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Growing Pains: Supporting Inclusive Growth Through Understanding Women-led Business Exporting

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Author
Enterprise Research Centre and Warwick Business School

Lorna Treanor
Nottingham University Business School, University of Nottingham, UK.
Email: Lorna.Treanor@nottingham.ac.uk

Pattanapong Tiwasing
Nottingham University Business School, University of Nottingham, UK.
Email: pattanapong.tiwasing@nottingham.ac.uk

Gary Chapman
Nottingham University Business School, University of Nottingham, UK.
Email: gary.chapman@nottingham.ac.uk

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ABSTRACT

This study employs a mixed-methods approach to explore the extent of, and factors influencing, the gender gap in exporting activity in the UK. We empirically analyse how being women-led influences exporting activity, using UK data between 2018-2023, and subsequently utilise a decomposition analysis to understand the factors contributing to observed gender gaps. We complement this with personal interviews with a small purposive sample of women-led firms. Our findings support the existence of a gender gap in exporting. Our decomposition results suggest gaps are influenced by factors such as firm sector and region. Women-led firms engaging in innovation and accessing business advice seems to contribute to narrowing the gap. Our qualitative findings highlight how gender may inform demand-side discrimination in foreign markets given cultural attitudes toward women in management and leadership roles in some country contexts.

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Keywords: Gender, Women-led SME, Exporting, Export gap, U.K., inclusive growth.

CONTENTS

1. INTRODUCTION

There is growing academic and policy interest in the exporting activity of small and medium-sized businesses (SMEs) (Francioni et al., 2016; Haddoud et al., 2021). Exporting can positively influence firm performance, growth, productivity, and can also induce learning to support innovation activities (Golovko and Valentini, 2011; Love and Roper, 2015; Gkypali et al., 2021). Despite these potential benefits, SMEs face a range of challenges to exporting (Haddoud et al., 2021), which underpin Longitudinal Small Business Survey (LSBS) data indicating the rate of SME exporting remains low at an average of c.18% across recent years (Department for Business and Trade, 2024).

Given SMEs constituted 99.8% of UK business stock in 2024 (Department for Business and Trade, 2024), greater SME exporting could support fulfilment of the Government's economic growth priorities. The Government is also committed to pursuing 'inclusive growth', aiding shared prosperity through reducing regional economic disparities and barriers faced by individuals from certain sections of society when seeking to start or grow their business (UK Government, 2025). While entrepreneurship research highlights that women entrepreneurs, among others, face greater barriers to starting and financing their business (Treanor and Marlow, 2025), little attention has been devoted to the participation, or reasons underpinning a potential lack thereof, of women-led SMEs in exporting (Pergelova et al., 2018; Mole et al., 2022). As Arshed et al. (2025:10) note: "*overall, limited academic research has been conducted to understand the barriers and drivers to export specifically for women-led SMEs"*

Prior research has examined which SMEs engage in exporting, the challenges they face, and how exporters differ from non-exporters (Phillipson et al., 2019; Haddoud et al., 2021). However, understanding remains limited and inconclusive as to whether an SME being woman-led influences exporting capability and engagement, and if or how exporting patterns for women-led businesses may be distinctive from men-led firms (Orser et al., 2010; Pergelova et al., 2018; Mole et al., 2022; Arshed et al., 2025). This report aims to advance the evidence base surrounding how gender influences SME exporting in the UK, by addressing the following research questions:

1. *What are the differences and similarities between women-led and men-led SMEs in terms of their exporting capability and behaviour, how do these vary across characteristics such as firm size, sector, UK region, business challenges, and innovative capability, and which observable characteristics may explain such gender exporting differences?*

2. *How does being women-led influence SME a). export capability and b). exporting behaviour, and how do characteristics, such as firm innovation, size, region, and sector, moderate the effects of being women-led on SME exporting?*

To advance understanding of women-led SME exporting, we begin with analysis of the LSBS data. This LSBS analysis is complemented by qualitative interview insights to provide more nuanced insights into the export capability and behaviours of women-led SMEs, contributing valuable insights to inform inclusive growth policy.

In so doing, we make several contributions. First, we explore not only the sex of the SME owner-manager but also the potential influence of variations in the sex composition of SME teams (Majority Women-Led (50%+ female), Equally-Led (50/50 gender split), Majority Male-Led (<50% Female) and Male-Led) upon exporting, to provide more nuanced understanding (Dutta and Mallick, 2023; Chuang et al., 2025). Second, using a decomposition analysis, we advance understanding of the factors contributing to the gender exporting gap, which in turn, can support the development of effective strategies to attenuate these. Our qualitative insights from the in-depth interviews with women-led SMEs, complement our quantitative analysis and deepen understanding of women-led SMEs engagement in exporting activities.

This report proceeds by overviewing extant literature and the methodological approach. We then present our findings before discussing key implications for research, policy and practice.

2. LITERATURE REVIEW

2.1 Gender and Entrepreneurship

The gender and entrepreneurship literature highlights gender is a social construction wherein attributes relating to masculinity are mapped onto male bodies and considered superior to those attributes associated with femininity and females. As males and masculinity are privileged, the taken-for-granted assumptions pertaining to women and femininity often render women at a disadvantage (Treanor and Marlow, 2021). Ahl (2006) highlighted that the language used to describe entrepreneurs strongly aligns with those characteristics associated with men and masculinity (e.g., strategic, assertive, agentic, ambitious, competitive, risk-taking). It is now accepted that the prototypical construction of the entrepreneur is male, he is also able-bodied, white, middle-class, middle-aged and heterosexual (Treanor, Jones and

Marlow, 2020). Meanwhile, women are oppositionally characterised as being submissive, compliant and risk-averse, positioning them as lacking the essential qualities required to create, lead and grow successful ventures. Women are, therefore, considered to be innately 'less entrepreneurial', to have weaker financial management skills, be less strategic, more risk-averse and reluctant to grow their businesses due to their presumed priority being their domestic responsibilities (Treanor, Marlow and Swail, 2021).

In contrast to the normative, successful male entrepreneur, women are often typically portrayed as under-performing, running small, home-premised enterprises that are often pejoratively termed 'lifestyle' or 'hobby' enterprises (McAdam, 2013). The reality is that 99.8% of UK businesses are SMEs and that most UK businesses are home-based, marginal performers with low growth prospects, regardless of founder gender (Marlow and McAdam, 2013). However, these gendered assumptions about women's entrepreneurial capabilities underpin gendered inequalities such as women's ability to (equitably) access entrepreneurial finance, as they are adjudged by financial gatekeepers against the prototypical male template and considered higher risk (Treanor and Marlow, 2025). These gendered attitudes and assumptions may also be internalised, informing women's perceptions about their suitability and capability as entrepreneurs (Treanor, Marlow and Swail, 2021).

Women's entrepreneurship is contextually embedded within the family and household (Brush et al., 2009). This may explain why women in developed economies, as a group, typically have a greater fear of failure than their male counterparts (Strawser et al., 2022). Women also tend to start businesses in different sectors than men, mirroring those sectors in which they are traditionally employed (Anna et al., 2000) which tend to be crowded, low-return, low-growth potential, typically service, sectors (Anna et al., 2000).

Women's under-representation as entrepreneurs is exacerbated in 'traditionally male' sectors such as Science, Technology, Engineering and Mathematics (STEM) (Marlow and McAdam, 2015; Treanor, 2022). Within such sectors, women encounter gendered barriers within employment that lead to early career exit or constrained professional progression which limits their ability to amass the requisite financial, social and managerial capital to exploit entrepreneurial opportunities (Treanor and Marlow, 2021). Women's greater difficulty in accessing finance may be further exacerbated for enterprises in non-traditional sectors such as STEM (Treanor and Marlow, 2025), despite women-led STEM SMEs actively engaging in innovation (Owalla et al., 2021).

Women's under-representation as entrepreneurs, particularly in contexts such as non-traditional sectors or in high-growth firms seeking venture capital, poses challenges for quantitative researchers seeking to access samples of suitable size to undertake meaningful quantitative analyses. Consequently, different studies may use different conceptualisations of female-led or female-founded firms (Chapman and Treanor, 2025). Some studies seeking to explore gendered inequalities in access to venture capital have commonly defined a female-founded firm as ranging from one that has either a solo or entirely female founding team, or one that is over 50% female-owned through to a founding team including at least one female (Snellman and Solal, 2023). This may be problematic when comparing findings given the British Business Bank (2019) reported that mixed-sex founding teams experienced significantly less difficulty in accessing VC finance than all-female founding firms; similarly, Chuang et al. (2025) found that different founding team sex compositions influenced differential access to crowdfunding. Given the myriad ways that gender can constrain women's entrepreneurial experiences and outcomes, a similar influence may result in relation to exporting.

2.2 Gender and Exporting

Little attention has been devoted to the participation, or reasons underpinning a potential lack thereof, of women-led SMEs in exporting, resulting in a limited understanding of how being women-led may influence exporting capability and engagement (Orser et al., 2010; Pergelova et al., 2018; Mole et al., 2022; Arshed et al., 2025). Drawing from extant evidence we know that women-led firms are disproportionately concentrated in the service sector wherein exporting is less common (Pergelova et al., 2018); moreover, their businesses tend to be smaller and younger (Arshed et al., 2025) which has implications for accessing key resources that enable and support exporting such as knowledge, networks, finance and management expertise (Haddoud et al. 2021), but these are areas where women face greater, gender-related, barriers than their male counterparts (Lee et al., 2016). Restricted access to finance and potentially higher borrowing costs (Gicheva and Link, 2015; Wu and Chua, 2012) remain a key issue. Access to finance may inform the decision to internationalise and, even when that decision is made, could influence the entry mode selected given the correlation between entry mode and a firm's resource-base (Laufs and Schwens, 2014). Dutta and Mallick (2023) highlight that minority-female owned and male-owned firms in India did not encounter demand or supply side constraints in accessing finance; for minority-female owned firms they suggested this was due to reduced investor bias as the women would be taking decisions

alongside male counterparts regarded as ‘able entrepreneurs.’ Majority-female-run firms did face challenges accessing bank finance however, tending to rely on internal finance as a result. Consequently, they highlight the importance of exploring the degree of female firm ownership, given female-only and female-majority owned firms will face greater challenges than male-led or mixed teams where women are in the minority.

Recent evidence suggests that male-led firms globally are almost twice as likely than women-led businesses to be selling into foreign markets (Korinek and van Lieshout, 2023). Garg and Shastri (2022) established that, in the Indian context, firms that are majority women-led are less likely to engage in export but that when they do, their choice of export mode and export intensity is not affected. Krenz (2025) analyses export behaviour among German manufacturing plants across female-owned, female-led, male-owned and male-led firms. They found that women-owned firms, or those with a majority share of female employees (greater than 60%), are significantly less likely to export. Female exporters, however, were found to gain a greater productivity premium than their male counterparts. The study established the existence of barriers for female exporters that their male counterparts did not face, such as demand-side discrimination (Krenz, 2025), consistent with studies elsewhere (Garg and Shastri, 2022; Davies and Mazhikeyev, 2021).

Pergelova et al.’s (2018) study established that Bulgarian firms with female CEOs were less likely to use FDI as an international entry mode, with a significant moderating effect found for the manufacturing sector. Of note, this study found that younger female CEOs were more likely to internationalise, with younger female CEOs in urban areas more likely to internationalise via FDI. This finding contradicts gendered assumptions that women, assumed to be more risk averse, may prefer to internationalise via exporting, given that entry modes such as FDI involve greater risk and commitment (Laufs and Schwens, 2014).

3. METHODOLOGICAL APPROACH AND METHODS

3.1 Data and descriptive statistics

This study uses data from UK Longitudinal Small Business Survey (LSBS) between 2018 and 2023, commissioned by the Department for Business and Trade. The LSBS has been conducted annually using computer-assisted telephone interviews since 2015, with interviews

undertaken each year with business owners or senior managers. The sampling frame combines the UK government's Inter-Departmental Business Register (IDBR) for registered firms and Dun & Bradstreet data for unregistered firms. The survey employs a stratified sampling method, first stratifying by UK nation and then by business size and 1-digit sector according to the SIC 2007 classification.

While LSBS is longitudinal, the business population in these surveys changes each year due to businesses being added ("top-ups"), as others drop out, to maintain a representative sample. This results in an unbalanced panel. We use pooled cross-sectional data from 2018-2023 for our analysis, which allows us to include all available observations while controlling for year effects. The total sample is 57,794 businesses. Of these, 17.75% are majority women-led businesses (table 1). In the LSBS, businesses were asked whether they had exported goods or services in the last 12 months (either goods or service exporting), as well as if they had exported only goods (goods exporting) or only services (service exporting). Additionally, businesses were asked if they had a product or service suitable for export that had not been exported (export capability). Although export capability was collected annually, we only use data from 2020-2023 as the question was recorded differently after 2020.

Table 1 reports the variables used in the analysis and considers gender differences between majority women-led and entirely men-led businesses. Given that not all businesses participated in the survey, we used pooled data to maximise the sample size. Men-led businesses are generally more likely to report exporting. Table 2 presents the descriptive statistics of key variables comparing exporting and non-exporting businesses across the different types of women- and men-led businesses. Overall, the results show similar patterns of exporting behaviour across the four groups. For example, older businesses (aged 20 years and above) are more likely to export compared to younger firms, with the highest percentage found among majority men-led businesses (65.38%), followed by entirely men-led, majority women-led, and equally women-led businesses, respectively.

Table 1: Descriptive Statistics (2018-2023)

Variable	Description	Obs.	Proportion of SMEs		Chi-square (χ2): Value(df)
			Entirely men-led (%)	Majority women-led (%)	
EIEXPORT	Whether a business exports either goods or services (1=yes, 0=no)	37,359	24.34	15.35	351.15(1)**
BOTHEX	Whether a business exports both goods and services (1=yes, 0=no)	37,326	3.95	1.76	110.01(1)**

GOODS	Whether a business exports only goods (1=yes, 0=no)	37,404	15.27	9.08	242.88(1)**
SERVICE	Whether a business exports only services (1=yes, 0=no)	37,381	13.00	8.02	179.62(1)**
CAPEX1 (2020-2023)	Whether a business has export capability (1 = has never exported but has a suitable product or service for export; 0 =otherwise).	17,190	10.51	7.14	48.33(1)**
FAMILY	Whether a business is family-owned businesses (1=yes, 0=no)	37,463	76.90	82.17	121.66(1)**
AGE05	Whether a business is aged between 0 and 5 years (1=yes, 0=no)	37,384	12.43	13.87	13.70(1)**
AGE610	Whether a business is aged between 6 and 10 years (1=yes, 0=no)	37,384	16.25	17.61	9.89(1)**
AGE1119	Whether a business is aged between 11 and 19 years (1=yes, 0=no)	37,384	26.55	26.24	0.35(1)
AGE20	Whether a business is aged 20 years and over (1=yes, 0=no)	37,384	44.77	42.28	18.71(1)**
PRIMARY	Whether a business operates in the primary, production or construction sector (1=yes, 0=no)	37,507	27.75	13.08	885.70(1)**
TRANS	Whether a business operates in transport, wholetail/retail and food/accommodation service sector (1=yes, 0=no)	37,507	26.49	27.20	1.91(1)
SERV	Whether a business operates in the business service sector (1=yes, 0=no)	37,507	36.05	29.49	142.35(1)**
EASTMID	Whether a business is located in East Midland (1=yes, 0=no)	37,507	6.84	7.03	0.40(1)
EASTENG	Whether a business is located in the East of England (1=yes, 0=no)	37,507	9.78	10.15	1.09(1)
LONDON	Whether a business is located in North East (1=yes, 0=no)	37,507	11.76	10.62	9.41(1)**
NEAST	Whether a business is located in North East (1=yes, 0=no)	37,507	2.48	2.72	1.71(1)**
NWEST	Whether a business is located in North West (1=yes, 0=no)	37,507	8.21	7.60	3.77(1)
SEAST_	Whether a business is located in South East (1=yes, 0=no)	37,507	15.99	15.23	3.30(1)
SWEST	Whether a business is located in South West (1=yes, 0=no)	37,507	10.62	11.31	3.62(1)
WESTMID	Whether a business is located in West Midland (1=yes, 0=no)	37,507	8.07	8.00	0.05(1)
Y&H	Whether a business is located in Yorkshire & the Humber (1=yes, 0=no)	37,507	6.91	7.14	0.59(1)

SCOTLD	Whether a business is located in Scotland (1=yes, 0=no)	37,507	8.60	9.31	4.67(1)**
WALES	Whether a business is located in Wales (1=yes, 0=no)	37,507	4.77	5.73	14.25(1)**
NI	Whether a business is located in Northern Ireland (1=yes, 0=no)	37,507	5.96	5.17	8.69(1)**
MICRO	Whether a business has 1-9 employees (1=yes, 0=no)	37,507	36.77	37.39	1.22(1)
SMALL	Whether a business has 10-49 employees (1=yes, 0=no)	37,507	23.53	29.10	123.16(1)**
MEDIUM	Whether a business has 50-249 employees (1=yes, 0=no)	37,507	10.89	9.58	13.61(1)**
RURAL	Whether a business is located in rural areas (1=yes, 0=no)	36,652	28.71	30.46	10.77(1)**
ETHNIC	Whether a business is an ethnic minority led business (1=yes, 0=no)	36,226	6.03	5.20	8.97(1)**
ADVICE	Whether a business used information or advice in the last 12 months (1=yes, 0=no)	36,918	24.61	27.42	30.49(1)**
SALE	Whether a business aims to grow sales (1=yes, 0=no)	37,507	73.01	72.03	3.60(1)
INNOV	Whether a business has introduced new or significantly improved goods or services in the last 3 years (1=yes, 0=no)	37,177	28.56	27.28	5.96(1)***
BPLAN	Whether a business has a formal business (1=yes, 0=no)	36,295	40.31	46.15	100.98(1)**
EXFINN	Whether a business seek external finance for its business in the past 12 months (1=yes, 0=no)	36,348	12.14	10.85	11.52(1)**
SKILL	Whether a business plans to increase the skills of the workforce over next three years (1=yes, 0=no)	12,022	54.93	58.32	10.98(1)**
CAPITAL	Whether a business plans to invest in capital (e.g. premises, machinery, etc.) over next three years (1=yes, 0=no)	12,022	35.10	26.82	73.04(1)**
DEVELP	Whether a business plans to develop and launch new products/services over next three years (1=yes, 0=no)	12,022	37.24	35.6	2.61(1)
PRACT	Whether a business plans to introduce new working practices over next three years (1=yes, 0=no)	12,022	39.43	40.37	0.87(1)
REGT	Whether a business reports regulation and red tape as their major obstacles to business success (1=yes, 0=no)	12,022	39.80	36.85	8.57(1)**

COMPT	Whether a business reports competition in the market as their major obstacles to business success (1=yes, 0=no)	12,022	46.04	44.42	2.48(1)**
BREX	Whether a business reports UK exit from the EU as their major obstacles to business success (1=yes, 0=no)	12,022	30.22	27.20	10.36(1)**
Independent		**Obs.**	**Proportion of SMEs (%)**		**S.D.**
MWLED	Whether a business is women-led (i.e. more than 50% of its owners, directors, or partners are women) (1=yes, 0=no)	57,794	17.75%		0.38
EQUAL	Whether a business is equally led between men and women (1=yes, 0=no)	57,794	22.13%		0.42
MINOR	Whether a business is majority male-led (1=yes, 0=no)	57,794	12.97%		0.34
MLED	Whether a business is entirely male led (1=yes, 0=no)	57,794	47.15%		0.50

Notes: df is a degree of freedom, ** represents statistical significance at the 5% level.

Table 2: Distribution of exporting and non-exporting businesses among different types of gender leadership, 2018-2023

	Majority women-led		Equal-led		Majority men-led		Entirely men-led	
	Non-exporter	**Exporter**	**Non-exporter**	**Exporter**	**Non-exporter**	**Exporter**	**Non-exporter**	**Exporter**
Business size								
Micro	3,258 (37.71%)	566 (36.26%)	4,451 (43.55%)	1,088 (43.21%)	1,598 (29.68%)	443 (21.66%)	7,879 (38.45%)	2,108 (31.96%)
Small	2,500 (28.94%)	469 (30.04%)	3004 (29.39%)	753 (29.90%)	2,078 (38.59%)	797 (38.97%)	4,349 (21.22%)	2,029 (30.77%)
Medium	796 (9.21%)	181 (11.60%)	943 (9.23%)	207 (8.22%)	1,235 (22.93%)	711 (34.77%)	1,765 (8.61%)	1,181 (17.91%)
Business age								
0-5 years	1,263 (14.66%)	149 (9.53%)	1,188 (11.65%)	180 (7.17%)	382 (7.09%)	91 (4.44%)	2,804 (13.69%)	559 (8.49%)
6-10 years	1,539 (17.86%)	253 (16.19%)	1,712 (16.79%)	404 (16.10%)	597 (11.07%)	169 (8.24%)	3,453 (16.86%)	944 (14.34%)
11-19 years	2,251 (26.13%)	418 (26.74%)	2,904 (28.48%)	747 (29.77%)	1,132 (21.00%)	450 (21.94%)	5,414 (26.44%)	1,782 (27.06%)
20 years and above	3,563 (41.35%)	743 (47.54%)	4,392 (43.08%)	1,178 (46.95%)	3,280 (60.84%)	1,341 (65.38%)	8,809 (43.01%)	3,300 (50.11%)
Sector								
Primary, Manufacturing, Construction	992 (11.47%)	345 (21.99%)	2,327 (22.75%)	627 (24.87%)	1,315 (24.33%)	692 (33.69%)	5,571 (27.13%)	1,967 (29.78%)
Wholesale/ Retail, Transport/ Storage, Accommodation/ Food	2,299 (26.57%)	483 (30.78%)	3,656 (35.75%)	784 (31.10%)	1,436 (26.57%)	537 (26.14%)	5,355 (26.08%)	1,829 (27.69%)

Business service (Information/ Communication, Financial/ Real estate, Professional/ Science, Administrative)	2,443 (28.24%)	566 (36.07%)	2,916 (28.51%)	990 (39.27%)	1,562 (28.90%)	751 (36.56%)	7,268 (35.40%)	2,517 (38.10%)
Other services (Education, Health/ Social Work, Arts/ Entertainment, Other service)	2,918 (33.73%)	175 (11.15%)	1,329 (12.99%)	120 (4.76%)	1,091 (20.19%)	74 (3.60%)	2,338 (11.39%)	293 (4.44%)
Region								
London and South East	800 (9.25%)	285 (18.16%)	678 (6.63%)	306 (12.14%)	529 (9.79%)	302 (14.70%)	2,216 (10.79%)	955 (14.46%)
The rest of England	6,114 (70.67%)	953 (60.74%)	7,504 (73.37%)	1,736 (68.86%)	3,752 (69.44%)	1,372 (66.80%)	14,401 (70.14%)	4,316 (65.33%)
Scotland	808 (9.34%)	143 (9.11%)	956 (9.35%)	168 (6.66%)	522 (9.66%)	122 (5.94%)	1,886 (9.19%)	445 (6.74%)
Wales	508 (5.87%)	80 (5.10%)	667 (6.52%)	98 (3.89%)	359 (6.64%)	91 (4.43%)	1,052 (5.12%)	246 (3.72%)
Northern Ireland	421 (4.87%)	108 (6.88%)	423 (4.14%)	213 (8.45%)	241 (4.46%)	167 (8.13%)	977 (4.76%)	644 (9.75%)
Product innovation								
New or significantly improved goods/services in the last 3 years	2,087 (24.35%)	671 (43.18%)	2,544 (25.06%)	1,093 (43.69%)	1,518 (28.35%)	980 (48.11%)	4,720 (23.16%)	2,963 (45.22%)
Minority ethic group-led business								
Whether business is MEG-led	419 (5.02%)	93 (6.15%)	655 (6.45%)	146 (5.83%)	184 (3.45%)	43 (2.12%)	1,225 (6.18%)	350 (5.48%)
Business obstacles								
Brexit	610 (22.67%)	261 (51.18%)	847 (26.07%)	425 (48.79%)	465 (26.89%)	308 (46.11%)	1,627 (24.60%)	1,024 (47.39%)

Market competition	1,156 (42.96%)	266 (52.16%)	1,377 (42.38%)	439 (50.40%)	791 (45.75%)	378 (56.59%)	2,919 (44.14%)	1,120 (51.83%)
Regulation/ red tape	986 (36.64%)	194 (38.04%)	1,471 (45.28%)	384 (44.09%)	768 (44.42%)	291 (43.56%)	2,571 (38.88%)	922 (42.67%)

Note: Exporting is defined by EIEXPORT. Green denotes statistically significant response using Chi-square Note: NExporting is defined by EIEXPORT. Green denotes statistically significant response using Chi-square test (χ2: $p<0.05$)

3.2. Empirical analysis

For our quantitative analysis, we conducted probit regressions given our dependent variables are binary. Given the unbalanced nature of the panel dataset, where women- and men-led SMEs were not consistently represented across all survey years, we estimated the models using pooled data from 2018 to 2023. To account for potential time-related variations, we included time dummies to control for year-specific effects. The estimated pooled probit regression can be expressed as:

$$Y_i^* = \boldsymbol{X}_i'\beta + \delta_t + \varepsilon_i, \qquad \varepsilon_i \sim N(0,1), \qquad (1)$$

where $Y_i^*$is the latent export propensity, $\mathbf{X}_i$ is a vector of firm-level characteristics including women-led business, business size, sector, region, et cetera (See Table 1), ε_i are year dummies to control for time effects, and Y_iThe observed binary outcome equals 1 if the firm exports, and 0 otherwise. The corresponding probability of exporting is given by

$$Pr(Y_i = 1 \mid \boldsymbol{X}_i) = E(Y_i \mid \boldsymbol{X}_i) = \Phi(\boldsymbol{X}_i'\beta + \delta_t), \qquad (2)$$

where $\Phi(\cdot)$ is the standard normal cumulative distribution function. These predicted probabilities, $\hat{p}_i = \Phi(\boldsymbol{X}_i'\hat{\beta} + \delta_t)$, form the basis for the Fairlie decomposition.

Following the regression analysis, we applied a decomposition analysis to assess the extent to which observed gender differences in export engagement and capability could be explained by these observable characteristics. We used a non-linear decomposition analysis following Fairlie (2005) since our export outcomes are binary. This is also the main reason why we conducted the analysis using pooled data, since the original Fairlie decomposition was designed for cross-sectional data with a binary dependent variable (Fairlie, 1999). The method is widely used to decompose differences in outcomes between two groups (Fairlie, 2005; Chaudhuri et al., 2020; Fagbamigbe et al., 2021).

Unlike the linear decomposition technique (i.e. Blinder–Oaxaca decomposition), the Fairlie method uses a probit model in the first stage, and in the second stage, it quantifies the extent to which the gaps in exporting outcomes between women- and men-led businesses can be explained by observable firm characteristics. This approach partitions the gender gaps in export outcomes into two components: an explained component, which captures differences due to observable firm characteristics, and an unexplained component, which reflects structural, behavioural, or unobserved factors affecting export performance (Fairlie, 2005). The contribution of each characteristic is also quantified, indicating whether it widens or narrows the gender gap in export outcomes, which is useful for policy recommendations.

Following Fairlie (2005), the Fairlie decomposition uses the predicted probabilities from the first-stage probit model in Equation (2), $\hat{\rho}_i = \Phi\left(\boldsymbol{X}_i'\hat{\beta} + \delta_t\right)$, to calculate group-level mean probabilities, which form the basis for the decomposition. The Fairlie method partitions the mean difference in predicted probabilities between two groups – men- (M) and women-led (W) businesses – into explained and unexplained components. Let N_M and N_W denote the sample size for entirely men- and women-led businesses, respectively, and $\boldsymbol{X}_{Mj}$ and $\boldsymbol{X}_{Wj}$ are the vector of covariates for the j-th firm in the men-led group and for the j-th firm in the women-led group, respectively. The Fairlie decomposition computes the average predicted probability for each group by aggregating over all firms within each group. Retaining individual covariates allows for the construction of accurate group-level means and the corresponding counterfactual scenario in the decomposition. Thus, the mean predicted probability for group *M* and *W* is:

$$\bar{P}_M(\hat{\beta}) = \frac{1}{N_M}\sum_{j=1}^{N_M} \Phi\left(X_{Mj}'\hat{\beta} + \delta_{tj}\right), \qquad \bar{P}_W(\hat{\beta}) = \frac{1}{N_W}\sum_{j=1}^{N_W} \Phi\left(X_{Wj}'\hat{\beta} + \delta_{tj}\right)$$

Thus, the gap in average export probabilities between men- and women-led businesses is:

$$D = \bar{P}_M(\hat{\beta}) - \bar{P}_W(\hat{\beta}) \qquad (4)$$

Fairlie decomposes this gap into **explained** and **unexplained** parts by constructing a counterfactual scenario in which the distribution of covariates of one group is replaced by that of the other. Formally, the decomposition can be expressed as:

$$D = \underbrace{\frac{1}{N_M}\sum_{j=1}^{N_M}\left[\Phi\left(\boldsymbol{X}'_{Mj}\hat{\beta}\right) - \Phi\left(X_{Mj}^{*(W)'}\hat{\beta}\right)\right]}_{\text{Explained}} + \underbrace{\frac{1}{N_M}\sum_{j=1}^{N_M}\Phi\left(X_{Mj}^{*(W)'}\hat{\beta}\right) - \frac{1}{N_M}\sum_{j=1}^{N_W}\Phi\left(\boldsymbol{X}'_{Wj}\hat{\beta}\right)}_{\text{Unexplained}} \quad (5)$$

where $X_{Mj}^{*(W)}$ is a randomly drawn vector of covariates from women-led businesses.

In this analysis, we performed the Fairlie composition using the *fairlie* command with the *probit* and *pooled* options in STATA. We also applied the same procedure, both probit and Fairlie decomposition analysis, to examine differences in export across gender ownership/leadership, including equally-led and majority men-led businesses, with men-led businesses (serving as the reference group). The analysis predominately focuses on export engagement, defined as firms exporting either goods or services, between 2018 and 2023. It also considers export capability, for which we only used data from 2020 to 2023 since the variable was recorded differently from 2020 onwards, which could introduce inconsistencies if pooled with earlier observations. This approach enables a more nuanced understanding of how different compositions of women leadership teams influences export engagement and capability compared to men-led businesses.

In addition, we considered an important methodological issue highlighted in the literature regarding the Fairlie decomposition method. As discussed by Rahimi and Hashemi Nazari (2021), the decomposition results for categorical predictors can depend on the choice of base (omitted) category, a problem known as the identification issue. To address this, we treated the full set of dummy variables as a group rather than interpreting individual contributions (Fairlie, 2005). In Equation (5), four variables are treated as categorical: region, sector, age of business, and business size (number of employees). Thus, we ran the Fairlie decomposition using the "(*region:*)" option in the *fairlie* command to group these categorical variables: for region, North East serves as the reference; for broad sector categories, Other Services is the reference; for age of business, 20 years and over is the reference; and for business size, firms with no employees are the reference. This approach ensures that the decomposition results are robust and interpretable while appropriately accounting for the identification issue.

3.3 Qualitative Research

Given the limited evidence surrounding gender barriers to women-owned and women-led firm's exporting activities, we complement our firm-level LSBS data analysis with a small exploratory qualitative study (Strauss and Corbin, 1990; Anna et al., 2000). Qualitative research does not seek to generalise to a given population; however, in-depth personal interviews provide women entrepreneurs with the opportunity to share their experiences which may resonate with the experiences of other women more widely. This individual-level data can provide meaningful insights to assist with theorisation (Hammersley, 2000), in this case, assisting with theorisation of patterns established in the quantitative analysis. We undertook purposive sampling which is appropriate in small-scale studies seeking to gain rich, in-depth data on the topic under investigation (Arshed et al., 2025).

We undertook five semi-structured interviews with women from different areas of the UK. While this is a small sample it captures a range of UK locations including rural and urban areas, family businesses and manufacturing and service firms in different sectors, some of which would be considered non-traditional sectors for women. Also captured were women-only, copreneurial couples (husband and wife founding teams) and mixed-sex founding teams (see Table 3 for Participant Profiles).

The semi-structured, personal interviews explored the challenges for, and drivers of, women's international trade. Topics covered included factors influencing foreign market selection, networks and network development, support accessed/required for current internationalisation and future aspirations (if any), international growth aspirations, and funding (sources) accessed, to date, to support overseas sales growth. Respondents were asked about the challenges they encountered generally before being asked to consider if, when and how their gender may have proved to be an advantage, and similarly, a disadvantage.

In accordance with the ethical approval obtained from the University of Nottingham, all research participants were provided with a Participant Information Sheet and consent form in advance of their interview. Each was advised that interviews would be recorded and transcriptions retained for research purposes. All were informed that their anonymity would be protected through use of pseudonymisation if using quotes; they were also advised that they could withdraw consent at any stage up to publication. The interviews lasted between one hour and one hour forty-five minutes. Data were analysed using Braun and Clarke's (2006) thematic analysis approach.

Table 3: Interviewee Overview

	Married	Children	Ethnicity/ Race	Age	Prior Sector Experience	Traditional Female Sector	Business type	Founding team	Family business	Rural or Urban	No. Emps
Holly	Yes	0	White British	25-35	Yes	No	Manuf.	Mixed-sex partnership	No	Urban; 1st tier city	10-19
Norma	No	2	Black British	46-55	Yes	Yes	Service	Solo social entrepreneur	No	Urban – 2nd tier city	0
Brenda	Yes	2	British of S. East Asian heritage	36-45	No	Yes	Service		No	Urban - 2nd tier city	0
June	Yes	Yes (3 adult)	White British	56+	No	No	Contract Manuf. with one own-brand export product	Copreneurial founders	Yes – first gen	Rural	30 -49
Sam	Yes	Yes (2 adult)	White British	36-45	No	No	Niche Service	Copreneurial third gen managing team	Yes	Urban - town	0-9

4. EMPIRICAL RESULTS AND DISCUSSION

4.1 Empirical results and discussion

Table 4 reports the results of the association between women-led businesses and other key variables and export outcomes using probit model as per Equation (1)[1]. Overall, all Models illustrate statistically significant overall fits, as indicated by a Wald Chi-squared test with a p-value of below 0.05. The correlation matrix reports the highest correlation is 0.47 between MICRO and SMALL, and the VIF is below 5, indicating that multicollinearity is not an issue.

Overall, the results show that women-led businesses exhibit a consistent pattern across different export outcomes. For the either goods or services exporting (Models (1)), Majority women-led firms (WMLED) are significantly less likely to engage in exporting than male-led businesses. Equally-led (EQUAL) businesses are also less likely to report exporting either goods or services relative to entirely male-led firms. For exporting both goods and services (Models (2)), women-led businesses (WMLED), equally-led businesses (EQUAL), and majority men-led businesses (MINOR) all show negative coefficients, suggesting that they are significantly less likely to report exporting both goods and services compared to entirely men-led businesses.

For service exporting (Models 3)), women-led businesses (WMLED) remain significantly less likely to export services (significant at 1%) than entirely men-led businesses, while equally-led businesses (EQUAL) and majority men-led businesses (MINOR) do not exhibit a statistically significant effect for service exporting. In Model (4), women-led businesses (WMLED) (significant at 5%) and equally-led businesses (EQUAL) (significant at 1%) are less likely to export goods. For export capability (Model (5)), women-led businesses (WMLED) are less likely to have a product or service suitable for export compared to male-led firms.

[1] The marginal effects are available upon reasonable request.

Table 4: Main Results (Probit Model)

	Either goods or service exporting	**Both goods and service exporting**	**Service exporting**	**Goods exporting**	**Export capability**
	Model (1)	**Model (2)**	**Model (3)**	**Model (4)**	**Model (5)**
	Coeff. (S.E.)	**Coeff. (S.E.)**	**Coeff.(S.E.)**	**Coeff. (S.E.)**	**Coeff. (S.E.)**
CONS	-1.741*** (0.096)	-2.541*** (0.168)	-1.855*** (0.122)	-2.144*** (0.113)	-2.040*** (0.184)
WMLED	**-0.173*** (0.036)**	**-0.174*** (0.067)**	**-0.228*** (0.044)**	**-0.101** (0.042)**	**-0.135** (0.063)**
EQUAL	**-0.057* (0.030)**	**-0.121** (0.055)**	-0.009 (0.036)	**-0.122*** (0.036)**	-0.077 (0.055)
MINOR	0.006 (0.036)	**-0.129** (0.062)**	0.012 (0.043)	-0.062 (0.042)	-0.050 (0.073)
RURAL	-0.025 (0.027)	-0.025 (0.048)	0.023 (0.033)	-0.057* (0.031)	-0.011 (0.049)
MICRO	-0.032 (0.035)	0.015 (0.067)	-0.076* (0.040)	0.046 (0.044)	-0.153* (0.068)
SMALL	0.099** (0.040)	0.231*** (0.071)	-0.022 (0.047)	0.247*** (0.048)	-0.185* (0.081)
MEDIUM	0.186*** (0.048)	0.205** (0.082)	0.004 (0.056)	0.330*** (0.056)	-0.301** (0.103)
AGE05	-0.448*** (0.043)	-0.317*** (0.078)	-0.229*** (0.050)	-0.530*** (0.053)	0.320*** (0.066)
AGE610	-0.192*** (0.035)	-0.190*** (0.065)	-0.067 (0.041)	-0.272*** (0.042)	0.177*** (0.062)

AGE1119	-0.093*** (0.029)	-0.022 (0.050)	0.011 (0.034)	-0.136*** (0.034)	0.055 (0.053)
ETHNIC	-0.174*** (0.056)	-0.108 (0.106)	-0.207*** (0.069)	0.158 (0.099)	0.115 (0.173)
FAMILY	-0.116*** (0.029)	-0.079 (0.050)	-0.118*** (0.034)	0.094 (0.097)	0.142 (0.168)
PRIMARY	0.649*** (0.047)	0.571*** (0.089)	0.049 (0.056)	-0.036 (0.099)	0.139 (0.169)
TRANS	0.567*** (0.047)	0.346*** (0.090)	-0.082 (0.056)	0.078 (0.099)	0.007 (0.174)
SERV	0.667*** (0.045)	0.330*** (0.088)	0.738*** (0.049)	0.044 (0.094)	0.129 (0.163)
PDINNO	0.387*** (0.027)	0.357*** (0.045)	0.315*** (0.031)	0.073** (0.031)	0.184*** (0.049)
ADVICE	0.107*** (0.027)	0.059 (0.046)	0.100*** (0.031)	0.385*** (0.031)	0.310*** (0.048)
BPLAN	-0.058** (0.026)	0.100** (0.045)	-0.013 (0.031)	-0.029 (0.030)	-0.012 (0.047)
SALE	0.171*** (0.032)	0.087 (0.062)	0.099** (0.038)	0.193*** (0.039)	0.100 (0.057)
FINANCE	-0.001 (0.033)	-0.035 (0.056)	-0.006 (0.040)	-0.002 (0.038)	0.092 (0.061)
SKILL	-0.039 (0.031)	-0.059 (0.058)	0.071* (0.038)	-0.150*** (0.037)	-0.089 (0.066)

CAPITAL	-0.015 (0.027)	0.022 (0.047)	-0.085** (0.032)	0.072* (0.031)	0.097* (0.047)
DEVLP	0.465*** (0.027)	0.396*** (0.050)	0.310*** (0.033)	0.508*** (0.032)	0.350*** (0.050)
PRACT	-0.142*** (0.027)	-0.022 (0.047)	-0.075** (0.033)	-0.134*** (0.032)	0.052 (0.049)
REGUL	-0.114*** (0.024)	0.004 (0.042)	-0.103*** (0.029)	-0.061* (0.028)	-0.045 (0.045)
COMPT	0.041* (0.024)	-0.057 (0.043)	-0.017 (0.029)	0.052* (0.028)	0.121** (0.044)
BREXIT	0.510*** (0.025)	0.313*** (0.043)	0.382*** (0.030)	0.475*** (0.029)	0.159** (0.049)
REGION	Yes	Yes	Yes	Yes	Yes
YEAR	Yes	Yes	Yes	Yes	Yes
Obs.	**16,545**	**16,535**	**16,552**	**16,558**	**7,423**
Wald chi2 (df)	**2,084.27**	**585.13**	**1,542.35**	**1,921.85**	**426.47**
Prob>chi2	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$; S.E. denotes Robust standard errors in parentheses**.**

In considering the key factors contributing to these gender gaps, Table 5 reports the results of Fairlie decomposition, which quantifies the extent to which observable characteristics explain the differences in export outcomes between women-led and men-led businesses. We focus this analysis on our core dependent variables capturing export behaviour (either goods or services export) and capability (export capability). For exporting either goods or services (Model (6)), the results demonstrate that the proportion of men-led businesses engaging in exports is 0.2389 (23.89%), while it is 0.1604 (16.04%) for majority women-led businesses. This means that, on average, men-led businesses are 7.85 percentage points more likely to

engage in exporting than their women-led counterparts. The decomposition results further reveal that 46.37% ([0.0364/0.0785] × 100) of this gender difference can be explained by observable firm characteristics such as firm size, sector age etc. However, this means 53.63% of the gender exporting gap is due to unobservable factors which could include gender-specific barriers, discrimination and other unknown factors.

In Table 5, a positive coefficient contributes to the male-led business advantage, while a negative coefficient reduces the gender gap, suggesting a relative benefit for women-led businesses. For Model (6) and (7), overall, majority women-led businesses are less likely to export and have export capability than entirely men-led businesses. There are key factors contributing to the observed advantage of men-led businesses. Sector (SECTOR, 31.39%) and region (REGION, 2.11%) contribute to the gap, implying that men-led firms tend to operate in export intensive sectors and regions. Plans to introduce new products or services (DEVLP, 3.53%), plans to introduce new working practices (PRACT, 1.21%) and having a formal business plan (BPLAN, 1.08%) contribute to the advantage of men-led businesses, which can enhance export readiness for either goods or services. Perceiving Brexit as an obstacle (BREXIT) contributes 12.82% to the exporting gap between majority women-led and entirely male-led businesses. For export capability, positive contributors include sector (SECTOR, 29.71%), product development plans (DEVLP, 11.27%), and reporting market competition as obstacle (COMPT, 3.70%), which widen the gap and reflect associated with higher export capability among men-led businesses.

However, several factors contribute to an advantage for majority women-led businesses, narrowing the gap. For either goods or service exporting (Model 6), these include business size (SIZE, -3.71%), ethnic-led businesses (ETHNIC, -0.60%), introducing new or new or significantly improved goods or services in the last three years (INNOV, -3.15%). Also, seeking external business advice or information (ADVICE, -3.18%) and perceiving regulation or red tape as an obstacle (REGUL, -0.81%). For export capability (Model 7), negative contributors include INNOV (-11.56%) and ADVICE (-9.96%), indicating that women-led firms report higher capability when actively innovating and making use of exporter business support.

The results also show that equally-led businesses are less likely to export goods or services that entirely men-led businesses (Model 8). However, there are few differences in export capability (Model 9). Similarly, no significant differences in either goods or service exporting (Model 10) and export capability Model (11) between majority men- and entirely men-led businesses. For equally-led businesses (Model 8), the key factors contributing to the advantage of entirely men-led businesses include FAMILY (15.55%), SECTOR (16.49%),

REGION (11.00%), DEVLP (4.63%), PRACT (3.68%), REGUL (3.02%) and BREXIT (16.09%). In contrast, AGE (-12.75%), ETHNIC (-1.89%), INNOV (-10.28%), ADVICE (-5.26%), aim to grow sales (SALE, -3.38%) contribute to the advantage of equally-led businesses, which help to reduce the gap in goods or service exporting.

As an extension, we also estimated the Fairlie Decomposition for both goods and services exporting, and only goods exporting and only services exporting. These results are summarised in Table 6. The results suggest factors such as SECTOR, INNOV, DEVLP, and BREXIT continue to be important. Generally, the results suggest that while structural (i.e. sector, region) and strategic factors (i.e. business plans) amplify male advantages in exporting, majority women-led firms can partially overcome these disadvantages by being more innovative and proactive in seeking knowledge and advice.

Table 5: Fairlie Decomposition Analysis

	Majority women-led businesses		Equally-led businesses		Majority men-led businesses	
	Either goods or service exporting (6)	**Export capability (7)**	**Either goods or service exporting (8)**	**Export capability (9)**	**Either goods or service exporting (10)**	**Export capability (11)**
Entirely men-led businesses	0.2389	0.1076	0.2389	0.1076	0.2389	0.1076
Women-led businesses	0.1604	0.0735	0.2088	0.0859	0.2808	0.0841
Difference (D)	0.0785***	0.0341**	0.0301**	0.0217	-0.0418	0.0235
Total explained	0.0364	0.0148	0.0135	0.0111	-0.0540	0.0086
Unexplained	0.0421	0.0193	0.0166	0.0106	0.0122	0.0149
	Coefficient (S.E.)	**Coefficient (S.E.)**	**Coefficient (S.E.)**	**Coefficient (S.E.)**	**Coefficient (S.E.)**	**Coefficient (S.E.)**
RURAL	0.0000977 (0.0001395)	-0.0001569 (0.0002426)	0.0001961 (0.0006358)	-0.0002778 (0.0007698)	0.0000194 (0.0000929)	-0.0003872 (0.0005499)
SIZE	-0.0029107*** (0.0007404)	0.0020408 (0.0013177)	-0.000156 (0.0010515)	0.0041525** (0.0017363)	-0.0248279*** (0.0039156)	0.0093723** (0.0046007)

AGE	-0.0006285 (0.0003422)	0.00000523 (0.0004431)	-0.0038454*** (0.0004711)	0.0024798*** (0.0007733)	-0.0148268*** (0.0018468)	0.007395*** (0.002076)
ETHNIC	-0.00047** (0.0002153)	-0.0001667 (0.0002641)	-0.0005689*** (0.0001906)	-0.00000338 (0.0001427)	-0.0020645*** (0.000592)	-0.0006062 (0.0009673)
FAMILY	0.001832*** (0.0006615)	-0.000032 (0.0001264)	0.0046815*** (0.0009758)	-0.0006647 (0.0007837)	-0.0059623*** (0.0014654)	0.001159 (0.0019005)
SECTOR	0.0246437*** (0.0019922)	0.0101324*** (0.0026989)	0.0049625*** (0.000811)	0.003352*** (0.000889)	0.011186*** (0.0009178)	0.00275** (0.0011297)
REGION	0.0016572*** (0.000506)	-0.0002165 (0.0008384)	0.0033124*** (0.0006885)	0.0009753 (0.0010602)	-0.0005194 (0.0004112)	0.0004473 (0.0008037)
PDINNO	-0.002475*** (0.0003161)	-0.0039435*** (0.0009121)	-0.0030933*** (0.0003178)	-0.0031839*** (0.0006860)	-0.0100905*** (0.0009088)	-0.0049254*** (0.0012573)
ADVICE	-0.0024963*** (0.0005884)	-0.0033973*** (0.0011669)	-0.0015834*** (0.0003801)	-0.0027514*** (0.0008816)	-0.005331*** (0.001278)	-0.0051801*** (0.0019885)

BPLAN	0.000845* (0.000417)	-0.0002451 (0.0009046)	0.0004022 (0.0002296)	-0.0003482 (0.0006327)	0.0038155* (0.001791)	-0.0038113 (0.002635)
SALE	-0.0003308 (0.0001786)	-0.0000578 (0.000154)	-0.0010184*** (0.0002886)	-0.0000948 (0.0002315)	-0.0063993*** (0.0012679)	-0.0006112 (0.0009993)
FINANCE	-0.00000896 (0.0001112)	0.0007968* (0.0004564)	-0.00000427 (0.0000837)	0.0002164 (0.0001622)	0.0006961 (0.0005479)	-0.0007602 (0.0005555)
SKILL	0.0002723 (0.0002075)	0.0005677 (0.000643)	0.0002969 (0.0003464)	0.0002899 (0.0004717)	-0.0005874 (0.0022553)	0.001534 (0.0024081)
CAPITAL	0.0002543 (0.0007316)	0.001981 (0.0014203)	-0.0002087 (0.0002207)	0.0007214* (0.0004141)	0.0006323 (0.0009938)	-0.001417* (0.0007385)
DEVLP	0.002771*** (0.0004653)	0.0038422*** (0.0008046)	0.0013931*** (0.0003572)	0.0033896*** (0.0006963)	-0.0070752*** (0.0006348)	0.0011744** (0.0005357)
PRACT	0.0009481*** (0.0002792)	0.000063 (0.0002077)	0.0011078*** (0.0002984)	0.0001122 (0.0001727)	0.0059456*** (0.0013371)	-0.0014172** (0.0006968)

REGUL	-0.0006345** (0.0002819)	0.0000291 (0.0001332)	0.0009103*** (0.0002832)	0.0004234 (0.0006022)	0.0010401*** (0.0003827)	0.0001194 (0.0006564)
COMPT	0.0000387 (0.0002256)	0.0012608** (0.000596)	0.0002611 (0.0002358)	0.0009072** (0.0004312)	-0.000169 (0.0003206)	0.0005598 (0.0003594)
BREXIT	0.0100603*** (0.000612)	-0.0000177 (0.0001234)	0.0048434*** (0.0003378)	-0.0004992** (0.0002505)	-0.0005869** (0.0002608)	-0.0001817 (0.0003032)
Year	Yes	Yes	Yes	Yes	Yes	Yes
NO of Obs	10615	4,795	11,564	5,117	9,936	4,297
NO of women obs	2,830	1,402	3,779	1,724	2,151	904
NO of men-led obs	7,785	3,393	7,785	3,393	7,785	3,393

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$; S.E. denotes Robust standard errors in parentheses.
SIZE (MICRO, SMALL, MEDIUM), AGE (AGE05 AGE610 AGE1120), REGION (EASTMID, EASTENG, LONDON, NWEST, SEAST, SWEST, WESTMID Y&H, SCOTLD, WALES, NI) SECTOR (PRIMARY, TRANS, SERV).

Table 6: Summary of Fairlie Decomposition Analysis for both goods and service exporting, only services exporting and only goods exporting

	Both goods and service exporting (% contribution)			Only service exporting (% contribution)			Only goods exporting (% contribution)		
	W vs M	**E vs M**	**Mi vs M**	**W vs M**	**E vs M**	**Mi vs M**	**W vs M**	**E vs M**	**Mi vs M**
Difference $(\bar{P}_M)$- $(\bar{P}_W)$	0.0163	0.0095	-0.0037	0.0490			0.0457	0.0239	-0.0288
RURAL									
SIZE	-12.44			-3.16			-7.89	-10.15	+92.53
AGE		-11.11	+80.92				-3.56	-17.09	+47.67
ETHNIC				-1.57				-1.35	
FAMILY			+30.99				+3.77	+13.20	+8.83
SECTOR	+34.63	+14.83	-48.97	+18.75			+51.06	-17.12	-10.20
REGION				+1.68					+2.69
PDINNO	-12.73	-29.97	+126.2	-5.90			-10.35	-18.78	+35.64
ADVICE	-4.34			-3.65			-3.78	-6.75	+6.76
BPLAN		-6.69					+1.34		
SALE				-0.99			-2.51		+15.34
FINANCE									
SKILL									-13.63
CAPITAL							+3.69	+2.11	-7.14
DEVLP	+4.01	+8.21	+27.56	+5.66			+9.39	+22.17	+9.76
PRACT				+0.90			+1.34	+2.52	-16.26
REGUL							-1.00		
COMPT									
BREXIT	+19.43	+19.33	-35.67	+13.20			+20.04	+28.52	-5.76

Note: We conducted the Fairlie decomposition analysis for both goods and service exporting, only services exporting and only goods export; full results available upon request.
The table only reports statically significant models and variables.
W vs M denotes the comparative analysis between majority women-led and entirely men-led businesses.
E vs M denotes the comparative analysis between equally-led and men-led businesses.
Mi vs M denotes the comparative analysis between majority male-led and entirely men-led businesses.

4.2 QUALITATIVE FINDINGS

The first part of this section presents qualitative findings offering explanatory insights into some of the preceding quantitative findings; the second part contains selected findings from the thematic analysis.

4.2.1 QUALITATIVE INSIGHTS INTO QUANTITATIVE FINDINGS

4.2.1.1 Brexit

Brexit was more frequently perceived by men-led and majority men-led firms as a barrier to exporting. Our respondents from mixed-sex partnerships highlighted several Brexit-related issues:

- Uncertainty, conflicting advice and haulier shipping practices

Holly encountered conflicting advice, from export advisers and hauliers, around bureaucratic requirements for her products which resulted in containers being delayed at docks for prolonged periods. Due to her product being more 'high risk' for hauliers, they will not include small shipments in mixed-goods containers, which has consequences in terms of cost and profit erosion. These issues could deter some traders from persisting with overseas market development.

> *The biggest problem we have, our haulier…because it's an animal byproduct. He won't put our products in with...pillows, he won't put our products in with the pillows because what if our product gets held up at the border because it's animal byproducts and the checks. And so, we're shipping like one or two pallets in a container. We're paying for an entire container every time. We can fit up to 26 pallets in there, so over time that cost, the proportional cost, will come down but at the moment, I'm making pretty much no money at all. We're growing overseas, but we're not making any profit.*

- IT Systems and increased admin

Some respondents had, and still have, unresolved issues with I.T. systems and an increased admin burden. Holly reported challenges with the Traces system:

> *We've had some issues with Traces...the exporting platform. From what I understand, who owns Traces changed during Brexit or the Government Department lost access? We registered for Traces, then we moved premises and they lost access in between and we have been on an absolute nightmare mission for about six months now trying to change our address and nobody can do it. So, there are very practical issues that we've run into all the time that have been caused by Brexit.*

While Holly has a relatively young business which has not been exporting for a long period, established multi-generational firms with long, track records of international trade report similar issues. Sam and her husband are the only Directors of a third-generation family business which provides a specialist service. They assumed ownership within the last ten years. Sam's father-in-law grew the business through entering a new market segment which provided a European customer base. The firm has since entered other market sectors and Sam secured inward processing approval and Accredited Economic Operator status to support frictionless overseas trade, given that importing and exporting across a range of sectors to a global customer base represented 60% of their trade. Notwithstanding this experience, Brexit related administrative requirements have been challenging:

> *With Brexit, we didn't underestimate it but we sort of was a bit confident because we've had inward processing for all these years. We've had audits and everything else, but nothing I think prepared us for that. The IT was, yeah. Quite significant really. And the volume of additional administration work, it's tripled...the amount of emails we have now just to import something from Spain. One item, I think my colleague had about 50 emails, and I'm not exaggerating. [Sam]*

- The 'internal' border with Northern Ireland

June highlighted how, post-Brexit, sales to Northern Ireland and Ireland were almost completely eroded due to lengthy delays in products reaching customers caused by

confusion and conflicting advice around paperwork requirements. Cost-of-sales increased, and the firm faced reputational damage, *"when we were having orders go missing and stuff like that, obviously we have to deal with that as a customer complaint, and it dents reputation."* June said, at that time, it was easier and less costly to export to mainland Europe. However, as these markets were so valuable to the business she persisted, recruiting distributors in both markets, to begin the process of rebuilding sales. She notes "*I think because we've been burnt a little bit before…we're probably a little bit more reserved than what we were the first time around*."

- To circumvent Brexit-related friction, problem-solving solutions included new market entry, and modes of market entry

"So, we came out of Europe and that caused a whole heap of issues….so we set up a branch in Ireland…I spent quite a lot of time in the Caribbean because we'd created an overseas branch there...with the view to having European programmes there, because some islands are part of Europe still." [Norma]

In establishing branches in Ireland and Jamaica, Norma remained able to access European funding to support valuable activities undertaken by her social enterprise. However, as an older business with greater financial reserves as well as extensive exporting experience, Sam's firm explored different modes of market entry. Based on legal advice they chose to enter the Mexican market via a franchise route, rather than a joint venture, to facilitate sales in the Americas.

4.2.1.2 Accessing Business Advice

The quantitative analysis indicates the potential importance of accessing business advice in helping to narrow the gender exporting gap. A precursor to accessing support is being aware the support exists and, due to women's constrained networks and access to information, this may be a key barrier to service uptake. As the quality and relevance of the support provided is also important, we outline the benefits and limitations highlighted by respondents.

- Lack of awareness of support– "*I don't think they do a very good job of advertising it"*

June had previous work experience in a business development role in a fast-moving consumer goods industry, which brought managerial oversight and understanding of import

logistics, international trade and, importantly, support for exporting. Having established a contract manufacturing business with her engineer husband twenty years ago, June's prior awareness of the support available was invaluable when they, more recently, purchased a customer brand with a view to producing and exporting the product directly. While Jane found the help invaluable, she is aware from her prominent position in the male-dominated manufacturing sector that there is a low level of awareness of this support and its value.

> *"Whilst I was working there I also went on a trade mission and that was quite important because… prior to that, I wasn't aware of, UKTI it was then, or the importance that Embassies have, how they can help you and all that sort of thing. That information, that kind of experience of doing that, it means that I know that that potential is there… I don't think they do a very good job of advertising it. This is why when we started looking at America, I got in touch and then had the trade advisor, you know, and we requested that and that was because I knew that that was an option.*

- Finding out after the fact: *I didn't know about the DBT. I didn't know that they could help us... Wouldn't have known where to find them."*

Holly, CEO of a B2B manufacturing firm with a mixed-sex founding team, was unaware that exporting assistance was available. Her firm turnover was £600,000 last year, with a projected £1.2 million turnover this year. It has just secured its first round of investment. It has established a European entity with a Dutch BV, 33% owned by a Dutch partner. She became aware of the support available recently, she had a stand at an overseas trade show and was approached by a DBT staff member:

> *"We, actually now - are in touch with the DBT…they are helping us with America. But yeah, we did this whole thing. I didn't know about the DBT. I didn't know that they could help us. I didn't know. Wouldn't have known where to find them. We just kind of just cracked on with it and did it ourselves...They reached out to us actually, found us at a trade show and had a conversation and then we went, "we export into the Netherlands" and they've gone "we should be helping you*". [Holly]

- *Benefits of Support Accessed*

Overseas trade visits and support to attend trade shows were supports availed of by most respondents and were invaluable in building networks, including trading and partner/franchisee relationships for Holly, Sam and June. Trade advisors were a highly regarded support offering, as highlighted by Norma and June below, helping firms avoid exporting pitfalls and potential exploitation:

He basically gave me more confidence to think about what is possible and...to work with the High Commissioners as well…You have to have DBT's input, you have to! Because I, prior to that, I tried, I did try but you just get no response to emails. People who say that, you know, they're going to do something and then you find out there's a cost to it. [Norma, SE]

"We have a UK trade advisor, he visits and he's put us into touch with useful people... we had a lady look at our website to see whether it was international ready. We did a lot of work on IP…whereas we …with the Americans would have just said, Oh yeah, right. OK. We'll agree this verbally because that's how we do business in the UK, it was like, hold on a minute...they put us in touch with an international lawyer, got contracts set up and we learned quite a lot of how different cultures work and when we were looking at the Benelux countries, Germany and Sweden, we've been put into touch with people at the Embassies, who have then had a look to see what the market is over there. [June]

A long-term relationship with their trade advisor has assisted international growth in Sam's firm:

"We've got a great international trade officer...we've been dealing with the same one for about…15 years. She knows the business inside and out, is really helpful, really tries for us. She touches base with us every now and again, ask if there's anything we need from her…we were able to get a grant in 2022 and again in 2023. [Sam]

Whereas the personal contact and one-to-one advice from a Trade advisor was highly prized, Holly who was awaiting her first Trade Advisor appointment, did not value the factsheets and information links shared via email, given her time constraints. The comment below, perhaps indicative of younger entrepreneurs being more likely to engage with AI, may have implications for service delivery going forward:

"We've had a call, we've got a point of contact, we've actually got two now. One is just a generic one and then I'm meeting one next week, who is specifically North America. They've given access to like the Export Academy and they've given us some factsheets on North America. So here is how to register with the FDA…Do you know what though? I've used ChatGPT the whole time. Yesterday I was like, "oh, I should get this FDA application started because it's going to take them ages to approve our facility. So, let's do it now if we want to have it in two years' time or whatever". So, I just went on, you know, I've got these factsheets from DBT I could have read, that I didn't. I went on to

ChatGPT and said I need to register for the FDA. How do I do it? And it gave me a whole thing... all of the information worked and was helpful and I managed to sort it out." [Holly]

- Limitations of Support

Sam highlights that the potential benefit of overseas contacts has been limited for her firm:

The Department of International Trade when they have put us in touch with their country representatives, they can never get it, they don't understand what we do, and much as you do a presentation to them and try to explain who we need to get through to or who we need to present to… If we were building roads or got new technology and you were going to be doing it on a huge scale, I think they'd understand who they'd need to get you in front of. They do trade missions, but they would be too high level, for us, they wouldn't be the right people; we need to really be speaking not necessarily to high level management or the decision makers, it's people in procurement, in the engineering departments, maintenance…

Following overseas visits, time to exploit the leads and develop relationships with contacts established becomes a challenge when the women return to working in their business.

The biggest problem I have is then following up on those…it's my lack of time really… The trade advisor would sort of like say 'right, let's set up a meeting for this' but then it gets to a point where he doesn't want to…push me too much because I've not been responding to stuff or whatever. But that's when… you almost need pushing. When I went on this programme, I was all enthusiastic and buoyed up …But then, you know, life gets in the way. When you haven't got that kind of deadline to work to, you kind of dip again because something else becomes more…pressing. [June]

Similarly, Norma reports:

I basically was bouncing between these countries, me and all these dignitaries as they call themselves. And I'm like talking to them about my project…and they're impressed. So that was very good. But then it was challenging to follow up the leads when I came back. And also I think it would have been good to form some sort of network that kept you motivated. A lot of the people on the [trip] either got contracts or opportunities, but you didn't ever hear back, so you just was in isolation. You was as a group on the market visit but then when you came back, you was in isolation. [Norma]

This suggests return on investment and outcomes may be maximised if some structured, post-trip support or accountability measures were an option for some participants. Another issue, highlighted by Sam, is the thresholds for unlocking access to other supports such as export finance, which is constraining their firm growth, as an example.

> *It would be investment to be able to sort of grow the facility for capacity. The value of some of our international projects sometimes fall below the threshold of where you could get Trade finance...through your bank. That's because we're a small concern...we only turnover £2.5-3 million...project size I think in some circumstances needs to be over £1,000,000. We don't have just one project internationally [that size]...to be able to get funding to grow the business, because the market size is big, but we have a capacity issue and there's an element of balance. We make an OK profit, we pay corporation tax but to be able to go to the next level, you'd need some form of investment but we can't get that trade finance and as well sometimes they don't actually like some of the countries you trade with. And when you go to them, they send you the list and…when you look at the list, there's probably only about a handful that is outside of the EU anyway.*

QUALITATIVE THEMES

4.2.2.1 From Accidental Exporters to Strategic Export-focussed Growth

> *"Honestly, like being completely honest, it was an accident, really, that he approached and said, look, I think this is going to work over here. I don't think we had the experience or like the… I guess it's kind of like we never took the time to step back and away from our market to go, 'We could do this in Europe'" [Holly]*

Holly, CEO and founder, highlights that initially she and her business partner were so busy working on their business expanding the product range and diversifying into new customer sectors to expand their domestic market growth, that they did not consider foreign market entry. However, having realised the bigger opportunity when approached by someone wanting to be a franchisee in Europe, she strategically developed that opportunity before commencing upon an increasingly systematic market evaluation and development process to support further export sales. In terms of future direction, she says:

"The end goal for us is we want to grow it and we're aiming to exit at evaluation of about 30 million. That's, we want to get past the 10 million mark. I don't know that we, I don't know if we'll be able to get it past the 40/50 million mark, certainly maybe not with us in the team. I think maybe that's an entirely different skill set of person, whether we'll still be there, I don't know, but we are hoping to exit about the 30."

While women founders may not always establish enterprises with a growth plan, they can and do pursue growth when they recognise the opportunity. The role of serendipity in opportunity identification and exploitation is established in the entrepreneurship literature (Dew, 2009; Mirvahedi and Morrish, 2017), particularly for its role on SME development (Ong and Ismail, 2012).

4.2.2.2 Intersectional Influences on accessing information and networks and business growth

Norma explains her experience of how the process of exclusion and constrained access to information, networks and networking opportunities operates to constrain business growth opportunities for women generally, but for black women in particular:

"I think lack of information. I think there's an information suppression, there's networks that readily share information about opportunities. And then there's networks that don't share at all and sort of hinder that information, especially from women, black women as well. It's really bad because they I think that a lot of their deals and partnerships are done away from meetings and spaces where the decisions are supposed to be made. And there's a lot of, you know, you're not just on one board with someone, you're on several boards with a person. Plus you've socialised with them. Plus, you know, you've got business interests and you network. Your networks are basically more opportunities for you to do business. So, if you're only part of one of them, on an e-mail list, you're going to miss out on all those other opportunities for growth partnerships." [Norma]

While Norma's gender and race represent constraints domestically, her heritage has afforded her some advantages overseas. Norma established an enterprise in the UK over twenty-five years ago, with a social and community development mission to train individuals, mainly minority ethnic young people, from a disadvantaged, urban community, and assist them into employment and further education. She gained European funding to assist with programme delivery and international exchange programmes. She first utilised export support fifteen years ago and did so again post-Brexit. This enabled her to establish

a high-profile contact network, gain soft support from the High Commissioner of Jamaica and government Ministers, in addition to establishing and strengthening familial ties and her connection to her Jamaican heritage. Norma's family have agreed to give her ownership of family land in Jamaica to develop her community enterprise there:

> *"My family have given me the land to manage and it's in a place called [place in Jamaica]. So, my great, great, grandfather bought loads of land…it's brilliant in terms of my heritage. The title is going to be in my name. I pay the taxes, it's 13 acres. So, a proportion of it would go to the organisation and then a proportion would be mine as personal and my family's."* [Norma, SE]

Hyde (2021) highlights that ethnic minority founders and business leaders can utilise the diaspora to facilitate international sales. Here, Norma as a member of a diaspora was able to develop stronger linkages to the homeland of her ancestors and strengthen ties with family members there which enabled international growth, through support from the Department of Business and Trade.

4.2.2.3 Tariffs

Women may be engaged in businesses more likely to be impacted by tariffs, such as those in cosmetics (Arshed et al., 2025). Tariffs affect the cost of sales and, for small firms, the price to consumers meaning both market demand for, and the competitiveness of, the product decrease. By way of an example, a woman entrepreneur reported that one of her cosmetic products priced at £36, attracted approximately £20 in EU import duties post-Brexit. For a small, young business engaged in small batch production, this challenged the 16% sales the European market had contributed to her annual turnover, deterring her from pursuing further EU growth (Treanor, 2023). In this study, June highlights how the impact of tariffs in the USA compounds issues in the market post-Covid to significantly reduce the attractiveness of the US market:

> *"We did set up a distribution agreement in the US, but it was just after COVID and the problem was container prices; the business model was based on reasonable container prices and then they were, they got silly amounts and it wasn't viable anymore and then since, with all the tariff situation and everything now, it's not something we're looking at. So, we are now focusing back on to Europe."*

The sequence of market shocks, including Brexit, Covid-19 and the changed geopolitical international trading context, may have resulted in either periods of, or permanent, de-internationalisation for many SMEs due to reduced sales potential and profitability. In turn, this could influence founder confidence and attitudes towards assuming such risks to pursue overseas sales in the future.

- Gender and the influence of personal characteristics

Respondents were asked how their gender may have provided an advantage to them in growing their business and exporting, they were then asked if it had ever proven a disadvantage. Holly indicates that as a woman she experiences,

> *..the usual assumptions around women, that we're softer and we're less ambitious. I probably overcompensate a little bit by being quite confident and outspoken about our ambitions.*

Sam indicates that being underestimated because she is female can provide her with the upper hand on occasion:

> *They underestimate you, especially because I'm in a husband-and-wife business because people think I'm just to make up the numbers, you know, the traditional wife works in the business. I don't see that as a negative. I see that as a positive because then… I'll just sit back and take it all in and actually, don't underestimate me. That's my superpower.*

June similarly discussed how as a copreneurial business, their manufacturing firm is pejoratively called a 'mom-and-pop' shop:

> *I find that quite derogatory, why aren't we just an SME? We're a very successful SME…it's almost as if, 'the wife's just employed because she doesn't want to go out and work anywhere else'.*

June and Sam both mentioned being mistaken for the secretary and being treated dismissively until people became aware of their owner status. Similarly, June says, "*we've had some irate customers and they said, well, can I speak to the boss and I'm like, I am*

the boss." Access to finance and access on differential terms is a commonly understood barrier for women. Unsurprisingly, the issue of finance arose as a disadvantage:

> *It can be [a disadvantage] in finance, the bank. I mean I we've had an awful time with the support from our bank and it's taken us…their attitude, and I know the bank who we bank with, are trying to do more about women entrepreneurs and things like that. But there is that, that historic sort of attitude… and it's a really difficult one to try and explain to somebody. [Sam]*

> *In some spaces, I think I would have got a lot more investment and monetary gain if I was a male.* [Norma]

Respondents also highlighted how experiences differ in different country contexts depending upon attitudes to women in business. This is clearly illustrated in Sam's reflection:

> *In some countries, for example, we've got a customer in Greece… when he came here, I drove us to lunch and we're in the 4x4. And he said to me [sometime [afterwards], you know, I couldn't believe you actually got in the car and drove it. He said we wouldn't allow our women to drive big cars… This was last year and… he says women can drive but smaller cars but not 4x4s… And he's a similar age to me as well. So that's just an example. I know times have changed a bit, but I do think there's a different attitude towards women in business overseas…culturally. I see the way that people speak to my female staff and the tone of their emails if they're not getting the answer they want. [In Mexico]…you would expect that it would be like that, but they are very family orientated and I have been so well received there, they certainly were very respectful. I think we have some tricky relationships in the Philippines… sometimes the Italians can be a bit, they don't mind you being involved in the business, but you should be in finance or you should be in HR. [Sam]*

While Norma highlighted the influence of ethnicity and gender upon access to information, network and business opportunities (section 4.2.2.2.), Holly highlights how other physical and personal characteristics intersect with her gender to inform how she is treated, being taken less seriously perhaps or potentially excluded from business conversations:

> *I also struggle a little bit in that I think there's a bit of an intersection of my age as well as my gender. And also…this is going to sound so weird, but we attend a lot of in-person*

events and I'm 5' 1" and I just know that that does not help because I'm there like this young short woman and people are talking, literally, talking over me literally.

5. DISCUSSION AND CONCLUSIONS

This report examines the exporting activities of women-led businesses within the UK. We first sought to understand whether and how exporting rates varied between women-led and male-led businesses, and whether any observed gap varied across businesses of different sizes, or within different sectors or regions. Secondly, we sought to empirically examine how being women-led influenced SMEs exporting capability and behaviour, and using a decomposition technique, examined which characteristics may contribute to observed gender exporting gaps.

Our analysis highlights several important insights that contribute to our understanding of the gender exporting gap. While prior research has investigated whether women-led businesses face greater barriers to for example, launching or financing a venture (Treanor and Marlow, 2025; Chapman and Treanor, 2025), less attention has been devoted to women-led SME exporting activities (Pergelova et al., 2018; Mole et al., 2022; Arshed et al., 2025). Our analysis responds to this gap by providing novel empirical evidence on how being women-led influences SME exporting.

First, our probit regression results generally show that, controlling for other factors, being majority women-led is significantly negatively associated with SME engagement in exporting. Majority women-led businesses also appear less likely to report being export capable – a key step on the exporting journey.

Second, distinguishing by sex composition reveals more nuanced insights. While the negative effect of being majority women-led on exporting is consistently observed across the export types examined in our probit regression results, the negative influence of being equally-led and majority male-led is comparatively less clear. For equally-led businesses, a significant negative association was observed for three of the five dependent variables in our probit regressions (either goods or services exporting, both good and services exporting, and goods export). For majority male-led businesses, a significant negative

association was only observed for both goods and services exporting, with no substantive role across the other export types.

Third, our decomposition results show that differences in basic firm characteristics (e.g., firm sector, region) help explain the gender exporting gap. Interestingly, product innovation and business advice seem to play a role in narrowing the gender exporting gap, potentially due to the importance of novel products in exporting markets and the networking and learning value of business advice. However, a significant proportion of the gender gaps remain unexplained in the models, which could relate to unobservable factors such as gender-specific barriers, demand-side discrimination and other unknown factors.

Fourth, in deploying gender as an analytical lens in qualitative analysis, we aid understanding of the gender gap in exporting by highlighting the individual-level factors informing observed differences. We highlight how structural gendered barriers in the labour market informs women's over-representation as firm owners in crowded, service sectors with lower growth and export potential. Our qualitative findings illustrate how demand-side discrimination may be experienced by women leading businesses in different country contexts due to different cultural, and sometimes legal, institutional environments. These findings also indicate the potential impact of technology and AI upon SMEs and support provision for them, going forward.

Our findings contribute to the literature in several ways. We respond to the dearth of evidence on women-led SMEs exporting activities (Pergelova et al., 2018; Mole et al., 2022; Arshed et al., 2025) by providing novel empirical evidence on the existence and extent of the gender exporting gap. In so doing, we contribute to the gender and entrepreneurship literature by broadening understanding of women-led businesses' exporting activities. Our examination of the role of gender composition contributes a novel and more nuanced understanding of women-led SMEs engagement in exporting by showing how the gender exporting gap can vary for majority women-led, equally-led, and majority men-led SMEs. Specifically, our results suggest that majority women-led and equally-led SMEs consistently face significant barriers to exporting. In so doing, we join recent work (Dutta and Mallick, 2023; Krenz, 2025) in highlighting the importance of examining gender composition to develop more nuanced understandings to inform policy and practice. Finally, our work contributes to debates on the factors contributing to gender gaps across different areas of SME activity, such as founding and financing (Guzman and Kacperczyk, 2019; Chapman and Treanor, 2025). Extending our analysis to the gender exporting gap, we illustrate the contribution of basic firm characteristics, such as size and

sector distribution, and highlight the importance of factors such as product innovation and business advice. As such, we contribute a more comprehensive picture of the factors contributing to the gender exporting gap.

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Enterprise Research Centre

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

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