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**The Impact of Brexit on the
Strategy and Performance of UK
SMEs**

*By José M. Liñares-Zegarra and
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Abstract

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Keywords: Brexit, UK SMEs, Internationalisation, Innovation, Financial performance, Post-Brexit era, Longitudinal Small Business Survey (LSBS).

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1. Introduction

Small and medium-sized enterprises (SMEs) form the backbone of the UK firm ecosystem and are a core part of the modern economy.¹ In the UK, SMEs account for over 99% of registered firms and 60% of total private sector employment. These SMEs face various challenges related to: regulation; taxation; late customer payments; staff recruitment, training and retention; accessing appropriate financial advice and funding for tangible and intangible investments; supply chain disruptions; competition; global pandemics; inflation; and wars. The vote for the UK to leave the EU (Brexit) in 2016, followed by the eventual formal departure in January 2020, added to these challenges, leading to increased uncertainty regarding current and future trading conditions with resultant implications for strategic planning and financial performance.² Given their importance to the economy and the paucity of evidence, this paper investigates the impact of Brexit on the strategic intentions and financial performance of UK SMEs.

SMEs are agile and can adapt quickly to changing trading conditions. However, relative to larger counterparts, a lack of financial and human resources presents challenges to adapting to short- and medium-term changes in trading conditions caused by Brexit, with resultant consequences for international trade (Collins, 2019, Thissen et al., 2020), investments and productivity (Bloom et al., 2019). Prior evidence, using data from a government survey covering 2016–2017, suggests that many SMEs consider Brexit a significant negative barrier to future performance (Brown et al., 2019). Moreover, the new EU-UK Trade and Cooperation Agreement implemented following Brexit introduced significant new barriers (including rules of origin checks) for UK firms seeking to trade with counterparts located in EU member states (Alessandrini et al., 2022, Dhingra et al., 2022). However, a recent government report suggests that Brexit provides

significant economic opportunities by allowing the UK government to ‘...*deliver bespoke UK-orientated regulation that is primarily focused on delivering growth, innovation and competition, while minimising burdens on business*’ (HM Government, 2022). Moreover, several key achievements were highlighted in the Brexit 4th Anniversary update produced by the Department for Business and Trade (DBT). These include the UK economy growing faster than Germany, Italy, and Japan since the referendum, securing trade agreements with 73 countries plus a comprehensive deal with the EU, revoking or reforming over 2,000 pieces of Retained EU Law (REUL), with 500 more planned in 2024, simplifying import tariffs on almost 6,000 goods, and removing approximately 500 trade barriers since 2020 (Department for Business and Trade, 2024).

Given the general importance of SMEs for the UK economy, there are strong empirical grounds for investigating how Brexit affects SMEs. Brexit represents a landmark change to trading and political arrangements between the UK and the EU, and the current knowledge base regarding the overall impacts on SMEs remains limited. In the present study, our primary data source is the Longitudinal Small Business Survey (LSBS) of UK SMEs produced by the Department of Business, Energy and Industrial Strategy.³ We investigate the multifaceted impacts of Brexit on UK SMEs, focusing specifically on strategic intentions (investment, innovation, internationalisation, growth plans) and financial performance. Using recursive bivariate probit models, we explore the interdependencies between SMEs' strategic intentions and their perceptions of Brexit as a major barrier to business success.⁴ We examine the types of SMEs that regard Brexit as a significant barrier to business success, and its impact on SME strategic intentions concerning investment, innovation, internationalisation, growth objectives, and future financial performance.

A descriptive analysis of our dataset reveals that around a quarter of SMEs view Brexit as a major barrier to business success. The results of our empirical analysis suggest that exporters are significantly more likely to perceive Brexit as a major barrier than counterparts focused on trading within the UK.⁵ The concerns among export-oriented SMEs are somewhat expected, given their exposure to changes in international trade terms and regulations following Brexit. We do not observe substantial differences between innovator and non-innovator SMEs regarding their perception of Brexit as a major barrier to business success. Our results also show that SMEs viewing Brexit as a major barrier to business success are more likely to adjust their strategic intentions, and are: 20% less likely to execute capital investments; 7.8% less likely to invest in R&D; 4.8% less likely to expand export sales or enter new overseas markets; and 15% less likely to aim to grow sales. However, (innovation) plans to develop and launch new products or services are unaffected for SMEs viewing Brexit as a major barrier to business success

We also employ multinomial probit models to examine the impacts of Brexit on future sales turnover, with a focus on export-oriented and innovative SMEs.⁶ We partition our sample based on whether SMEs expect a decrease, increase or no change in sales turnover. We regress SME expectations of changes in sales turnover due to Brexit on firm export status, innovation capacity, and other control variables. Our findings suggest that among SMEs expecting a decline in sale turnover, export-oriented firms are 15.6% more likely, and innovative firms are 8.9% more likely, to attribute the anticipated sales decrease to Brexit. This highlights the sensitivity of such firms to disruptions arising from Brexit. The impacts are less pronounced among SMEs anticipating an increase in sales turnover. Export-oriented firms are only 2.6% more likely, and innovative firms are 0.8% more likely to consider Brexit a major contributing factor. These results suggest that

innovative and export-oriented SMEs are more inclined to associate Brexit with expected sales turnover declines (rather than increases). This supports the view that Brexit poses a greater perceived risk for exporters and innovative firms forecasting adverse performance (financial) outcomes.

Our findings complement prior research, which shows that Brexit has increased uncertainty (Cumming and Zahra, 2016) and reduced investments among UK firms (Bloom et al., 2019). Brexit has also led to a decline in UK-EU trade, which has disproportionately affected SMEs (Freeman et al., 2024). These effects are compounded by the UK's centralised banking system, which weakens the bank-borrower relationships so crucial for SME growth and regional development (Mayer et al., 2021). The results presented in this study highlight the complex and varied consequences of Brexit on SMEs, and suggest that place-based policy interventions (such as providing financial incentives to compensate for increased trade costs or support export sales) are necessary to mitigate the ongoing negative impacts of Brexit on UK SMEs.

We make three key contributions to the salient literature. First, by examining how SME managers' perceptions of Brexit shape their strategic planning, rather than its actual economic impact, we contribute to the literature on managerial sentiment Grounded in uncertainty literature (Bloom et al., 2019, Bloom et al., 2021), our findings highlight how sentiment drives business expectations. Second, by examining firm-level (long-term post-Brexit) effects from a national perspective, we provide new empirical insights regarding Brexit's impact on UK SMEs' strategy and performance and thus augment prior empirical evidence (Calabrese et al., 2022, Brown et al., 2019).⁷ Third, we leverage the most extensive longitudinal dataset on UK SMEs to date, to analyse specific Brexit-specific questions across multiple waves of the LSBS spanning 2018-2021. This allows us to

document how Brexit uncertainty has affected SME strategy in areas such as: internationalization (Ramdani et al., 2022, Ruzzier et al., 2006, Jibril and Roper, 2022); innovation (Hoffman et al., 1998, Deschryvere, 2014, Jibril and Roper, 2022); and financial performance (Oke et al., 2007, Deschryvere, 2014). Consequently, our results provide practitioners and policymakers with new insights regarding the impacts of Brexit.

The rest of this paper is structured as follows. Section 2 provides a background discussion and review of relevant literature. Sections 3 and 4 describe the empirical methodology and data used. In Section 5, we present the main results of our empirical analysis. Section 6 concludes.

2. Background and literature review

Managerial sentiment plays a central role in shaping business decision-making, particularly during periods of heightened uncertainty (Dixit & Pindyck, 1994; Bloom et al., 2007). Uncertainty can lead firms to become risk-averse and adopt a wait-and-see approach, which delays investment and hiring decisions (Ghosal and Ye, 2015). Managerial sentiment can also drive proactive responses to uncertainty, such as increased investment in innovation or international expansion as firms seek to mitigate risks arising from an expected deterioration in trading conditions (Piaskowska and Trojanowski, 2014, Pikulina et al., 2017).

Brexit has introduced significant uncertainty regarding potential changes to regulation, immigration policy, and trading relationships between the UK and the EU. To date, Brexit's (potential) impacts have been assessed via anticipated macroeconomic effects on growth, trade, and inflation (Armstrong and Portes, 2016, Van Reenen, 2016,

Dhingra et al., 2017, Sampson, 2017). McCann (2023) identifies Brexit as a key driver of recent productivity imbalances in the UK, which are compounded by insufficient investment and planning constraints.

Business-level impact assessments of Brexit have centred upon large firms, especially those operating in sectors (such as automotives) where complex cross-country supply chains predominate. Bailey et al. (2023) argue that Brexit has acted as a disruptive shock to manufacturing operations and logistics, particularly in regions reliant on the automotive sector. Beyond these macro-level effects, Brexit has also created significant barriers for SMEs, particularly regarding access to finance, investment in innovation, and internationalisation. Additional evidence suggests that there has been a decline in capital investments in the light of Brexit-related uncertainty (Dhingra et al., 2018). These uncertainties have also raised more general questions regarding the attractiveness of the UK as a location to do business (Cumming and Zahra, 2016).

The implications of Brexit for SMEs are complex and multifaceted. Moreover, the apparent lack of government planning for Brexit appears to have amplified the day-to-day and strategic challenges facing SMEs. Billing et al. (2019) point out that the sub-national institutional structure in the UK is ill-equipped to handle the economic realities of Brexit. Several studies have investigated the impact of Brexit on SMEs. Brown et al. (2019) find that, during the immediate post-referendum period, export-oriented and innovative SMEs were the most concerned about the possible negative impacts of Brexit. Export-oriented SMEs face challenges due to increased trade barriers and uncertainty surrounding regulatory alignment, while innovative SMEs may struggle to access research funding and collaborative networks, which EU institutions facilitated previously. Calabrese et al. (2022) suggest that Brexit added an additional layer of

uncertainty for SMEs, particularly concerning access to debt finance, while Sun et al. (2021) show that SMEs operating in sectors reliant on trade with the EU experienced tighter bank lending conditions after the Brexit referendum. These findings indicate that Brexit is particularly problematic for SMEs whose business models depend on internationalisation or investment in innovation. This leads to the following hypothesis:

Hypothesis (H1a): Export-oriented SMEs are more likely to perceive Brexit as a significant barrier to business success.

Hypothesis (H1b): Innovative SMEs are more likely to perceive Brexit as a significant barrier to business success.

Limited evidence to date points to increased uncertainty and long-term challenges for SMEs due to Brexit (Cumming and Zahra, 2016). However, key evidence gaps remain. For example, there is a lack of detailed empirical analysis regarding how Brexit affects SMEs' investments, innovation, internationalisation, and financial performance. Managerial sentiment is a relevant factor shaping SME's future investment decisions, especially during uncertain periods. Managerial sentiment is likely to determine whether SMEs view Brexit as an impossible challenge or an opportunity to expand and thrive. Uncertainty is likely to affect physical investments and R&D activities, leading to declines in investment (Dixit and Pindyck, 1994, Bloom et al., 2007). Prior literature highlights the negative impacts of Brexit. For example, Brexit-related uncertainties cause private equity firms to adopt a conservative investment approach (Kellard et al., 2022). Ghosal and Ye (2015) suggest that increased uncertainty negatively affects employment growth, particularly harming SMEs. This has implications for future investment plans, considering that the firm may prioritise survival.

There are instances where managerial sentiment can lead to positive investment decisions despite uncertainties. Piaskowska and Trojanowski (2014) suggest that an internationally-oriented top management team can mitigate the negative impacts of uncertainties, facilitating strategic decisions (such as foreign acquisitions). In addition, the relationship between managerial sentiment and investment decisions can be influenced by cognitive biases such as overconfidence. Overconfident managers are more inclined to pursue aggressive investment strategies, even in uncertain environments (Pikulina et al., 2017). This suggests that under certain conditions, SMEs leverage uncertainties to innovate and enhance their competitive advantage over rivals. The dual nature of these aforementioned effects highlights the complexity of decision-making in uncertain environments, where both caution and proactive investment could appear. This leads to the following competing hypothesis:

Hypothesis (H2a): SME managers viewing Brexit as a significant barrier to business success are less likely to plan investments.

Hypothesis (H2b): SME managers viewing Brexit as a significant barrier to business success are more likely to plan investments.

The impact of managerial sentiment during periods of uncertainty on SMEs' development and launch of new products and services is unclear. One stream of research finds that high levels of uncertainty are associated with risk-averse behaviour among entrepreneurs (Zayadin et al., 2023). During difficult economic periods, SMEs encounter financial difficulties (Iwasaki et al., 2022), which may lead to a delay or scaling back of product or service development plans, particularly during times of uncertainty. On the other hand, there are instances where sentiment regarding uncertainty could positively impact innovation. For example, organisational capital, which encompasses resilience

and optimism, could lead to increased innovation (Grözinger et al., 2022). This suggests that despite uncertainties, managerial sentiment can encourage innovation. Given the importance of these factors for innovation, we predict the following competing hypothesis:

Hypothesis (H3a): SME managers viewing Brexit as a significant barrier to business success are less likely to plan the development and launch of new products or services.

Hypothesis (H3b): SME managers viewing Brexit as a significant barrier to business success are more likely to plan the development and launch of new products or services.

Negative managerial sentiment regarding (Brexit) uncertainties could also influence the export strategies of SMEs. This could lead to a reluctance to pursue new market opportunities and a more conservative approach to future international trade plans. Cumming and Zahra (2016) highlight that the barriers to trade and immigration introduced by Brexit create a climate of uncertainty that can negatively impact SMEs' willingness to engage in international markets. In a similar way, perceptions of environmental uncertainty can significantly affect international strategic decisions among SMEs (Piaskowska and Trojanowski, 2014). However, there are scenarios where managerial sentiment can have a positive influence on SMEs' internationalization efforts. Lavery et al. (2024) highlight that private equity-backed firms have a greater propensity to engage in exporting post-Brexit compared to their non-private equity-backed counterparts. This suggests that managerial sentiment can be optimistic in the face of uncertainty, particularly by private equity firms. Wai et al. (2022) suggest that certain contexts may encourage SMEs to develop new products and market entry capabilities concurrently, which can enhance their ability to export. This is beneficial during times of

uncertainty, as it allows SMEs to adapt their international strategies in response to changing market conditions.

While prevailing managerial sentiment often leans towards caution due to perceived risks, there are also opportunities for internationalisation. The dual nature of these effects underscores the importance of managerial sentiment in the context of uncertain environments. This leads to the following hypothesis:

Hypothesis (H4a): SME managers viewing Brexit as a significant barrier to business success are less likely to have plans to increase export sales or enter new overseas markets.

Hypothesis (H4b): SME managers viewing Brexit as a significant barrier to business success are more likely to have plans to increase export sales or enter new overseas markets.

Uncertainty could also affect the growth plans of SMEs. Cumming and Zahra (2016) highlight that the uncertainty surrounding Brexit has raised concerns regarding international trade, while Kellard et al. (2022) argue that the ongoing uncertainty related to Brexit has reduced private equity. Both factors could negatively affect SMEs' ability to pursue aggressive sales growth. However, some SMEs may adapt to uncertainties by seeking alternative funding mechanisms, such as equity crowdfunding, which could positively affect future performance. Kazemalaghi et al. (2024) show that government-backed loan guarantee schemes have created positive synergies, enabling SMEs to access funding even amidst economic uncertainty. This shift towards equity crowdfunding acts as a catalyst for growth opportunities (Eldridge et al. (2021). Thus, while prevailing sentiment may support a cautious approach to sales growth, there is also the possibility

for SMEs to leverage uncertainties to their advantage. This leads to the following two hypotheses:

Hypothesis (H5a): SME managers viewing Brexit as a significant barrier to business success are less likely to pursue sales growth

Hypothesis (H5b): SME managers viewing Brexit as a significant barrier to business success are more likely to pursue sales growth

3. Empirical methodology

This section assesses the impact of Brexit on UK SMEs using two modelling approaches. In section 3.1, we use binary probit models to examine how Brexit influences the strategic intentions of SMEs strategic plans with respect to investments, innovation, internationalisation, and growth. Section 3.2 employs multinomial probit models to further evaluate the impact of Brexit on sales turnover expectations.

3.1 Assessing the impact of Brexit perceptions on SME strategic decisions

This section has a twofold objective. First, we utilise several LSBS survey questions to identify which SMEs perceive Brexit as a major barrier to business success, and examine whether their export orientation and innovation status influence this sentiment. Second, we conduct a regression-based analysis to assess the extent to which these perceptions impact SMEs' strategic plans regarding investment, innovation, internationalisation, and growth aspirations.

To enhance the robustness of our estimation, we use a recursive bivariate probit model to simultaneously analyse the determinants of SMEs' perceptions of Brexit as a major barrier and its impact on their strategic decisions. This approach allows us to

account for potential endogeneity by jointly estimating the effect of SMEs' subjective views on Brexit as a likely barrier to investment, innovation, internationalisation, and sales growth. Specifically, we assess the impact of Brexit perceptions on investment (proxied by future intentions to invest in capital and R&D), innovation (proxied by plans to develop and launch new products or services), internationalisation (proxied by future export plans), and sales growth (proxied by anticipated changes in turnover). To address concerns related to reverse causality, our empirical approach employs lagged independent variables in the estimation process, ensuring a more robust analysis of the relationship between Brexit-related sentiment and SME strategic planning.

The empirical approach comprises a two-equation binary outcome model with correlated error disturbances as follows:

$$I_i = \beta'X_i + \gamma BREXIT_i + v_{1i} \quad (1)$$

$$BREXIT_i = \beta'X_i + v_{2i} \quad (2)$$

I_i is a binary measure of future strategic intentions in terms of aim to grow sales, internationalisation and innovation for SME i . $BREXIT_i$ is the latent propensity that SME i states that Brexit is a potential barrier for its business. X_i is a vector of control variables such as Location (urban, rural), size (zero employees; micro, 1 – 9 employees; small, 10 – 49 employees; medium, 50 – 249 employees); Innovative (in terms of process and products); exporter; prior year's sales turnover; female or minority ethnic-led; makes surplus (profit); Age (>5 years, 6 – 10 years, 11-20 years and 20+ years); has a business plan. The error terms, v_{1i} , v_{2i} are distributed identically as bivariate normal with zero mean, unit variance and correlation coefficient, ρ , independently across observations. All results associated with these models are presented in terms of average marginal effects

(AME), and errors are clustered at the regional level to allow for individual correlations within the same geographic area.

3.2 The impact of Brexit on sales turnover expectations

To investigate whether Brexit has a major, minor, or no impact on SMEs' expectations regarding future sales turnover, we use a multinomial probit (MNP) model. This model is appropriate for analysing discrete dependent variables with more than two unordered outcomes (Cameron and Trivedi, 2005), such as SMEs' perceptions of Brexit's impact on sales turnover expectations. The MNP framework is well-suited to this analysis as it allows us to estimate the probability of each category as a function of firm-specific characteristics, while accounting for unobserved factors through a stochastic error structure.

In this model, we assume SME i 's utility for choosing whether the effect of Brexit on sales turnover expectations j is “not a factor”, “a minor factor” or “a major factor”, U_{ij} ($i = 1, \dots, n$; $j = 1,2,3$) is a function of firm-level characteristics and a stochastic error. The utility of choosing alternative j is therefore modelled as:

$$U_{ij} = x'_{ij}\beta + \varepsilon_{ij} \quad (3)$$

where x_{ij} is a vector of covariates, and the errors are assumed to be normally distributed, with $\varepsilon \sim N(0, \Sigma)$ where $\varepsilon = (\varepsilon_{i1}, \varepsilon_{i2}, \varepsilon_{i3})$. The probability that option j (not a factor, minor factor or major factor) is chosen is

$$p_{ij} = \Pr(y_i = j) = \Pr\left\{\varepsilon_{ik} - \varepsilon_{ij} \leq (x_{ij} - x_{ik})' \beta\right\}, \text{ for all } k \quad (4)$$

where y_i is a random variable that indicates the choice made by SME i . The MNP model is an extension of the binary probit model that allows the coefficients of the explanatory variables to vary across the choices and allows us to assess whether specific characteristics are associated with higher probabilities of an SME being classified within alternative j . Given we are interested in the change in the probability associated with changes in business characteristics, all results are presented as average marginal effects (AMEs). Standard errors are clustered at the regional level to allow for individual correlations within the same geographic area.

4. Data

We utilise the UK Longitudinal Small Business Survey (LSBS) for the empirical analysis. Commissioned by the Department for Business, Innovation and Skills (BEIS), the Longitudinal Small Business Survey (LSBS) is a large-scale telephone survey of owner/proprietors, Managing Directors or other senior directors at UK-based SMEs. We utilise the four most recent waves of LSBS data from 2018 to 2021. This is necessary because questions asked in previous years are not consistent with those included in the 2018-2021 waves.

The LSBS encompasses detailed information on the characteristics of SMEs, ranging from basic demographic data to various economic variables. Consequently, the LSBS is a valuable resource for gaining insights into the characteristics and potential vulnerabilities of UK SMEs in relation to the impacts of Brexit. A summary of our dataset, including demographic and economic variables, is presented in Table 1. The key outcome

variables in our empirical analysis relate to internationalisation, investments, and innovatory activity.

Our estimable models (and the results presented in Section 5) include control variables that relate to SMEs' demographic and firm-level characteristics. Table 2 presents summary information. 22.1% of SMEs in the sample view Brexit as a major barrier to business success. Figure 1 presents the percentage of SMEs perceiving Brexit as a significant business barrier. In 2018, 22.4% of SMEs identified Brexit as a major barrier, slightly decreasing to 20.7% in 2019 and 20.3% in 2020. This increases again to 24.5% in 2021. This suggests that Brexit remains a persistent perceived barrier to business success.

Among those SMEs perceiving Brexit as a major barrier, Brexit is also perceived as a driver of future changes in sales turnover, with 22.4% of SMEs projecting increases, and 33% anticipating decreases. As for future strategic intentions over the next three years: 58.3% of SMEs aimed to grow their business; 22.3% plan to make capital investments in the UK; 29.5% plan to develop and launch new products/services; 16.2% aim to invest in R&D; and 12.6% aim to increase export sales or begin selling to new overseas markets.

Among the control variables, 20.6% of SMEs are innovators and 14.3% exporters. Most SMEs have zero employees (75.6%), are classified as micro-sized (20.1%), and have been operating for over 20 years (37.4%). Regarding sales turnover changes over the last year, 31.3% report a decrease, 41.3% report no change, and 27.4% report an increase. Profitability is reported by 76.8% of SMEs. As for business characteristics, 27.3% of the SMEs in our sample have a business plan. Women-led and minority ethnic-led businesses account for 20% and 4.8% of the sample, respectively. At the national level, most SMEs

are based in England (88.4%). Business services is the most important sector, accounting for 33.5% of SMEs. Most SMEs are companies (48.7%) by legal status. Table 3 presents pairwise correlations between the explanatory variables. The highest correlation between profit and sales turnover change equals 0.23. Hence, multicollinearity issues do not appear to present a critical concern for our empirical analysis.

5. Main Results

This section explores the diverse impacts of Brexit on UK SMEs' strategic decisions and expected financial performance. Section 5.1 identifies which SMEs perceive Brexit as a major barrier to business success and examines whether export orientation and innovation status influence this sentiment. Sections 5.2 and 5.3 assess how these perceptions affect SMEs' strategic plans related to investment, innovation, internationalisation, and growth aspirations and their broader implications for expected changes in sales turnover.

5.1 Determinants of SMEs' perception of Brexit as a major business barrier

Tables 4–9 show which firm-level factors influence SMEs' perception of Brexit as a significant business barrier (column 2), and its anticipated impact on their future plans over the next three years (column 1). The analysis employs a recursive bivariate probit model with maximum likelihood estimation. This section focuses on the determinants of perceiving Brexit as a major barrier to business success, while Section 5.2 addresses its implications for SMEs' future plans.

The results in column 1 of Tables 4 through 9 show that certain SME characteristics are associated with a higher likelihood of perceiving Brexit as a major barrier to business success. Export-oriented SMEs are significantly more likely to view Brexit as a challenge, providing support for Hypothesis 1a. Innovative SMEs do not share this concern,

suggesting that innovation may act as a buffer against Brexit-related uncertainties, refuting Hypothesis 1b. The results also suggest that SMEs with: 1–49 employees; experiencing a decline in turnover but still generating profit; and minority ethnic group (MEG)-led businesses are more likely to perceive Brexit as a major barrier. These findings highlight the heterogeneous impact of Brexit on SMEs, where firm characteristics, such as export reliance, financial performance, and leadership demographics, are key drivers shaping Brexit-related sentiment.

5.2 The impact of Brexit as a major business barrier on future plans

Future Capital and R&D Investments

Table 4, column 1, summarises the impact of Brexit on future capital investment (in premises, machinery, etc.). Our results, derived from a recursive bivariate probit model estimated via Maximum Likelihood, incorporate sectoral and regional effects. Our findings suggest that perceiving Brexit as a major barrier to business success is associated with a 20% reduction in planned capital investments, supporting H2a. Firm characteristics also are likely to affect capital investment decisions. Innovative SMEs are more likely to invest in capital, while exporting SMEs exhibit a small positive increase in capital investment plans.

The impact of firm size is also significant, with medium-sized SMEs (50–249 employees) exhibiting the greatest impact on planned capital investment. Firm age also influences investment plans. SMEs aged 6–10 years show a minor positive effect on capital investment. However, this group of SMEs are less likely to perceive Brexit as a major barrier to business success. In contrast, SMEs with stable sales turnover are less likely to plan capital investments and view Brexit as a major barrier.

Ownership and leadership characteristics are also associated with capital investment plans. The presence of a business plan positively influences both planned capital investment, and the likelihood of perceiving Brexit as a major barrier to business success. Women-led SMEs slightly reduce capital investment plans, while minority ethnic group (MEG)-led businesses exhibit a significant positive increase in future capital investment, and their perception of Brexit as a major barrier to business success. These findings suggest that SMEs that view Brexit as a major business barrier to business success adopt a more cautious investment approach.

Table 5, column 1, presents the results from estimating a recursive bivariate probit model via Maximum Likelihood, investigating the impact of Brexit on future investment in research and development (R&D). The findings suggest that perceiving Brexit as a major barrier to business success exerts a significant negative impact on planned R&D investments, supporting H2a. As expected, innovative SMEs are more likely to increase their planned R&D investments, suggesting that firms with a forward-looking approach prioritise innovation despite Brexit-related uncertainties. Firm size also plays an important role in driving R&D investment plans, especially for medium-sized enterprises (50–249 employees). Regarding firm age, SMEs aged 6–10 years exhibit a marginal increase in R&D investment, indicating that younger, growing businesses might view innovation as a pathway to resilience.

Conversely, SMEs with static sales turnover are less likely to invest in R&D, suggesting that those firms tend to adopt a more conservative investment approach. These SMEs are also less likely to perceive Brexit as a major barrier to business success and, thus, less sensitive to external shocks. A business plan positively affects both planned R&D investment, and the likelihood of perceiving Brexit as a major barrier to business

success. This implies a more proactive approach to assessing risk and making long-term strategic decisions. However, women-led SMEs are more likely to scale back R&D investment plans, while MEG-led SMEs are more inclined to increase them. This highlights the importance of leadership characteristics in driving strategic responses to Brexit. Overall, these results suggest that while Brexit-related uncertainty dampens R&D investment among many SMEs, those with innovative and international exposure may be better positioned to take advantage of an uncertain economic landscape.

Develop and launch new products/services

Table 6, column 1, summarises the impact of Brexit on SMEs' innovation plans (proxied by the development and launch of new products or services) over the next three years. The results indicate that SMEs' perception of Brexit as a major barrier to business success does not impact their plans for new product or service development, rejecting Hypotheses H3a and H3b. This finding aligns with Nathan and Rosso (2022), who suggest that prior innovation and firm capabilities (such as accumulated knowledge, intellectual property, R&D investment, and organisational adaptability) are strong determinants of continued innovation. While Nathan and Rosso do not specifically examine Brexit, their findings suggest that these internal factors play a more significant role in shaping firms' innovative activity. Consequently, external shocks, such as Brexit, may have a limited influence on firms' propensity to innovate, albeit the extent of this impact is likely to vary across industries and firm types.

Our results also suggest that export-oriented SMEs and those already engaged in innovation are significantly more likely to continue developing and launching new products or services. Firm size is also associated with innovation plans, with medium-sized enterprises (50–249 employees) exhibiting the strongest positive impact of Brexit

on innovation plans. Older SMEs (aged 20+ years) are less likely to have future plans to innovate, possibly reflecting a more conservative approach than younger and more dynamic start-ups. Finally, women-led SMEs exhibit a modest positive impact on innovation plans, while MEG-led SMEs show an even stronger positive impact. These results highlight that while Brexit sentiment presents challenges, it does not appear to be decisive in determining whether SMEs pursue innovation plans.

Export-led Growth Plans

Table 7, column 1, summarises the impact of Brexit sentiment on SME plans to increase export sales or enter new overseas markets over the next three years. The findings show that perceiving Brexit as a major barrier to business success significantly reduces the likelihood of planning to expand export activities or enter new markets, supporting H4a. Despite this negative impact, innovative and export-oriented SMEs remain more likely to pursue export expansion, suggesting that firms with a strong international focus or innovative capacity may find ways to mitigate Brexit-related challenges. With respect to firm size, micro-sized SMEs (1–9 employees) are significantly less likely to plan export expansion, while medium-sized enterprises (50–249 employees) exhibit a slight positive effect, indicating that larger firms may have greater resources to protect themselves from Brexit-related trade barriers. The impact of firm age on export intentions is also notable. SMEs aged 6–10 years, 11–20 years, and 20+ years are less likely to plan export expansion. However, firms with stable sales turnover show no significant change in their export plans, suggesting that financial stability alone does not necessarily drive internationalisation decisions. SMEs with a formal business plan are more likely to pursue export growth, implying a forward-looking approach to assessing risks and opportunities. These findings underscore that Brexit sentiment acts

as a barrier to pursuing international expansion, making SMEs more cautious in their plans to enter or expand geographically.

Sales Turnover Growth Aspirations

Table 8, column 1, summarises the impact of Brexit on SMEs' sales turnover growth aspirations over the next three years. The results suggest that perceiving Brexit as a major barrier to business success reduces the likelihood of aiming for sales growth by 15%, supporting H5a. Our results also suggest that certain SME characteristics influence sales growth aspirations. Innovative and export-oriented SMEs are more likely to pursue sales growth, suggesting that firms with strong competitive advantages remain focused on expansion despite Brexit-related uncertainty.

Our results also suggest that larger SMEs are more likely to aim for sales growth, while older SMEs (20+ years) are less likely to do so. SMEs that experience increased sales turnover in the previous year are more likely to aim for further growth. SMEs with a formal business plan are more likely to aim for sales growth. However, women-led businesses are less likely to target sales growth. In contrast, minority ethnic group (MEG) led SMEs are more likely to pursue sales growth. These findings suggest that while growth ambition varies across SME characteristics, strategic planning and leadership demographics are key factors in explaining expansion decisions. These findings highlight the complex relationship between Brexit sentiment and SME growth aspirations. Our results suggest that SMEs with a robust competitive stance in innovation and export orientation can still maintain a commitment to growth despite uncertainties related to Brexit.

To provide further evidence on the implications of Brexit sentiment on future performance, we also investigate the extent to which SMEs consider Brexit a major factor in expected changes to sales turnover over the next 12 months, focusing on: SMEs anticipating a decrease in turnover (Table 9); and those forecasting an increase (Table 10). By analysing these two groups separately, we provide further insights into how innovation and export orientation shape the perceived risks and opportunities associated with Brexit.

Table 9 presents the findings from a multinomial probit regression analysis investigating the role of Brexit as a perceived factor in expected decreases in sales turnover. The results highlight the importance of certain firm (innovation and export orientation) characteristics in responses to Brexit-related disruptions. Innovative and export-oriented SMEs are significantly more likely to identify Brexit as a major factor influencing an anticipated decline in sales. Micro, small, and medium-sized enterprises are more inclined to perceive Brexit as either a minor or a major factor in likely declines in sales. SMEs aged 6–10 years and those over 20 years are more likely to view Brexit as a minor factor, albeit with varying levels of statistical significance. Moreover, SMEs that reported stable or increasing sales turnover in the previous year or had a business plan are less likely to perceive Brexit as a major factor in driving anticipated sales decline. Leadership characteristics also play a significant role. Women-led and Minority Ethnic Group (MEG)-led SMEs are more likely to identify Brexit as a major factor. Overall, our results suggest that SME characteristics (particularly innovation and export orientation) significantly shape how they perceive Brexit as a major contributing factor to anticipated decreases in sales turnover.

Table 10 provides the results from a multinomial probit regression analysis examining SMEs anticipating an increase in sales turnover within the next 12 months. Innovative SMEs show a marginally statistically significant positive relationship between Brexit and their expectations of increased sales. This effect is minimal in economic terms (0.8%). Export-oriented SMEs are more likely to consider Brexit a major factor driving future increases in sales, albeit with a notably weaker effect than counterparts anticipating a decline in sales. Among the control variables, SMEs aged 6–10 years show a statistically significant association with perceiving Brexit as a major influencing factor. Profit-making SMEs are less likely to view Brexit as a major driver of future sales turnover. Women-led SMEs are more inclined to see Brexit as a major factor, while MEG-led firms are more likely to consider Brexit as either a minor or major factor in driving anticipated increases in sales turnover.

A comparison of the results presented in Tables 9 and 10 highlights the asymmetry in how SMEs perceive how Brexit impacts anticipated sales turnover. SMEs expecting a decrease in sales turnover attribute greater significance to Brexit than those forecasting increases. This difference underscores the need for policymakers to recognize how innovation and export orientation interact with Brexit's perceived financial impacts.

6. Conclusions

Since the formal departure of the UK from the EU, Brexit has impacted many facets of SMEs' business, including internationalisation, innovation, and financial performance. Brexit-induced challenges and uncertainties are intertwined with pre-existing issues and new global disruptions, creating a multifaceted business environment for UK SMEs. Our study highlights that Brexit poses significant challenges for UK SMEs. Around a quarter of SMEs perceive Brexit as a major barrier to business success. These perceptions are

linked to notable changes in strategy, including a 15% lower probability of targeting sales growth, 20% less likely to make capital investments, 7.8% less likely to invest in R&D, and 4.8% less likely to expand export activities or enter new markets. However, plans to develop and launch new products or services remain unaffected. Export-oriented SMEs are particularly vulnerable, more often attributing anticipated turnover declines to Brexit, while innovative SMEs show some resilience, stressing the varied impact of Brexit across different SME profiles.

By revealing how perceptions of Brexit as a major barrier to business success are tied closely to changes in strategy and varied impacts across different business profiles, we provide new evidence regarding the implications of Brexit for UK SMEs. Further research is urgently required to fully understand the ongoing effects of this landmark political event on UK SMEs and, where appropriate, specific policy approaches to target support to SMEs seeking to adapt, innovate, and grow in a changed trading environment.

The UK's departure from the EU has substantially influenced the SME sector. While Brexit has presented numerous challenges to SMEs, it also opens up the possibility of crafting more targeted, growth-oriented regulations. This aligns with Billing et al. (2019), who highlight the need for strengthening sub-national governance to address the regional disparities exacerbated by Brexit, particularly in supporting SMEs. This offers a unique opportunity for the UK government to address regional disparities and ensure a thriving SME sector in the post-Brexit era.

Endnotes

¹ The Brexit vote introduced significant uncertainty, with potentially negative implications for trade, immigration, and entrepreneurial activities in the UK and globally (Cumming and Zahra, 2016). Kellard et al. (2022) show that Brexit-related uncertainty significantly reduced private equity activity in the UK, highlighting broader implications for investment and growth. Vu and Christian (2024) find that Brexit had a detrimental impact on SMEs' ability to raise equity financing through crowdfunding.

² As of 2023, the European Union's SME landscape has evolved significantly. The EU-27 now has approximately 25.8 million SMEs, constituting 99.8% of all enterprises in the non-financial business sector. These SMEs employ 88.7 million people, representing 65.2% of total employment. In terms of economic contribution, SMEs generate 53.1% of the total value added in the EU, amounting to €4.8 trillion (Katsinis et al., 2024).

³ In 2023, the UK Government re-organised the Department of Business, Energy and Industrial Strategy to form: the Department for Business and Trade; the Department for Energy Security and Net Zero; and the Department for Science, Innovation and Technology.

⁴ By leveraging lagged independent variables and recursive models, our methodology ameliorates endogeneity and selection bias concerns and helps disentangle causal relationships.

⁵ Export-oriented SMEs are those engaged in exporting goods or services to international markets. Innovative SMEs are those introducing new or significantly improved products, processes, or services.

⁶ This analysis is based on a new survey question not included in previous version of the LSBS.

⁷ Prior research has explored regional dimensions and immediate post-Brexit referendum effects, with studies like Brown et al. (2019) providing valuable insights into regional patterns using earlier (2016-2017) LSBS waves. In terms of access to finance, Calabrese et al. (2022) examine the impact of firm characteristics on the expectations of SMEs regarding access to debt finance following the Brexit referendum and how this, in turn, affects their growth expectations and strategic decisions.

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Table 1: Variable definitions

This Table provides the names and definitions of explanatory variables. All variables are collected from the Longitudinal Small Business Survey, 2018-2021.

Variable	Definition	LSBS code
<i>UK exit from the EU</i>		
Brexit as a major business barrier	SME responds affirmatively to the following question: Would you say that UK exit from the EU is a major obstacle to the success of your business in general?	G2I (cohort B)
Brexit as a driver of future sales turnover	Extent to which SME considers the UK's exit from the EU to be a factor in the increase/decrease in turnover that is expected in the next 12 months	P7/P11_1
<i>Plans over the next 3 years / Whether plans over the next three years have been affected by Brexit</i>		
	SME aims to grow sales in the next 3 years	R1
	Capital investment (in premises, machinery etc.) in the UK	R4C / R8A_C (cohort B) R4D / R8A_D (cohort B)
	Develop and launch new products/services	R4G / R8A_G (cohort B)
	Invest in R&D	R4H / R8A_H (cohort B)
	Increase export sales or begin selling to new overseas markets	R4H / R8A_H (cohort B)
<i>SME innovation capacity and international trading activity</i>		
SME Innovator	SME has introduced new or significantly improved goods or services in the last 3 years	J1/J1SUM
SME exporter	SME exported goods or services in the past 12 months (outside UK)	C1/C2
<i>Size</i>		
Zero employees (base category)	Zero employee business had no employees on their payroll (excluding owners and partners) at the time of the interview.	A2SPSS1
Micro	1-9 employees.	
Small	10-49 employees.	
Medium	50-249 employees.	
<i>Business age</i>		
	Age of the firm.	A6SUM and A6, missing values for 2016 are completed with values from 2015
0 – 5 years (base category)		
6 – 10 years		
11 – 20 years		
20+ years		
<i>Sales turnover change</i>		
Decreased (base category)	Turnover in the past 12 months, compared with the previous 12 months.	P2
Stayed roughly the same		
Increased		

Profit	Firm generates a profit or surplus after considering all sources of income in the last fiscal year.	P12
Business plan	The business has a formal written business plan.	F5
Women-led	Women-led businesses are defined as those majority-led by women, which is controlled by a single woman or having a management team of which a majority are women. 'Majority' here means over 50%.	WLED
Minority ethnic-led	A business where at least half of the leadership team comes from minority ethnic groups (as this is a UK survey, minority ethnic groups are those that are not White British, where White British includes White English, White Scottish etc). The leadership team comprises the directors and working owners. We can include members of several ethnic groups and can include people who describe themselves as mixed ethnicity where White British is one of those ethnicities.	MLED
<i>Region</i>	Region where the firm has its headquarters.	NATION
England (base category)		
Scotland		
Wales		
Northern Ireland		
<i>Sector</i>	Industry Sector	SECTOR
Manufacturing sector (base category)	Production and construction (SIC 2007: ABCDEF).	
Transportation and retail services	Transport, retail, and food service / accommodation (SIC 2007: GHI).	
Business services	Business services (SIC 2007: JKLMN).	
Other services	Other services (SIC 2007: PQRS).	
<i>Legal status</i>		
Other (e.g., base category -Limited Liability Partnership, Limited Liability Company, etc.)		LEGAL
Sole Proprietorship		
Company		
Partnership		

Table 1: Summary Statistics

This table reports the summary statistics using data from the Longitudinal Small Business Survey, 2018-2021. Cross-sectional survey weights were applied to represent the population of SMEs in the UK. Respondents who answer “I do not know” or refused to answer are excluded from the sample. Variable definitions are reported in Table 1.

	Mean	Std. Dev.	N
<i>UK exit from the EU</i>			
Brexit as a major business barrier	0.221	0.415	14,342
<i>Brexit as a driver of future sales turnover increase</i>			
Brexit has a minor/major impact	0.224	0.417	4,510
<i>Brexit as a driver of future sales turnover decrease</i>			
Brexit has a minor/major impact	0.330	0.471	801
<i>Future intentions over the next 3 years</i>			
Aims to grow	0.583	0.493	42,944
Capital investment (in premises, machinery etc.) in the UK	0.223	0.416	14,342
Develop and launch new products/services	0.295	0.456	14,342
Invest in R&D	0.162	0.369	14,342
Increase export sales or begin selling to new overseas markets	0.126	0.332	14,342
<i>Future intentions over the next 3 years affected by Brexit</i>			
Capital investment (in premises, machinery etc.) in the UK	0.136	0.423	4,870
Develop and launch new products/services	0.144	0.388	5,179
Invest in R&D	0.166	0.460	3,559
Increase export sales or begin selling to new overseas markets	0.293	0.529	2,441
CONTROL VARIABLES			
<i>Innovation and International trade</i>			
SME Innovator	0.206	0.404	42,478
SME exporter	0.143	0.350	42,733
<i>Size</i>			
Zero employees (base category)	0.756	0.430	42,944
Micro (1-9)	0.201	0.401	42,944
Small (10-49)	0.037	0.189	42,944
Medium (50-249)	0.006	0.078	42,944
<i>Business age</i>			
0 – 5 years (base category)	0.159	0.366	42,775
6 – 10 years	0.177	0.382	42,775
11 – 20 years	0.289	0.453	42,775
20+ years	0.374	0.484	42,775
<i>Turnover change</i>			
Decreased (base category)	0.313	0.464	40,965
Stayed the same	0.413	0.492	40,965
Increased	0.274	0.446	40,965
<i>Profitability</i>			
Profit	0.768	0.422	40,205
<i>Business characteristics</i>			
Business plan	0.273	0.445	41,353
Women-led	0.200	0.400	40,979
Minority ethnic-led	0.048	0.215	40,303

<i>Region</i>			
England (base category)	0.884	0.320	42,944
Scotland	0.059	0.235	42,944
Wales	0.035	0.184	42,944
Northern Ireland	0.022	0.148	42,944
<i>Sector</i>			
Manufacturing sector (base category)	0.251	0.433	42,944
Transportation and retail services	0.188	0.391	42,944
Business services	0.335	0.472	42,944
Other services	0.225	0.417	42,944
<i>Legal status</i>			
Other (base category, e.g., LLP, LLC, etc.)	0.040	0.197	42,944
Sole Proprietorship	0.405	0.491	42,944
Company	0.487	0.500	42,944
Partnership	0.068	0.252	42,944

Table 2: Correlation matrix

This table reports the pair-wise correlation matrix between all variables used in this study. * shows significance at $p < .01$.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) Innovator	1.000											
(2) Exporter	0.194*	1.000										
(3) Firm size	0.109*	0.118*	1.000									
(4) Firm Age	-0.017*	0.067*	0.181*	1.000								
(5) Sales turnover change	0.075*	0.065*	0.137*	-0.060*	1.000							
(6) Profit	-0.008	0.055*	0.059*	0.034*	0.228*	1.000						
(7) Business plan	0.141*	0.060*	0.328*	-0.015*	0.078*	-0.028*	1.000					
(8) Women-led	-0.019*	-0.078*	-0.028*	-0.052*	-0.028*	-0.047*	0.011	1.000				
(8) MEG-led	0.014*	-0.006	0.015*	-0.086*	-0.018*	-0.039*	0.031*	-0.002	1.000			
(10) Region	0.010	0.030*	0.011	-0.024*	0.003	0.006	-0.004	-0.005	-0.059*	1.000		
(11) Sector	0.010	-0.112*	-0.050*	-0.052*	-0.022*	-0.075*	0.100*	0.177*	0.051*	-0.061*	1.000	
(12) Legal Status	0.025*	0.078*	0.144*	-0.005	0.042*	0.090*	0.058*	-0.097*	0.012	-0.027*	-0.161*	1.000

Table 4: Impact of Brexit on future capital investment

This table shows the average marginal effects of the impact of Brexit on capital investment in the next 3 years from a recursive bivariate probit estimated via Maximum likelihood. Sectoral and regional dummies are included in all specifications. Z-scores are reported in parenthesis. Omitted Categories: Size (Zero employees), Age (0 - 5), Turnover change (Decreased). All models include regional (England, Scotland, Wales, Northern Ireland), SIC 2007 sectors (ABCDEF, GHI, JKLMN, PQRS), wave dummies and a constant term. ***, ** and * refer to the significant level of 1%, 5% and 10%, respectively. Standard errors clustered at regional level.

	=1 Capital investment (in premises, machinery etc.) in the UK	=1 if Brexit is a major barrier
Brexit is a major barrier _{t-1}	-0.200*** (-7.17)	
SME innovator _{t-1}	0.105*** (12.10)	-0.005 (-0.27)
SME exporter _{t-1}	0.024* (1.78)	0.243*** (60.10)
Size: Micro 1 - 9	0.050*** (2.63)	0.013** (1.99)
Size: Small 10 - 49	0.157*** (13.18)	0.035*** (3.24)
Size: Medium 50 - 249	0.302*** (19.44)	0.032 (1.55)
Business age: 6 - 10	0.038** (2.31)	-0.031* (-1.74)
Business age: 11 - 20	0.002 (0.09)	-0.010 (-0.50)
Business age: 20+	0.009 (0.65)	-0.007 (-0.28)
Sales turnover: Stayed the same _{t-1}	-0.041*** (-2.96)	-0.072*** (-8.61)
Sales turnover: Increased _{t-1}	0.011 (0.57)	-0.085*** (-10.48)
Makes profit _{t-1}	0.007 (0.55)	0.032** (2.37)
Has business plan _{t-1}	0.072*** (9.78)	0.064*** (4.83)
Women-lead	-0.061** (-2.38)	-0.013 (-0.48)
MEG-led	0.155*** (22.40)	0.018*** (9.23)
N		4459.000
ρ		0.653*** (9.50)
Wald test of $\rho=0$		90.186
Log pseudo likelihood		-4738.293

Table 5: Impact of Brexit on future R&D investment

This table shows the average marginal effects of the impact of Brexit on future R&D investment in the next 3 years from a recursive bivariate probit estimated via Maximum likelihood. Sectoral and regional dummies are included in all specifications. Z-scores are reported in parenthesis. Omitted Categories: Size (Zero employees), Age (0 - 5), Sales turnover change (Decreased). All models include regional (England, Scotland, Wales, Northern Ireland), SIC 2007 sectors (ABCDEF, GHI, JKLMN, PQRS), wave dummies and a constant term. ***, ** and * refer to the significant level of 1%, 5% and 10%, respectively. Standard errors clustered at regional level.

	=1 Invest in R&D	=1 if Brexit is a major barrier
Brexit is a major barrier _{t-1}	-0.078*** (-3.11)	
SME innovator _{t-1}	0.156*** (9.83)	-0.005 (-0.26)
SME exporter _{t-1}	0.165*** (8.64)	0.244*** (85.28)
Size: Micro 1 - 9	0.074*** (29.78)	0.014** (2.01)
Size: Small 10 - 49	0.137*** (20.53)	0.036*** (3.33)
Size: Medium 50 - 249	0.214*** (20.60)	0.030 (1.33)
Business age: 6 - 10	0.025*** (3.92)	-0.038** (-2.42)
Business age: 11 - 20	0.008* (1.94)	-0.017 (-0.87)
Business age: 20+	-0.003 (-0.53)	-0.009 (-0.38)
Sales turnover: Stayed the same _{t-1}	-0.039** (-2.46)	-0.071*** (-8.15)
Sales turnover: Increased _{t-1}	0.000 (0.04)	-0.088*** (-9.73)
Makes profit _{t-1}	-0.056*** (-8.92)	0.032** (2.34)
Has business plan _{t-1}	0.074*** (9.57)	0.065*** (5.07)
Women-lead	-0.029*** (-2.72)	-0.012 (-0.48)
MEG-led	0.041*** (11.65)	0.022*** (7.60)
N		4459.000
ρ		0.548*** (8.13)
Wald test of ρ=0		66.057
Log pseudo likelihood		-4211.666

Table 6: Impact of Brexit on the future development and launch new products and/or services

This table shows the average marginal effects of the impact of Brexit on the development and launch new products and/or services in the next 3 years from a recursive bivariate probit estimated via Maximum likelihood. Sectoral and regional dummies are included in all specifications. Z-scores are reported in parenthesis. Omitted Categories: Size (Zero employees), Age (0 - 5), Sales turnover change (Decreased). All models include regional (England, Scotland, Wales, Northern Ireland), SIC 2007 sectors (ABCDEF, GHI, JKLMN, PQRS), wave dummies and a constant term. ***, ** and * refer to the significant level of 1%, 5% and 10%, respectively. Standard errors clustered at regional level.

	=1 Develop and launch new products/services	=1 if Brexit is a major barrier
Brexit is a major barrier_{t-1}	-0.089 (-0.35)	
SME innovator_{t-1}	0.204*** (11.62)	-0.007 (-0.37)
SME exporter_{t-1}	0.157*** (2.59)	0.246*** (133.91)
Size: Micro 1 - 9	0.038*** (3.72)	0.012* (1.89)
Size: Small 10 - 49	0.074*** (4.39)	0.034*** (3.11)
Size: Medium 50 - 249	0.104*** (4.76)	0.030 (1.34)
Business age: 6 - 10	-0.010 (-0.66)	-0.039** (-2.54)
Business age: 11 - 20	-0.012 (-1.08)	-0.017 (-0.85)
Business age: 20+	-0.065*** (-5.09)	-0.011 (-0.49)
Sales turnover: Stayed the same_{t-1}	-0.006 (-0.20)	-0.068*** (-10.54)
Sales turnover: Increased_{t-1}	0.041 (1.41)	-0.083*** (-7.80)
Makes profit_{t-1}	-0.018** (-2.01)	0.031** (2.14)
Has business plan_{t-1}	0.103*** (16.17)	0.063*** (4.14)
Women-lead	0.038** (2.19)	-0.014 (-0.52)
MEG-led	0.106*** (12.61)	0.030*** (4.75)
N		4459.000
ρ		0.409 (0.77)
Wald test of $\rho=0$		0.600
Log pseudo likelihood		-5040.131

Table 7: Impact of Brexit on future export sales or entry to new overseas markets

This table shows the average marginal effects of the impact of Brexit on increase export sales or begin selling to new overseas markets in the next 3 years from a recursive bivariate probit estimated via Maximum likelihood. Sectoral and regional dummies are included in all specifications. Z-scores are reported in parenthesis. Omitted Categories: Size (Zero employees), Age (0 - 5), Sales turnover change (Decreased). All models include regional (England, Scotland, Wales, Northern Ireland), SIC 2007 sectors (ABCDEF, GHI, JKLMN, PQRS), wave dummies and a constant term. ***, ** and * refer to the significant level of 1%, 5% and 10%, respectively. Standard errors clustered at regional level.

	=1 increase export sales or begin selling to new overseas markets	=1 if Brexit is a major barrier
Brexit is a major barrier _{t-1}	-0.048*** (-5.96)	
SME innovator _{t-1}	0.094*** (16.94)	-0.007 (-0.37)
SME exporter _{t-1}	0.304*** (24.06)	0.245*** (83.48)
Size: Micro 1 - 9	-0.009*** (-4.76)	0.013* (1.83)
Size: Small 10 - 49	0.030*** (4.51)	0.034*** (3.14)
Size: Medium 50 - 249	0.030** (2.56)	0.029 (1.27)
Business age: 6 - 10	-0.086*** (-6.19)	-0.038** (-2.56)
Business age: 11 - 20	-0.095*** (-5.37)	-0.015 (-0.79)
Business age: 20+	-0.082*** (-4.60)	-0.008 (-0.37)
Sales turnover: Stayed the same _{t-1}	-0.010 (-1.23)	-0.069*** (-8.08)
Sales turnover: Increased _{t-1}	0.005 (0.66)	-0.087*** (-9.36)
Makes profit _{t-1}	-0.054*** (-15.29)	0.030** (2.33)
Has business plan _{t-1}	0.055*** (12.84)	0.063*** (4.64)
Women-lead	-0.007 (-0.57)	-0.011 (-0.46)
MEG-led	-0.003 (-0.41)	0.024*** (11.80)
N		4459.000
ρ		0.437*** (7.51)
Wald test of ρ=0		56.446
Log pseudo likelihood		-3826.267

Table 8: Impact of Brexit on aim to grow sales

This table shows the average marginal effects of the impact of Brexit on grow sales in the next 3 years from a recursive bivariate probit estimated via Maximum likelihood. Sectoral and regional dummies are included in all specifications. Z-scores are reported in parenthesis. Omitted Categories: Size (Zero employees), Age (0 - 5), Sales turnover change (Decreased). All models include regional (England, Scotland, Wales, Northern Ireland), SIC 2007 sectors (ABCDEF, GHI, JKLMN, PQRS), wave dummies and a constant term. ***, ** and * refer to the significant level of 1%, 5% and 10%, respectively. Standard errors clustered at regional level.

	=1 Aim to grow sales	=1 if Brexit is a major barrier
Brexit is a major barrier _{t-1}	-0.150** (-2.35)	
SME innovator _{t-1}	0.063*** (5.65)	-0.003 (-0.15)
SME exporter _{t-1}	0.057*** (3.19)	0.244*** (76.44)
Size: Micro 1 - 9	0.140*** (13.13)	0.013* (1.91)
Size: Small 10 - 49	0.263*** (67.20)	0.033*** (3.32)
Size: Medium 50 - 249	0.303*** (36.51)	0.029 (1.25)
Business age: 6 - 10	-0.150*** (-4.30)	-0.036* (-1.79)
Business age: 11 - 20	-0.133*** (-4.62)	-0.016 (-0.73)
Business age: 20+	-0.244*** (-8.55)	-0.011 (-0.41)
Sales turnover: Stayed the same _{t-1}	0.001 (0.16)	-0.064*** (-8.45)
Sales turnover: Increased _{t-1}	0.092*** (4.47)	-0.082*** (-9.86)
Makes profit _{t-1}	-0.028*** (-2.76)	0.031** (2.27)
Has business plan _{t-1}	0.154*** (7.12)	0.068*** (4.82)
Women-lead	-0.049*** (-4.56)	-0.013 (-0.47)
MEG-led	0.025*** (3.05)	0.032*** (8.96)
N		4459.000
ρ		0.526*** (5.83)
Wald test of $\rho=0$		34.034
Log pseudo likelihood		-5439.250

Table 9: Extent to which SME considers the UK's exit from the EU to be a factor in the decrease in sales turnover that is expected in the next 12 months for SMEs in the UK

This table shows the average marginal effects from multinomial probit regressions predicting whether Brexit has been a factor explaining an expected decrease in sales turnover. Sample is restricted to SMEs expecting a decrease in sales turnover in the next 12 months. Z-statistics adjusted for clustering at regional level are reported in parentheses. The base categories for categorical variables are: zero employees (size), 0-5 years (business age), decreased (sales turnover change). Z-statistics adjusted for clustering at regional level are reported in parentheses. ***, ** and * indicates statistical significance at the 1%, 5% and 10% levels, respectively.

	Not a factor	Minor factor	Major factor
SME innovator t_{-1}	-0.086*** (-4.53)	-0.003 (-0.11)	0.089*** (10.15)
SME exporter t_{-1}	-0.208*** (-13.07)	0.052** (2.04)	0.156*** (6.33)
Size: Micro 1 - 9	-0.093*** (-4.44)	0.106*** (4.32)	-0.013 (-0.40)
Size: Small 10 - 49	-0.148*** (-2.82)	0.093** (2.41)	0.055** (2.51)
Size: Medium 50 - 249	-0.300*** (-3.92)	0.252*** (3.60)	0.048*** (4.99)
Business age: 6 - 10	-0.158 (-1.14)	0.217* (1.69)	-0.060** (-2.43)
Business age: 11 - 20	-0.044 (-0.64)	0.079 (1.32)	-0.035*** (-3.08)
Business age: 20+	-0.069 (-0.87)	0.098 (1.35)	-0.029** (-2.00)
Sales turnover: Stayed the same t_{-1}	0.099*** (2.61)	-0.063 (-1.42)	-0.036** (-2.51)
Sales turnover: Increased t_{-1}	0.061 (1.11)	0.011 (0.31)	-0.073*** (-3.42)
Makes profit t_{-1}	-0.024 (-0.51)	0.039 (1.00)	-0.015 (-1.14)
Has business plan t_{-1}	0.076*** (9.12)	-0.069*** (-6.10)	-0.007 (-0.59)
Women-lead	0.081*** (5.42)	-0.051 (-1.53)	-0.030 (-0.71)
MEG-led	-0.260*** (-12.44)	0.171*** (5.40)	0.089*** (7.60)
Regional FEs		YES	
Industry FEs		YES	
Observations		355	
Log likelihood		-283.145	

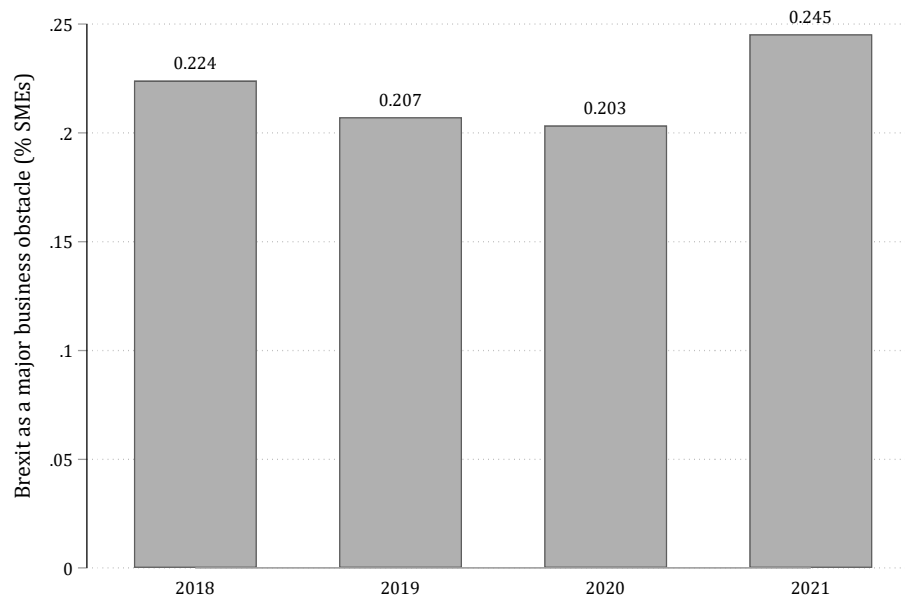
Table 10: Extent to which SME considers the UK's exit from the EU to be a factor in the increase in sales turnover that is expected in the next 12 months for SMEs in the UK

This table shows the average marginal effects from multinomial probit regressions predicting whether Brexit has been a factor explaining an expected increase in sales turnover. Sample is restricted to SMEs expecting an increase in sales turnover in the next 12 months. Z-statistics adjusted for clustering at regional level are reported in parentheses. The base categories for categorical variables are: zero employees (size), 0-5 years (business age), decreased (sales turnover change). Z-statistics adjusted for clustering at regional level are reported in parentheses. ***, ** and * indicates statistical significance at the 1%, 5% and 10% levels, respectively.

	Not a factor	Minor factor	Major factor
SME innovator t_{-1}	-0.001 (-0.16)	-0.007 (-0.73)	0.008* (1.91)
SME exporter t_{-1}	-0.042*** (-3.51)	0.016 (1.59)	0.026** (2.24)
Size: Micro 1 - 9	0.055*** (4.68)	-0.050*** (-3.02)	-0.006 (-0.54)
Size: Small 10 - 49	0.050* (1.86)	-0.027 (-1.27)	-0.024 (-0.98)
Size: Medium 50 - 249	0.038** (2.27)	-0.005 (-0.22)	-0.033 (-1.34)
Business age: 6 - 10	0.025 (1.34)	-0.028** (-2.50)	0.003 (0.14)
Business age: 11 - 20	0.024 (1.37)	-0.016*** (-4.35)	-0.008 (-0.42)
Business age: 20+	0.041*** (2.99)	-0.042** (-2.09)	0.001 (0.09)
Sales turnover: Stayed the same t_{-1}	0.004 (0.20)	0.004 (0.23)	-0.009 (-0.69)
Sales turnover: Increased t_{-1}	0.007 (0.17)	-0.007 (-0.17)	-0.000 (-0.04)
Makes profit t_{-1}	-0.008 (-0.35)	0.023 (0.90)	-0.015*** (-5.90)
Has business plan t_{-1}	-0.026 (-1.47)	0.019 (1.31)	0.007 (0.71)
Women-lead	0.016 (1.37)	-0.027* (-1.76)	0.011*** (3.02)
MEG-led	-0.089*** (-4.36)	0.053*** (3.97)	0.036** (2.50)
Regional FEs		YES	
Industry FEs		YES	
Observations		1574	
Log likelihood		-1008.70	

Figure 1: Brexit as a major business barrier

This Figure reports the % of SMEs that perceive Brexit as a major barrier to business success. Cross-sectional survey weights were applied to represent the population of SMEs in the UK.





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