



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”

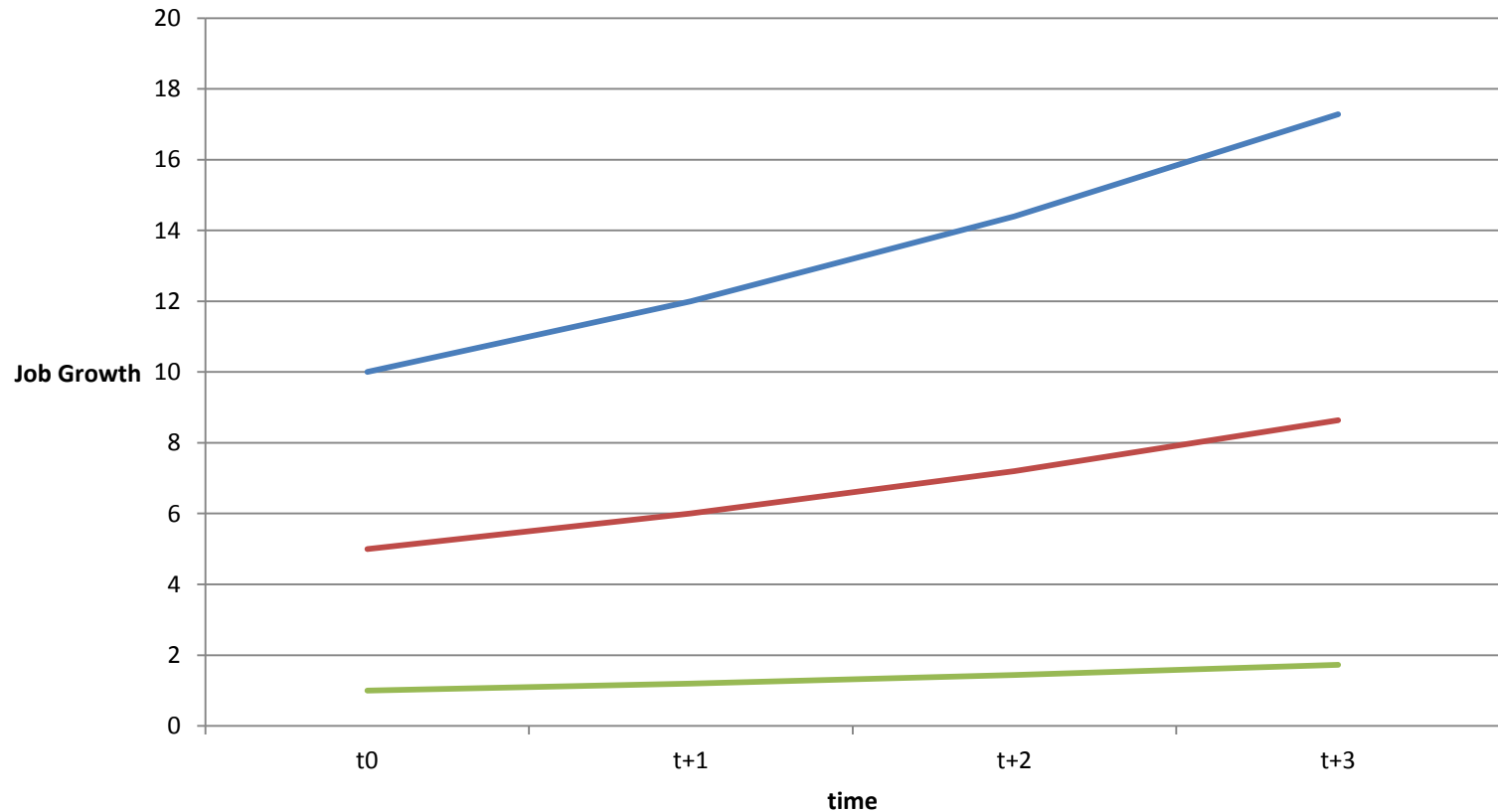
## OECD

“Annual growth rates in turnover or employees of over 20% for three consecutive years”

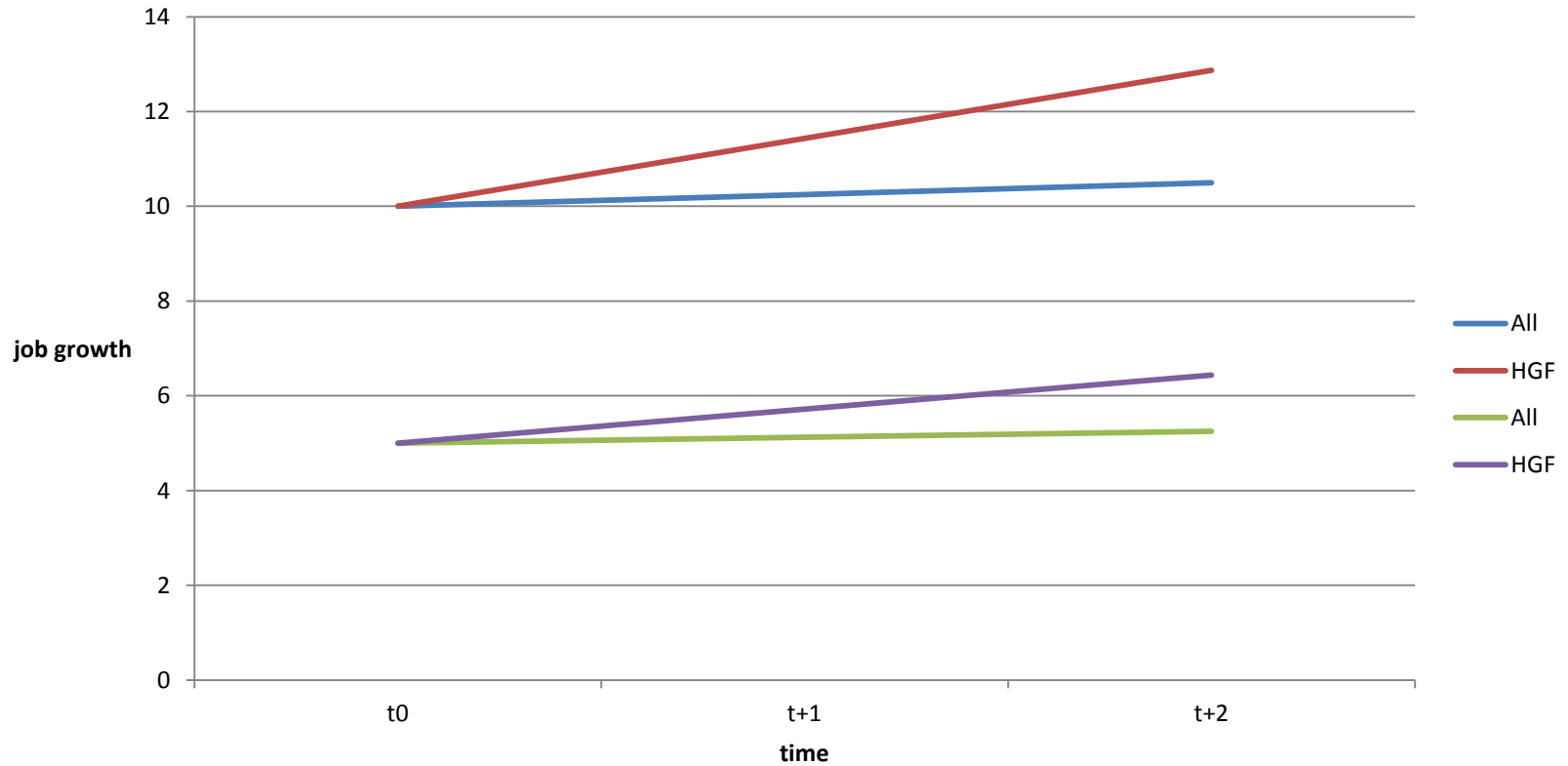
# Extra (*animal based*) definitions

- “**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 Reality



# 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**

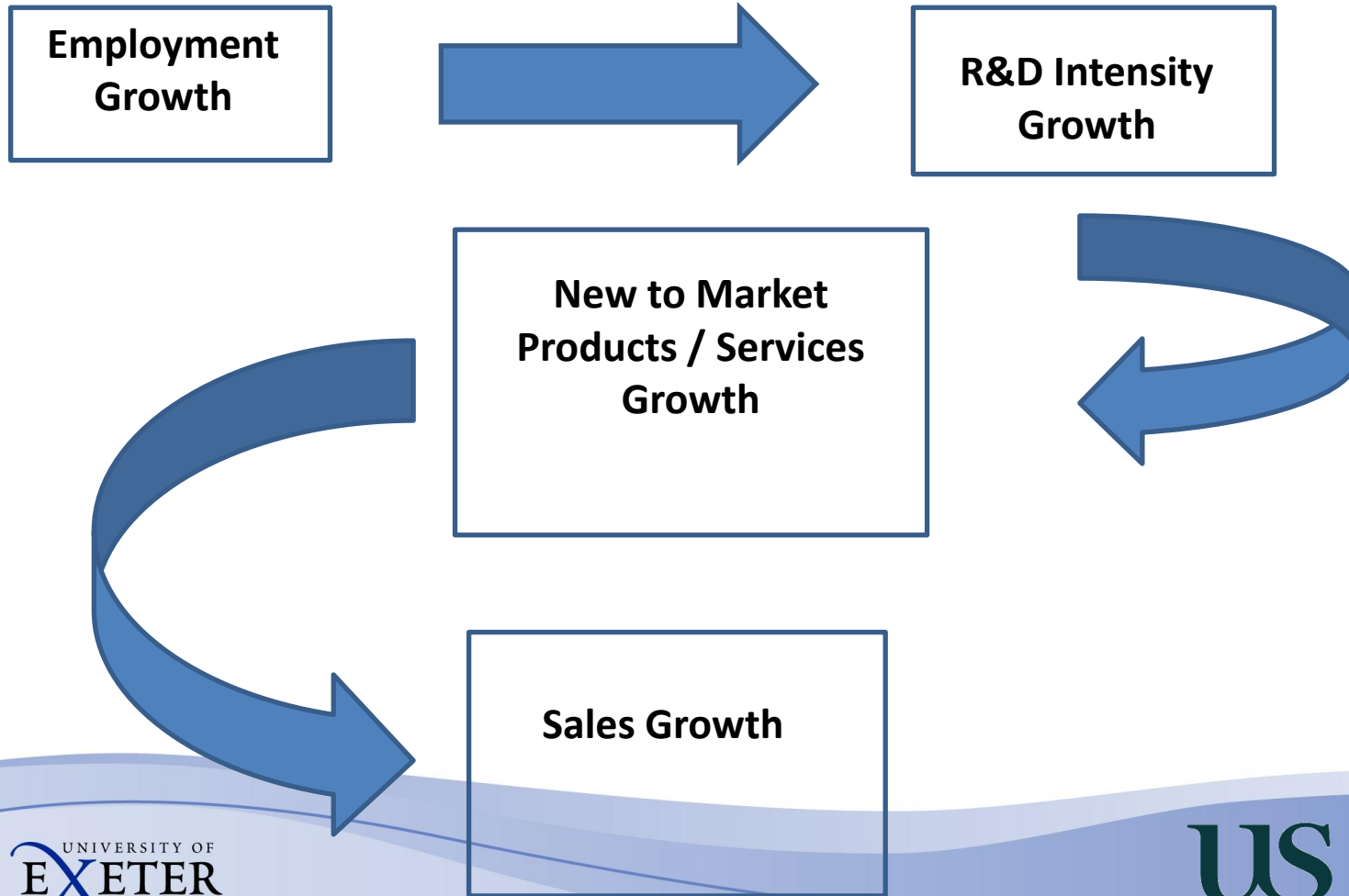
# And on growth....

- **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..

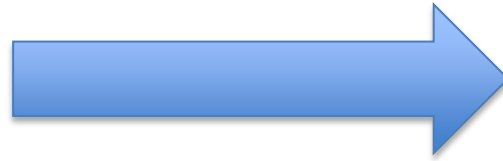
- **The third main finding is that, by contrast, there is a strong persistence in the innovative status of firms, with most HIFs remaining highly innovative and most LIFs remaining less innovative**
- While approximately 60% of HIFs maintain HIF status over time, only a small percentage of LIFs (~10%) become Highly Innovative

# The Causal Growth Path



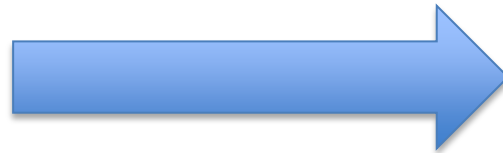
# HIF and HGF over time

**HIF**



**HIF**

**HIF**



**Higher  
Growth but  
not HGF**

# HGF over time

**HGF**



**HGF**

# 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**