

## **Determinants of SME exporting: insights and implications**

Prof. David Pickernell, Professor in Economic Development Policy, University of South Wales.

Email: david.pickernell@southwales.ac.uk.

Dr. Paul Jones, Reader in Entrepreneurship, Plymouth University. Email:

Paul.Jones@plymouth.ac.uk.

Dr. Piers Thompson, Reader in Entrepreneurship and Small Business Management, Nottingham

Trent University. Email: piers.thompson@ntu.ac.uk.

Professor Gary Packham, Professor in Entrepreneurship, Anglia Ruskin University. Email:

gary.packham@anglia.ac.uk.

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### **Abstract**

This study offers insights into determinants of SME exporting according to the characteristics of exporting firms and their resources, thus contributing to a limited literature. The dataset comprised 4,838 respondents from a Federation of Small Businesses survey. The dependent variable used was two-category (do not export and export), allowing a binary logistic multiple regression approach to be utilised, with separate binomial (logit) regression equations generated for the complete sample and then for different firm age groupings, allowing relationships between exporting and each individual independent variable to be determined whilst holding all other independent variables in the equation constant. Results identified that determinants of SME exporting include industry sector, age and characteristics of the SME Owner/Manager, along with the firms' available resources, including the human capital of the Owner/Manager, use of technology and Intellectual Property. Whilst an innovation focus was consistently found to be positively linked to exporting, a growth focus was not. These results inform both practice and policy as the exporting activity of SMEs remains closely linked to economic development policy.

**Paper classification:** Research paper

**Keywords:** SME, innovation, exporting

## **Introduction**

Small and medium enterprises (SMEs) have a high dependency on local markets with minimal trade undertaken in national or global markets (Love *et al*, 2005). ‘Born global’ firms, however, are also attracting increasing interest (Oviatt and McDougall, 2005). Knight *et al* (2004) contends that ‘born-global’ firms have given rise to international entrepreneurship raising the issue of the differences between young international firms compared with both young firms that are not international and older internationalised firms.

Traditionally, we consider SMEs internationalisation from three theoretical approaches (Bell and Young, 1998). First, stages of development, where firms incrementally become involved in foreign markets, from no regular exporting, through exporting via agents and sales subsidiaries to similar countries, to foreign production and manufacturing (Clark and Pugh, 2001). Secondly, network theory, where exporting occurs as a result of interactions with and development of networks through which information and trust are generated (Chetty and Blankenburg Holm, 2000). Lastly, resource based approaches, where internationalisation decisions occur within the context of development of internal/external resources, and environments as part of a strategy (Crick and Spence, 2005).

The literature recognizes, that some firms ‘leapfrog’ stages of internationalisation, while others remain static (Merrilees and Tiessen, 1999). SMEs may enter international markets through equity participation or co-operative ventures (Pinho, 2007).

Merrilees and Tiessen (1999) also note, however, that SMEs first enter international markets through exporting while Pinho (2007) claimed that SMEs have restricted their internationalisation behaviour to exporting alone.

Patterns of SMEs exporting behaviour are not consistent. The Global Entrepreneurship Monitor study found that 80% of new firms have no exports, with particular weaknesses in start-ups. Arteaga-Ortiz and Fernández-Ortiz (2010) identify a limited literature exploring SMEs exporting behaviour which includes evaluating the impact of export barriers, firm performance (Di Chiara, 2002), internal capabilities, exporting activity, SMEs capacities (Miocevic, 2011) and firm resources (Boehe, 2013).

This study examines how exporting SMEs of different ages differ from non-exporters in terms of their characteristics and resources. For example, regarding the relationship between exporting and growth, is the concept that businesses start-up small, with a focus on growth that is then achieved through capitalising on the opportunities offered by entering overseas markets? The literature on business growth through internationalisation has focused on new SMEs, which, in keeping with European definition, have <250 employees, turnover of up to 50 million Euros and a balance sheet of upto 43 million (Jones *et al*, 2014). By focusing on the exporting stage of SME activity, this study identifies export characteristics compared with non-exporters including a consideration of firm-level determinants identified in the literature as sector, size, growth focus and age. Owner/Manager-specific characteristics are considered, including age, experience and firm resources including Information Communication Technology (ICT), Intellectual Property (IP) and Human Capital (HC). Understanding this perspective determines whether a firm will export more effectively than more generalised stage models that are less relevant to SMEs where exporting remains the primary mode of internationalisation.

## **Literature Review**

Axinn and Matthyssens (2002) suggest three reasons traditional theories of internationalisation have limited relevance. First, traditional theoretical approaches may not fit current economic realities and underlying assumptions regarding the rapidity with which relationships in the international marketplace form and evolved. Secondly, the concept of psychic distance associated with internationalisation process models is of less relevance when considering the growth of global e-commerce in an increasingly culturally homogeneous world. Finally, stage models have limited relevance to firms involved in different kinds of cooperative agreements that have evolved in the network economy. The authors recognise that the phenomenon of the born global firm represents a challenge to traditional theories of SME firm internationalisation (Knight *et al* 2004). Moreover, traditional theoretical frameworks of firm internationalisation only explain how internationalisation occurs, rather than why. There is a need to utilise the factors contained in these frameworks to examine why the process occurs. Two issues the literature focuses on are why SMEs internationalise and export, and the potential impact of firm age in these processes.

#### *Why SMEs internationalise?*

Research suggests several factors impact upon SME internationalisation, depending on industry (external environmental) and internal firm-specific factors (Gassmann and Keupp, 2007). Ibeh (2000) suggests the decision depends on the characteristics of the decision-maker, firm characteristics, competencies and environment. Moen (2002) found the decision-makers attitude is a determinant of whether a new firm will be born global or local and suggested that its future was determined at establishment. The firm's Owner/Manager attitude and human resources have been cited as significant differentiators between exporting and non-exporting SMEs

(Frackiewicz and Grzesiuk, 2013). Hessels and Terjesen (2008) argue higher levels of entrepreneurial HC are positively related to exporting by new venture companies. Such entrepreneurial HC refers to an individual's knowledge and skills, as well as experience gained in entrepreneurial activity.

One measure of HC might be education. Pickernell *et al* (2011) found graduate entrepreneurs exported a higher proportion of their turnover than non-graduate owned firms and graduate entrepreneurs were likely to have had prior experience in a multinational, though less likely to have previously owned/managed a business. Attributes associated with exporters include enhanced decision making skills, leading to higher levels of competitiveness, growth and profitability than non-exporters. Such attributes are assumed to be linked with “best practice” and entrepreneurial orientation (Kazem, 2006).

Miocevic (2011) suggests key specific capabilities required by SME Owner/Managers are possessing a “global mindset” consisting of cognitive and information based skills and an international entrepreneurial orientation. Camisón and Villar-López (2010) notes previous international experience as no guarantee of success, claiming it is accumulation of human and social capital (SC), intangible assets and strategies formed by previous international experience that positively impact on export performance.

Kontinen and Ojala (2010) state that previous experience is not a sole indicator of successful export performance, rather how it is operationalised. They found no direct link between prior firm knowledge and their ability to recognise international opportunities. Mittelstaedt *et al* (2003) found a significant positive relationship between firm size (by employment) amongst SMEs and successful exporting (Chetty and Campbell-Hunt, 2004). Pope (2002) identifies similarities in motivations for exporting activity depending on firm size in that

both smaller (<25 employees) and larger firms (>25) are more likely to export due to a new product or technological advantage. Furthermore, Pope notes a difference in motivations to export, and firm size as larger firms export on a large scale, seeking cost advantages and not wanting to sacrifice opportunities, emphasising the difference in perceived risk and potential gain between smaller and larger firms. Arteaga-Ortiz and Fernández-Ortiz, (2010) propose a scale of barriers across themes of knowledge, resource, procedural, and exogenous barriers employed to assess and effectively support SMEs. They suggest firms display different requirements to be able to overcome factors that inhibit export activity.

Several barriers to exporting need to be overcome and mirror the triggers highlighted previously. Smarzynska Javorcik (2004) posits that when a firm trades in foreign markets, it is initially disadvantaged relative to local producers. Kaleka and Katsikeas (1995) summarize these as:

*Internal-firm domestic impediments:* lack of qualified marketing personnel, high export risk perception, focus on home market.

*Internal-firm foreign impediments:* lack of marketing capability where product modification investment is required after-sales issues, pricing, communication and transportation costs.

*External foreign-market impediments:* created by foreign government regulations and currency issues, the need to develop external networks, distributors, language /cultural differences, foreign competition, price competitiveness and payment issues.

Leonidou (2004) identifies internal/external barriers exist at different stages of export activity and at pivotal moments between stages. Massey (2006) also highlights “interrelation” between firm and Owner/Manager especially considering business development support suggesting services should support their development, whilst, Bell (1997) found finance related issues

tended to increase as foreign market exposure grows but that marketing (information and network development) declined over time. Andersson *et al* (2004) argued that factors influencing initial exporting differ from those influencing its growth. Owner/Managers perception of the environment determines initial exporting, whilst longer-term organisational experience of exporting and more youthful decision-makers encourage growth.

Comparing the decision-maker, firm characteristics and environment, Fleiss and Busquets (2006) stated SMEs considered lack of internal capabilities and access as being significant barriers to internationalisation, whilst business environment inhibitors were of lesser importance. Greenaway *et al* (2007) found that financially constrained firms were less likely to export, and that financially stable firms were more sensitive to export investment.

Hessels and Terjesen (2008) suggest that there is a positive relationship between entrepreneurial SC (advice/knowledge regarding new markets) and exporting. Regarding access to business advice, Mole (2008) notes the characteristics of the firm have an influence on adoption and impact of formal business advice. Mole's study identifies that younger firms are more likely to receive support although growth was not a significant impact acknowledged by businesses receiving support. It is suggested, that formal business advice would have greater impact on larger, export-oriented businesses.

Conversely, Robson and Bennett (2000) acknowledge a weak association between access to formal business advice sources, and impact on export levels, but also recognise a likelihood of use of informal advice sources such as friends/relatives and customers. Potentially, this link to customers indicates a preference for a direct, rapid link to market trends and customer needs from trusted sources to the firm.

Boehe (2013) identifies a positive relationship between local domestic collaborations and exporting suggesting collaborations such as membership of industry associations and local firms assist in overcoming barriers to internationalisation and industry association memberships in particular influence propensity to export. Within social network theory, Boehe's (2013) findings suggest that firm collaboration and investment in SC addresses perceived lack of internal resource or knowledge capabilities, thus encouraging entry into export activity.

Considering the relationship between exporting, firm performance and related factors, Wright *et al* (2007) suggests the link between export and firm performance is inconsistent in how to measure benefit and geographical, cultural and industry context should be considered. Westhead *et al* (2004) did not identify a statistically significant relationship between exporting and superior firm performance (compared with non-exporters) which indicates importance of determining factors that improve successful exporting activity.

Crick and Chaudhry (2006) query the assumption that not exporting or deciding to discontinue is a sign of export strategy failure. They argue that export inactivity may follow an iterative pattern with short-term and long-term epochs of non-exporting activity, rather than stage models and viewing lack of exporting as failure. They concluded that strategic decisions around competitiveness far out-weighed issues such as 'psychic distance' mentioned in certain models when considering whether to export or not.

Hart and Tzokas (1999) found a positive relationship between gathering market data and successful exporting, with specific importance attached to information on market background and infrastructure, as well as proactive formal market data gathering and use of the data in strategy generation. Holzmuller and Stottinger (1996) identified that less centralised firms, with more flexibly organised, goal-driven and consensus-based decision making, had more effective

export performance, indicating need to promote such structures. Moreover, Di Chiara and Minguzzi (2002) claim specialised skills scale dis-economies inherent in SMEs present a internationalisation barrier, and must be overcome through the promotion of provision of customized services.

Abor and Biekpe (2006) noted that SME exporters had difficulties accessing loans due to high interest rates and collateral requirements and this limited export growth in terms of future production and marketing capabilities. Beck and Demirguc-Kunt (2006) also suggest financial and institutional development assists alleviate SMEs growth constraints and increases access to external finance enabling competition with larger firms. Gabrielsson *et al* (2014) identified positive links between growth and finance sources, suggesting growing firms who access finance sustain a growth trajectory especially those with high levels of internationalisation. However, Abor and Biekpe (2006) did not identify an association between access to finance and export intensity.

Moen (2002) argues growth level and commitment implied by the stage model approach to export is less valid for SMEs as they typically do not develop into large companies. Such approaches are less applicable for SMEs in certain high-technology sectors, with short life-cycles and the need to exploit large markets (Madsen and Servais, 1997), the use of networks greater from an earlier stage to overcome resource constraints (Pellinen, 2014) and where “first mover status” is of greater value (Crick and Chaudhry, 2006).

Maskus and Penubarti (1995) found IP protection had a positive impact on manufacturing imports for developing economies and Smith (2001) noted IP was a significant determinant of economic growth. Contrastingly, Primo Braga and Fink (2000) found no significant relationship between firm export capability and levels of IP protection.

### *Firm Age and Exporting*

The impact of firm age on exporting is one potentially linked to firm and Owner/Manager characteristics, resources and environment, thus requiring specific analysis. Barnes *et al* (2006) considered the organizational culture and Owner/Manager's firm confidence to be associated with the success of "born global" companies.

Fletcher (2004) notes a difference between SMEs that are "born global", in industries and sectors where internationalisation is a consequence of conditions in globalised markets and those which internationalise following a period of home-market focus. In the former, internationalisation utilises existing skills base required to initiate the business, and issues involve development of existing skills, knowledge and networks, whereas later internationalisation requires extension and expansion of existing skills, and development of resources through network development. The growing importance of the Internet is lowering barriers to internationalisation (Hamill and Gregory, 1997), in terms of information gathering, marketing and networking. Indeed, Internet growth appears to be making stage-based approaches less relevant for SMEs.

Internet and social media options, also offer the type of globally expansive, rapidly formed networks, Chetty and Campbell-Hunt (2004) attributed to born global firms as opposed to more slowly internationalising firms. Au and Ho (2002), see growth of e-commerce as making it imperative for government export policy to be aligned with the need to train and support SME usage of new technologies. Frąckiewicz and Grzesiuk (2013) question the true internationalization of the Internet in terms of changing customer attitudes.

Importantly, Hinson and Abor (2005) confirmed a link between firm age and Internet usage (older firms used the Internet less frequently) but no association between Internet use and

export performance. Balabanis *et al* (2004) identifies that the Internet has contributed towards the removal of SMEs' export barriers. They stress such opportunities can be exploited only by firms with necessary export infrastructure, and possess required knowledge, skills and resources to expand internationally. This leads us to identify ICT usage as of potential but not ultimate importance in exporting.

Unsurprisingly, the born global phenomenon is recognised in technology-oriented industries (Crick, 2009). This highlights potential for innovation to be of relevance in any analysis of exporting. Kocak and Abimbola (2009) found firms were deemed to be innovative and sought to gain enhanced competitive performance from application of knowledge-based resources to the marketing of their outputs in several countries. Similarly, Pinho (2007) found innovation was a determinant of equity-based modes of international market entry.

Kazem and van der Heijden (2006) argue that firms maintain a competitive level of efficiency and innovation. This leads us to question whether a specific focus on innovation is a more reliable determinant of SME engagement with international market entry than a focus on growth, as implied by traditional stage models. Several internationalisation stage models have been proposed including, the Uppsala process model (Johanson and Vahlne, 1990); the innovation-adoption model (Anderson, 1993) and management decision making process model (Reid, 1981). Barnes *et al* (2006) suggests it is not type of stage model in born globals that makes them distinct, rather ability to learn quickly, resulting in rapid expansion to different markets. Such decision making has implications in explaining reduced time taken from establishment to first export activity (Wright *et al*, 2007).

The born global trend was enabled by globalisation processes, the Internet, and other trends (Knight *et al*, 2004). Knight *et al* (2004, p. 646) define born globals as '*firms less than 20 years*

*old that internationalised on average within three years of founding and generate at least 25 per cent of total sales from abroad*'. They state most born globals are SMEs, associating firm size with age. Moen (2002), contrastingly, found firm age was of less relevance to understanding differences of a firm than was whether or not their operations were global or local in focus.

Rather than categorising firms by age, Leonidou and Kaleka (1998) identify different stages of exporting, namely experimental, transitional and advanced, and found experimental exporters used indirect exporting methods, suggesting usefulness in the continued exploration into stage models. Axinn and Matthyssens (2002) identified psychic distance as an issue relating to the continued relevance of stage models of internationalisation. Despite a belief firms would be likely to expand into markets with high cultural proximity, Stöttinger and Schlegelmilch's (1998) disagreed, suggesting that market globalisation has outdated the concept of psychic distance. Loane and Bell (2006) identified rapidly internationalising SMEs increasingly perceive a global marketplace. Thus Owner/Manager, firm and environmental factors may be of importance in explaining exporting behaviour, posing issues for SMEs who may remain without export involvement.

### **Research Propositions, Data and Methods**

Thus the evidence is inconclusive with regard to the variables of importance in determining SME exporting. This is complicated by the phenomenon of born globals and consequent potential for different reasons explaining firms of different ages exporting, in addition to the relationship between exporting and firm performance measures. This study is directed to addressing lacunae on the relationship between exporting and SME characteristics, both generally and between different age ranges, contributing to the literature, and consequently understanding of these inter-

related issues. The literature suggests exporting can be explained by firm and Owner/Manager characteristics and by firm resources, both internally and through networks. Second, these relationships may be affected by firm age. The study offers the following propositions for investigation:

1. Exporting SMEs differ from non-exporters in terms of:
  - a. firm characteristics (sector, size, age, status, growth focus),
  - b. Owner/Manager specific characteristics (age, experience); and
  - c. Resources in terms of Owner/Manager-specific resources (education), firm-held resources (IP) and technology (Internet usage), and external network resources (advice on accessing new markets and finance),
2. Basic factors differ in importance depending on firm age.
3. There will be commonalities across firm ages in terms of the relationships between exporting and resources.

To evaluate these propositions data from the Federation of Small Businesses (FSB) survey (2008) is utilised. Previous research using the FSB data include Pickernell *et al* (2010) and Jones *et al* (2013). Individual SMEs were the unit of analysis with Owner/Managers key respondents. The survey was sent to FSB's entire UK membership and 4,838 usable responses received.

To examine the research propositions, a two-stage approach was undertaken. To examine the first two propositions, the whole sample was employed including an independent variable for firm age (<4 years old, 4-9, 10-19, >20). To examine differences and similarities for firms of different ages (comparing young and older firms' groupings), the sample was split by firm age and the regression equation repeated (minus the variable for firm age). The dependent variable employed was two-category (do not export, export) and a binary logistic multiple regression

approach utilised, separate binomial (logit) regression equations were generated for the sample and each age groupings.

This allowed the relationship between exporting and each individual independent variable to be determined whilst holding all other independent variables in the equation constant. Tests for robustness of the overall equations were conducted, specifically the omnibus model-fit test, the Hosmer-Lemeshow test (whether the respondent was a supplier to that public sector organisation or not) and the variance inflation factor test to ensure no problems with multi collinearity.

For these equations, variables were taken from the dataset or derived by amalgamating categories to generate independent variables (Table 1). The variables were classified under the headings of “control” variables related to research propositions one and three, and “resource” variables related to research propositions two and four. The “control” type variables were constructed for a range of factors which represented drivers/barriers to SME exporting. This included several variables highlighted by SME studies (Chrisman *et al* 2005). These included industry type, measured using five dummy (Yes/No) variables for primary and energy, construction, manufacturing basic and lifestyle services, and high knowledge services, though in the final analysis the primary and energy variable was dropped to avoid over-specification. Firm status was controlled for by constructing a dummy variable for whether the firm was a Limited company or not. Firm size was measured by turnover in the previous year in five categories (>£50,000, £50,001-£100,000, £100,001-£300,000, £300,001-£500,000, >£500,000).

Data were gathered on firm’s turnover, growth rate in the previous year and growth aspirations for the following two years, allowing the creation of variables in line with the BERR (2008) definitions of growth orientation and aspirations, namely: Sustained growth (by 5%+ in

previous year and intent to grow in next two years); New growth (by <5% in previous year but intend to grow in next two years); Constrained growth (by >5% in previous year but do not intend to grow in next two years); No growth (by <5% in previous year and do not intend to grow in next two years).

In order to examine the issue of hi-growth intention firms, the sustained growth category was split into high-growth intention (by 20%+ in previous year and intends to grow by 20%+ per annum in next two years) and non-high sustainable growth. Owner/Managers age was measured in three categories (<45, 45-54, 54+). The firm age groupings (included as a dependent variable in the sample regression and used to categorize firms for the second set of regressions) were <4, 4-9, 10-19 and 20+.

In terms of the acquired resource variables, these were constructed as follows. The FSB (2008) study collected on qualification level held. Graduate entrepreneurs were defined as those holding a doctorate, masters' or bachelor degree and non-graduate entrepreneurs as those with professional, A level, GCSE/O level, vocational, no formal qualifications. Innovation, was measured in terms of patents (Hughes, 2001), design (Hoffman *et al*, 1998), copyright / trademarks (Kitching and Blackburn, 1998). A binomial variable was constructed whether the firm had (>1) patent, copyright, trademark or design IP (coded Yes/No).

A variable measuring SME's website use (in four categories, from no website, contact details, advertising, and advertising plus buying/selling/both) was derived and included in the final analysis this being split into categorical variables. Firms were asked whether they had received beneficial advice that assisted them find new markets from customers/suppliers, government business support/trade associations/informal networks. From this, three beneficial advice variables were generated (one for each source), coded as 0 (no beneficial assistance had

been derived) and 1 (beneficial assistance had been gained). For finance, respondents were asked whether they obtained finance from several sources. This was coded 0 where no finance had been obtained and 1 if it had. The data for these variables is displayed in table 1.

### **TABLE 1**

#### **Results**

The sign indicates direction of the relationship (no sign indicating a positive relationship and a minus indicating a negative one), whilst figures in parentheses are a (non-standardised) odds-ratio indication of strength of relationship between dependent and independent variable. Significant variables are highlighted in bold and categorized in table 2.

### **TABLE 2**

#### **Discussion**

The findings upheld the propositions. SMEs that export differed from non-exporters in terms of basic firm characteristics, including sector, size and age, and Owner/Manager-specific characteristics including age and previous experience. There were resource relationships identified in terms of Owner/Manager-specific resources (education level), firm-held resources (IP and technology (Internet usage)), and external network resources (beneficial advice on finding markets and bank finance). Further, basic factors differed in importance depending on firm age; and there were indeed commonalities to be found across firm ages in terms of relationships between exporting and resources, Owner/Manager education, Internet usage, IP, though not for advice or finance.

Previously, Moen (2002) posited that newly established global firms have similar characteristics to older global firms, and that newly established firms that retained a local focus

had similar characteristics to older locally focused firms. Our study supports this with regard to resource use, but not with relation to firm characteristics where exporting was found to be less likely for firms in the construction industry, for firms of all ages except in the youngest category. Contrastingly, young firms are more likely to export if operating in basic services.

Older firms are more likely to export if they are in manufacturing, particularly for smaller firms. Generally, larger firms are more likely to export, while micro firms were less likely to be involved in international markets (Love *et al*, 2005). This result did not apply to youngest firms, or those <10 years. Ibeh (2000) considering the decision-maker as a determinant of exporting found that previous international exposure or experience was important. Our results demonstrate that Owner/Managers with prior management experience are more likely to export, but this is only really seen as a driver for firms aged between 4-9 years. While risk is considered as a barrier to engaging in export activity (Kaleka and Katsikeas, 1995) it could be surmised that younger Owners/Managers may tend to be less risk averse than older firms. Contrastingly, the study found in general Owner/Managers aged <45 are less likely to export.

Enterprises <10 years old are less likely to export, which suggests the determinant is one of experience and firm age rather than Owner/Manager age, as we found that older firms are more likely to export. This contrasts to Knight *et al* (2004) who claimed that most born global firms were SMEs partly as a result of their young age, and other authors who have similarly linked firm age with a propensity to start up as an international enterprise.

In terms of resources there was more commonality. Owner/Managers possessing a degree or higher are linked to exporting within every SME age group suggesting that development of a HC dimension is possible, or that HE influences export-oriented SME

Owner/Managers. Possessing IP is positively linked to exporting and becomes increasingly important for older firms, so Owner/Managers should be encouraged via policy makers.

An innovation focus was found to be positively linked to exporting, however, a growth focus was not, supporting the literature. This study did not, however, consider any subtle differences in this data based upon different stages of exporting which warrants future research (Leonidou and Kaleka, 1998). Extensive website use is also positively related to exporting, and the effect is seen at lower levels of Internet usage for older firms. This suggests a differential policy approach (for young firms to develop skills for effective Internet use, for older firms to encourage them to increase deployment).

Au and Ho (2002) claimed, it is imperative for government export promotion policy to be aligned to support SME technology usage. While this study is not focused on policy making, it is recognised this can enable SME exporting performance. Such resources are relatively easy for a nascent exporting entrepreneur to acquire. For other resources, particularly market advice and finance, notable differences were apparent across firm age. Young firms that export are more likely to have received beneficial advice that helped find new markets from customers/suppliers. Firms aged 4-9 years are less likely to have received advice from trade associations/networks, possibly explained by associations' focus on domestic markets: getting by versus getting ahead).

Firms aged 10-19 years that export are more likely to have had beneficial advice from government. This could be explained because governments want a track record, or because type of advice provided is only useful to older firms. Obtaining finance is negatively related to exporting, particularly for firms >20 years old. This maybe because a firm seeking finance is less likely to have the resources to export, indicating resource weakness rather than strength which requires further research.

## **Conclusions**

This research explored determinants of SME exporting based on an analysis of firm characteristics and their resources. The findings indicated SMEs that export differed in their characteristics both relative to non-exporters and across firm age boundaries. In terms of resources, a consistently positive and significant linkage was identified across variables, for example between degree-level education or higher and an export orientation. This suggests graduates play an important role in enhancing SMEs export performance.

This is novel evidence that could be utilised by policy-makers regarding value of graduate level trained Owners/Managers towards firm export behaviour. This evidence could be presented to graduates and universities to encourage entrepreneurial career options. SMEs with IP were positively linked to export behavior, the relationship growing stronger for older firms. Thus policy makers could encourage SMEs to obtain IP not only for its own sake but as a way to link to potential exporting behaviour.

Similarly, effective usage of website technology was linked to export behaviour which is an association with e-commerce trading to enhance trading. SMEs must be encouraged by policy makers to effectively utilise sophisticated technology. There were differences in advice sources by firm age and their impact on export behaviour. Policy makers should consider effectiveness and impact of promoting sources of business advice to firms of different ages as a means of encouraging export behaviour. SMEs claiming a growth focus were not related to export orientation suggesting need for further research.

Study limitations included the need to further explore results related to financing. Furthermore, the study was only able to examine differences between firms that export and those that do not, rather than examining the degree of export activity (% of total turnover). Additional

research examining this would be useful in analysing the impact of some of the variables in this study, including qualifications, IP and business advice.

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**Table 1: Variables**

| <b>Variable</b>  | <b>Variable Description:</b>             |
|--|--|
| <b>PROMOTERS/IMPEDIMENTS TO SME EXPORTING</b>  |  |
| Construction (N/Y)   | Yes: 11.4%                               |
| Basic Services (N/Y)   | Yes: 42.0%                               |
| High Knowledge (N/Y)   | Yes: 32.5%                               |
| Manufacturing (N/Y)  | Yes: 9.9%                                |
| Primary, agriculture, energy   | Yes: 4.2%                                |
| Ltd Company (Y/N)  | Yes: 50.2%                               |
| Firm Size (Turnover):-<br>Less than £50,000<br>£50,000-£100,000<br>£100,001-£300,000<br>£300,001-£500,000<br>£500,001+ | 26.5%<br>17.9%<br>27.1%<br>9.9%<br>18.6% |
| Owner/Manager previously owned a SME   | 45.7%                                    |
| Owner/Manager previously worked in multinational   | 34.9%                                    |
| Owner/Manager age:-<br><45<br>55>  |  |
| Firm Age (Years)<br><4<br>4-9<br>10-19<br>20 +   | 19.9%<br>29.6%<br>27.4%<br>23.1%         |
| Hi-Growth Potential  | 7.0%                                     |
| Non-Hi but Sustained Growth Potential  | 28.5%                                    |
| New Growth Potential   | 25.2%                                    |
| Constrained Growth Potential   | 12%                                      |
| No Growth  | 27.3%                                    |
| <b>ACQUIRED RESOURCE-RELATED FACTORS</b>   |  |
| Owner/Manager has degree+  | 29.6%                                    |
| Firm IP (patent, trademark, copyright/design) (Y/N)  | Yes:21.1%                                |
| Website use:-<br>No website<br>Website for basic contact information<br>Website for advertising                        | 27.7%<br>19.1%<br>35.7%<br>17.5%         |

|   |           |
|---|-----------|
| Website for advertising/selling/buying/both   |           |
| Received advice to find new markets from Customers/suppliers                                | Yes:15.4% |
| Received advice to find new markets from government business services                       | Yes:3.2%  |
| Received advice to find new markets from trade associations and informal networks           | Yes:13.7% |
| Finance from Bank sources used to finance business in previous 2 years (major/minor source) | Yes:58.1% |

**Table 2: Regressions**

|   | Whole sample                       | New firms<br><4 years              | Firms Aged 4-9<br>Years         | Firms 10-19<br>years               | Firms >20 years                    |
|---|------------------------------------|------------------------------------|---------------------------------|------------------------------------|------------------------------------|
| Variable  | Export (0= No; 1<br>= Yes)         | Export (0=<br>No; 1 = Yes)         | Export (0=No;<br>1=Yes)         | Export (0=<br>No; 1=Yes)           | Export (0=No; 1<br>=Yes)           |
|   | N=4838<br>30.1% of firms<br>export | N= 904<br>23.5% of<br>firms export | N=1439 30.2% of<br>firms export | N=1408<br>33.6% of<br>firms export | N=1087<br>31.5% of firms<br>export |
| <b>Variable</b>                                   |                                    |                                    |                                 |                                    |                                    |
| <b>PROMOTERS AND IMPEDIMENTS TO SME EXPORTING</b> |                                    |                                    |                                 |                                    |                                    |
| Construction industry(N/Y)                        | <b>-1.258 (0.284)**</b>            | -0.050<br>(0.951)                  | <b>-1.454 (0.234)**</b>         | <b>-1.453 (0.234)**</b>            | <b>-1.328 (0.265[D1])**</b>        |
| Basic services (N/Y)                              | 0.251 (1.286)                      | <b>1.327 (3.771[D2])*</b>          | 0.398 (1.489)                   | -0.164<br>(0.849)                  | 0.161 (1.174)                      |
| High Knowledge services<br>(N/Y)                  | -0.217<br>(0.805)                  | 0.7<br>78 (2.177)                  | -0.312<br>(0.732)               | -<br>0.385 (0.680)                 | -0.294<br>(0.745)                  |
| Manufacturing industry (N/Y)                      | <b>0.500 (1.649)**</b>             | 1.2<br>74 (3.575)                  | 0.423<br>(1.526)                | 0.1<br>60 (1.174)                  | <b>0.682 (1.977[D3])*</b>          |
| Ltd Company (Y/N)                                 | -0.096<br>(0.908)                  | -<br>0.056 (0.945)                 | -0.229<br>(0.795)               | 0.0<br>15 (1.015)                  | -0.049<br>(0.952)                  |
| Size of firm (Turnover):-<br><£50,000             | **<br>-0.154 (0.857)               | -0.174<br>(0.840)                  | -0.187 (0.829)                  | **<br><b>-0.418 (0.658)*</b>       | 0.172 (1.187)                      |
| £50,000-£100,000                                  | 0.022 (1.023)                      | 0.066 (1.068)                      | 0.042 (1.042)                   | -0.269<br>(0.764)                  | 0.184 (1.202)                      |
| £300,001-£500,000                                 | -0.067 (0.935)                     | -0.057<br>(0.944)                  | -0.132 (0.877)                  | -0.269<br>(0.764)                  | -0.168 (0.845)                     |
| £500,001+   | <b>0.364 (1.439)**</b>             | 0.419 (1.520)                      | 0.071 (1.073)                   | -0.160<br>(0.852)                  | <b>0.481 (1.617[D4])*</b>          |
|   |                                    |                                    |                                 | <b>0.409 (1.505)*</b>              |                                    |
| Owner/Manager previously<br>owned a SME           | <b>0.17 (1.186)*</b>               | -0.061<br>(0.941)                  | <b>0.253 (1.288[D5])*</b>       | 0.110 (1.117)                      | 0.245 (1.278)                      |

|   |  |   |  |  |  |
|---|--|---|--|--|--|
| Owner/Manager previously worked in a multinational  | 0.079 (1.082)  | -0.293 (0.746)  | 0.108 (1.114)  | 0.141 (1.151)  | 0.232 (1.261)  |
| Owner/Manager age:-<br><45<br>55+   | **<br><b>-0.319(0.727[D6])**</b><br>-0.028 (0.792)                                   | *<br><b>-0.396 (0.049)*</b><br>0.157 (1.170)                    | **<br><b>-0.453 (0.636)**</b><br><b>-0.351 (0.704)*</b>                | -0.193 (0.825)<br>0.144 (1.155)  | -0.389 (0.678)<br>-0.055 (0.946)   |
| Firm Age (Years)<br>4-9<br>10-19<br>20+   | **<br><b>0.275 (1.316)**</b><br><b>0.428 (1.535)**</b><br><b>0.395 (1.484[D7])**</b> | A<br>N/<br>N/A  | N/A  | A<br>N/<br>N/A   | N/A  |
| Hi-Growth Potential   | -0.001 (0.999)   | 0.039 (1.039)   | -0.109 (0.897)   | 0.208 (1.231)  | 0.118 (1.125)  |
| Non-Hi but Sustained Growth Potential   | 0.089 (1.093)  | 0.267 (1.306)   | -0.078 (0.0925)  | 0.025 (1.026)  | 0.072 (1.075)  |
| New Growth Potential  | 0.099 (1.104)  | 0.174 (1.190)   | -0.008 (0.992)   | 0.067 (1.069)  | 0.144 (1.155)  |
| Constrained Growth Potential  | -0.071 (0.931)   | 0.000 (1.000)   | -0.478 (0.620)   | -0.100 (0.905)   | 0.188 (1.206)  |
| <b>ACQUIRED RESOURCE-RELATED FACTORS</b>  |  |   |  |  |  |
| Owner/Manager has degree  | <b>0.492 (1.636)**</b>   | <b>0.416 (1.516)*</b>   | <b>0.474 (1.607)**</b>   | <b>0.453 (1.573)**</b>   | <b>0.809 (2.246[D9])**</b>   |
| Firm has IP. (one+ patent, trademark, copyright and design) (Y/N)   | <b>0.520 (1.682[D10])**</b>  | <b>0.385 (1.469)*</b>   | <b>0.478 (1.613)**</b>   | <b>0.502 (1.653)**</b>   | <b>0.696 (2.006)**</b>   |
| Website use:-<br>No website<br>Website for basic contact information only<br>Website for advertising<br>Website for advertising selling/buying/both | **<br><b>0.416 (1.516)**</b><br><b>0.711 (2.037)**</b><br><b>1.297 (3.659)**</b>     | **<br>-0.073 (0.929)<br>0.142 (1.152)<br><b>1.230 (3.420)**</b> | **<br>0.308(1.361)<br><b>0.718 (2.051)**</b><br><b>1.134 (3.109)**</b> | **<br><b>0.693 (2.000)**</b><br><b>0.938 (2.555)**</b><br><b>1.471 (4.356)**</b> | **<br><b>0.545 (1.725)*</b><br><b>0.799 (2.224)**</b><br><b>1.308 (3.700[D11])**</b> |
| Received beneficial advice to find new markets from customers/suppliers   | <b>0.308 (1.360)**</b>   | <b>0.463 (1.589[D12])*</b>                                      | 0.283 (1.328)  | 0.253 (1.288)  | 0.309 (1.362)  |
| Received beneficial advice to find new markets from government business services  | 0.146 (1.157)  | -0.436 (0.647)  | 0.385 (1.469)  | <b>0.643 (1.902[D13])*</b>   | -0.239 (0.787)   |
| Received beneficial advice to find new markets from trade associations/informal networks  | 0.000 (1.000)  | 0.172 (1.188)   | <b>-0.432 (0.649[D14])*</b>  | 0.178 (1.195)  | 0.210 (1.234)  |
| Finance from Bank sources to finance business in previous 2 years (major or minor source)   | <b>-0.213 (0.808[D15])**</b>   | -0.059 (0.943)  | <b>-0.287 (0.795)*</b>   | -0.233 (0.792)   | <b>-0.312 (0.732)*</b>   |

|                                |   |   |   |   |   |
|--------------------------------|---|---|---|---|---|
| Constant                       | <b>-1.914 (0.148)**</b>                     | <b>-2.582 (0.076)**</b>                     | <b>-0.974 (0.377)*</b>                      | <b>-1.530 (0.217)**</b>                     | -1.917 (0.147)                              |
| Pseudo R squared (Nagelkerke)  | 0.192                                       | 0.164                                       | 0.185                                       | 0.217                                       | 0.252                                       |
| Model Fit                      | Step: 0.000<br>Block: 0.000<br>Model: 0.000 |
| Hosmer and Lemshow             | 0.587                                       | 0.462                                       | 0.440                                       | 0.860                                       | 0.487                                       |
| Percentage Correct Predictions | 72.9  | 77.0  | 72.3  | 71.7  | 74.2  |