

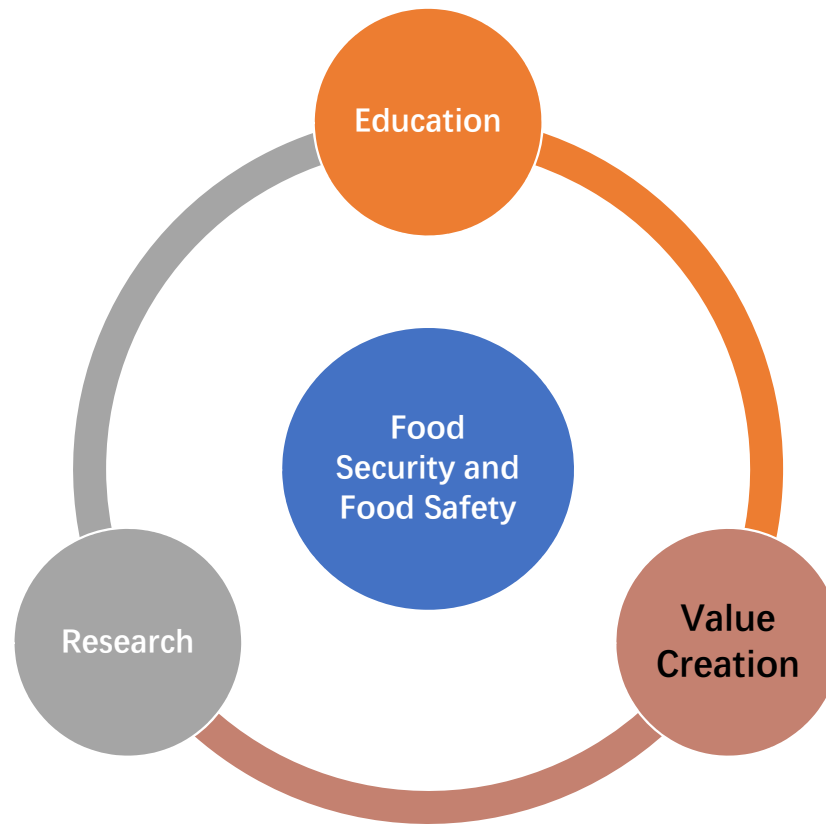
# Can Innovations be Educated in Agricultural Universities: Evidence from Venture Capital Backed Entrepreneurial Firms in China

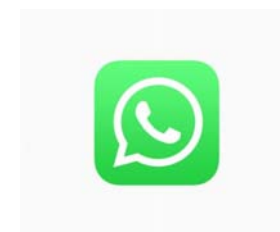
## 中国农业创投与大学之创新教育

Xiangping JIA (贾相平)

(Keynote Presentation for the 9<sup>th</sup> GCHERA World Conference, Nanjing, Oct. 29, 2017)

# 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

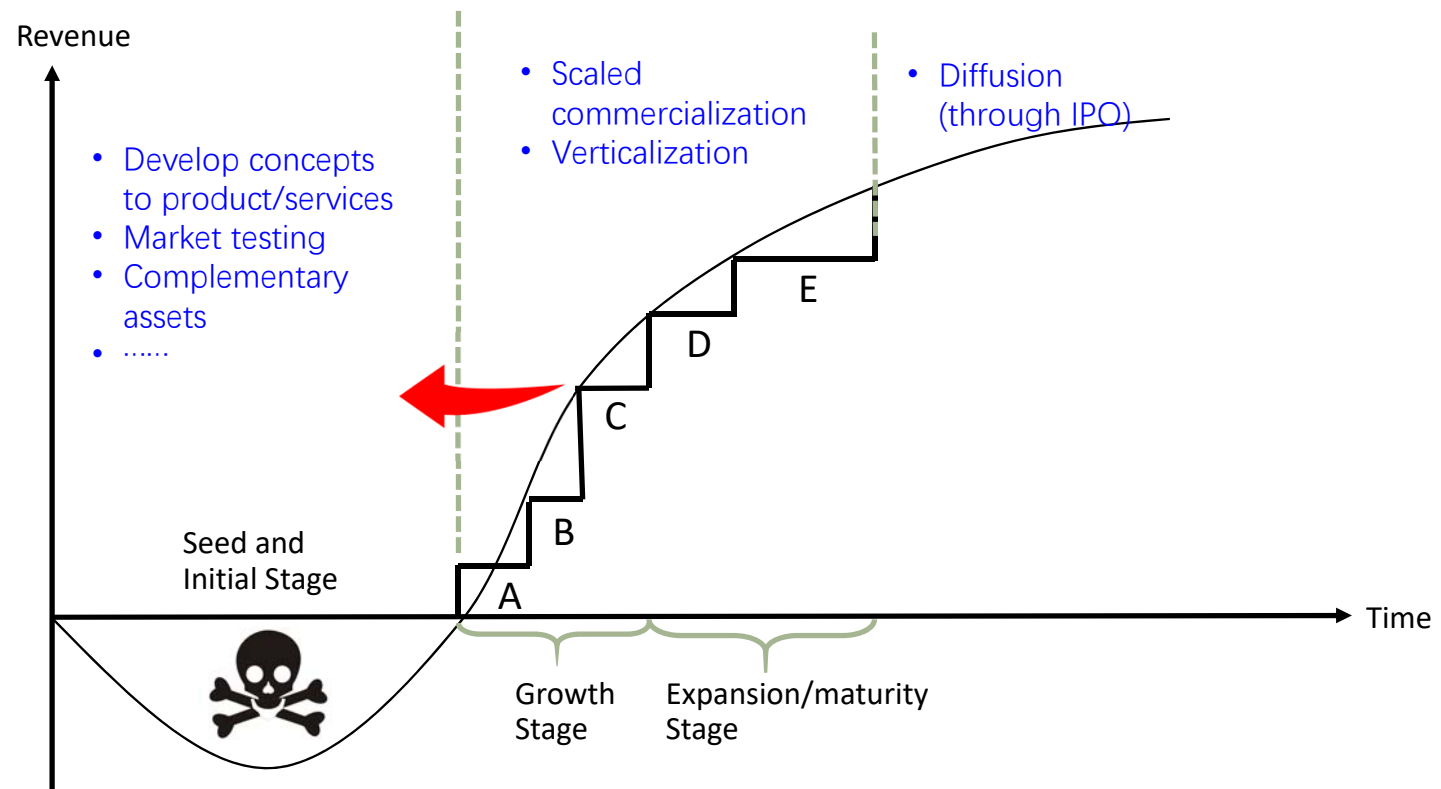
# Venture Capital: Modern History

- 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

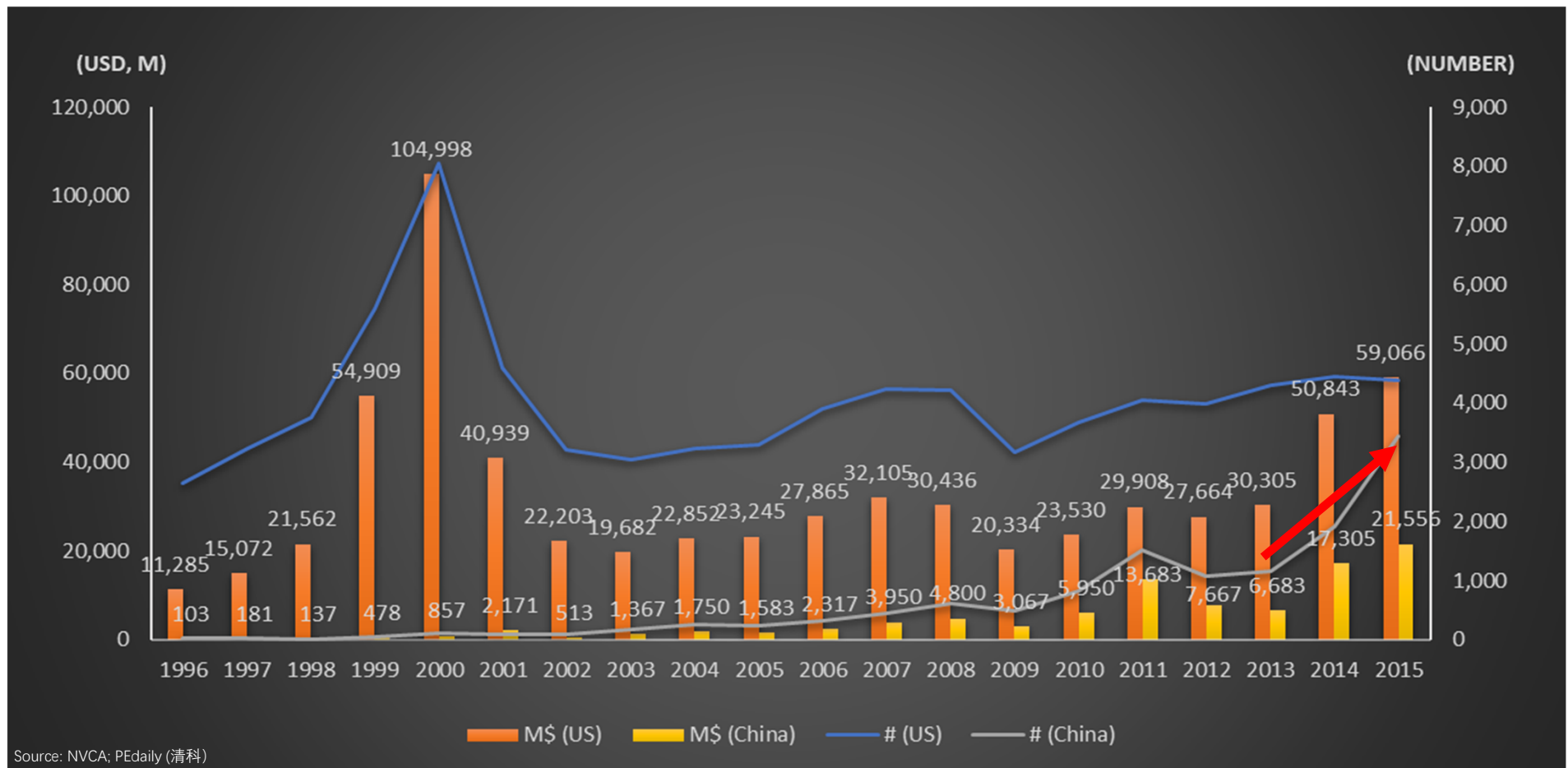
- Definition: novel, creativity, invention, technology, research ...
- Only successfully [commercial exploitation](#) of novel ideas and invention are innovations. (Nelson, J. R. 1993. National Innovation Systems. Cambridge, MA: Harvard University Press.)
- Model of Innovation process at the level of 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

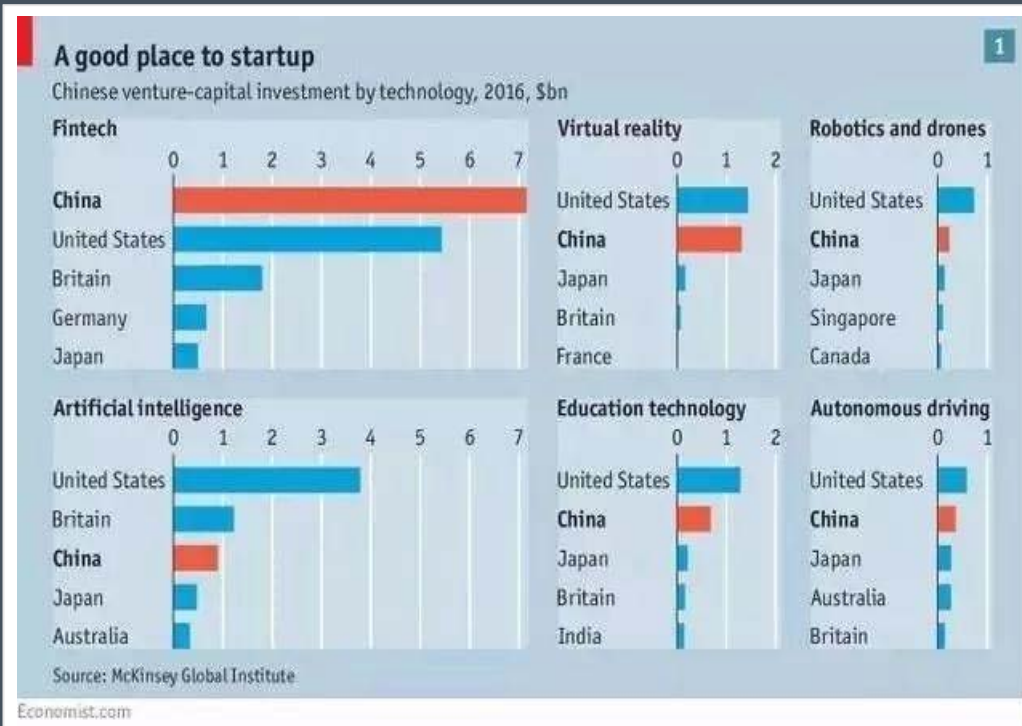
# Life Cycle of Innovation and Venture Capital



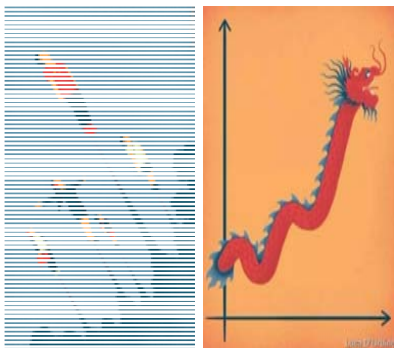
# 中美创投行业规模对比

## Venture Capital in China and U.S.





The Economist, Oct. 14, 2017

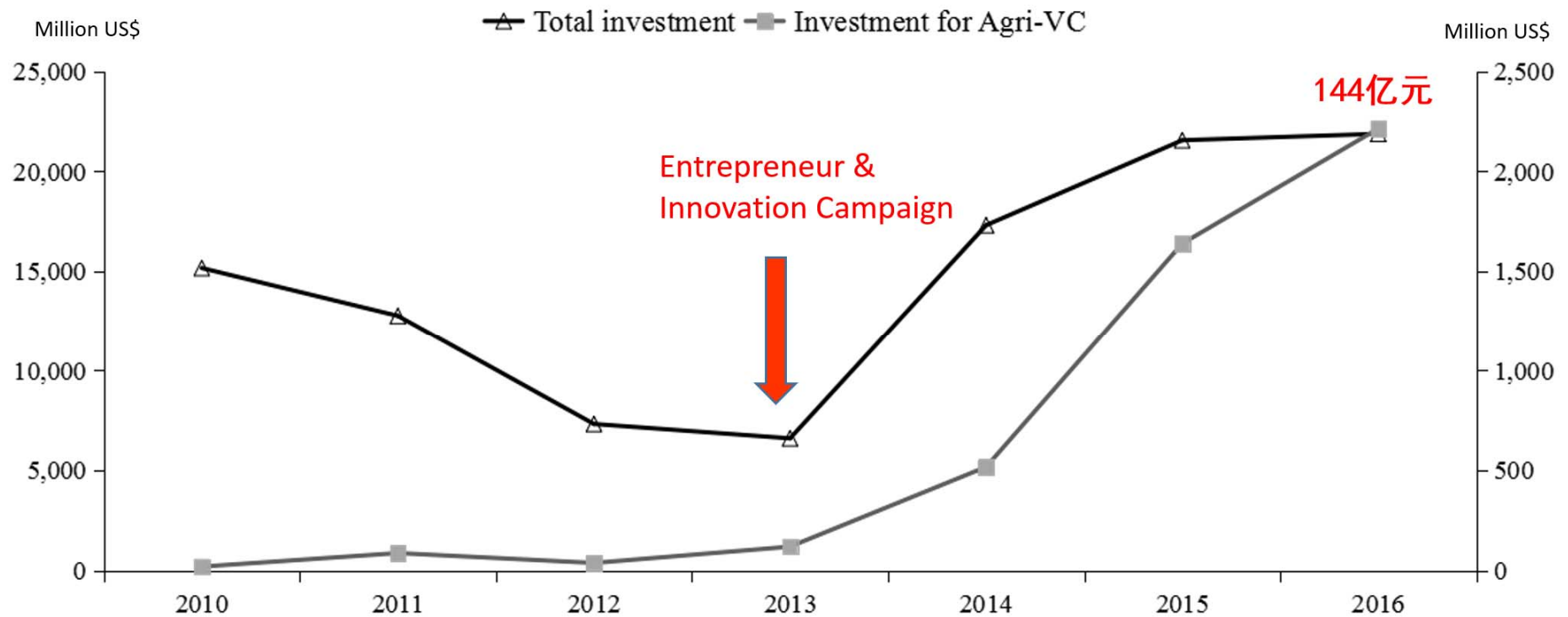


China's audacious and inventive new generation of entrepreneurs: Industries and consumers around the world will soon feel their impact

Where is agriculture and life science? What is the role of universities?

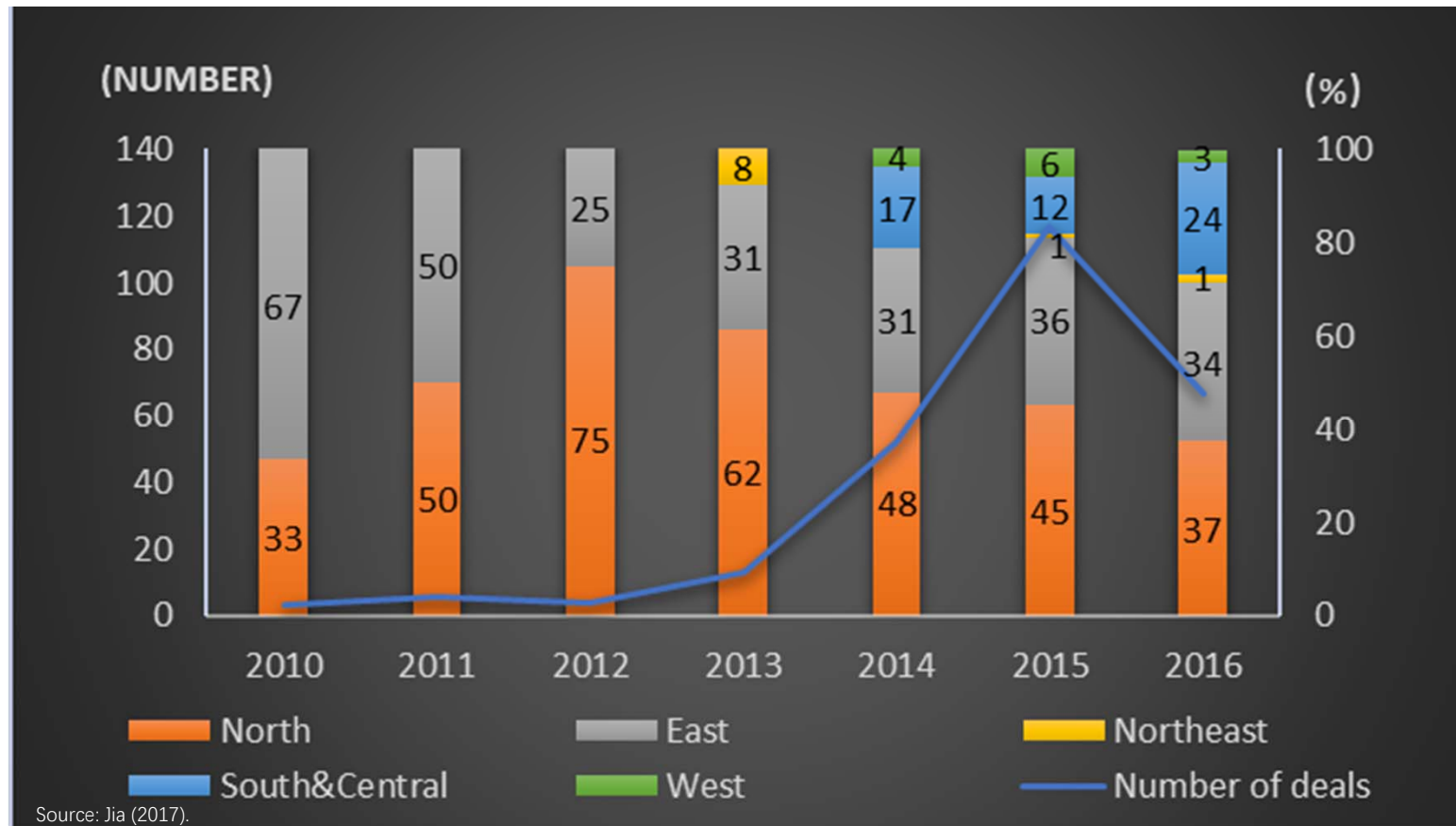
# Venture Capital in China 's Food & Agriculture

# 中国农业创投 Agricultural VC in China (2010-2016)



Source: Jia, Xiangping (2017) "Emerging Venture Capital in China's Agriculture: Entrepreneurship and Innovation". At "Agricultural Innovation and Investment: Profiles and Perspectives". July 6. Beijing, China.

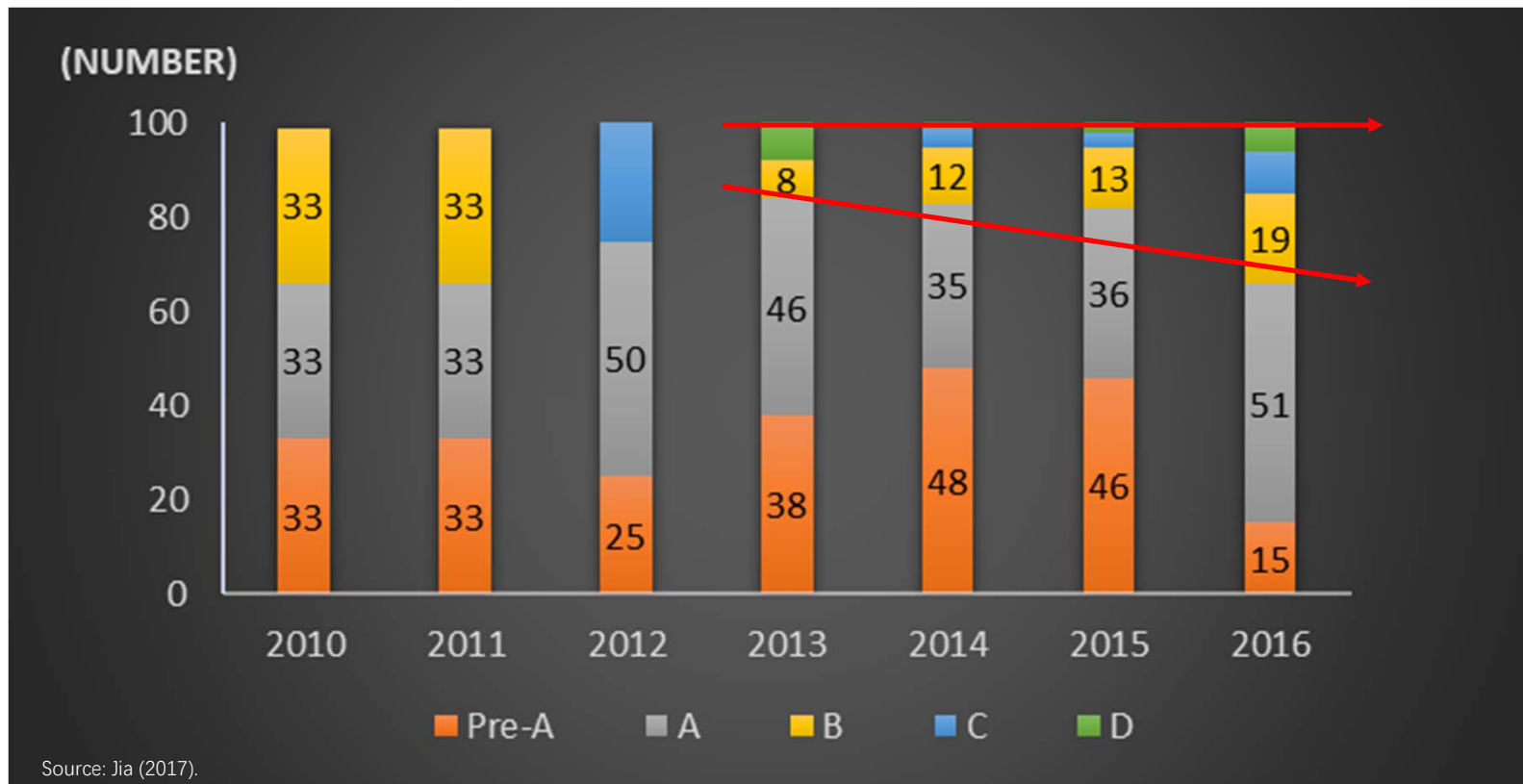
## Agr-VC and Geographic Distribution 中国农业创投项目与地区分布



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

# Agr-VC Start-ups and Investment Stages

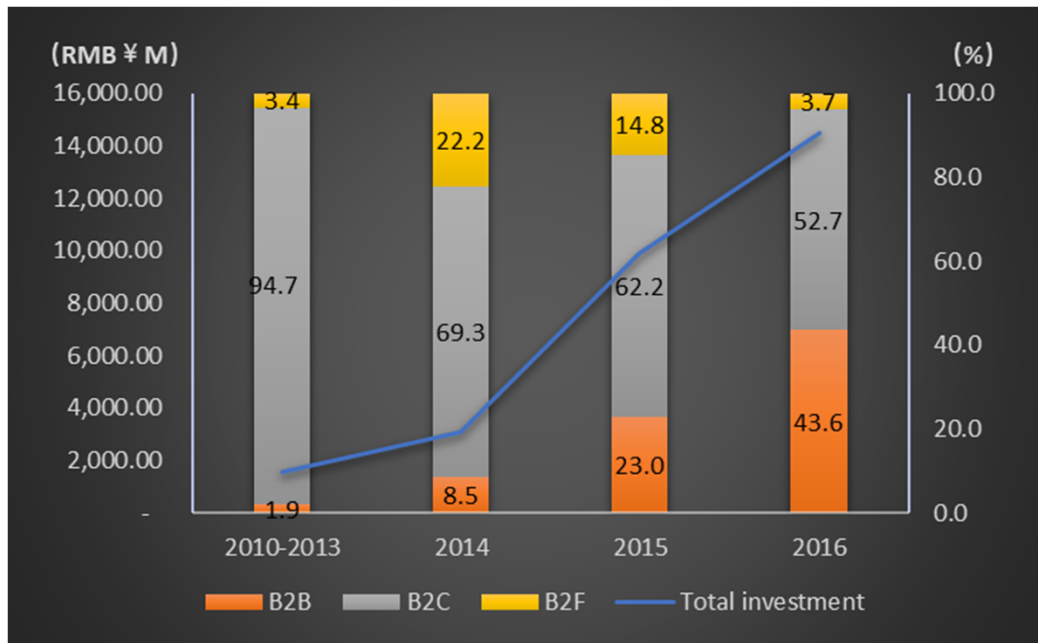
## 中国农业创投项目与轮次



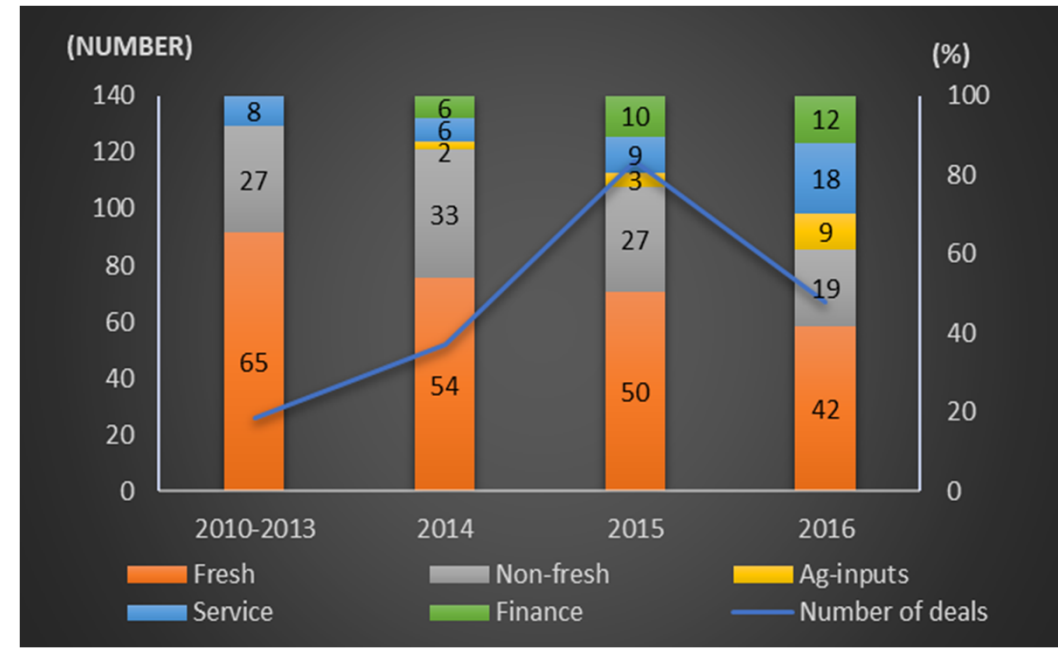
From concept to commercially viable and expanding practices.

# Agr-VC and Business Modality

## 中国农业创投项目的商业模式和内容



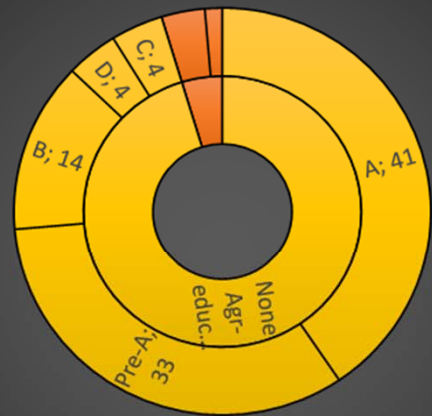
Source: Jia (2017)



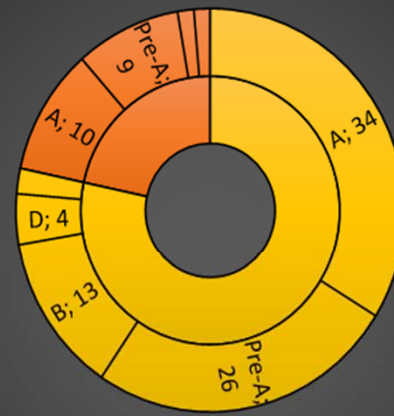
Source: Jia (2017)

**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.**

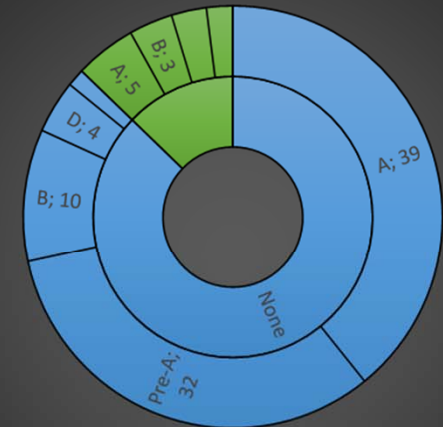
## Experience of CEO for Agr-VC Start-ups 农业创投的创业者个人经历和背景



■ Agr-education ■ None Agr-education



■ Agr-career ■ None Agr-career



■ Failure experience ■ None

Source: Jia (2017).

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

# 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*

	Staged VC infusion (Yes=1; No=0)		
	(1)	(2)	(3)
<i>Educational background</i>			
Master degree and above (Yes=1; No=0)	-0.40 (0.77)	-0.27 (0.51)	-0.32 (0.61)
Food and agriculture science (Yes=1; No=0)	1.08 (1.29)	0.84 (1.02)	0.95 (1.13)
Oversea study (Yes=1; No=0)	0.55 (0.99)	0.41 (0.72)	0.49 (0.86)
<i>Occupational background</i>			
Public institutions such as government and research institutes (Yes=1; No=0)	-0.10 (0.12)	-0.20 (0.25)	-0.10 (0.13)
Industries related to food and agriculture (Yes=1; No=0)	-0.49 (1.00)	-0.53 (1.06)	-0.52 (1.02)
<i>Entrepreneurial experience</i>			
Serial entrepreneur (Yes=1; No=0)	0.72* (1.68)		0.36 (0.73)
Entrepreneurial failure (Yes=1; No=0)		1.49* (1.92)	1.22 (1.42)
<i>Project characteristics</i>			

# 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

## 中国农业创投、创业与创新



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