



The geography of job creation in high growth firms: the implications of ‘growing abroad’

Ross Brown

School of Management, University of St Andrews, St Andrews, UK;

e-mail: Ross.Brown@st-andrews.ac.uk

Suzanne Mawson

Stirling Management School, University of Stirling, Stirling, UK;

e-mail: suzanne.mawson@stir.ac.uk

Received 10 June 2013; in revised form 11 March 2014; published online 16 November 2015

Abstract: In recent years, there has been an upsurge of interest by policy makers in high growth firms. Interest in these dynamic firms has primarily been driven by their prodigious ability to create new employment. Despite this, very little is known about the complex corporate geographies of these firms and their internationalisation processes. Using quantitative and qualitative data, this paper explores this issue by examining Scottish high growth firms. High growth firms were found to adopt more aggressive forms of international expansion, such as overseas acquisitions, than their non-high growth firm counterparts. As a result of these complex growth processes, a large proportion of high growth firm employment growth is generated outside Scotland. The paper concludes that the regional development impact of high growth firms for small peripheral economies in the UK is more limited than originally envisaged. The implications of the study for further research and public policy are examined.

Keywords: high growth firms, entrepreneurship, Internationalisation Enterprise Policy Scotland

Introduction

In recent years, high growth firms (henceforth HGFs) undertaking periods of rapid, transformative growth have been identified as key contributors to economic growth (Acs et al., 2008; Coad et al., 2014a; Lee, 2013; Lerner, 2010).¹ For a wide variety of reasons, such as their contribution to productivity (Du et al., 2013), high innovation levels (Mason et al., 2009), and employment growth (Anyadike-Danes et al., 2009, 2013), HGFs have been hailed as a vital source of economic competitiveness by policy makers (BERR, 2008; Brown et al., 2014; Henrekson and Johansson, 2010; Shane, 2009). However, it has been their powerful role as generators of new employment which has most attracted the attention of policy makers and scholars (Coad et al., 2014a). Consequently, policy makers in many advanced industrial countries have now eagerly embraced these firms as a means of alleviating unemployment and promoting economic growth (OECD, 2010, 2013).

¹A HGF is defined by the OECD as ‘an enterprise with average annualised growth (in number of employees or turnover) greater than 20% per annum, over a three year period, with a minimum of 10 employees at the beginning of the growth period’ (OECD, 2008: 61). This study has focused on turnover growth in line with others (e.g. Du et al., 2013; Mason and Brown, 2010), as this is how many firms themselves conceptualise growth (Robson and Bennett, 2000). While this has become the mostly commonly used definition of HGFs, a number of observers have highlighted some of the limitations of the OECD’s measurement criteria (Anyadike-Danes et al., 2013), particularly the potential bias that could result from choosing either employees or turnover (see Janssen, 2009). Alternatively, some suggest that a lack of consistency of measurement criteria prevents ‘a transfer of research results to the policy arena’ (Coad et al., 2014a: 105).

Within the UK, the appeal of these firms has undoubtedly been boosted by an important series of studies on HGFs for the National Endowment for Science Technology and Arts (NESTA), which has shown that roughly 6% of the firms in the UK economy account for over half of all net new employment creation (Anyadike-Danes et al., 2009, 2013). Even during periods of recession they seem remarkably resilient (NESTA, 2011). As a result of this prolific job-generating reputation, these firms, originally christened ‘gazelles’ by David Birch (1981) and sometimes referred to as ‘high impact firms’ (Acs et al., 2008), have been accorded a central role within many economic development strategies (Action Canada, 2011; BERR, 2008; OECD, 2013). A recent paper published by NESTA highlights how the promotion of these firms is now firmly embedded within both national industrial and regional industrial policies within the UK (Brown et al., 2014). At a recent event in London’s ‘Tech City’ in April 2013, the UK Chancellor proclaimed that a crucial job of government is ‘creating a policy environment that supports, not holds back, fast-growing firms’ (Osborne, 2013). As a consequence of this high profile within UK public policy, business development agencies are strongly prioritising this cohort of rapidly growing businesses (Brown et al., 2014; Patton et al., 2003; Scottish Enterprise, 2011; Smallbone et al., 2002; UKTI, 2011), especially during the recent recessionary period (Hutton and Lee, 2012).

Despite their strong focus within public policy, an important aspect of HGF research which has been notable by its absence is the ‘geography’ of where these firms grow.² Owing to the nature of most previous research (Henrekson and Johansson, 2010), little is known about the spatiality of HGFs and where the jobs created by these firms occur. How these firms expand and become internationalised is also unclear. While research indicates these firms are significantly internationalised (Burgel et al., 2003), particularly compared to less rapidly growing firms (Hansen and Hamilton, 2011; Mohr and Garnsey, 2011), the literature on the specific nature of HGF internationalisation is limited. To date, no explicit HGF empirical studies have examined how the ‘processes’ of internationalisation occur within these firms and how this affects local employment creation (see Henrekson and Johansson, 2010).

While internationalisation has become a ‘synonym’ for the geographical expansion of economic activities over national borders (Ruzzier et al., 2006), Johanson and Vahlne (1990) claim that, as firms increase their involvement in international business activities, internationalisation is ‘the process of developing business relationships in other countries through extension, penetration and integration’ (Johnason and Vahlne, 1990: 20). This definition suggests that internationalisation is now much more complex than a simple transactional exporting relationship and now encompasses much more embedded forms of international relationships.

We will show within this paper that the nature of the internationalisation process within HGFs is a crucial determinant shaping their geographical configuration. Clearly, rapid growth through the process of internationalisation has consequences at both the level of the firm and the economy where a firm is based. Although difficult to fully discern, the beneficial impact experienced at the level of the ‘firm’ will not always be replicated at the level of the ‘home’ economy. Indeed, there seems to be growing evidence that not all regional economies benefit equally from the growth of HGFs, in terms of employment or other positive spillovers. For example, one recent study found that the aggregate employment generating impact of HGFs was almost half the level in Scotland than it was in the UK as a whole (Brown et al., 2012). The findings reported in this paper may offer an explanation for this situation.

²This may partly owe to the lack of geographically sensitive data on this issue. Another explanation may be that much of the research on this issue has been conducted by economists and entrepreneurship scholars, rather than researchers who adopt a spatial dimension to their research, such as geographers, regional scientists and spatial planners.

This paper aims to contribute to the growing policy debate on HGFs by examining what happens when HGFs become internationalised and what impact this has for their contribution to regional development. The research followed a multi-method research design, with both quantitative and qualitative components. Responding to calls by other scholars for more micro-level analysis of rapid firm growth (Anyadike-Danes et al., 2013; Brown et al., 2014; Coad, 2007), as well as aggregate analysis the study undertook a detailed qualitative analysis of a small sample of Scottish HGFs. The empirical focus on Scotland is appropriate for two main reasons. First, being a small open economy with strong trading connections with the rest of the UK and abroad, it is to be expected that the majority of Scotland's firms would derive a significant proportion of their revenues outside of Scotland, particularly from 'international' sources. Within this paper, international sources are deemed those external to the UK. Second, Scottish policy makers have made the goal of promoting more HGFs a key focus within their industrial and enterprise policy frameworks for some time now (Scottish Enterprise, 2011; Scottish Government, 2011) and have in many ways 'led the charge' on this issue, with the rest of UK now widely following suit (Brown et al., 2014). This empirical research will help establish the appropriateness of policy emphasis on HGFs in Scotland.

Given the inductive nature of this research exercise and the prominence given to qualitative research methods, we sought to explore in depth the causal processes associated with the internationalisation of HGFs. The following three research questions guided the study:

1. What is the extent of internationalisation within Scottish HGFs and how does this compare to less rapidly growing firms?
2. How do these HGFs become internationalised?
3. What is the impact on regional development of these international growth patterns?

The paper is structured as follows. In 'High growth, internationalisation and regional development' section, we assess the literature on HGFs, business internationalisation and economic development. In 'Methodology' section, we outline the methodology utilised during the course of this exploratory study. In 'Results: Nature and processes of HGF internationalisation' section, we present the empirical findings from the research. In 'Discussion and policy implications' section, the findings are discussed and contextualised. Finally, we end with some conclusions and potential areas for future research.

High growth, internationalisation and regional development

The HGF literature dates back to the 'job generation' studies of the 1970s in the USA, notably work by economist David Birch, which first identified the key role of small firms in job creation (Armington and Odle, 1982; Birch, 1981). This quickly became known as the 'small business creation hypothesis' (Kirchhoff and Greene, 1998: 153); however, the results of these early studies were often heavily contested (Haltiwanger and Krizan, 1999; Kirchhoff and Greene, 1998). In line with criticisms, Birch (1987) qualified his earlier findings to emphasise that the main contribution to job creation came not from the entire population of small firms, but rather from a small cohort of young, *fast growing* firms which he famously christened 'gazelles'. These seminal findings by Birch (1981, 1987) were to have far-reaching ramifications within the field of entrepreneurship.

Drawing on Birch's observations, subsequent research in the UK revealed that 'rapidly growing firms constitute a tiny proportion of the small firm population but, over a ten-year period they make a major contribution to job creation' (Storey, 1994: 158). These 'gazelles' were considered to be highly dynamic firms which defied the conventional life cycle models of business growth (Churchill and Lewis, 1983), instead growing in a very discontinuous and turbulent manner akin to the processes originally outlined in the seminal work of Schumpeter (1987). Birch himself maintained that, instead of a life cycle model of growth, such firms

correspond to a ‘pulsation model’ (Birch, 1987). Within this neo-Schumpeterian perspective, dynamic firms are seen to grow and evolve in a highly episodic and non-linear fashion (Garnsey et al., 2006). The corollary of this is that many experience managerial overstretch, which leads to ‘setbacks’ (Garnsey and Heffernan, 2005) and sometimes firm ‘deaths’ (Coad, 2013). Owing to the heavily quantitative nature of the early research on ‘gazelles’, little light was shed on the mechanisms which make firms ‘pulsate’, or the ‘triggers’ which engender rapid growth or decline (Brown and Mawson, 2013). According to some observers, ‘it is still a puzzle as to what stimulates such growth in a minority of firms’ (Mohr and Garnsey, 2011: 29).

During the intervening years since the early job generation studies, empirical research examining rapid firm growth has been ‘accumulating at a terrific pace’ (Coad, 2009: 1). On the whole, this body of work has adopted a relatively uniform approach, which has largely focused on assessing the contribution of HGFs to employment growth. Henrekson and Johansson (2010) undertook a detailed meta-analysis of this body of literature, which emphatically concluded that a ‘few rapidly growing firms generate a disproportionately large share of all new net jobs compared to non-high-growth firms. This is a clear-cut result’ (240). All the studies comprising this analysis had adopted a quantitative approach towards measuring the incidences of HGFs and their associated impact on net employment.

An interesting omission within the HGF literature is the lack of a spatial or regional dimension within empirical studies. While there are a plethora of studies essentially providing an ‘inventory’ of HGFs – cataloguing the number (and basic demographic characteristics) of HGFs in any given country – only a handful of these have focused on particular regions (e.g. Almus, 2002; Bruderl and Preisendorfer, 2000). The vast majority have determined HGFs at a national level: Delmar et al. (2003) examined HGFs in Sweden; Stam (2005) focused on the Netherlands; the Department for Business Enterprise and Regulatory Reform (BERR, 2008) undertook a study of HGFs in the UK and US; Zhang et al. (2008) examined HGFs in the Chinese context; Acs et al. (2008) outlined the distribution of HGFs in the USA; and Goedhuys and Sleuwaegen (2010) analysed HGFs across 11 sub-Saharan African countries. Interestingly, with the exception of David Storey’s (1994) early work and recent work in Cambridge by Mohr and Garnsey (2011), very few HGF studies have emanated from the UK (e.g. Anyadike-Danes et al., 2009, 2013; Mason and Brown, 2010).

While these national studies provide an interesting and useful understanding of aggregate national HGF populations and their associated employment impacts, they provide little insight into the prevalence of HGFs at a regional level and, most importantly, the impact these firms have on regional or local economies. Given that HGFs are known to be heavily shaped by their unique home business environments (Hinton and Hamilton, 2013), this omission has arguably hindered our understanding of HGFs and their regional impact. One key contributory factor behind this lack of understanding on the spatial distribution of employment within these firms is a lack of attention to how these firms operate internationally. High growth scholars are only now beginning to acknowledge that an interesting expansion of the literature would be to examine HGFs and their specificities ‘in more detail’ (Henrekson and Johansson, 2010: 240).

What little research there is on international activities within HGFs has tended to examine the characteristics of the firms who internationalise, rather than the internationalisation process itself. For example, research examining young HGFs in Germany found that these enterprises tended to apply *ex post* emergent strategies towards internationalisation, rather than more formal planned strategies (Harms and Schiele, 2012). Some authors have observed that HGFs tend to be risk-taking ‘market creators’ (Brush et al., 2009) and market ‘prospectors’ rather than defenders (O’Regan et al., 2006), whilst other research finds that HGFs are actually risk averse, preferring to operate within existing markets, thus mitigating development costs and

risk of failure (Hinton and Hamilton, 2013; Smallbone et al., 1995). This seems somewhat counterintuitive, as it is firms that enter new markets (particularly with existing products), no matter the risk, which are most likely able to broaden their customer base and thus experience rapid growth (Kelley and Nakosteen, 2005; Littunen and Tohmo, 2003). Despite the inherent risks associated with a geographical diversification strategy (Parker et al., 2010), many HGFs have been found to generate growth by entering new geographical markets, particularly those beyond their own local area (Barringer and Greening, 1998; Iacobucci and Rosa, 2005).

In terms of the internationalisation process, HGF studies have largely adopted a very restrictive perspective in terms of how HGFs internationalise. Exporting is commonly viewed as the sole means of internationalisation within the high growth literature, despite being only one of many potential overseas entry modes. According to some, the ‘act of exporting in itself’ can be identified as a ‘growth characteristic in its own right’ (Dobbs and Hamilton, 2007: 307), as many exporting firms have higher levels of productivity and therefore performance (Bernard et al., 2007). In contrast to most SMEs who tend to ‘stay at home’ (Acs et al., 1997; Wright et al., 2007), HGFs are thought to exhibit high levels of internationalisation, particularly export activity (O’Gorman, 2001; Zahra et al., 2000) and are seen as more likely to engage with international markets than their slower growing counterparts (BIS, 2010), perhaps as a result of previous success and growth through exporting (Robson and Bennett, 2000). In order to achieve (and sustain) rapid turnover growth, depictions of rapidly growing firms identify that they increase their levels of exports to an increasingly wide-ranging number of customers in international markets (Hansen and Hamilton, 2011). However, this view implicitly presupposes that these firms primarily service international customers via exports.

While some work has shown that HGFs use strategic alliances with other firms from outside their own region as an internationalisation mode (Mohr and Garnsey, 2011; Zhou et al., 2007), overall, the specific processes and mechanisms through which HGFs become involved in overseas markets remain largely overlooked. This is surprising, given that businesses now use a wide variety of internationalisation strategies and entry modes (e.g. FDI, joint ventures, partnership agreements, acquisition) to service their international customers (McDougall et al., 1994; Morschett et al., 2010), rather than simply relying on exports.

One important consequence of such a ‘multi-channel’ internationalisation process is that much of the employment growth within these HGFs may actually manifest itself outside of the firm’s home economy. A key question for public policy therefore surrounds the ‘mode’ of growth undertaken by rapidly growing firms (McKelvie and Wiklund, 2010). For example, if a firm selects to internationalise by licensing their technology or establishing a direct ‘greenfield’ presence overseas, much of the employment generated through this growth process will accrue elsewhere. Therefore, understanding the ‘geography of HGFs’ – particularly how they relate to their ‘home’ environment and overseas ‘host’ environment – is of crucial importance if we are to fully comprehend both their organisational dynamics as well as their contribution to regional economic development.

In summary, the literature on HGFs reveals that they are prodigious employment generators (Coad et al., 2014a; Henrekson and Johansson, 2010). Despite this, little is known about the exact ‘geography’ of this job creation. One explanation for this is that little work has managed to fully ascertain the composition of the growth processes within HGFs and how these firms operate internationally. Taken together, the lack of spatially focused and empirically nuanced research on HGFs, coupled with the weak evidence base surrounding the internationalisation processes within these firms, creates room for miscomprehension as to how these firms operate internationally and how they contribute to local economies. To fill this research gap, the authors conducted an in-depth analysis of the internationalisation patterns and processes of HGFs in Scotland.

Methodology

Our research comprised three key phases: (1) an aggregate analysis of current internationalisation in Scottish firms via questionnaires, (2) in-depth interviews with 20 HGFs and (3) interviews to triangulate observations with business development experts. As noted by others, there is a need to avoid a 'success bias' (Mohr and Garnsey, 2011; Shane, 2009) in firm growth analysis, so the study examined a comparative cohort of non-HGFs during phase one. HGFs and non-HGFs were identified from the commercial database Financial Analysis Made Easy (FAME).³ Measuring firm growth can occur in various ways (Robson and Bennett, 2000), so it is important to make definitions transparent. During this study, HGFs had to have experienced a period of high growth under the standard OECD (2008) turnover definition during the time periods of 2006–2009 and/or 2007–2010. Non-HGFs were required to meet the OECD (2008) criteria of a minimum of 10 employees in 2006 and 2007 and had to have experienced modest turnover growth (1–10%) during the 2006–2009 and/or 2007–2010 periods.⁴

The HGF sample of 230 companies was identified purposively, as a strong sample of HGFs (meeting all the required OECD criteria). The selection of the non-HGF sample required two stages. First, initial purposive sampling was required in order to identify a population of firms that would best contrast with the HGF population (10+ employees; modest turnover growth rates of 1–10%). Following the identification of that target non-HGF population, a simple random sample of 250 companies was identified by assigning each firm a unique number and selecting random numbers using an online random number generator.

The first phase of data collection comprised a large-scale survey, targeted at equal samples of HGFs and non-HGFs. The purpose of this questionnaire was to explore issues related to growth in Scottish HGFs, with a number of questions specifically addressing their international growth. The questionnaire was distributed to the sample of 230 HGFs and the comparative sample of 250 non-HGFs. Of the 480 questionnaires distributed, 198 complete and useable questionnaires were received. One hundred and six of these questionnaires were completed by HGFs and 92 by non-HGFs, resulting in a general response rate of 41%. The majority of companies were 20–30 years old, in the 50–299 size band and operating across a wide variety of sectors. Pearson's chi-squared (χ^2) tests were performed to determine whether significant differences existed between the two groups.

The second phase collected qualitative data from semi-structured interviews with 20 HGFs in Scotland to form case studies (Eisenhardt and Graebner, 2007). The research examined in depth the internationalisation process in these case study firms, qualitatively exploring the catalysts, dynamics and outcomes of this process.⁵ Interviews, conducted either face to face or by telephone with the owner/manager or appropriate member of the senior management team, followed a semi-structured format. For each of the firms interviewed, background desk research was also conducted. This intensive form of qualitative research is viewed as a key methodology within the social sciences (Patton, 2002; Yin, 2003), especially within

³The commercial database FAME was used to identify Scottish HGFs during the periods 2006–2009 and 2007–2010. FAME was selected over other official data sources provided by the Office for National Statistics, as it allows researchers to obtain detailed company information, including financial details submitted to Companies House, on a firm-specific basis.

⁴Although this paper explores issues related to job creation, turnover growth was chosen over employment growth for the purposes of this research. The rationale behind this choice was twofold: (i) arguably firms experiencing turnover growth will have the resources available to create and sustain new jobs and (ii) managers tend to conceptualise – and express – firm growth in terms of sales growth rather than employment growth.

⁵During this second aspect of our qualitative analysis, only a sample of HGFs was examined.

entrepreneurship/management and economic geography (Eisenhardt, 1989; Eisenhardt and Graebner, 2007; Schoenberger, 1991).

The third and final phase comprised interviews with business advisors who ‘account manage’ a number of the HGFs interviewed on behalf of the economic development agency Scottish Enterprise. As others have done with their work on rapidly growing firms, the research findings were also fed back to the research sponsor for feedback, discussion and further synthesis (Fischer and Reuber, 2003).

As advocated by others (Graebner, 2004), all the qualitative material collected was subjected to both ‘within-case’ and ‘cross-case’ analysis for each of the companies interviewed (Miles and Huberman, 1994). Thus, the qualitative data analysis undertaken focused on enabling the richness of the data to be fully explored and to ‘let the data speak’ for itself (Easterby-Smith et al., 2006: 119). Interview transcripts and notes were first examined for key themes and patterns. The data were then coded into a number of a priori categories, with new categories created for all emergent issues (Graebner, 2009).

Results: Nature and processes of HGF internationalisation

Descriptive statistics

With little empirical evidence on the extent of internationalisation within rapidly growing firms, it was essential to first determine the current picture of international activity in Scottish HGFs. Therefore, we begin with some brief descriptive statistics on their levels of internationalisation. Through the large-scale questionnaire and subsequent desk research, we sought to determine (a) whether HGFs were working internationally, (b) whether HGFs were more likely to be internationalised than non-HGFs and (c) for those HGFs operating internationally, how embedded were they in foreign markets. The aggregate observations subsequently fed into the development and design of the second phase of data collection – the semi-structured interviews.

In line with our assumptions, the vast majority of HGFs surveyed (71%) were operating internationally, selling to markets outside of Scotland and the UK. Interestingly, a similar picture emerged for the non-HGF control group, where 62% of firms were also selling outside of Scotland and the UK (see Figure 1). This finding suggests that high growth companies are not more likely to be selling internationally than their counterparts experiencing slower levels of growth ($P>0.05$). The existence of sales to international markets was uninfluenced by company age, size or sector ($P>0.05$). This may well be due to the fact that Scotland, as a peripheral nation, offers limited domestic growth opportunities, thereby effectively forcing all firms to look abroad for further opportunities for sales growth.

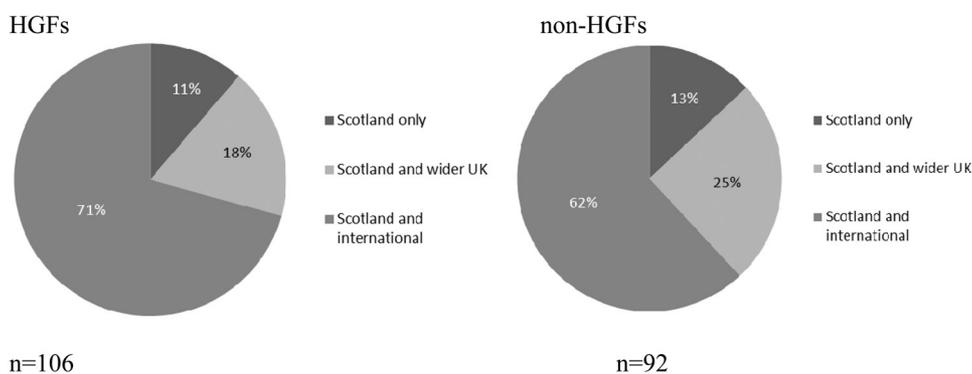


Figure 1. Markets for Scottish firms (HGFs and non-HGFs). (a) HGFs, n=106; (b) non-HGFs, n=92.

However, given that only one-third of Scottish companies are recognised as exporters in Scottish Government statistics (Scottish Enterprise, 2011), our data identify that Scottish companies are engaged in other forms of international activity that are not currently being captured by the policy focus on exporting. Importantly, this internationalisation activity appears to be of a particularly committed nature (see Figure 2). Many HGFs appear to have moved beyond exporting and licensing activities from Scotland, in favour of a more embedded presence in international markets. HGFs, in particular, are strongly embedded internationally, with 50% of firms surveyed having a direct physical presence outside of Scotland. This cohort is more likely to have physical operations abroad than the non-HGF cohort ($\chi^2(3) = 12.019$, $P = 0.007$), with larger HGFs (50+ employees) significantly more likely to have a physical presence out with the UK ($\chi^2(6) = 3.623$, $P = 0.001$). For non-HGFs, only 27% have physical operations overseas, with no impact from age, size or industry ($P > 0.05$). This indicates that HGFs may internationalise in a different manner from non-HGFs, perhaps being less risk averse and thus focusing on more committed forms of internationalisation such as joint ventures and foreign direct investment, rather than simply exporting overseas from the UK.

This more committed form of internationalisation potentially has a significant impact on employment in Scotland. As Scottish companies grow overseas, employment growth within Scottish-based manufacturing facilities, distribution centres and domestic sales operations sometimes ceases. History has shown that, rather than benefiting firms based in some peripheral regions, international growth can sometimes lead to redundancies in the parent's home economy, often leaving a HQ with a handful of high level jobs. The research found that the domestic operations of these firms sometimes only grew marginally following a period of high growth. Given that so many HGFs have physical locations overseas, it perhaps comes as no surprise that they also have a smaller percentage of their workforce located in Scotland (see Figure 3).

Of the non-HGFs surveyed, 77% have the majority of their workforce (76–100%) located in Scotland. For HGFs, only 52% of companies have a predominantly Scotland-based workforce. Indeed, over a quarter (27%) of HGFs have less than 25% of their employees located in Scotland, compared to a figure of 9% for non-HGFs. Therefore, despite their prioritisation within public policy circles, the data indicate that the direct economic footprint in terms of local 'home' country employment in Scotland is actually significantly

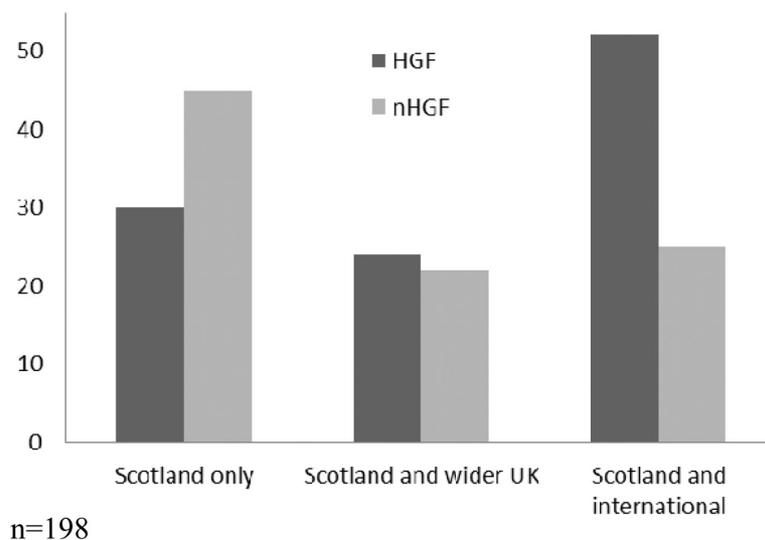


Figure 2. Physical location: HGFs versus non-HGFs (n=198).

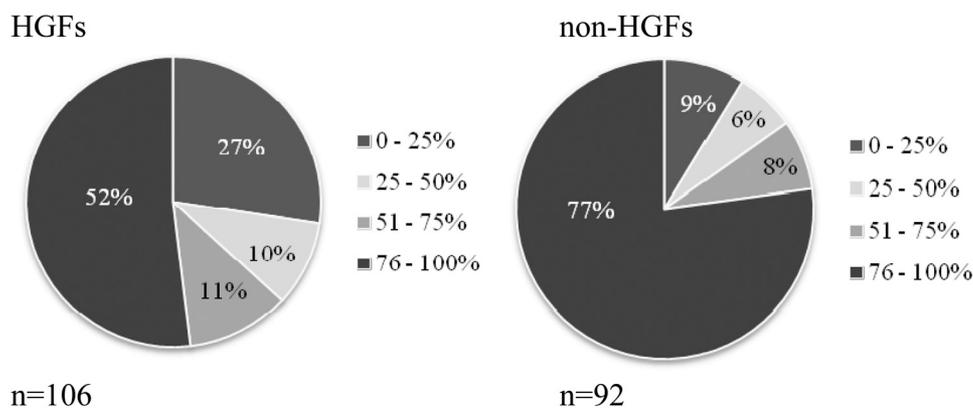


Figure 3. Proportion of employment in Scotland (HGFs and non-HGFs). (a) HGFs, n=106; (b) non-HGFs, n=92.

less for HGFs than a similar cohort of non-HGFs ($\chi^2(3) = 15.353$, $P = 0.02$). In the case of HGFs, there is a relationship between firm age and the percentage of workforce in Scotland ($\chi^2(18) = 29.327$, $P = 0.045$). As these firms become older, they also appear to have a smaller percentage of their overall workforce located in Scotland. For example, one Scottish firm that had undergone a lengthy period of high growth from 2001 to 2009 had seen the proportion of their workforce located in Scotland drop from 78 to 41% during this time.

Overall, our quantitative analysis reveals a number of significant differences between the HGF and non-HGF cohorts in terms of their international presence. Significantly, our work showed that HGFs are more likely to have a physical presence internationally and to expand their workforce overseas during their international expansion. Clearly, further research will be needed to tease out the nuances and full magnitude of domestic versus overseas employment expansion in different types of firms. However, these data suggest the geography of job creation within HGFs is a highly spatially diffuse phenomenon.

Processes of internationalisation within Scottish HGFs

The qualitative data gathered during in-depth interviews provided valuable insights into the specific ‘processes’ of internationalisation within Scottish HGFs. First, HGFs often internationalise in a rather haphazard and unplanned fashion, usually as the result of a particular growth catalyst or ‘trigger’. Second, these firms often undergo very rapid internationalisation. Third, HGFs are notable for undertaking committed and entrenched forms of internationalisation in overseas markets, with some (very capable) firms utilising more aggressive modes of internationalisation such as international acquisitions. We now examine each of these issues in turn.

First, one of the most important observations from the research is the fact that internationalisation within the firms interviewed was an opportunity-driven process, rather than a market-driven one. In line with other research, firms with strong levels of opportunity recognition were the ones best able to grasp growth opportunities as they arose (Crick and Spence, 2005). These opportunities often arose in the form of key growth ‘triggers’ (Brown and Mawson, 2013) or ‘critical junctures’ (Vohora et al., 2004). These forces of change have been shown to significantly alter the growth trajectory of a business venture – for better or for worse (Brown and Mawson, 2013). Not only do these growth catalysts have the potential to change a firm’s overall growth trajectory, but they were also largely responsible for propelling firms into the international marketplace, ‘kick-starting’ the internationalisation process.

These triggers appeared in many forms (e.g. receipt of a contract from an overseas business, corporate acquisition, launch of a new product), presenting firms with an unplanned opportunity for growth. As a result, the majority of HGFs we spoke with noted that

internationalisation was not always a planned and logical process, but rather an opportunistic attempt to capitalise on a trigger for growth. Company growth and development was the priority – internationalisation was simply a means to that end.

“If we are looking at a new region it’s not because we have gone to the map and thought oh let’s go there. It’s because there’s an opportunity - say the discovery of Shale Gas reserves - and boom it was all go. It’s opportunity driven and that’s the way it should be.
(Energy firm, Aberdeen)

A Scottish environmental engineering company in Glasgow provides a good example of this phenomenon. Operating solely in the UK, one of the firm’s clients (a major MNE) discussed the opening of new branches in China and indicated that they wanted to purchase the same software and support services for these offices that were used in their UK operations. This trigger (an international order from an existing customer) ultimately provided the initial opportunity and impetus for the Scottish firm to internationalise, as they sought to grow their business. ‘One of our client’s main markets is over in China, so we’ve started licensing to there now. We wouldn’t have gone [to China] otherwise, but it’s been a good move for us’ (Engineering firm, Glasgow).

Interestingly such ‘triggers’ not only appear to kick-start business internationalisation but also play an important role in internationalisation decisions over the longer term. Often the original trigger (e.g. a new customer order) resulted in further triggers (e.g. new customer(s); new joint venture), which led to a cumulative process of internationalisation and growth. In some firms, the receipt of a contract from a major customer acted as an official ‘stamp of approval’, which then enabled the firm to obtain orders from other international customers.

“We started in the UK, but then had a major order from a Swiss distributor. That was a really important contract for our company and a bit of a learning curve. And then, because we’d been working with them [the Swiss distributor] and they told their partners, we ended up getting another few big contracts from German companies who wanted to take the product on. So now we’ve ended up setting up sales offices in both countries and they are major markets for us. (Life sciences firm, Dundee)

The role of ‘triggers’ or opportunities as antecedents for internationalisation, as well as factors influencing subsequent internationalisation activities, indicates that the internationalisation process within HGFs is far cry from the linear models which so often underpin our assumptions about internationalisation (Oviatt and McDougall, 2005). Rather, the internationalisation process appears to be dynamic, complex and unpredictable, much like the process of firm growth as a whole (Andersson and Tell, 2009; Coad, 2009; Garnsey et al., 2006).

A second issue which arose during our interviews was the variation in the speed of when HGFs become internationalised. Some companies had internationalised slowly over decades (e.g. shadowing the international activity of their customers), whilst others internationalised rapidly as a result of more time-sensitive triggers (e.g. market deregulation, acquisition, customer-pull processes) and a strong sense of ‘opportunity recognition’. Our interview data indicate that the speed of internationalisation is not uniform across the range of HGFs, but rather seems to be strongly influenced by a firm’s age and industry affiliation.

It does appear, however, that the speed of internationalisation very much reflects the nature of Scottish HGFs. As other research has found elsewhere (Acs et al., 2008), many of the companies in Scotland’s stock of HGFs are long established firms, with an average age of 20–25 years. These older firms tend to have become internationalised over a considerable period of time, with some experiencing a rather incremental approach towards business internationalisation.

“About 10 years ago we realised that the next big growth area for us would come from exports, so we brought in an international manager to help us manage that transition. Now we’re selling abroad to the US and looking to build up our US operations even more on the back of the demand we see there. (Food and Drink firm, Glasgow)

As these firms tend to be in more traditional sectors as well (e.g. food and drink, textiles), industry affiliation also appears to have an important influence on how quickly HGFs internationalise. Many of the more ‘traditional’ HGFs we interviewed have had slower and elongated paths to internationalisation and could be considered ‘late starters’ (Fletcher, 2004). In direct contrast, many younger HGFs, particularly those which could be classified as technology-based firms, were likely to have internationalised quite rapidly.

“We set some quite big goals in terms of internationalisation [international sales] early on. For a company the size of us, the initial target was to do 20% internationalisation but we are already well ahead of that. I think we are about 27% at this point. Huge opportunities for us there. (IT firm, Glasgow)

Many of these companies rely almost exclusively on external markets for their sales and revenue generation, with exports or revenues from international customers typically accounting for over 90% (often nearly 100%) of overall turnover levels. For many of these high-tech firms, there is often little or no domestic market, which necessitates more rapid overseas expansion. This strong reliance on international sales is often present from the firms’ inception and, as a result, many of these high-tech HGFs strongly resonate with the ‘born global’ phenomenon (McDougall et al., 1994; McKinsey and Co, 1993; Rialp et al., 2005). In some cases this international focus even led firms to neglect opportunities within the domestic market.

“To be honest with you, we kind of forgot about Scotland - and we forgot about the UK - until quite recently. I mean, we’ve always been focused on international customers and 98% of our sales are outside the UK. We started shipping to Germany and America and now we ship all over the world. I guess we have been so focused on that we forgot that we have a market at our doorstep. (Engineering firm, Glasgow)

This rapid internationalisation, in many cases, appears to be linked to HGFs’ relationships with their customers, as these customers provide opportunities or ‘triggers’ for international activities. For example, as a consequence of ‘travelling’ with their customers to locations around the world from their inception, one Scottish technology-based oil services company now has 15 subsidiaries and operates in 234 locations. This rapid international growth was only possible given the market (and opportunity) exposure generated as a result of their previous customers and related opportunities. As a result of this exposure, the firm is not afraid of new markets – they think in terms of assessing business opportunities, with the particular location a secondary consideration.

“Yes we’ll take a punt – we’re never fearful of jumping on a plane. We can scale [our business] and so you won’t find us saying we shouldn’t pursuing particular opportunities or markets. We’ve never done anything in Kazakhstan before, but we’ll definitely give it a go and look at it! (Energy firm, Aberdeen)

Third, as discussed earlier in ‘Descriptive statistics’ section, HGFs appear to favour more committed and entrenched forms of internationalisation in overseas markets. Clearly, the precise nature of the overseas presence is heavily dependent upon the nature of the firm in question. It is apparent from our qualitative analysis that HGFs are heavily internationalised in the widest sense of the term, stemming from strong globally oriented ambitions to aggressively seek out new customers in new markets, wherever they may be located. It also became apparent that there was an element of cumulative causation behind the internationalisation of some of these firms, as one international ‘footstep’ often led to another. As one software company noted:

“If you take the Dubai office, we signed a massive contract with Dubai Airports which guaranteed us at least 3 years worth of significant revenues. We didn’t need to create the office there – they were quite comfortable with us delivering from here – but we thought that given the 3 years of good revenues ahead we may as well use Dubai as a base for expansion. (IT firm, Glasgow)

This commitment to becoming internationalised exhibited itself in a number of ways. For example, many of the HGFs interviewed had a direct international presence in multiple markets. Sometimes this took the form of establishing a wholly owned subsidiary in a new overseas market, but, as other research on HGFs has found, the use of joint ventures and alliances was also quite common (Mohr and Garnsey, 2011; Mohr et al., 2014), particularly in the energy sector as countries often require international firms to partner with local ventures on projects to fulfil local content requirements. Establishing a direct presence in overseas markets was important for companies regardless of sector, be they manufacturing or service sector businesses. The need to service customers intensively often prompted service firms to establish a direct presence in order to tailor their services to the requirements of the local market. ‘Our customers deserve to be looked after wherever they are. And if that means we need to open a new office, then we need a new office’ (Engineering company, Aberdeen).

Even with respect to less proactive or embedded forms of internationalisation (e.g. exporting, licensing), HGFs were still strongly engaged with their overseas markets. We found that many HGFs preferred to employ their own sales personnel, rather than relying on distributors. However, in many cases a mixture of both approaches was utilised, depending on the firm’s level of engagement in the market in question.

Another key finding from our interviews was the importance of local supply relationships within Scotland which, in many cases, acted as conduits for the internationalisation of HGFs. These close relationships with customers were also a vital source (and contributor) of the strong levels of innovation found within HGFs (Mason et al., 2009). One firm in the oil and gas sector is a particularly good example of how these close, localised relationships aided the firm’s internationalisation. As the firm had become very closely tied to certain MNEs based in Scotland, they were increasingly invited to supply different overseas subsidiaries of the same companies in different geographical locations. On the basis of their close relationships in Scotland, the firm was literally pulled by their customer into different geographical markets. ‘Simply put, we go where our clients go’ (Energy services firm, Aberdeen).

Such ‘client followership’ has been noted by internationalisation scholars as having an important influence on future market exploration and expansion (Bell, 1995), and our findings corroborate the importance of this kind of international ‘piggybacking’ (Raines et al., 2002). In fact, ‘client followership’ is one of the possible explanations for the greater proclivity for Scottish HGFs to have a direct overseas presence than non-HGFs. As others have noted, pre-existing contacts and networks play a critical role facilitating their internationalisation (Johanson and Vahlne, 2003; Zhou et al., 2007).

“You’ve got to have that foundation in place. If you don’t, all you are going to do is spend a lot of money wasting time travelling the world. You’ve got to know the right person to speak to. (Engineering firm, Edinburgh)

Another key finding from our interviews was the tendency for HGFs to grow and internationalise through the process of corporate acquisition. While much of the literature on HGFs strongly focuses on processes of organic growth (McKelvie and Wiklund, 2010), our interviews found that acquisition was often a key internationalisation mode for the firms we examined, as well as an important source of growth. Owing to this, we have identified a subset of HGFs which we term ‘buy globals’. These firms significantly alter the nature of their operations and become more internationally oriented as a result of undertaking strategic acquisitions. It is important to note that international expansion was frequently less important

to the firms interviewed than the strategic objective of growing their businesses. Most HGFs noted that undertaking an acquisition was part of their strategy to grow their business and to bolster company resources and/or capabilities, including technological competencies (Hussinger, 2010).

Whilst motives underlying acquisition varied amongst the firms interviewed, there was a consensus that acquiring a company with an established overseas market presence helped to reduce some of the problems associated with the 'liability of newness' (Stinchcombe, 1965) and also mitigated the 'liability of foreignness' in certain markets (Zaheer and Mosakowski, 1997). Through the process of acquisition, firms were able to gain almost instant access to new customers and markets, thus enabling them to 'leapfrog' some of the more conventional and time-consuming processes of directly exporting, using a distributor, or licensing a product. For example, one Scottish life sciences firm who designs and manufactures prosthetic limbs established a direct presence in the US marketplace by acquiring a company in New York. The primary rationale behind the acquisition was to access the technology owned by the US firm, but, by having a direct presence in the US, the company has been able to obtain close relationships with clinicians in the US healthcare market. This enabled it to grow market share in the lucrative US healthcare market, a segment which now accounts for around 75% of the company's overall turnover.

This kind of acquisition-led growth strategy can result in strong employment growth for the company but limited knock-on effects for the domestic economy. For example, a Scottish internet-based dating agency has become extremely internationalised by acquiring a host of established firms in overseas markets. Now trading in 39 countries, this firm strongly reflects our notion of the 'buy global' phenomenon outlined earlier but has resulted in a very limited Scottish footprint. Only 18 of their worldwide staff of 400 are located in Scotland and the bulk of their software engineers are employed in the Ukraine. Clearly, the geography of growth within HGFs is a highly complex and firm-specific process, as these cases vividly illustrate.

Discussion and policy implications

The findings from our qualitative analysis corroborated our aggregate findings. Much of the new employment generated by HGFs from international growth is indeed located outside of Scotland, especially compared to their less rapidly growing counterparts. This was due in large part to the fact that HGFs were more inclined to establish a direct presence overseas, often as a result of local relationships with MNEs, or to internationalise via overseas acquisition. The common denominator from these internationalisation patterns is that, in many cases, rapid growth resulted in employment expansion in external markets, often to directly service overseas customers. Therefore, a preliminary finding from this research is the fact that HGFs are more inclined to have spatially extensive employment patterns than non-HGFs.

We wish to stress, however, that more research is needed to explore these relationships in different spatial contexts. Owing to the small size of the Scottish market and limited opportunities for growth through local customers, this is undoubtedly more of an issue for HGFs located in these kinds of peripheral economies with limited domestic markets. In all probability, HGFs based in larger domestic markets, such as the US, would have a greater proportion of their workforce located domestically.⁶ It is also important to note that different firms have different local employment multipliers (Moretti, 2010). While beyond the remit of the present study, examining the nature of spillovers by HGFs and non-HGFs merits further investigation.

⁶However, if a US firm is located in a small rural state such as Wyoming, much of the resultant employment growth within the firm would in all likelihood occur out with its territorial home base.

The antecedents of these aggressive forms of internationalisation were also examined. A key factor driving this seems to be a process of strong demand-pull from customers to follow them into overseas markets, rather a planned corporate strategy of becoming more internationally focused. In common with previous studies (Morschett et al., 2010), the end result of this was that Scottish HGFs undertook quite committed and variegated forms of international entry modes, such as establishing overseas production facilities, setting up direct sales and/or after-sales service operations and, in some cases, undertaking overseas acquisitions. Localised relationships with MNEs were found to be instrumental in shaping the internationalisation pathways of HGFs, through a process known as ‘intermediated internationalisation’ (Acs and Terjesen, 2012). These processes also emphasise the importance of global production networks and multi-scalar relationships within the world economy (Coe et al., 2008). A novel finding from our research was the fact that many HGFs had undertaken internationalisation through the process of acquisition (the so-called buy globals cohort). With the majority of the HGF literature focusing primarily on organic growth (McKelvie and Wiklund, 2010), further empirical work could productively explore the role of non-organic growth modes within HGFs (Mohr and Garnsey, 2011), particularly in the context of internationalisation and international growth.

Our findings also have important implications for public policy. Let us begin by stressing that development impacts are very specific to the nature of the particular HGFs in question. Whilst some HGFs appear to have limited spillover effects on their parent economy (i.e. low levels of domestic employment), others have far more substantial impacts. In the former category are HGFs who merely operate a limited headquarters in their home location. In the latter category are firms with a larger and more established footprint, such as those that have domestic manufacturing facilities. Owing to the fact that these firms predominantly internationalise through exporting, manufacturing firms tend to accrue greater positive spillovers for the home economy than purely service sector firms, which are more likely to expand closer to their customer base (e.g. via after-sales service type operations). However, many of the Scottish HGFs we interviewed (including manufacturing firms) identified that they were ‘pulled’ into establishing a direct presence in the market they were serving, owing to their customers’ preference to have local contact with the firm. Often this was through supply chain relationships with MNEs, a legacy effect for peripheral regions with large stocks of FDI (Phelps, 2009) and a process particularly prevalent in the highly globalised oil and gas sector (Raines et al., 2002).

As a consequence of this, there appears to be evidence suggesting that as Scottish HGFs internationalise and ‘grow abroad’ they may undergo a process of dis-embedding within their home regional economy, whereby firms become less attached and connected to their local entrepreneurial and innovation ecosystems. At the same time as the internationalisation process deepens, many HGFs become more and more embedded in the global production networks and home markets of their key customers (Coe et al., 2008; Dicken, 2011; Ernst and Kim, 2002). The result of this process is that the full range of the HGFs’ domestic functions (and associated employment potential) may become somewhat truncated and limited to HQ-type activities. Thus, from a pure employment generation perspective, our findings suggest that the benefits of HGFs may have been somewhat exaggerated, given that these firms are more likely to be contributing to job creation in overseas economies where they have established a range of local subsidiaries and operations.

Given the potential for some HGFs to generate the majority of their positive spillovers abroad, rather than in their ‘home’ economy, perhaps policy makers should focus on a smaller number of HGFs, targeting only those who have – and will maintain – a significant home footprint. Our findings suggest that, going forward, public policy makers should therefore move away from the current rather crude ‘volume’ approach focused on creating more

HGFs in favour of a system whereby those with the largest home economy impacts receive a greater proportion of support and assistance. Such a change seems particularly important given the substantial costs and deadweight entailed with most assistance for start-ups and SMEs (Bennett, 2008; Nightingale and Coad, 2014). Therefore, given the proclivity for rapidly growing manufacturing firms to use exports as a market entry mode, there could be arguments for prioritising larger, export-oriented firms business within export promotion policies (Mole et al., 2008, 2011; Wright et al., 2007).

In terms of policy delivery, given the well-developed capabilities and strong cash flow within these rapidly growing firms, the ‘bundling’ of service provision with market suppliers (Bennett, 2012) and use of peer-based assistance also seems appropriate for the HGF cohort (Fischer and Reuber, 2003). While export promotion agencies seem to be an effective form of business support for SMEs as a whole (Gillespie and Riddle, 2004; Wilkinson and Brouthers, 2006), policy makers should take into account the diversity of the SME population and focus more on those who are capable of operating internationally (Wright et al., 2007). In other words, policy makers ‘must be more selective concerning which types of businesses they can help to grow’ (Brown and Mason, 2012: 42).

Conclusions

Unravelling the complexities of how HGFs expand internationally has proved to be a significant challenge and further work in this area is undoubtedly needed. We believe that the use of qualitative methods in addition to our aggregate analysis has enabled the research to productively explore and explain the intricacies surrounding the complex internationalisation processes in these firms. As a consequence, the study makes an important contribution to the literature on HGFs on a number of fronts.

Returning to our original research questions, we found that the HGF population in Scotland is highly internationalised. Significantly, our work shows that HGFs are more likely to have a physical presence internationally and to expand their workforce overseas during international expansion. The quantitative analysis undertaken revealed statistically significant differences between HGFs and non-HGFs in this respect. Regarding our second research question, the antecedents of internationalisation within the HGFs analysed were extremely complex, often unplanned and frequently unpredictable, endorsing other work on business internationalisation (Crick and Spence, 2005). The processes of internationalisation were often linked to firm specific growth ‘triggers’ (e.g. travelling with domestic clients into new markets) which have been identified as important for HGFs (Brown and Mawson, 2013). It was the HGFs with the strongest levels of dynamic capabilities – sophisticated business models and close end-user engagement – who capitalised most successfully on these international growth opportunities. This very much resonates with the increasing emphasis on firm-specific entrepreneurial factors as drivers of internationalisation (Teece, 2014).

Turning to the final research question, our findings clearly raise important questions about the distributional benefits of these firms. We found that owing to the growth processes outlined within the paper, the outcome of the internationalisation patterns resulted in spatially diffuse employment patterns within HGFs. Therefore, the regional development impacts of HGFs within small regional economies like Scotland are likely to be more limited than some may have initially envisaged. In the final analysis, the findings reported within this paper therefore question the blanket advice by some to prioritise HGFs above all other types of businesses within entrepreneurship policy (Shane, 2009). While HGFs are undoubtedly an important overall component of the business population in terms of their ability to create employment (Anyadike-Danes et al., 2013), they may not be the policy panacea or ‘vital’ source of jobs conveyed by some organisations and international bodies, especially for small peripheral economies such as Scotland.

Some of our findings contrast strongly with some of the previous research which has focused on the locally appropriated benefits of HGFs (Mason et al., 2009). Understanding and reconciling these divergent forces should become a key goal of future research, especially unpacking the spatial and employment dynamics underpinning the growth-internationalisation nexus within HGFs. Recent research has fruitfully started to adopt a more nuanced approach towards analysing the all-round impact of these firms in terms of their product strategies (Mason et al., 2012) and their impact on local labour markets (Coad et al., 2014b). Future research should continue in this vein to examine the nature, quality, durability and spatiality of the employment and spillovers created by these highly dynamic, entrepreneurial firms.

Acknowledgements. We also wish to record our thanks to the numerous companies who participated in this research exercise. They also wish to acknowledge the comments they received from Steve Young and Alistair Anderson on earlier versions of the paper. The authors particularly wish to thank Neil Lee for his very helpful comments and insights on a previous draft of this paper. The very helpful comments from two anonymous referees are also gratefully acknowledged. The usual disclaimer applies.

Declaration of conflicting interests. The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding. The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: The authors wish to thank Scottish Enterprise for funding the research reported in this paper.

References

- Acs Z, Morck R, Shaver J, Yeung B, 1997, "The internationalization of small and medium-sized enterprises: a policy perspective" *Small Business Economics* **9** 7–20
- Acs Z, Parsons W, Tracy S, 2008, *High-Impact Firms: Gazelles Revisited* (United States Small Business Administration, Washington), <http://archive.sba.gov/advo/research/rs328tot.pdf>
- Acs Z, Terjesen S, 2012, "Born Local: towards a theory of new venture's choice of internationalization" *Small Business Economics* **41** 521–535
- Action Canada, 2011, *Fuelling Canada's Economic Success: A National Strategy for High-Growth Entrepreneurship* (Action Canada, Vancouver), <http://www.actioncanada.ca/en/pdf/FuellingCanadaEconomicSuccess-ANationalStrategyForHigh-GrowthEntrepreneurship.pdf>
- Almus M, 2002, "What characterizes a fast-growing firm?" *Applied Economics* **34** 1497–1508
- Andersson S, Tell J, 2009, "The relationship between the manager and growth in small firms" *Journal of Small Business and Enterprise Development* **16** 586–598
- Anyadike-Danes M, Bonner K, Hart M, 2009, "Measuring business growth: high growth firms and their contribution to employment in the UK", Research Report MBG/35, NESTA, London
- Anyadike-Danes M, Bonner K, Hart M, 2013, "Exploring the incidence and spatial distribution of high growth firms in the UK and their contribution to job creation", NESTA Working Paper 13/05, NESTA, London, <http://www.nesta.org.uk/library/documents/exploringtheincidenceandspatialdistribution.pdf>
- Armington C, Odle M, 1982, "Small business: how many jobs?" *The Brookings Review* **1**(2) 14–17
- Barringer B, Greening D, 1998, "Small business growth through geographic expansion: a comparative case study" *Journal of Business Venturing* **13** 467–492
- Bell J, 1995, "The internationalization of small computer software firms – a further challenge to 'stage theories'" *European Journal of Marketing* **29** 60–75
- Bennett R J, 2008, "SME policy support since the 1990s: what have we learnt?" *Environment and Planning C: Government and Policy* **26** 375–397
- Bennett R J, 2012, "Government advice services for SMEs: some lessons from British experience", in *Government SMEs and Entrepreneurship Development: Policy, Practice and Challenges* Eds R Blackburn, M Schaper (Gower, Farnham) pp 185–198

-
- Bernard AB, Jensen JB, Redding SJ, Schott, PK, 2007, "Firms in international trade" *Journal of Economic Perspectives* **21**(3) 105–130
- BERR (Department for Business Enterprise and Regulatory Reform), 2008, "High growth firms in the UK: lessons from an analysis of comparative UK performance", BERR Economics Paper No. 3, Department for Business Enterprise & Regulatory Reform, London, <http://www.berr.gov.uk/files/file49042.pdf>
- Birch D, 1981, "Who creates jobs?" *Public Interest* **65** 3–14
- Birch D, 1987, *Job Creation in America* (Free Press, New York)
- BIS, 2010, "Internationalisation of innovative and high growth SMEs", Department for Business, Innovation and Skills (BIS), London, <http://www.bis.gov.uk/assets/biscore/economics-and-statistics/docs/10-804-bis-economics-paper-05>
- Brown R, Anyadike-Danes M, Hart M, Mason C, Richmond K, 2012, "The growth dynamics of technology-based firms in Scotland" *Fraser of Allander Economic Commentary* **36** 56–65
- Brown R, Mason C, Mawson S, 2014, "Increasing 'The Vital 6 Percent': designing effective public policy to support high growth firms", NESTA working paper 14/01, NESTA, London http://www.nesta.org.uk/sites/default/files/working_paper_increasing_the_vital_6_percent.pdf
- Brown R, Mason C, 2012, "Raising the batting average: Re-orienting regional industrial policy to generate more high growth firms" *Local Economy* **27** 33–49
- Brown R, Mawson S, 2013, "Trigger points and high growth firms: a conceptualisation and review of public policy implications" *Journal of Small Business and Enterprise Development* **20** 279–295
- Bruderl J, Preisendorfer P, 2000, "Fast-growing businesses: empirical evidence from a German study" *International Journal of Sociology* **30** 45–70
- Brush C G, Ceru D J, Blackburn R A, 2009, "Pathways to entrepreneurial growth: the influence of management, marketing, and money" *Business Horizons* **52** 481–491
- Burgel O, Fier A, Licht G, Murray G, 2003, "Internationalisation of high-tech start-ups and fast-growth: evidence for UK and Germany", ZEW Discussion Paper 00-35, Centre for European Economic Research (ZEW), Mannheim, Germany, <ftp://ftp.zew.de/pub/zew-docs/dp/dp0035.pdf>
- Churchill N C, Lewis, V L, 1983, "The five stages of small business growth" *Harvard Business Review* **61** 30–50
- Coad A, 2007, "A closer look at serial growth rate correlation" *Review of Industrial Organization* **31** 69–82
- Coad, A, 2009, *The Growth of Firms: A Survey of Theories and Empirical Evidence* (Edward Elgar, Cheltenham)
- Coad, A, 2014, "Death is not a success: reflections on business exit" *International Small Business Journal* **32** 721–732
- Coad A, Daunfeldt S-O, Hozl W, Johansson D, Nightingale P, 2014a, "High-growth firms: introduction to the special issue" *Industrial and Corporate Change* **23** 91–112
- Coad A, Daunfeldt S-O, Johansson D, Wenneberg K, 2014b, "Whom do high-growth firms hire?" *Industrial and Corporate Change* **23** 293–327
- Coe N, Dicken P, Hess M, 2008, "Global production networks: realizing the potential" *Journal of Economic Geography* **8** 271–295
- Crick D, Spence M, 2005, "The internationalization of 'high performing' UK high-tech SMEs: a study of planned and unplanned strategies" *International Business Review* **14** 167–185
- Delmar F, Davidsson P, Gartner W B, 2003, "Arriving at the high-growth firm" *Journal of Business Venturing* **18** 189–216
- Dicken, P, 2011, *Global Shift: Mapping the Changing Contours of the World Economy* 6th edition (Sage, London)
- Dobbs M, Hamilton R, 2007, "Small business growth: recent evidence and new directions" *International Journal of Entrepreneurial Behaviour and Research* **13** 296–322
- Du J, Gong Y, Temouri Y, 2013, "High growth firms and productivity – evidence from the United Kingdom", NESTA Working Paper 12/04, NESTA, London, <http://www.nesta.org.uk/library/documents/HighGrowthFirmsandProductivity.pdf>

-
- Easterby-Smith M, Thorpe R, Lowe A, 2006, *Management Research: An Introduction* (Sage, London)
- Eisenhardt K M, 1989, "Building theories from case study research" *Academy of Management Review* **14** 532–550
- Eisenhardt K M, Graebner M E, 2007, "Theory building from cases: opportunities and challenges" *Academy of Management Journal* **50** 25–32
- Ernst D, Kim L, 2002, "Global production networks, knowledge diffusion, and local capability formation" *Research Policy* **31** 1417–1429
- Fischer E, Reuber A R, 2003, "Support for rapid-growth firms: a comparison of the views of founders, government policymakers, and private sector resource providers" *Journal of Small Business Management* **41** 346–365
- Fletcher D, 2004, "International entrepreneurship and the small business" *Entrepreneurship and Regional Development* **16** 298–305
- Garnsey E, Heffernan P, 2005, "Growth setbacks in new firms" *Futures* **37** 675–697
- Garnsey E, Stam E, Heffernan P, 2006, "New firm growth: exploring processes and paths" *Industry and Innovation* **13** 1–20
- Gillespie K, Riddle L, 2004, "Export promotion organization emergence and development: a call to research" *International Marketing Review* **21** 462–473
- Goedhuys M, Sleuwaegen L, 2010, "High-growth entrepreneurial firms in Africa: a quantile regression approach" *Small Business Economics* **34** 31–51
- Graebner M, 2004, "Momentum and serendipity: how acquired leaders create value in the integration of technology firms" *Strategic Management Journal* **25** 751–777
- Graebner M, 2009, "Caveat venditor: trust asymmetries in acquisitions of entrepreneurial firms" *Academy of Management Journal* **52** 435–472
- Haltiwanger J, Krizan C, 1999, "Small business and job creation in the US: the role of new and young businesses", in *Are Small Firms Important? Their Role and Impact* Ed. Z Acs (Kluwer Academic, Boston) pp 79–97
- Hansen B, Hamilton R, 2011, "Factors distinguishing small firm growers from non-growers" *International Small Business Journal* **29** 278–294
- Harms D, Schiele H, 2012, "Antecedents and consequences of effectuation and causation in the international new venture creation process" *Journal of International Entrepreneurship* **10** 95–116
- Henrekson M, Johansson D, 2010, "Gazelles as job creators: a survey and interpretation of the evidence" *Small Business Economics* **35** 227–244
- Hinton M, Hamilton R T, 2013, "Characterising high-growth firms in New Zealand" *International Journal of Entrepreneurship and Innovation* **14**(1) 39–48
- Hussinger K, 2010, "On the importance of technological relatedness: SMEs versus large acquisition targets" *Technovation* **30** 57–64
- Hutton W, Lee N, 2012, "The city and the cities: ownership, finance and the geography of recovery" *Cambridge Journal of the Regions, Economy and Society* **5** 325–337
- Iacobucci D, Rosa P, 2005, "Growth, diversification, and business group formation in entrepreneurial firms" *Small Business Economics* **25**(1) 65–82
- Janssen F, 2009, "The conceptualisation of growth: are employment and turnover interchangeable criteria?" *Journal of Entrepreneurship* **18**(1) 21–45
- Johanson J, Vahlne J, 2003, "Business relationship learning and commitment in the internationalization process" *Journal of International Entrepreneurship* **1** 83–101
- Johanson J, Vahlne J-E, 1990, "The mechanism of internationalisation" *International Marketing Review* **7** 11–24
- Kelley D J, Nakosteen R A, 2005, "Technology resources, alliances, and sustained growth in new, technology-based firms" *IEEE Transactions on Engineering Management* **52** 292–300
- Kirchhoff B, Greene P, 1998, "Understanding the theoretical and empirical content of critiques of U.S. job creation research" *Small Business Economics* **10** 153–169
- Lee N, 2014, "What holds back high-growth firms? Evidence from UK SMEs" *Small Business Economics* **43** 183–195

-
- Lerner J, 2010, "The future of public efforts to boost entrepreneurship and venture capital" *Small Business Economics* **35** 255–264
- Littunen H, Tohmo T, 2003, "The high growth firm in new metal-based manufacturing and businesses services in Finland" *Small Business Economics* **21** 187–200
- McDougall P, Shane S, Oviatt B, 1994, "Explaining the formation of international new ventures: the limits of theories from international business research" *Journal of Business Venturing* **9** 469–487
- McKelvie A, Wiklund J, 2010, "Advancing firm growth research: a focus on the growth mode instead of growth rate" *Entrepreneurship Theory and Practice* **34** 261–288
- McKinsey and Co., 1993, *Emerging Exporters: Australia's High Value-Added Manufacturing Exporters* (Australian Manufacturing Council, Melbourne)
- Mason C, Brown R, 2010, *High Growth Firms in Scotland* (Scottish Enterprise, Glasgow), <http://www.scottish-enterprise.com/start-yourbusiness/~media/publications/About%20Us/economic%20research/HighGrowthFirmsReportNovember2010.ashx>
- Mason G, Bishop K, Robinson C, 2009, "Business growth and innovation: the wider impact of rapidly growing firms in UK city-regions", NESTA, London, http://www.niesr.ac.uk/pdf/190509_94959.pdf
- Mason G, Robinson C, Bondibene C, 2012, "Fast-growing Firms, product strategies and skills development", NESTA, London, <http://www.nesta.org.uk/library/documents/fastgrowingfirmssp.pdf>
- Melin L, 1992, "Internationalization as a strategy process" *Strategic Management Journal* **13** 99–118
- Miles N, Huberman A, 1994, *Qualitative Data Analysis: A Sourcebook of New Methods* 2nd edition (Sage, London)
- Mohr V, Garnsey E, 2011, "How do high-growth firms grow? Evidence from Cambridge, UK" *Economics, Management and Financial Markets* **4** 29–59
- Mohr V, Garnsey E, Theyel G, 2014, "The role of alliances in the early development of high-growth firms" *Industrial and Corporate Change* **23** 233–259
- Mole K, Hart M, Roper S, Saal D, 2008, "Differential gains from business link support and advice: a treatment effects approach" *Environment and Planning C: Government and Policy* **26** 315–334
- Mole K, Hart M, Roper S, Saal D, 2011, "Broader or deeper? Exploring the most effective intervention profile for public small business support" *Environment and Planning A* **43** 87–105
- Moretti E, 2010, "Local multipliers" *American Economic Review: Papers and Proceedings* **100** 373–377
- Morschett D, Scramm-Klein H, Swoboda B, 2010, "Decades of research on market entry modes: what do we really know about external antecedents of entry mode choice?" *Journal of International Management* **16** 60–77
- NESTA (National Endowment for Science Technology and Arts), 2011, "Vital growth: the importance of high-growth businesses to the recovery", NESTA, London, http://www.nesta.org.uk/home1/assets/features/vital_growth
- Nightingale P, Coad A, 2014, "Muppets and gazelles: political and methodological biases in entrepreneurship research" *Industrial and Corporate Change* **23** 113–143
- OECD, 2008, *Measuring Entrepreneurship: A Digest of Indicators* (OECD-Eurostat Entrepreneurship Indicators Program, Organisation for Economic Co-operation and Development (OECD), Paris)
- OECD, 2010, *High-Growth Enterprises: What Governments Can Do to Make a Difference* (OECD Studies on SMEs and Entrepreneurship, Organisation for Economic Co-operation and Development (OECD), Paris)
- OECD, 2013, *An International Benchmarking Analysis of Public Programmes for High Growth Firms* (Organisation for Economic Co-operation and Development (OECD), Paris)
- O’Gorman C, 2001, "The sustainability of growth in small and medium sized enterprises" *International Journal of Entrepreneurship Behaviour and Research* **7** 60–71
- O’Regan N, Ghobadian A, Gallar D, 2006, "In search of the drivers of high growth in manufacturing SMEs" *Technovation* **26** 30–41

-
- Osborne G, 2013, Speech by Chancellor of the Exchequer, RT Hon George Osborne MP: high-growth firms, <https://www.gov.uk/government/speeches/speech-by-chancellor-of-the-exchequer-rt-hon-george-osborne-mp-high-growth-firms>
- Oviatt B, McDougall P, 2005, "Defining international entrepreneurship and modelling the speed of internationalization" *Entrepreneurship Theory and Practice* **29** 537–554
- Parker S, Storey D J, van Witteloostuijn A, 2010, "What happens to gazelles? The importance of dynamic management strategy" *Small Business Economics* **35** 203–226
- Patton D, Marlow S, Ram M, Sanghera K, 2003, "Interpretive analysis as an evaluative tool: the case of Mustard.UK.Com, a high-growth small business programme" *Environment and Planning C: Government and Policy* **21** 813–824
- Patton M Q, 2002, *Qualitative Research and Evaluation Methods* 3rd edition (Sage, Thousand Oaks, CA)
- Penrose E, 1959, *The Theory of the Growth of the Firm* (Blackwell, Oxford)
- Phelps N, 2009, "From branch plant economies to knowledge economies: manufacturing industry, government policy, and economic development in Britain's older industrial regions" *Environment and Planning C: Government and Policy* **27** 574–592
- Raines P, Turok I, Brown R, 2002, "Growing global: foreign direct investment and the internationalisation of local suppliers in Scotland" *European Planning Studies* **9** 965–977
- Rialp A, Rialp J, Knight G, 2005, "The phenomenon of early internationalizing firms: what do we know after a decade (1993–2003) of scientific inquiry?" *International Business Review* **14** 147–166
- Robson P, Bennett R, 2000, "SME growth: the relationship with business advice and external collaboration" *Small Business Economics* **15** 193–208
- Ruzzier M, Hisrich R, Antoncic B, 2006, "SME internationalization research: past, present and future" *Journal of Small Business and Enterprise Development* **13** 476–497
- Schoenberger E, 1991, "The corporate interview as a research method in economic geography" *The Professional Geographer* **43** 180–189
- Schumpeter J A, 1987, *Capitalism, Socialism and Democracy* 6th edition (Unwin Hyman Ltd, London)
- Scottish Enterprise, 2011, "Scottish enterprise business plan 2011/14", Scottish Enterprise, Glasgow, <http://www.scottish-enterprise.com/News/2011/03/Business-Plan-launched.aspx>
- Scottish Government, 2011, "The government economic strategy" Scottish Government, Edinburgh, <http://www.scotland.gov.uk/Publications/2011/09/13091128/0>
- Shane S, 2009, "Why encouraging more people to become entrepreneurs is bad public policy" *Small Business Economics* **33** 141–149
- Smallbone D, Baldock R, Burgess S, 2002, "Targeted support for high-growth start-ups: some policy issues" *Environment and Planning C: Government and Policy* **20** 195–209
- Smallbone D, Leigh R, North D, 1995, "The characteristics and strategies of high-growth SMEs" *International Journal of Entrepreneurial Behaviour and Research* **1** 44–56
- Stam E, 2005, "The geography of gazelles in the Netherlands" *Tijdschrift voor Economische en Sociale Geografie* **96**(1) 121–127
- Stinchcombe A L, 1965, "Social structure and organizations", in *The Handbook of Organizations* Ed. J G March (Rand McNally & Co., Chicago) pp 142–193
- Storey D, 1994, *Understanding the Small Business Sector* (Routledge, London)
- Teece, D, 2014, "A dynamic capabilities-based entrepreneurial theory of the multinational enterprise" *Journal of International Business Studies* **45** 8–37
- UKTI (UK Trade and Investment), 2011, "Britain open for business: growth through international trade and investment", UK Trade and Investment (UKTI), London, <http://www.ukti.gov.uk/uktihome/aboutukti/aimsobjectives/corporatestrategy.html>
- Vohora A, Wright M, Lockett A, 2004, "Critical junctures in the development of university high-tech spin-out companies" *Research Policy* **33** 147–175
- Wilkinson T, Brouthers, L, 2006, "Trade promotion and SME export performance" *International Business Review* **15** 233–252

-
- Wright M, Westhead P, Ucbasaran D, 2007, "Internationalization of small and medium-sized enterprises (SMEs) and international entrepreneurship: a critique and policy implications" *Regional Studies* **41** 1013–1029
- Yin R K, 2003, *Case Study Research Design and Methods* 3rd edition (Sage Publications, Thousand Oaks, CA)
- Zaheer S, Mosakowski E, 1997, "The dynamics of the liability of foreignness: A global study of survival in financial services" *Strategic Management Journal* **18** 439–464
- Zahra S, Ireland R, Hitt M A, 2000, "International expansion by new venture firms: international diversity, mode of market entry, technological learning, and performance" *Academy of Management Journal* **43** 925–950
- Zhang Y, Yang X, Ma F, 2008, "A quantitative analysis of the characteristics of rapid-growth firms and their entrepreneurs in China" *Journal of Small Business and Enterprise Development* **15** 675–688
- Zhou L, Wu W, Luo X, 2007, "Internationalization and the performance of born-global SMEs: the mediating role of social networks" *Journal of International Business Studies* **38** 673–690