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Research Report

External finance and growth of rural and urban SMEs in England

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Non-technical abstract

This report studies sources and uses of external finance in small businesses located in England rural and urban areas, as well as impacts of obtained external finance on growth, using the Longitudinal Small Business Survey 2015-2019 for businesses located outside of London. Firstly, we found that debt finance is the most common source for both rural and urban businesses, but rural firms are more dependent on this, particularly overdraft and credit card. Secondly, while rural firms are more likely to use external finance for equipment and vehicles, urban firms are more likely to use it for staff development. Thirdly, we found that at similar levels of external finance, rural firms are able to achieve higher growth than urban firms, after controlling for firms' and owners' characteristics. We propose future research on understanding the need of external finance and perception of accessing external finance in rural firms from firms' perspective, and concerning the mechanism under which rural firms achieve higher turnover with similar amount of external finance seems to be necessary.

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NICRE works with businesses, policy makers and other partners across the UK to take part in research and catalyse change.

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Executive summary

Access to external finance is one of the most important drivers of growth in small businesses, which often have more limited access than large firms. Geographical distance from financial centres is documented as one factor affecting access to external finance in several studies, with firms located in peripheral areas facing difficulties or perceiving obstacles in accessing finance. However, there has been a lack of research on how access to external finance plays a role in growth of rural, compared to urban businesses.

In this report, we address this question by looking into the differences in sources and uses of external finance as well as the impacts of obtained external finance on growth. Employing the Longitudinal Small Business Survey (LSBS) 2015-2019 for firms in England located outside of London, we highlight several key findings. Firstly, rural firms are more dependent on debt finance than urban firms, particularly overdrafts and credit cards. While debt finance is the most popular choice of external finance, equity finance is significantly less used by both rural and urban firms, and rural firms are more likely to seek equity finance from family and friends. Secondly, rural firms tend more often to seek external finance for equipment and vehicles than urban firms, and vice versa for staff training and development. This may imply that the use of external finance may vary between rural and urban firms, which may be due to the type of finance available to them or perceived priorities within the firm.

Thirdly, after controlling for firms' and owners' profiles, the amount of obtained external finance has a stronger impact on growth of rural firms than growth of urban firms. This may suggest that either rural firms may be able to leverage the benefits of external finance more effectively than urban firms, or they tend to depend more on external finance for financing growth than urban firms.

Further studies may investigate understanding the need of external finance and perception of accessing external finance in rural firms from firms' perspective and concerning the mechanism under which rural firms achieve higher turnover with similar amount of external finance. We also found that the impacts of some factors on growth, for example innovation, are stronger for rural firms than for urban ones.

1. Introduction and background

Small and Medium-sized Enterprises (SMEs) are an engine for regional development (Hadjimichalis, 2010), with rural SMEs playing a key role in economic prosperity and well-being (Phillipson et al., 2019). However, whilst access to external finance is recognised as one of the important determinants for business growth (Brown and Lee, 2019), studies on spatial context in the financial market in the UK suggests disadvantages for firms located in more peripheral or remote areas and with greater physical distance to financial providers (Zhao and Jones-Evans, 2017). These analyses suggest that the growth potential of rural firms may be hindered by limited access to external finance. Consequently, improving access to external finance may be important to unlocking the full potential of rural enterprises and their contribution to economic development.

In this report, using data from the UK Longitudinal Small Business Survey for the period from 2015 to 2019, we look into the sources and uses of external finance as well as its impact on SME growth in England, and if and how these impacts are different between rural and urban businesses. We provide evidence concerning access to external finance alongside other factors that are associated with business growth for SMEs.

Following this introduction, Chapter 2 explains the data and methodology. Chapter 3 discusses the findings and Chapter 4 concludes and provides implications for further research. Annexes provide a detailed description of methodology and results.

2. Research design and methodology

This study uses the UK Longitudinal Small Business Survey 2015-2019 (LSBS), commissioned by the Department for Business, Energy and Industrial Strategy (BEIS). The LSBS is a phone-interview survey which was first conducted in 2015 with the plan to re-survey participating firms to create a longitudinal track of business activities. The survey covers a wide range of business dimensions, including their performance and plans in the short term and in the long term; obstacles to business objectives; export and innovation activities; business demographics; training for staff and managers. We focus on rural and urban firms in England excluding London, which is commonly placed in its own category in Office for National Statistics (ONS) reports (Oguz, 2017, 2019; Phillipson et al., 2019). Annex B.1 provides an overview of the variables used.

To examine the impact of location on the relationship between finance and growth, we estimated the probability of growth against the amount of finance obtained using three econometric methods: ordered probit, mixed effects ordered probit, and bivariate ordered probit models. Due to the nature of this survey-based data set and to achieve the largest number of observations, for this part of the analysis growth and amount of finance are coded as categorical variables. These categories are ranked, which means that a firm that is in a higher category has a higher growth rate or obtains a higher amount of finance. As such, ordered probit models are employed in this study. Meanwhile, the mixed-effects model controls for the firm-specific random effects which are unobserved in the model, and the bivariate ordered probit model controls for

endogeneity bias in the amount of finance received[1]. Annex A describes how these models are applied in greater depth.

3. Findings

3.1. Access and use of finance in rural and urban firms[2]

3.1.1. Access to external finance

Table 1 reports the proportions of rural and urban firms on various indicators for access to finance. Firstly, the results show that over the five-year survey period nearly two-thirds to three quarters of the respondents considered one of the big five banks in England[3] to be their main bank, with no statistically significant differences between rural and urban businesses in this regard.

In addition, firms were asked about whether their application for finance had been successful. From 2015 to 2018 rural businesses were consistently more successful in obtaining the finance they sought compared to urban businesses, although this difference is only statistically significant in 2015.

Table 2 presents the proportions of rural and urban firms' current uses of external finance. The data also shows a general decline over time in the use of any one type of external finance. Among different sources of external finance, bank-related options are far more commonly used by rural and urban businesses compared to equity finance or other debt finance.

The proportions of rural businesses using any source of external finance and any source of bank finance are higher than for urban businesses throughout the five years, with statistically significant differences in 2017 and 2018. Only a very small proportion of both rural and urban firms used public grants (government or local authority) or equity finance from 2015 to 2019, with no consistent statistical difference between rural and urban firms in using either type, except in 2015 for public grants (where there was an urban bias - 0.5% cf 2.7%), and 2017 for equity finance (with a rural bias - 1.2% cf 0.4%).

[1] Endogeneity bias occurs when the explanatory variable (here the amount of finance received) is correlated with the error term. This can provide biased estimates as the observed correlation between the explanatory variable and the dependent variable (here growth) can be caused by unobserved or omitted factors that are not included in the model.

[2] Tables 2 to 4 report proportions of rural and urban businesses' current uses of any one type of finance. Numbers for 2015 are often higher than 2016-2019. The tables are based on the question "Are you currently using any types of finance". Although the question remains through the period 2015-2019, there was a change in the way this question was asked from 2016 onwards. In 2015, this is a filtered question based on a prior question of whether they applied for external finance in the last five years. From 2016 onwards, all firms participating in the survey were asked this question. As such, the denominator of 2015 is a sub-sample rather than the full sample as 2016-2019, and thus, the reported % often looks higher in 2015 than other years.

[3] The big 5 banks are HSBC, Lloyds, NatWest, Barclays and Santander.

Overall, although the findings are not always statistically significant, the data suggests rural firms are more likely to be using external finance, particularly debt finance, and to be successful in obtaining the finance they sought.

Table 1 – Main banks and successful applications in rural and urban England (excluding London)

	Mean (weighted)			
	Rural	Urban	f-test	N
Panel A: Main bank & Successful applicants				
Main bank is one of the big 5				
2015	75.1%	72.7%	2.40	11,004
2016	74.8%	73.7%	0.20	6,217
2017	76.6%	73.6%	1.32	4,064
2018	70.7%	71.7%	0.16	5,027
2019	67.6%	70.3%	0.97	5,325
Application outcome for finance (Obtained) in the last 12 months				
2015	**81.9%**	**73.8%**	**4.15****	**2,100**
2016	75.5%	64.2%	2.35	850
2017	67.9%	63.3%	0.20	550
2018	72.0%	65.5%	1.18	1,374
2019	73.9%	79.0%	0.49	984

Table 2 – Current uses external finance[4] of rural and urban England (excluding London)

	Mean (weighted)			
	Rural	Urban	f-test	N
Currently using any external finance				
2015	81.2%	80.9%	0.01	4,092
2016	55.6%	52.5%	1.49	6,401
2017	**55.6%**	**49.6%**	**4.29****	**4,160**
2018	**54.3%**	**46.4%**	**17.99*****	**10,938**
2019	51.4%	48.9%	1.13	7,852
Currently using any bank finance				
2015	74.0%	71.2%	0.82	4,092
2016	46.5%	43.5%	1.42	6,401
2017	**45.8%**	**39.8%**	**4.54****	**4,160**
2018	**44.4%**	**36.5%**	**19.09*****	**10,938**
2019	41.8%	38.7%	1.70	7,852
Currently using government or local authority grants				
2015	**0.5%**	**2.7%**	**7.52*****	**4,092**

[4] Refer to Footnote 2

2016	3.4%	2.6%	1.34	6,401
2017	3.1%	2.2%	2.01	4,160
2018	2.7%	2.5%	0.10	10,938
2019	2.3%	2.1%	0.12	7,852
Currently using equity finance				
2015	3.7%	3.8%	0.02	4,092
2016	1.2%	0.8%	0.85	6,401
2017	**1.2%**	**0.4%**	**3.75***	**4,160**
2018	0.8%	0.7%	0.02	10,938
2019	0.9%	1.0%	0.04	7,852

Figures highlighted in green indicate that rural firms are higher than urban firms, and the mean difference is statistically significant, and vice versa for figures highlighted in orange.

Table 3 reports the main access to finance indicators for rural and urban firms for regions in England (excluding London). Rural firms are more likely to use external or bank finance than urban firms in the East of England, North East, South East, and South West. This pattern is also seen in the North West region, with the exception of 2017 when the proportion of businesses indicating the use of external finance had dropped by 50% in rural areas (32.6%). There are no consistent and significant differences between rural and urban firms in the East Midlands, West Midlands, and Yorkshire & Humber regions regarding the uses of external finance.

Rural businesses in the North East see a markedly higher rate of using bank finance than in other regions. This could imply that rural businesses in the North East are more dependent on bank finance and have limited access to other types of external finance.

Table 3 - Access to external finance rural and urban England by region (excluding London)

		Using any external finance			Any bank finance			
		mean (weighted)			mean (weighted)			
		Rural	Urban	f-test	Rural	Urban	f-test	N
East Midlands	2015	81.1%	80.1%	0.01	68.0%	69.9%	0.03	408
	2016	53.9%	52.0%	0.06	48.5%	42.8%	0.52	631
	2017	53.0%	41.0%	1.78	46.8%	34.2%	2.01	416
	2018	54.1%	45.8%	1.92	44.6%	38.0%	1.29	1,074
	2019	59.5%	57.2%	0.1	51.6%	49.5%	0.08	777
East of England	2015	87.8%	80.6%	1.35	79.5%	76.0%	0.25	623
	2016	50.2%	52.2%	0.1	41.6%	47.5%	1.01	959
	2017	**64.8%**	**52.5%**	**3.14***	**56.5%**	**43.1%**	**3.69***	613
	2018	**60.1%**	**44.5%**	**11.96*****	**52.2%**	**33.6%**	**17.79*****	1,632
	2019	52.3%	43.1%	2.22	39.8%	36.1%	0.4	1,134
North East	2015	66.9%	78.1%	0.45	54.1%	58.7%	0.07	173

	2016	**85.1%**	**51.8%**	**13.04*** **	**76.4%**	**41.6%**	**11.88*** **	260
	2017	**88.5%**	**48.0%**	**14.85*** **	**79.0%**	**37.9%**	**11.89*** **	160
	2018	46.0%	40.7%	0.26	34.7%	24.2%	1.25	429
	2019	54.6%	47.7%	0.29	46.7%	30.3%	1.78	289
North West	2015	90.6%	81.5%	2.46	83.9%	72.8%	2.55	494
	2016	**66.0%**	**52.1%**	**3.1***	**58.4%**	**43.0%**	**3.44***	755
	2017	**32.6%**	**51.0%**	**3.83***	**25.2%**	**41.6%**	**3.89** **	489
	2018	52.1%	46.0%	0.86	37.5%	36.9%	0.01	1,292
	2019	46.3%	45.5%	0.01	33.3%	36.8%	0.23	931
South East	2015	83.3%	82.8%	0.01	73.0%	72.4%	0.01	855
	2016	54.8%	52.5%	0.16	46.3%	42.7%	0.44	1,418
	2017	56.2%	47.5%	1.96	43.4%	38.7%	0.61	908
	2018	**55.8%**	**46.7%**	**5.39** **	**46.7%**	**36.9%**	**6.33** **	2,384
	2019	46.3%	49.2%	0.38	35.4%	39.3%	0.72	1,768
South West	2015	79.8%	81.7%	0.09	76.7%	71.0%	0.76	703
	2016	51.1%	55.2%	0.55	43.8%	46.7%	0.29	1,097
	2017	54.9%	53.5%	0.04	48.3%	43.3%	0.61	730
	2018	53.1%	51.1%	0.21	42.1%	40.7%	0.11	1,751
	2019	55.3%	48.3%	1.47	**49.5%**	**39.7%**	**3.00***	1,310
West Midlands	2015	74.2%	77.5%	0.11	68.1%	66.6%	0.02	434
	2016	57.8%	50.8%	0.77	42.3%	39.6%	0.12	676
	2017	55.1%	50.5%	0.26	41.2%	38.0%	0.14	455
	2018	49.3%	47.7%	0.09	40.5%	38.3%	0.17	1,268
	2019	52.5%	46.0%	0.81	42.4%	33.1%	1.88	889
Yorkshire & the Humber	2015	72.9%	80.8%	0.56	69.7%	74.8%	0.23	402
	2016	65.2%	52.4%	2.54	49.6%	42.9%	0.66	605
	2017	57.1%	52.8%	0.17	37.3%	39.9%	0.08	389
	2018	53.0%	43.5%	2.4	42.2%	33.8%	1.99	1,108
	2019	46.1%	56.2%	1.69	36.3%	41.3%	0.45	754

Figures highlighted in green indicate that rural firms are higher than urban firms, and the mean difference is statistically significant, and vice versa for figures highlighted in orange.

3.1.1.1. Sources of debt finance

As the most prominent form of external finance, we next look into the use of debt finance in rural and urban businesses. Table 4 shows that the main sources of debt finance for rural and urban firms are overdraft facilities and credit cards, followed by bank loans, leasing or hire purchase, and loans from family or friends. Rural firms are generally more likely to use these sources of finance compared to urban ones, particularly for overdrafts, mortgages, leasing and bank loans, where consistent differences are seen over several of the years. Peer to peer loans and factoring or invoice discounting are less popular sources of finance for both rural and urban firms.

Table 4 - Sources of debt finance (excluding London)

	Mean (weighted)			
	Rural	Urban	f-test	N
Overdraft				
2015	41.8%	42.1%	0.01	4,092
2016	24.5%	25.7%	0.36	6,401
2017	26.1%	22.3%	2.44	4,160
2018	**26.1%**	**20.0%**	**15.77*****	**10,938**
2019	**24.6%**	**20.5%**	**4.25****	**7,852**
Mortgage				
2015	**12.6%**	**6.5%**	**17.25*****	**4,092**
2016	**4.3%**	**2.5%**	**8.60*****	**6,401**
2017	**4.2%**	**2.2%**	**6.69*****	**4,160**
2018	**4.0%**	**2.5%**	**7.63*****	**10,938**
2019	2.9%	2.5%	0.65	7,852
Credit card				
2015	39.7%	38.4%	0.19	4,092
2016	28.8%	26.6%	1.08	6,401
2017	29.5%	26.0%	1.90	4,160
2018	**28.1%**	**22.7%**	**11.56*****	10,938
2019	27.2%	24.6%	1.59	7,852
Factoring or invoice discounting				
2015	3.1%	3.5%	0.24	4,092
2016	**1.2%**	**1.9%**	**3.17***	**6,401**
2017	1.9%	2.2%	0.17	4,160
2018	1.7%	2.0%	0.24	10,938
2019	1.8%	1.7%	0.04	7,852
Leasing				
2015	27.3%	23.3%	2.51	4,092
2016	**13.7%**	**10.7%**	**4.09****	**6,401**
2017	13.4%	11.7%	1.03	4,160
2018	**13.0%**	**9.4%**	**12.08*****	**10,938**
2019	12.8%	11.3%	1.14	7,852
Bank loan				
2015	34.2%	30.7%	1.44	4,092
2016	**12.7%**	**10.0%**	**3.87****	**6,401**
2017	**12.0%**	**8.7%**	**4.16****	**4,160**
2018	**11.9%**	**8.6%**	**10.29*****	**10,938**
2019	9.4%	8.0%	1.42	7,852
Loan from owner, family or friend				
2015*	1.9%	2.3%	0.35	4,092
2016	12.6%	12.5%	0.12	6,401

2017	14.5%	12.2%	1.74	4,160
2018	12.7%	11.7%	0.70	10,938
2019	12.0%	11.8%	0.01	7,852
Peer 2 peer loan				
2015	1.8%	2.1%	0.18	4,092
2016	0.8%	1.2%	1.21	6,401
2017	0.7%	0.7%	0.04	4,160
2018	0.9%	0.7%	0.6	10,938
2019	1.3%	0.7%	2.23	7,852

Figures highlighted in green indicate that rural firms are higher than urban firms, and the mean difference is statistically significant, and vice versa for figures highlighted in orange.

3.1.1.2. Sources of equity finance

Table 5 reports the sources of equity finance in rural and urban firms for the period from 2016 to 2019. Recalling from Table 2 that a very small proportion of firms use equity finance, this is shown in the small and inconsistent number of observations reported in each year in Table 5. From those who responded that they used equity finance during this period, rural firms were often more likely to obtain equity finance from family members or friends, compared to urban firms. However, urban firms were more likely to raise equity finance from within their firm, with significant difference in 2017. Regarding the likelihood of receiving angel investment, there are no significant differences between rural and urban businesses. The corresponding pattern for receipt of venture capital is also variable over the four years. Finally, only a very small proportion of SMEs in both rural and urban areas obtained finance through crowd funding or public equity.

Table 5 - Sources of equity finance (excluding London)

	Mean (weighted)			
	Rural	Urban	f-test	N
Business angel				
2016	23.0%	32.3%	0.33	118
2017	13.4%	11.5%	0.03	77
2018	13.9%	7.1%	0.68	213
2019	6.2%	13.9%	0.78	172
Venture capitalist				
2016	**0.5%**	**17.2%**	**5.91****	**118**
2017	**23.3%**	**2.1%**	**3.01***	**77**
2018	**2.1%**	**6.5%**	**4.11****	**213**
2019	10.1%	6.3%	0.23	172
Third-party organisation				
2016	8.2%	7.1%	0.04	118
2017	28.0%	24.0%	0.07	77
2018	20.7%	30.7%	0.56	213
2019	34.4%	16.8%	1.23	172
Within the business				

2016	25.2%	50.1%	2.31	118
2017	**12.5%**	**36.2%**	**3.53***	**77**
2018	39.0%	39.6%	0.00	213
2019	17.3%	29.0%	1.09	172
Family or friend				
2016	40.4%	15.1%	2.03	118
2017	33.1%	18.7%	0.50	77
2018	**43.7%**	**7.3%**	**6.24****	**213**
2019	11.9%	28.6%	2.03	172
Crowd funding				
2016	1.7%	14.2%	1.19	118
2017	-	0.9%	0.96	77
2018	2.8%	1.7%	0.22	213
2019	0.2%	1.3%	1.36	172
Public equity				
2016	0.2%	0.5%	0.33	118
2017	0.3%	1.8%	1.04	77
2018	2.5%	3.5%	0.08	213
2019	7.1%	0.2%	1.59	172

Figures highlighted in green indicate that rural firms are higher than urban firms, and the mean difference is statistically significant, and vice versa for figures highlighted in orange.

3.1.2. Uses of obtaining external finance

Table 6 shows the intended uses of external finance for the years 2016 to 2019 and reveals rural-urban differences. Overall, for those using external finance, working capital, equipment or vehicles, and buildings or land are the most common purposes, for rural and urban businesses. The results show that a higher proportion of rural firms seek finance to invest in purchasing equipment or vehicles compared to urban businesses, with a statistically significant difference in 2018 (54.% cf 39.4%). However, there is no statistically significant difference between rural and urban firms regarding the proportion investing in working capital, land and buildings, or new or improved process over the period. These results are similar to those of Phillipson et al (2017) who analysed 2015 LSBS data and found rural firms were more likely to seek finance to invest in fixed assets (a pattern which held when they controlled for land-based sectors). In addition, they also showed that rural businesses obtained more significant funds, compared to urban businesses, in 2015. The use of external finance for equipment or vehicles indicates the importance of external finance for capital investment.

Furthermore, compared to urban firms, rural ones were significantly less likely to seek finance for investment in product or service innovation in 2016, although this pattern was not consistent for other years. Rural firms were also less likely to seek finance for marketing over the period (with significant difference in 2017). They are also less likely to seek external finance for staff training or development. These findings may suggest that rural firms are less likely to find external finance for intangible investment or expenditure.

Table 6 - Use of external finance (excluding London)

	Mean (weighted)			
	Rural	Urban	f-test	N
Working capital				
2016	65.8%	67.5%	0.05	843
2017	61.1%	67.4%	0.52	545
2018	60.9%	55.8%	0.68	1,347
2019	62.6%	64.2%	0.04	973
Equipment or vehicles				
2016	58.3%	47.5%	0.82	410
2017	50.6%	41.8%	0.60	297
2018	**54.5%**	**39.4%**	**3.07***	**703**
2019	56.3%	53.3%	0.06	481
Buying, renting, leasing buildings or land				
2016	32.0%	35.8%	0.12	410
2017	34.0%	27.2%	0.35	297
2018	27.7%	31.7%	0.30	703
2019	29.4%	32.5%	0.08	481
Investment in new or improved process				
2016	7.4%	14.7%	1.68	410
2017	9.4%	10.7%	0.07	297
2018	10.3%	15.3%	1.08	703
2019	9.5%	13.7%	0.36	481
Investment in new or Improved goods/services				
2016	**10.1%**	**24.1%**	**3.6***	**410**
2017	11.3%	9.6%	0.11	297
2018	24.2%	27.7%	0.19	703
2019	11.1%	9.5%	0.11	481
Marketing				
2016	3.6%	8.5%	1.28	410
2017	**2.1%**	**9.1%**	**3.41***	**297**
2018	11.7%	16.1%	0.43	703
2019	3.4%	8.2%	2.60	481
Staff training or development				
2016	**1.9%**	**10.5%**	**5.10****	**410**
2017	9.3%	7.0%	0.27	297
2018	13.4%	9.9%	0.27	703
2019	**2.1%**	**16.1%**	**7.46*****	481

Investments externally financed[5]				
2016	2.84	2.60	0.28	365
2017	2.48	3.26	3.15*	253
2018	2.69	3.21	2.02	540
2019	2.61	3.35	2.15	375

Figures highlighted in green indicate that rural firms are higher than urban firms, and the mean difference is statistically significant, and vice versa for figures highlighted in orange.

3.2. External finance and business growth

In this next section of the report, we focus on the impact of external finance on the growth of SMEs in rural and urban areas. In particular, we seek to understand the impacts of the acquired amounts of external finance[6] on business growth[7]. We start by analysing the summary statistics to give an overview of the sample used in our analysis and then providing results from the regression of growth on location and the amount of obtained external finance.

3.2.1. Characteristics of rural and urban businesses in our sample

The sample of businesses used in the analysis has several key features (Annex B.2):

- Nearly one-third of our sample (from which London is excluded) are rural businesses. In terms of size of firm by turnover, the vast majority of the sample have turnover of less than £500k. Only 11% have a turnover of more than £500k, 12% in rural areas compared to 10% in urban areas.
- Similarly, the majority of the businesses in the sample are self-employed (72%) or micro businesses with less than 10 employees (24%). The proportion of self-employed business is higher in the urban group than in rural group, and vice-versa for micro businesses.
- Turnover growth rates reported by rural and urban businesses are similar, with nearly half of the respondents indicating no change in turnover. Although there is a slightly higher proportion of minor growth (i.e. up to 10% turnover growth) in rural areas than in urban areas. Furthermore, approximately one in two businesses aimed

[5] This variable takes a value of 1 if 0-19% of investment undertook in the last 12 months are externally financed; of 2 if 20-39%, of 3 of 40-59%, of 4 if 60-79%; of 5 if 80-99%; and of 6 if 100%. (Don't know and Refused answers are excluded). An average of 3 means that about 40-59% of investment is externally financed.

[6] We focus on the amount of external finance that firms successfully acquired over the last 12 months, instead of the amount of external finance that firms currently use. Due to the limitation of the LSBS questionnaire, there is no information on the current used amount of external finance. Instead, firms were asked about the amount of external finance they sought/approved over the past year.

[7] We focus on business turnover growth over the last 12 months, reported by the business. It is a categorical variable, defined as: "Substantial shrinkage": turnover decreased by more than 20%; "Significant shrinkage": turnover decreased by 10%-19%; "Minor shrinkage": turnover decreased by 0-9%; "No change": turnover stayed the same; "Minor growth": turnover increased by 0-9%; "Significant growth": turnover increased by 10%-19%; "Substantial growth": turnover increased by more than 20%.

to grow their business in the next three years, with urban businesses slightly higher than rural businesses.

- The amount of external finance reported by sample firms in rural and urban locations is very similar, with the vast majority of businesses (94%) not obtaining any external finance during the previous 12 months. However, rural businesses tend to receive larger amounts of finance (i.e., more than £500k) than urban businesses.
- The majority of the businesses in the sample had been operating for more than 20 years, and the percentage of mature businesses is higher in rural areas (44%) compared to urban areas (37%).
- Around 7% of urban businesses in the sample operate in primary sectors compared to only 1% of rural businesses. In addition, slightly higher proportions of urban businesses in the sample are working in the manufacturing, transportation and storage, and accommodation sectors, compared to rural businesses, and vice versa for the construction, information and communication, financial, education, and health and social work sectors.
- Around 87% of the sample are family-owned businesses, with the percentage of family businesses slightly higher in the rural sample.
- Around 13% of the businesses in the sample export, with slightly more rural businesses (14%) compared to urban businesses (12%) doing so.
- There are no significant rural-urban differences in terms of the share of businesses adopting new innovations in the last three years.
- Only 4% of the businesses in the sample are owned or managed by a member of a minority ethnic group, however, the majority of minority-led businesses are located in urban areas. There is a slightly higher proportion of female-led businesses in rural areas than in urban areas in the sample.

3.2.2. The impacts of obtained external finance on growth

To further explore the impact of the amount of acquired external finance and links to growth, we ran regressions of growth on rural-urban location, controlling for firms' characteristics and owners' profiles, using bivariate ordered probit models for all the sample, and different sub-samples (reported in Annex B.3). The sample was divided by geography (rural and urban) and then by the turnover size of the businesses (below and above £500,000). The mixed-effects estimation is preferred compared against the ordered probit estimation, as it controls for firm-effects in the panel data[8].

Figure 1 graphs the regression coefficients of the impact of external finance on business growth. The graph suggests a positive impact of obtained finance on growth, and the impacts are higher in rural businesses than in urban businesses at any level of finance[9].

When we divide the sample by turnover, using a threshold of £500,000, we find a

[8] In an ordered probit model, all businesses across years are pooled together. It means that a business that was re-surveyed in a subsequent year is treated as two individual businesses, rather than being the same business. In that way, the firm-specific factors are not considered. Since our data set is a panel data set, we prefer to use a model that takes into account the firm effect, which in this case, is the mixed-effect model. A more detailed description of these models is provided in the methodology section.

[9] As shown in Annex B.3, the coefficients of larger amounts of finance are statistically significant.

similar pattern among those who had a turnover above this threshold (Fig. 2). In other words, in larger businesses, external finance increases the likelihood of growth, and this impact is stronger in rural businesses than in urban businesses at all levels of finance. However, for those businesses with a turnover below the £500,000 threshold, this pattern is not found as most coefficients are insignificant (Annex B.3), with the exception of rural businesses which obtained more than £1million of external finance (as shown by the coefficient of 0.88 for this group).

Figure 1: The impacts of amount of external finance on growth

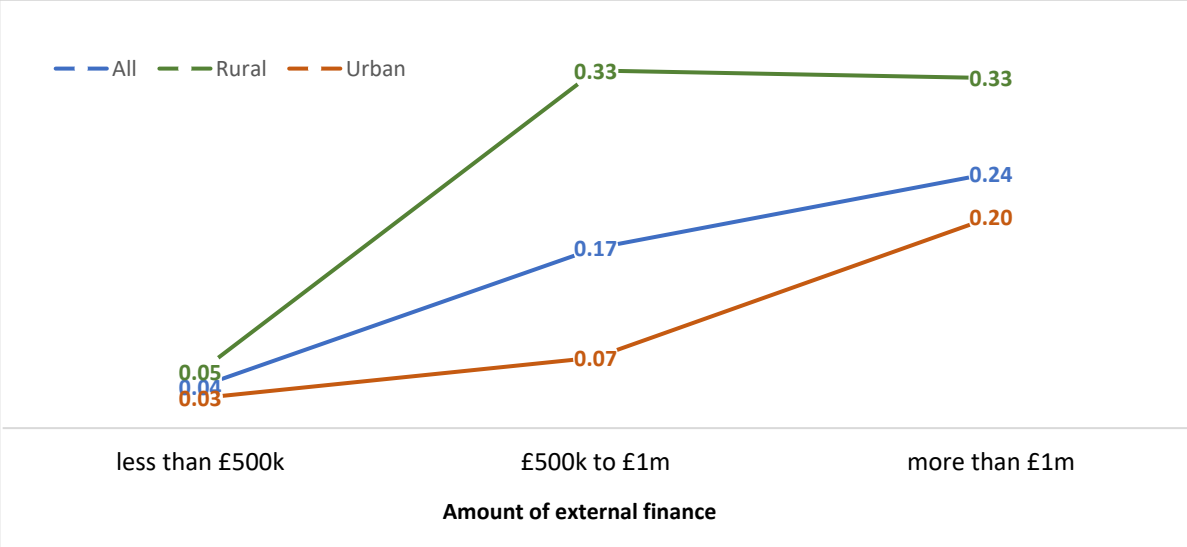
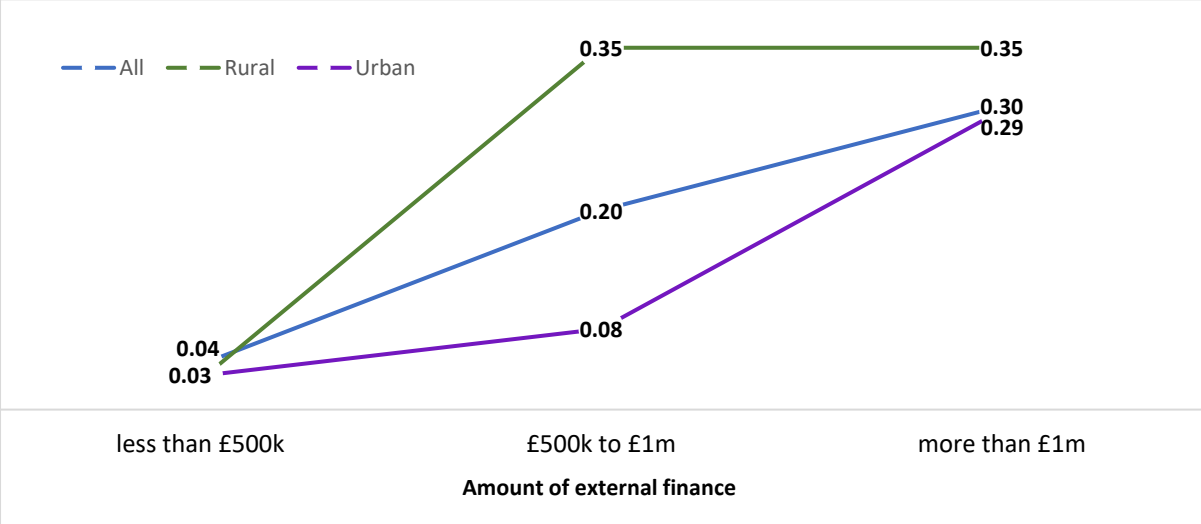


Figure 2: Breakdown by turnover – for businesses that have turnover above £500,000



In line with recent literature (Santi and Santoleri, 2017; Grillitsch, Schubert and Srholec, 2019), we also find that businesses that introduced new processes, goods, or services

are significantly more likely to report growth in turnover. Moreover, the impact of innovation has a greater effect on growth for rural as opposed to urban businesses. This highlights the importance of innovation in achieving rural business growth.
The growth intentions of the business have a high and statistically significant positive impact on turnover growth. This impact is slightly higher in rural businesses than in urban businesses, and especially so for those having turnover above £500,000 (but not below this threshold).

Generally, businesses located in deprived areas are more likely to report significantly lower growth in turnover. Rural SMEs located in deprived areas appear to have significantly lower growth in turnover compared to other rural SMEs.

There is a clear negative relationship between the increasing age of the business and the reported turnover growth. Interestingly, the decrease in turnover growth of rural businesses over their life cycle is smaller than the decrease in turnover growth of urban businesses.

In addition, exporting businesses are more likely to report growth in turnover, especially if they are based in an urban location. However, there is no statistically significant effect of exports on the growth of rural businesses. Moreover, the results do not suggest any statistical differences between family and non family-owned businesses regarding the likelihood of reporting growth in turnover.

Larger businesses (in terms of employees) achieved a higher growth rate and the impact of size on growth is stronger in urban businesses than in rural businesses.

In terms of owners' characteristics, there is no statistically significant difference between the growth achieved by small businesses led by women compared with men. However, those businesses with a turnover above £500,000, that are led by women are more likely to report lower turnover growth, and this negative relationship is stronger in rural businesses than in urban businesses. This indicates the possible existence of a threshold effect which can be due to self or socially determined factors that influence the growth of women-led businesses, such as maintaining a balance between work, family, and personal demands (Morris et al., 2006).

Furthermore, businesses led by minority ethnic groups are less likely to report turnover growth compared to other businesses, in both rural and urban regions, with the exception of rural businesses that have a turnover above £500,000.

4. Key conclusions and implications

Remote and rural businesses are often portrayed as having poorer access to external finance as well as fewer financing options (Lee and Drever, 2014, Zhao and Jones-Evans, 2017). This is important because small business growth is sensitive to the amount and availability of external finance (Carpenter and Peterson, 2002).

This report provides an analysis of sources and uses of external finance and its impact on business growth for rural and urban SMEs in England. There are a number of key findings:

Sources of external finance

- There is no evidence of any statistically significant differences in finance approval rates between rural and urban businesses.
- Bank finance remains the most common source of external finance for both rural and urban businesses. Although the proportion of rural businesses that use any type of bank finance is greater than for urban businesses. It is possible rural businesses are more dependent on bank finance because they have fewer other external finance options (Zhao and Jones-Evans, 2017). Consideration may be needed to diversifying financing options in rural areas (for example, promoting the awareness of alternative finance, such as peer-to-peer lending, or new challenger banks for small business).
- There are some regional variations, which vary across years. For instance, rural businesses are more likely to use bank finance than urban businesses in the North East and South West.
- The main sources of debt finance for both rural and urban businesses are overdraft facilities and credit cards, followed by bank loans, leasing or hire purchasing, and loans from family or friends. Rural businesses are more likely to use overdrafts, mortgages and bank loans, compared against urban firms, again highlighting the importance of bank finance in rural businesses.
- Rural businesses have higher tendency to obtain equity finance from family members or friends, compared to urban businesses. This finding may imply that the use of informal finance and networks is relatively more common in rural businesses. There are no significant differences between urban and rural businesses regarding the likelihood of obtaining angel investment, after excluding London from the analysis. As witnessed in other studies (British Business Bank, 2020, Cowling, Brown and Lee, 2021), the equity market is far more developed in London than any other region.

Purposes of external finance

- Working capital, equipment or vehicles, and land and buildings are the most common purposes of using external finance, and this holds for both rural and urban businesses.
- Rural SMEs are more likely to seek finance to invest in new equipment or vehicles compared to urban SMEs. In contrast, urban SMEs are more likely to invest in marketing and staff development. These differences in the purposes of external finance may lead to varying impacts on business growth.

Growth of rural and urban businesses and amount of external finance

- There are no statistically significant differences between the growth rates reported by rural and urban businesses.
- However similar levels of external finance appear to have a stronger impact on the growth of rural businesses, compared to urban businesses, after controlling the businesses' characteristics. As such, the impacts of external finance on small business growth appear to be particularly pronounced in rural areas. Given their greater dependence on banks as a source of external finance, and the stronger impact of external finance on growth for rural firms, it may follow that bank

branch closures may have a disproportionate impact on the financial position and growth of rural businesses.

Finally, this study suggests that there are differences between rural and urban businesses in their growth determinants. For example, innovation has a stronger impact on the growth of rural businesses, compared to urban ones. Further studies are warranted to consider these trends in greater depth, particularly relating to innovation, growth ambition, women-led business, and exporting. It is also important to understand the impacts of finance on other critical aspects of businesses, for example innovation or exporting, and how the impacts relate to size, age, sector, or location.

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Annexes

Annex A: Methodology

First, our baseline model is an ordered probit model which takes the form of:

$$\Pr(\mathrm{y}_i = k \mid \mathbf{K}, \varepsilon_i) = \mathbf{\Phi}(\mathrm{K}_k - \mathbf{x}_i\boldsymbol{\beta} + \varepsilon_i) - \mathbf{\Phi}(\mathrm{K}_{k-1} - \mathbf{x}_i\boldsymbol{\beta} + \varepsilon_i) \quad (1).$$

Where y_i is the ordinal variable for the growth in turnover of observation i, which can take the value ks outcomes, $\mathbf{K} = (1, \ldots, 7)$, such that: 1 = substantial shrinkage, 2 = significant shrinkage, 3 = minor shrinkage, 4 = no change, 5 = minor growth, 6 = significant growth, and 7 = substantial growth[10]. $\mathbf{\Phi}(\cdot)$ is the cumulative standard normal distribution function, $\mathbf{x}$ and $\boldsymbol{\beta}$ are vectors of explanatory variables and parameters to be estimated, and ε is the error term. In addition, k is ere k is the number of possible outcomes.

In model (1), the main explanatory variable in the vector $\mathbf{x}$ is the amount of finance obtained by the firm, which is an ordinal variable that takes the values from 0 to 3, where: 0 = did not apply or receive any finance, 1 = Less than £500,000, 2 = between £500,000 and £1 million, and 3 = more than £1 million. In addition, $\mathbf{x}$ includes spatial and control variables, namely: regions, deprived area, women-led, ethnic minority-led, business age, sector, family business, business size by employment, business size by turnover, legal status, innovation, exports, and year-effects. The results for the ordered probit model are reported in the appendix (Table A1).

Second, to include firm-specific random effects, we estimate mixed-effects ordered probit model which allows for random and fixed effects. The two-level ordered probit model with random intercepts can be denoted as:

$$\Pr(\mathrm{y}_{ij} = k \mid \mathbf{K}, \mathbf{u}_j) = \mathbf{\Phi}(\mathrm{K}_k - \mathbf{x}_{ij}\boldsymbol{\beta} + \mathbf{z}_{ij}\mathbf{u}_j) - \mathbf{\Phi}(\mathrm{K}_{k-1} - \mathbf{x}_{ij}\boldsymbol{\beta} + \mathbf{z}_{ij}\mathbf{u}_j) \quad (2).$$

Where $\mathbf{K}$ is possible outcomes for M number of firms, such that firm $j = (1, \ldots, M)$ has $i = (1, \ldots, nj)$ observations. Moreover, $\mathbf{\Phi}(\cdot)$, $\mathbf{x}$ and $\boldsymbol{\beta}$ are again the cumulative standard normal distribution function, explanatory variables, and their parameters. In addition, $\mathbf{u}_j$ is the firm -specific random effect and $\mathbf{z}_{ij}$ are the covariates representing both random intercepts and random coefficients. The results for the mixed-effects ordered probit model are reported in the appendix (Table A2).

Finally, a common problem in linear regression is when the explanatory variable is correlated with the error term, which violates the assumption of strict exogeneity condition of the explanatory variable and can produce biased estimates. To control for the potential endogeneity problem in the amount of finance, a bivariate ordered probit

[10] "Substantial shrinkage": turnover decreased by more than 20%; "Significant shrinkage": turnover decreased by 10%-19%; "Minor shrinkage": turnover decreased by 0-9%; "No change": turnover stayed the same; "Minor growth": turnover increased by 0-9%; "Significant growth": turnover increased by 10%-19%; "Substantial growth": turnover increased by more than 20%.

model with firm-effects is employed and estimated by using the conditional mixed process.[11] outlined by Roodman (2011) in Stata software.

We are able to control for endogeneity bias in the amount of finance by jointly estimating the amount of finance using another equation using additional instrumental variables, as in two-stage least squares (2SLS). Here we fit the ordered probit equation with another equation for the amount of finance that takes the form of:

$$\Pr(y_{1i} = k \mid \mathbf{K}, \mathbf{u}_{1j}) = \mathbf{\Phi}(K_k - \mathbf{x}_{1i}\boldsymbol{\beta} + \mathbf{z}_{1ij}\mathbf{u}_{1j}) - \mathbf{\Phi}(K_{k-1} - \mathbf{x}_{1i}\boldsymbol{\beta} + \mathbf{z}_{1ij}\mathbf{u}_{1j}) \quad (3a),$$

$$\Pr(y_{2i} = g \mid \mathbf{G}, \mathbf{u}_{2j}) = \mathbf{\Phi}(G_g - \mathbf{x}_{2i}\boldsymbol{\lambda} + \mathbf{z}_{2ij}\mathbf{u}_{2j}) - \mathbf{\Phi}(G_{g-1} - \mathbf{x}_{2i}\boldsymbol{\lambda} + \mathbf{z}_{2ij}\mathbf{u}_{2j}) \quad (3b).$$

Equation (3a) is identical to the two-level ordered probit model in equation (2). The additional equation is (3b), which estimates the amount of finance using two additional instrumental variables. In (3b), y_{2i} is the amount of finance, and $\mathbf{G}$ is possible outcomes for the M number of firms. In addition, $\boldsymbol{\lambda}$ is a vector of unobserved parameters, and $\mathbf{x_{2i}}$ is a vector of exogenous variables that includes the control variables of equation (3a) and two additional instrumental variables. We instrumented the amount of finance using 1) a binary variable that takes the value 1 if the firm received or provided trade credit; and 2) a binary variable that takes the value 1 if the firm received any finance from banks. The instrumental variables $\mathbf{z_i}$ are assumed to explain the endogenous variable (amount of finance) in equation (3b), and do not explain the growth in turnover (y_{1i}) in equation (3a). We assume that firms that received bank finance and provide or receive trade credit are more likely to have higher amount of external finance.

Longitudinal weighting: The LSBS data set includes only cross-sectional weights for each year and longitudinal weights for balanced panels of 2015-2017, 2015-2018 and 2015-2019, but no weights for the unbalanced panel dataset. For a business that appears more than one time in the panel data, their longitudinal weights in all years should be constant. However, in each year, these firms may have different cross-sectional weights. Hence, we derived a new longitudinal weight using cross-sectional weights. The new longitudinal weights take the value of the cross-sectional weights when businesses first appear in the data set. For example, if a business was first interviewed in 2015 and then surveyed again in 2016 and 2017, its new longitudinal weight for each of these three years takes the value of its cross-sectional weight in 2015. As such, its weighting for all three years remains constant.

[11] The mixed process allows for different equations with different types of independent variables to be estimates simultaneously. The CMP have two main properties: 1) Recursivity: in which equations are arranged to allow the matrix of coefficients of the endogenous variables to be triangular in one another's equations. 2) Full observability: in which all the endogenous variables of an equation are included as observed. In this way, the CMP fits a model similar to seemingly unobserved regression (SUR) using the full information maximum likelihood and limited-information (LIML) estimators.

Annex B: Summary statistics of variables

Table B.1: Summary statistics - UK Longitudinal Small Business Survey (excluding London)

Variable	Description
Growth	Ordinal variable for the growth in turnover of firms that takes the values from 0 to 7: 1 = substantial shrinkage, 2 = significant shrinkage, 3 = minor shrinkage, 4 = no change, 5 = minor growth, 6 = significant growth, and 7 = substantial growth.
Amount of finance	Ordinal variable that takes the values from 0 to 3, where: 0 = did not apply or receive any finance, 1 = Less than £500,000, 2 = between £500,000 and £1 million, and 3 = more than £1 million.
Rural area	Binary variable that takes the value 1 if the firm is located in a rural area, and 0 if the firm is located in urban area. Location is based on the official Rural-Urban classification definition, with firms are classified into either "Rural" or "Urban" category based on their postcodes and using Census Output Areas.
Size by turnover	Binary variable that takes the value 0 if the turnover of the firm is less than £500,000 (small), and 1 if the turnover is more than £500,000 (medium).
Size by employment	Categorical variable that takes the values from 1 to 4, where: 1 = no employees, 2 = less than 10 employees, 3 = between 10 and 50 employees, and 4 = more than 50 employees.
Deprived area	Binary variable that takes the value 1 if the firm is located the most 15% of the country, and the value 0 otherwise[12].

[12] A deprived area belongs to the most deprived 15 per cent areas of the country, based on their deprivation indices. Deprivation is a relative rather than absolute scale, in which the area in which a firm is located is ranked according to their level of deprivation relative to that of other areas. Descriptions on deprivation indices and the calculation can be found from The English Indices of Deprivation 2019 (publishing.service.gov.uk) and English Indices of Deprivation 2019: technical report (publishing.service.gov.uk)

Women-led	Binary variable that takes the value 1 if the majority of the owners or directors of the business are women, and the value 0 if not.
Ethnic minority-led	Binary variable that takes the value 1 if the majority of the owners or directors of the business belong to a minority ethnic group, and the value 0 if not.
Exports	Binary variable that takes the value 1 if the SME exports goods/services
Innovation	Binary variable that takes the value 1 if the firm introduced any new or significantly improved goods, services, or processes in the last three years, and the value 0 if not.
Sector	Categorical variable that takes the values from 1 to 14, representing the broad sector which classifies the business' principle activities.
Business age	Ordinal variable that takes the values from 1 to 4 representing how many years the business has been trading.
Legal status	Categorical variable that takes the values from 1 to 4, 1 for Sole-proprietorship, 2- Company, 3- Partnership, and 4- Others
Family business	Binary variable that takes the value 1 if the business is family owned and 0 if not.
Growth intention	Binary variable that takes the value 1 if firms that have growth intention in the next 3 years and 0 if not
Year	Categorical variable that takes a value from 1 to 5 for each year over 2015-2019

Table B.2: Summary statistics - UK Longitudinal Small Business Survey (excluding London)

	Sample		Rural		Urban		Rural-urban diff.
	No. of observations	Weighted Mean	No. of obs.	Weighted Mean	No. of obs.	Weighted Mean	
Rural area	40,855	32%					
Turnover more than £500k	37,641	11%	11,816	12%	25,825	10%	**0.02*** **
Growth							
Substantial shrinkage	38,882	11.0%	12,306	10.0%	26,576	11.0%	0.00
Significant shrinkage	38,882	6.0%	12,306	6.0%	26,576	6.0%	0.00
Minor shrinkage	38,882	5.0%	12,306	5.0%	26,576	5.0%	0.00
No change	38,882	49.0%	12,306	48.0%	26,576	49.0%	0.00
Minor growth	38,882	10.0%	12,306	11.0%	26,576	10.0%	**0.01** **
Significant growth	38,882	9.0%	12,306	9.0%	26,576	9.0%	0.00
Substantial growth	38,882	11.0%	12,306	10.0%	26,576	11.0%	-0.01
Growth intention	40,855	52.0%	12,294	51.0%	27,931	53.0%	**-0.02***
Amount of finance							

No finance[13]	38,528	94.0%	12,278	94.0%	26,250	94.0%	0.00
less than £500k	38,528	6.0%	12,278	6.0%	26,250	6.0%	0.00
£500k to £1m	38,528	0.1%	12,278	0.2%	26,250	0.1%	**0.001*** **
more than £1m	38,528	0.2%	12,278	0.4%	26,250	0.1%	**0.003*** **
Business age							
0 to 5 years	39,871	16.0%	12,623	13.0%	27,248	18.0%	**-0.05*** **
6 to 10 years	39,871	17.0%	12,623	17.0%	27,248	17.0%	0.00
11 to 20 years	39,871	27.0%	12,623	27.0%	27,248	27.0%	0.00
more than 20 years	39,871	39.0%	12,623	44.0%	27,248	37.0%	**0.07*** **
Sector							
ABDE - Primary	40,855	3.0%	12,924	1.0%	27,931	7.0%	**-0.06*** **
C - Manufacturing	40,855	5.0%	12,924	5.0%	27,931	7.0%	**-0.02*** **
F - Construction	40,855	17.0%	12,924	18.0%	27,931	15.0%	**0.03*** **
G - Wholesale/ Retail	40,855	10.0%	12,924	10.0%	27,931	10.0%	0.00

[13] The group "No finance" includes those who did not apply for finance, and those who did apply but were rejected.

H - Transport/ Storage	40,855	6.0%	12,924	5.0%	27,931	8.0%	**-0.03*** **
I - Accommodation/ Food	40,855	3.0%	12,924	3.0%	27,931	4.0%	**-0.01*** **
J - Information/Communication	40,855	6.0%	12,924	7.0%	27,931	5.0%	**0.02*** **
KL - Financial/ Real estate	40,855	3.0%	12,924	3.4%	27,931	2.7%	**0.01*** **
M - Professional/ Scientific	40,855	14.0%	12,924	14.0%	27,931	14.0%	0.00
N - Administrative/ Support	40,855	9.0%	12,924	9.0%	27,931	9.0%	0.00
P - Education	40,855	5.0%	12,924	5.0%	27,931	3.0%	**0.02*** **
Q - Health/ Social work	40,855	6.0%	12,924	7.0%	27,931	5.0%	**0.02*** **
R - Arts/ Entertainment	40,855	5.0%	12,924	6.0%	27,931	5.0%	0.01
S - Other service	40,855	6.0%	12,924	7.0%	27,931	4.0%	**0.03*** **
Size by employment							
Self-employed	40,855	72.0%	12,924	70.0%	27,931	73.0%	**-0.03*** **
Micro - less than 10 emp.	40,855	24.0%	12,924	26.0%	27,931	23.0%	**0.03*** **

Small - 10 to 50 emp.	40,855	4.0%	12,924	4.0%	27,931	4.0%	0.00
Medium - more than 50 emp.	40,855	1.0%	12,924	0.6%	27,931	0.4%	**0.002*** **
Legal status							
Sole proprietorship	40,855	47.0%	12,924	44.0%	27,931	48.0%	**-0.04*** **
Company	40,855	43.0%	12,924	42.0%	27,931	43.0%	-0.01
Partnership	40,855	7.0%	12,924	11.0%	27,931	5.0%	**0.06*** **
Other	40,855	3.0%	12,924	3.0%	27,931	3.0%	0.00
Deprived area	40,820	9.0%	12,924	1.0%	27,896	13.0%	**-0.1*** **
Women-led business	40,855	19.0%	12,924	20.0%	27,931	19.0%	0.01*
MEG-led (Minority Ethnic Group) business	40,855	4.0%	12,924	1.0%	27,931	5.0%	**-0.04*** **
Family business	40,581	87.0%	12,859	89.0%	27,722	86.0%	**0.03*** **
Innovation	40,534	12.0%	12,845	13.0%	27,689	12.0%	0.01
Export	40,685	13.0%	12,877	14.0%	27,808	12.0%	**0.02*** **

Figures highlighted in green indicate that rural firms are higher than urban firms, and the mean difference is statistically significant, and vice versa for figures highlighted in orange.

The LSBS 2015-2019 is an unbalanced panel data set. It means that several businesses are re-interviewed in specific years but not the whole period. The number of observations (N) show the total count of firms by number of years those firms appeared. For some variables, the numbers of observations are lower than other variables due to refused/don't know answers from some respondents.

As explained in the methodology section, the weight used here is the longitudinal weight, not the cross-sectional weight for each year. As a result, it might lead to some differences with other national figures.

Table B.3. Bivariate ordered probit estimations for the drivers of turnover growth in rural and urban SMEs

The results for the whole sample in column 1, and separately for businesses *having turnover above and below £500k in columns 2 and 3 respectively. Similarly, column 4-6 report results for rural sample and columns 7-9 report results for urban sample.*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		All			Rural			Urban	
	All	Turnover > £500k	Turnover < £500k	All	Turnover > £500k	Turnover < £500k	All	Turnover > £500k	Turnover < £500k
Amount of finance									
less than £500k	0.039	0.044	0.029	0.053	0.029	0.076	0.028	0.033	0.021
	(0.032)	(0.041)	(0.051)	(0.058)	(0.077)	(0.093)	(0.038)	(0.049)	(0.063)
£500k to £1m	**0.168****	**0.195****	0.391	**0.334*****	**0.354*****	0.143	0.066	0.079	0.585
	(0.072)	(0.078)	(0.30)	(0.11)	(0.12)	(0.49)	(0.094)	(0.10)	(0.38)
more than £1m	**0.238*****	**0.297*****	0.126	**0.327****	**0.265***	**0.883****	**0.197****	**0.293*****	-0.538
	(0.069)	(0.075)	(0.38)	(0.13)	(0.15)	(0.38)	(0.083)	(0.088)	(0.65)
Rural area	**0.0401****	**0.0473***	0.028						
	(0.017)	(0.026)	(0.023)						

Turnover > £500k	**0.135*** **			**0.131*** **			**0.135*** **		
	(0.021)			(0.036)			(0.026)		
Growth intention	**0.323*** **	**0.303*** **	**0.338*** **	**0.350*** **	**0.384*** **	**0.331*** **	**0.308*** **	**0.266*** **	**0.339*** **
	(0.017)	(0.027)	(0.021)	(0.029)	(0.048)	(0.035)	(0.020)	(0.032)	(0.026)
Deprived area	**-0.081*** **	**-0.099*** **	**-0.070*** *	**-0.339*** *	**-0.458*** *	-0.234	**-0.0693*** **	**-0.089*** *	-0.0571
	(0.025)	(0.035)	(0.036)	(0.16)	(0.22)	(0.22)	(0.026)	(0.036)	(0.037)
Women-led	-0.027	**-0.089*** **	0.007	-0.020	**-0.126*** *	0.032	-0.031	**-0.069*** *	-0.007
	(0.022)	(0.034)	(0.027)	(0.038)	(0.062)	(0.047)	(0.026)	(0.041)	(0.034)
MEG-led	**-0.209*** **	**-0.182*** **	**-0.227*** **	**-0.229*** *	-0.214	**-0.223*** *	**-0.207*** **	**-0.176*** *	**-0.229*** **
	(0.042)	(0.063)	(0.055)	(0.10)	(0.16)	(0.13)	(0.046)	(0.069)	(0.061)
Business age									
6 to10 years	**-0.417*** **	**-0.355*** **	**-0.442*** **	**-0.450*** **	**-0.453*** **	**-0.448*** **	**-0.404*** **	**-0.320*** **	**-0.442*** **
	(0.034)	(0.064)	(0.039)	(0.063)	(0.12)	(0.072)	(0.040)	(0.075)	(0.047)
11 to 20 years	**-0.506*** **	**-0.510*** **	**-0.502*** **	**-0.495*** **	**-0.493*** **	**-0.504*** **	**-0.508*** **	**-0.515*** **	**-0.498*** **

	(0.032)	(0.059)	(0.037)	(0.059)	(0.11)	(0.069)	(0.037)	(0.070)	(0.044)
More than 20	**-0.632*** **	**-0.726*** **	**-0.555*** **	**-0.600*** **	**-0.723*** **	**-0.527*** **	**-0.648*** **	**-0.726*** **	**-0.573*** **
Years	(0.030)	(0.056)	(0.035)	(0.056)	(0.10)	(0.065)	(0.036)	(0.066)	(0.042)
Sector									
Manufacturing	0.045	0.037	**0.114***	**0.107***	0.133	0.104	-0.041	-0.083	0.083
	(0.048)	(0.070)	(0.066)	(0.064)	(0.093)	(0.090)	(0.096)	(0.13)	(0.15)
Construction	**0.210*** **	**0.280*** **	**0.182*** **	**0.253*** **	**0.305*** **	**0.229*** **	0.132	0.193	0.126
	(0.047)	(0.074)	(0.060)	(0.061)	(0.095)	(0.078)	(0.095)	(0.13)	(0.14)
Wholesale/	0.033	0.065	0.018	0.056	0.054	0.072	-0.035	-0.014	-0.044
Retail	(0.044)	(0.067)	(0.058)	(0.056)	(0.085)	(0.074)	(0.094)	(0.13)	(0.14)
Transport/	0.062	0.076	0.086	**0.170** **	**0.248** **	0.137	-0.059	-0.094	0.018
Storage	(0.054)	(0.082)	(0.071)	(0.075)	(0.11)	(0.10)	(0.10)	(0.14)	(0.15)
Accommodation	0.022	-0.021	0.045	0.097	-0.014	0.154*	-0.079	-0.086	-0.068
/ Food	(0.049)	(0.076)	(0.062)	(0.064)	(0.10)	(0.080)	(0.098)	(0.13)	(0.15)
Information	**0.126** **	**0.228*** **	0.091	0.126	**0.233***	0.100	0.063	0.135	0.048
/ Communication	(0.055)	(0.087)	(0.070)	(0.082)	(0.14)	(0.100)	(0.10)	(0.14)	(0.15)

Financial	**0.291*****	**0.186****	**0.377*****	**0.200****	**0.259****	0.173	**0.265*****	0.0813	**0.412*****
/ Real Estate	(0.058)	(0.087)	(0.075)	(0.093)	(0.13)	(0.13)	(0.10)	(0.14)	(0.15)
Professional	**0.137*****	**0.160****	**0.148****	0.102	0.152	0.103	0.093	0.069	0.135
/ Scientific	(0.047)	(0.075)	(0.060)	(0.063)	(0.11)	(0.078)	(0.095)	(0.13)	(0.14)
Administrative	**0.150*****	**0.139***	**0.152****	**0.142****	**0.201***	0.111	0.094	0.034	0.140
/ Support	(0.051)	(0.077)	(0.067)	(0.070)	(0.11)	(0.090)	(0.098)	(0.13)	(0.15)
Education	0.035	-0.023	0.085	0.044	0.001	0.090	-0.033	-0.105	0.037
	(0.057)	(0.088)	(0.073)	(0.082)	(0.13)	(0.10)	(0.10)	(0.14)	(0.15)
Health/ Social	**0.115****	0.089	**0.142****	**0.220*****	**0.235****	**0.218****	0.020	-0.040	0.076
Work	(0.050)	(0.075)	(0.067)	(0.073)	(0.11)	(0.097)	(0.097)	(0.13)	(0.15)
Arts/	0.010	-0.098	0.058	0.001	0.010	-0.000	-0.049	-0.219	0.038
Entertainment	(0.057)	(0.090)	(0.072)	(0.092)	(0.15)	(0.11)	(0.10)	(0.14)	(0.15)
Other service	0.039	0.013	0.061	**0.186****	-0.054	**0.238****	-0.066	-0.065	-0.031
	(0.054)	(0.094)	(0.066)	(0.087)	(0.17)	(0.099)	(0.099)	(0.15)	(0.15)
Business size									
Micro	**0.166*****	0.011	**0.164*****	**0.130*****	-0.139	**0.137*****	**0.183*****	0.102	**0.177*****

	(0.022)	(0.070)	(0.023)	(0.036)	(0.10)	(0.038)	(0.028)	(0.093)	(0.029)
Small	**0.242*****	0.0699	**0.279*****	**0.198*****	-0.082	**0.275*****	**0.261*****	**0.158***	**0.282*****
	(0.028)	(0.068)	(0.035)	(0.047)	(0.10)	(0.062)	(0.035)	(0.091)	(0.043)
Medium	**0.412*****	**0.282*****	**0.475*****	**0.369*****	0.117	**0.536*****	**0.433*****	**0.376*****	**0.451*****
	(0.033)	(0.070)	(0.086)	(0.058)	(0.11)	(0.17)	(0.041)	(0.092)	(0.10)
Family business	-0.007	-0.010	0.0140	-0.018	-0.017	0.015	-0.006	-0.011	0.011
	(0.019)	(0.025)	(0.029)	(0.035)	(0.047)	(0.053)	(0.022)	(0.029)	(0.035)
Legal status									
Company	**0.0436***	**0.124***	0.0211	0.0326	-0.015	0.0289	0.0495	0.200**	0.018
	(0.025)	(0.072)	(0.027)	(0.042)	(0.11)	(0.046)	(0.031)	(0.092)	(0.033)
Partnership	0.002	0.034	0.007	-0.015	-0.123	0.002	0.008	0.134	-0.001
	(0.033)	(0.080)	(0.039)	(0.052)	(0.12)	(0.059)	(0.044)	(0.10)	(0.053)
Other	**0.0813****	0.097	**0.0932***	0.137*	0.0401	0.152	0.067	0.153	0.083
	(0.040)	(0.090)	(0.049)	(0.080)	(0.17)	(0.093)	(0.048)	(0.11)	(0.059)
Innovation	**0.222*****	**0.204*****	**0.239*****	**0.282*****	**0.237*****	**0.313*****	**0.195*****	**0.195*****	**0.197*****
	(0.020)	(0.028)	(0.030)	(0.037)	(0.054)	(0.050)	(0.024)	(0.033)	(0.037)

Export	**0.069*** **	**0.051*** *	**0.094*** **	0.057	0.061	0.054	**0.0761*** **	0.052	**0.114*** **
	(0.021)	(0.028)	(0.033)	(0.038)	(0.053)	(0.054)	(0.026)	(0.033)	(0.042)
Year-effect									
2016	-0.095***	-0.140***	-0.050*	-0.093***	-0.149***	-0.045	-0.096***	-0.135***	-0.055
	(0.019)	(0.028)	(0.027)	(0.034)	(0.052)	(0.046)	(0.023)	(0.033)	(0.034)
2017	-0.009	-0.019	0.007	0.018	-0.000	0.038	-0.024	-0.029	-0.011
	(0.022)	(0.033)	(0.030)	(0.040)	(0.061)	(0.053)	(0.026)	(0.039)	(0.036)
2018	-0.099***	-0.104***	-0.095***	-0.093***	-0.090*	-0.081*	-0.104***	-0.112***	-0.103***
	(0.018)	(0.027)	(0.025)	(0.033)	(0.050)	(0.044)	(0.022)	(0.032)	(0.031)
2019	-0.112***	-0.142***	-0.096***	-0.109***	-0.106*	-0.106**	-0.115***	-0.158***	-0.0936***
	(0.020)	(0.032)	(0.027)	(0.036)	(0.060)	(0.045)	(0.025)	(0.038)	(0.033)
Instrumental variables									
Bank debt	**0.812*** **	**0.854*** **	**0.805*** **	**0.949*** **	**1.094*** **	**0.893*** **	**0.752*** **	**0.774*** **	**0.762*** **
	(0.043)	(0.063)	(0.060)	(0.079)	(0.12)	(0.10)	(0.051)	(0.073)	(0.075)

Trade credit	**0.0831****	0.049	**0.105***	0.092	0.043	0.098	**0.0848***	0.042	**0.118***
	(0.037)	(0.051)	(0.054)	(0.063)	(0.090)	(0.089)	(0.045)	(0.061)	(0.067)
Observations	34096	15161	18935	10838	4434	6404	23258	10727	12531
r2									
N_clust									

Robust standard errors in parentheses; * $p < .1$, ** $p < .05$, *** $p < 0.01$.

Figures highlighted in blue indicate statistically significant coefficients for all the sample estimations; figures highlighted in green indicate statistically significant coefficients for rural estimations; figures highlighted in orange indicate statistically significant coefficients for urban estimations.

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