Can Innovations be Educated in Agricultural Universities: Evidence from Venture Capital Backed Entrepreneurial Firms in China

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The 9th GCHERA World Conference: Global Food Security and Food Safety: The Role of Universities
• Innovation, technology and affecting our daily life

• High growth

• Venture capital
• Innovation, technology and affecting our daily life

• High growth

• Venture capital
The first modern VC firm – American Research and Development (ARD) – was formed in 1946 by Karl Compton (MIT President) and Georges Doriot (Harvard Business School).

The success of the investments ranged widely. A notable case is an equity investment of $70,000 on Digital Equipment Company (DEC) in 1957; the company was valued $355 million in 15 years.

Universities have the ‘gene’ of VC-backed innovations at the VERY beginning.
Definition of Innovations

• Definition: novel, creativity, invention, technology, research …
• Model of Innovation process at the level of economy (Ergas, 1989)
  • **Generation**: from concept to product/service
  • **Application**: commercialize/test the product/service
  • **Verticalization**: other chain partners (such as suppliers, distributors, complementary assets, and even competitors)
  • **Diffusion**: the rest of socio-economic environment
Life Cycle of Innovation and Venture Capital

Revenue

- Develop concepts to product/services
- Market testing
- Complementary assets
- ........

Seed and Initial Stage

Time

Growth Stage
Expansion/maturity Stage

A B C D E

• Scaled commercialization
• Verticalization

• Diffusion (through IPO)
中美的创投行业规模对比
Venture Capital in China and U.S.

Source: NVCA; PEdaily (清科)
China’s audacious and inventive new generation of entrepreneurs: Industries and consumers around the world will soon feel their impact

Where is agriculture and life science? What is the role of universities?
Venture Capital in China’s Food & Agriculture
Agricultural VC in China (2010-2016)

Agr-VC and Geographic Distribution

Regional difference of VC backed entrepreneurial startups. What is the implication for ‘innovation’?

Source: Jia (2017).
Agr-VC Start-ups and Investment Stages
中国农业创投项目与轮次

From concept to commercially viable and expanding practices.

Source: Jia (2017).
Agr-VC and Business Modality

Business-oriented agri-entrepreneurial startups is rising for VC investment; Consumer-oriented entrepreneurs are slowing down; More and more agri-entrepreneurial startups in rural China, having profound impacts on market structure and farmers.
Experience of CEO for Agr-VC Start-ups

农业创投的创业者个人经历和背景

- Agri-entrepreneurial startups WITHOUT agricultural background
- One-third had entrepreneurial experience before and 13% failed

Source: Jia (2017).
Does Agr-background Matter?

• **No!** But **WHY?**

• Debates on entrepreneurship/innovation
  • **Realist approach:** Alerting opportunity by people with certain *knowledge*
  • **Constructionist approach:** Opportunity constructed, deconstructed and reconstructed through cognitive *actions*

<table>
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<tr>
<th>Staged VC infusion (Yes=1; No=0)</th>
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<td>Master degree and above (Yes=1; No=0)</td>
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<td><strong>Occupational background</strong></td>
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<td><strong>Entrepreneurial experience</strong></td>
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<td>Serial entrepreneur (Yes=1; No=0)</td>
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<td>Entrepreneurial failure (Yes=1; No=0)</td>
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<td><strong>Project characteristics</strong></td>
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Can innovation be educated?

• If innovation is to “alert” and “discover” opportunities, who are more alerting and responsive to the opportunities? Do the opportunities have a price?
• If innovation is to “create” opportunities, how the capability is formed?
• If innovation need to be (and can be) educated, what knowledge shall we provide in agricultural universities?
  a) Be introspective (to construct, deconstruct, and reconstruct cognition)
  b) Take actions
  c) Face failure (and return to (a) …)
Entrepreneurial education in agricultural universities:
Key modules

• Innovation is a process of value creation by testing and commercializing a novel ideal or invention with great uncertainties.

• Four elements
  • Interdisciplinary: hunger for knowledge (outside the own field) and be cooperative
  • Be ready to challenge authority and also be challenged
  • Custom-centered: market and demand
  • Create value for good
Discussions:

- University laboratories create knowledge “spills over” and contribute to the generation of commercial innovations by private entrepreneurs (and private equity).
- Shall universities/scientists receive ‘residue’ from the innovations?
- Shall scientists/researchers be entrepreneurs themselves OR be partnering with entrepreneurial start-ups?
- Is there a community or institution that avail the free-will and capability?
- ...
Venture Capital and Entrepreneurial Innovations in China’s Agriculture