

# **The Economic Impact of High-Growth Start-ups: understanding the challenge for policy in the UK**

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## **High Growth Firms, Gazelles, Job Creation, United Kingdom, Business Support**

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### **Objectives**

The creation of more high-growth firms continues to be a key component of enterprise policy throughout the countries of the OECD. In the UK the developing enterprise policy framework highlights the importance of supporting businesses with growth potential. The difficulty, of course, is the ability of those delivering business support policies to accurately identify those businesses, especially at start-up, which will benefit from interventions and experiences an enhanced growth performance. This paper has a core objective of presenting new data on the number of high growth firms in the UK and providing an assessment of their economic significance.

### **Approach**

This paper uses a specially created longitudinal firm-level database based on the Inter-Departmental Business Register (IDBR) held by the Office of National Statistics (ONS) for all private sector businesses in the UK for the period 1997-2008 to investigate the share of high-growth firms (including a sub-set of start-up more commonly referred to as gazelles) in successive cohorts of start-ups. We apply OECD definitions of high growth and gazelles to this database and are able to quantify for the first time their number (disaggregated by sector, region, size) and importance (employment and sales).

### **Prior Work**

However, what is lacking at the core of this policy focus is any comprehensive statistical analysis of the scale and nature of high-growth firms in cohorts of new and established businesses. The evidence base in response to the question "Why do high-growth firms matter?" is surprisingly weak. Important work in this area has been initiated by Bartelsman *et al.*, (2003), Hoffman and Jünge (2006) and Henreksen and Johansson (2009) but to date work in the UK has been limited (BERR, 2008b).

### **Results**

We report that there are ~11,500 high growth firms in the UK in both 2005 and 2008. The share of high growth start-ups in the UK in 2005 (6.3%) was, contrary to the widely held perception in policy circles, higher than in the United States (5.2%). Of particular interest in the analysis are the growth trajectories (pattern of growth) of these firms as well as the extent to which they are restricted to technology-based or knowledge-based sectors.

### **Implications and Value**

Using hitherto unused population data for the first time we have answered a fundamental research and policy question on the number and scale of high growth firms in the UK. We draw the conclusion that this 'rare' event does not readily lend itself to policy intervention on the grounds that the significant effort needed to identify such businesses *ex ante* would appear unjustified even if it was possible.

# The Economic Impact of High-Growth Start-ups: understanding the challenge for policy in the UK

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## Introduction

High Growth Firms continue to attract considerable attention from the academic and policy community. The recent BERR report summarised the available quantitative and qualitative evidence for the UK (BERR, 2008). Underlying this discussion is some sort of notion of the 'exceptional firm' which is responsible for driving economic growth through extreme rates of growth (employment, sales, profits) and engagement in innovative behaviour. It is also clear that there is still no consensus about how these firms can be defined and labelled. We talk, sometimes interchangeably, about 'High Growth Firms', 'High Impact Firms' or 'Gazelles' and 'Super-Gazelles' before discussing the relative merits of 'High Tech Start-ups' and 'Global Start-ups'. The fact that many of their characteristics overlap adds to a general lack of clarity about policy options.

The overall aim of the paper is simple in design and execution – to quantify the number of High Growth Firms in the UK, present their characteristics and arrive at some assessment of their contribution to the UK economy through an analysis of job creation. We adopt the OECD definition of High Growth Firms, namely a firm with an average employment growth rate exceeding 20 per cent per annum over a three-year period and with 10 or more employees at the start of the period. This will usefully complement the range of analyses presented in the recent BERR report by using firm-level data on the UK *population* of businesses. This report provides an initial examination of that data by analysing the new ONS business demography database for the period 1997 to 2008 (called the Business Structures Database – BSD).

The core research questions driving our analysis can be summarised as follows:

1. What does the distribution of firm growth rates look like for the population of businesses in the UK disaggregated by size, age, sector and region?
2. How many High Growth Firms are there in the UK economy?
3. What are the characteristics of High Growth Firms? What is their initial size, in what sectors are they to be found, are they young or longer established firms - and how many jobs do they create compared to other groups of firms growing more slowly?
4. What does the growth pattern of a cohort of business start-ups look like over time? Do faster growing firms display continuous year on year growth or do we observe single episodes of high growth?
5. What is the relationship between high growth and business survival? Do businesses with single or consecutive periods of high growth survive better than businesses which grow more slowly or do not grow at all?

## Background: What we know about High Growth Firms

Over twenty years ago, research noted that a small number of fast-growing firms created most new jobs. For example, in the United States in the period 1981-85 just 18 per cent of firms were responsible for 86 per cent of the new jobs (Birch, 1987). These firms were termed *gazelles*. Looking in more detail at these companies they were found to be volatile: "dynamic firms pulsate sharply as they grow" (p.51), growing sharply in one period, falling back in another period, then growing again. This is an important observation which we return to when we examine in some detail the growth trajectory of a cohort of start-ups in the UK. Later the OECD suggested that these *gazelles* include both large and small firms and young and old firms – a distinction that allows more precision when discussing their contribution to economic growth (OECD, 1998).

The literature on High Growth Firms and *Gazelles* has been recently reviewed (Henrekson and Johansson (2008; 2009). A synthesis of 19 studies noted that there is no general agreement on the definition of *gazelles*. Definitions vary in terms of the following: choice of growth indicator (e.g., employment, sales or profits); measurement of growth; length of time-period over which growth is measured; and whether growth through acquisition is included or just organic growth (see Delmar et al., (2003) for a useful review.) However, the consensus of opinion, which has been adopted by the OECD, favours a definition of high growth enterprises as those with an average employment growth rate

exceeding 20 per cent per annum over a three-year period and with 10 or more employees at the start of the period.<sup>1</sup>

A number of key findings about these 'exceptional firms' emerge from the literature:

1. A few rapidly growing firms generate a large share of all net new jobs, irrespective of the population studied. This is particularly marked in recessionary periods when these firms continue to grow.
2. High Growth Firms or Gazelles can be of all sizes. Whereas small firms are over-represented in the population of gazelles, large firms can also be important creators of jobs, particularly a sub-group of 'super-gazelles' which in some other studies have been called 'gorillas'.
3. Newness is a more important factor than small size in terms of rapid growth.
4. High Growth Firms or Gazelles are found in all industries. They are not over-represented in high technology industries. If anything, they are over-represented in services.

These findings, in turn, have provoked a still unresolved debate that is pertinent to policy, concerning the relative importance of focusing on new firms with growth potential as opposed to an approach which simply encourages more start-ups – this has become known as the 'mice' versus 'gazelles' debate (Davidsson and Delmar (2006). Policymakers may not have to choose, however, as employment in new firms is just as crucial for total employment growth as the growth of gazelles (Henrekson and Johansson (2008). Many of the 'facts' to have emerged from previous research will be examined in this paper as we seek to construct the first comprehensive study on High Growth Firms in the UK using population data brought together into the new business demography database.

The literature on gazelles that has appeared in the wake of the Birch and the US SBA studies has been usefully reviewed by Henrekson and Johansson (2008). Based on a synthesis of 19 studies they note that there is no general agreement on the definition of gazelles. Definitions vary in terms of the following: choice of growth indicator (e.g. employment, sales, profits); measurement of growth; length of time-period over which growth is measured; and whether growth through acquisition is included or just organic growth (Davidsson and Delmar, 2003). Birch (1987) defined them as establishments which have achieved a minimum of 20% sales growth each year over the interval, starting from a base-year revenue of at least \$100,000. This definition, therefore, includes three criteria: (i) growth rate, (ii) sales as the measure of growth; and (iii) minimum start-size (to avoid the arithmetic problems associated with growth from a very small base).

The structure of the paper is as follows. We present the analysis of growth rates across the population of UK businesses for the two three year periods 2002-05 and 2005-08. From this analysis we quantify the number of High Growth Firms in the UK. We present information on their initial size, age and sector and regional distribution. We look at their contribution to job creation and examine the available international comparative evidence. We then examine the 1998 cohort and analyse the pattern of employment growth over the ten years to 2008. As well as identifying the pattern of growth for all firms, we seek to categorise for High Growth Firms whether their growth is episodic or continuous. Allied to this we present a detailed transition matrix which shows the employment growth of different size start-ups in the 1998 cohort. We also compare the survival rates for High Growth Firms with those for slower growth firms. The paper concludes with some key policy implications and suggestions for future research.

## The 'New' UK Business Demography Database

What is conspicuous in both the job creation and *gazelles* literature is the very limited contribution of UK studies. Data availability and quality have been the main obstacle to comprehensive research in this area. However, with the construction of the new Inter Departmental Business Register (IDBR)-based Business

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<sup>1</sup> EUROSTAT-OECD (2007). Importantly, this definition does not distinguish between the employment created through the internal 'organic' growth of a firm and as a result of an acquisition of another firm. This is a methodological problem that has confronted almost all research on High Growth Firms and this study is no exception. For example, the BSD data do not reliably permit a distinction between organic growth and the growth of a business through acquisition. This is important and requires further work by the ONS IDBR team before the current marker for mergers and acquisitions on the BSD can be used with confidence. Indeed, only 3 of the 19 studies referred to above were able to make this distinction in their research. On this last point Deschryvere (2008) has made a valuable contribution with a study of High Growth Firms in Finland which distinguishes between organic growth and growth through acquisition. He notes the following: 65 per cent of the jobs created by High Growth Firms were through organic growth; Bigger firms have a smaller share of organic growth than smaller firms, which when combined with Swedish evidence, suggests that there is a strong empirical relationship between size of growing firm and the proportion of growth than is achieved through acquisition.

Demography dataset (i.e., the Business Structures Database - BSD) for the 1997-2008 period it is finally possible to examine firm growth in the UK with the degree of rigour that has been present in other international studies.

The analysis of firm-level growth rates and high growth over time presented in this paper is based solely on the BSD which has been accessed through the UK ONS Virtual Micro-Data Lab (VML). The detailed discussion of the nature and scope of the BSD can be obtained from the ONS and it is not the intention to go into the detailed method of its construction.<sup>2</sup> In order to utilise the OECD definition of High Growth Firms the focus is on the three year periods 2002-2005 and 2005-08 for the distribution of growth rates and the characteristics of High Growth Firms. This is crucial for international comparisons. In addition, we use the 1998 cohort of start-ups for the analysis of growth trajectories, survival and a close look at job growth across the size bands for survivors.

Throughout the paper we use the term 'employer enterprise'<sup>3</sup> both to define of a start-up for the cohort analysis and for the analysis of growth rates for the population of businesses in the 2002-05 and 2005-08 periods<sup>4</sup>. Our key variables are: number of employees, turnover, business age, sector and region. Overall, the merged BSD dataset for the years 1997-2008 contains approximately 4.5 millions records. Within this there is a subset of 1.08 million businesses which we use to undertake the growth rate analysis for 2002-05 and 1.7 million businesses in the analysis for 2005-08. The number of businesses included in the analysis of the 1998 cohort is 221,731.

## Firm Growth Rates in the UK

The task here is relatively straightforward - to establish how many High Growth Firms there are in the UK economy. However, as a first step we want to put this question in context – that is, within an analysis of the distribution of growth rates in the population of businesses over specific time periods. In other words we take the definition of a high growth firm (i.e., at least 20% average annual growth in employment or turnover over three years) and present it as one of a number of growth intervals across the population of businesses in the UK. We focus on two three-year periods: 2002-05 and 2005-08. While the UK business demography dataset can be used for any time period between 1997 and 2008 we chose these periods for two main reasons. First, to be consistent with the OECD definition of High Growth Firms we use growth rates over three years. Second, to aid international comparisons, we derive a UK figure for the proportion of High Growth Firms for 2005 which is the latest year that data is published on selected OECD countries. Of course, we also present data on the 2005-08 period to ensure we have the most up to-date information for the UK.

The performance of UK firms can be analysed simply by examining their growth rates over time. We examine two three year periods 2002-05 and 2005-08 and allocate firms into one of 11 growth intervals.<sup>5</sup> Figure 1 presents the distribution of the three year firm growth rates in terms of employees and turnover for both sub-periods.<sup>6</sup>

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<sup>2</sup> See Davies, R (2006). We accessed the annual firm-level datasets from 1997 to 2008 and created a merged longitudinal dataset specifically for this project.

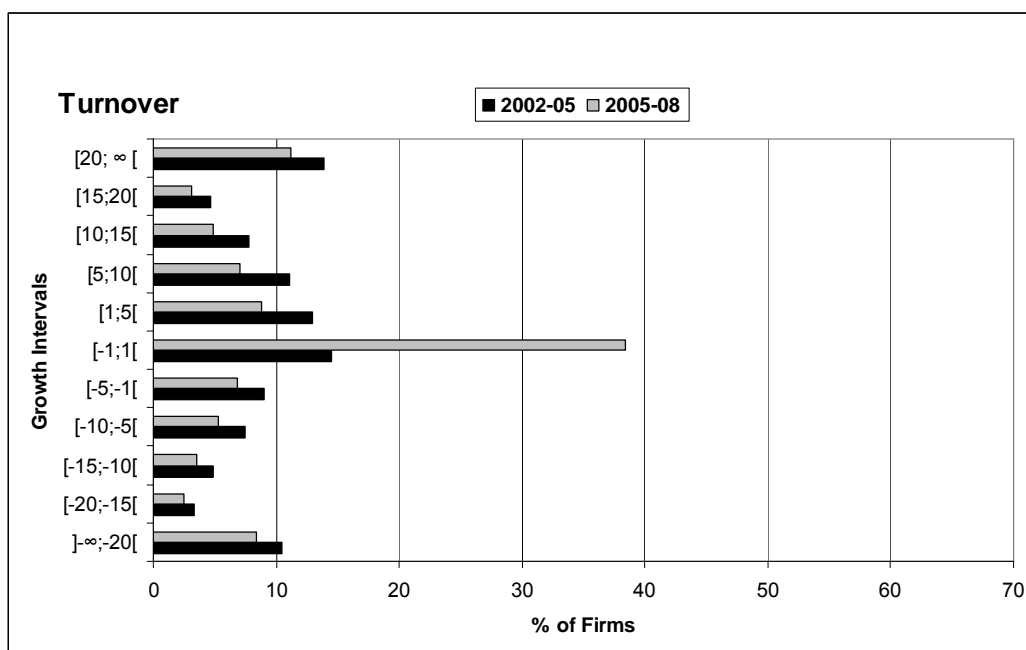
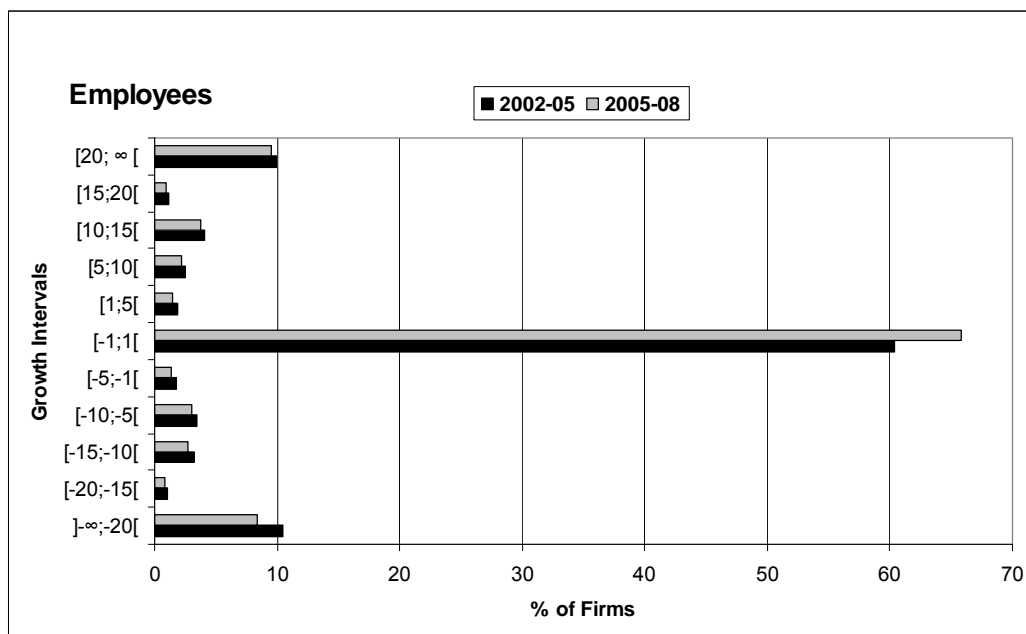
<sup>3</sup> Adopting the one-employee employer enterprise as set out in the EUROSTAT-OECD Business Demography manual (2007).

<sup>4</sup> We present data on these two time periods for two reasons. First, the 2002-05 period is crucial to enable international comparisons as this is the period for which business demography data is most commonly available from the OECD. Second, we use the 2005-08 period to set out the most recent data for the UK.

<sup>5</sup> This data follows the manual developed by FORA and NESTA for a wider international study on firm growth distributions across several countries.

<sup>6</sup> There is an ongoing debate on the preference for employment and not turnover- based growth measures (due to turnover's susceptibility to industry differences and price levels), so we present the figures for both turnover and employment.

**Figure 1: Distribution of Firm Growth Rates: Employees and Turnover**



**Source: ONS Business Structures Database**

We can see that employment did not increase in the vast majority of businesses in the UK in either sub-period. The bulk of the distribution – 60-65 per cent – is concentrated in the middle ‘no growth’ category (i.e., growth between -1 and +1). Outside this middle category the distribution is almost evenly balanced: 21 per cent below and 17 per cent above. It is also relatively symmetric. Finally, half the ‘non-middle’ weight is shared by the extremes in the distribution: minimum ( $\geq -20\%$ ) around 10 per cent; maximum ( $\geq +20\%$ ) – again around 10 per cent. Figure 1 also presents the distribution of growth rates across the 11 growth intervals in terms of turnover for the two sub-periods. The contrast with the employee based

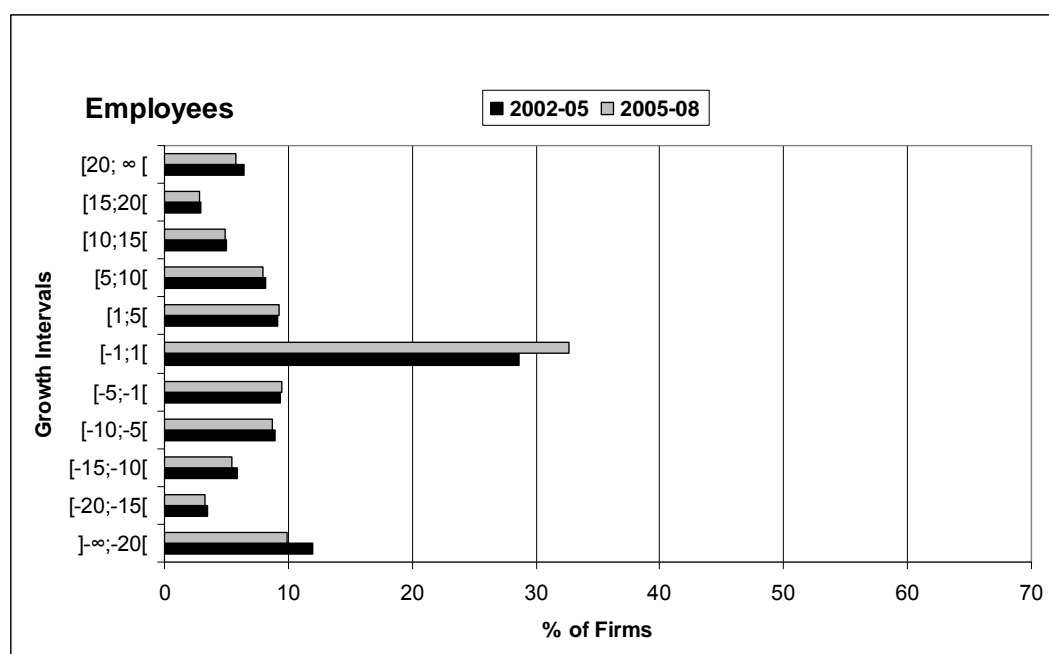
distribution is stark.<sup>7</sup> The shape of the distribution appears more normal – apart from the two extremes. Yet, as with employees, the extremes of the distribution contain significant numbers of firms (~250,000 in 2002-05 and ~330,000 in 2005-08).<sup>8</sup>

Furthermore, the distribution is different between the two time-periods. In the earlier 2002-05 period just over 14 per cent of firms exhibited ‘no growth’ in turnover whereas almost two-thirds added no employees. However, in the more recent 2005-08 period the proportion of firms registering ‘no growth’ in turnover rises to almost two-fifths (38.4%). In the 2002-05 period a broadly similar proportion of firms (14%) are in the extreme fast growth category in terms of turnover as we observed with employees (10%). However, in the later period this has fallen to 11 per cent (9.5% for employees). Overall, therefore, we observe a significant rise in the number of firms experiencing ‘no growth’ in either employees or turnover as well as a fall in the number of firms experiencing growth on both measures – this is particularly noticeable for turnover.

The interpretation of growth rates for very small firms needs to be done carefully, since it can be misleading. In short, if a firm with a single employee hires an additional employee, it is doubling its size, resulting in a 100% growth rate. Moreover, given that micro firms (1-9 employees) constitute the majority of firms in the UK their influence in overall firm growth distribution may be overstated. Because of this, we also examine the firm growth distribution with firms with more than 10 employees, as seen in Figure 2.

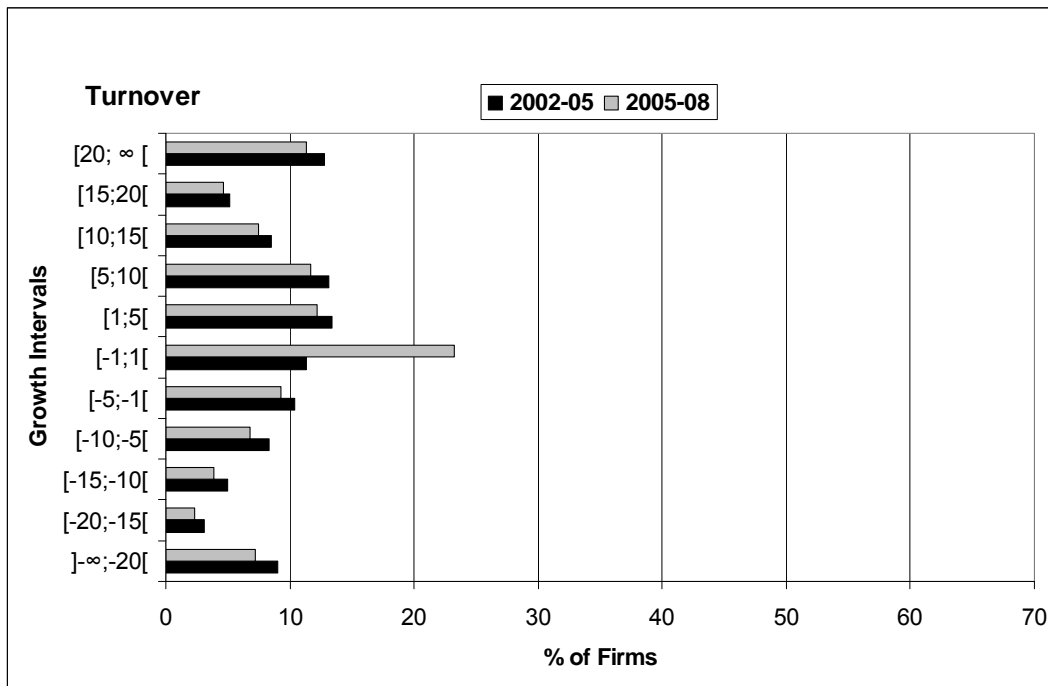
The distribution of growth rates for firms with 10 employees or more differ from that of all firms in the following ways (see Figures 1 and 2). First, with respect to employment growth, there are fewer firms with 10 employees or more which are in the high growth category and also significantly fewer in the ‘no growth’ category. This confirms the notion that the majority of micro-enterprises (1-9 employees) do not grow and the minority that do experience high rates of increase upon a small base. Second, when we compare the distribution of growth rates in terms of turnover between all firms and those with 10 or more employees the profile is almost the same. The only real difference is that there are significantly more micro-enterprises recording ‘no growth’ in the 2005-08 period than larger firms. We also note that the number of firms employing 10 or more people that registered ‘no growth’ on the turnover measure increased dramatically in the 2005-08 period – in line with that observed for all firms (see Figure 1).

**Figure 2: Distribution of Firm Growth Rates: Employees and Turnover (10 or more employees in the base year)**



<sup>7</sup> The firms included in this analysis of turnover growth rates are a subset of those included in the growth rate employee analysis and for which turnover data was available.

<sup>8</sup> See Appendix 1 for the data tables that underlie these charts.



Source: ONS Business Structures Database

### High Growth Firms

Table 1 presents the headline statistics for the number of High Growth Firms in the UK. Overall, we can report that, using the employee definition, there were 11,369 High Growth Firms in the 2002-05 period and 11,530 in the 2005-08 period. This represents a very small proportion of all firms (0.94 and 0.61 per cent respectively) but a larger proportion - 6.4 and 5.8 per cent respectively - of firms employing ten or more employees in the base year. Using the turnover definition doubles the number of High Growth Firms in the UK: 22,439 and 22,381 respectively in the two three year sub-periods. This represents 13 and 11 per cent respectively of the population of all firms with 10 or more employees at the start of the period.

Table 1: Fast Growth and High Growth Firms: Definitions by Employment and Turnover

	UK		UK	
	Employment		Turnover	
	2002-05	2005-08	2002-05	2005-08
% Fast Growth <sup>1</sup>	10.0	9.5	13.9	11.2
	n=107,465	n=162,332	n=145,431	n=188,810
% High Growth <sup>2</sup>	6.4	5.8	12.8	11.3
	n=11,369	n=11,530	n=22,439	n=22,381
Total No. of Businesses <sup>3</sup>	1,078,382	1,702,784	1,045,497	1,681,810

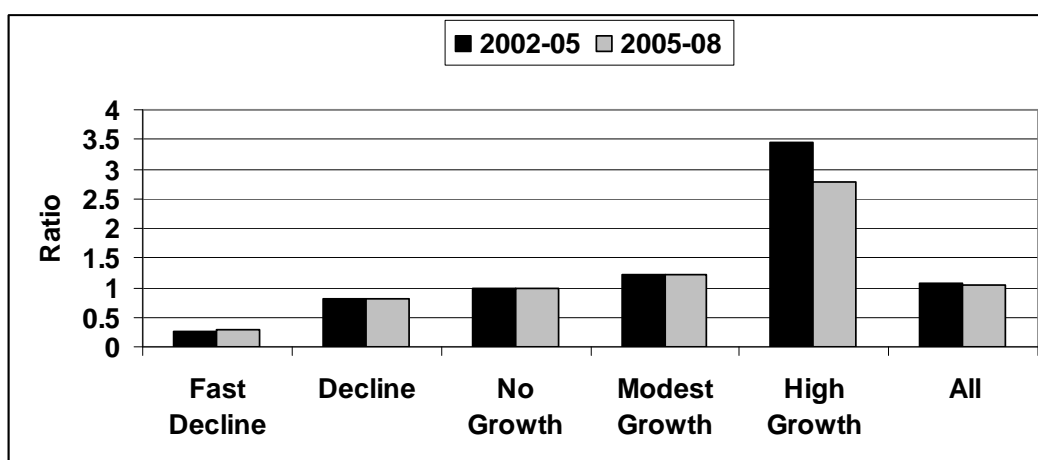
Source: ONS Business Structures Database

Notes: <sup>1</sup> Fast growth is defined as having at least 20 per cent annual average growth in employment/turnover over three years, regardless of the initial size of the firm; <sup>2</sup> High growth is defined as for Fast Growth but with at least 10 employees in the initial year; <sup>3</sup> Defined as employer enterprise with non-zero employment in each year.

We can see that by defining growth in terms of turnover the proportion of fast growth firms increased slightly but the number of High Growth Firms doubles in both periods to 22,000- representing between 11 and 13 per cent of the total number of businesses with 10 or more employees.

How important are High Growth firms to the national economy? We compare their job creation record with other firms with more modest growth (i.e., less than 20% annual average growth in employment). We focus on the number of High Growth Firms derived from the employment based measure. The 11,369 High Growth Firms identified in the 2002-05 period employed 2.67 million people in 2005 – an increase of 1.9 million jobs on their total employment in 2002 of 773,551 employees. Overall, therefore, their share of employment almost quadrupled from 3.5 per cent of total private sector employment in 2002 to 11.6 per cent in 2005, just three years later.<sup>9</sup> How does this compare with the number of jobs created by firms experiencing more modest growth in the period? These 45,204 ‘average’ firms (also employing 10 or more employees in the base year)<sup>10</sup> increased their employment from 4.7 million in 2002 to 5.8 million in 2005 - an increase of 1.1 million jobs. Therefore, the 11,369 High Growth Firms had created almost three and half times more jobs by 2005 than slower growth firms (Figure 3).

**Figure 3: Rate of Jobs Created/Destroyed by Growth Category (n=11,369 and 11,530)**



**Source: ONS Business Structures Database**

By contrast, the 11,530 High Growth Firms in 2005-08 employed significantly fewer people: they went from 714,731 employees in 2005 to 1.98 million in 2008, which was still an increase of 1.3 million jobs in a three year period. The share of total private sector employment had fallen to 8.4 per cent in 2008 as the number of jobs created in High Growth Firms had declined by about 600,000 in comparison to the 2002-05 period. The job creation comparison between the 11,530 High Growth Firms and the 49,505 ‘average’ growth firms in 2005-08 is therefore less marked in absolute terms – 1.3 compared to 1.1 million jobs respectively. However, in relative terms Figure 2.9 clearly shows that High Growth Firms in this period had still managed to create around three times as many jobs as they employed in 2005.

Put another way, we know that between 2002 and 2005 UK businesses who recorded growth created 2.98 million net jobs. Of these, High Growth Firms created 1.9 million jobs or almost two thirds of the total. This share fell to just over half of net job creations in the 2005-08 period: that is, 1.3 million jobs out of a total of 2.4 million net job creations.

The vast majority (70%) of High Growth Firms were at least five years old in both sub-periods (Figure 4), which is consistent with the fact that most firms are of that age. There were only 3,446 gazelles in the UK in the 2002-05 period and marginally fewer in 2005-08 (3,230 firms) – around a third of all High Growth Firms. However, the share of High Growth Firms among young firms (less than 5 years) is significantly higher than for older firms: 11.2 compared to 5.4 per cent in 2002-05 and 8.5 compared to 5.1 per cent in 2005-08..

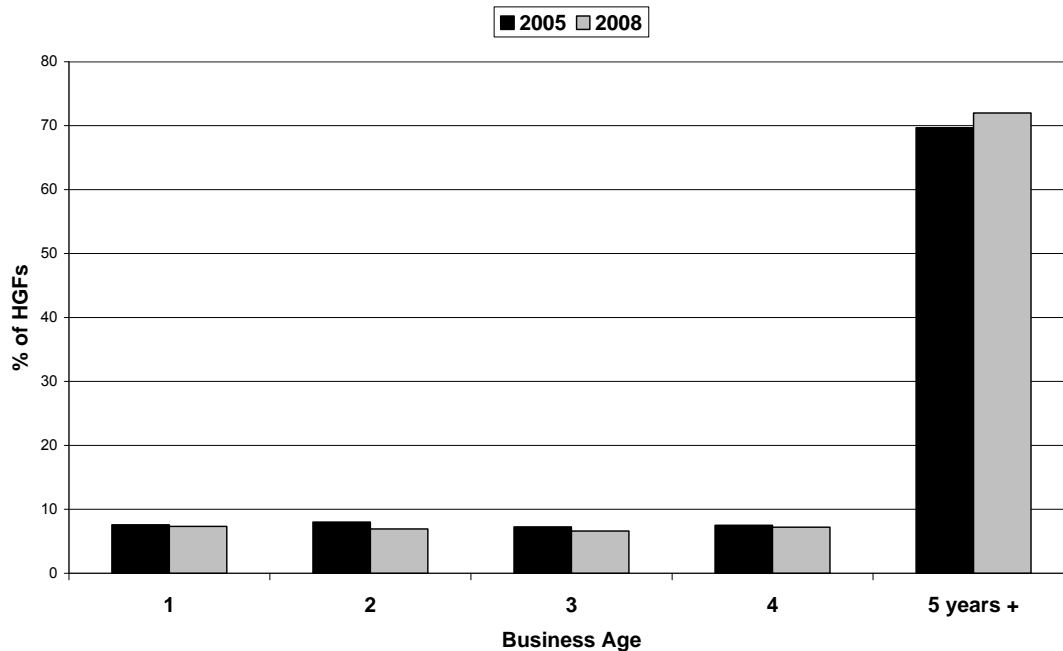
<sup>9</sup> We use a March 2002 figure of 22,402,000 employees in the private sector and 22,871,000 employees for March 2005 and 23,771,000 for March 2008 from the ONS. March data is used as that was when the annual snapshots from the IDBR were extracted by the ONS to create the Business Structures Database.

(Source: [http://www.statistics.gov.uk/elmr/07\\_09/downloads/Table2\\_04.xls](http://www.statistics.gov.uk/elmr/07_09/downloads/Table2_04.xls))

<sup>10</sup> Within the four growth intervals 7-10 (range =1-19%) in Figure 2.

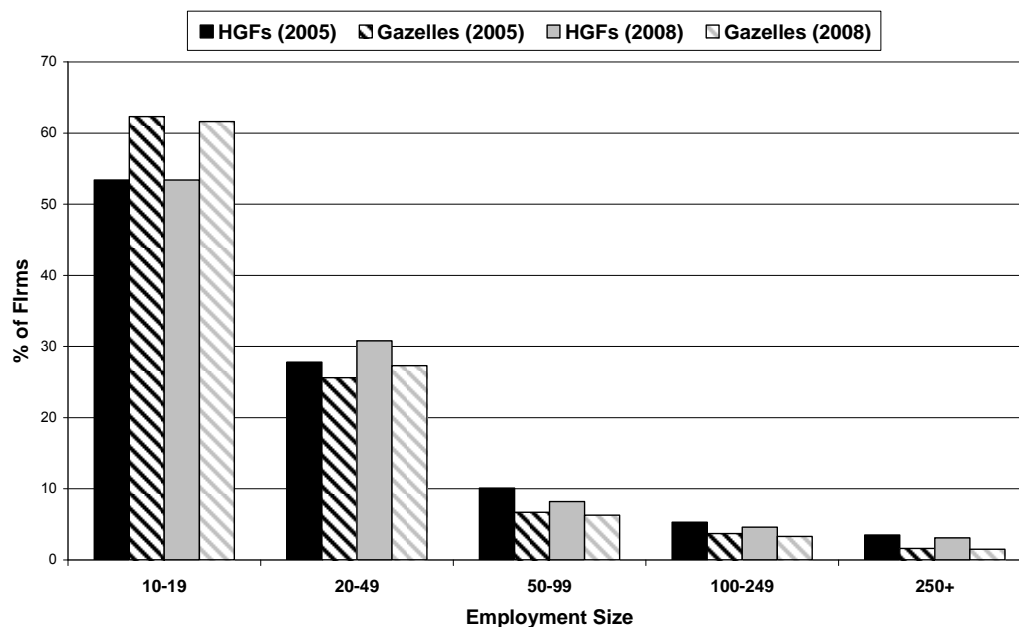
Gazelles are, on average, smaller in size - with over three-fifths employing fewer than 20 employees in the base year compared with over half of High Growth Firms (Figure 5). This translates into an average of 42 and 34 jobs in Gazelles in 2002 and 2005 respectively compared with 68 and 62 jobs in all High Growth Firms. In 2005 and 2008 the average size of Gazelles was 139 and 109 jobs respectively and the comparable figures for High Growth Firms were 235 and 171.

**Figure 4: High Growth Firms in the UK by Business Age**



*Source: ONS Business Structures Database; Note: 2002-05 (n=11,369); 2005-08 (n=11,530)*

**Figure 5: Size Distribution of High Growth Firms and Gazelles in the UK**

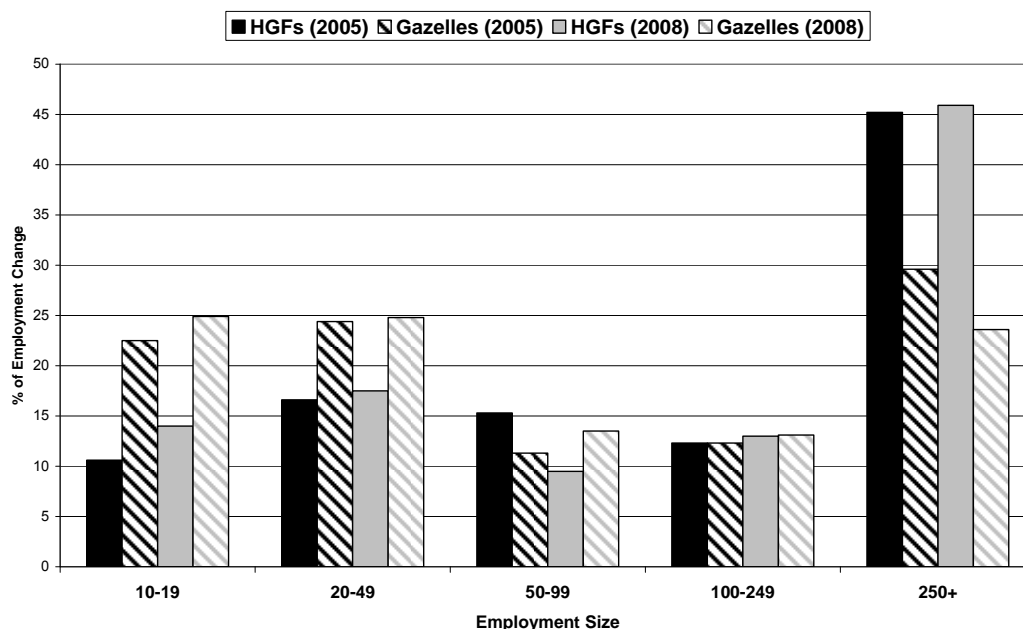


*Source: ONS Business Structures Database*

How important were these Gazelles in the overall scale of job creation? We have already established that High Growth Firms created 1.9 million jobs in the three years 2002-05 and we can observe that Gazelles created only a fifth of those jobs in both periods. Therefore, Gazelles were responsible for a very small proportion of net job creation in the UK economy in the period under review: only 9 per cent of jobs in the

2002-05 period and 15.7 per cent in the 2005-08 period. Figure 6 compares the scale of job creation between Gazelles and all High Growth Firms across their initial employment size bands. We can see that the main differences are that the majority of the job creation in the Gazelles groups is in firms employing fewer than 50 people, whereas for High Growth Firms 45 per cent of the job creation is undertaken by firms employing more than 250 people.

**Figure 6: Share of Employment Creation by Size Band: High Growth Firms and Gazelles in the UK**



So, while we observe a group of firms that may be termed ‘super-gazelles’ or ‘gorillas’ in the UK – defined as employing more than 250 employees, they are very few in number (~50 firms) and they were responsible for only 24-30 per cent of all jobs created in Gazelles in 2005 and 2008 respectively. Longer established larger High Growth Firms are, therefore, more important in terms of job creation than these super-Gazelles.

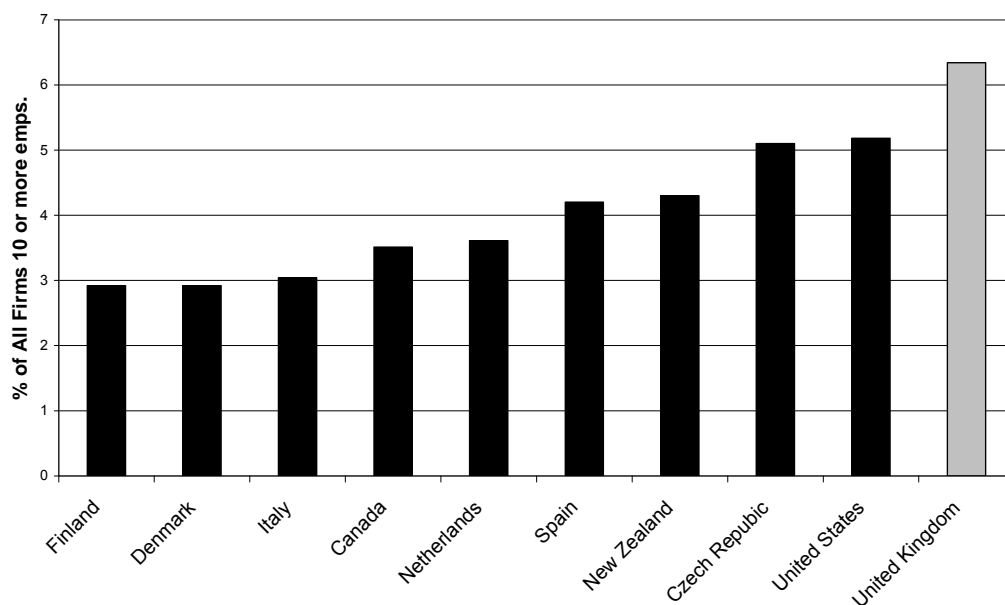
### UK in Context - International Comparisons

This is the first study to provide accurate measures for the number of High Growth Firms in the UK which can be compared with other countries. To date, data weaknesses have made international comparisons problematic but the ongoing work within the OECD in collaboration with national statistics offices/bureaus has made important progress. As a result of the availability of the new UK business demography database we can now make some comparisons with OECD business demography statistics for 2005.<sup>11</sup>

What we can see immediately from Figure 7 is that the UK had the largest proportion of High Growth Firms than any other developed economy for which data was available – 6.34 per cent compared to 5.2 per cent in the USA. These figures equate to 10,417 High Growth Firms in the UK compared to 48,550 in the USA. In the USA the proportion of High Growth Firms that can be categorized as Gazelles was 9.2 per cent (i.e., 4,457 firms) which compares to almost a third in the UK (i.e., 3,127 firms). In other words, therefore, High Growth Firms in the USA are more likely to be older (5+ years) than those in the UK. This is a significant difference and becomes important in light of the lower contribution by Gazelles to job creation in the UK. This would seem to point towards a smaller overall impact of High Growth Firms in the UK compared to the USA. This is clearly an important line of enquiry for future research.

<sup>11</sup> This is the latest year for which international comparative data is available. The analysis is restricted to SIC codes 10-74 and for that reason the number of High Growth Firms in the UK is 10,417.

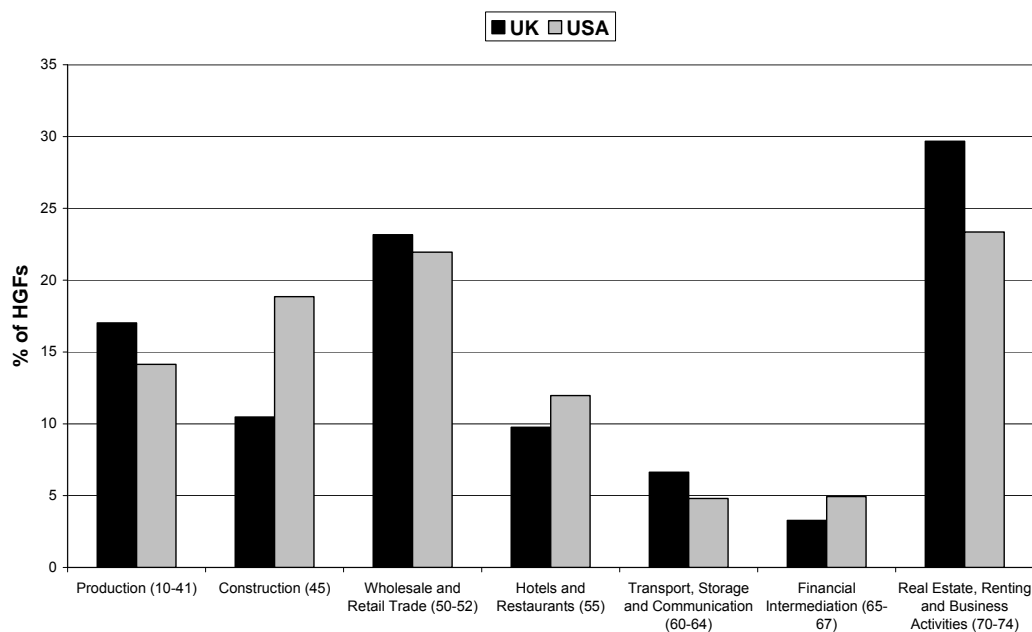
**Figure 7: Share of High Growth Firms in Selected OECD Countries (2005) – Employee Based Measure**



**Source: ONS Business Structures Database; OECD**

A comparison of the sectoral distribution of High Growth Firms in the UK and the USA reveals some differences (Figure 8). First, there are more construction High Growth Firms in the USA than in the UK. Second, there are more Business Service High Growth Firms in the UK than in the USA. Finally, there are marginally more manufacturing firms among the stock of High Growth Firms in the UK than in the USA (17% compared to 13%).

**Figure 8: High Growth Firms in the UK and USA: Sectoral Distribution, 2005**

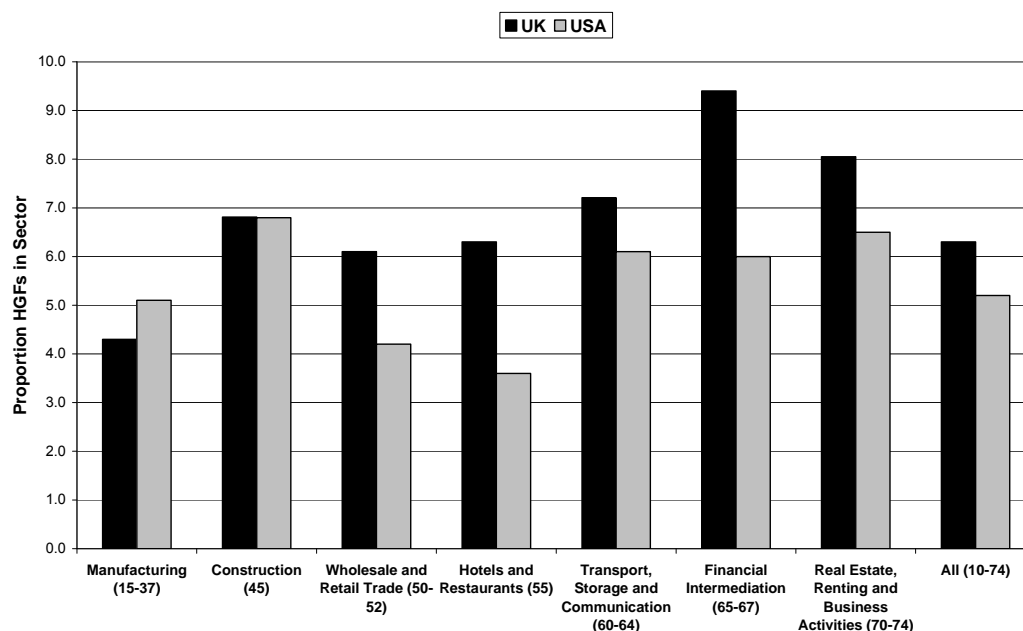


**Source: ONS Business Structures Database; OECD**

What is more important in this comparison, however, is the extent to which the shares of High Growth Firms differ within the same sector between the UK and the USA. Figure 9 reveals that the higher overall proportion of High Growth Firms in the UK is in evidence in all sectors except Manufacturing and

Construction. Of note, is that there are clearly more High Growth Firms in Financial and Business Services in the UK compared to the USA

**Figure 9: High Growth Firms in the UK by Sector**



**Source: ONS Business Structures Database; OECD**

It is not possible accurately to benchmark the other findings from our analysis in the UK with equivalent data for the US. However, a recent study of 'high-impact firms' in the USA shows some findings consistent with our own.<sup>12</sup> For example, the average age of a US high impact firm is 25 with very few start-ups. Similarly, high impact firms exist in all industries and are by no means confined to high technology industries. There is, therefore, some consistency between these US and our own analysis for the UK despite the differing time-periods and definitions.

### **Growth and Survival: a 10 Year Cohort Perspective**

An analysis of growth over three year periods allows international growth comparisons and is more timely, but it does not provide a full picture of a firm's long-term development. Therefore, we present a detailed examination of the 1998 cohort of new entrants ('births') in the UK. We are interested in how these firms grew year after year from birth inception - with 10 years of data from the UK business demography dataset we can undertake this analysis. We will explore a number of related questions. First, we are interested in the timing of the 'high growth events'<sup>13</sup> in a 10 year period. For example, does high growth occur immediately after start-up or some years later when firms are more established in the market? Second, we investigate the extent to which survival rates for firms recording a 'high growth' event are higher than those businesses that have not. Third, we present a detailed analysis of job creation by the 1998 cohort of start-ups over 10 years.

<sup>12</sup> Acs *et al.*, (2008). High impact firms are defined as enterprises whose sales have at least doubled over a four year period and which have an employment growth quantifier (the relationship between its absolute and percentage change) of two or more over the period. Firms were tracked from 1994-1998 and from 1998 to 2002.

<sup>13</sup> We use the term 'high growth' to refer to firms with 10 employees or more who grow by more than 20% in a particular year. This differs from the OECD definition, which looks at average growth over a three year period rather than the annual data we use in this chapter.

We examine the 221,731 firms that were born in 1998 and had at least one employee.<sup>14</sup> We compute the annual growth rate in employment for each year in the ten year period (1998/99 to 2007/08) and then code each year into three categories:

- 'High growth' (10 or more employees and growth of 20 per cent in that year)<sup>15</sup>
- Alive but not high growth (this category includes firms growing more slowly, not growing at all or declining in that year, and those growing by more than 20 per cent but having less than 10 employees).
- Not Active or no employment which signals its disappearance from the database (the IDBR reference number ceases to be live). This could be for a number of reasons which do not necessarily relate to the death or closure of the firm – they could have been acquired and be still operating as another legal entity (e.g., subsidiary).

Of the almost quarter of a million firms in the 1998 cohort, just 7,239 (3.1%) recorded one or more annual instances of 'high growth' in the decade 1999 to 2008. Not only was the experience of high growth relatively rare, but multiple instances were even rarer, affecting only about one-third of high growth firms (2,776). In other words, only 1.2 per cent of firms in the cohort achieve annual growth higher than 20 per cent (on a base of 10 employees) more than once over a ten-year period. The number of firms recording an instance of high growth varied considerably over time, there were many more episodes in 2001 and 2002 -- **when firms were three or four years old** -- than before or after.

Figure 10 is a sequence index plot<sup>16</sup> which is designed to provide some further insight into the timing of these annual high growth episodes recorded by all the 7,239 firms which experienced such an episode. Each firm's history is represented by a single horizontal 'strip'. Firms are split into those which are not active (white), those with 'high growth' (black) and the remaining firms which were still alive (grey).<sup>17</sup> Needless to say, we are most interested in the high growth firms: a black rectangle one row 'high' and one year 'wide' is a single episode of high growth.

The firms experiencing only one year of rapid growth stand out very clearly as the relatively large black rectangles, one for each year with their height proportional to their frequency. Equally clear are the mixed fortunes which follow an instance of high growth. For example, in a number of cases, most obviously for those whose high growth instance comes quite early, white patches - denoting that the business is not active subsequently - are clearly visible. Most commonly, though, high growth (black) is followed by slower growth, no change or decline (grey). So, if we take the 1,185 firms which were born in 1998 and achieved their first episode of substantial growth in 2000-01, the plot shows us that only 42% of them experienced another year of high growth and were still active by 2008, 36% subsequently never experienced high growth and 22% became inactive.

We can also see that relatively few firms record multiple instance of high growth. However, because of the relative rarity, and also because consecutive episodes (even for firms recording multiple instances) are even rarer and so difficult to 'see', the frequency of multiple instances is recorded on Table 3.2. There are 2,776 multiple instance firms in all, and almost two-thirds of these are accounted for by the 1,822 firms recording just two instances (i.e. less than half as common as single instances). It is worth noting that amongst firms experiencing high growth twice, only one-third record consecutive instances. Very few firms record more than two instances of high growth. Just 639 firms recorded three instances. The largest

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<sup>14</sup> Firms are "employer enterprises" (i.e. at least one employee) and birth is defined as the first appearance of non-zero employment.

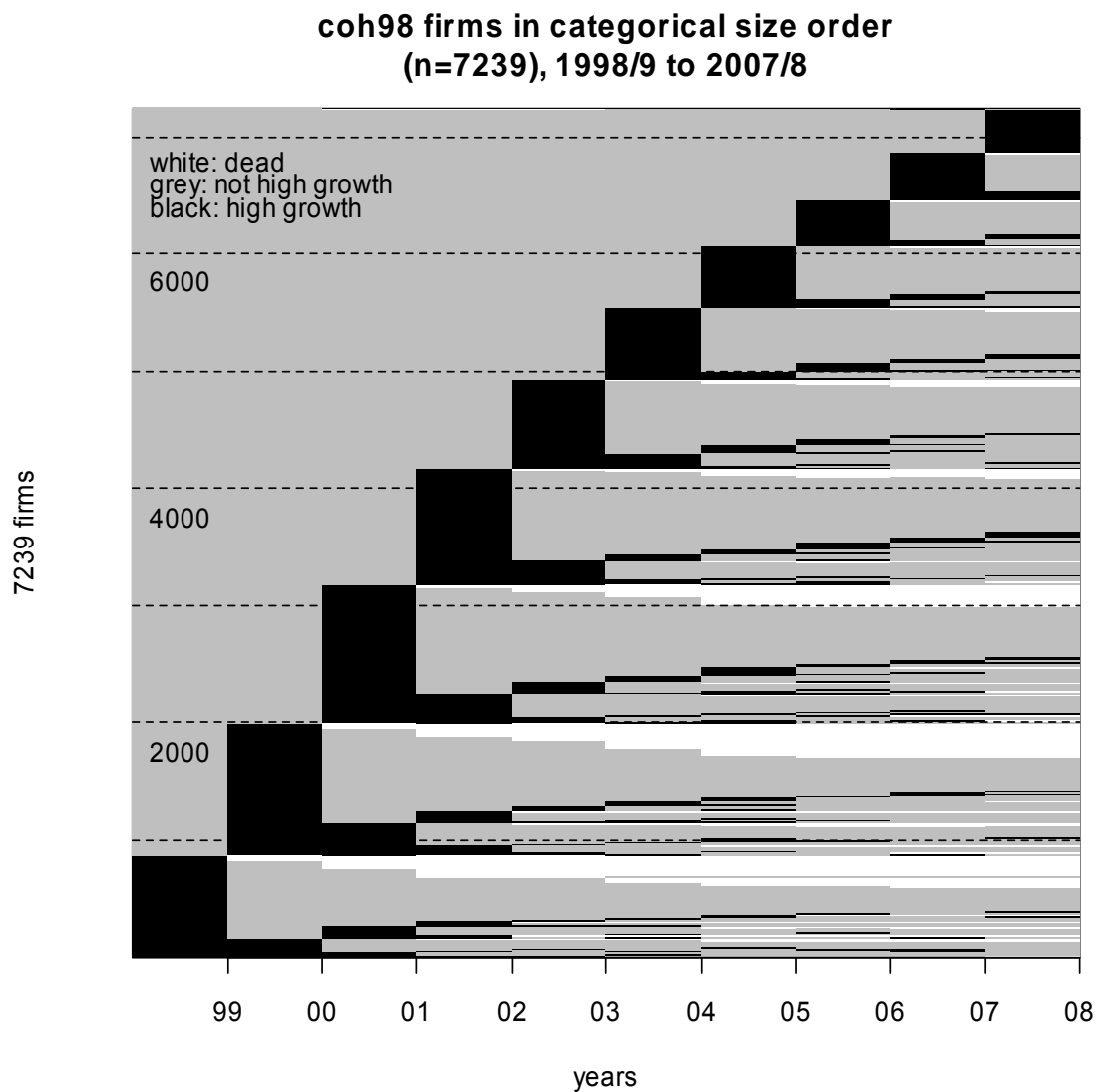
<sup>15</sup> About 4% of strings were anomalous – they died but subsequently 'came back to life'. Since we have no means of separating measurement error from any other explanation for these 8,672 anomalous records they have been excluded. The 1998 cohort population for our analysis is, therefore, 221,731 firms. Between them the firms in the 1998 cohort displayed more than 650 distinct 10 element strings: the commonest string -- recorded 82,505 times (37% of all 1998 cohort firms) was 10 years of not high growth.

<sup>16</sup> This terminology is due to Brzinsky-Fay *et al.*, (2006)

<sup>17</sup> Before plotting, to aid visualisation, we organise the collection of strings of 10 letters in ascending (alphabetical) order, starting with the first year (1999). Non Active firms will appear at the top of the list, then the 'not high' and then the 'high growth'. Then, each of the three groups – not active, not high, and high -- is separately re-ordered, again in ascending order, according to the second year's (2000) string element. Then each of the nine groups (three groups of three) is re-ordered separately, in ascending order again, according to the third year's (2001) string element. This algorithm, involving successive re-sorting, is repeated for the remaining years (2002 through to 2008), and yields an arrangement of the firms where those which recorded an instance of high growth in the last year -- 2007/08 -- are close to the top; whilst firms which record an instance of high growth in 1998/99 are at the bottom. These sorted strings form the display on Figure 7.

number of instances was eight, recorded by only one firm: so for the 1998 cohort, the chances of experiencing eight years of 'high growth' were around 1:225,000.

**Figure 10: Start-ups in 1998: Timing of 'High Growth' Events**



### ***Growth and Survival***

We saw in Figure 10 that some High Growth Firms do disappear from the BSD (presumed closed), but Table 2 shows the number is small, both absolutely and relatively. Whilst 60 per cent of the overall cohort has 'died' by 2008, the proportion of high growth firms dying is just 18 per cent. Evidently, the experience of high growth and survival are very closely and positively related. Moreover, the proportion 'dead' amongst firms recording a 'high growth' event is inversely related to the number of high growth instances. For firms with a single instance of high growth almost one quarter are dead by 2008, while for multiple instance firms the average proportion is just one tenth.<sup>18</sup>

<sup>18</sup> All the repeatedly High Growth Firms - 6 instances or more - survived to 2008.

**Table 2: United Kingdom, Cohort 1998: Firms by 'High Growth' Status, Alive and 'Not Active'**

		Number	Alive/Not Active (%)
<b>'High Growth'</b> <b>(3.3%)</b>	All	7,239	
	Alive	5,934	82.0
	Not Active	1,305	18.0
<b>Not 'High Growth'</b> <b>(96.7%)</b>	All	214,492	
	Alive	77,231	36.0
	Not Active	137,261	64.0
<b>All</b>	All	221,731	
	Alive	83,165	37.5
	Not Active	138,566	62.5

*Source: ONS Business Structures Database*

### Job Creation and the Start-up Cohort of 1998

The previous section examined the scale of job creation in High Growth Firms. Here we return to this issue by looking at the profile of job creation in a cohort of start-ups (those firms that started in 1998) since their first year of operation. What we are interested in showing here is the relative contributions of different sized start-ups as they survive and grow over a 10-year period. This is a different, yet complementary, way of investigating which firms make the most important contributions to job creation in the UK.

The 1998 cohort of start-ups contained 221,731 firms and 1.1million employees; a decade later the 83,165 survivors had 644,000 employees (Table 3). At birth, the distribution of firms and employees by size-band were quite different: 80 to 90 per cent of firms have fewer than five employees; whilst 70 to 80 per cent of employees are in firms larger than five employees. By 2008, although the strong contrast in concentrations remains, there are fewer very small firms, and employees in this cohort of firms are even more likely to work in larger firms.

**Table 3: Cohort 1998, Distribution of Firms and Employees by Size-Band (Birth and 2008)**

	Firms		Employees	
	Birth	2008	Birth	2008
<b>Number - All</b>	221,731	83,165	1,104,184	643,852
<b>Shares (%)</b>				
<b>Size-Band</b>				
1	56.0	42.7	11.2	5.5
2	19.6	21.0	7.9	5.4
3	7.9	7.8	4.7	3.0
4	4.5	6.3	3.6	3.2
5-9	7.5	11.7	9.5	9.9
10-19	2.8	5.9	7.2	10.2
20+	1.8	4.5	55.8	62.7

*Source: ONS Business Structures Database*

### Where did the Firms go? – Firm Transition Matrix

We can use an origin/destination matrix to track the movement of firms between employee size-bands over the decade. The choice of size-band categories depends on the degree of detail required to provide an insight into the data (although there is often a conventional element for example: official definitions of "small" firms), but here we are also constrained by data confidentiality requirements. When we investigate 'origin/destination' classifications by size-band over the decade 1998 to 2008, it emerges that there are relatively few small firms (born with less than five employees) that become very large (more than 250 employees, for example) but, even more importantly, there are tiny numbers of firms born very large which shrink to less than five employees in ten years. So the character of our data combined with restrictions on disclosure led us to choose 20+ as our 'large' size-band. However, a (necessarily) unpublished analysis using finer grained categories showed that none of our substantive conclusions about firm survival and contributions to job generation were affected by combining all (relatively) large firms into a single 20+ category.

Turning to the actual analysis Table 4 shows that most firms starting with a single employee (58% = 31.3/54.1) still had only one employee at the end of the decade (Table 3.5). We can see that almost half of those who grew added just one employee, making movement into the 20+ category from a one-employee start-up very rare - a 1:68 chance (1.5% = 0.8/54.1). For most of the smaller size-bands the pattern is similar and can be summarised as: there is a relatively large chance of staying in the size-band of birth, with the chance of a move (in either direction) decaying with 'distance'.

Barely half of the firms born in the 20+ size-band stayed there. So almost half (43% = (0.9/2.1)) shrank below twenty employees. But at the same time, many firms grew to have more than 20 employees, so the 20+ band was 114 per cent larger in 2008 than at birth, swelled by new entrants from smaller size-bands. Finally over half the new additions were from firms born that started with fewer than five employees. Indeed the number of 'incoming' firms that started with a single employee is larger than that from those that started with 10-19 employees. Over the decade 1,517 firms out of 72,602 survivor firms 'born' with 1-4 employees made the transition from fewer than five employees to 20+ employees, and 640 of them grew from starting with a single employee.

**Table 4: Cohort 1998 – Survivor Firms (2008) – Origin/Destination Matrix by Size-Band (%)**

Origin Size-Band (1998)	Destination Size-Band (2008)							
	1	2	3	4	5-9	10-19	20+	All
1	31.3	10.5	3.4	2.5	4.1	1.6	0.8	<b>54.1</b>
2	7.0	6.7	1.8	1.4	2.3	0.9	0.5	<b>20.5</b>
3	1.8	1.8	1.2	0.8	1.4	0.6	0.3	<b>8.0</b>
4	0.9	0.8	0.6	0.6	1.0	0.5	0.3	<b>4.7</b>
5-9	1.2	0.9	0.6	0.7	2.1	1.2	0.8	<b>7.5</b>
10-19	0.4	0.3	0.2	0.2	0.6	0.8	0.7	<b>3.1</b>
20+	0.2	0.1	0.1	0.1	0.2	0.3	1.2	<b>2.1</b>
<b>All</b>	<b>42.7</b>	<b>21.1</b>	<b>7.8</b>	<b>6.3</b>	<b>11.7</b>	<b>5.9</b>	<b>4.5</b>	<b>100.0</b>

**Source: ONS Business Structures Database**

**Note: Base is 83,165 survivor firms**

From the top row of Table 5 the contrast between the loss of jobs over the decade (from 1.1million to 644,000), and the growth of jobs recorded by survivors (363,000 to 644,000) is clear. It turns out that the change in the size distribution accompanying survivor growth provides a key insight into the evolution of the cohort. We already know that the survivors in the cohort start with a similar size distribution to all start-ups, so it is hardly surprising that the distribution of employees is also similar. As a consequence when we compare survivors in 2008 to their first year of operation we observe the same 'pivoting' of the distribution: contraction at the small end and expansion at the large end.

**Table 5: Cohort 1998 – Distribution by Size-Band of employees for All Firms and Survivors (%)**

	<b>All Firms Birth Employment</b>	<b>Survivors Birth Employment</b>	<b>Survivors 2008 Employment</b>	<b>Survivors 2008 Birth Size</b>
<b>Number</b>	1,104,184	363,157	643,852	643,852
<b>Shares (%) Size-Band</b>				
1	11.2	12.4	5.5	25.5
2	7.9	9.4	5.4	10.5
3	4.7	5.5	3.0	6.0
4	3.6	4.3	3.2	4.8
5-9	9.5	10.9	9.9	12.0
10-19	7.2	9.4	10.2	11.7
20+	55.8	48.2	62.7	29.5

**Source: ONS Business Structures Database**

However, if we compare the survivor distribution of employees by size-band for 2008 with a distribution constructed by redistributing the 643,852 employees into their birth size-bands the contrast is striking (i.e., the second and fourth columns of Table 5). We see that the share of employment in survivors which started with a single employee doubled over the decade, while the employment share of firms born with 20+ employees almost halved. Of course, we can connect these results directly with the change in the size distribution of firms discussed earlier: the employment share of firms which employed one person at birth, but are 20+ employees in 2008, will necessarily have increased; and the converse will be true of firms with 20+ employees which have slipped into a smaller size-band.

#### ***Where did the Jobs in 2008 come from? – Employee Transition Matrix***

An origin/destination matrix by size-band for employees can improve our understanding of the changes in the distribution of jobs as firms move between size-bands. This matrix (constructed along the same lines as that for firms) has origins in the rows, destinations in the columns, and all the entries expressed as ratios (in per cent) to the 2008 employee total (Table 6). We have seen the margins of this table before - the final column is shares in 2008 employment by 1998 size-band and the bottom row is shares in 2008 employment by 2008 size-band.

**Table 6: Cohort 1998 – Survivor Firms Employment (2008) – Origin/Destination Matrix by Size-Band (%)**

<b>Origin Size-Band (1998)</b>	<b>Destination Size-Band (2008)</b>							<b>All</b>
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5-9</b>	<b>10-19</b>	<b>20+</b>	
<b>1</b>	4.0	2.7	1.3	1.3	3.4	2.7	10.0	<b>25.5</b>
<b>2</b>	0.9	1.7	0.7	0.7	1.9	1.6	3.0	<b>10.5</b>
<b>3</b>	0.2	0.5	0.5	0.4	1.2	1.0	2.2	<b>6.0</b>
<b>4</b>	0.1	0.2	0.2	0.3	0.9	0.9	2.2	<b>4.8</b>
<b>5-9</b>	0.2	0.2	0.3	0.4	1.8	2.0	7.2	<b>12.0</b>
<b>10-19</b>	0.1	0.1	0.1	0.1	0.6	1.5	9.4	<b>11.7</b>
<b>20+</b>	0.0	0.0	0.0	0.0	0.2	0.5	28.8	<b>29.5</b>
<b>All</b>	<b>5.5</b>	<b>5.4</b>	<b>3.0</b>	<b>3.2</b>	<b>9.9</b>	<b>10.2</b>	<b>62.8</b>	<b>100.0</b>

**Source: ONS Business Structures Database Note: Base is 643,852 jobs in 2008 survivor firms**

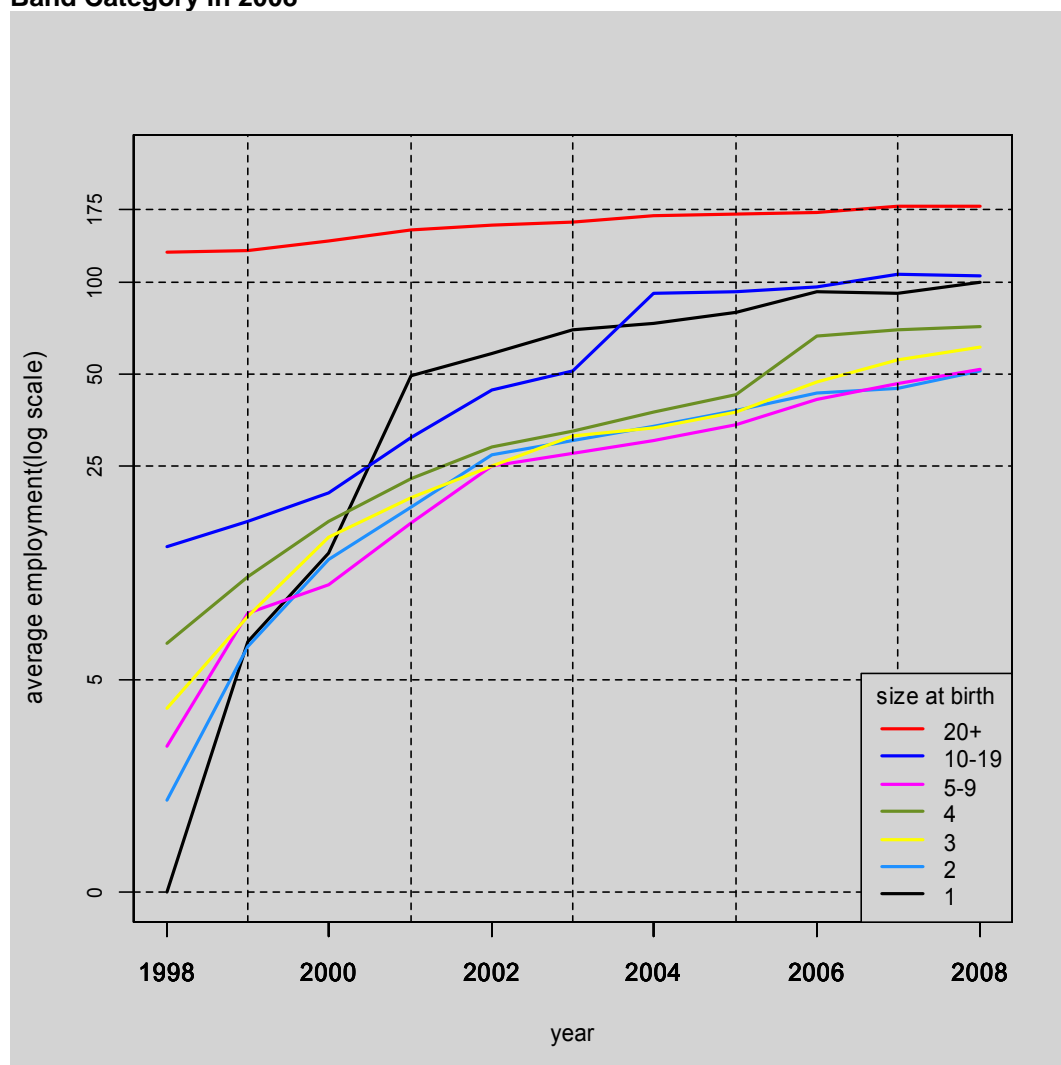
The column of greatest interest here is, of course, that for the 20+ employee size-band which accounts for almost two-thirds of all employees. Just under half of the employment in the 20+ size-band is accounted for by firms which started with at least 20 employees. A really striking finding here is the relative importance of the contribution of the smallest start-ups: those with a single employee at start-up alone contribute 10 percentage points, and those with 2-4 employees another 7 percentage points between them. So, firms with fewer than ten employees at birth contributed about a quarter of the jobs in the 20+ category in 2008. Even more significant though is that firms born with fewer than 5 employees accounted for 17 per cent of all the jobs in the 20+ category in 2008.

### Growth Trajectories of Larger Survivors

We now take a closer look at those surviving firms in the 1998 cohort that employed 20 or more people in 2008. As we have just seen firms which started small played a big role in generating jobs and Figure 11 shows how the average number of employees in each firm size category grew between 1998 and 2008<sup>19</sup>. The bottom line on the plot is, of course, the average for firms born with one employee: by 2001, when these firms were three years old, this group had – on average – 50 employees, representing an average growth rate of over 250 per cent per year. After the initial spurt, growth slowed and over the next seven years this group of firms averaged about 10 per cent growth a year, reaching 100 employees by 2008. None of the other groups recorded such a striking surge in growth as those born with one employee, although all of those starting life with fewer than 10 employees had around 20 employees by 2001, and by 2008 had between 50 and 75 employees.

Remarkably the firms born with between two and nine employees are very similar in both their growth trajectories and their employment size in 2008. Certainly there is no evidence of any systematic association over time between size at birth and growth for small firms. At the top of the plot we can see that firms born with 20+ employees (average size at birth of about 130 employees) grow very little over the decade: on average about 3.3 per cent per year and by 2008 they had grown to just 179 employees.

**Figure 11: Cohort 1998 – Average Employment Trajectory for All Surviving Firms in 20+ Size-Band Category in 2008**



**Source: ONS Business Structures Database**

<sup>19</sup> A log scale is used in order to overcome the problem of plotting values which range over many orders of magnitude – such as in this case the growth of employment in firms over a 10-year period.

The analysis of the 1998 cohort of almost a quarter of a million start-ups in the UK shows that relatively few firms record multiple instance of 'high growth' (i.e., a 20% increase in employment in any one year). Indeed, few firms record more than two instances of high growth over a ten-year period. When we look at the relationship between business growth and survival the picture that emerges is dramatic. Firms recording at least one year of 'high growth' in the cohort of 1998 start-ups are significantly more likely to survive than those firms not having any occurrence of high growth. Unsurprisingly, well over half (58%) the start-ups with one employee in 1998 still had a single employee ten years later. Almost half of those that grew added just one employee and movement into the 20+ category from a one-employee start-up was very rare. Over the decade 1,517 survivor firms made the transition from fewer than five employees in 1998 to 20+ employees, and 640 of them grew from size 1 employee at birth.

So, firms with fewer than ten employees at birth contributed about a quarter of the jobs in firms with 20 or more employees in 2008. Even more significant though is that firms born with fewer than five employees accounted for 17 per cent of all the jobs in the 20+ category in 2008. Firms in the 1998 cohort which started small play a big role in generating jobs. Firms born with one employee had by their third year an average of 50 employees, representing an average growth rate of over 250 per cent per year. After the initial spurt, growth slowed and over the next seven years this group of firms averaged about 10 per cent growth a year, and reached 100 employees by 2008. None of the other groups of firms recorded such a striking surge in growth as those born with one employee, although all of those starting life at fewer than 10 employees had around 20 employees by 2001, and by 2008 had between 50 and 75 employees.

### **Conclusions and Policy Discussion – lessons for policy in an economic downturn?**

For the first time, as a result of the recently available business demography dataset in the UK (the BSD), we have been able to undertake a comprehensive analysis of the number and nature of fast growth and High Growth Firms in the UK economy. We now know that in both time periods 2002-05 and 2005-08 there were around 11,500 High Growth Firms in the UK (or 22,000 using a turnover based measure of growth). This represents around 6 per cent of the total number of surviving businesses in both time periods and is a slightly greater proportion of firms than the 5.2 per cent reported for the USA in 2005.

The aim of this conclusion is twofold. First, to set out some of the policy implications arising from this initial analysis of the UK business demography dataset and second, to make some suggestions on how our knowledge of High Growth Firms and the growth dynamic within individual firms can be deepened. It may seem strange to talk in terms of High Growth Firms during a recession when many firms are in the process of retrenchment, decline and closure, but there are important lessons from this research which may serve to inform policymakers.

Picking up where the BERR<sup>20</sup> High Growth report left off in November 2008 we have now quantified the number of High Growth Firms in the UK economy to add to our understanding of processes by which growth takes place. Further, we have arrived at some broad measures of their economic contribution through an analysis of job creation. Overall, these 11,500 High Growth Firms were responsible for the creation of between 40-50 per cent of all new jobs in the UK in the years before the current recession.

There are a number of important messages for policymakers at national and regional level arising out of this analysis. English RDAs and the Devolved Administrations place an expectation on 'high growth firms' as a vehicle for delivering growth against targets. The relative rarity of these firms in the UK economy is consistent across the developed economies and makes the task of finding them and working with them very difficult. However, the results show that supporting High Growth Firms is perhaps a better policy option in terms of job creation than a general business support policy for all SMEs many of whom have achieved only modest growth. This type of assessment is consistent with the long-established view that "a selective policy of support for small firms is simply unworkable" because it is "not feasible on operational grounds, neither at the business start-up stage nor later on when the small firm has begun to expand into a sizeable company" because research has failed to identify, *ex ante*, the distinctive or distinguishing features of fast growth firms (Hakim, 1989). There remains the problem though of accurately identifying High Growth Firms in the first place. The challenge is, therefore, what range of business support policies can be designed to help potential High Growth Firms and which do not require to identify them *ex-ante*

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<sup>20</sup> Now the Department of Business, Innovation and Skills (BIS).

(nor pick winners?) ... incremental vs. radical interventions (only do those interventions that can produce a significant change/improvement/growth in a firm?).

The preoccupation by policymakers with high growth start-ups (gazelles) as a mechanism to generate economic growth at national and regional level is not well supported by the evidence. The identification and support of Gazelles is often a very difficult and imprecise policy objective. In any case, our analysis found barely 3,000 Gazelles in the UK (a third of all High Growth Firms) that only contributed a fifth of all jobs created by High Growth Firms and only economy tenth of all new jobs. Better targeting of policy could support greater growth and business support should be targeted at businesses that have the potential to grow. Intervention should also be predicated on the basis of scalability.

We should not assume that 'high growth firms' can be correlated with the high tech sectors, such as nanotechnology and biotechnology, knowledge-based sectors generally or the creative industries. Yet, there has been a large-scale allocation of public funds to initiatives aimed at developing fast and high growth businesses in these sectors. However, the fact is that Business Services and the Wholesale and Retail sector provide almost half the High Growth Firms in the UK. While High Growth Firms create many hundreds of thousands of jobs, they do so in sectors which are normally beyond the scope many of the major business support schemes

We have shown that the majority of High Growth Firms have been established for many years. This suggests that if we are looking to stimulate growth in the private sector it is to the established stock of business that we should look rather than relying upon policies aimed at a group of start-ups that may be described as 'born globals'. There are very few firms in the UK - fewer than fifty - that start large and grow rapidly.

A significant number of jobs are created by firms employing fewer than 50 employees. The analysis of the 1998 cohort broadly confirms this story and, in particular, points to those firms set up with one employee and which grew to around 100 employees 10 years later.

Clearly, there are still many unanswered questions relating to High Growth Firms but we now have some clear insights from the UK firm-level data of where we might look for the answers. All we have done is set out some basic measurement indicators on high growth. The task now is to understand more about the drivers of that growth and the overall efficiency of these firms. We cannot possibly infer behaviour and strategy from the stylised facts presented in this report regarding size, age, sector and region. The recent BERR report illuminated many of drivers and barriers (skills and knowledge, innovation, access to finance, business networks and culture) to growth but the task remains to be investigated more thoroughly and rigorously with the application of econometric techniques (BERR, 2008).

Therefore, an important next stage to the research will involve undertaking more detailed analysis of the 11,500 High Growth Firms and the small number of 1998 start-ups who grew rapidly over the decade. This research will involve many dimensions but three initial questions need to be urgently addressed:

- Has the current publicly-financed business support offer across the UK been involved in the process of growth in these fast and high growth firms in the last 10 years?
- Who are the people running these firms and to what extent are these firms independent and UK-based?
- How has this growth been funded and in particular, has there been any involvement of the formal and informal equity markets operating in the UK?

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