

Fecundity, fertility, survival and growth: high-growth firms in the UK and their contribution to job creation, a demographic perspective

Research Paper 74

January 2019

High growth firms (HGFs) have attracted an increasing amount of attention in the last decade as economies begin to emerge from a period of deep recession and policymakers take a renewed interest in firms which generate jobs on a large scale. However, despite the attention given to HGFs by policy-makers and researchers, surprisingly little seems to be known about the longer term performance of HGFs and, in particular, about their growth outside the period which led them to be classified as HGFs.

The principal contributions of this paper build on the distinction between high-growth episodes and high-growth firms. The 'birth' of an HGF is marked by its first high-growth episode (i.e., defined as a HGF for the first time according to the OECD definition, but the HGF may (indeed is quite likely to) record further high-growth episodes in subsequent years – that is, be defined for a second time as a HGF in a subsequent 3-year period.

We use data on the first 15 years of life of a cohort of UK firms born in 1998 to populate a set of demographic accounts which recognize the episode/firm distinction and track the performance of HGFs from birth, recording their age at subsequent episodes and their chances of survival. Then, by constructing a parallel set of accounts for non-HGFs we are able to determine the extent to which HGF status improves survival chances and estimate the relative importance of the HGF contribution to job creation.

It becomes clear that a failure to recognize the distinction between episodes and firms gives a misleading picture of HGFs, their numbers and their contribution to job creation and potentially confuses the policy debate on scale-ups.

Key findings

- Our first important finding is that of the 239,000 UK firms born in 1998 just 3,331 had recorded episodes of high-growth by 2013 – i.e., classified as a HGF according to the OECD definition. But these HGFs, taken together, recorded 7,146 high-growth episodes. So, on average, each HGF recorded about two episodes – i.e., defined as a HGF in two 3-year periods.
- The rate at which HGFs were 'born' (their fecundity – i.e., their potential to be classified as a HGFR) declined as the cohort aged, but even in the last period we consider (2010/2013) about 4% of the eligible population recorded a first episode.
- By 2013 50% more HGF episodes were being recorded by existing HGFs than there were 'new-born' or newly-defined HGFs. Certainly, judging by these figures, the HGFs of cohort98 were not 'one hit wonders'.

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It is with considerable sadness to report the recent passing of Michael. In 2009 he co-authored a ground-breaking report for NESTA on the OECD-defined high-growth firms in the UK economy which resulted in the 'Vital 6%' enterprising policy debates. This is the latest contribution to the debate on HGFs which Michael has led on for over a decade. Michael had been receiving treatment for a rare lung cancer until very recently. He will be much missed but his legacy to the body of work on the dynamics of firm growth will continue for many years to come.



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- Moreover, whilst fertility (like fecundity) declines with firm age, it is also a decreasing function of time since the first HGF episode. Half of all HGFs have a further episode of high-growth in the next growth period, but three periods later the repeat proportion is down to 10%.
- Survival chances for HGFs, like those of firms more generally, improve with age but the chance of death for HGFs by 2013 was 3.2%, for similar-sized firms which had not yet experienced an HGF episode it was 4.4%.
- The conventional measure of HGFs contribution to job creation, which is (typically) a single snapshot of the HGFs in the most recent or current period, leaves out of account entirely the contributions of HGFs outside the current episode – i.e., the accumulating number of firms which have previously recorded an HGF episode, but are not currently HGFs, continue to create jobs on a significant scale.
- Having recorded a high-growth episode seems to confer little long term growth advantage over non-HGFs of a comparable size (i.e., non-HGFs with ten or more jobs).

HGFs and Job Creation?

The scale of the contribution made to job creation by HGFs depends, unsurprisingly, on how we define the HGF category. There are three alternatives which we examine together with statistics for the 2010/2013 growth period.

- ever-HGFs (firms which recorded a high-growth episode in the past, but not currently having an HGF episode): 13% of Job Creating Firms (JCFs); 63% of JCF jobs; annual average job growth of 14%.
- current period HGFs (firms recording a first or subsequent high-growth episode): 5% of JCFs; 32% of JCF jobs; annual average job growth of 36%.
- new-born HGFs (firms recording their first high-growth episode): 2% of JCFs; 5% of JCF jobs; annual average job growth of 34%.

The second of these three – current period HGFs – is closest to the conventional measure of the HGF share of job creation. Indeed, the gross 'disproportionality' between the share of JCFs and the share of JCF jobs – in this case 5% versus 32% – which first attracted attention to the phenomenon we now call HGFs is clearly evident. The 'disproportionality' result holds pretty consistently, even as the cohort ages and shrinks. The ratio between the HGF share of jobs created and the HGF share of job creating firms – an 'index of disproportionality' – hovers around eight for most of the 12 growth periods.

An even more striking finding, given the (apparently common) 'one hit wonder' view of HGF fertility, is that subsequent HGF episodes play a key role in maintaining this disproportionality. In 2010/2013 new-born HGFs account for less than one-sixth of the jobs associated with HGFs, the other five-sixths are contributed by firms recording their second, or third (or more) HGF episode (Figure 1).

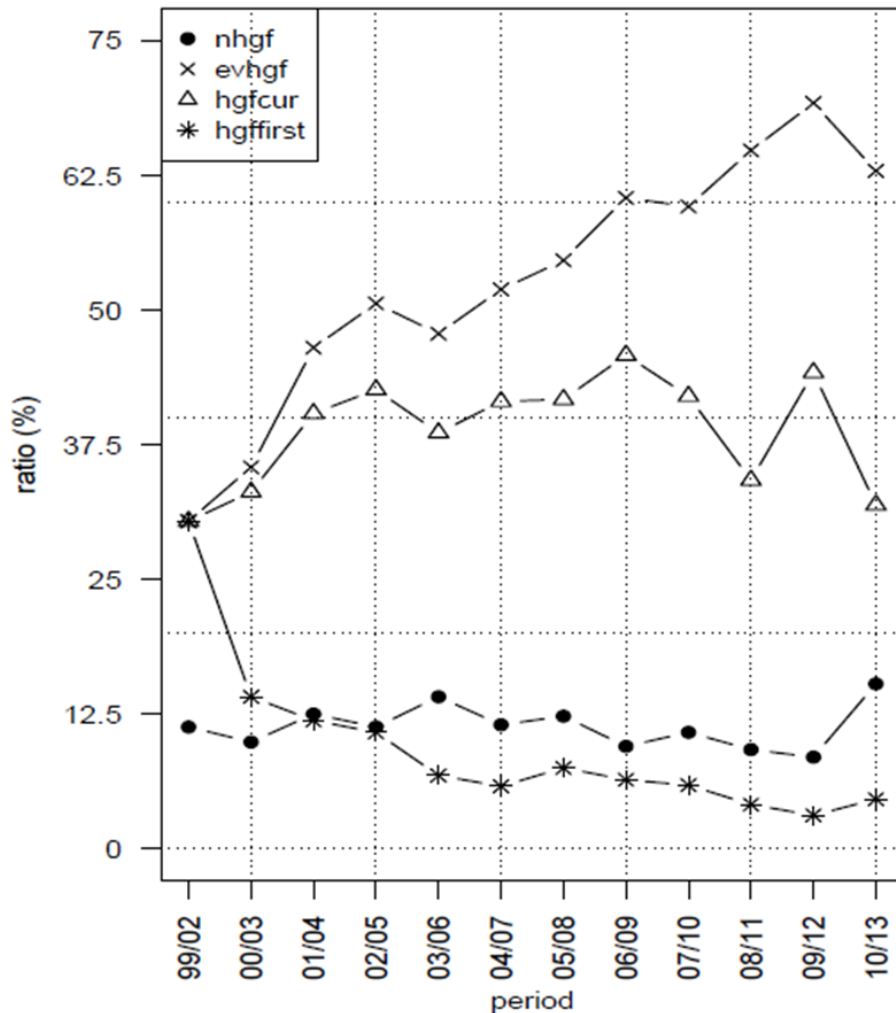


Figure 1: Cohort 1998 Start-ups: 10+jobs: Job Creating Firms (JCFs) jobs by category, ratio to all Job Creating Firms (JCFs) - (%)

Note: nhgf, non high-growth firms; evhgf, ever high-growth firms; hgfcu, high-growth episode in the current period; hgffirst, firms recording their first high-growth episode. Full definitions in the associated Research Paper No. 74.

HGF average growth declines with age, albeit very slowly, with older 'repeat' HGFs systematically growing a little faster than those recording a first episode. Rather more unexpectedly though, the average growth of ever-HGFs slows markedly with age, and by last period this group is not only recording a growth rate below the HGF threshold, but their rate of growth is not very much faster than that of comparable non-HGFs. Evidently with growth, as with survival chances, having recorded a high-growth episode in the past does not appear to confer a sizeable long-term advantage.

Policy implications

Currently, as flagged in the Industrial Strategy, the Scale-up agenda is to have a prominent role in driving local growth, with the focus on the importance of identifying, targeting and supporting more HGFs or scale-ups.

These findings illustrate very clearly the value of a cohort approach and an appropriate accounting framework in teasing out the, evidently, very complex dynamics of HGF performance. The key is, in fact, the ability to identify the appropriate 'population at risk' when making HGF/non-HGF comparisons.

Results on the size distribution of HGFs, their age distribution and their fertility (whether or not they are 'one hit wonders'), all depend on where in a firm's life cycle HGFs are being identified and how long they are being followed. In other words, reporting statistics which average over different birth cohorts may not provide unbiased answers to questions about HGF characteristics.

Many policymakers have been very enthusiastic about the scope for intervention which HGF research might uncover. Whilst that hope continues, we should perhaps take more seriously the rather more sanguine view expressed by the 'father' of HGF studies,

"We know that smaller, volatile firms are the major replacers of lost jobs, but we have no experience in identifying and assisting them in large numbers. Because they are small, we must reach many of them to have a measurable effect. Because they are volatile, we must monitor each individual firm's performance carefully if we are to gain maximum benefit from our invested dollars (on the high side) and avoid scandal (on the low side). From this researchers viewpoint it seems like a very difficult problem to solve administratively. A massive bureaucracy would be required to monitor individual small businesses on the scale required ..." Birch [1979, p. 4]

A more productive approach to HGF research might be to regard it not as an end itself, but rather as a means of making some progress on the broader question of understanding firm growth. For example, as we have shown, the average growth of the cohort slows with age, not only because faster growing firms grow very much more slowly, but because the proportion of firms recording exceptional growth declines.

Full paper link:

<http://enterpriseresearch.ac.uk/publications/erc-research-papers/>