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Rural business aspirations, obstacles and support: an analysis of the Longitudinal Small Business Survey 2015

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Rural business aspirations, obstacles and support: an analysis of the Longitudinal Small Business Survey 2015

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EXECUTIVE SUMMARY

A rural-urban analysis of the UK's Governments Longitudinal Small Business Survey (LSBS) responses for 2015 has been undertaken to understand spatial variations in performance and uptake of external support services. The analysis is based on 15,500 survey responses from across the UK and uses official rural-urban classifications. Approximately 28 per cent of survey responses to the LSBS are classified as rural. Within the rural context, conclusions relating to growth have previously been hampered by difficulties in separating out whether rural location has a distinctive effect or whether spatial variations in business performance reflects differences in size, sector and age of business. Therefore this analysis used Propensity Score Matching (PSM) to control for these and other profile variables, allowing for an assessment of rural effects on business performance.

The main findings from the analysis are:

- At UK level, after controlling for profile variables such age, sector and VAT/PAYE registration status, the performance (turnover and profit) of businesses operating from rural areas is not significantly better or worse than the performance of businesses located in urban areas outside of London.
- In terms of growth aspirations, rural firms were less likely to be planning growth through more employment than were urban firms, and fewer rural employing firms were planning to introduce new working practices over the next three years compared to their urban counterparts. Moreover, fewer of them plan to increase the leadership capability of their managers. These rural-urban differences persist across the four countries of the UK. However, a larger share of rural than urban firms are planning to make capital investments.
- Competition in the market, and Red tape/Regulations were the principal obstacles to business development identified by urban and rural firms, both those with and without employees. Competition was the obstacle of greatest concern to urban businesses, whilst Regulations attracted most recognition by rural firms. This pattern is repeated across the UK devolved nations, only broken by Scottish businesses with employees (where urban firms reported more concern with Regulations than those in rural areas), and in Northern

Ireland (where a greater proportion of rural than urban firms with employees ranked Competition as their main obstacle).

- There is some further variation in obstacles to firms without employees. Scotland's rural firms without employees appear to have considerably worse experience in Obtaining finance than their urban counterparts and rural firms in other UK countries. Competition is a greater concern to rural firms than urban firms in Scotland and Northern Ireland. In England, Wales and Northern Ireland there is greater rural concern with Taxation/ VAT/NI and Business rates; and Staff recruitment and Skills.

- Across the UK around a third of businesses with employees, in rural and urban areas, sought one or more sources of advice or information in the year preceding LSBS 2015, though levels usage were lowest for rural firms in Northern Ireland, and highest in rural Scotland. Proportions of firms without employees who had used advice or information were generally much lower and rural-urban differences are also evident. Thus in England, Scotland and Wales a higher share of rural firms without employees had used advice/information than reported by urban firms, whilst the reverse was true in Northern Ireland.

- After controlling for profile variables such as age, sector and registration status, businesses located in rural areas do not significantly seek more or less information or advice than those located in urban areas. However analysis of particular sources of information or advice reveals variation at national and sub-national level.

- The main sources of external advice utilised by both urban and rural firms are Accountants, Consultants/ general Business advisers, and Others (i.e. unspecified). Fewer rural firms with employees have accessed Business networks / trade associations, and this is especially so in England and Scotland. However rural firms without employees are more likely to have accessed Business networks / trade associations as well as Consultants/ general business advisors. Their use of Internet searches/google or other websites was however lower. In rural firms without employees in Scotland, Northern Ireland and Wales, unspecified 'Other' sources of information and advice were the leading source. This is likely to include many local, third sector, social or business groups or initiatives. Only a very low level of rural and urban businesses had sought information or advice from Banks and Specialist

finance advisors despite the large numbers of firms describing Obtaining finance as a Major Obstacle for businesses.

- For firms without employees, below a common need for Financial advice, there is a marked difference in advice requirements. Whilst urban businesses without employees sought advice on Marketing at more than double the rate of such rural firms, the rural-urban pattern was reversed in such firms seeking advice for Improving business efficiency and productivity. This should encourage those who point to the need to raise productivity amongst rural firms.

- In contrast, very low numbers of urban and rural employing firms seeking advice or information about Innovation and Exporting across the UK (and only marginally higher rates amongst firms without employees for each) is at odds with policy makers' emphasis on these drivers of business and economic improvement. Such responses stand in marked contrast to the higher levels of firms that highlight plans to Develop new Products or Services. The very low numbers of firms without employees in the UK's rural areas who used advice on Exporting or Innovation suggests potential for refined advisory or information services on these topics.

CONTENTS

1. INTRODUCTION

This report provides a rural-urban analysis of responses to the UK Government's Longitudinal Small Business Survey (LSBS) 2015, to explore and compare and contrast rural and urban businesses' performance, aspirations and obstacles encountered. Rural firms' performance and use of support services are analysed and profiled against their urban based counterparts.

Despite their substantial contribution to growth and development (Phillipson *et al.*, 2011; Defra, 2016), the evidence base relating to rural enterprises remains underdeveloped. Many of the challenges and opportunities facing rural enterprises require greater definition and improved understanding to provide enhanced evidence for economic development and innovation policies. Previous analysis typically does not effectively control for differences in sector, age and other profile characteristics, to adequately assess whether a 'rural effect' exists in business performance. The LSBS 2015 provides opportunities for more fine-tuned analysis. Importantly for the UK's governments, economic and business agencies, and hundreds of professional and trade bodies and partnerships that advise or represent our businesses, we compare rural (and urban) owners' existing and planned steps to achieve their expectations, with identifiable barriers to do so, and their awareness of business support providers.

In Section 2 we detail the rural coverage in the LSBS dataset, first discussing the distribution of absolute responses according to official rural-urban classifications, followed by profiling of the rural business sample. The latter includes important caveats on how representative the data is, given that securing representative rural coverage was not part of the LSBS sample selection and weighting criteria. In Section 3 we introduce analysis of specific rural effects employing Propensity Score Matching (PSM). Through the application of PSM the analysis aims to contribute to a long standing debate as to whether there is a distinct 'rural effect' on performance, or whether spatial variations between the urban and rural industrial footprint (size, sector, age, etc.) account for the difference. Finally, in Section 4 the report considers rural businesses' aspirations, advice and actions. Throughout the report we present aggregate and broad brush national analysis, with some profiling for the devolved nations of the UK. Future work will consider

potential for unpacking the important local and regional variations in business profiles and circumstances.

2. DATASET

2.1   Rural Coverage in the LSBS Sample

This section reviews the coverage of the UK's rural areas within the LSBS unweighted sample. BIS (2016) fully details the construction of the LSBS sample and this is not reproduced here. For the analysis contained in this report the geographical classification of businesses is determined by their postcode. Overall, 27.5 per cent of responses across the UK to the LSBS are classified as rural (Table 1). In England, which accounts for 86.5 per cent of all LSBS responses, 26.5 per cent of firms are classified as rural. This compares with 32 per cent of all English VAT/PAYE registered businesses being classified as rural in the Inter-Departmental Business Register (IDBR) (Defra 2016). The discrepancy in coverage reflects that the LSBS uses size weightings to ensure that there are sufficient numbers of small and medium sized businesses to allow for sub-sample analysis, reflecting also their contribution to total turnover and employment (BIS, 2016). As rural areas have fewer firms in the larger business sizes, rural firms are under-represented in the LSBS sample. The sample would have been more closely representative of the rural stock of firms only if it had been higher than the rural proportion in the IDBR, given that unregistered firms are not included in the register but feature prominently in rural areas. Specifically, the LSBS sample is stratified by sector, country and size of business.[1] This means that regarding urban-rural distribution of responses, 20.9 per cent of urban firms and 14.8 per cent of rural

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[1] Regarding size the quotas were: unregistered businesses with zero employees (12%), registered businesses with zero employees that were companies (11%), registered businesses with zero employees that were not companies (5%) registered micro businesses with between one and four employees that were companies (10%), registered micro businesses with between one and four employees that were not companies (7%), registered micro businesses with between five and nine employees (9%), registered small businesses with between ten and 49 employees (26%), registered medium sized businesses with between 50 and 249 employees (20%). For a full description see BIS (2016).

firms in the LSBS are medium sized (50-250 employees). In contrast, 41.2 per cent of rural firms in the LSBS sample have zero or between one and four employees, whereas the comparable figure for urban firms in the LSBS sample is 29.8 per cent.

Table 1: Urban/rural categorisation from postcode of LSBS unweighted responses

	Frequency	Per cent
Urban	11,232	72.5
Rural	4,270	27.5
Total	15,502	100.0

Source: LSBS (2015)

The official rural and urban classification varies across the UK, with different approaches taken in Scotland and Northern Ireland, compared to England and Wales. Postcodes are allocated to the categories within these classifications, for each country.

In England and Wales the designation of rural and urban is based on a classification of output areas using 2011 Census data (ONS, 2013). This defines urban settlements as those with a population of 10,000 or more, with all smaller settlements labelled as rural. An output area (a one hectare cell) would thus be classified as urban if it is associated with a settlement of 10,000 or people, so that the ONS definition of urban and rural depends on density profiles rather than any social, accessibility or economic land use distinctions (Bibby and Brindley, 2013).[2]

Rural and urban are sub-divided into six (rural) and four (urban) categories respectively leading to a ten-fold classification. Table 2 details the distribution of England and Wales LSBS responses by the ten-fold urban-rural classification. It indicates that urban city and town is most common location with 27.1 per cent of

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[2]The classification for England and Wales also has a measure of settlement form, such that each settlement/output area has to have a clear boundary between built-up edges/output areas, which if missing the population of adjoining settlements' output areas will determine their category. This ensures, for example, suburbs which do not have a high density of dwellings remain classified as urban.

total England and Wales LSBS responses being classified as rural. This is very similar to the rural share for the UK as a whole – which is not unsurprising given that England and Wales accounts for 89.5 per cent of the total LSBS sample. There are sufficient numbers of responses in the three broad rural categories (Town and Fringe, Villages, Hamlets and isolated dwellings) to distinguish between types of rural settlement in the analysis. There are insufficient responses (urban and rural) to the LSBS 2016 from sparsely populated areas to provide results for firms in Sparse settings.

Table 2: Distribution of Unweighted LSBS responses in England and Wales by Urban-Rural Classification

Category	Sub-category	No of responses	% of responses
Urban	Major Conurbation	3790	27.3
Urban	Minor Conurbation	350	2.5
Urban	City and Town	5953	42.9
Urban	City and Town in a Sparse Setting	44	0.3
Rural	Town and Fringe	1187	8.6
Rural	Town and Fringe in a Sparse Setting	126	0.9
Rural	Village	1092	7.9
Rural	Village in a Sparse Setting	84	0.6
Rural	Hamlets and Isolated Dwellings	1124	8.1
Rural	Hamlets and Isolated Dwellings in a Sparse Setting	157	1.1
Total for England and Wales		**13,877**	**100.0**

Source: LSBS (2015)

The taxonomy for Scotland uses the Scottish Government's Urban Rural Classification. The latter is based on two criteria: (i) population, based on the estimates produced by National Records of Scotland (NRS) and Royal Mail Postcode Address Files and (ii) accessibility which draws on drive time analysis to differentiate remote areas (Scottish Government, 2014). Accessible, remote and very remote areas are defined as within a 30 minute, between 30 and 60 minutes and more than 60 minutes' drive of a settlement with a population of 10,000 or more. The population thresholds used here also differ from those applied in England and Wales. In Scotland, rural areas are those settlements with fewer than 3,000 inhabitants. The three other settlement categories are: Large urban areas (populations of 125,000 or more), Other urban areas (populations of 10,000 to 124,999) and Small towns (populations of 3,000 to 9,999). Settlements of between 3,000 and 9,999 population are thus classified as small towns and fall within

Scotland's urban categories land, but would be categorised as rural within the rural-urban classification for England and Wales. Table 3 details the distribution of LSBS responses in Scotland according to the Scottish Government's Rural-Urban Classification.

Overall, Scotland accounts for 7 per cent of LSBS responses. The IDBR records 359,050 registered and unregistered enterprises with less than 250 employees in Scotland in 2015 (Scottish Government, 2015), indicating that the LSBS covers 0.3 per cent of the total population of Scottish enterprises. Approximately one-third of Scottish LSBS responses (n=315) are classified as rural according to the Scottish Government's Urban Rural Classification. There are 144 responses from businesses located in small towns which are classified as urban in the Scottish Government's classification but would be recoded as rural if located in England and Wales.

Table 3: Distribution of Unweighted LSBS Responses in Scotland according to the Scottish Government's Urban Rural Classification

Settlement Type	No. of responses	% of Scottish responses
Large Urban Areas	356	32.5
Other Urban Areas	280	25.6
Accessible Small Towns	77	7.0
Remote Small Towns	34	3.1
Very Remote Small Towns	33	3.0
Accessible Rural Areas	196	17.9
Remote Rural Areas	52	4.7
Very Remote Rural Areas	67	6.1
Total	**1095**	**100.0**

The urban-rural classification for Northern Ireland is also linked to postcodes, drawing on definitions outlined by the Northern Ireland Statistics and Research Agency (NISRA, 2005) . NIRSA (2005) produced an eight-fold urban-rural classification. Unlike in England and Wales and Scotland, this distinguishes two named settlements – the Belfast Metropolitan Urban Area, with a population of approximately 580,000 and the Derry Urban Area (circa 91,000 population) as 'sufficiently different from each other and from other settlements to warrant unique statistical classification' (NIRSA, 2005, p.3). Table 4 details the distribution of responses by settlement type in Northern Ireland.

Table 4: Distribution of Unweighted LSBS responses for Northern Ireland by NISRA urban-rural classification

Band	Title	Criteria	No of LSBS responses	% of NI
A	Belfast Metropolitan Urban area		169	33.80
B	Derry Urban Area		21	4.20
C	Large Town	18,000 or more and under 75,000	56	11.20
D	Medium town	10,000 or more and under 18,000	36	7.20
E	Small town	4,500 or more and under 10,000	40	8.00
F	Intermediate settlement	2,250 or more and under 4,500	9	1.80
G	Village	1,000 or more and under 2,250	15	3.00
H	Small village / hamlet/dispersed	Settlements of less than 1,000	154	30.80
Total			**500**	**100.00**

There are 500 LSBS responses for Northern Ireland (3.1% of total LSBS records). The IDBR identifies 68,085 businesses operating in Northern Ireland in March 2015, so the LSBS accounts for 0.72 per cent of the total population (NIRSA, 2016). NIRSA (2015) recommends defining Bands A-E, as listed in Table 4, as urban and bands F to H as rural. Following this approach, 178 responses can be classified as rural (36 per cent) and 322 as urban (64 per cent). The analysis of the IDBR for Northern Ireland does not provide a breakdown according to NISRA's urban-rural classification, so it is difficult to assess the spatial representativeness of the LSBS's Northern Ireland sample (NISRA, 2016). There are 40 responses from businesses in Northern Ireland, located in small towns, which are classified as urban according to the NISRA approach, but if situated in England and Wales would be recoded as rural following the ONS definition.

2.2 Rural representativeness and business profile in the LSBS sample

To be able to adequately draw conclusions about medium sized businesses, the LSBS over-represents larger SMEs and under-represents microbusinesses and as

such BEIS weights the sample to correct for this imbalance (BIS, 2016). The sample and subsequent adjustment were designed to provide national representative coverage of SMEs, and not for representativeness of the rural business population. This provided a challenge as to whether to incorporate additional rural weightings to ensure representative rural spatial analysis. However, in order to further adjust the sample to provide representative rural coverage, benchmarks against existing comparable data were needed. Whilst previous surveys provide this for some geographies and subsets, they are not comprehensive. As a result, the decision was taken to use the national weightings employed for the main LSBS analysis. This enables comparison and simplifies the interpretation of the rural analysis, but comes with the caveat that it may not accurately represent the UK rural business population. The size of the dataset reduces this concern, and the subsequent PSM analysis effectively controls for any bias this might introduce.

Size and sector

In the report we follow the convention established in earlier LSBS reports by disaggregating businesses by those with and without employees. Of the total business stock, 28.4 per cent of the weighted responses in the LSBS are classified as rural (Table 5).

Table 5: Weighted distribution of firm size and urban-rural classification as % total business stock

Firm size	Urban	Rural	Total
No employees	54.8%	20.9%	75.8%
Micro 1 – 9	13.5%	6.4%	19.8%
Small 10 – 49	2.8%	1.0%	3.8%
Medium 50 - 249	0.5%	0.1%	0.6%
Total	71.6%	28.4%	100%

The distribution by broad grouped sectors shows that rural firms (with or without employees) are more likely than urban firms to be operating in *ABCDEF – Production* and *construction* sectors and less likely to be operating in service sectors (*both JKLMN – Business services* and *PQRS – Other services).* The rural zero employee category is more likely to be operating in *GHI – Transport, retail and food service/ accommodation* sectors than their urban counterparts (Table 6).

Table 6: Weighted distribution of firms by broad sector and urban-rural classification

Broad Sector	Urban with employees	Rural with employees	Urban without employees	Rural without employees
ABCDEF - Production and	19%	33%	26%	32%
GHI - Transport, retail and food	31%	31%	13%	17%
JKLMN - Business	35%	25%	34%	30%
PQRS - Other	15%	11%	28%	21%

Source: LSBS (2015): question A3/4 Broad Sector
Shading denotes statistically significant response using Chi-square test (χ^2: p<0.05)[3].

Performance by profit and turnover

Focusing on performance, the rural firms without employees show a higher probability of making a profit than the urban firms without employees (77% cf 76%) (Table 7). Rural firms also show a higher probability of an annual turnover of more than £82,000 compared to the urban firms (Table 8), though this is likely to reflect a sector bias as the pattern is reversed using the PSM analysis (see section 3).

Table 7 Weighted distribution of firms by profit and urban-rural classification

Taking into account all sources of income in the last financial year, did you generate a profit or surplus?	Urban with employees	Rural with employees	Urban without employees	Rural without employees
Yes	77%	79%	76%	77%
No	15%	13%	19%	16%
Don't know	5%	6%	4%	3%
Refused	2%	2%	2%	3%

Source: LSBS (2015): question P12

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[3] Statistical significance is measured using the chi-square test (χ^2). This is used to test for independence between rural and urban businesses with employees and without employees. The test provides a significant difference in frequency between two groups based on the difference between the observed and expected frequency in each group (Bird and Sapp, 2004). See Appendix 1 for further detail.

Shading denotes statistically significant response using Chi-square test (χ^2: p<0.05).

Table 8 Weighted distribution of firms by turnover and urban-rural classification

Annual turnover	Urban with employees	Rural with employees	Urban without employees	Rural without employees
Less than £82,000	18%	16%	76%	70%
More than £82,000	66%	66%	13%	19%
Don't know	6%	7%	2%	2%
Refused	10%	11%	9%	9%

Source: LSBS (2015): question P1/B
Shading denotes statistically significant response using Chi-square test (χ^2<0.05).

Age

Rural firms are likely to be older than urban firms, with 59 per cent of rural firms with employees being more than 20 years old, compared to 51 per cent of urban firms with employees; and 43 per cent of rural firms without employees compared to 37 per cent of urban firms without (Table 9).

Table 9 Weighted distribution of firms by age and urban-rural classification

Age	Urban with employees	Rural with employees	Urban without employees	Rural without employees
0 - 5 years	17%	10%	16%	12%
6 - 10 years	14%	12%	20%	19%
11 - 20 years	17%	17%	26%	26%
More than 20 years	51%	59%	37%	43%
Don't know	0%	1%	0%	0%

Source: LSBS (2015): question A6
Shading denotes statistically significant response using Chi-square test (χ^2: p<0.05).

Family

Finally, rural firms with employees are more likely to have a family majority ownership compared to urban firms with employees. Those without employees are marginally less likely than urban firms without employees to hold a family majority ownership (Table 10).

Table 10 Weighted distribution of firms by family majority ownership and urban-rural classification

Family majority ownership	Urban with employees	Rural with employees	Urban without employees	Rural without employees
Yes	65%	76%	91%	90%
No	33%	23%	9%	9%
Don't know / refused	2%	1%	0%	0%

Source: LSBS (2015): question A6
Shading denotes statistically significant response using Chi-square test (χ^2: p<0.05).

In summary, the profile shows that rural firms are more likely to operate in primary sectors and less likely to operate in service sectors. They are marginally more likely to show a profit / surplus, and to have annual revenue of more than £82,000. Rural firms tend to be older and those with employees are much more likely to have family ownership.

3. EXPLORING A RURAL EFFECT ON PERFORMANCE USING PROPENSITY SCORE MATCHING (PSM)

Having discussed the sample context, we now seek to consider potential urban-rural differences in performance that are independent of variations in the profile characteristics of firms (size, sector, age, etc.) (see Table 11). In order to do this, we use a Propensity Score Matching (PSM). When analysing the performance of rural economies, conclusions relating to business growth have previously been hampered by difficulties in distinguishing whether rural location has a distinctive effect, or whether the variations in performance reflect differences in size, sector and age of businesses in different locations. The analysis therefore used Propensity Score Matching (PSM) to control for the latter variables, allowing for a more nuanced assessment of any rural effects on business performance. PSM is widely used to evaluate labour market policies and medical programmes. Empirical examples can be found in diverse fields where we need to observe outcomes of the same units in the presence or absence of a treatment

In this context, PSM is used to see whether differences in performance (measured by turnover or profitability) and in use of information/advice support, across all responding firms, is conditional on whether a firm operates from a rural or urban location. Thus the rural location becomes the 'treatment' and all rural firms are in

the treated group, whilst the urban firms are in the control (or non-treated) group. However, evaluating the causal effect of a treatment on a business outcome like turnover is complicated by the fact that we cannot observe the case in which a firm changes status from being classified as rural to it being urban (or vice-versa), so we do not observe the counter-factual situation of a rural firm's outcome had the firm not been rural but instead had it been urban (and vice-versa we do not observe the counter-factual for urban firms). Thus we address this problem by constructing a statistical counter-factual. We do this by calculating firstly the propensity scores (which have a value from 0 to 1) based on a set of pre-treatment characteristics, i.e. the covariates, for both treated and control observations. The set of covariates used is listed in table 11.

Table 11: Definition of the Variables used for Analysis

Variable	Definition	Description
Treatment variable		
RURAL	Business is located in rural areas	1=Yes; 0=otherwise
Explanatory variables		
SECTOR	Business sector	Categorical
lnTOTEMP	Natural logarithm of total employment, including employees, owners and business partners[4]	Continuous (Number of employees, owners and partners)
AGEB	Age of business	Discrete (year bands)
UNREG	The status of business registration	1=Unregistered; 0=otherwise
SOTRAD	Sole trader	1=hiring employees; 0=otherwise
lnEMAGE	The interaction between the natural logarithm of total employment and business's age	Continuous
lnEMSECT	The interaction between the natural logarithm of total employment and sector	Continuous
Outcome variables		
TURNOVER	Total annual turnover[5]	Continuous (Pounds)
PROFIT	Profitability	1=Yes; 0=otherwise
SUPPORT	Use of information or advice in the last 12 months	1=Yes; 0=otherwise

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[4] We take the natural logarithm (ln) to improve the normality distribution and balance of the variable.

[5] TURNOVER is adjusted by using the information from two questions in the LSBS survey. We constructed turnover by keeping the variable coded P1_2015 (turnover over the last 12 months) where available, and recovering the information from the variable coded P1B_2015 (the turnover bands over the last 12 months) where firms did not want to give a precise figure for turnover but disclosed which band the turnover was falling into, so the mid-point of the band was taken for these firms.

A propensity score is a single score representing the probability of receiving a treatment, conditional on the set of observed covariates. Propensity scores allow us to balance a large number of covariates between two groups (in our case urban and rural firms) by balancing a single variable, the propensity score, avoiding the multidimensionality problem of balancing directly on covariates (Rosenbaum and Rubin, 1983). In other words propensity scores solve this dimensionality problem by compressing the relevant factors into a single score, then comparing firms with similar propensity scores across a treatment group (in our case rural SMEs) and a control group (urban SMEs). In practice, the propensity score is most often estimated using a logistic regression model, in which treatment status (in our case a dummy equal to 1 if the firm is rural) is regressed on observed baseline characteristics. The estimated propensity score is the predicted probability of treatment derived from the fitted regression model. Thus, businesses located in rural areas are matched on the same probability to those located in urban areas and if a statistically significant difference in the chosen performance measure (turnover and profit) and use of support is found, then this can be attributed to the treatment, which in our case is the 'rural effect'.

To identify the determinants of rural businesses, 13,525 businesses from LSBS 2015 were included in an estimation (because some respondents were excluded due to missing variables). The explanatory variables[6] that are included in the estimation are shown in Table 11 with Appendix 1 providing a detailed explanation of the PSM procedure. The PSM analysis excluded businesses located in London[7].

Table 12 shows results of the logistic regression performed on the covariates (or explanatory variables) of all firms that have an impact on businesses located in rural areas. Business age is positively and significantly associated with rurally

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[6] The explanatory variables that are associated with both treatment and outcomes are explained in Sianesi (2004) and Smith and Todd (2005).
[7] This is to remove the distorting influence of the London effect on urban responses.

located businesses. Other variables, such as being an unregistered business, are negatively associated with being located in a rural area.

Table 12: Estimate of Probability of Small Businesses located in Rural Areas using a Logistic Regression

Variable	Model	
	Coefficient	SE
Constant	-0.894***	0.185
SECTOR	-0.045***	0.010
lnTOTEMP	-0.115	0.082
AGEB	0.047***	0.021
UNREG	-0.268***	0.076
SOTRADF	0.034	0.069
lnEMAGE	0.0012742	0.009
lnEMSECT	-0.000	0.003
Number of Observations	**13,525**	
Correctly classified	**75.08%**	
Pusedo-R^2	**0.010**	

Notes: *, **, *** denote significance at 10%, 5% and 1%, SE is standard errors.
      Balancing test for all variables is shown in Table A.5.
      Primary sector is not include in SECTOR because it contributes to an insignificant estimate.

Based on this model, the propensity score is calculated by matching the predicted probability of each variable in the treated group (rural) with that in the control group (urban). The impact of the difference between rural and urban businesses on turnover, profit and support is estimated given the set of matched variables. A balancing test is then performed for these estimated models in which the balancing test is satisfied when there is no significant difference on the variance ratio[8] for all variables (see Table A.21 – A.23) (Grilli and Rampichini, 2011). By doing this we ensure an extremely robust comparison between rural and urban businesses that have been matched on key variables.

Having controlled for these influential variables (sector, registration status, age etc.), Table 13 shows that businesses operating in rural locations have no

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[8] The variance ratio is a statistical test that is used to show how effectively the treatment is balancing the covariates. Tables A.21 – A.23 show that variance ratios are similar, implying that all covariates are balanced.

significant difference in turnover, profit, nor in use of support to businesses operating from urban areas (excluding London).

Table 13: Impact of Rural Small Businesses on Outcomes using Propensity Score Matching[910]

Matching technique	Turnover	Profit	Support
	ATT (SE)	ATT (SE)	ATT (SE)
PSM	-218,400.2 (139,639.5)	0.013 (0.008)	0.016 (0.011)
Nearest Neighbour (5)	-113,003.6 (109,597)	0.015* (0.008)	0.015 (0.010)
Caliper (0.2)	-218,400.2 (139,639.5)	0.013 (0.008)	0.016 (0.011)

Notes: *, **, *** denote significance at 10%, 5% and 1%, SE is standard errors
Table 13 uses PSM and PSM with only 2 matching options, Nearest Neighbour and Caliper which demonstrate the direction of outcome relationship with similar variations in magnitude.

4. RURAL BUSINESS ASPIRATIONS, ADVICE AND ACTIONS

In this section, we draw out some of the key features of business aspirations, advice and action. We address a sequence of key issues relating to *Future plans > Barriers or Obstacles > Use of Support, > Awareness of support sources*. We describe some of the statistically significant differences between rural and urban enterprises' aspirations, at the UK level, and for the devolved nations, and the firms' approaches to achieving their plans (see Appendix 1 for an explanation of how this determined).

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[9] The impact of rural businesses on outcomes including London areas is shown in Table A.20 in which the results are different from that without London.
[10] We applied Nearest Neighbour and Caliper matching options after PSM to check for robustness. All results of outcomes from each technique are similar, indicating that our results are reliable. Moreover, we applied the Caliper with the width of 0.2 of the standard deviation of the logit of the estimated propensity score to obtain optimal estimation (Austin, 2011).

4.1 Expectations of growth, closure or transfers

In terms of growth aspirations, rural firms were less likely to be planning growth through employment than were urban firms (Table 14). For instance, only 21 per cent of rural firms with employees were planning on employing more staff, compared to 28 per cent of urban firms with employees. Firms without employees were much more likely to be planning closure or transfer than employing firms (Table 15). Rural firms without employees were marginally more likely to anticipate a full transfer of ownership than their urban counterparts (5% cf. 4%).

Table 14: Growth expectations - employees

More employees in 12 months	Urban With employees	Rural with employees	Urban Without employees	Rural Without employees
More than currently	28%	21%	13%	10%
About the same	61%	68%	87%	90%
Fewer	10%	10%	0%	0%
Don't know	1%	1%	1%	0%

Source: LSBS (2015), question B6: Whether we will have more employees in 12 months' time
Shading denotes statistically significant response using Chi-square test (χ^2-test: $p<0.05$).

Table 15: Expectations of closure or transfer of ownership

Anticipate closure or transfer during the next 3 years	Urban With employees	Rural with employees	Urban Without employees	Rural Without employees
Yes, I anticipate the closure of the business	4%	5%	14%	14%
Yes, I anticipate a full transfer of the ownership of my business	8%	9%	4%	5%
No	84%	83%	77%	77%
Don't know	4%	4%	5%	4%

Source: LSBS (2015), question R3: Do you anticipate the closure, or a full transfer of the ownership of your business in the next three years?
Shading denotes statistically significant response using Chi-square test (χ^2-test: $p<0.05$).

4.2 Plans for next three years

Five specific plans for the next three years were presented to the surveyed businesses, with an additional all-embracing "*none of these*" option. Table 16 ranks

all responses from the most to the least numerous for urban and rural firms, though there was also variation evident across the UK's countries (see Table A.12). For employing firms, there was no real difference between the most important plan to *Increase the skills of the workforce* (71% cf. 69%). This was also most important planned measure for urban firms without employees. In contrast businesses without employees in rural areas were most likely to report that their future plans included *None of these* specific activities.

Table 16: Businesses' principal plans for next three years

Plans for next three years	Urban with employees	Rural with employees	Urban without employees	Rural without employees
Increase the skills of the workforce	1st (71%)	1st (69%)	1st (41%)	2nd (38%)
Increase the leadership capability of managers	4th (47%)	5th (39%)	6th (18%)	6th (17%)
Capital investment (in premises, machinery etc.)	5th (39%)	3rd (44%)	5th (23%)	4th (28%)
Develop and launch new products/services	3rd (48%)	4th (33%)	3rd (32%)	3rd (32%)
Introduce new working practices	2nd (52%)	2nd (45%)	4th (28%)	4th (28%)
None of these	6th (16%)	6th (18%)	1st (41%)	1st (42%)

Source LSBS (2015): question R4: Does your business plan to do any of the following over next three years?
Shading denotes statistically significant response using Chi-square test ($\chi^2 < 0.05$).

A slightly higher percentage of urban than rural firms without employees plan to increase the skills of their workforce over the next three years with 41 per cent and 38 per cent respectively. This was the leading planned activity reported by urban businesses in each of the four UK countries (with levels of positive response ranging from 71 per cent in Urban England to 40 per cent in Urban NI for firms with employees) and amongst rural firms with employees in all countries (ranging from 72 per cent of firms in rural Wales to 68 per cent of such firms in rural England). Unsurprisingly, a markedly higher proportion of business with employees (rural and

urban) plan to increase their employees' skills, and their managers' leadership skills than amongst enterprises with 0 employees[11].

A key finding of interest to business support organisations, was that lower levels of rural employing firms (45%) plan to introduce new working practices over the next three years, compared with their urban counterparts (52%). Moreover, fewer of them (39 per cent compared to 47 per cent of urban firms) plan to increase the leadership capability of their managers. These rural-urban differences persist across the four countries of the UK (Table A.12). However, a larger share of rural firms are planning to make capital investments (44per cent compared to 41 per cent of urban firms), which may be due to higher rural share of firms in capital intensive land-dependant or manufacturing sectors.

With more firms without employees reporting that they are planning None of the named improvements, this may suggest a steady state of development. However, their responses may also include firms who are planning other changes, such as extending their market area.

4.3   Obstacles or Barriers to Business

Plans for improvement are indicative of actions which owners believe they can, or should, take to grow their enterprises. In contrast, obstacles to growth, relate to challenges that are universal, or external to the firm (Table 17). Firms' responses to these questions may also identify actions that owners, their advisors and representatives could or should address to boost economic activity.

Table 17 Major obstacles to businesses in general

Major obstacles to businesses	Urban with employees	Rural with employees	Urban without employees	Rural without employees
Obtaining finance	6th (23%)	7th (21%)	5th (17%)	5th (18%)
Taxation, VAT, PAYE, National	3rd (43%)	3rd (44%)	4th (25%)	3rd (28%)

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[11] It should be borne in mind that surveyed firms with 0 employees may include more than sole traders, as this category includes family and other partnerships

Insurance, Business rates				
Staff recruitment and skills	5th (32%)	4th (33%)	7th (12%)	6th (15%)
Regulations/red tape	2nd (46%)	1st (56%)	2nd (31%)	1st (44%)
Availability/cost of suitable premises	6th (23%)	8th (17%)	5th (17%)	7th (14%)
Competition in the market	1st (51%)	2nd (46%)	1st (46%)	2nd (40%)
Workplace pensions	8th (21%)	6th (25%)	8st (8%)	8st (6%)
Late payment	4th (34%)	5th (32%)	3rd (27%)	4th (26%)

Source: LSBS (2015): question G4 which of the following would you say are major obstacles to the success of your business in general?
Shading denotes statistically significant response using Chi-square test ($\chi^2 < 0.05$).

At the UK level, *Competition in the market*, and *Red tape/Regulations* were the obstacles that attracted most attention from urban and rural firms, both those with and those without employees. Responses from rural firms with employees were significantly different from urban responses, for four obstacles: *Obtaining finance, Red Tape/Regulations; Availability/ cost of suitable premises;* and *Competition in the market*.

Figure 1 shows the profile of these obstacles for rural compared to urban businesses (showing firms with and without employees respectively). *Competition* was the obstacle of greatest concern to urban firms, for 51 per cent of the firms with employees and 46 per cent of the firms without employees. Whilst *Regulations* attracted most recognition by rural firms, for 31 per cent of rural firms with employees and 44 per cent of rural firms without employees. This pattern is repeated across the UK devolved nations (Table A.13), only broken by Scottish businesses with employees (where urban firms reported more concern with *Regulations* than those in rural areas), and in Northern Ireland (where a greater proportion of rural than urban firms with employees ranked *Competition* as their main obstacle).

Responses from rural and urban businesses without employees were significantly different for all eight of the described obstacles. From these responses:

- Rural firms across the UK countries have markedly worse experience of *Regulations* than their urban firms;

- Scotland's rural firms appear to have considerably worse experience in *Obtaining finance* than urban firms, and indeed than rural firms in other UK countries;

- *Competition* is a greater concern to rural firms than to their urban counterparts in Scotland and Northern Ireland.

- Levels of concern with the suite of obstacles amongst English firms show more similarity between rural and urban firms, than in other UK countries, but here, in Wales and in Northern Ireland there is greater rural concern with *Taxation/ VAT/NI and Business rates;* and *Staff recruitment and Skills.*

Figure 1: Radar Diagram of Obstacles or Barriers to Business
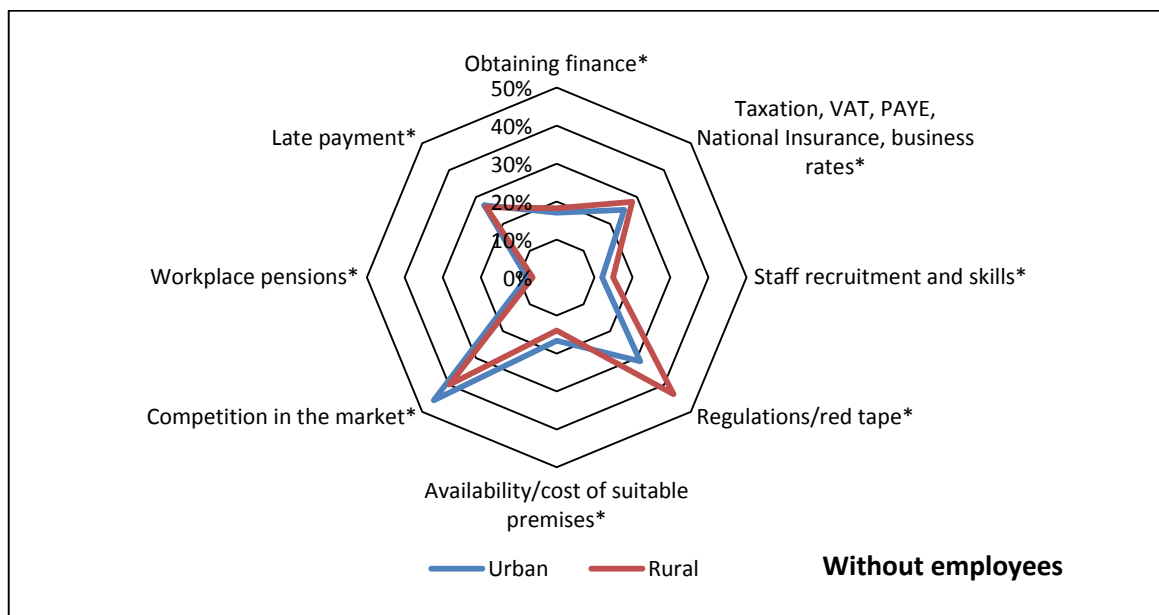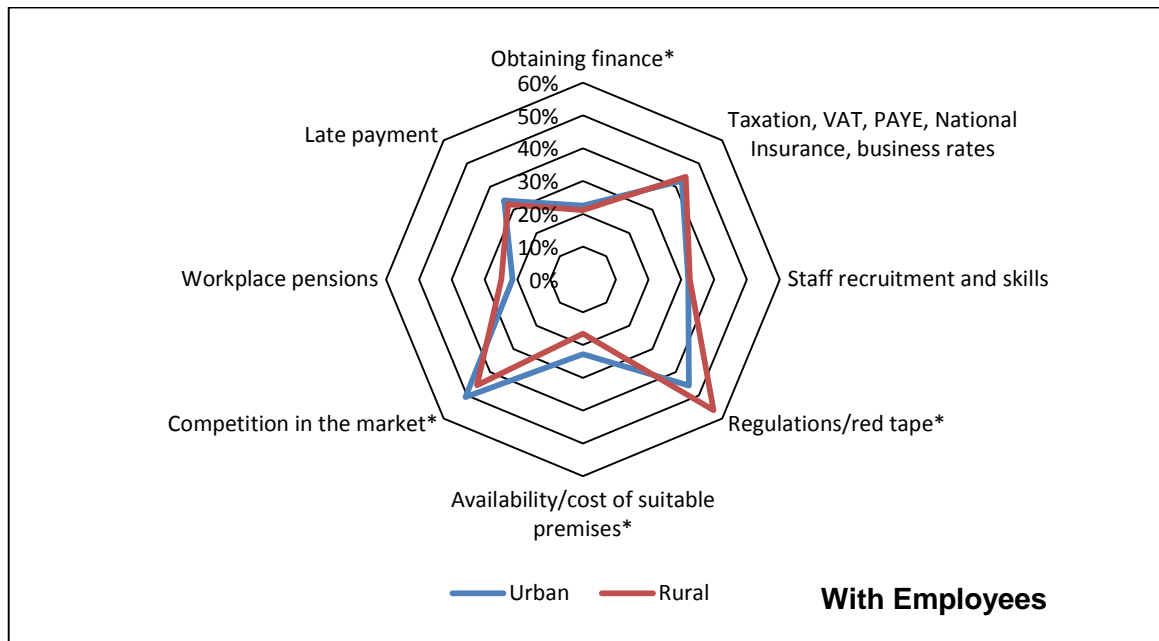
Source: LSBS (2015)

Note: * denotes statistically significant response using Chi-square test ($\chi^2 < 0.05$).

4.4 Advice to businesses: Use, sources and reasons

To explore who, and for what, rural businesses turn for advice and support, 15 broad sources of advice or information (including private and public, formal and informal) were presented to survey participants. Across the UK around a third of businesses with employees, in rural and urban areas, sought one or more of these different sources of advice or information in the year preceding interviews for the LSBS 2015 (Table 18). The levels of such usage ranged from 26 per cent of rural firms in Northern Ireland, to 45 per cent in Rural Scotland (Table A.14).

The proportion of firms without employees who had used advice or information was generally much lower (22 per cent across the UK), but rural and urban differences are also evident. Thus in England, Scotland and Wales a higher share of rural firms without employees had used advice/information than reported by urban firms, whilst the reverse (19 per cent urban, 16 per cent rural) was true in Northern Ireland.

Table 18: Principle Sources of advice or information

Sources of advice or information	Urban With employees	Rural with employees	Urban Without employees	Rural Without employees
Accountant	1st (26%)	1st (32%)	1st (27%)	1st (31%)
Bank	9th (4%)	7th (6%)	10th (2%)	10th (2%)
Business networks/trade associations	4th (14%)	4th (12%)	3rd (15%)	3rd (17%)
Consultant/general business adviser	2nd (23%)	3rd (21%)	4th (12%)	4th (13%)
Chamber of Commerce	14th (2%)	14th (1%)	13th (1%)	11th (1%)
(Specialist) financial adviser	9th (4%)	10th (3%)	10th (2%)	10th (2%)
Friends or family member	12th (3%)	11th (2%)	8th (3%)	8th (3%)
Government website	8th (5%)	7th (6%)	7th (4%)	6th (5%)
Internet search/google/other websites	7th (8%)	5th (8%)	5th (11%)	5th (8%)
Local authority	9th (4%)	7th (6%)	10th (2%)	8th (3%)
Local enterprise partnerships	15th (1%)	14th (1%)	13th (1%)	11th (1%)
Solicitor/lawyer	6th (10%)	6th (7%)	8th (3%)	7th (4%)
The pensions regulator	15th (1%)	11th (2%)	15th (0%)	11th (1%)
Work colleagues	12th (3%)	11th (2%)	6th (5%)	11th (1%)
Other	2nd (23%)	2nd (25%)	2nd (25%)	2nd (27%)

Source: LSBS (2015), question K7: where have you been for information or advice on the running of your business in the last 12 months?
Shading denotes statistically significant response using Chi-square test (χ^2-test: $p<0.05$).

The principal sources for such advice include *Accountants, Consultants/ general business advisers,* and a collective *Other* (i.e. unspecified), representing a first tier of sources that head the rankings for firms with and without employees, in most rural and urban locations. This is followed by a second tier of *Business networks / trade associations; Solicitors / lawyers;* and *Internet search / other websites.* A third tier comprising Public bodies, e.g. *Local authorities, Local Enterprise Partnerships, Pensions Regulators,* attracted notably fewer seekers from any business community at the UK and country level.

Differences in rural and urban levels of usage were statistically significant for firms with employees using *Business networks / trade associations* with 12 per cent for rural and 14 per cent for urban. There was also a difference for firms without employees using *Business networks/ trade associations* (17 per cent for rural and 15 per cent for urban); *Consultants/ general business advisors* (13 per cent for rural and 12 per cent for urban); *Internet searches/google or other websites* (8 per cent for rural and 11 per cent for urban); and *Work colleagues* (1 per cent for rural and 5 per cent for urban). In rural firms without employees in Scotland (65%), Northern Ireland (61%), and Wales (29%) (Table A.15), '*Other'* was the leading source. This is likely to include many local, third sector, social or business groups or initiatives. Such dominance merits further exploration, not least by public and finance advisors remitted and recruited to deliver business advice or information.

Regional business research has drawn attention to the importance of *Business networks / trade associations* in rural areas (Newbery *et al*., 2013). This appears to be the case for firms without employees (17% cf. 15%). However, the LSBS 2015 results appear to show, at least for English and Scottish firms with employees, that rural firms made less use of such networks and associations than urban firms. Thus in England 13 per cent of urban firms with employees used Business network/trade associations compared to 10 per cent of rural firms. In Scotland 27 per cent of urban firms used these sources compared to 23 per cent of rural firms (Table A.15).

Another notable result – for both rural and urban firms, and those with and without employees – was the very low level of businesses who sought information or advice from *Banks* and *Specialist finance advisors* (less than 5 per cent and 1 per

cent respectively amongst the UK's employing firms in LSBS 2015). Yet much larger numbers of firms described *Obtaining finance* as a Major Obstacle for businesses – 21 per cent of rural firms (and 23 per cent of urban businesses) with employees, and 17 per cent of rural firms (and 18 per cent of urban firms) without employees. Yet only 6 per cent of rural firms with employees and 2 per cent of firms without employees had sought advice from *Banks*.

The LSBS 2015 also allows an exploration of firms' reasons for using information or advice. Seventeen specific reasons were presented in the survey questionnaire, plus an unspecified *Other* category (Table 19).

Table 19: Reason for using information/advice

Reason for information/advice	Urban With employees	Rural with employees	Urban Without employees	Rural Without employees
Business growth	21%	21%	18%	17%
E-commerce/technology	8%	7%	10%	7%
Employment law/redundancies	13%	10%	4%	3%
Exporting	2%	2%	3%	2%
Financial advice e.g. how and where to get finance	7%	7%	4%	6%
Financial advice e.g. accounting, for general running of business	19%	20%	20%	18%
Health and Safety	6%	9%	2%	2%
Improving business efficiency/productivity	11%	11%	7%	13%
Innovation	2%	1%	2%	3%
Legal issues	12%	10%	7%	7%
Management/leadership development	3%	2%	2%	2%
Marketing	8%	5%	13%	6%
Regulations	6%	9%	6%	11%
Relocation	0%	0%	1%	1%
Tax/national insurance law and payments	10%	10%	13%	13%
Training/skills needs	3%	4%	4%	5%
Workplace pensions	8%	10%	2%	2%
Other	11%	12%	15%	13%

Source: LSBS (2015), question K5: for what did you seek information or advice in the last year?
Shading denotes statistically significant response using Chi-square test (χ^2-test: $p < 0.05$).

Variation in rates of response between rural and urban firms with employees are statistically significant for *Legal issues,* with 10 per cent for rural and 12 per cent for urban businesses, and *Workplace Pensions* with 10 per cent for rural and 8 per

cent for urban firms. Amongst rural and urban firms without employees, variations are statistically significant for *Business Growth,* (which is the highest ranked with 17 per cent for rural and 18 per cent for urban businesses)*; E-commerce technology; Exporting; Improving business efficiency/ productivity; Marketing; Regulations, Tax/NI law and payments; Workplace Pensions,* and *Other.*

Whilst the UK's urban businesses without employees sought advice on *Marketing* at more than double the rate of such rural firms, the rural-urban balance was reversed in such firms seeking advice for *Improving business efficiency and productivity.* This should encourage those who point to the need to raise productivity amongst rural firms.

From UK responses, the five lead (i.e. most numerous) reasons cited by firms are presented in Table 20. The key reasons for using advice are ranked in descending order of importance. For firms without employees, below a common need for *Financial advice*, there is a marked difference in advice requirements. For example, *Business growth* is less a reason for advice for rural firms without employees (17% cf. 18%), whilst *Improving efficiency* is more important (13% cf. 7%).

Table 20: The Key Businesses' reasons for using advice

Urban with employees	Rural with employees	Urban without employees	Rural without employees
Business Growth (21%)	Business Growth (21%)	Financial advice eg accounting for general running of the business (20%)	Financial advice, eg accounting for general running of the business (18%)
Financial advice, eg accounting for general running of the business (20%)	Financial advice, eg accounting for general running of the business (18%)	Business Growth (18%)	Business Growth (17%)
Employment law & redundancies (13%)	Other (12%)	Other (15%)	Tax/ NI law and payments (13%)
Legal issues (12%)	Improving business efficiency/ productivity (11%)	Tax/NI law and payment (13%)	Improving business efficiency/ productivity (13%)
Other (11%)	Tax/ NI law and payments (10%)	Marketing (13%)	Other (13%)

See Table A.7 and Table A.8 For full details
Shading denotes statistically significant response using Chi-square test (χ^2-test: $p<0.05$).

In contrast, the very low numbers of urban and rural employing firms seeking advice or information about *Innovation* (2 per cent and 1 per cent) and *Exporting* (2 per cent and 2per cent) across the UK, and only marginally higher rates amongst firms without employees for each (respectively 2 per cent and 3 per cent; 2 per cent and 2 per cent) seems at odds with policy makers' emphasis on these drivers of business and economic improvement. Such responses also stand in marked contrast to the considerably higher levels of firms (1700+ employing firms, 3700+ firms without employees) that, earlier in the LSBS, revealed plans to *Develop new Products or Services* (see Table 16). The very low numbers of firms without employees in the UK's rural areas who used advice on *Exporting* or *Innovation* suggests potential for refined advisory or information services on these topics, perhaps through case examples of successful small rural traders and innovators, and through outreach activities.

4.5 Awareness of support

Businesses' were asked about their awareness of public agencies and other sources of help. Their responses suggest, for example, that limited use of *Exporting* advice is unlikely to be caused by poor awareness of its key sources of information or help. Over 1300 responses (35 per cent of the sample) from UK's firms with employees were aware of *UK Trade and Investment*, the principal agency to promote and advise businesses on *Exporting,* now absorbed into the UK Department for International Trade. Whilst levels of awareness were broadly similar between urban and rural employing firms in each of England, Scotland and Wales, UKTI was better known by firms in England and Northern Ireland than elsewhere (Table A.19).

Awareness rates of *UK Trade and Investment* were markedly lower amongst the UK's no employee firms, and lowest amongst rural firms in Scotland. Such differences between countries, and between firms with and with no employees, might reflect the existence of country-specific enterprise agencies that also support exporting, ie Scottish Enterprise, Highlands & Islands Enterprise and Scottish Development International in Scotland and Invest Northern Ireland in that Province. More generally, it could also suggest more successful marketing by

UKTI and other Enterprise Agencies to firms with employees, than to their countries' sole traders, partnerships and others with zero employees.

Table 21: Awareness of support

Which of the following are you aware of?	Urban With employees	Rural with employees	Urban Without employees	Rural Without employees
UK Trade and Investment (UKTI)	35%	34%	29%	26%
The Tools for Business section on the .GOV website	28%	26%	17%	17%
The British Business Bank	14%	15%	12%	12%
Innovate UK	31%	30%	26%	27%
The Business Growth Service	-	-	9%	10%
Manufacturing Advisory Service	-	-	14%	16%
The Pensions Regulator	83%	84%	66%	69%
Investors in people	70%	70%	61%	61%

Source: LSBS (2015), question K1: Which of the following are you aware of? Shading denotes statistically significant response using Chi-square test (χ^2-test: $p<0.05$).

Amongst firms without employees awareness rates were the highest for *the Pensions Regulator* with 66 per cent for urban and 69 per cent for rural, followed by *Investors in people* (Table 21). The *Pensions Regulator* also had the highest levels of recognition amongst firms with employees – in both rural and urban UK. Amongst employing firms, only the *British Business Bank* (from 8 named agencies in the table) attracted more awareness from rural firms than urban firms. Amongst businesses without employees, *Innovate UK,* and the *Manufacturing Advisory Service* were better known by England's rural than urban firms.

For several of the areas of support covered by the above agencies there are equivalent or alternative support organisations operating only in the devolved countries of the UK. Taking into consideration the full listing of agencies (22 in all) that were named in the LSBS survey, for most of them levels of awareness by rural firms without employees were significantly or markedly lower than recognition levels of urban businesses without employees. Such specialist agencies and bodies might benefit from examining their understanding, promotion and indirect conduits to the UK's rural firms, and consider whether they could improve their awareness, and access, by rural firms.

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Appendix 1 – Analytical methods

The Chi-Square Test

The chi-square statistic is calculated by:

$$\chi^2 = \sum_i \frac{(O_i - E_i)^2}{E_i} \text{ with df} = (n-1) \tag{1}$$

where O_i is is the observed number of cases in group i, and Ei is the expected number of cases in group i.

To test the difference between rural and urban businesses with employees and without employees using χ^2 test, we set the hypothesis as first, the null hypothesis (H_0): there is difference between rural and urban businesses with employees and without employees, and second, the alternative hypothesis (H_1): there is no difference between rural and urban businesses with employees and without employees. To answer the hypothesis, χ^2 statistic is calculated using equation (1), and we calculate p-value in SPSS. If p-value≤ 0.05 (significant at 5%), it is statistically significant, and if p-value> 0.05, it is not statistically significant.

Propensity Score Matching

Propensity Score Matching analysis is used in this report to explain the difference in performance between rural and urban businesses and awareness of advice and support between rural and urban areas. To estimate the propensity score, we firstly identify the covariates to include in the logistic (logit) model. When constructing propensity scores we need to include all variables thought to be related to both treatment and outcome (i.e., the true confounders) in order to reduce confounding. Even when a variable is thought to be related to the outcome but not the treatment (i.e., a potential confounder) it is worth including it in the propensity score because it will reduce the bias, i.e. the distance of estimated treatment effect from true effect (Brookhart *et al.*, 2006; Austin, 2011). However only variables that are unaffected by treatment should be included in the model. The regression equation is written as:

$$Pr(T_i = 1) = \beta_0 + \beta_1 \mathbf{Z}_i + \varepsilon_i \qquad\qquad\qquad (2)$$

where T is a dummy capturing whether the firm is located in rural or urban areas (it will be equal to 1 if the firm is located in rural areas or 0 if it is urban), i is the number of observations; i=1,…,n, $\mathbf{Z}$ is a vector of observed variables that may affect the outcome or the treatment (i.e. the firm's location) such as firm's age, industrial sector, number of employees, etc. and ε is an error term. The businesses located in rural areas are described as the treated group and those in urban areas as the control or untreated group. The rurality or rural location of businesses is the treatment, and the outcomes are performances (annual turnover and profitability) and use of external support.

Once propensity scores are calculated using equation (2), each rural firm is then matched with at least one[12] urban firm based on similar propensity score so that some observations may be omitted because their propensity scores are too dissimilar from the control group (Khandker *et al.*, 2010). On the basis of the propensity score, there are different approaches used to match treated and untreated groups such as nearest-neighbour matching, caliper and radius matching, stratification matching, and kernel matching (Caliendo and Kopeinig, 2005; Pan and Bai, 2015). In this report, the matching of PSM process is conducted through nearest-neighbour and caliper matching options. The nearest-neighbour option is the most common matching estimator in which the individual from the comparison group is chosen as a matching partner for a treated individual that is closet in terms of propensity score. An untreated individual can be used more than once as a match. Thus this can increase the average quality of matching and reduce bias (Caliendo and Kopeinig, 2005). However, the nearest-neighbour matching may experience the risk of poor matches if the closet neighbour is relatively far away. This can be avoided by imposing a tolerance level on the

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[12] PSM allows to match one rural firm with several urban firms, weighting the propensity scores attached to each urban firm so that a best match for the rural firm can be found. Khandker *et al.* (2010) note that PSM is a useful technique when only covariates are strongly sufficient to determine the treatment, and the wide range of data of covariates allows the probability of the treated group based on the covariates to be specified more precisely

maximum propensity score distance, which is called caliper (Dehejia and Wahba, 2002; Caliendo and Kopeinig, 2005). In assessing the matching quality, the balancing test needs to be satisfied to make sure that there are no significant difference on covariate means between the treatment and control (Dehejia and Wahba, 2002). Next, the average treatment effect on the treated (ATT) is calculated as the mean difference in the outcome across these two groups, which allows to observe the effect of the treatment (Abadie and Imbens, 2012).

Appendix 2 – LSBS Rural / Urban source tables

Table A.1 Weighted distribution by firm size by urban-rural classification - 0 employees

Distribution of no employee businesses in rural

		UK n=11746		England n=10343		Scotland n=706		Wales n=456		NI n=241	
		Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
No employees	Count	8502	3244	7654	2689	492	214	225	231	131	110
	%	72%	28%	74.0%	26.0%	69.7%	30.3%	49.3%	50.7%	54.4%	45.6%

Table A.2 Weighted distribution by firm size by urban-rural classification - employees

A2. Number of employees (Grouped).

Distribution of employee businesses

		UK n=3758		Urban England n=2252	Rural England n=981	Urban Scotland n=189	Rural Scotland n=85	Urban Wales n=87	Rural Wales n=68	Urban NI n=57	Rural NI n=39
		Urban	Rural								
Micro 1 - 9	Count	2086	991	1819	828	151	72	71	58	45	33
	%	81%	84%	80.8%	84.4%	79.9%	84.7%	81.6%	85.3%	78.9%	84.6%
Small 10 - 49	Count	427	160	371	134	32	12	14	9	10	5
	%	17%	14%	16.5%	13.7%	16.9%	14.1%	16.1%	13.2%	17.5%	12.8%
Medium 50 - 249	Count	72	22	62	19	6	1	2	1	2	1
	%	3%	2%	2.8%	1.9%	3.2%	1.2%	2.3%	1.5%	3.5%	2.6%

Table A.3 Weighted distribution by broad sector and urban-rural classification - 0 employee

A3/A4. Broad sector

Distribution of broad sectors in rural / Distribution in broad sectors in rural

		UK n=11740		Urban England n=7653	Rural England n=2688	Urban Scotland n=492	Rural Scotland n=212	Urban Wales n=225	Rural Wales n=231	Urban NI n=130	Rural NI n=109
		Urban	Rural								
ABCDEF - Production and construction	Count	2176	1023	1951	774	113	81	79	89	33	79
	%	26%	32%	25.5%	28.8%	23.0%	38.2%	35.1%	38.5%	25.4%	72.5%
GHI - Transport, retail and food service/ accommodation	Count	1089	555	971	475	75	32	22	40	21	8
	%	13%	17%	12.7%	17.7%	15.2%	15.1%	9.8%	17.3%	16.2%	7.3%
JKLMN - Business services	Count	2892	970	2663	842	144	56	51	63	34	9
	%	34%	30%	34.8%	31.3%	29.3%	26.4%	22.7%	27.3%	26.2%	8.3%
PQRS - Other services	Count	2343	692	2068	597	160	43	73	39	42	13
	%	28%	21%	27.0%	22.2%	32.5%	20.3%	32.4%	16.9%	32.3%	11.9%

Table A.4 Weighted distribution by broad sector and urban-rural classification - employees

A3/A4. Broad sector		UK n=3759		Distribution in broad sectors							
		Urban	Rural	Urban England n=2252	Rural England n=980	Urban Scotland n=188	Rural Scotland n=85	Urban Wales n=88	Rural Wales n=69	Urban NI n=58	Rural NI n=39
ABCDEF - Production and construction	Count	482	385	413	310	39	32	22	19	8	24
	%	19%	33%	18.3%	31.6%	20.7%	37.6%	25.0%	27.5%	13.8%	61.5%
GHI - Transport, retail and food service/ accommodation	Count	809	366	692	300	61	30	30	27	26	9
	%	31%	31%	30.7%	30.6%	32.4%	35.3%	34.1%	39.1%	44.8%	23.1%
JKLMN - Business services	Count	914	297	822	259	58	18	20	17	14	3
	%	35%	25%	36.5%	26.4%	30.9%	21.2%	22.7%	24.6%	24.1%	7.7%
PQRS - Other services	Count	381	125	325	111	30	5	16	6	10	3
	%	15%	11%	14.4%	11.3%	16.0%	5.9%	18.2%	8.7%	17.2%	7.7%

Table A.5 Weighted distribution or profit / surplus by urban-rural distribution - 0 employees

P12. Taking into account all sources of income in the last financial year, did you generate a profit or surplus?

		UK n=11747		Differences in profit / surplus in rural							
		Urban	Rural	Urban England n= 7654	Rural England n=2689	Urban Scotland n=492	Rural Scotland n=214	Urban Wales n=226	Rural Wales n=231	Urban NI n=131	Rural NI n=110
Yes	Count	6421	2514	5759	2128	401	156	150	159	111	71
	%	76%	77%	75.2%	79.1%	81.5%	72.9%	66.4%	68.8%	84.7%	64.5%
No	Count	1623	529	1503	418	52	35	51	45	17	31
	%	19%	16%	19.6%	15.5%	10.6%	16.4%	22.6%	19.5%	13.0%	28.2%
Don't know	Count	312	99	272	68	25	16	12	15	3	0
	%	4%	3%	3.6%	2.5%	5.1%	7.5%	5.3%	6.5%	2.3%	0.0%
Refused	Count	147	102	120	75	14	7	13	12	0	8
	%	2%	3%	1.6%	2.8%	2.8%	3.3%	5.8%	5.2%	0.0%	7.3%

Table A.6 Weighted distribution of profit / surplus by urban-rural classification - employees

P12. Taking into account all sources of income in the last financial year, did you generate a profit or surplus?

		UK n=3759		Differences in profit / surplus in rural							
		Urban	Rural	Urban England n=2252	Rural England n=981	Urban Scotland n=188	Rural Scotland n=85	Urban Wales n=88	Rural Wales n=69	Urban NI n=57	Rural NI n=39
Yes	Count	1990	925	1747	781	147	62	58	51	38	31
	%	77%	79%	77.6%	79.6%	78.2%	72.9%	65.9%	73.9%	66.7%	79.5%
No	Count	392	154	330	117	30	18	19	15	13	4
	%	15%	13%	14.7%	11.9%	16.0%	21.2%	21.6%	21.7%	22.8%	10.3%
Don't know	Count	141	69	123	59	7	3	6	3	5	4
	%	5%	6%	5.5%	6.0%	3.7%	3.5%	6.8%	4.3%	8.8%	10.3%
Refused	Count	62	26	52	24	4	2	5	0	1	0
	%	2%	2%	2.3%	2.4%	2.1%	2.4%	5.7%	0.0%	1.8%	0.0%

Table A.7 Weighted distribution of turnover by urban-rural classification - 0 employees

		UK n=1174 Urban	Rural	Urban England n=7652	Rural England n=2688	Urban Scotland n=492	Rural Scotland n=213	Urban Wales n=226	Rural Wales n=232	Urban NI n=130	Rural NI n=108
		Distribution of turnover						Distribution of turnover in rural			
Less than £82,000	Count	6494	2263	5873	1864	371	155	153	156	97	88
	%	76%	70%	76.8%	69.3%	75.4%	72.8%	67.7%	67.2%	74.6%	81.5%
More than £82,000	Count	1092	615	986	532	60	35	29	37	17	11
	%	13%	19%	12.9%	19.8%	12.2%	16.4%	12.8%	15.9%	13.1%	10.2%
Don't know	Count	176	70	149	57	10	9	8	4	9	0
	%	2%	2%	1.9%	2.1%	2.0%	4.2%	3.5%	1.7%	6.9%	0.0%
Refused	Count	738	293	644	235	51	14	36	35	7	9
	%	9%	9%	8.4%	8.7%	10.4%	6.6%	15.9%	15.1%	5.4%	8.3%

Table A.8 Weighed distribution by firm age and urban-rural distribution - 0 employees

A6. Age of business - summary		UK n=1174 Urban	Rural	Urban England n=7654	Rural England n=2689	Urban Scotland n=492	Rural Scotland n=213	Urban Wales n=226	Rural Wales n=230	Urban NI n=130	Rural NI n=109
						Distribution of business age in rural					
0 - 5 years	Count	1392	391	1254	315	62	35	47	26	29	15
	%	16%	12%	16.4%	11.7%	12.6%	16.4%	20.8%	11.3%	22.3%	13.8%
6 - 10 years	Count	1706	619	1524	538	94	37	36	20	52	24
	%	20%	19%	19.9%	20.0%	19.1%	17.4%	15.9%	8.7%	40.0%	22.0%
11 - 20 years	Count	2204	831	1942	682	176	44	67	77	19	28
	%	26%	26%	25.4%	25.4%	35.8%	20.7%	29.6%	33.5%	14.6%	25.7%
More than 20 years	Count	3176	1399	2912	1153	160	97	76	107	28	42
	%	37%	43%	38.0%	42.9%	32.5%	45.5%	33.6%	46.5%	21.5%	38.5%
Don't know	Count	24	1	22	1	0	0	0	0	2	0
	%	0%	0%	.3%	.0%	0.0%	0.0%	0.0%	0.0%	1.5%	0.0%

Table A.9 Weighted distribution by firm age and urban-rural classification - employees

A6. Age of business - summary		UK Urban (n=3759)	UK Rural	Urban England n=2252	Rural England n=981	Urban Scotland n=188	Rural Scotland n=85	Urban Wales n=88	Rural Wales n=68	Urban NI n=58	Rural NI n=39
					Distribution of business age						
0 - 5 years	Count	451	123	383	97	36	11	23	12	9	3
	%	17%	10%	17.0%	9.9%	19.1%	12.9%	26.1%	17.6%	15.5%	7.7%
6 - 10 years	Count	364	145	320	125	25	11	9	5	10	4
	%	14%	12%	14.2%	12.7%	13.3%	12.9%	10.2%	7.4%	17.2%	10.3%
11 - 20 years	Count	437	202	387	175	28	9	15	10	7	8
	%	17%	17%	17.2%	17.8%	14.9%	10.6%	17.0%	14.7%	12.1%	20.5%
More than 20 years	Count	1325	696	1153	579	99	53	41	40	32	24
	%	51%	59%	51.2%	59.0%	52.7%	62.4%	46.6%	58.8%	55.2%	61.5%
Don't know	Count	9	7	9	5	0	1	0	1	0	0
	%	0%	1%	0.4%	0.5%	0.0%	1.2%	0.0%	1.5%	0.0%	0.0%

Table A.10 Weighted distribution of family ownership by urban-rural classification - 0 employees

A12. Is your business a family owned business, that is one which is majority owned by members of the same family?		UK Urban (n=1174)	UK Rural 3	Urban England n=7653	Rural England n=2688	Urban Scotland n=492	Rural Scotland n=213	Urban Wales n=225	Rural Wales n=231	Urban NI n=131	Rural NI n=110
					Distribution of family majority ownership in rural						
Yes	Count	7717	2933	6950	2442	440	197	217	211	110	83
	%	91%	90%	90.8%	90.8%	89.4%	92.5%	96.4%	91.3%	84.0%	75.5%
No	Count	772	303	694	241	50	15	8	20	20	27
	%	9%	9%	9.1%	9.0%	10.2%	7.0%	3.6%	8.7%	15.3%	24.5%
Don't know/ Refused	Count	12	6	9	5	2	1	0	0	1	0
	%	0%	0%	.1%	.2%	.4%	.5%	0.0%	0.0%	.8%	0.0%

Table A.11 Weighted distribution of family ownership by urban-rural classification - employees

A12. Is your business a family owned business, that is one which is majority owned by members of the same family?		UK Urban (n=3758)	UK Rural	Urban England n=2253	Rural England n=981	Urban Scotland n=188	Rural Scotland n=85	Urban Wales n=87	Rural Wales n=68	Urban NI n=57	Rural NI n=39
					Distribution of majority ownership in rural						
Yes	Count	1690	892	1463	745	128	66	60	52	39	29
	%	65%	76%	64.9%	75.9%	68.1%	77.6%	69.0%	76.5%	68.4%	74.4%
No	Count	853	268	754	223	54	19	27	16	18	10
	%	33%	23%	33.5%	22.7%	28.7%	22.4%	31.0%	23.5%	31.6%	25.6%
Don't know/ Refused	Count	42	13	36	13	6	0	0	0	0	0
	%	2%	1%	1.6%	1.3%	3.2%	0.0%	0.0%	0.0%	0.0%	0.0%

Table A.12 Businesses' principal plans for next three years (weighted sample)

Plans over the next 3 years		Urban	Rural	Nation Urban/Rural								Total
				Urban England	Rural England	Urban Scotland	Rural Scotland	Urban Wales	Rural Wales	Urban NI	Rural NI	
Employees												
Increase the skills of the workforce	Count	1842	803	1602	667	134	60	68	49	38	27	2645
	%	71%	69%	71.1%	68.1%	71.3%	70.6%	77.3%	72.1%	66.7%	69.2%	70.4%
Increase the leadership capability of managers	Count	1205	459	1057	381	87	35	37	24	24	19	1664
	%	47%	39%	46.9%	38.8%	46.3%	41.2%	42.0%	34.8%	42.1%	48.7%	44.3%
Capital investment (in premises, machinery etc.)	Count	1007	514	869	424	81	41	37	27	20	22	1521
	%	39%	44%	38.6%	43.2%	43.1%	48.2%	42.5%	39.1%	34.5%	56.4%	40.5%
Develop and launch new products/services	Count	1245	503	1095	421	86	37	39	29	25	16	1748
	%	48%	43%	48.6%	43.0%	45.7%	43.0%	44.3%	42.0%	43.9%	41.0%	46.5%
Introduce new working practices	Count	1335	526	1176	435	95	38	42	30	22	23	1861
	%	52%	45%	52.2%	44.3%	50.5%	44.7%	47.7%	43.5%	38.6%	59.0%	49.5%
None of these	Count	418	214	365	180	32	13	9	14	12	7	632
	%	16%	18%	16.2%	18.4%	17.0%	15.3%	10.2%	20.6%	20.7%	17.9%	16.8%
No Employees												
Increase the skills of the workforce	Count	3526	1230	3148	1024	219	109	106	64	53	33	4756
	%	41%	38%	41.1%	38.1%	44.5%	51.2%	46.9%	27.7%	40.5%	30.0%	40.5%
Increase the leadership capability of managers	Count	1495	549	1353	490	86	42	31	7	25	10	2044
	%	18%	17%	17.7%	18.2%	17.5%	19.6%	13.8%	3.0%	19.1%	9.1%	17.4%
Capital investment (in premises, machinery etc.)	Count	1941	895	1702	702	131	85	73	62	35	46	2836
	%	23%	28%	22.2%	26.1%	26.6%	39.9%	32.3%	27.0%	26.7%	41.8%	24.1%
Develop and launch new products/services	Count	2725	1031	2424	858	196	83	68	65	37	25	3756
	%	32%	32%	31.7%	31.9%	39.8%	38.8%	30.2%	28.1%	28.2%	22.7%	32.0%
Introduce new working practices	Count	2380	904	2108	728	152	72	86	79	34	25	3284
	%	28%	28%	27.5%	27.1%	30.9%	33.6%	38.2%	34.2%	26.2%	22.9%	28.0%
None of these	Count	3516	1345	3192	1135	179	64	86	97	59	49	4861
	%	41%	42%	41.7%	42.2%	36.4%	30.0%	38.2%	42.2%	45.0%	45.0%	41.4%

Source: LSBS (2015), question R4: Does your business plan to do any of the following over next three years?

Table A.13 Major Obstacles to your business in general (weighted sample)

Major obstacles to your business		Urban	Rural	Nation Urban/Rural								Total
				Urban England	Rural England	Urban Scotland	Rural Scotland	Urban Wales	Rural Wales	Urban NI	Rural NI	
Employees												
Obtaining finance	Count	583	248	501	191	38	23	25	19	19	15	831
	%	23%	21%	22.2%	19.5%	20.2%	26.7%	28.4%	27.5%	33.3%	38.5%	22.1%
Taxation, VAT, PAYE, National Insurance, business rates	Count	1101	519	959	436	76	39	37	24	29	20	1620
	%	43%	44%	42.6%	44.5%	40.4%	45.3%	42.0%	35.3%	50.9%	51.3%	43.1%
Staff recruitment and skills	Count	830	382	730	317	58	26	28	21	14	18	1212
	%	32%	33%	32.4%	32.3%	30.9%	30.6%	32.2%	30.4%	24.6%	46.2%	32.3%
Availability/cost of suitable premises	Count	590	194	515	164	36	17	26	9	13	4	784
	%	23%	17%	22.9%	16.7%	19.1%	19.8%	29.5%	13.0%	22.8%	10.3%	20.9%
Regulations/red tape	Count	1182	661	1007	545	102	44	49	48	24	24	1843
	%	46%	56%	44.7%	55.6%	54.3%	51.8%	55.7%	69.6%	42.1%	61.5%	49.1%
Competition in the market	Count	1312	536	1142	440	91	42	44	29	35	25	1848
	%	51%	46%	50.7%	44.9%	48.4%	48.8%	50.0%	42.0%	60.3%	64.1%	49.1%
Workplace pensions	Count	554	292	474	243	46	16	17	21	17	12	846
	%	21%	25%	21.1%	24.8%	24.5%	18.8%	19.3%	30.9%	29.8%	30.8%	22.5%
No Employees												
Obtaining finance	Count	1453	591	1277	473	98	69	41	30	37	19	2044
	%	18%	16.7%	17.6%	20.0%	32.4%	18.2%	13.0%	28.2%	17.3%	17.4%	17%
Taxation, VAT, PAYE, National Insurance, business rates	Count	2145	914	1879	721	176	65	63	88	27	40	3059
	%	28%	24.5%	26.8%	35.8%	30.4%	28.0%	38.1%	20.6%	36.4%	26.0%	25%
Staff recruitment and skills	Count	1018	482	921	401	55	42	22	31	20	8	1500
	%	15%	12.0%	14.9%	11.2%	19.6%	9.8%	13.4%	15.4%	7.3%	12.8%	12%
Regulations/red tape	Count	2652	1411	2336	1126	181	100	95	123	40	62	4063
	%	44%	30.5%	41.9%	36.8%	46.7%	42.0%	53.2%	30.5%	56.4%	34.6%	31%
Availability/cost of suitable premises	Count	1419	454	1194	369	122	40	72	33	31	12	1873
	%	17%	15.6%	13.7%	24.8%	18.8%	31.9%	14.3%	23.8%	10.9%	15.9%	17%
Competition in the market	Count	3893	1294	3550	1037	190	93	106	108	47	56	5187
	%	46%	46.4%	38.6%	38.6%	43.5%	47.1%	46.8%	35.9%	50.9%	44.2%	46%
Workplace pensions	Count	668	204	591	166	36	13	23	19	18	6	872
	%	6%	7.7%	6.2%	7.3%	6.1%	10.2%	8.3%	13.7%	5.5%	7.4%	8%

Source: LSBS (2015), question G4: which of the following would you say are major obstacles to the success of your business in general?

Table A.14 Use of information or advice in the last 12 months (weighted sample)

Have you used information or advice in the last 12 months?		Nation Urban/Rural										Total
		Urban	Rural	Urban England	Rural England	Urban Scotland	Rural Scotland	Urban Wales	Rural Wales	Urban NI	Rural NI	
		Employees										
Yes	Count	827	416	721	348	61	39	28	19	17	10	1243
	%	32%	35%	32.0%	35.5%	32.4%	45.3%	31.8%	27.9%	29.8%	25.6%	33.1%
No	Count	1730	754	1503	629	127	47	60	49	40	29	2484
	%	67%	64%	66.8%	64.1%	67.6%	54.7%	68.2%	72.1%	70.2%	74.4%	66.1%
		No Employees										
Yes	Count	1496	725	1353	612	75	46	43	49	25	18	2221
	%	18%	22%	17.7%	22.8%	15.2%	21.5%	19.1%	21.3%	19.1%	16.4%	18.9%
No	Count	6992	2518	6289	2077	415	168	182	181	106	92	9510
	%	82%	78%	82.2%	77.2%	84.3%	78.5%	80.9%	78.7%	80.9%	83.6%	81.0%

Source: LSBS (2015), question K2, Whether used information or advice in the last 12 months?

Table A.15 Source of advice or information (Employees) (weighted sample)

Who did you receive advice from?		Urban	Rural	Urban England	Rural England	Urban Scotland	Rural Scotland	Urban Wales	Rural Wales	Urban NI	Rural NI	Total
						Nation Urban/Rural						
Accountant	Count	218	134	191	114	18	13	4	3	5	4	352
	%	26%	32%	26.5%	32.8%	29.5%	34.2%	14.3%	15.8%	31.3%	40.0%	28.3%
Bank	Count	33	24	28	19	2	4	3	0	0	1	57
	%	4%	6%	3.9%	5.5%	3.3%	10.5%	10.7%	0.0%	0.0%	10.0%	4.6%
Business networks/trade associations	Count	116	51	95	34	17	9	4	8	0	0	167
	%	14%	12%	13.2%	9.8%	27.4%	23.1%	13.8%	42.1%	0.0%	0.0%	13.4%
Consultant/general business adviser	Count	190	89	168	79	12	6	6	3	4	1	279
	%	23%	21%	23.3%	22.8%	19.7%	15.4%	20.7%	15.8%	23.5%	10.0%	22.4%
Chamber of Commerce	Count	18	3	17	2	1	1	0	0	0	0	21
	%	2%	1%	2.4%	0.6%	1.6%	2.6%	0.0%	0.0%	0.0%	0.0%	1.7%
(Specialist) financial adviser	Count	32	13	26	9	3	4	2	0	1	0	45
	%	4%	3%	3.6%	2.6%	4.9%	10.5%	6.9%	0.0%	6.3%	0.0%	3.6%
Friend or family member	Count	23	8	22	7	0	1	1	0	0	0	31
	%	3%	2%	3.1%	2.0%	0.0%	2.6%	3.6%	0.0%	0.0%	0.0%	2.5%
.GOV website	Count	40	23	35	22	5	1	0	0	0	0	63
	%	5%	6%	4.9%	6.3%	8.1%	2.6%	0.0%	0.0%	0.0%	0.0%	5.1%
Internet search/google/other websites	Count	70	32	63	31	6	1	1	0	0	0	102
	%	8%	8%	8.7%	8.9%	9.8%	2.6%	3.6%	0.0%	0.0%	0.0%	8.2%
Local Authority	Count	36	23	28	20	4	3	3	0	1	0	59
	%	4%	6%	3.9%	5.7%	6.5%	7.9%	10.3%	0.0%	6.3%	0.0%	4.7%
Local Enterprise Partnerships	Count	10	3	10	3	0	0	0	0	0	0	13
	%	1%	1%	1.4%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%
Solicitor/lawyer	Count	83	31	71	25	8	4	2	1	2	1	114
	%	10%	7%	9.8%	7.2%	13.1%	10.3%	7.1%	5.3%	12.5%	10.0%	9.2%

Source: LSBS (2015), question K7: where have you been for information or advice on the running of your business in the last 12 months?

Table A.16 Sources of advice or information (zero employees) (weighted sample)

Who did you receive advice from?		Urban	Rural	Nation Urban/Rural								Total
				Urban England	Rural England	Urban Scotland	Rural Scotland	Urban Wales	Rural Wales	Urban NI	Rural NI	
Accountant	Count	408	226	365	194	19	13	13	13	11	6	634
	%	27%	31%	27.0%	31.7%	25.7%	28.9%	30.2%	26.5%	44.0%	35.3%	28.6%
Bank	Count	29	11	29	9	0	2	0	0	0	0	40
	%	2%	2%	2.1%	1.5%	0.0%	4.3%	0.0%	0.0%	0.0%	0.0%	1.8%
Business networks/trade associations	Count	221	121	211	112	4	7	4	2	2	0	342
	%	15%	17%	15.6%	18.3%	5.3%	15.6%	9.3%	4.0%	8.0%	0.0%	15.4%
Chamber of Commerce	Count	19	5	14	5	5	0	0	0	0	0	24
	%	1%	1%	1.0%	0.8%	6.7%	0.0%	0.0%	0.0%	0.0%	0.0%	1.1%
Consultant/general business adviser	Count	186	91	169	85	5	2	5	4	7	0	277
	%	12%	13%	12.5%	13.9%	6.7%	4.3%	11.6%	8.2%	28.0%	0.0%	12.5%
(Specialist) financial adviser	Count	36	14	34	14	1	0	1	0	0	0	50
	%	2%	2%	2.5%	2.3%	1.3%	0.0%	2.3%	0.0%	0.0%	0.0%	1.1%
Friend or family member	Count	45	21	38	20	4	1	0	0	3	0	66
	%	3%	3%	2.8%	3.3%	5.3%	2.2%	0.0%	0.0%	12.0%	0.0%	3.0%
.GOV website	Count	64	37	62	35	2	4	2	2	0	0	101
	%	4%	5%	4.6%	5.7%	2.7%	0.0%	4.0%	0.0%	0.0%	0.0%	4.5%
Internet search/google/other websites	Count	164	59	145	48	14	4	5	7	0	0	223
	%	11%	8%	10.7%	7.8%	18.9%	8.7%	11.6%	14.3%	0.0%	0.0%	10.0%
Local Authority	Count	32	21	31	15	0	2	0	4	1	0	53
	%	2%	3%	2.3%	2.5%	0.0%	4.3%	0.0%	8.2%	4.0%	0.0%	2.4%
Local Enterprise Partnerships	Count	18	7	18	7	0	0	0	0	0	0	25
	%	1%	1%	1.3%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.1%
Solicitor/lawyer	Count	49	29	46	28	2	1	1	0	0	0	78
	%	3%	4%	3.4%	4.6%	2.7%	2.2%	2.3%	0.0%	0.0%	0.0%	3.5%

Source: LSBS (2015), question K7: where have you been for information or advice on the running of your business in the last 12 months?

Table A.16 Sources of advice or information (No employees) (weighted sample) (Continued)

Who did you receive advice from?		Nation Urban/Rural										Total
		Urban	Rural	Urban England	Rural England	Urban Scotland	Rural Scotland	Urban Wales	Rural Wales	Urban NI	Rural NI	
The Pensions Regulator	Count	8	7	8	6	0	1	0	0	0	0	15
	%	1%	2%	1.1%	1.7%	0.0%	2.6%	0.0%	0.0%	0.0%	0.0%	1.2%
Work colleagues	Count	26	9	22	9	3	0	1	0	0	0	35
	%	3%	2%	3.1%	2.6%	4.9%	0.0%	3.6%	0.0%	0.0%	0.0%	2.8%
Other	Count	192	103	171	78	7	14	12	8	2	3	295
	%	23%	25%	23.7%	22.4%	11.5%	36.8%	41.4%	42.1%	12.5%	30.0%	23.7%
None/have not sought information or advice/will not seek it	Count	14	10	12	9	2	0	0	0	0	1	24
	%	2%	2%	1.7%	2.6%	3.3%	0.0%	0.0%	0.0%	0.0%	10.0%	1.9%
Don't know	Count	117	50	112	47	2	0	3	2	0	1	167
	%	14%	12%	15.5%	13.5%	3.2%	0.0%	10.3%	10.5%	0.0%	10.0%	13.4%

Source: LSBS (2015), question K7: where have you been for information or advice on the running of your business in the last 12 months?

Table A.17 Reason for seeking information and advice (Employees) (weighted sample)

Reason for seeking information / advice		Urban	Rural	Nation Urban/Rural								Total
				Urban England	Rural England	Urban Scotland	Rural Scotland	Urban Wales	Rural Wales	Urban NI	Rural NI	
Business growth	Count	173	86	153	75	11	5	7	5	2	1	259
	%	21%	21%	21.2%	21.6%	17.7%	12.8%	25.0%	26.3%	12.5%	10.0%	20.8%
E-commerce/technology	Count	65	27	57	19	5	5	2	2	1	1	92
	%	8%	7%	7.9%	5.5%	8.1%	13.2%	6.9%	10.5%	5.9%	10.0%	7.4%
Employment law/redundancies	Count	108	42	90	35	9	3	7	3	2	1	150
	%	13%	10%	12.5%	10.1%	14.5%	7.7%	25.0%	16.7%	12.5%	11.1%	12.1%
Exporting	Count	17	10	14	9	1	1	2	0	0	0	27
	%	2%	2%	1.9%	2.6%	1.6%	2.6%	7.1%	0.0%	0.0%	0.0%	2.2%
Financial advice e.g. how and where to get finance	Count	56	29	48	23	4	5	2	0	2	1	85
	%	7%	7%	6.7%	6.6%	6.6%	12.8%	7.1%	0.0%	12.5%	11.1%	6.8%
Financial advice e.g. accounting, for general running of business	Count	156	83	140	68	10	10	3	1	3	4	239
	%	19%	20%	19.4%	19.5%	16.1%	25.6%	10.7%	5.3%	17.6%	40.0%	19.2%
Health and Safety	Count	47	38	41	32	4	4	1	0	1	2	85
	%	6%	9%	5.7%	9.2%	6.6%	10.3%	3.6%	0.0%	5.9%	20.0%	6.8%
Improving business efficiency/productivity	Count	87	46	77	41	3	3	7	2	0	0	133
	%	11%	11%	10.7%	11.8%	4.9%	7.7%	24.1%	10.5%	0.0%	0.0%	10.7%
Innovation	Count	17	5	15	5	0	0	2	0	0	0	22
	%	2%	1%	2.1%	1.4%	0.0%	0.0%	7.1%	0.0%	0.0%	0.0%	1.8%
Legal issues	Count	96	40	81	30	12	8	2	0	1	2	136
	%	12%	10%	11.2%	8.6%	19.7%	20.5%	7.1%	0.0%	5.9%	20.0%	10.9%
Management/leadership development	Count	25	8	21	7	2	1	2	0	0	0	33
	%	3%	2%	2.9%	2.0%	3.3%	2.6%	6.9%	0.0%	0.0%	0.0%	2.7%
Marketing	Count	66	22	55	18	6	3	4	1	1	0	88
	%	8%	5%	7.6%	5.2%	9.8%	7.9%	14.3%	5.3%	6.3%	0.0%	7.1%

Source: LSBS (2015), question K5: what did you seek information or advice in the last year?

Table A.17 Reason for seeking information and advice (Employees) (weighted sample) (continued)

Reason for seeking information / advice		Urban	Rural	Urban England	Rural England	Urban Scotland	Rural Scotland	Urban Wales	Rural Wales	Urban NI	Rural NI	Total
Regulations	Count	49	39	43	32	4	4	1	1	1	2	88
	%	6%	9%	6.0%	9.2%	6.6%	10.3%	3.6%	5.3%	6.3%	20.0%	7.1%
Relocation	Count	4	1	4	1	0	0	0	0	0	0	5
	%	0%	0%	0.6%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%
Tax/national insurance law and payments	Count	85	43	70	37	8	4	4	0	3	2	128
	%	10%	10%	9.7%	10.6%	13.1%	10.5%	14.3%	0.0%	18.8%	20.0%	10.3%
Training/skills needs	Count	26	15	22	13	2	1	1	0	1	1	41
	%	3%	4%	3.1%	3.7%	3.2%	2.6%	3.6%	0.0%	5.9%	10.0%	3.3%
Workplace pensions	Count	67	40	51	30	9	8	5	0	2	2	107
	%	8%	10%	7.1%	8.6%	14.8%	21.1%	17.9%	0.0%	12.5%	20.0%	8.6%
Other	Count	90	48	80	41	4	4	4	2	2	1	138
	%	11%	12%	11.1%	11.8%	6.5%	10.5%	14.3%	10.5%	12.5%	10.0%	11.1%
Don't know	Count	117	47	114	45	0	0	3	2	0	0	164
	%	14%	11%	15.8%	12.9%	0.0%	0.0%	10.3%	10.5%	0.0%	0.0%	13.2%

Source: LSBS (2015), question K5: what did you seek information or advice in the last year?

Table A.18 Reason for seeking information and advice (No-Employees) (weighted sample)

Reason for seeking information / advice		Urban	Rural	Nation Urban/Rural								Total
				Urban England	Rural England	Urban Scotland	Rural Scotland	Urban Wales	Rural Wales	Urban NI	Rural NI	
Business growth	Count	275	123	253	115	6	3	13	4	3	1	398
	%	18%	17%	18.7%	18.8%	8.0%	6.7%	30.2%	8.2%	12.0%	5.6%	17.9%
E-commerce/technology	Count	147	48	144	45	0	3	3	0	0	0	195
	%	10%	7%	10.6%	7.4%	0.0%	6.5%	7.0%	0.0%	0.0%	0.0%	8.8%
Employment law/redundancies	Count	65	22	61	21	4	1	0	0	0	0	87
	%	4%	3%	4.5%	3.4%	5.3%	2.2%	0.0%	0.0%	0.0%	0.0%	3.9%
Exporting	Count	44	13	36	12	8	0	0	0	0	1	57
	%	3%	2%	2.7%	2.0%	10.7%	0.0%	0.0%	0.0%	0.0%	5.6%	2.6%
Financial advice e.g. how and where to get finance	Count	65	43	59	32	2	5	3	6	1	0	108
	%	4%	6%	4.4%	5.2%	2.7%	10.9%	7.0%	12.2%	4.2%	0.0%	4.9%
Financial advice e.g. accounting, for general running of business	Count	301	131	270	114	16	8	13	8	2	1	432
	%	20%	18%	20.0%	18.6%	21.3%	17.4%	30.2%	16.3%	8.0%	5.6%	19.5%
Health and Safety	Count	36	17	35	15	1	1	0	0	0	1	53
	%	2%	2%	2.6%	2.5%	1.3%	2.2%	0.0%	0.0%	0.0%	5.6%	2.4%
Improving business efficiency/productivity	Count	111	91	108	75	0	3	3	8	0	5	202
	%	7%	13%	8.0%	12.3%	0.0%	6.7%	7.0%	16.0%	0.0%	27.8%	9.1%
Innovation	Count	36	24	36	23	0	1	0	0	0	0	60
	%	2%	3%	2.7%	3.8%	0.0%	2.2%	0.0%	0.0%	0.0%	0.0%	2.7%
Legal issues	Count	103	51	95	46	5	3	0	2	3	0	154
	%	7%	7%	7.0%	7.5%	6.7%	6.5%	0.0%	4.0%	12.0%	0.0%	6.9%
Management/leadership development	Count	32	15	32	13	0	2	0	0	0	0	47
	%	2%	2%	2.4%	2.1%	0.0%	4.4%	0.0%	0.0%	0.0%	0.0%	2.1%
Marketing	Count	188	42	175	39	2	1	6	2	5	0	230
	%	13%	6%	12.9%	6.4%	2.7%	2.2%	14.0%	4.0%	20.0%	0.0%	10.4%

Source: LSBS (2015), question K5: what did you seek information or advice in the last year?

Table A.18 Reason for using information and advice (No-Employees) (weighted sample) (continued)

Reason for using information / advice		Urban	Rural	Urban England	Rural England	Urban Scotland	Rural Scotland	Urban Wales	Rural Wales	Urban NI	Rural NI	Total
						Nation Urban/Rural						
Regulations	Count	97	77	94	67	2	3	1	2	0	5	174
	%	6%	11%	6.9%	10.9%	2.7%	6.5%	2.3%	4.1%	0.0%	27.8%	7.8%
Relocation	Count	11	10	11	10	0	0	0	0	0	0	21
	%	1%	1%	0.8%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%
Tax/national insurance law and payments	Count	200	93	169	71	15	3	5	14	11	5	293
	%	13%	13%	12.5%	11.6%	20.0%	6.5%	11.6%	28.6%	44.0%	27.8%	13.2%
Training/skills needs	Count	53	34	49	29	2	5	0	0	2	0	87
	%	4%	5%	3.6%	4.7%	2.7%	11.1%	0.0%	0.0%	8.0%	0.0%	3.9%
Workplace pensions	Count	34	15	24	14	5	0	5	1	0	0	49
	%	2%	2%	1.8%	2.3%	6.7%	0.0%	11.6%	2.0%	0.0%	0.0%	2.2%
Other	Count	219	92	185	77	32	14	0	1	2	0	311
	%	15%	13%	13.7%	12.6%	42.7%	31.1%	0.0%	2.0%	8.0%	0.0%	14.0%
Don't know	Count	234	103	223	93	0	3	11	7	0	0	337
	%	16%	14%	16.5%	15.2%	0.0%	6.7%	25.6%	14.0%	0.0%	0.0%	15.2%

Source: LSBS (2015), question K5: what did you seek information or advice in the last year?

Table A.19 Awareness of Support (weighted sample)

Which of the following are you aware of?		Urban	Rural	Urban England	Rural England	Urban Scotland	Rural Scotland	Urban Wales	Rural Wales	Urban NI	Rural NI	Total
Employees												
UK Trade and Investment (UKTI)	Count	914	403	815	344	57	25	22	17	20	17	1317
	%	35%	34%	36.2%	35.1%	30.3%	29.4%	25.0%	25.0%	35.1%	43.6%	35.0%
The Tools for Business section on the .GOV website	Count	734	303	643	262	47	20	27	14	17	7	1037
	%	28%	26%	28.6%	26.7%	25.0%	23.3%	30.7%	20.6%	29.8%	17.9%	27.6%
The British Business Bank	Count	373	176	336	158	25	13	8	3	4	2	549
	%	14%	15%	14.9%	13.3%	15.1%	15.1%	9.2%	4.3%	6.9%	5.1%	14.6%
Innovate UK	Count	801	347	707	294	53	23	26	16	15	14	1148
	%	31%	30%	31.4%	30.0%	28.2%	27.1%	29.5%	23.2%	26.3%	35.9%	30.5%
The Pensions Regulator	Count	2143	985	1860	825	163	70	74	56	46	34	3128
	%	83%	84%	82.6%	84.1%	86.7%	82.4%	84.1%	82.4%	80.7%	87.2%	83.3%
Investors in people	Count	1817	821	1580	693	138	62	59	42	40	24	2638
	%	70%	70%	70.2%	70.6%	73.4%	72.9%	67.0%	60.9%	70.2%	61.5%	70.2%
No Employees												
UK Trade and Investment (UKTI)	Count	2501	857	2239	739	144	31	41	42	77	45	3358
	%	29%	26%	29.3%	27.5%	29.3%	14.6%	18.2%	18.2%	58.8%	40.9%	28.6%
The Tools for Business section on the .GOV website	Count	1467	536	1322	442	68	32	45	39	32	23	2003
	%	17%	17%	17.3%	16.4%	13.8%	15.0%	20.0%	16.9%	24.6%	21.1%	17.1%
The British Business Bank	Count	1054	384	935	312	78	40	26	28	15	4	1438
	%	12%	12%	12.2%	11.6%	15.9%	18.8%	11.6%	12.1%	11.5%	3.7%	12.2%
Innovate UK	Count	2213	885	1980	769	123	45	60	53	50	18	3098
	%	26%	27%	25.9%	28.6%	25.0%	21.1%	26.7%	22.9%	38.2%	16.4%	26.4%
The Business Growth Service	Count	784	337	760	324	0	0	24	13	0	0	1121
	%	9%	10%	9.9%	12.0%	0.0%	0.0%	10.7%	5.6%	0.0%	0.0%	9.5%
Manufacturing Advisory Service	Count	1160	509	1132	469	0	0	28	40	0	0	1669
	%	14%	16%	14.8%	17.4%	0.0%	0.0%	12.4%	17.3%	0.0%	0.0%	14.2%
The Pensions Regulator	Count	5613	2235	5069	1868	321	127	135	175	88	65	7848
	%	66%	69%	62.2%	69.5%	65.2%	59.3%	59.7%	76.1%	67.7%	59.6%	66.8%
Investors in people	Count	5149	1972	4583	1664	327	140	142	107	97	61	7121
	%	61%	61%	59.9%	61.9%	66.6%	65.7%	62.8%	46.5%	74.0%	56.0%	60.6%

Source: **LSBS (2015)**, question K1: which of the following are aware of?

Table A.20: Impact of Rural Small Businesses on Outcomes including London location

Matching technique	Turnover ATT (SE)	Profit ATT (SE)	Support ATT (SE)
PSM	-444,803.9*** (144,476.9)	0.026*** (0.008)	0.014 (0.010)
Nearest Neighbour (3)	-270,303.9** (115095.4)	0.024*** (0 .008)	0.013 (0.010)
Caliper (0.2)	-444,803.9*** (144,476.9)	0.026*** (0.008)	0.014 (0.010)

Notes: *, **, *** denote significance at 10%, 5% and 1%, SE is standard errors

Table A.21 The Balancing Test for Turnover

	Number of observations	
	Raw	Matched
Total observations	11,775	5,834
Treated observations	2,917	2,917
Control observations	8,858	2,917

	Standardized differences		Variance ratio	
	Raw	Matched	Raw	Matched
SECTOR	-0.1760521	-0.0225763	0.9565511	0.9801318
lnTOTEMP	-0.1303482	0.0027636	0.895616	1.000336
AGEB	0.0439674	-0.0490108	0.8899922	1.138867
UNREG	-0.0107943	0.0052136	0.9761675	1.012025
SOTRAD	0.0708459	0.0052136	1.067794	1.016844
lnEMAGE	-0.1880083	-0.0106685	0.7860737	0.9660005
lnEMSECT	-0.1117518	-0.013086	0.8856775	0.9864209

Table A.22 The Balancing Test for Profit

	Number of observations	
	Raw	Matched
Total observations	12,605	6,286
Treated observations	3,143	3,143
Control observations	9,462	3,143

	Standardized differences		Variance ratio	
	Raw	Matched	Raw	Matched
SECTOR	-0.1728494	-0.0261377	0.9631563	0.9897969
lnTOTEMP	-0.1280868	0.0123762	0.8873723	1.017056
AGEB	0.0467984	-0.0372823	0.8872073	1.050282
UNREG	-0.0196292	-0.0039075	0.9561728	0.9909343
SOTRAD	0.0640767	0.0146158	1.062783	1.013048
lnEMAGE	-0.1084365	-0.0079141	0.7808817	0.9739364
lnEMSECT	-0.1882104	-0.0079141	0.7808817	0.9739364

Table A.23 The Balancing Test for Support

	Number of observations	
	Raw	Matched
Total observations	13,392	6,680
Treated observations	3,340	3,340
Control observations	10,052	3,340

	Standardized differences		Variance ratio	
	Raw	Matched	Raw	Matched
SECTOR	-0.1788126	-0.0265628	0.9626574	0.9825479
lnTOTEMP	-0.1389237	0.0064824	0.8860663	1.010595
AGEB	0.0595282	-.0380998	0.8731298	1.110801
UNREG	-0.0133082	0.0009156	0.9702884	1.110801
SOTRAD	0.070168	0.0091746	1.070234	1.008201
lnEMAGE	-0.1152631	-0.004567	0.8775404	1.009753
lnEMSECT	-0.1973146	-0.0118657	0.7790642	0.9737305

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