High Growth: Is it persistent or episodic?
And does innovation = growth?

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What is High Growth?

- **UK Government, 2008**

“The concept of a high growth firm is simple; it is a firm which grows at a rate which is deemed to be high in comparison to the majority of firms”

**OECD**

“Annual growth rates in turnover or employees of over 20% for three consecutive years”
Extra *(animal based)* definitions

- “Gazelles” are as OECD definition of high growth, but <6 years old

- “Gorillas” are as OECD definition of high growth, but <10 years old with a physical presence in at least 3 countries and employing over 500 people
High Growth Job Creation

The graph illustrates the trend of job growth over time. The y-axis represents job growth, while the x-axis represents time (t0, t+1, t+2, t+3). The data shows a consistent increase in job growth over time, with each subsequent time period showing a higher growth rate compared to the previous one.
The Reality

![Graph showing job growth over time for different groups: All, HGF, and another unspecified group. The graph illustrates an increasing trend in job growth from time t0 to t+2.]
This Research

• What’s different about Highly Innovative Firms (HIFs)?
• What’s different about High Growth Firms (HGFs)?
• Are they the same?
• Is High Growth persistent (a unique set of firms) or episodic (it happens to lots of firms at certain phases in their life)?
The Data

- The research used four waves of the Community Innovation Survey for the UK for the years 2004, 2006, 2008 and 2010
- Linked to the ONS Business Structural Dataset (BSD) to create a panel with job and sales data.
- The survey was analysed as yearly cross sections and as an integrated panel of all four waves.
Our definitions

- R&D spending was used as a measure that captured inputs to innovation, while the share of sales derived from new-to-market products was used as an output measure of innovation.
- The input measure captured the top 20% of firms by spending on R&D, and the output measure captured the top 20% of firms deriving sales from new products.
- HGFs are the top 5% of firms by employment and sales growth performance.
Key findings

• Highly Innovative Firms (HIFs) are not readily distinguishable from Less Innovative Firms (LIFs) using traditional firm demographic measures

• HIFs have a significantly higher share of employment accounted for by science and engineering (STEM) graduates, and moreover we find that this has a large positive influence on a range of performance metrics
And......

- Firms with more science and engineering graduates in their total workforce are associated with more R&D, more new to market products, more external co-operation and greater use of external information

- HIFs also tend to be much more internationally orientated than LIFs and more focused on exporting to international markets
And on growth....

• The second main finding is that high levels of growth are not strongly persistent. While a small percentage of firms in any particular period are responsible for a large proportion of overall growth, we do not find the same firms across consecutive periods.
And on innovative status..

• The third main finding is that, by contrast, there is a strong persistence in the innovative status of firms, with most HIFs remaining highly innovative and most LIFs remaining less innovative.

• While approximately 60% of HIFs maintain HIF status over time, only a small percentage of LIFs (~10%) become Highly Innovative.
The Causal Growth Path

- Employment Growth
- New to Market Products / Services Growth
- Sales Growth
- R&D Intensity Growth
HIF and HGF over time

HIF → HIF

HIF → Higher Growth but not HGF
HGF over time
Conclusions

• The first key policy message of this analysis is that HIFs and High Growth Firms do not overlap to a significant degree.

• While both innovative activity and growth are highly skewed, they differ fundamentally. Innovative activity is largely persistent through time, while high growth is largely episodic.
Policy Conclusions

• Supporting the flow of science and technology graduates into young high-tech firms is a legitimate policy goal

• Public investment in research generates talented graduates

• Promoting initial, and sustainable, R&D in young high-tech firms is a legitimate policy goal

• Policies that focus on helping firms capture value from innovation, regardless of whether that innovation is their own or was generated elsewhere in the economy