Graduate start-ups and the regional context: a policy fad or a hidden driver?

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Work in Progress- Outline

- Contextualising Graduate start-ups (GSU) in local and regional economies
- Intended and unintended consequence of GSU policy
- ‘University-based entrepreneurial ecosystems’ in the regional and ML contexts
- The UK landscapes - GSUs in numbers; Methodology and descriptive findings so far
- Expected contribution and reflective ways forward…..

Graduate start-ups as a hidden factor for entrepreneurial growth in the region?

- Entrepreneurial ventures originating within universities have produced gains in local and regional economies (e.g. Lawton Smith et al., 2014; Breznitz et al., 2017; Bercovitz & Feldman, 2006; Bradshaw et al., 2003; Kenney & von Berg, 1999).

- We focus on Graduate start-ups (GSUs):
- Underexplored form of academic entrepreneurship (Wright et al. 2017; Audretsch, 2014);
- Scale and diversity of contexts (Astebro et al. 2012; Bergmann et al. 2016)
- GSUs as HEIs vehicle to anchor talent to regions and contribute to economic growth (Audretsch 2014, Guerrero et al. 2015)
- Mix of research and teaching impacting academic entrepreneurship (USOs and GSUs) not fully explored (Marzocchi et al. 2017)

Intended and unintended consequence of policy - Graduate start-ups as ‘academic capitalism’?

- Demand for entrepreneurship education expanded over the last two decades partly driven by “policy”
- “The state-sponsored student entrepreneurs” –the “socializing processes and structures” as a new form of “academic capitalism” (Mars, Slaughter, Rhodes, 2008)

- “Matthew Effect” in academic entrepreneurship across the research universities gaining further advantage through technology transfer whereas other universities fall still further behind (Owen-Smith, 2005);
- “Signaling effects” of USOs in less-favoured regions (Mueller et al., 2012)

The areas of investigation

- Impacts of different regional contexts to the creation and growth of GSUs
- Impacts of different “levels” of ecosystems interacting to the creation and growth of GSUs – *individual-university-local-national*
- Impacts of different types of universities to the creation and growth of GSUs and USOs (Marzocchi et al. 2017)
- Graduate migration and regional consequences (Faggian, A. et al.2007)

‘University-based entrepreneurial ecosystems’

- Conditioned by a number of factors:

knowledge infrastructure, *industry environments*, *knowledge and technology transfer /exchange systems*, *policies at national and local levels* and *strategies adopted by individual universities* and their *leadership*.

- GSUs differ from USOs in many ways (e.g. research links, IPs) but they also share the same university Infrastructure & support mechanisms (e.g. incubators, accelerators; entrepreneurs in residence); reputational effects.

- Student-centred factors (e.g. enterprise teaching; extra-curricula activities; enterprise society) and Mobility factors (graduate destinations/job opportunities) also influence GSUs.

Multi-spatiality of 'entrepreneurial ecosystems'

- Through their distinct "**university/campus-based entrepreneurial ecosystem**" (Miller and Acs, 2017; Siegel &Wright 2015), graduates are embedded in "social structures" (Jack and Anderson, 2002), which are bound by interactions within particular local contexts that affect their likelihood of engaging in entrepreneurship.
- Universities belong to multi-level "entrepreneurial ecosystems" (Stam, 2015; Spigel, 2017) and attract resources from actors at local, regional, national and international levels.

c.f. "regional entrepreneurial systems" (Qian et al., 2016)

"regional entrepreneurial university ecosystems" (Fuster et al., 2018)

UK national policy contexts on graduate start-ups

- **Growing national policy interest in student graduate entrepreneurship**

Enterprise for All: The relevance of enterprise in education -Lord Young report, BIS (2014),

An Education System Fit for an Entrepreneur- All-Party Parliamentary Group for Micro Businesses report, 2014

Strengthening entrepreneurship education to boost growth, jobs and productivity – Council for Science and Technology 2016 (Walport and Rothwell)

QAA Enterprise and Entrepreneurship Education (2012; 2018)

- Key messages include

– the importance of extra curricular support, Including the student enterprise society

– the importance of provisions going beyond business schools, across the university, esp. STEM.

- More recognition in Industrial Strategy, TEF, KEF….

Graduate start-ups(GSUs) in England in numbers

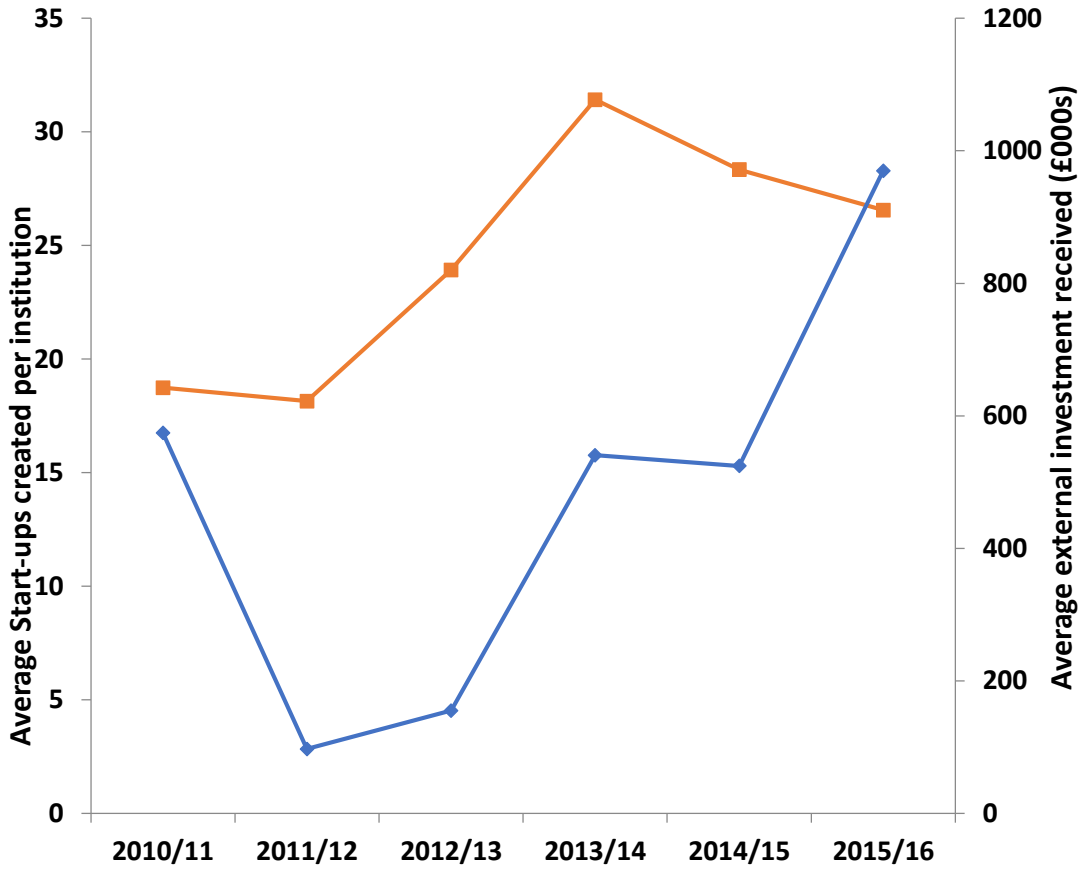
- over 4,000 new graduate start-ups created in 2014/15.

- **Unit of analysis:** HEIs in regions (NUTS1)
- **Period:** 6 year longitudinal study (2010/11-2015/16)
- Sources: HEBCI; HESA; DLHE; Eurostat; BVCA; NESTA
- **Entrepreneurial output**:

GSUs created (up by 42%) &

Ext. investment received (up by 69%)

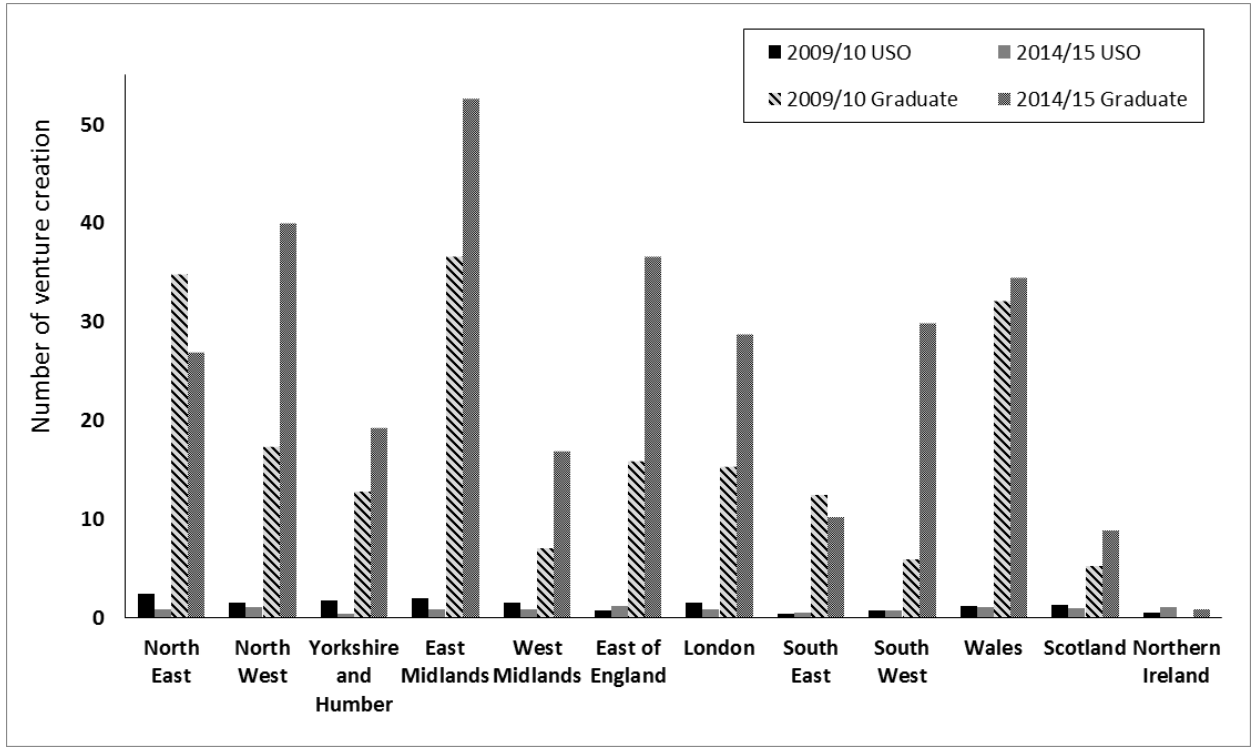
(Source: HEBCI)



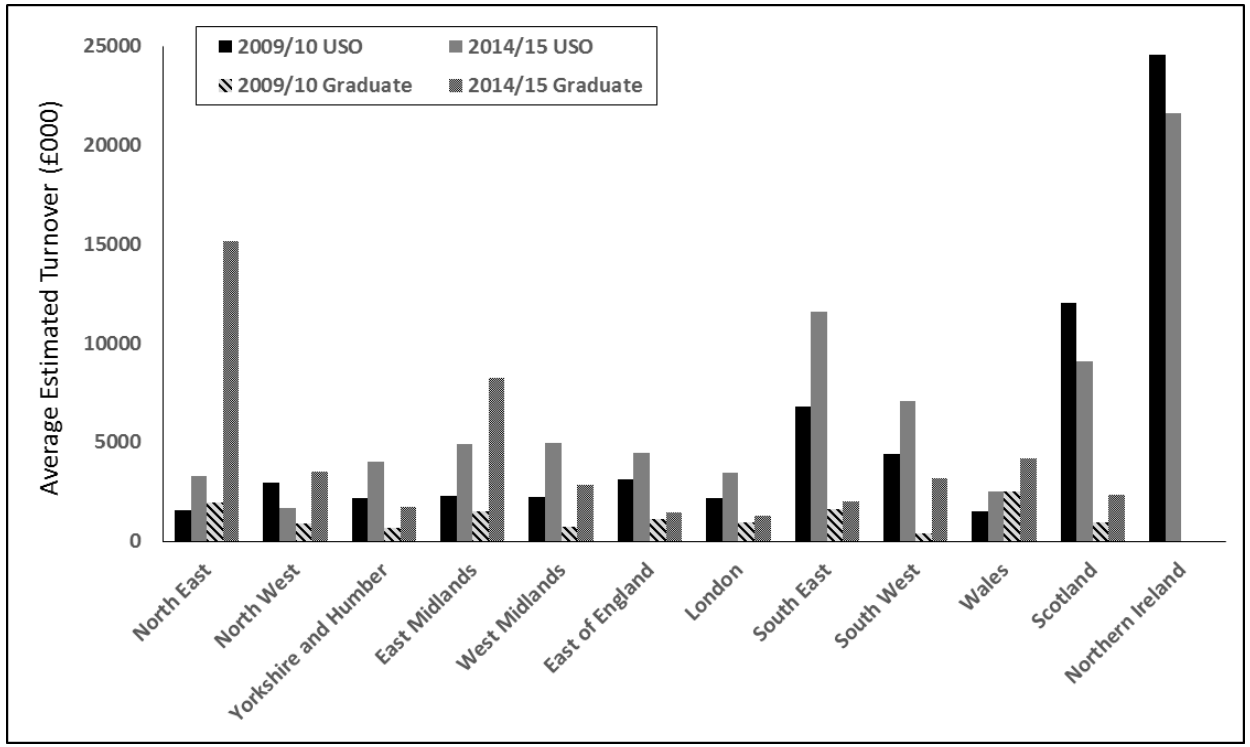
GSUs and USOs in UK in numbers

(HESA, 2017; HEBCI (2009/10 and 2014/15))

USOs and GSUs per institution in 2009/10 and 2014/15

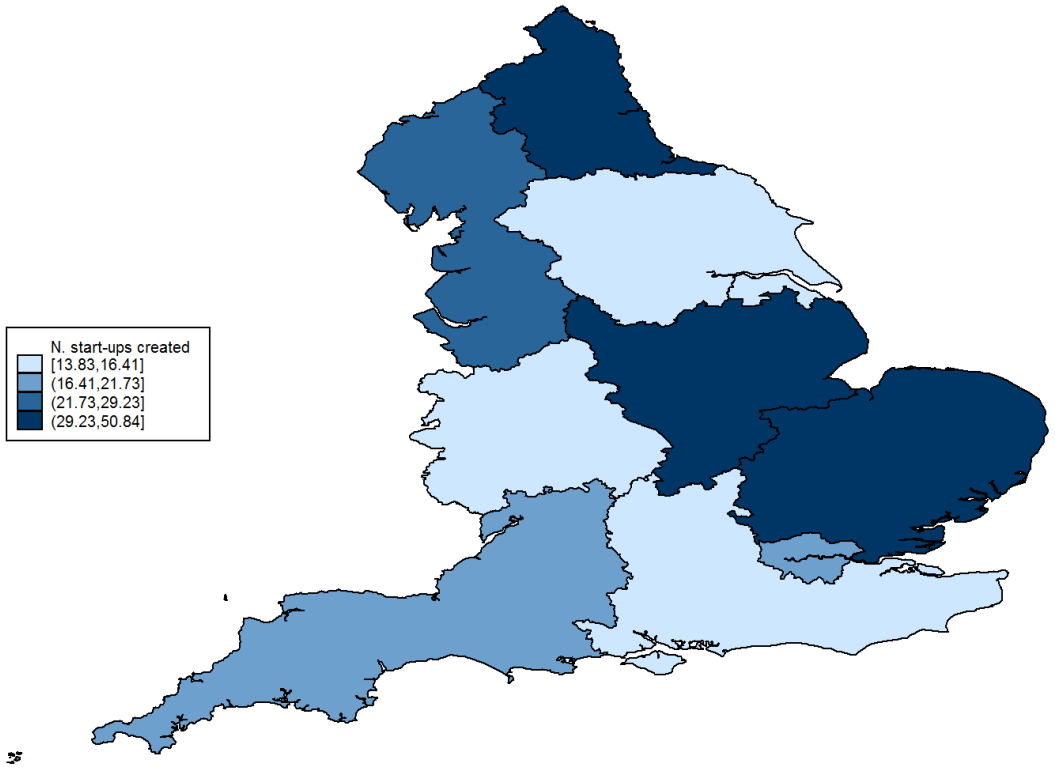


Average Estimated Turnover (£000) by different types of university ventures

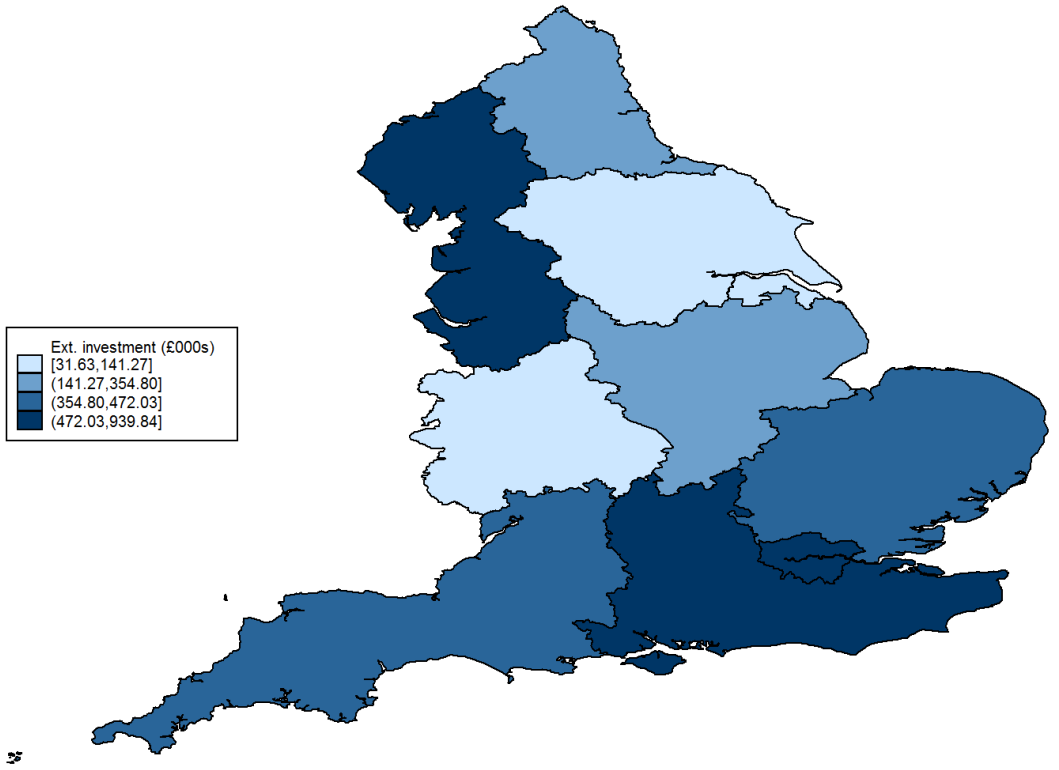


Regional distribution of GSUs created and investment received (2010/11-2015/16)

Creation of start-ups



External investment received



Questions

- GSUs as an “anchor” in the region - alternative employment/job creation?
- GSUs helping less favourerd regions create jobs and attract external investments?
- Or, GSUs as an employability mechanisms; and may lose them to help regions with more opportunities?
- GSUs “signaling effects” from research and teaching? Different reputation effects between different universities?

Our working observation (not quite hypotheses)

We are working on a paper, which shows-

- HEIs located in regions with ***more entrepreneurial opportunities*** will be more likely to produce ***Higher number of GSUs but no significance in External investment***

We are trying to investigate more -

- HEIs in less favoured regions create more entrepreneurial opportunities for GSUs creation for job creation aiming to retain graduates;
- but that does not lead to high external investment?

Sources: HEBCI; HESA; DLHE; Eurostat; BVCA; NESTA

What are the factors that influence the GSU retention and growth?

Regional contexts – Regional EE

- the regional knowledge base
- University town/Larger city
- R&D expenditure (% of GDP)
- Labour market
- Institutional thickness
- Creativity
- % Grads. Starting up business in the region of their study

HEI contexts – University EE

- Institutional entrepreneurial contexts
- Teaching and Research endowment (Marzocchi et al. 2017)
- Human capital – STEM/non-STEM
- Match between Labour market & HE provisions

Expected Contribution of the paper

- “University-based entrepreneurial ecosystems” constituting multi-spatial “entrepreneurial ecosystems” – Unpacking GSUs as multi-level processes

- Universities’ strategies for GSUs are multi-faceted – beyond “academic capitalism” - not just for job creation and economic growth; short term employability; mid-long term social and cultural impact to the surrounding areas– but difficulty to capture the accumulative “entrepreneurial impacts”

- GSU as a regional policy tool could have unintended consequences!

Work in progress, comments are welcome.

Extra slide from other work
Factors to consider

Regional level variables

Entrepreneurial region: composite indicator capturing regional entrepreneurial opportunities
(accelerators, incubators and VC)

Unemployment rate: Unemployment people on total active population (15-74y.o.)

Other controls:

- Density: inhabitants/km2
- GVA: Real growth rate of regional gross value added (% change)

- Total R&D expenditure (pounds)
- % Grads. Starting up business in the region

University level variables

Human capital:
Num. of research and teaching staff
Num. of members of a governing body from commercial businesses
Num. graduates in STEM

Intellectual capital:
Number of top 10% citations harmonized by field by year
Reputation: Institutions in the Shanghai ranking

Entrepreneurial capital:
Number of spin-offs
Number of patents granted
IP revenues

Other controls:
Size: students number
Subject specialization (HH index
Research intensive universities (Russell group)
Golden Triangle (HEIs located in the London-South East area)