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The Academic Entrepreneur: Myth or Reality for Increased Regional Growth in Europe?

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Outline

- Introduction
  - *Academic entrepreneur concept*
  - *US vs. continental Europe*
- Factors influencing the realization of academic motivations behind spin-off firm formation
- Empirical analysis: in search of the “classical” academic entrepreneur behind university spin-off firm formation
- Summary and conclusions

Introduction: The „academic entrepreneur”

- US system of research organization (Etzkowitz 2003, Franzoni and Lissoni 2009) - researchers already act like entrepreneurs ➔ quasi firms
- Strong *academic motivation* behind commercialising research results: the aim is to support academic career
  - *Additional funding ➔ increased scientific activity*
  - *Potential synergy between applied (firm) and the basic research (university laboratory)*
  - *Employment in spin-offs can keep talented students near the university*

Introduction:
The academic entrepreneur in the continental Europe?

- Europe performs less successfully in technology transfer through spin-offs
- Potential reason:
  - *Institutions of the European research system hold back the emergence of the classical (in the Etzkowitzian sense) academic entrepreneurs*
  - *Such institutions (Bonaccorsi 2005):*
    - Status of researchers
    - Role of competition and mobility
    - Organization of research funding

Researchers' status, salary

USA

- University employees
- Compensation is determined decentralised ➔ encourages entrepreneurship

Continental Europe

- Civil servants or state employees
- Compensation is determined centralised ➔ cannot reflect differences in productivity

Role of competition and mobility

USA

- Fierce competition for star scientists (PI → public funding)
- High mobility
  - *Short term mobility between academia and industry is possible*
  - *Favours transfer of techniques*

Continental Europe

- Modest competition
- Less mobility ➔ inhibits systemic collaboration across institutional boundaries ➔ impeding technology transfer

R&D sources

USA

- Evidence based decision making (analysis)
- Multilayer, decentralised system
  - *Sources from*
    - several political level
    - several types of agencies in terms of governance and time horizons
- Concentration of funds
- Ranking + concentration→ long term, large scale funding

Continental Europe

- Political decision making (compromise) → slower
- Centralised system
  - *Important funding sources allocated on a few level*
  - *Low variety of funds*
  - *Almost zero private donation*
- Equal distribution of funds
- Equal treatment + spreading policy → short term and limited funding

- Despite that AE seems to be hardly fitting into the European research system there are many successful university spin-off cases (Wright et al. 2007)
- Potential explanations:
  - *Non-academic incentives (e.g., need for a higher level of independence, better pay) play more important role*
  - *AE is also the key in Europe despite the supposed institutional barriers*

Research questions

- *Have the academic drivers already appeared in the continental Europe (despite the seemingly unfriendly traditions)?*
- *What are the factors shaping the motivations behind university spin-off firm formation?*
  - Professional characteristics of the academics
  - Social capital
  - Norms of the academia
  - Academic and business environment

Empirical analysis: in search of the "classical" academic entrepreneur behind university spin-off firm formation

- Hungary: an excellent case for investigation ← „*continental*" (mostly German) + *socialist* (soviet) tradition
- Structured interviews (30-90 minutes)
- Biotechnology entrepreneurs
- Data collection
- 18 interviews (5 Budapest, 13 countryside, different ages, 5 universities)
- Establishment: 1992-2008

The „classical” AE (8 cases)

- Excellent publication and citation records
- Upper segment of the university hierarchy
- Academic motivations (money ~ success)
- Services as supportive activity
- Harmony between academia and business
- No business education, but prior business and project management experience (CEO, later on hire professional manager)
- International experiences → role model, embedding ➔ academic networks are important

- Also business networks can be about importance
- Publication delay is common, secrecy occurs, but none of them lead to tension
- University environment is supportive also on the departmental level
- State supports and grants are important, just as contract research
- Usually try to avoid VC
- Cooperation with the TTO is not typical, neither equity holding
- Science parks do not play an important role

The unbalanced AE (3 cases)

- Either research or company gets the dominant focus
- Half of them deal only with science with the beginning on (medical doctors)
- Very successful and acknowledged
- Half of them with outstanding publication and citation record
- Highest level in the academic hierarchy
- No role models mentioned, no formal business education
- Academic networks play an important role (feedbacks, co-publications, shared devices)

- One business man – also business network was very important
- Secrecy and publication delay did not mean a big problem
- State supports and grants are very important
- University is supportive on the policy and departmental level as well, however TTO does not play a dominant role
- Science park and VC are not important

The impeded AE (3 cases)

- Lots of their motivations and characteristics are similar to those of classic AEs
- Unsupportive departmental attitude or lack of resources (financing, experts) impede realization
- Scientific work well acknowledged
- Two of them have impressive publication and citation records
- No chance to set up an own university research group
- Bottom/middle level of the university hierarchy
- International experience → role models
- Prior business experience in one case
- No business networks

- Academic networks are important
- Concrete idea or recognition of the biotech trend motivates spinning off
- University is supportive (equity holding in one of the firms), but the department is not ➔ exit
- Secrecy and publication delay are not the sources of stressed relation
- TTO provided very limited help
- State support and grant is important,
  but not infinitive
- No VC
- Only one of them runs a lab in a science park

Externally motivated AE (3 cases)

- Different from the previous categories
- Bottom/middle ranked in the academic hierarchy
- International experience is not typical (or non-entrepreneurial university)
- Publication and citation mixed
- Business experience (chemistry and genomics)
- No business networks
- Academic networks are helpful (co-foundation, work force)
- Secrecy and publication delay do not play a role
- University or grant shortage (negative Matthew-effect) initiated

- Very active TTO, university equity holding, sometimes industrial as well, but no VC
- Due to the establishment circumstances they might be about limited growth potential, but very young to judge it
- State supports and grants play a crucial, decisive role
- No professional external management, no business angel and VC, sometimes there is industrial partner and lots of contract research
- Searching for the right place, specialized in services
- Alternative commercialization method compared to licensing
- Also TTO is grant-dependent

Summary and conclusions

- Q: Is AE a really typical US phenomenon?
- Classical AE DOES EXIST also in the European institutional system
- 8 of 18 cases are classic AE
- Some factors influence whether the entrepreneurial academic will be a classical one or different type of company will born
- Classical academic entrepreneurial firms:
  - *are established by internationally acknowledged scholars with rich academic network connections sometimes with broad business relationships*
  - *Role models seem to be about crucial importance*
  - *Entrepreneurial university policies do not have significant impact, but the bigger is the importance of the departmental norms*

- *Different paths:*
  - Unfriendly departmental environment or lack of resources and business knowledge ➔”Impeded” AEs → company does not enrich scientific activity at the university laboratory
  - Product specificities and missing role models ➔ unbalanced entrepreneurs → integration of the firm into scientific research is limited
  - Aggressive entrepreneurial policies ➔ rather limited business-academia synergies

- The existence of the classical AE in the unfavourable continental European system proves the importance of academic motives
- TTOs did not play a major role
- Institutional changes are needed:
  - *Financial autonomy of universities*
  - *Real competition of academic institutions*
  - *Introduction of a multilayer system of research funding*

Thank you for your attention!