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The relationships between business support, managerial practices and firm performance over time

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The relationships between business support, managerial practices and firm performance over time

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ABSTRACT

Governments have long favoured business advisory services and grants as key tools for supporting firms. While existing research generally underscores their positive impact on firm performance, there is less clarity on how this support influences specific managerial practices. These practices, which encompass a firm's strategies and activities, are thought to be first shaped by business support, which then in turn more directly impact firm performance. In this research paper, we analyse data from the Longitudinal Small Business Survey (LSBS) between 2018 and 2022 to examine the links between receiving business support in 2018, the managerial practices implemented in 2019, and firm performance (turnover growth and employee growth). Our study reveals that although business advice and government grants enhance the likelihood of adopting managerial practices, their individual and combined direct and indirect effects on firm performance are marginal. Additionally, the impact of business support on performance seems lagged, as SMEs require time to implement the support before observing any noticeable improvements. We discuss the implications of these findings and highlight the need for further research to explore these results in greater detail.

Key words: business advice, government grants, combined business support, managerial practices, firm performance

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1.INTRODUCTION

Enterprise policies are designed to increase competitiveness and encourage the growth of SMEs that are exposed to market failures (Audretsch et al., 2007; Lundstrom & Stevenson, 2005). Business advisory services and grants are historically favoured approaches to delivering business support by governments. Business advice is also a common service provided by wider third sector and private entrepreneurial ecosystem actors (Mole, 2023), with small businesses frequently taking advice from accountants, lawyers, and other external sources to strengthen their management capabilities (Henley, 2024).

Both advice and grants are thought to increase the capacity and capabilities of small firms that face knowledge and resource gaps (Audretsch et al., 2007). The existing evidence generally highlights that the relationship between both business advisory services and grants and firm performance is positive (e.g., Dvoulety et al., 2021a; Mole, 2023). However, this research indicates that *how* this support is delivered is crucial for its effectiveness, with length and intensity of support key (Buffart et al., 2020; Mole et al., 2011; Srhoj, 2021a).

Furthermore, beyond understanding what the impact of business advisory services and government grants is on firm performance, little is known regarding how support influences various managerial practices. Yet with managerial practices comprising the strategies and activities of the firm, support can be argued to first influence managerial practices, and these then in turn more directly impact firm performance. Indeed, the managerial practices that small firms enact have been found to be important for building value (e.g., Frankenberger & Stam, 2021), while differences in how these practices are enacted have also been found present in firms that grow with those that do not (e.g., Jaouen & Lasch, 2015; Mueller & Volery, 2012). Understanding the relationships between business advice, government grants, and internal managerial practices, therefore, can help to create a more detailed understanding of firm performance triggers – contributing to understanding how firms can ‘gear-up’ for growth (Hart et al., 2021).

Consequently, in this research paper we aim to explore the associations between business support, its links to the managerial practices enacted by firms, and ultimately, its effects on business growth. This line of enquiry can be particularly useful in shedding light on what happens after small firms receive business support. Increasing understanding into the value-adding practices that small firms enact and its relationship to firm performance can be particularly useful for those concerned about how firms can generate market-value and scale (Bohan et al., 2024; Gimmon & Levie, 2021; Stevensson et al., 2021).

We draw on data from the Longitudinal Small Business Survey (LSBS) between 2018 and 2022 to explore the relationships between receiving business support in 2018 (business advice, government grant, or combined business support), with managerial practices enacted in 2019 (exporting, innovation, business planning, changing directors, opening multiple business sites, staff development training, accessing external finance, and using informal finance), and firm performance (turnover growth and employee growth).

Our study shows that while business advice and government grants increase the likelihood of adopting managerial practices, their individual and combined direct and indirect effects on firm performance are marginal. Moreover, the effects of business support on firm performance appear to be lagged, with SMEs seemingly needing time to implement the support before seeing any improvements. The implications of these results are discussed and future research to investigate these results in more depth are highlighted.

2. BACKGROUND AND RESEARCH QUESTIONS

Entrepreneurs and small businesses face knowledge and resource gaps as they launch and grow their businesses (Audretsch et al., 2007). As such, government enterprise policy typically provides supportive programmes, such as business advisory services and grants to alleviate these gaps and trigger increases in firm performance, such as employee and turnover sizes. Generally, a high proportion of SMEs seek advice from external sources, which not only includes public sources but also wider private and third sector sources (Mole, 2023; Henley, 2024).

Business advice services typically look to build the capabilities of the leadership team within a firm to build long-lasting effects (Koryak et al., 2015; Roper & Hart, 2013). Alternatively, government grants are typically aimed at increasing the productive capacity of small firms and loosening capital constraints (Srhøj et al., 2021a; Widerstedt & Mansson, 2015). This can include increasing their capacity for value-adding activities such as innovation (e.g., through R&D subsidies or grants – Nana-Cheraa et al., 2023).

There is evidence to support the positive impact that business advice can have on the performance of small businesses. For example, Cumming & Fischer (2012) highlight that public advisory services are associated with sales growth, patents, access to finance, and alliances with other firms. However, gaps remain in understanding the mechanisms through which support is effective, with questions on how best to deliver business advisory services to small firms especially pertinent (Arshed et al., 2021; Mole 2023).

The existing literature has highlighted that how advisory services are delivered does indeed influence its impact. This includes evidence that advice being delivered face-to-face by an advisor is more impactful than providing online information (Mole et al., 2014); that the use of formal sources of advice can lead to increases in productivity (business turnover per employee) (Henley, 2024); and that who is receiving business advice also effects its impact. For this latter point, Mole et al., (2008) find that employment growth is greater for larger firms with limited liability, those that are part of multi-plant groups, and those that export. Likewise, Mole et al., (2017) find that there is a greater demand from formal advisory services from SMEs with more than ten employees.

Other studies have focused on the duration of advisory support services. Mole et al., (2011) question whether advisory services should be delivered through one-off assistance or repeated interactions. Impact was found to be higher when more intensive support was given to a smaller cohort of firms. Likewise, Buffart et al., (2020) find that for Small Business Development Centers (SBDC) advisory services in the US, growth outcomes were achieved with fewer advising hours when the treatment design had a higher duration of interaction with intensive engagement. This was found to be more effective than ‘picking winners’.

Beyond looking at the intensity of business advice delivery we do not have a detailed understanding of the timing elements of business advice. Understanding whether business advice has an immediate or lagged relationship with business growth can advance our understanding and inform future research on what triggers growth episodes (e.g., Hart et al., 2021), as well as advise policy on the mechanisms of business support and how and when its effects might materialise. Therefore, our first research question explores:

RQ1: Is there an immediate or lagged relationship between receiving business advice and firm revenues and employment growth among SMEs?

Business grants have also been found to generally have a positive impact on the performance of SMEs (e.g., Dvoulety et al., 2021). This includes outcomes such as firm survival, employment, assets, and turnover. These grants have been found to be particularly impactful for smaller firms (Srhoj et al., 2021a) and younger firms (<1 year), with Srhoj et al., (2021b) finding no effect for firms between two and five years old.

Similarly to the business advisory service literature, research on business grants has also sought to understand how best to deliver grants to small firms. Hottenrott et al., (2017) and Srhoj (2021a) have distinguished between research and developmental grants, with developmental grants perceived to be closer to the market and supported with lower amounts

and shorter time frames. However, development grants have been found to only have a positive impact on SME performance when grants with higher amounts were aimed at younger firms (Srhoj et al., 2021a).

Beyond this, the existing knowledge base on the provision of grant assistance to SMEs has other shortcomings (Dvoulety et al., 2021). An important gap is that the associations with firm performance and activity are dominated by short-term (<2 years) investigations. This shortcoming can be explained by most grant programmes under study being focused on a specific technology change aiming to make firms more efficient in the short-term. Again, to advance understanding of what triggers growth in small firms and whether business support plays a role, our second research question explores:

RQ2: Is there an immediate or lagged relationship between receiving a government grant and firm revenues and employment growth among SMEs?

Beyond understanding how best to deliver business advice and grants to small firms, it is important to also investigate the effectiveness of their combination or the 'policy mix' (e.g., Flanagan et al., 2011). This is particularly pertinent as many small firms will seek both capabilities building (advice) and capacity building support (grants). The policy mix literature predominantly focuses on the interactions of innovation policies, for example the effect of receiving both R&D grants and R&D tax credits on firm performance (e.g., Marino et al., 2016; Nana-Cheraa et al., 2023). This literature seeks to understand whether mixes of policy support generate additional, complementary, crowd-out, or substitute benefits.

Within the wider enterprise policy literature, there is recognition, however, that governments are targeting small business creation and growth through mixes of supportive policies (e.g., Wang et al., 2023). Yet, there is currently limited exploration into the relationship between different combinations of business support. As such, our third research question looks to explore the combination of business advice and grants:

RQ3: Is there an immediate or lagged relationship between receiving a combination of business advice and a government grant with firm revenues and employment growth among SMEs?

While understanding the associations between business support and firm performance points to positive benefits, relatively little is known about the managerial practices firms actually enact after they receive support (e.g., Koryak et al., 2015). This has been expressed as an important area of research to develop knowledge on how firms 'gear-up' for growth episodes (Hart et al.,

2021) - namely how do firms act upon the advice or resources they are given through support (Mole, 2023)?

The wider recent literature indicates how important internal resource practices are for venture growth as business leaders need to orchestrate combinations to build value and scale (Bohan et al., 2024; Frankenberger & Stam, 2021). Therefore, it is important to understand the link between the managerial practices enacted by small firms and the receipt of capability (advice) and capacity (grants) building support. Different types of managerial practices have been associated with improving firm productivity, such as innovation, exporting, and access to finance. For example, micro-enterprises that invest in R&D activities are more likely to innovate products, services, and processes which then contributes to their productivity (Luong & Hewitt-Dundas, 2020).

Different types of innovation impact firm performance differently. For example, product and service development can have a significant impact on employment growth but a negative effect on efficiency (sales per employee) while process innovation raises both efficiency and sales growth (Turner et al., 2020). Beyond this, the existing literature indicates other internal practices (such as HR) can also influence firm performance. For example, training, both on-the-job and off-the-job, are positive and significant for innovation and particularly product innovation (Frenz & Lambert, 2019).

The existing research also indicates that exporting is also strongly associated with business productivity (Gkypali et al., 2021). Indeed, exporting can have a direct positive impact on productivity, while innovation has only an indirect productivity effect via its positive influence on exporting (Jibril & Roper, 2022). Accessing finance is also another common business practice associated with firm performance. However, there are extensive nuances in this relationship. Owen et al., (2019) find no difference in business growth for those that access external finance and non-financed SMEs. They also find accessing finance increases productivity (sales per employee) only when frequently accessed and above £100k. Practices such as business planning were also associated with external finance and productivity.

Crucially, Owen et al., (2019) highlight that business support can be key for this relationship as specialist finance support can mitigate against poor productivity performance. Likewise, it has been found that firms that receive business advice outperform those that do not seek advice regarding product and process innovation (Nana-Cheraa & Roper, 2024).

The link between business grants and business performance, therefore, is not necessarily direct. For example, receiving a grant has been found to increase the rate of securing private

investment capital but not necessarily itself directly lead to increased revenue over time (Stevenson et al., 2020). This suggests that the managerial practices that are adopted by small firms post grant could be key to unlocking firm performance but through a nuancedly structured process mediated by managerial practices. Likewise, Mueller (2023) finds that a government sponsored start-up grant programme in Germany contributed to different firm-level practices such as business planning, networking, and external funding during the funding period. Therefore, our final research question looks to explore:

RQ4: What is the structural relationship between business support, managerial practices, and firm revenues and employment growth among SMEs?

3. DATA AND METHODOLOGY

To explore the relationship between receiving business support (including business advice, grants, and a combination of both), enactment of a range of managerial practices, and business performance (turnover and employment growth), we utilised data drawn from the UK Longitudinal Small Business Survey (LSBS). The LSBS was initiated in 2015 as a survey of SMEs (defined as businesses with fewer than 250 employees) by the UK Government's Department for Business, Energy and Industrial Strategy. The purpose of the survey is to provide insight into the factors driving and hindering small business performance and growth. The survey targets owner/proprietors, managing directors, and other senior executives in UK-based SMEs. Conducted annually via telephone, the survey covers topics such as ownership structure, exporting, finance, innovation, and business support.

The sample is constructed from records drawn from the UK Inter-Departmental Business Register, which includes SMEs with employees. This is supplemented by a sample of non-employer sole trader businesses drawn from Dun & Bradstreet business records. The initial sample in 2015 comprised 15,502 businesses, with some attrition and subsequent replenishment boosting the sample to 15,105 in 2018. However, the sample size in 2020 was reduced due to surveying limitations imposed by the COVID-19 lockdown (7,636 businesses).

Although eight waves of the survey up to 2022 were available at the time of this study, we utilised only five waves, as certain variables of interest were not included in the questionnaire until 2018. This leaves an available sample of 52,592 business-year observations. The sample exhibits significant disparity in terms of business participation across different waves. A substantial portion of the businesses are only present in one wave, while a much smaller fraction appears across multiple waves, with only a few businesses consistently participating

in all five observed waves. The implication of this uneven representation across the waves is that the sample employed in the present study is essentially a pooled cross-section. This allows for the analysis of trends across the survey years without requiring continuous tracking of individual businesses.

The analysis was conducted to examine the impact of business support on business performance. We focus first performance growth in the year following the year business support was received and extend to examine effects over the following four years. Additionally, we explored the managerial practices that firms adopt one year after receiving support, which prepare them for growth, and how combinations of business support contribute to the development of these practices. The analysis uncovered multiple insights into the relationships between business support, managerial practices and performance growth. Variable definitions and descriptive statistics of the items used in the analysis can be found in Appendix 1.

The analysis was performed using structural equation modelling (SEM) in R with the Lavaan package, employing Full Information Maximum Likelihood (FIML) to account for missing data. SEM allows for the examination of more complex relationships, including direct and indirect effects between business support, managerial practices, and performance outcomes over time. Additionally, SEM is well-suited for dealing with latent variables such as formal and informal finance that comprise a number of items, making it an appropriate choice for examining the structure of links between business support and firm performance. The use of FIML in this analysis allows for the inclusion of all available data points, reducing bias caused by missing responses and improving the reliability of the results. This method is particularly valuable in survey data where not all respondents answer every question, as it maximises the use of the dataset without the need for imputation.

The dependent variable in this model was business performance, measured through two primary outcomes: turnover and employment growth. Both turnover and employment growth were assessed using two metrics - compound annual growth rate (CAGR) and year-on-year (YoY) growth. CAGR provides the average annual growth rate over the period and is particularly useful for understanding sustained growth as it smooths out any volatility in the intervening period. YoY growth was calculated by taking the percentage change between the current year and the previous year. YoY growth is useful for highlighting episodic or shorter-term changes. Using both CAGR and YoY growth provided a comprehensive view of changes over time, enabling us to evaluate both sustained and episodic growth following business

support. This dual approach allows for an in-depth understanding of business performance across multiple timeframes.

The independent variables in the model were two forms of business support: business advice and business grants. A third variable, combined business support (CBS), was constructed to capture cases where both advice and grants were received. This allowed us to compare the effects of receiving a single form of support versus a combination of support types. Business grants referred specifically to government or local authority grants or schemes. In the questionnaire, respondents were asked to indicate whether they were currently using "Government or local authority grants or schemes". For business advice, the analysis included a wide range of sources as listed in the questionnaire. Respondents were asked if they had received information or advice in the last 12 months from various sources, ranging from formal advisers such as accountants, banks, business networks/trade associations, consultants, and chambers of commerce, to informal sources such as friends or family members, work colleagues, and the internet (e.g., GOV websites, other websites, Google searches). Other sources included local councils or authorities, local enterprise partnerships, universities, the NI business info website, solicitors/lawyers, and specific institutions like InterTrade Ireland, Invest NI, and the Pensions Regulator.

The relationships between business support and the performance outcomes, measured by turnover and employment growth, can be expressed using the following equation:

$$\begin{aligned}
 & \text{Performance} \\
 = & \beta_1 \text{BizAdvice} + \beta_2 \text{BizGrant} + \beta_3 \text{CBS} + \gamma_1 \text{Sector} + \gamma_2 \text{BusinessAge} + \gamma_3 \text{Region} + \gamma_4 \text{Geography} + \gamma_5 \text{Womenled} + \gamma_6 \text{EthnicMinorityLed} + \gamma_7 \text{Charity} \\
 & + u
 \end{aligned}$$

In this equation, *Performance* represents both turnover and employment growth in Year 2 and Year 5. *BizAdvice*, *BizGrant*, and *CBS* represent the various forms of business support - business advice, business grants, and combined business support, respectively. The model controls for demographic and business characteristics, including the gender (*WomenLed*) and ethnicity (*EthnicMinorityLed*) of the owner-manager, geographical factors like rurality (*Geography*), business age (*BusinessAge*), sector (*Sector*), region (*Region* - UK Home Nation), and whether the business is a charity (*Charity*). The term *u* represents the error term in the model.

The specification of control variables in this analysis aims to ensure a robust model while acknowledging that not all factors influencing business performance can be captured. These control variables were incorporated into the SEM model to ensure that the analysis accounted for variations in performance across these key business characteristics. Sector was included,

as different industries face unique challenges that affect performance and growth (Chrisman and McMullan, 2000; Robson and Bennett, 2000). Regional differences (England, Scotland, Wales, and Northern Ireland) were considered, as the availability of support varies across the UK (Bennett and Robson, 1999; Mole et al., 2017). Charity status was also controlled for, as charities often prioritise social impact over profitability, affecting their engagement with support services (Phillips, 2006).

Furthermore, the study incorporated the gender of business leadership (women-led) and business age, as these factors are known to influence managerial strategies and resource needs (Robson et al., 2008). Minority ethnic group leadership was also investigated to account for barriers faced by minority-led businesses, such as access to advice (Scott and Irwin, 2009). Finally, interest in the urban-rural distinction was driven by the established differences in resource access and market dynamics between rural and urban businesses (Cumming et al., 2015). By controlling for these variables, the analysis seeks to capture a more accurate picture of how business support impacts performance while accounting for these influential factors.

In the second part of the analysis, we focused on identifying specific business practices that are closely linked to performance, as measured by turnover and employment growth, and examined how advice and grants, and combinations thereof, contribute to these practices and ultimately to firm performance through mediation effects. The model included latent variables for formal and informal finance, alongside key business practices such as exporting new products or services, innovation, business planning, leadership changes (changes in business directors), multiple site operations, and staff training. These practices were analysed to determine their direct impact on business growth, while also assessing how business grants, business advice, and combined business support (CBS) facilitated the adoption of these practices and in turn growth. This approach allowed for a deeper understanding of how business support not only aids in immediate growth but also fosters the internal practices that may drive sustained success.

The relationships between business support, practices, and performance were captured through the following mediation structure:

1. Business Support to Practices (Mediation Path):

$$Practices = \beta_1 BizAdvise + \beta_2 BizGrant + \beta_3 CBS + \gamma_1 Sector + \gamma_2 BusinessAge + u_1$$

In this equation, *Practices* includes variables related to the export of new products/services, innovation, business planning, leadership changes, multiple site operations, staff training, formal finance, and informal finance. The business support variables (*BizAdvise*, *BizGrant*, *CBS*)

directly influence the adoption of these practices. *BusinessAge* and *Sector* are included as control variables, while u_1 is the error term.

2. Practices to Performance (Indirect Effects):

$$Performance = \beta_1 Practices + \gamma_1 Sector + \gamma_2 BusinessAge + u_2$$

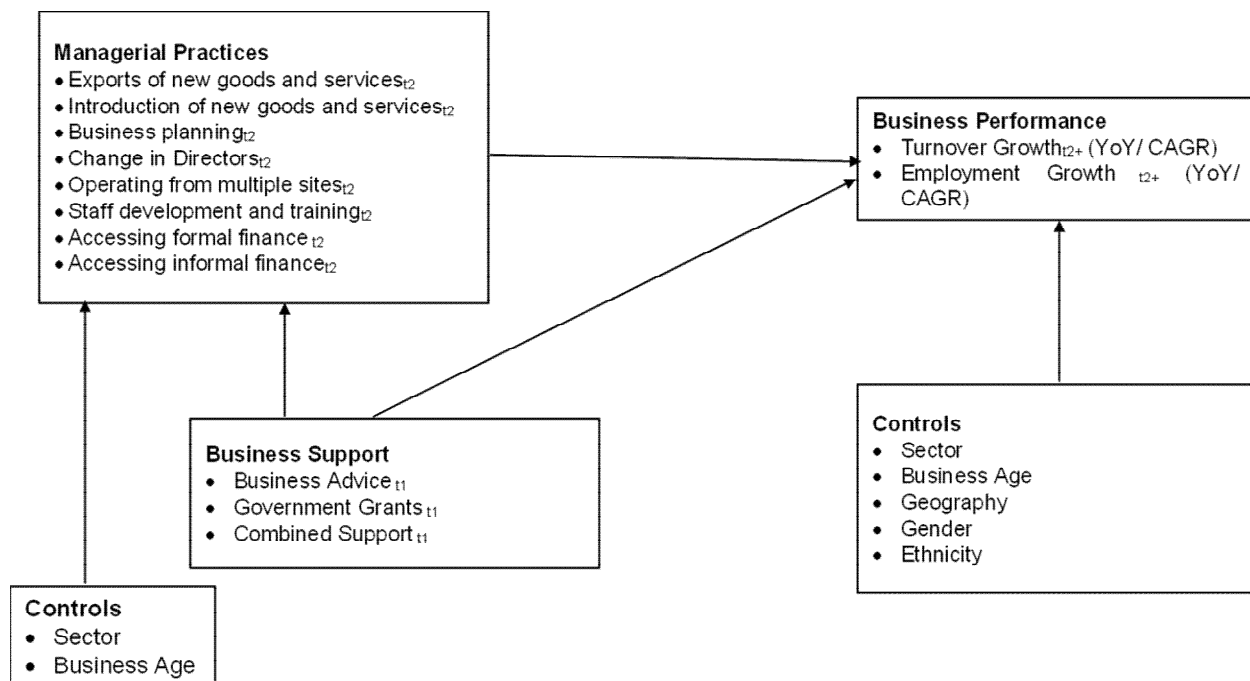
Here, *Performance* refers to turnover and employment growth, which are influenced by the adoption of the various business practices (*Practices*). This reflects the indirect effect of business support on performance through its impact on business practices. Again, *BusinessAge* and *Sector* serve as controls, and u_2 represents the error term.

3. Combined Mediation Equation (Total Effect):

$$performance = (\beta_1 BizAdvise + \beta_2 BizGrant + \beta_3 CBS) \times \beta_1 Practices + \gamma_1 Sector + \gamma_2 BusinessAge + u_3$$

This combined equation represents the total effect of business support on performance. The indirect effect is captured by the product of the coefficients $(\beta_1 BizAdvise + \beta_2 BizGrant + \beta_3 CBS) \times \beta_1 Practices$. The control variables *BusinessAge* and *Sector* remain present, with u_3 as the error term. Figure 1 presents the modelled relationships schematically.

Figure 1: Conceptual model



4. RESULTS

Our analysis first focused on assessing the relationship between business advice, business grants, and combined business support (CBS) with business performance. Business performance was captured through two key outcomes: turnover and number of employees. We measured these through both a compound annualised growth rate (CAGR) and a year-on-year (YOY) effects between 2018 and 2022. Second, we examined the relationship between an array of managerial practices and business performance and how business support is associated with such managerial practices. Effectively, we explored whether business support impacts business performance through changes in managerial practices that may be enacted following receipt of support.

4.1 Business support and direct links to firm performance

Our results in Table 1 and 2 show that receiving business advice in 2018 and has no significant association with turnover or employee CAGR growth either over a year or over five years. However, Table 3 and 4 show that, receiving business advice in 2018 is statistically associated with turnover growth reported two years later in 2020. However, the effect size is very small with just a 0.057 percentage point higher growth than those that had not received advice. There is some weak evidence, further, that business advice in 2018 is associated with higher employment growth between Years 4 and 5 (2021-2022), albeit a small uptick of 0.056 percentage points. In general, business advice does not appear to have a direct association with sustained (CAGR) growth benefits in both turnover and employment, although there is some evidence of small lagged episodic effects with year-on-year turnover growth found in Year 3 and year on year employment growth in Year 5.

In contrast, receiving a business grant in 2018 was found to have a significant relationship with CAGR turnover growth by Year 4, extending to Year 5. This suggests that grants have a lagged effect on turnover growth but in a compounding sense as opposed to episodic. However, the effect size is also very small with just 0.052 percentage point increase in growth reported in CAGR in Year 4 and 0.043 percentage point increase in Year 5. There is also some evidence that business grants in 2018 are associated with YOY increase in employment between year 2 and year 3, but the effect size was again small at 0.125 percentage points. We find no relationship between CBS for either CAGR or YOY turnover or employee growth. On the whole, business support does not appear to have much in the way of strong direct effects on turnover and employment growth immediately or over time.

Table 1: Direct effects of business support on turnover growth over time

Dependent Var: Turnover Growth rates (CAGR) - % levels				
VARIABLES	(1) CAGR _{t1-2}	(2) CAGR _{t1-3}	(3) CAGR _{t1-4}	(4) CAGR _{t1-5}
Business Advice _{t1}	-0.111 (0.121)	0.005 (0.014)	0.009 (0.011)	0.001 (0.009)
Business Grants _{t1}	0.141 (0.292)	0.046 (0.036)	0.052* (0.027)	0.043** (0.022)
Combined support _{t1}	-0.438 (0.388)	-0.022 (0.047)	0.001 (0.036)	0.015 (0.029)
Sector	YES	YES	YES	YES
Firm age	YES	YES	YES	YES
Region (GOR)	YES	YES	YES	YES
Urban/ Rural	YES	YES	YES	YES
Gender	YES	YES	YES	YES
Ethnicity	YES	YES	YES	YES
Reg. status (charity)	YES	YES	YES	YES
Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1; Observations: 15013				

Table 2: Direct effects of business support on employment growth over time

Dependent Var: Employment Growth rates (CAGR) - % levels				
VARIABLES	(1) CAGR _{t1-2}	(2) CAGR _{t1-3}	(3) CAGR _{t1-4}	(4) CAGR _{t1-5}
Business Advice _{t1}	0.009 (0.049)	0.016 (0.014)	0.008 (0.012)	0.019 (0.012)
Business Grants _{t1}	-0.016 (0.106)	0.012 (0.034)	0.028 (0.027)	0.036 (0.028)
Combined support _{t1}	0.051 (0.147)	-0.019 (0.044)	0.015 (0.036)	-0.010 (0.037)
Sector	YES	YES	YES	YES
Firm age	YES	YES	YES	YES
Region (GOR)	YES	YES	YES	YES
Urban/ Rural	YES	YES	YES	YES
Gender	YES	YES	YES	YES
Ethnicity	YES	YES	YES	YES
Reg. status (charity)	YES	YES	YES	YES
Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1; Observations: 15013				

Table 3: Direct effects of business support on episodic turnover growth

Dependent Var: Turnover Growth rates (YoY) - % levels				
VARIABLES	(1) YoY _{t1-2}	(2) YoY _{t2-3}	(3) YoY _{t3-4}	(4) YoY _{t4-5}
Business Advice _{t1}	-0.018 (0.052)	0.027 (0.031)	-0.186 (0.228)	0.056* (0.033)
Business Grants _{t1}	0.008 (0.117)	0.125* (0.075)	-0.204 (0.562)	-0.032 (0.077)
Combined support _{t1}	0.036 (0.160)	-0.128 (0.097)	0.456 (0.730)	0.004 (0.101)
Sector	YES	YES	YES	YES
Firm age	YES	YES	YES	YES
Region (GOR)	YES	YES	YES	YES
Urban/ Rural	YES	YES	YES	YES
Gender	YES	YES	YES	YES
Ethnicity	YES	YES	YES	YES
Reg. status (charity)	YES	YES	YES	YES
Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1; Observations: 15013				

Table 4: Direct effects of business support on episodic employment growth

Dependent Var: Employment Growth rates (YoY) - % levels				
VARIABLES	(1) YoY _{t1-2}	(2) YoY _{t2-3}	(3) YoY _{t3-4}	(4) YoY _{t4-5}
Business Advice _{t1}	-0.018 (0.052)	0.027 (0.031)	-0.186 (0.228)	0.056* (0.033)
Business Grants _{t1}	0.008 (0.117)	0.125* (0.075)	-0.204 (0.562)	-0.032 (0.077)
Combined support _{t1}	0.036 (0.160)	-0.128 (0.097)	0.456 (0.730)	0.004 (0.101)
Sector	YES	YES	YES	YES
Firm age	YES	YES	YES	YES
Region (GOR)	YES	YES	YES	YES
Urban/ Rural	YES	YES	YES	YES
Gender	YES	YES	YES	YES
Ethnicity	YES	YES	YES	YES
Reg. status (charity)	YES	YES	YES	YES
Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1; Observations: 15013				

4.2 Managerial practices and direct links to firm performance

Tables 5 and 6 present the relationship between the different managerial practices with firm performance. We find that Exporting in 2019 (Year 2) had no association with 2-year (2018 - 2019) or 5-year (2018 – 2022) CAGR for turnover or employment. There was, however, a significant relationship with immediate YOY turnover growth between in 2019 with exporting SMES reporting a 0.071 percentage points higher growth rate. No effect was found for year of year employment growth in Year 2 or Year 5, or YoY turnover growth in Year 5. Exporting is thus only associated with immediate turnover growth with no lagged effects found.

Innovation has traditionally been thought to continue to yield performance outcomes for firms as the new products and services gain traction in the market. Surprisingly, we find that innovation activity in the three years to 2019 had no association with 2-year (2019) or 5-year (2022) CAGR for either turnover or employment. There were also no associations with YOY turnover or employment growth immediately or after four years. Similarly, business planning in 2019 had no association with CAGR or YoY turnover growth, with only a weak association with CAGR employment growth found in 2019; firms that had a formal business plan in 2019 had a 0.028 percentage point higher growth in employment in 2019.

In contrast, change in directors in 2019 had a significant negative association with turnover growth for 2018-2019 with firms that had gained or lost a working director over the previous year reporting a 0.075 percentage point lower turnover growth rate on average. Change in directors was also associated with lower employment growth in the short term with such firms reporting a 0.096 lower YoY employment growth in 2019. This suggests that such disruptions in business leadership might have negative implications on firm performance in the short term.

However, while we find no links with turnover growth over the four years following these changes in leadership, we find that a change in directors is nevertheless associated with a 0.059 percentage point higher growth in employment CAGR over the four years following such a change. Structural changes in the firm such as opening or closing a new site or branch could be thought to have similar implications for firms as leadership changes. However, we find no significant association at all between this and either turnover or employment growth in the near term or over time.

Table 5: Direct effects of managerial practices on turnover growth over time

VARIABLES	(1) CAGR _{t1-2}	(2) YoY _{t1-2}	(3) CAGR _{t1-5}	(4) YoY _{t4-5}
Exporting _{t2}	0.022 (0.016)	0.071*** (0.027)	0.009 (0.011)	0.119 (0.133)
Innovation _{t2}	0.009 (0.015)	-0.022 (0.025)	-0.005 (0.010)	0.145 (0.125)
Bus Plan _{t2}	0.007 (0.015)	-0.012 (0.024)	0.017 (0.010)	-0.007 (0.120)
Lead Change _{t2}	-0.075** (0.031)	-0.068 (0.051)	0.003 (0.021)	0.298 (0.254)
Multi sites _{t2}	0.023 (0.033)	0.007 (0.056)	0.013 (0.024)	-0.069 (0.281)
Staff Devt _{t2}	0.049*** (0.018)	0.052* (0.029)	0.038*** (0.014)	-0.044 (0.157)
Formal Fin _{t2}	0.117** (0.046)	0.099 (0.077)	0.058* (0.032)	-0.134 (0.372)
Informal Fin _{t2}	-0.385** (0.195)	-0.477 (0.315)	-0.179 (0.126)	4.435*** (1.490)
Sector	YES	YES	YES	YES
Firm age	YES	YES	YES	YES
Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1; Observations: 15013				

Table 6: Direct effects of managerial practices on employment growth over time

VARIABLES	(1) CAGR _{t1-2}	(2) YoY _{t1-2}	(3) CAGR _{t1-5}	(4) YoY _{t4-5}
Exporting _{t2}	-0.003 (0.018)	-0.009 (0.032)	-0.005 (0.015)	-0.002 (0.036)
Innovation _{t2}	0.015 (0.015)	0.028 (0.029)	-0.003 (0.013)	0.004 (0.032)
Bus Plan _{t2}	0.028* (0.016)	0.028 (0.028)	0.017 (0.014)	0.018 (0.032)
Lead Change _{t2}	-0.039 (0.030)	-0.096* (0.054)	0.059** (0.026)	0.100 (0.063)
Multi sites _{t2}	0.040 (0.034)	-0.043 (0.059)	0.014 (0.031)	0.052 (0.074)
Staff Devt _{t2}	0.066*** (0.020)	0.057** (0.029)	0.044** (0.018)	-0.057 (0.036)
Formal Fin _{t2}	0.098** (0.048)	0.029 (0.085)	0.089** (0.042)	0.183* (0.098)
Informal Fin _{t2}	-0.176 (0.187)	-0.167 (0.344)	-0.209 (0.161)	-0.256 (0.353)
Sector	YES	YES	YES	YES
Firm age	YES	YES	YES	YES
Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1; Observations: 15013				

Looking at managerial practices in capability development through staff development and training, we find that firms that indicated that they offer off/ on the job training in 2019 had a statistically significant higher growth in turnover and employment in the short-term at 0.05 percentage points higher turnover growth and around 0.06 percentage points higher growth in employment. Looking at a longer five-year period, we find that staff development and training was associated with consistent higher growth rates at about 0.04 percentage points higher CAGR growth in both turnover and employment. However, there was no association between staff development and training in 2019 and YOY turnover or employment growth four years later over 2021 – 2022.

Accessing formal finance is associated with capacity enhancements that may have performance implications. Indeed, we find that firms that were using formal sources of finance in 2019 had higher CAGR growth rates in both turnover and employment and over both the periods studied. Evidence further points to formal finance having compounded growth effects over time as opposed to episodic year on year growth. In contrast, firms that employed

informal finance in 2019 experience a significantly negative growth in turnover in the 2018-19 period although then went on to report significantly higher YoY revenue growth in Year 5 although CAGR growth rates were not statistically different from other firms. This suggests that firms that draw on informal finance might have erratic revenue growth patterns. Nevertheless, using informal finance does not appear to have any significant associations with employment growth, both in the short term or over five years.

4.3 Relationships between business support and managerial practices

To unpack what firms did 1-year after receiving business advice, business grants or a combination of the two, we examined the links between receiving business support in Year 1 (2018) and undertaking the managerial practices discussed above in 2019. As Table 7 reports, receiving business advice in 2018 increased the likelihood of engaging in exporting in 2019 by 6.8 percentage points, innovation by 9.6 percentage points, business planning by 21.3 percentage points, changing directors by 4.7 percentage points, opening multiple business sites by 2.8 percentage points, staff development training by 18.1 percentage points, accessing formal finance by 6 percentage points, and using informal finance by 1.3 percentage points.

Similarly, business grants received in 2018 had a significant association with managerial practices in 2019, with higher likelihood found in exporting by 4.3 percentage points, innovation by 11.1 percentage points, business planning by 29.6 percentage points, change in directors by 6.5 percentage points, opening multiple business sites by 3.7 percentage points, staff development training by 18.5 percentage points, and accessing formal finance by 7.8 percentage points. There was also some evidence, at the 10% level, of a business grant increasing the likelihood of using informal finance in 2019 by 1.4 percentage points.

CBS received in 2018 had a significant association in 2019 with innovation by 16.9 percentage points, business planning by 33.9 percentage points, change in directors by 7.3 percentage points, opening multiple business sites by 4.2 percentage points, staff development training by 22.0 percentage points, and accessing external finance by 10.3%. There was no significant association between combined business support with exporting or using informal finance in 2019.

In general, these results strongly suggests that despite a scant direct effect on firm performance as reported earlier, business support has a significant impact on a range of managerial practices that themselves then influence firm performance variously as discussed in Section 4.2. This substantiates the importance of examining the mediated effects of

business support to fully unpack the mechanisms underlying its influence on performance in both the short term and over the longer term.

Table 7: Direct effects of business support on managerial practices

Dependent Var: Managerial Practices in t2								
VARIABLES	(1) Export	(2) Innovation	(3) Bus Plan	(4) Lead Change	(5) Multi sites	(6) Staff Devt	(7) Formal Fin	(8) Informal Fin
Business Advcert	0.068*** (0.011)	0.096*** (0.007)	0.212*** (0.013)	0.047*** (0.006)	0.028*** (0.006)	0.180*** (0.014)	0.060*** (0.009)	0.013*** (0.005)
Business Grants t1	0.043** (0.019)	0.111*** (0.011)	0.296*** (0.022)	0.065*** (0.011)	0.037*** (0.010)	0.185*** (0.023)	0.078*** (0.015)	0.014* (0.008)
Combined t1	0.037 (0.026)	0.169*** (0.016)	0.339*** (0.030)	0.073*** (0.015)	0.042*** (0.013)	0.220*** (0.031)	0.103*** (0.020)	0.006 (0.011)
Sector	YES	YES	YES	YES	YES	YES	YES	YES
Firm age	YES	YES	YES	YES	YES	YES	YES	YES
Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1; Observations: 15015								

4.4 Indirect effects of business support on firm performance through managerial practices

Our results above suggest that business support might influence firm performance through several managerial practices, with hardly any direct effects as reported in Section 4.1. To more formally examine this, we estimated the indirect effects of support on performance through the various managerial practices.

Looking first at short-term turnover growth, we find that business advice in Y1 was significantly associated with a slightly higher YoY turnover growth in Y2 through its positive impact on exporting activity ($p=0.015$). However, this was not sustained into the future and neither were there significant benefits of business advice through export activity for employment growth both in the short or in the long term.

Similarly, while advice was strongly associated with the likelihood of innovation activity in the short term, no indirect effects of advice on firm performance through innovation were detected for turnover and employment growth, both in Year 2 and over four years. By the same token, advice appeared to marginally influence short-term employment growth through its effect on business planning but no other indirect immediate or lagged effects of business advice on performance through business planning are detected.

However, we find that the association between advice and change in directors is further indirectly associated with a slightly lower growth in turnover and employment over the short

term. However, we find a positive indirect effect of advice on CAGR turnover growth over five years through change in directors (0.003 percentage points, $p = 0.029$). While advice also had an influence on the likelihood of structural changes in the firm through the opening or closure of new sites or branches, no significant indirect effect on short or longterm growth in turnover or employment was detected.

In contrast, business advice is found to have a positive association with higher short-term and long-term turnover and employment growth through its association with staff development and training. Importantly, the significant long-term effect is only observed for estimated CAGR growth rates for both revenues and employment (both $p < 0.05$) while no effect is detected for both YoY growth in Y5. This suggests that the effect of advice on performance through staff development and training is more gradually consistent, as opposed, to episodic growth.

Advice also appears to similarly influence growth through its effect on access to formal finance with significant indirect effects in CAGR growth in revenues and employment over the two period studied. However, with the effect of advice on informal finance reported earlier relative weak (1.3 percentage points), we find that advice is only associated with higher YoY growth in revenues in Year 5. In sum, we find that the positive short and long term effects of business advice on turnover and employment growth are more consistently mediated by staff development and formal finance practices. However, we also find that while advice is associated with change in leadership which is negatively associated with turnover and employment growth in the short term, this is seemingly reversed over the longer term with higher employment CAGR growth detected. Still, we find that taken together, the indirect effect of business advice through these eight practices combined is statistically significant albeit with rather small effect sizes: around 0.01 CAGR percentage points for turnover growth and 0.02 CAGR percentage points for employment growth in the short term and over five years.

Business grants appear to behave in a broadly similar fashion with significant indirect effects on both short and long term turnover and employment growth through staff development and training, and access to formal finance. We also find a small negative effect of business grants on turnover and employment growth in the short term through a change in directors which is again compensated over the long-term with parity in revenue growth and slightly higher employment CAGR.

5. CONCLUSION AND IMPLICATIONS

Business advice and government grants are commonly sought forms of support for SMEs (Mole, 2023; Henley, 2024) and are typically associated with positive short-term impacts on firm performance (Cumming & Fischer, 2012; Dvoulety et al., 2021; Henley, 2024). However, our analysis presents a more nuanced picture. We find that the direct effects of receiving business advice or a grant are minimal. Additionally, our findings suggest that the relationship between business support and firm performance is both mediated and lagged, with SMEs needing time to implement the support they receive through given managerial practices before any noticeable improvements in performance can be achieved.

While existing research into business advice and government grants is limited in scale and scope (Henley, 2024; Dvoulety et al., 2021), this paper provides nuanced insight into the relationship between business support and the managerial practices that SMEs adopt after receiving support. Both business advice and government grants increase the likelihood that SMEs will export, innovate, engage in business planning, change directors, open multiple business sites, undertake staff development training, and access both formal and informal finance. Exporting, innovation, and accessing external finance have been frequently linked to business growth in the existing literature (e.g., Jibril & Roper, 2022; Owen et al., 2019), so confirming that business advice and government grants encourage these practices is valuable. Additionally, we highlight further practices promoted by business advice and grants, such as business planning and staff development training, which are less explored managerial practices.

Interestingly, we found no evidence that combined business support provides additional or complementary benefits to small firms, which informs the current policy mix literature (e.g., Nana-Cheraa et al., 2023). When it comes to encouraging the adoption of managerial practices, either business advice or government grants were often more effective than combined support. In fact, the indirect effects of combined business support were frequently weaker than those of business advice or grants alone, offering very limited benefit.

The implication for those aiming to create supportive enterprise ecosystems is that access to multiple types of business support does not necessarily increase the adoption of managerial practices or improve firm performance. However, these insights are caveated as the overall proportion of the sample that utilised combined business support was small (3.5%), with resultant higher standard errors making it difficult to attain more precise estimates. Future

research is thus required to explore in more depth why only very few forms access both types of support and whether and how combinations of business support could be more effective.

Beyond highlighting the relationships between business support and managerial practices we find that the indirect effects of using business support are also very small. There is existing evidence that indicates that the relationship between business support and firm performance is indirect (e.g., Mueller, 2023; Stevenson et al., 2020). We find evidence to support this and that the ability of SMEs to absorb knowledge and utilise resources (e.g., through staff development training, accessing external finance, or changing directors) has a significant relationship with firm performance. However, the detected effect sizes are extremely small. Even when enacted collectively, they appear to equate to very marginal gains for SMEs.

The implications for policymakers and entrepreneurship ecosystem actors providing support are clear: the way support services are delivered is crucial, particularly in ensuring that SMEs develop strong managerial capabilities. Focusing on the development of given managerial practices that enhance SMEs' capacity (e.g., accessing formal finance) and capabilities (e.g., staff development training and changing directors) appears to be an effective approach. Further, business grants seem to have similar effects on firm performance through these practices to business advice although we cannot fully tease out if the two act as substitutes or have strong complementary effects. Future research will need to revisit this.

Further, while we examine eight managerial practices, some are well established in the literature (e.g., exporting, innovation, access to finance), while others, such as staff development training and changing directors, are less widely recognised. We find that these lesser-known practices have significant albeit marginal effects on firm performance. It is important for future research, therefore, to explore a broader range of managerial practices that may individually offer small gains but could accumulate to have a significant impact. For instance, recent technological advancements (e.g., AI, data analytics, robotics) could influence firm performance and have been recently added to the LSBS. Investigating how business support services are promoting their adoption and the indirect effects on firm performance, both in the short/ near term and whether this is sustained over the longer term would be a valuable area for further study.

Future research should further delve deeper into the specific components of this study. For example, while we utilise broad categories for business advice, examining the specific delivery methods—whether through local authorities or private support organisations—could yield more detailed insights. Additionally, exploring the effects identified in this study using

alternative methodologies, such as propensity score matching and difference-in-differences approaches, can help confirm the impact of business support on various managerial practices and firm performance, as well as clarify some of the relationships we have uncovered.

Beyond this, existing research has shown that access and experience of support, as well as preference for enacting certain business practices, is different for sub-samples of the SME population, such as women-led, minority-led, and rural-based businesses (e.g., Arshed et al., 2023; Carter et al., 2015; Mwaura & Knox, 2024; Philipson et al., 2017). Therefore, it is important to explore the variations in receiving business support, enacting managerial practices, and how this relates to firm performance for these specific sub-groups that are important for SME policy.

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APPENDIX 1: DESCRIPTIVE STATISTICS

Variable name	Definition	Mean
Business advice 2018	1 if used information or advise (from one or more of the following sources in the past 12 months: accountant, bank, business networks/trade associations, consultant/general business adviser, chamber of commerce, specialist financial adviser, friend or family member, government website, internet search engines (e.g., Google), other websites, Inter-trade Ireland, Invest NI, local council/authority, local enterprise partnerships, NI business info website, solicitor/lawyer, pensions regulator, universities/other educational institutions, work colleagues, or other sources) in the last 12 months; 0 otherwise	27.6%
Business grant 2018	1 if currently using government or local authority grants; 0 otherwise	7.1%
CBS 2018	1 if used both business advice and business grant in the last 12 months, 0 otherwise	3.5%
Turnover CAGR Year1	Average of turnover CAGR year 1	33.2%
Turnover CAGR Year4	Average of turnover CAGR year 4	1.4%
Turnover YoY Year1Year2	Average year on year growth of turnover year 1 year 2	33.2%
Turnover YoY Year4Year5	Average year on year growth of turnover year 4 year 5	58.2%
Employment CAGR Year1	Average of employment CAGR year 1	2.4%
Employment CAGR Year4	Average of employment CAGR year 4	-6.1%
Employment YoY Year1Year2	Average year on year growth of employment year 1 year 2	2.4%
Employment YoY Year4Year5	Average year on year growth of employment year 4 year 5	7.9%
Export 2019	1 if business sell goods and services abroad; 0 otherwise	23%
Innovation 2019	1 if have developed new or significantly improved goods and services in the last 3 years; 0 otherwise	34.3%
Business planning 2019	1 if have a formal written business plan; 0 otherwise	46%
Leadership change 2019	1 if the business gained or lost working director in the last 12 months; 0 otherwise	4%
Multiple sites 2019	1 if the business opened or closed a new site/branch in the last 12 months; 0 otherwise	3.1%
Staff training 2019	1 if offer any training (off the job or on the job); 0 otherwise	49.1%
Credit cards 2019	1 if currently using credit card as means of finance; 0 otherwise	36.2%
Bank overdraft 2019	1 if currently using bank overdraft as means of finance; 0 otherwise	27.3%
Leasing or hire purchase 2019	1 if currently using leasing or hire purchase as a means of finance; 0 otherwise	24.3%
Invoice discounting 2019	1 if currently using factoring/invoice discounting as means of finance; 0 otherwise	5.7%
Loans from family and friends 2019	1 if currently using loan from family/friend as means of finance; 0 otherwise	4.3%

Loans from peer-to-peer platforms 2019	1 if currently using loan from peer-to-peer platform as a means of finance; 0 otherwise	1.9%
Business age: 0-5years	1 if business age is 0 – 5 years; 0 otherwise	11%
Business age: 6 to 10 years	1 if business age is 6 – 10 years; 0 otherwise	15.3%
Business age: 11 to 20 years	1 if business age is 11 – 20 years; 0 otherwise	25.5%
Business age: more than 20 years	1 if business age is above 20 years; 0 otherwise	47.6%
Minority ethnic led	1 if business is minority ethnic group led; 0 otherwise	5%
Women led	1 if business is women led; 0 otherwise	17%
Charity	1 if business is a charity; 0 otherwise	6.1%
Location type: Urban	1 if business postcode is in the urban area; 0 otherwise	67.8%
Location type: Rural	1 if business postcode is in the rural area; 0 otherwise	29.6%
Home nation: England	1 if business is in England; 0 otherwise	80.7%
Home nation: Scotland	1 if business is in Scotland; 0 otherwise	8.7%
Home nation: Wales	1 if business is in Wales; 0 otherwise	5%
Home nation: Northern Island	1 if business is in Northern Island; 0 otherwise	5.5%
Sector: Primary	1 if the principal activity of the business is the primary sector of the economy; 0 otherwise	3.9%
Sector: Manufacturing	1 if the principal activity of the business is manufacturing; 0 otherwise	9.7%
Sector: Construction	1 if the principal activity of the business is construction; 0 otherwise	9.5%
Sector: Wholesale/ Retail	1 if the principal activity of the business is wholesale/retail; 0 otherwise	16%
Sector: Transport/ Storage	1 if the principal activity of the business is transport/storage; 0 otherwise	3.7%
Sector: Accommodation/ Food	1 if the principal activity of the business is accommodation/food; 0 otherwise	8.3%
Sector: Information/ Communication	1 if the principal activity of the business is information/communication; 0 otherwise	5.6%
Sector: Financial/ Real Estate	1 if the principal activity of the business is financial/ real estate; 0 otherwise	4.4%
Sector: Professional/ Scientific	1 if the principal activity of the business is professional scientific; 0 otherwise	14.4%
Sector: Administrative/ Support	1 if the principal activity of the business is administration/support; 0 otherwise	8%
Sector: Education	1 if the principal activity of the business is education; 0 otherwise	2.6%
Sector: Health/ Social Work	1 if the principal activity of the business is health/social work; 0 otherwise	7%
Sector: Arts/ Entertainment	1 if the principal activity of the business is arts/entertainment; 0 otherwise	2.9%
Sector: Other service	1 if the principal activity of the business is other services; 0 otherwise	4%



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