FINANCING VENTURES

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Discussion by E. McGrattan, February 2018
GHS

- Develop model of venture capital (VC) financing
- Calibrate it with evidence on VC-backed companies
- Quantify the impact of higher capital gains taxes on
  - Growth
  - Welfare
Why the Focus on VC?

- Many successful companies have had some VC-backing

- Evidence from growth regression:
  - If VC inv/GDP ↑ from 0.00003 (JP) to 0.002 (US),
  - Then growth rises 1 percentage point
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⇒ huge impact
GHS Model

- Dynamic contracts between
  - Entrepreneur with ideas, no money
  - VC capitalists with money, no ideas
  - How much money used to develop idea is private info

- Multiple funding rounds with costly monitoring

- Partnerships end with IPO or termination
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Embed in endogenous growth model
Main Finding

- Based on calibrated endogenous-growth model:

  - If cap gains tax ↑ from 0.15 (US) to 0.6 (PT),
  - Then, growth falls 0.4 pp and welfare ↓ 15%
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⇒ huge loss
Why Are Effects so Large?

• VC-backed firms modeled as:
  ◦ 80% more productive than non-VC
  ◦ Significant fraction (all?) of R&D and market cap
  ◦ Highly responsive to tax incentives

⇒ huge impact on growth and welfare
Discussion

- Review the evidence

- Recommend:
  - Broadening the scope
  - Tracking the innovation
VC-Backed Companies

- Companies in VentureXpert database account for
  - 20% of market capitalization
  - 35% of R&D
  - 11% of employment

- But,
  - Many have other sources of financing
  - VCs often come in after initial financing
Other Sources of Financing

- Angel investors (eg, Brin & Page, Google)
- Trade credit (eg, Jobs & Wozniak, Apple)
- Sweat equity (eg, Gates & Allen, Microsoft)
- Own savings (eg, Ellison, Oracle)
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Next, consider these famous examples...
Google Financed Even Before Existed

• First investors:
  ○ Faculty, family, and friends (servers and rent)
  ○ Andy Bechtolsheim of Sun Microsystems ($100K)

• Subsequent financing:
  ○ Rival venture capitalist firms
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VentureXpert include Google with VC-backed firms
Apple I’s built with Trade Credit

• The Byte Shop
  ○ Ordered 50 computers for $500/each
  ○ J&W used invoice to order parts on 30 day credit

• Subsequent financing:
  ○ Angel investor Markkula (for Apple II)
  ○ After that, Markkula sought venture capital
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VentureXpert include Apple with VC-backed firms
MS Software from Sweat Equity

• David Rubenstein interview with Bill Gates

Q  When you started, how did you avoid...VC money?

A  The first few years Paul and I worked for free, but after that we were just generating cash. We eventually sold 5% of the company... just to get a VC company to join the board and give us some adult advice.
David Rubenstein interview with Bill Gates

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VentureXpert include Microsoft with VC-backed firms
• Initial investment of 3 partners was $2K

• Very typical story:
  ○ Work first and save
  ○ Invest savings in new venture
  ○ Later, venture capitalists invest
Oracle from Own Savings

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VentureXpert include Oracle with VC-backed firms
VC vs non-VC Investments

- How are VC and non-VC investors paid?
- Are there economically significant differences?
- Do contracting frictions matter for innovation?
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• Are there economically significant differences?

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Next, consider pre-1980s evidence...
Pre-1980s Evidence

• VC was non-existent until...

• Small Business Investment Act, 1958
  ○ Tax breaks and access to federal funds for SBICs

• ERISA’s Prudent Man Rule, 1979
  ○ Regulation relaxing rules pension fund investing

⇒ Growth of VC industry
Pre-1980s Evidence

- VC was non-existent

- But,
  - Other sources of financing available
  - And economic growth strong

- So... why focus only on VC-financing?
Pre-1980s Evidence

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- And... why not compare US pre- and post-1980? ... rather than Japan and US?
Broaden the Scope

• If 0.002 GDP in investment
  ⇒ 20% of current US market cap
  ⇒ Likely overstating impact of VC

• Recommend: include other sources of investment
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  ⇒ Likely overestimating impact of VC

• Recommend: include other sources of investment
  or, show evidence that VC is sine qua non
Track the Innovation

- US R&D
  - Roughly 2% of GDP ($\gg 0.2\%$ VC investment)

- US business investment
  - Roughly 12% of GDP ($\times 2$ if intangibles counted)

- Recommend: track the innovation and its financing
Summary

• Great topic!

• Recommend:
  ○ Broadening the scope
  ○ Tracking the innovation