Exploratory analysis of the Longitudinal Small Business Survey 2015 and 2016

Stephen Roper
Enterprise Research Centre and Warwick Business School
stephen.roper@wbs.ac.uk

Areti Gkypali
Enterprise Research Centre and Warwick Business School
areti.gkypali@wbs.ac.uk

Bo Grace Peng
Enterprise Research Centre and Warwick Business School
bo.peng@wbs.ac.uk

The Enterprise Research Centre is an independent research centre which focusses on SME growth and productivity. ERC is a partnership between Warwick Business School, Aston Business School, Imperial College Business School, Strathclyde Business School, Birmingham Business School and Queen's University School of Management. The Centre is funded by the Economic and Social Research Council (ESRC); Department for Business, Energy & Industrial Strategy (BEIS); Innovate UK and the British Business Bank. The support of the funders is acknowledged. The views expressed in this report are those of the authors and do not necessarily represent those of the funders.

CONTENTS

1. INTRODUCTION

In this report we outline three exploratory analyses of the Longitudinal Small Business Survey (LSBS) for 2015 and 2016, with a focus on the drivers of business performance. The three analyses focus on: the impact of exporting; ambition; and the availability of external finance. In each case the aim is to exploit the longitudinal aspect of the LSBS, relating firms' performance in 2016 to firms' strategy, choices and activities in 2015.

Our exploratory analysis of exporting and growth is included in Section 2. This starts from the premise that while exporting firms are more productive than non-exporters, there is almost no previous evidence which relates to the heterogeneity of non-exporters. Academics and policy makers have implicitly adopted the view that all non-exporting firms are 'export wannabes' i.e. that non-exporting firms would definitely engage in exporting activities had they the means and opportunity to do so.

Data from the Longitudinal Small Business Survey (LSBS) allows us to differentiate non-exporting firms based on their willingness and (in)ability to export, and we investigate the impact of firm: (i) engagement; (ii) willingness; and (iii) ability to export, on several dimensions of firm performance. Our exploratory analysis suggests four main conclusions.

- First, a robust 'export premium' exists in terms of productivity, even after we control for non-exporter heterogeneity.
- Second, besides the export premium, there seems to be an 'export penalty' when it comes to the effect of (non-)exporting strategies on sales, employment, and productivity growth indicators.
- Third, businesses planning to export are not necessarily better performing compared to those firms able but not willing to export, or firms neither willing nor able to export.
- Fourth, younger firms seem to suffer from the 'productivity dilemma' which is reflected in the combined influence of innovation, firm size, age and capabilities on firm performance indicators.

Our analysis suggests the potential value of examining different groups of non-

exporting firms and how these different groups might be encouraged – where relevant – to internationalise.

Section 3 reports our exploratory analysis of the link between firms' growth ambitions in 2015 and their subsequent performance. First, we examine the correlates of expected and actual growth. Are these the same, or do different factors shape growth expectations and outcomes? We then examine whether growth expectations are actually realised, and whether this is more likely among specific types of firms. The LSBS provides some potentially unique insights into these questions as we have information on a large sample of businesses which provided information on their expected turnover growth in 2015-16, and then a year later, on their actual growth over the same period.

Our empirical analysis suggests three main conclusions:

- First, we identify a number of factors which have a common relationship with both growth expectations and growth achievement. These include firms' commitment to product and service innovation, and a range of capability-building activities. Interestingly, business planning is associated only with achieved rather than expected growth.
- Second, we find a positive, albeit relatively weak, correlation between the extent of firms' growth expectations and their achieved growth: the higher firms growth expectations the higher their achieved growth.
- Third, and perhaps unsurprisingly, we find it difficult to identify many variables which have a strong and consistent fit with whether firms will either achieve or surpass their growth expectations. Profitability (positive) and process innovation (negative) in the year in which expectations are formed are the only variables which consistently predict growth outcomes.

Our results emphasise again the difficulty of the 'picking winners' problem: even, as here, where growth expectations can be observed, it proves difficult to identify any clear predictors of whether expected growth will actually be achieved.

Our final exploratory analysis covered in Section 4, relates to the impact of external funding on growth. External finance is undeniably one of the most important resources for the exploitation and expansion of small and medium-

sized enterprises (SMEs). We first summarise the financial status of SMEs in the United Kingdom based on the survey data in 2015, and then explore whether and how this influenced business performance in 2016.

Based on the LSBS 2015, we categorised firms into four groups based on their external funding status. Firms may be financially self-sufficient and not need external funding; firms may need funding, but are discouraged from borrowing from external sources; firms may have tried but failed to obtain external funding; and firms may also have tried and succeeded fully or partially in obtaining finance. Our analysis suggests a close relationship between such financial status and the performance of the SMEs in the following year. More specifically, succeeding in obtaining external finance significantly increases the probability that firms are profitable, increase their sales, and also helps to improve their operational efficiency. However, the level of significance and the effect sizes for different financial statuses vary widely for difference performance indicators, suggesting that the effect of financial constraints on profitability and growth, for example, are rather different.

Each of our analyses is exploratory and each suggests further, more in-depth, investigation. Together, however, they do suggest the types of insights which may follow from the LSBS as the length of the longitudinal element of the survey is extended.

2. A NON-EXPORTERS' TALE: DOES EXPORT WILLINGNESS AND ABILITY IMPACT FIRM PERFORMANCE?

2.1 Introduction

It is widely accepted that exporting firms are more productive than non-exporters. This has led to growing interest in exploring sources of heterogeneity among exporters, as to whether, for example, persistent exporting is source of higher productivity. There almost no evidence pertaining to the heterogeneity of non-exporters[1]. Academics and policy makers have implicitly adopted the view that all non-exporting firms are 'export wannabes' i.e. that non-exporting firms would definitely engage in exporting activities had they the means and opportunity to do so, but that insurmountable barriers (often related to productivity and competitiveness), prohibit them from entering into foreign markets.

From a policy perspective, the question then becomes what enables non-exporters to become exporters? Efforts have been concentrated on exploring the relationship between pre-exporting productivity levels and firms' ability to compete in foreign markets. Other sporadic, though not systematic, empirical evidence has indicated that during the pre-export phase there are managerial and business characteristics that play an important role in the decision to become internationalised[2].

Nonetheless, recent empirical evidence suggests that non-exporters may make a strategic decision not to export, but still achieve high productivity[3]. In other words, it may be the case that non-exporting firms may or may not be willing or able to export. This being the case, policy initiatives need to distinguish between firms

[1] Wiedersheim-Paul, F., Olson, H., and Welch, L. 1978. Pre-export activity: The first step in internationalization. *Journal of International Business Studies*, 9,1, 47–58; Caughey, M. and Chetty, S. 1994. Pre-export Behavior of Small Manufacturing Firms in New Zealand. *International Small Business Journal*, 12, 3, 62-69; Tan, A., Brewer, P., and Liesch, P. W. 2007. Before the first export decision: Internationalisation readiness in the pre-export phase. *International Business Review*, 16, 3, 294–309.
[2] Wiedersheim-Paul et al. 1978, Op. Cit.
[3] Gkypali A., Tsekouras K. 2015. Efficiency and Competitive Advantage based on R&D activities of low-tech firms: an antecedent of the decision to export?", *Economics of Innovation and New Technology*, 24,8, 801-828.

planning to export, firms able to export, and firms that are neither willing nor able to export.

Here, we use data from the Longitudinal Small Business Survey (LSBS) during the period 2015-2016 to investigate the impact of the heterogeneity among non-exporting UK SMEs on the 'export premium'. Specifically, we depart from the classic distinction between exporters and non-exporters, and differentiate non-exporting firms based on their willingness and (in)ability to export. Secondly, we investigate the impact of firm: (i) engagement; (ii) willingness; and (iii) ability to export on several dimensions of firm performance. This distinction is based on unique information provided by the LSBS on the (non)exporting status of a large sample of UK SMEs. The survey also provides a wide range of firm-level strategy and resource indicators which we relate to firm performance measures. It is worth noting at the same time the limitations of the LSBS, which provides a wealth of firm-level variables, but provides few indicators specific to the central entrepreneur or owner-manager in each firm.

The remainder of this Section is organised as follows. In sub-section 2.2 we provide an overview of the key concepts which form the focus of the chapter, and their measurement based on the LSBS questionnaire. Sub-section 2.3 presents an overview of how differential (non) exporting attitudes influence firm performance. Sub-section 2.4 presents empirical results on how export participation, willingness and ability all impact SMEs productivity, profitability and growth. What emerges is that whilst exporting and able-to-export firms have superior productivity levels compared to those firms reporting an inability to export, profitability is not affected by firms' internationalisation. Finally, estimation results reveal a robust and negative effect from firms' internationalisation strategy on growth, measured by sales and productivity growth. This result is unexpected, and may be due to statistical issues related to unobserved heterogeneity and reverse causality. Sub-section 2.5 discusses these issues and briefly summarizes the key findings and future research directions.

2.2 Exporters, non-exporters heterogeneity and firm performance

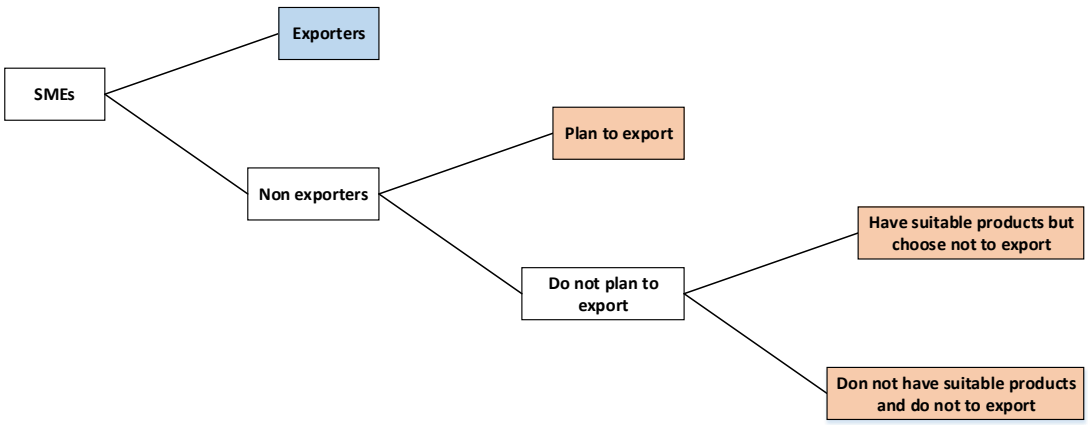
The structure of the LSBS questionnaire for both 2015 and 2016 allows us to assign non-exporters to distinct groups capturing their willingness and (in)ability

to export (Figure 2.1). Based on firms' responses, the following groups of firms can be identified:

(1) Exporting firms: firms reporting exporting activities (goods or services)
(2) Non-exporting but willing-to-export firms
(3) Non-exporting, not-willing but able to export firms
(4) Non-exporting, not-willing and not-able to export firms.

The first group distinguishes exporters from non-exporters, as respondent firms were asked to report whether they export any goods or services. The remaining three groups focus on non-exporting firms. Specifically, firms that reported no exporting activities were firstly asked to report whether they had any plans to export soon. Those firms reporting plans to export soon formed the second group, i.e. those willing to export. In turn, those businesses with no plans to export, were subsequently asked whether they had any products/services suitable for exporting. Based on their responses, the remaining two groups were formed capturing firms' ability or inability to export.

Figure 2.1 Identifying the willingness and ability to export in LSBS



From a small business management perspective, this categorisation of non-exporting firms is helpful in terms of the discussion surrounding the importance of the pre-export phase, and SME readiness to export. Specifically, the internationalisation process can be seen as starting, not at the time businesses enter foreign markets, but at the pre-export stage. This is a crucial phase during which failure to export, or withdrawal from export-related ambition, is most likely to occur[4]. The idea here is that during the pre-export phase, firms have a lack of knowledge about markets, anticipated barriers and competition, which translate as risk and uncertainty. SMEs reduce such risk and uncertainty in a stepwise manner gradually building their export-related capabilities, and reaching the planning-to-export phase[5] .

Turning to business performance, we are able to exploit the rich information available in the LSBS dataset and use five different performance indicators. Specifically, (i) firms' productivity (sales per employee) levels; (ii) profitability; (iii) sales growth; (iv) employment growth; and (v) productivity growth. The upper part of Table 2.1 below presents basic descriptive statistics on the business performance and exporting variables used in the empirical analyses, while the lower part of Table 2.1 presents basic descriptive information on the control variables used in the estimations. In addition, Table 2.2 presents correlations among the variables used. It is interesting to note that SMEs on average increased their sales and productivity by almost 3% (2.9% and 2.7% respectively), however, the corresponding growth average for employment is only around 1%. An overwhelming percentage - 83.7% - of small and micro businesses reported that they achieved a profit surplus in 2016.

2.3 Data and Methods

Exporting status variables, as well as all other explanatory variables used in the empirical analysis are derived from the 2015 LSBS (Table 2.1). The business performance variables, productivity and profitability variables are taken from the 2016 LSBS wave, while the sales, employment and productivity growth variables

[4] Welch LS and Wiedersheim-Paul F. 1980. Initial exports: a marketing failure? *Journal of Management Studies,* 333, 44.
[5] Johanson, J., and Wiedersheim-Paul, F. 1975. The internationalization of the firm: Four Swedish cases. *Journal of Management Studies*, 12(3), 305–322.

are constructed by combining information from both 2015 and 2016 LSBS waves on current employment and sales.

The main purpose of our empirical analysis is to investigate whether SME (non)exporting status has an impact on performance. However, we acknowledge that merely controlling for a generic 'non-exporters' group encompasses a great deal of heterogeneity, as not all non-exporters have the same abilities, goals and strategic orientation. For this reason we estimate the effect of membership of each group (using 'treatment effects models') on business performance indicators. For each performance indicator, we begin by estimating the effect of exporting employing the 'classic' distinction between exporters and non-exporters. We then disaggregate non-exporters in those willing to export, those able but not willing to export, and those neither able nor willing to export, and we construct three new treatment variables accounting for non-exporters heterogeneity (Table 2.1).

Table 2.1: Descriptive statistics

Variable definition	Observations	Mean	Std. Dev.
Firm Performance			
Productivity: sales to employee ratio (2016, log)	4564	11.066	1.288
Profitability : Whether firms achieved surplus (2016, 0/1)	6997	0.837	-
Sales growth: Log difference of revenues (2016-2015)	5132	0.029	0.957
Employment growth: Log difference of total number of employees (2016-2015)	5154	0.01	0.495
Productivity growth: Log difference of total productivity levels (2016-2015)	3642	0.027	1.02
Export Ability and Willingness			
Exporters (2015, 0/1) 1: Exporting firms, 0: Firms not able to export	5864	0.329	-
Planners (2015) 1: Firms willingness to export,0: Firms not able to export	4449	0.068	-
Coulds (2015, 0/1) 1: Firms reporting ability but not willingness to export,0: Firms not able to export	5243	0.205	-
Dexport (2015, 0/1) 1: Exporting firms,0: Non exporting firms	7254	0.269	-
Control Variables			
Family business: Whether family owned (2016, 0/1)	7172	0.573	0.495
Employment: total number of employees (2015, log)	5375	2.749	1.396
Innovator: whether firms introduced product/service innovation (2015, 0/1)	7279	0.504	-
Process innovation: whether firms introduced process innovation (2015, 0/1)	7234	0.342	-
Sales ambition: Expected percentage of sales increase/decrease (2015)	6893	24.948	26.832
Capability: Operational Strategy (2015, 0/1)	7146	0.664	-
Capability: Innovation (2015, 0/1)	6711	0.602	-
Operational Management (2015)	7009	0.713	-
Capability: External finance capability (2015, 0/1)	5398	0.513	-
Intentions: Capital investment (2015, 0/1)	7279	0.582	-
Firm age (2015)	7265	19.551	7.796
External finance strategy: whether firms sought for external finance (2015, 0/1)	7133	0.326	-
Offsite training: whether firm employees received offsite training (2015)	5363	0.647	-
Onsite training: whether firm employees received onsite training (2015)	5361	0.701	-

Source: LSBS, 2015 and 2016.

Table 2.2: Correlation matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
(1) Productivity (2016)	-																		
(2) Profitability (2016)	0.17	-																	
(3) Sales growth (2015-2016)	0.29	0.05	-																
(4) Employment growth (2016)	-0.15	0.04	0.09	-															
(5) Productivity growth (2016)	0.34	0.03	0.89	-0.38	-														
(6) Family Business (2015)	0.05	0.11	-0.04	-0.01	-0.03	-													
(7) Employment (2016)	-0.11	0.00	0.00	-0.20	0.09	-0.19	-												
(8) Innovator (2015)	-0.04	-0.04	0.02	-0.02	0.03	-0.07	0.05	-											
(9) Process innovation (2015)	0.04	0.00	-0.01	-0.01	0.00	-0.04	0.06	0.37	-										
(10) Sales ambition (2015)	0.08	-0.01	0.03	-0.02	0.04	0.02	-0.07	0.20	0.16	-									
(11) Operational Strategy Capability	0.00	0.03	0.02	0.00	0.02	-0.04	0.14	0.06	0.05	0.06	-								
(12) Innovation Capability (2015)	0.01	0.02	0.00	-0.02	0.01	0.03	0.05	0.18	0.09	0.08	0.24	-							
(13) Operational Management capability (2015)	-0.06	0.05	-0.01	0.00	-0.01	-0.02	0.10	0.05	0.03	0.00	0.26	0.14	-						
(14) External finance capability (2015)	0.04	0.06	0.00	-0.01	0.01	-0.04	0.22	-0.03	-0.01	-0.10	0.19	0.09	0.19	-					
(15) Capital investment intention (2015)	0.05	0.05	-0.04	0.00	-0.04	0.05	0.19	0.12	0.14	0.15	0.05	0.04	0.03	0.05	-				
(16) Firm age (2015)	0.04	-0.02	-0.03	-0.01	-0.03	-0.03	0.22	-0.06	-0.05	-0.28	-0.05	-0.04	-0.01	0.13	0.03	-			
(17) External finance success (2015)	-0.01	-0.08	0.01	-0.05	0.03	0.01	0.12	0.04	0.02	0.13	0.02	0.02	-0.02	0.14	0.12	0.03	-		
(18) Offsite training (2015)	-0.02	0.02	-0.04	-0.01	-0.03	-0.13	0.33	0.15	0.12	0.03	0.07	0.00	0.07	0.06	0.13	0.07	0.06	-	
(19) Onsite training (2015)	-0.08	0.00	-0.01	0.00	-0.01	-0.14	0.40	0.19	0.15	0.05	0.09	0.05	0.14	0.07	0.15	0.04	0.07	0.40	-

2.4 Empirical results

2.4.1 The effect of exporting on small business performance

Estimation results of the effects of exporting and non-export status on performance are included in Tables 2.3, 2.4 and 2.5. In particular, Table 2.3 presents estimation results on the exporter/non-exporter distinction, while Table 2.4 reports alternative specifications of (non)exporting status. Table 2.5 presents empirical results regarding the rest of the control variables. Due to the nature of the analysis, we restrict our estimation sample to those firms present in both LSBS waves (i.e. 2015 and 2016), and include in each model regional and sectoral dummies.

Table 2.3 reports models of the effects of exporting on small business performance. Specifically, the effect of exporting on all five business performance indicators has been tested against the group of all non-exporters. Empirical results suggest that there is an exporting 'premium' in terms of productivity levels for exporters, but quite surprisingly there seems to be a small 'exporting penalty' in terms of sales and productivity growth for UK exporting SMEs. In other words, firms which were exporting in 2015 had slower sales and productivity growth between 2015 and 2016 than firms selling only in the domestic market. Both results should be treated with some caution as they reflect the impact of exporter status over a single year. Longer term evidence may provide different results, where, for example, export entry depresses growth in the initial year but then yields benefits in subsequent periods.

Table 2.3: Treatment effects of export and non-export status

Dependent variable	Productivity	Profitability	Sales growth	Employment growth	Productivity growth
Model type	(Linear)	(Probit)	(Linear)	(Linear)	(Linear)
Exporters vs non-exporters	0.499*** (0.110)	0.006 (0.017)	-0.066*** (0.008)	-0.013 (0 .015)	-0.058* (0.031)
No of Obs.	2848	3383	2663	3337	2559

Notes and sources: *, ** and *** asterisks denote 10%, 5% and 1% level of significance respectively. Robust standard errors are included in parentheses. Sources: LSBS 2015 and 2016

2.4.2 The effect of willingness and ability to export on business performance

In addition to the impact of exporting on business performance, we were also interested in how the different strategies of non-exporters may impact performance. Specifically, SME willingness and ability to export were juxtaposed against businesses neither willing nor able to export (our reference group). Empirical results presented in Table 2.4 suggest that firms which plan to export experience lower productivity growth compared to those firms which are neither willing nor able to export. In fact, according to the estimation results this admittedly small group of firms is experiencing, on average, productivity growth which is 20.0 pp below that of non-exporting SMEs with no plans or ability to export. At the other extreme, SMEs that are able but not willing to export have on average 34.4 pp higher productivity levels than non-exporting SMEs with no willingness or ability to export.

Table 2.4: Treatment effects by non-exporting status

Dependent variable	Productivity	Profitability	Sales growth	Employment growth	Productivity growth
Model type	(Linear)	(Probit)	(Linear)	(Linear)	(Linear)
Exporters and non-exporters willingness and ability to export					
Exporters	0.575*** (0.119)	0.014 (0.019)	-0.065 *** (0.026)	-0.006 (0.016)	-0.073** (0.033)
Planners: Willing to export	0.331 (0.157)	0.018 (0.036)	-0.044 (0.073)	-0.009 (0.051)	-0.200** (0.100)
Coulds: Able to export	0.344*** (0.061)	0.028 (0.021)	-0.015 (0.028)	0.004 (0.018)	0.039 (0.032)
No of Obs.	2848	3383	2663	3337	2559

Notes and sources: *, ** and *** asterisks denote 10%, 5% and 1% level of significance respectively. Robust standard errors are included in parentheses. Sources: LSBS 2015 and 2016.

2.4.3 Control variables

Table 2.5 presents the rest of the determining factors affecting business performance indicators [6] . *Family businesses* seem to be more profitable compared to non-family business firms, however, they are less productive and experience lower growth rates irrespective of the growth indicator used in the analysis. *Larger firms* are more profitable, and experience higher productivity growth, but exhibit lower productivity levels and lower employment growth rates than smaller firms. While *product/service innovation* has a negative impact on business productivity and profitability, *process innovation* has a positive influence on productivity levels. Combined with the fact that *older firms* have higher productivity levels and employment growth, it may be the case that young firms suffer from a 'productivity dilemma'[7].

In terms of the effect of *business capabilities* on firm performance, having superior operational management capabilities positively affects firms' profitability, while external finance capabilities positively influences firms' productivity and profitability. On the contrary, success in securing external finance in the previous year (i.e. 2015) negatively influences firms' profitability suggesting that in the short term the cost of capital may undermine firms' performance. *Sales ambition* positively affects firms' sales and productivity growth, but has a negative, albeit small, effect on profitability. SME intention to invest in *capital assets* positively influences their profitability and employment growth, while a corresponding negative influence is observed on their productivity growth. Finally, employee training either on- or off-site positively influences employment growth, while it exerts a negative effect on firms' productivity growth. This suggests perhaps that

[6] We have estimated the same set of models including each time a different treatment variable. For reasons of clarity and space we only present here estimation results of the determinants where the 'classic' exporting vs non-exporting distinction is included as a treatment variable. Estimation results for the rest of the models can be made available upon request.

[7] Abernathy (1978), suggested that short-term productivity gains and long term flexibility and ability to innovate are inherently incompatible. Young firms especially need to balance between exploration and exploitation strategies to grow. Exploitation strategies leverage existing knowledge and capabilities, resulting in stable and efficient performance. On the other hand, exploration strategies create new knowledge, enabling organizations to innovate and adapt to changing conditions at the cost of efficiency loss. Abernathy, W.J. 1978. The Productivity Dilemma: Roadblock to Innovation in the Industry. Johns Hopkins University Press.

employee training programmes need to be highly specialised and/or that any benefits for the firm may take longer to appear than a single year.

2.5 Conclusions and Discussion

The Longitudinal Small Business Survey provides unique information for the examination of the effect of exporting and non-exporting strategies on business performance. It allows us to depart from the classic distinction between exporters and non-exporters by identifying distinct subgroups of non-exporters based on their willingness and (in)ability to export. Based on our empirical results, four main conclusions emerge. First, based on the empirical evidence provided (Table 2.3) a robust 'export premium' exists even after we control for non-exporters heterogeneity. Second, businesses willing to export may be a small group, but they are not necessarily better performing compared to firms able but not willing to export, or even firms neither willing nor able to export. Third, in addition to firms' export premium there seems to be an 'export penalty' when it comes to the effect of (non-)exporting strategies on sales, employment, and productivity growth indicators. Fourth, younger firms seem to suffer from the 'productivity dilemma' which is reflected in the combined influence of innovation, firm size, age and capabilities on firm performance indicators.

It should be noted that our analysis relates only to the effect of (non)exporting strategies over a single year. This may be introducing significant volatility into the analysis, and limits our understanding of how pre-export and actual export phases impact firm performance. Furthermore, for a more in-depth and robust investigation of the relationship between SME strategies and performance, information on the profile of the individual entrepreneur remains important. Future Longitudinal Small Business Surveys questionnaires could perhaps include questions on the individual entrepreneur's profile (e.g. education, age).

Additional LSBS waves, and the formation of a panel dataset with more than one year lag, would allow a more straightforward investigation of the dynamics of exporting and determinants of business performance. Relating to this, endogeneity/causality issues as well as sources of persistence in terms of performance and export strategies could also be addressed. With the current information available, however, an initial investigation could be conducted on the

characteristics and differences in driving factors among the different (non-) exporting profiles, and on whether SMEs self-select to a (non-)exporting status based on their productivity performance.

Table 2.5: Estimation results for the controls

Dependent variable	Productivity	Profitability	Sales growth	Employment growth	Productivity growth
Model type	(Linear)	(Probit)	(Linear)	(Linear)	(Linear)
Family Business	-0.312*** (0.084)	0.303*** (0.058)	-0.090** (0.041)	-0.046** (0.018)	-0.020 (0.044)
Employment	-0.112*** (0.033)	0.051** (0.023)	0.023 (0.016)	-0.098*** (0.007)	0.117*** (0.017)
Innovator	-0.154* (0.087)	-0.099* (0.060)	0.061 (0.042)	-0.016 (0.019)	0.073 (0.045)
Process innovation	0.180** (0.090)	-0.014 (0.062)	-0.042 (0.043)	-0.011 (0.019)	-0.032 (0.047)
Sales ambition	0.001 (0.002)	-0.003*** (0.001)	0.001* 0.001)	0.000 (0.000)	0.001* (0.001)
Operational Strategy Capability	0.019 (0.089)	0.046 (0.061)	0.041 (0.043)	0.022 (0.019)	0.020 (0.046)
Innovation Capability	0.099 (0.084)	0.035 (0.058)	-0.025 (0.040)	-0.017 (0.018)	-0.004 (0.044)
Operational Management capability	0.138 (0.091)	0.191*** (0.061)	0.001 (0.044)	-0.006 (0.020)	-0.024 (0.047)
External finance capability	0.164** (0.083)	0.224*** (0.057)	0.010 (0.040)	0.029 (0.018)	-0.019 (0.043)
Capital investment intention	-0.014 (0.083)	0.142** (0.057)	-0.054 (0.040)	0.043* (0.018)	-0.120*** (0.043)
Firm age	0.017*** (0.005)	-0.006* (0.004)	-0.003 (0.003)	0.003*** (0.001)	-0.004 (0.003)
External finance success	-0.045 (0.085)	-0.306*** (0.058)	0.015 (0.041)	-0.020 (0.018)	0.042 (0.044)
Offsite training	0.013 (0.091)	0.078 (0.063)	-0.101** (0.044)	0.047** (0.019)	-0.135*** (0.048)
Onsite training	-0.079 (0.099)	0.041 (0.068)	0.004 (0.048)	0.087*** (0.021)	-0.109** (0.052)
Constant	1.654*** (0.234)	0.650*** (0.158)	0.099 (0.111)	0.130*** (0.049)	-0.053 (0.121)
No of Obs	2848	3383	2663	3337	2559

Notes and sources: *, ** and *** asterisks denote 10%, 5% and 1% level of significance respectively. Robust standard errors are included in parentheses. Sources: LSBS 2015 and 2016.

3. EXPECTED GROWTH AND ACHIEVED GROWTH – AN EXPLORATORY ANALYSIS OF THE LSBS

3.1 Introduction

The growth of small firms has been a focus of policy interest since the early analysis of David Birch[8] suggested their importance in creating new jobs. More recently attention has focussed on 'gazelles', 'high growth firms' – 'the vital 6 per cent' - or so-called 'scale-ups'. Throughout this literature a key policy issue has been the ex-ante identification of such firms, sometimes referred to as the 'picking winners' problem[9].

Another strand of the small business literature focusses on growth ambition, expectations or intentions. Some studies draw distinctions between these concepts, but in each case the fundamental argument is that differences in growth expectations or aspirations may suggest differences in the entrepreneurial intensity or focus of business leaders, and this in turn, may be linked to performance. Early studies, such as Gundry and Welsh (2001) found, for example, that more ambitious entrepreneurs employed more varied and intensive strategies than their less ambitious counterparts, accessing a greater variety of sources of external finance for example. More recent studies have used sociological and psychological approaches to characterise individual business owners in terms of their growth orientation[10].

Here, we use data from the 2015 and 2016 Longitudinal Small Business Surveys (LSBS) to examine the correlates of expected and actual growth. Are these the same or do different factors shape growth expectations and outcomes? Secondly, we examine whether growth exceptions are actually realised, and whether this is more likely among specific types of firms? The LSBS provides

[8] Birch, D.L. 1987. *Job Creation in America* New York: Free Press.

[9] Cantner, U. and S. Kosters. 2012. Picking the winner? Empirical evidence on the targeting of R&D subsidies to start-ups. *Small Business Economics* 39:921-936.

[10] Real, J.C.; J.L. Roldan; and A. Leal. 2014. From Entrepreneurial Orientation and Learning Orientation to Business Performance: Analysing the Mediating Role of Organizational Learning and the Moderating Effects of Organizational Size. *British Journal of Management* 25:186-208.

some potentially unique insights into these questions as we have information on a large sample of businesses which provided information on their expected turnover growth in 2015-16 and then, a year later, their actual growth over the same period. The survey also provides a wide range of firm-level strategy and resource indicators which we can relate to the expected and actual growth measures. It is worth noting at the same time the limitations of the LSBS which provides a wealth of firm level variables but very few indicators specific to the central entrepreneur or owner-manager in each firm. In this sense, our analysis is therefore restricted to the readily observable characteristics and behaviours of firms rather than either the motivation or psychology of entrepreneurs. From a policy standpoint this may not be too great a limitation given that these firm level indicators are those which are most readily available.

The remainder of the Section is organised as follows. Sub-section 3.2 provides an overview of the key concepts which form the focus of the chapter and their measurement in the LSBS. The focus here is not so much on the conceptual background to each measure, but their empirical representation. Sub-section 3.3 identifies the main correlates of expected and actual growth, and explores the transition from expectations to actual growth. Sub-section 3.4 considers the extent to which expected growth is actually achieved, and the types of firms which do achieve their growth expectations. The results prove mixed. The LSBS identifies a number of firm characteristics which are strongly linked to both growth expectations and outcomes. It proves more difficult, however, to identify variables which mark out those firms which are most likely to achieve their growth expectations. This reframes, but, unfortunately, does not solve the longstanding 'picking winners' problem.

3.2 Growth - expected and achieved

In this section we focus on two key indicators from the first and second waves of the LSBS. From the 2015 survey, we focus on firms' turnover growth expectations over the next year, and from the 2016 survey we focus on the turnover growth which firms had actually achieved over the last 12 months. In each case, questions were asked in a similar way with firms providing either a numerical or categorical response. Questioning for both expected and actual growth had three stages. First, firms were asked whether (expected or actual)

turnover had increased, decreased or stayed the same over the last (or next) year. Where turnover was either expected or had actually increased (or decreased) firms were then asked the percentage change. In many cases - perhaps two-thirds - a numerical response was elicited. Where this was not forthcoming, respondents were invited to provide a categorical response suggesting that either actual (or expected) turnover had either increased or contracted (or was expected to) by less than 10 per cent over the last (next) year, 10-20 per cent, or more than 20 per cent. Here, we translate both numeric and categorical responses into a seven point scale for both expected and actual growth. For each measure the categorical scale the groups are therefore:

- Decline in actual or expected sales by 20 per cent or more;
- Decline in actual or expected sales by 10 to 20 per cent;
- Decline in actual or expected sales by 0 to 10 per cent;
- Static actual or expected sales;
- Increase in actual or expected sales by 0 to 10 per cent;
- Increase in actual or expected sales by 10 to 20 per cent;
- Increase in actual or expected sales by 20 per cent or more.

The latter of these categories - a 20 per cent or more increase in actual or expected sales - has a specific link to discussion of high growth firms, matching the first year of the growth required to meet the OECD definition of a high-growth firm. Both variables are profiled in Figure 3.1 which reports the percentage of firms in each of the seven performance categories identified above. In terms of expected sales growth over the 2016-16 period, around 1:6 firms (15.3 per cent) anticipated sales growth of more than 20 per cent over the next year, with a larger group (40.0 per cent) anticipating no change in sales (Table 3.1). Actual growth shows a rather similar pattern, with 41.3 per cent of firms achieving no sales growth from 2015-16, while 12.2 per cent had achieved sales growth of more than 20 per cent. Notably the proportions of firms expecting and achieving sales growth of more than 20 per cent per annum are only slightly higher than estimates of the proportion of UK firms (10-11 per cent), which match the OECD high growth definition (i.e. the equivalent of growth of 20 per cent or more per annum for three consecutive years).

Figure 3.1: Number of firms in each category: expected and actual growth

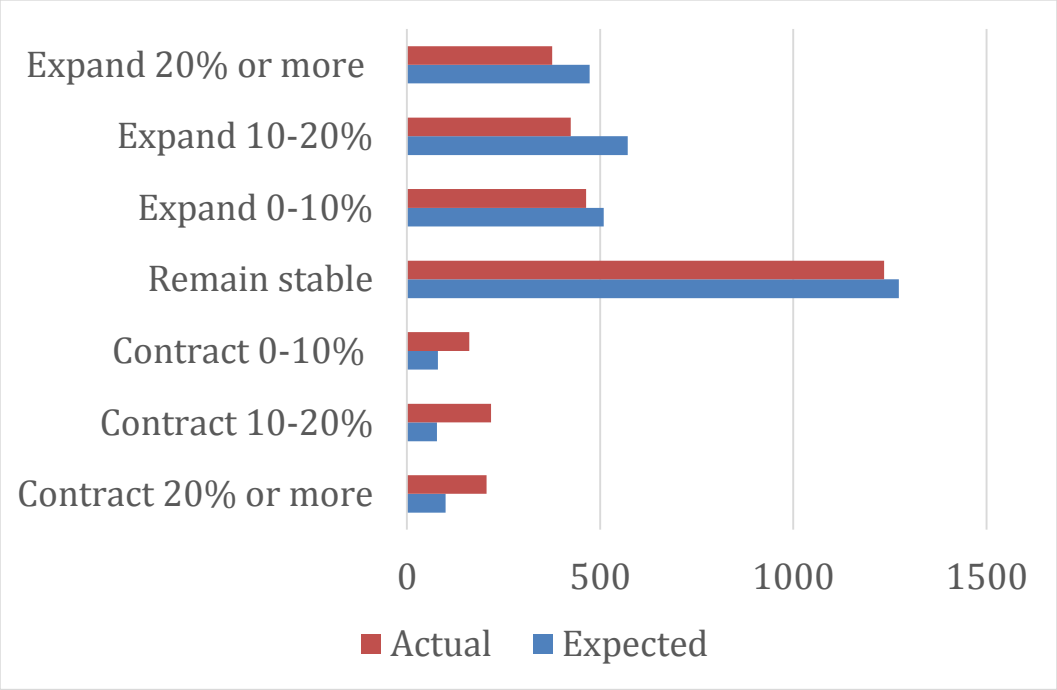


Table 3.1: Sample descriptives for estimation sample (N= 3084)

	Mean	Std. Dev.
Expected turnover growth (2015, categorical)	4.822	1.425
Actual turnover growth (2016, categorical)	4.397	1.605
Achieved or surpassed expected growth (2016, 0/1)	0.622	0.485
Surpassed expected growth (2016, 0/1)	0.212	0.409
Family business (2016, 0/1)	0.569	0.495
Employment (2015, log)	2.719	1.414
Product/service innovator (2016, 0/1)	0.377	0.485
Process innovator (2016, 0/1)	0.242	0.429
Capability: business planning (2015, 0/1)	0.670	0.470
Capability: innovation (2015, 0/1)	0.604	0.489
Capability: operational management. (2015, 0/1)	0.715	0.451
Capability: accessing ext. finance (2015, 0/1)	0.515	0.500
HR skills investment (2015, 0/1)	0.836	0.370
Leadership investment (2015, 0/1)	0.637	0.481
Product/service innovator (2015, 0/1)	0.534	0.499
Organisational innovation (2015, 0/1)	0.581	0.493

Capital investment (2015, 0/1)	0.537	0.499
Age of the firm (2015, years)	19.779	7.696
Sought external finance (2015, 0/1)	0.256	0.437
Brexit impacts (2016, 0/1)	0.260	0.439
Multiple sites (2015, 0/1)	0.868	0.339

Source: LSBS 2015 and 2016

Our categorical definitions of expected and actual growth provide a straightforward indication of whether firms achieved or surpassed their growth expectations over the 2015-16 period. We translate this into two rather similar variables indicating whether firms either: (1) matched or surpassed their expected growth; or (2) surpassed their expected growth over the 2015-16 period. Both have clear policy implications. If we can identify firms' growth expectations and then clear predictors of whether that growth will be achieved (or surpassed), we can go a long way towards solving the 'picking winners' problem.

3.3 Data and methods

As indicated earlier, expected growth and all other explanatory variables are derived from the 2015 LSBS survey, and are both categorical variables. Actual growth is as reported in the 2016 survey. Table 3.1 shows means and standard deviations of our focal variables and a number of potential correlates (Table 3.2 reports the correlation matrix). Around 62.2 per cent of firms in the estimation sample either matched or surpassed their expected growth over the 2015-16 period, with the vast majority of these actually matching their anticipated turnover (see Figure 3.1).

Our analysis is conducted in two stages. First we estimate models for expected and actual sales growth. As the dependent variables in this exercise are categorical, and ordered, we estimate ordered probit models to identify the correlates of expected and actual growth. The second stage of our analysis explores the extent to which expected growth is either achieved or surpassed. Here, we make use of a simple transition matrix to examine the complete distribution of responses to each variable before estimating probit models for whether firms either achieved or surpassed their growth expectations.

3.4 Empirical results

3.4.1 What shapes growth aspirations and actual growth in turnover?

Ordered probit models for expected and actual growth are included in Table 3.3, excluding a number of wholly insignificant variables. In each case we restrict the estimation sample to those firms for which we have data on actual and expected growth (around 3,600 firms) and include in each model regional and sectoral dummies.

Three variables have consistent positive effects on both expected and actual growth: product or service innovation, investments in innovation capability, and capital investment (Table 3.3). Three other variables have significant correlations with expected growth, but no relationship to actual growth. Family businesses have stronger growth expectations than non-family firms, as do firms which were investing in skills and leadership development. None of these variables had a significant relationship with actual growth. Actual growth is, however, positively related to whether or not a firm has developed a capability for business planning.

Table 3.2: Correlation Matrix (N= 3084)

1	Expected turnover growth (2015, categorical)	1.00																			
2	Actual turnover growth (2016, categorical)	0.35	1.00																		
3	Achieved or surpassed expected growth (2016, 0/1)	-0.38	0.49	1.00																	
4	Surpassed expected growth (2016, 0/1)	-0.34	0.42	0.41	1.00																
5	Family business (2016, 0/1)	0.04	0.00	-0.03	-0.03	1.00															
6	Employment (2015, log)	-0.01	0.08	0.03	0.07	-0.21	1.00														
7	Product/service innovator (2016, 0/1)	0.19	0.16	0.00	0.00	-0.05	0.11	1.00													
8	Process innovator (2016, 0/1)	0.12	0.10	-0.01	0.00	-0.01	0.08	0.35	1.00												
9	Capability: business planning (2015, 0/1)	0.07	0.09	0.05	0.02	-0.03	0.13	0.05	0.05	1.00											
10	Capability: innovation (2015, 0/1)	0.12	0.08	-0.01	-0.02	0.05	0.03	0.12	0.06	0.25	1.00										
11	Capability: operational mngmt (2015, 0/1)	0.02	0.04	0.01	0.01	-0.03	0.15	0.00	0.03	0.28	0.15	1.00									
12	Capability: accessing ext. finance (2015, 0/1)	-0.04	0.02	0.05	0.03	-0.06	0.22	-0.04	0.02	0.18	0.09	0.20	1.00								
13	HR skills investment (2015, 0/1)	0.16	0.10	-0.04	-0.01	-0.09	0.19	0.15	0.12	0.10	0.08	0.11	0.02	1.00							
14	Leadership investment (2015, 0/1)	0.14	0.11	-0.01	0.01	-0.12	0.28	0.18	0.12	0.10	0.06	0.09	0.02	0.42	1.00						
15	Product/service innovator (2015, 0/1)	0.18	0.07	-0.08	-0.05	-0.10	0.08	0.35	0.20	0.05	0.17	-0.02	-0.02	0.24	0.22	1.00					
16	Organisational innovation (2015, 0/1)	0.11	0.03	-0.08	-0.01	-0.04	0.14	0.20	0.18	0.04	0.07	0.05	0.02	0.33	0.33	0.28	1.00				
17	Capital investment (2015, 0/1)	0.15	0.11	-0.04	0.00	0.05	0.21	0.16	0.13	0.03	0.02	0.05	0.04	0.20	0.22	0.18	0.18	1.00			
18	Age of the firm (2015, years)	-0.18	-0.11	0.04	0.01	-0.09	0.21	-0.05	-0.03	-0.06	-0.04	0.02	0.12	-0.04	-0.01	-0.05	-0.04	0.02	1.00		
19	Sought external finance (2015, 0/1)	0.07	0.03	-0.05	0.02	0.00	0.12	0.05	0.04	0.02	0.00	-0.03	0.11	0.03	0.06	0.03	0.03	0.09	0.02	1.00	
20	Brexit impacts (2016, 0/1)	0.09	-0.04	-0.06	-0.04	0.03	-0.02	0.07	0.09	0.02	0.02	-0.01	-0.03	0.05	0.04	0.12	0.04	0.03	-0.05	0.08	1.00
21	Multiple sites (2015, 0/1)	0.00	0.00	0.04	-0.04	-0.13	0.21	0.01	0.00	0.02	0.02	0.03	0.07	0.09	0.06	0.03	0.02	0.02	0.07	0.00	-0.04	1.00

Source: LSBS 2015 and 2016

Table 3.3: Modelling anticipated and actual growth

Dependent variable	Expected growth	Actual growth
Model type	Ordered probit	Ordered probit
	b/se	b/se
Family business (2016, 0/1)	0.079**	
	-0.039	
Employment (2015, log)	-0.006	0.058***
	-0.014	-0.014
Product/service innovator (2016, 0/1)	0.208***	0.215***
	-0.042	-0.04
Process innovator (2016, 0/1)	-0.011	0.033
	-0.044	-0.044
Capability: business planning (2015, 0/1)	0.053	0.110***
	-0.041	-0.04
Capability: innovation (2015, 0/1)	0.169***	0.105***
	-0.039	-0.038
Capability: operational mment. (2015, 0/1)	0.047	0.044
	-0.042	-0.041
Capability: accessing ext. finance (2015,	-0.074**	-0.001
	-0.038	-0.037
HR skills investment (2015, 0/1)	0.203***	
	-0.056	
Leadership investment (2015, 0/1)	0.154***	
	-0.043	
Product/service innovator (2015, 0/1)	0.175***	
	-0.04	
Organisational innovation (2015, 0/1)	0.05	
	-0.041	
Capital investment (2015, 0/1)	0.158***	0.140***
	-0.039	-0.037
Age of the firm (2015, years)	-0.021***	-0.017***
	-0.002	-0.002
Sought external finance (2015, 0/1)	0.128***	0.070*
	-0.039	-0.039
Family Business (2015, 0/1)		0.026
		-0.038
Number of observations	3625	3601
Equation χ^2	503.385	227.13
p	0	0
Pseudo R^2	0.044	0.019
BIC	11167.58	12186.83

3.4.2 What determines whether firms' growth expectations are achieved?

Overall, growth expectations were positively correlated with subsequent performance, although the correlation at 0.358 was not particularly strong (Table 3.2). There is, however, clearly a non-random association between the two variables as the cross-tabulation (Table 3.3) and Figure 1 suggest. Here, we consider two models relating to whether firms' growth expectations in 2015 were either surpassed or matched, or surpassed in 2016 (Table 3.5). Both models prove weak with few significant variables and each having particularly low levels of fit (R^2 of 1.3-1.5 per cent). Two variables prove consistently important in each equation. Profitability in 2015 is positively associated with firms' growth expectations either being achieved or surpassed. Process innovation on the other hand is negatively associated with growth expectations being either achieved or surpassed. Other variables prove either wholly insignificant or insignificant in one of the two models.

3.5 Conclusions and Discussion

The Longitudinal Small Business Survey offers scope to examine causal relationships between firms' aspirations, strategic actions and performance outcomes. Here we consider the extent to which firms' growth expectations in 2015 were achieved in 2016 and the correlates of that achievement. Our analysis suggests three main conclusions. First, we identify a number of factors which have a common relationship with both growth expectations and growth achievement. These include firms' commitment to product and service innovation, and a range of capability building activities. Interestingly, business planning is associated only with achieved rather than expected growth. Second, we find a positive, albeit relatively weak, correlation between the extent of firms' growth expectations and their achieved growth: the higher firms growth expectations the higher their achieved growth. Third, and perhaps unsurprisingly, we find it difficult to identify many variables which have a strong and consistent fit with whether firms will either achieve or surpass their growth expectations.

This latter finding is disappointing, and confirms the evidence from other studies of the variability in achieved growth rates across the population of firms, even given their growth expectations. Profitability in the year in which expectations are

formed is the only variable which consistently predicts growth outcomes, a finding which is perhaps linked to the positive relationships between a number of investment variables and growth outcomes (Table 3). Our results emphasise again the difficulty of the 'picking winners' problem: even - as here - where growth expectations can be observed it proves difficult to identify any clear predictors of whether expected growth will actually be achieved.

To date our analysis relates only to expected and actual growth over a single year. This may be introducing significant volatility into the comparison, and future waves of the LSBS survey offer the potential for examining the relationship between expected and actual growth over a longer period. Our focus here has been on turnover only, reflecting the nature of the questions in the LSBS. Expected and actual growth in employment is also of interest, although here the questions in the LSBS relate to a three-year period. One other methodological point is also worthy of note. Although we have data around 7,000 companies for 2015 and 2016 on the LSBS our estimation sample here is much more restrictive – around 3,600 firms – due largely to missing responses to some of the explanatory variables. Attrition over future years of the LSBS will mean the number of firms for which longitudinal data is available will continue to decrease. Our analysis here suggests that the usable estimation samples will be significantly smaller yet.

Table 3.4: From expected to actual turnover growth

	Actual Growth							
	Contract 20% or more	Contract 10-20%	Contract 0-10%	Remain stable	Expand 0-10%	Expand 10-20%	Expand 20% or more	Total
Expected growth								
Contract 20% or more	42	6	2	32	3	6	9	100
Contract 10-20%	12	19	3	31	8	5	0	78
Contract 0-10%	6	10	19	29	13	2	1	80
Remain stable	86	100	77	684	143	106	77	1,273
Expand 0-10%	10	29	33	176	175	61	25	509
Expand 10-20%	22	32	19	166	87	154	91	571
Expand 20% or more	28	22	8	117	35	90	173	473
Total	206	218	161	1,235	464	424	376	3,084
Contract 20% or more	42.0	6.0	2.0	32.0	3.0	6.0	9.0	100.0
Contract 10-20%	15.4	24.4	3.8	39.7	10.3	6.4	0.0	100.0
Contract 0-10%	7.5	12.5	23.8	36.3	16.3	2.5	1.3	100.0
Remain stable	6.8	7.9	6.0	53.7	11.2	8.3	6.0	100.0
Expand 0-10%	2.0	5.7	6.5	34.6	34.4	12.0	4.9	100.0
Expand 10-20%	3.9	5.6	3.3	29.1	15.2	27.0	15.9	100.0
Expand 20% or more	5.9	4.7	1.7	24.7	7.4	19.0	36.6	100.0

Notes and sources: Pearson chi2(36) = 1.1e+03 Pr = 0.000. Data from LSBS 2015 and 2016.

Table 3.5: What determines growth achievement and over-achievement?

	Achieved expected	Over-achieved expected
Type of model	Probit	Probit
Productivity (2015, £000 pe)	0.014**	0.005
	(0.007)	(0.004)
Profitability (2015, 0/1)	0.154**	0.129*
	(0.067)	(0.076)
Family business (2016, 0/1)	-0.022	-0.085
	(0.051)	(0.056)
Employment (2015, log)	0.013	0.072***
	(0.018)	(0.020)
Product/service innovator (2015, 0/1)	-0.009	-0.093
	(0.051)	(0.056)
Process innovator (2015, 0/1)	-0.112**	-0.119*
	(0.054)	(0.061)
Age of the firm (2015, years)	0.005*	-0.002
	(0.003)	(0.003)
Exporting (2015, 0/1)	-0.095*	-0.043
	(0.055)	(0.061)
Sought external finance (2015, 0/1)	-0.139***	0.026
	(0.053)	(0.059)
General business advice (2015, 0/1)	-0.052	0.025
	(0.048)	(0.053)
Brexit impacts (2016, 0/1)	-0.087	-0.062
	(0.054)	(0.061)
Multiple sites (2015, 0/1)	0.106	-0.135*
	(0.070)	(0.077)
cons	0.075	-0.813***
	(0.129)	(0.142)
Number of observations	3084	3084
Equation χ^2	59	40.185
p	0	0.002
Pseudo R^2	0.015	0.013
BIC	4181.647	3296.368

Table 3.6: What determines growth achievement and over-achievement? Marginal effects

	Achieved expected growth or over-achieved		Over-achieved expected growth	
Marginal effects from probit models				
Productivity (2015, £000 pe)	0.005	***	0.001	
Profitability (2015, 0/1)	0.058	***	0.037	**
Family business (2016, 0/1)	-0.008		-0.024	
Employment (2015, log)	0.005		0.021	***
Product/service innovator (2015, 0/1)	-0.003		-0.027	**
Process innovator (2015, 0/1)	-0.042	***	-0.034	**
Age of the firm (2015, years)	0.002	**	-0.001	
Exporting (2015, 0/1)	-0.036	**	-0.012	
Sought external finance (2015, 0/1)	-0.052	***	0.007	
General business advice (2015, 0/1)	-0.019		0.007	
Brexit impact (2016, 0/1)	-0.033	*	-0.018	
Multiple sites (2015, 0/1)	0.040		-0.039	**

4. EXTERNAL FINANCE AND BUSINESS PERFORMANCE – AN EXPLORATORY ANALYSIS OF THE LSBS

4.1 Introduction

External finance is undeniably one of the most important resources for the exploitation and expansion of small and medium-sized enterprises (SMEs). However, the financial crisis saw a significant decline in both debt and equity flows to SMEs. Constraints on finance will affect the operation of businesses, and may restrict firms from executing business strategies with implications for both current and future growth.

Even though we recognise the negative effect of financial constraints on the development of SMEs, the issues involved are complex (Fraser, 2014). Financial

constraints on SMEs may result from a failure in getting money from banks, or other external financial agencies such as venture capitalists (VCs), but may also be generated from the demand side where firms do not recognise the need for external funds, or are discouraged in raising money from the external sources.

To examine the effect of funding constraints on the performance of SMEs, we use the data for the Longitudinal Small Business Surveys (LSBS) 2015 and 2016. We first summarise the financial status of SMEs in the United Kingdom based on the survey data, and then explore whether and how financial status influences different dimensions of performance. Through comparing the difference in effect between financial status categories, we can not only identify how financial constraints may limit growth and development, but can also evaluate by how much external funding may benefit businesses operations.

The remainder of the section is organised as follows. Sub-section 2.2 provides an overview of the key concepts relating to financial status and their measurement in the LSBS, as well as the measurement of performance. Sub-section 2.3 describes the data and methods to be used to explore the effect of financial status on business performance. Sub-section 4 identifies and discusses the impact of different financial status on the performance of SMEs. It is interesting to note that, the impact of specific financial statuses varies markedly between performance measures.

4.2 Financial Status and Business Performance

As discussed before, we focus here on exploring the effect of financial status on the performance and development of SMEs. The key point here is how we measure financial status in order to evaluate the impact of any financial constraints on the business. We focus on the financial status of the SME in the 2015 survey, and focus on its impact over the following 12 months measured from the 2016 survey.

4.2.1 Financial Status

Questions relating to financial status had three steps. First, firms were asked whether they had tried to obtain external finance in the past 12 months. Firms

who had tried to obtain external finance were then asked whether they were successful in obtaining any of the finance applied. Firms who had not tried to obtain external finance were asked whether they had had a need for finance in the last 12 months. Based on the answers, firms are categorised into 4 groups:

(a) Self-sufficient enterprises - firms who did not try to obtain external finance since they had no need for external funding;

(b) Discouraged non-borrowers - firms who did not obtain external finance since something stopped them from applying. For example, they thought their application would be rejected, they did not want to take additional risks, or they though obtaining external finance would be too expensive, etc.;

(c) Failed seekers - firms who had applied for external finance but failed to get any;

(d) Successful seekers - firms who had applied for external finance and succeeded in obtaining the finance in full or partially.

4.2.2 Business Performance

We measure the performance of SMEs from different perspectives, in order to explore the effect of financial status comprehensively. In the LSBS, firms were asked whether they generated a profit or surplus after taking into account all sources of income in the last financial year. Firms were also asked whether, compared with the previous 12 months, their turnover in the past 12 months had increased. Then the productivity of the firms was calculated as their sales divided by the number of employees, in order to evaluate their production efficiency.

As shown in Table 4.1, 21% of the SMEs tried to obtain external finance in 2015, 85.7% of which succeeded in getting some or all of the finance they were seeking. 14.3% of firms failed to obtain funding from external sources. Among firms (79%) who did not try to obtain external finance, 8.9% of them still needed external funding, but gave up trying for various reasons. In Table 4.3, we can observe the differences in the business characteristics and performance for firms with different financial status. Discouraged borrowers and failed seekers have

lower productivity compared with those who did not need external funding, as well as the firms who succeeded in obtaining external funding in the following year. Also, in comparison with the successful seekers, the failed seekers and the discouraged borrowers are less likely to generate profit and grow sales in the following 12 months. In terms of firm characteristics, firms with larger employee size and management groups are more likely to obtain external funding. Whether firms are family businesses, as well as the age of the firm, seems to have little impact on financial status.

Table 4.1: Sample descriptives for estimation sample

Variable definition	Mean	Std. Dev.
Firm Performance		
Profitability : Whether firms achieved surplus (2016, 0/1)	0.86	0.004
Sales growth: Whether firms achieved growth in sales (2016, 0/1)	0.38	0.07
Productivity: Turnover to employees ratio (2016, log-transformed)	10.83	0.02
Financial status		
Discouraged Borrower (2015)	0.07	0.004
1: Firms need external finance but being discouraged to borrow		
Failed Seeker (2015)	0.03	0.002
1: Firms applying for external finance but did not obtain any		
Successful Seeker (2015)	0.18	0.01
1: Firms applying for external finance and obtained all or some		
Control Variables		
Family business: Whether firm is family owned (2016, 0/1)	0.79	0.10
Employment: total number of employees (2015, log-transformed)	1.98	0.02
Innovator: whether firms introduced product/service innovation (2015, 0/1)	0.46	0.01
Firm age (2015)	7.95	0.02
Board size: total number of directors and partners (2015, log transformed)	0.64	0.10
Industry sector		
GHI - Transport, retail and food service/	0.26	0.44
JKLMN - Business services	0.33	0.47
PQRS - Other services	0.15	0.36
Firm location		
Scotland	0.07	0.25
Wales	0.03	0.17
Northern Ireland	0.03	0.17

Table 4.2: Correlation matrix

		1	2	3	4	5	6	7	8	9	10	11
1	Productivity (log)	1.00										
2	Profitability	0.18	1.00									
3	Sales growth	0.10	0.14	1.00								
4	Discouraged Borrower	-0.03	-0.05	0.01	1.00							
5	Failed Seeker	-0.06	-0.08	0.01	-0.05	1.00						
6	Successful Seeker	0.07	-0.04	0.07	-0.13	-0.08	1.00					
7	Family business	-0.12	-0.02	-0.07	-0.01	0.01	-0.05	1.00				
8	Employment (log)	0.16	0.08	0.16	-0.05	-0.02	0.23	-0.29	1.00			
9	Innovator	0.02	-0.02	0.12	0.04	0.00	0.05	-0.06	0.06	1.00		
10	Firm age	0.11	0.05	-0.10	-0.05	-0.05	0.02	0.03	0.18	-0.04	1.00	
11	Board size (log)	0.19	0.03	0.07	-0.02	-0.02	0.12	-0.45	0.59	0.05	0.14	1.00

4.3 Data and methods

As stated earlier, we derived the variables for financial status from the LSBS survey in 2015, and the variables for business performance from the 2016 survey. Table 4.1 reports the means and standard deviations of the focal variables, as well as some control variables used in the analysis. Table 4.2 reports the correlation matrix between variables.

In the regression analysis, we apply probit models to identify the financial status impact on the profitability and growth of firms, and linear regression to evaluate the financial status effect on the productivity of firms. The marginal effects between financial status categories on different measure of performance are then calculated and compared.

4.4 Empirical results

4.4.1 The effect of financial status on the profitability, growth ability and productivity

Overall, getting external financial support will benefit the performance of a business. As presented in Table 4.4, succeeding in obtaining external finance has a significant and positive effect on firms' profitability. By contrast, firms that failed in obtaining external funding were significantly less likely to be profitable in the following year. Discouragement in applying for external funding also has a marginally significant, negative effect on firm profitability. In real terms, firms who succeeded in getting external funding are 30.2pp more likely to be profitable in the following year than the self-sufficient firms, and this number increases to 50.9pp and 96.5pp for the discouraged borrowers and failed seekers, separately.

In terms of the probability of sales growth in the following 12 months, there is no significant difference between financially self-sufficient firms, discouraged borrowers and firms that failed to obtain external funding. Instead, firms who were successful in getting external funding were 22.6pp more likely to achieve growth in their sales during the following year. Considering productivity, success in obtaining external finance helped to improve the operation efficiency of the business significantly (by 1.4pp); while, the discouragement of firms in obtaining external funding had a significant and negative effect on the operation efficiency of the business (-1.5pp). The detailed comparison of marginal effects between financial status categories are presented in Table 4.4.

4.4.2 Other determinants of firm performance

Besides financial status, we also include other correlates in the regression analysis as controls, such as firm age, the size of the firm, the industry sector, the size of the top management team, whether the firm is a family business, and whether it has introduced new products in the past year. We note that even though these variables are closely related to business performance, their specific impact on different performance measures varied significantly. For example, the age of the firm, has a significant and positive influence on the profitability and productivity of the business, but when the firm is getting older, the growth rate of

sales significantly decreases. Introducing new products will significantly increase sales, however, its effect on profitability and productivity is limited.

Table 3 Comparative Analysis

	Self-sufficient enterprise	Discouraged borrowers	Failed seekers	Successful seekers
Productivity	128961.4	83735.3	83947.97	130343.1
Profitability	0.876	0.781	0.703	0.819
Sales growth	0.356	0.388	0.419	0.46
Firm age	8.00	7.68	7.5	8.03
Employment	23.15	20.19	21.04	36.42
Board size	4.45	2.12	1.97	2.79
Innovator	0.45	0.54	0.48	0.52
Family business	0.74	0.71	0.77	0.7

Table 4.4: Comparison between Marginal Impact of Financial Status on the SMEs Performance

Dependent variable	Profitable 2016	Turnover growth 2016	Log Productivity 2016
Model type	Probit	Probit	Linear
Financial status:			
Discouraged borrower vs Self-sufficient enterprise	-0.288+	0.024	-1.469***
	(0.169)	(0.131)	(0.262)
Failed seeker vs Self-sufficient enterprise	-0.663**	0.121	-0.376
	(0.258)	(0.210)	(0.343)
Successful seeker vs Self-sufficient enterprise	0.302*	0.226*	1.409***
	(0.149)	(0.095)	(0.161)
Failed seeker vs Discouraged borrower	-0.375	0.097	1.093**
	(0.300)	(0.242)	(0.349)
Successful seeker vs Discouraged borrower	0.509**	0.202	2.879***
	(0.213)	(0.153)	(0.328)
Successful seeker vs Failed seeker	0.965***	0.105	1.786***
	(0.286)	(0.224)	(0.423)

Table 4.5: Control Variables Analysis

Dependent variable	Profitable 2016	Turnover growth 2016	Log Productivity 2016
Model type	Probit	Probit	Linear
Employee size (Log)	0.077***	0.154***	-0.011
	(0.018)	(0.014)	(0.021)
Firm age	0.033**	-0.092***	0.062***
	(0.012)	(0.011)	(0.015)
Industry sector			
GHI - Transport, retail and food service	0.052	0.089+	-0.103+
	(0.055)	(0.049)	(0.055)
JKLMN - Business services	0.271***	0.162***	-0.201***
	(0.053)	(0.046)	(0.051)
PQRS - Other services	-0.070	-0.029	-0.872***
	(0.065)	(0.058)	(0.060)
Firm location			
Scotland	0.079	-0.095	0.008
	(0.078)	(0.068)	(0.058)
Wales	0.013	0.075	-0.043
	(0.108)	(0.093)	(0.073)
Northern Ireland	0.278*	-0.062	-0.045
	(0.117)	(0.095)	(0.117)
Family business	0.001	-0.082+	-0.241***
	(0.054)	(0.047)	(0.051)
Board size (Log)	-0.056	-0.086**	0.168***
	(0.042)	(0.034)	(0.038)
Innovator	-0.071+	0.277***	0.048
	(0.040)	(0.035)	(0.038)
constant	0.507***	-0.061	10.503***
	(0.125)	(0.108)	(0.140)
N	5847	5847	4804

4.5 Conclusions and Discussion

Based on the Longitudinal Small Business Survey in UK, we examined the relationships between firms' financial status and their business performance in the subsequent 12 months. We categorised firms into 4 groups. Firms may be financially self-sufficient, not needing external funding; firms may need funding, but being discouraged from borrowing from external resources; firms may have tried but failed to obtain external funding; firms may also have tried and succeeded fully or partially in obtaining finance. Our analysis suggests a close relationship between financial status and the performance of SMEs in the following year. More specifically, succeeding in obtaining external finance significantly increases the probability that firms will be profitable, expand sales, and improve their operation efficiency. Firms which failed to obtain external finance, or were discouraged in borrowing external finance, were less likely to be profitable and improve productivity. The level of significance and the effect size for different financial statuses are different across the regression analysis, suggesting that the impact on different measure of business performance varied significantly.

To date, our analysis only relates financial status directly to business performance. Whether the financial status of firms may influence their business plans, or whether the different business strategy may moderate the relationship between financial status and operational performance are also of considerable interest. Also, our analysis is only based on a single year. In the future the LSBS survey may also offer the potential to examine the longer-lasting effects of financial status on the growth and development of firms. Moreover, in the current study, we do not further differentiate between firms who got all of the finance they sought from firms that only got part of the funding, a distinction which might be expected to affect the operation and performance of businesses.

5. FINAL REMARKS

The LSBS creates new opportunities to establish causal links between business performance and its drivers. The exploratory analyses presented here have suggested some of the potential areas in which insights may develop further given more in-depth investigation and as understanding of the LSBS itself

develops.

Working closely with the LSBS in developing this report highlights the breadth and depth of the data contained in the LSBS and the complexity of the dataset. It also highlights a number of areas in which care is necessary. For example, the longitudinal nature of the dataset means that the structure and filtering of the questionnaire is complex, and differs somewhat from year to year. Considerable care is therefore necessary in the attribution of missing values and missing responses. Caution is also necessary as some questions changed between 2015 and 2016, often in relatively subtle ways. Other questions were omitted or newly introduced in 2016 further complicating any longitudinal analysis.

Another key issue relates to weighting. Currently weights are available separately for 2015 and 2016 for the whole cross-sectional sample to give representative results. For members of the longitudinal sample this means that there are two weights: one for 2015 and one for 2016. These may be very different, depending on non-response and sample attrition in different sample cells. Some thought needs to be given to developing weights which can be used with the longitudinal sample. In the meantime the analysis we report here is conducted on the unweighted responses.

Finally, it is worth noting one area where the coverage of the LSBS data is currently relatively limited – the characteristics of the entrepreneur or business leader. This is perhaps less important in some areas of analysis – exporting, innovation – but in terms of any analysis of growth ambition or aspiration, having limited information on the entrepreneur's education and experience is a significant limitation.

ERC
Enterprise Research Centre

Centre Manager
Enterprise Research Centre
Warwick Business School
Coventry CV4 7AL
CentreManager@enterpriseresearch.ac.uk

Centre Manager
Enterprise Research Centre
Aston Business School
Birmingham, B1 7ET
CentreManager@enterpriseresearch.ac.uk