

High performing firms and job creation: a longitudinal analysis (1998-2013)

ERC Insight Paper

April 2017

High performing firms and job creation: a longitudinal analysis (1998-2013)

Dr. Michael Anyadike-Danes

Enterprise Research Centre and Aston Business School
m.anyadike-danes@aston.ac.uk

Professor Mark Hart

Enterprise Research Centre and Aston Business School
mark.hart@aston.ac.uk

The Enterprise Research Centre is an independent research centre which focusses on SME growth and productivity. ERC is a partnership between Warwick Business School, Aston Business School, Imperial College Business School, Strathclyde Business School, Birmingham Business School and Queen's University School of Management. The Centre is funded by the Economic and Social Research Council (ESRC); the Department for Business, Energy & Industrial Strategy (BEIS); Innovate UK and the British Business Bank. The support of the funders is acknowledged. The views expressed in this report are those of the authors and do not necessarily represent those of the funders.

EXECUTIVE SUMMARY

The OECD High-Growth Firm (HGF) measure was a pragmatic solution to a practical problem. It was designed to assist in identifying the small group of firms which contributed disproportionately to job creation. This statistic could be used to inform national policy and to make comparisons across countries, since it could be readily replicated using business register data. The decade since the measure was first published has seen increasing dissatisfaction amongst the academics and policymakers seeking to make use of it. There are two important criticisms. First, it focuses attention on relatively short 'bursts' of growth rendering invisible the reality of growth for the majority of businesses, and second, it does not in fact capture some important members of its target group the 'relatively small proportion of firms that contribute disproportionately to job creation'.

We present a new analysis of job creation in the UK, using data on a cohort of start-ups born in 1998 to identify three different groups of high performing firms. Of these three groups we find that HGFs as defined by the OCED do not create the most jobs, in fact they grow more slowly and have a lower survival rate than the comparators. Notably, though, most of the observed growth in all three groups takes place within the first five years after start-up.

BACKGROUND

The definition of a high-growth firm (HGF) as set out over a decade ago in the Manual of Business Demography (the ‘OECD measure’) has three parts, firms: are at least one year old at the beginning of a three year ‘growth period’; have average annual growth of 20% over the ‘growth period’, equivalent to an overall 72.8%; and have at least 10 employees in the first year of the growth period. The OECD measure was designed to identify ‘a relatively small group of firms which contributed disproportionately to job creation’ (the Birch ‘conjecture’, see the discussion in Anyadike-Danes and Hart (2015)¹).

However, the US Bureau of Labor Statistics (BLS)² has argued that this measure was too narrow to capture all of ‘that small proportion’. In particular, they were concerned with the exclusion of firms with less than ten employees in the first year of the three year growth period. The BLS alternative measure extended the definition of a high-growth firm to include firms with less than ten employees if the firm added **eight or more** employees during the three year growth period. Here we refer to these as **Small High Growth Firms (SHGFs)**. The ‘eight or more’ figure in the BLS definition was arrived at by multiplying the lower threshold of the OECD measure, ten employees, by the compound growth ratio, 1.728: if a firm with less than 10 employees added eight jobs, it would have contributed about the same amount to job creation as would a firm with ten jobs which grew by a factor of 1.728 and therefore satisfied the OECD criterion.

Here we provide some UK evidence on the performance of these SHGFs. Our starting point is the 26,162 firms born in 1998 (which we call cohort98) and which survived to 2013, that is to age 15. This population was

¹ Anyadike-Danes and Hart (2015), “Fecundity, fertility, survival and growth: dynamics of high growth firms and their contribution to job creation” available from: www.aston.ac.uk/EasySiteWeb/GatewayLink.aspx?allid=256377

² Clayton, Sadeghi, Spletzer and Talan, “High-employment-growth firms: defining and counting them”, *Monthly Labor Review*, June 2013.

analysed in some detail in an earlier paper³ which provides a more detailed background to the firm performance described in this very brief note.

ANALYSIS

Since firms have to be at least one year old at the beginning of an SHGF growth period, the first ‘available’ growth period for this cohort is 1999/2002. Our focus is the 1,181 SHGFs which recorded an episode of high-growth in this first growth period. What happened to these firms in the subsequent 2002-2013 period? As we can see from the first column of Table 1, these firms added 65,609 jobs between 1998 and 2013. **On average SHGFs grew from 3.4 jobs per firm in 1998 to 59 jobs per firm in 2013, expanding by a factor of 17, equivalent to average annual growth of around 20% per year over 15 years.** This is clearly a very impressive performance but, to provide some context for this finding, we need some comparators.

Table 1: Job Creation, Growth and Survival of High Performing Firms: 1998-2013

		SHGF (1)	HGF (2)	EEPJC (3)
Number of firms		1181	330	470
Jobs	1998	4040	13576	967
	2013	69649	74431	59070
	2013-1998	65609	60855	58103
Jobs per firm	1998	3.42	41.14	2.06
	2013	58.97	225.55	125.68
	1998/2013	17.24	5.48	61.01
Annual average growth (%)	1998/2013	20.9	12.0	31.5
Age 15 survival rate (%)	2013/1998	39.5	42.4	47.4

Source: ONS BSD

³ Anyadike-Danes, M and Hart, M (2017) “All grown up? The fate after 15 years of a quarter of a million firms born in 1998”, forthcoming in the *Journal of Evolutionary Economics*, available from: www.aston.ac.uk/EasySiteWeb/GatewayLink.aspx?allId=231893

One obvious choice of a comparator is the conventional HGF measure: those firms from cohort98 which recorded a high growth episode during the first growth period (1999/2002, for HGFs as it is for SHGFs) but with the 10+ jobs requirement in the initial year. Notice first of all there are relatively few of these (larger) HGFs, just 330, which survive to 2013 (at 'birth' there were 779). They add almost as many jobs as do SHGFs but as we can see from the jobs per firm rows because they are, as we might have expected, very much larger in 1998, this translates into a very much slower rate of growth. **Average annual growth of the HGFs from birth to age 15 at 12.0% is only a little more than half the rate recorded by SHGFs.**

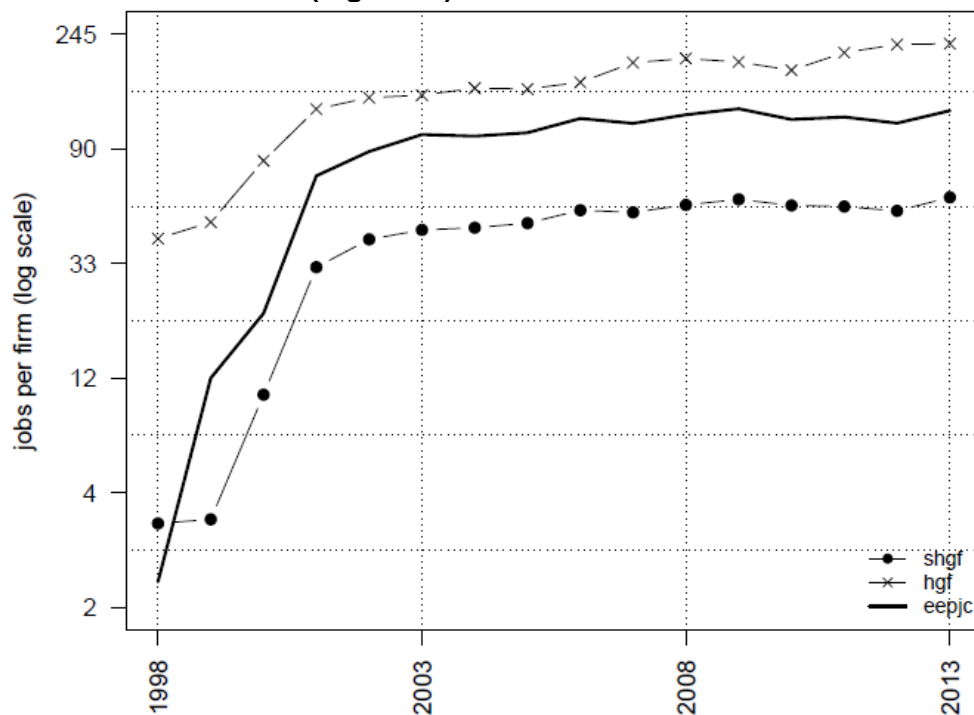
A further potential comparator is the group of Extraordinarily Prolific Job Creating firms (EPJCs) which we have discussed previously⁴. These are firms born very small (less than five employees) which reach 20+ jobs after 10 or 15 years. To ensure a 'level playing field' for the comparison we use a modified EPJC-type measure here – we'll call it EEPJC for convenience. It has an 'E' prefix to draw attention to the fact that this group of firms can be identified **Early**: EPJCs as previously defined could only be picked out after a relatively long period, whereas EEPJCs in this analysis are identified at age five. The EEPJC group are firms born with less than five employees but which had 20 or more employees by age five. Unsurprisingly, given the identification criteria, they are considerably fewer than SHGFs, and their contribution to job creation is also rather less (Table 1, column 3). **But the annual average rate of job growth is close to 30%, so in growth terms they outperform SHGFs.**

We can also compare the average jobs per firm growth paths for the three groups of firms (Figure 1). The data are plotted on a log scale so the slopes of the lines represent rates of growth. Notice first of all that the trajectories of the SHGF and HGF series clearly reflect the criteria used to identify them: they show little growth between birth and age one, and then, as

⁴ Anyadike-Danes, M and Hart, M (2013) "Extraordinarily Prolific Job Creating Firms: the OECD high growth firm metric in perspective" available from: <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.719.7617&rep=rep1&type=pdf>

required, grow steeply over the three year 'growth period', 1999/2002. Indeed, in both cases, growth is concentrated in the first two of the three years. By construction the EEPJC group starts smaller than the other two – they have less than five jobs at birth – and their growth starts immediately, and continues at a rapid rate up to age three. **Consequently, EEPJCs are on average always larger than SHGFs, and by age three EEPJCs have already reached 70 jobs per firm.** Our selection criteria only required an EEPJC to reach 20 jobs by age five, but in practice they had, on average, just over 100 jobs per firm by age five.

Figure 1: Evolution of Jobs per Firm (Cohort98, Selected Groups, 1998-2013 (log scale)



Source: ONS BSD

What about SHGFs, HGFs and EEPJCs and survival? First of all, it is important to note that (only slightly) hidden in the SHGF definition is the requirement that firms be at least one year old at the beginning of the growth period, and survive to the end of the growth period three years later. In other words, SHGFs have, by definition, survived to age four. And this, of course, takes us very close to survival to age five as required by the EEPJC definition.

The total number of SHGFs 'born' (i.e., alive in 2002) was 2,991. So, the 1,181 age 15 survivors represent almost 40% of SHGFs, whilst for HGFs the comparable survival rate is 42% (unsurprisingly a little higher since size at birth typically has a positive effect on survival chances). **For EEPJCs there were 998 births (i.e. alive at age five), so the survival rate is 47%, marginally better than that for SHGFs (and HGFs).** However, that finding might have been expected too, since annual death rates are relatively high at young ages, so the chance of surviving to age 15 having survived to age five could be expected to be slightly better than the age four rate.

IMPLICATIONS

The UK has historically one of the poorest records internationally of the proportion of its business population that grow. The most recent data from the ONS indicate that this continues to be the case. The problem is not new and has been the focus of public policy for decades without any impact on the headline indicators despite the success of many of our UK-owned small businesses.

The importance of 'high-growth' firms (or 'scale-ups') is now regularly acknowledged in almost all national and local policy strategic plans, and the recent Industrial Strategy Green Paper is no exception. Further, the appointment of Small Business Minister Margot James as the Scale-up Champion leading the work of the Scale-up Taskforce in 2017 places the importance of business growth at the centre of any new Industrial Strategy. So, a new opportunity is on the table to look at barriers to small business growth across different regions and sectors and to put in place a framework to encourage and support more business leaders to identify and realise their growth opportunities.

However, we must not get fixated with any single definition of a 'high-growth firm' or 'scale-up'. The work of the ERC in recent years has pointed to the importance of developing a growth pipeline of ambitious business leaders ranging from nascent entrepreneurs, new business owners and established businesses and understanding the drivers of bursts or

episodes of high-growth in a business over a much longer time period.

This short note has provided evidence on the performance over a 15 year period of three groups of high performing firms, rather longer than just the usual three years in the OECD HGF definition. From a policymakers perspective each of these groups of firms has advantages and disadvantages when we compare across the three dimensions considered here, that is: the contribution to job creation; growth; and survival.

It is interesting to observe that the OECD HGFs (the commonest definition of a 'high-growth' firm in almost all policy discussions) do not create the most jobs, they grow more slowly and have a lower survival rate than one or other of the two comparator groups of high performing firms. The other important finding is that the bulk of the job growth in all three groups takes place in the first five years after start-up. This confirms the findings from our earlier research on the 1998 cohort of firm births in the UK (see note 3 above). These two conclusions are of crucial importance for the development of an industrial strategy built upon the pillar of 'business growth and investment'.

The statistical data used here is from the Office of National Statistics (ONS) and is Crown copyright and reproduced with the permission of the controller of HMSO and Queen's Printer for Scotland. The use of the ONS statistical data in this work does not imply the endorsement of the ONS in relation to the interpretation or analysis of the statistical data. The analysis upon which this report is based uses research datasets which may not exactly reproduce National Statistics aggregates.



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

Centre Manager
Enterprise Research Centre
Aston Business School
Birmingham, B1 7ET
CentreManager@enterpriseresearch.ac.uk

www.enterpriseresearch.ac.uk