

Lean Innovation – Funding STEM education

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Problem / Question

Does Lean Innovation provide a new avenue for funding STEM Education?

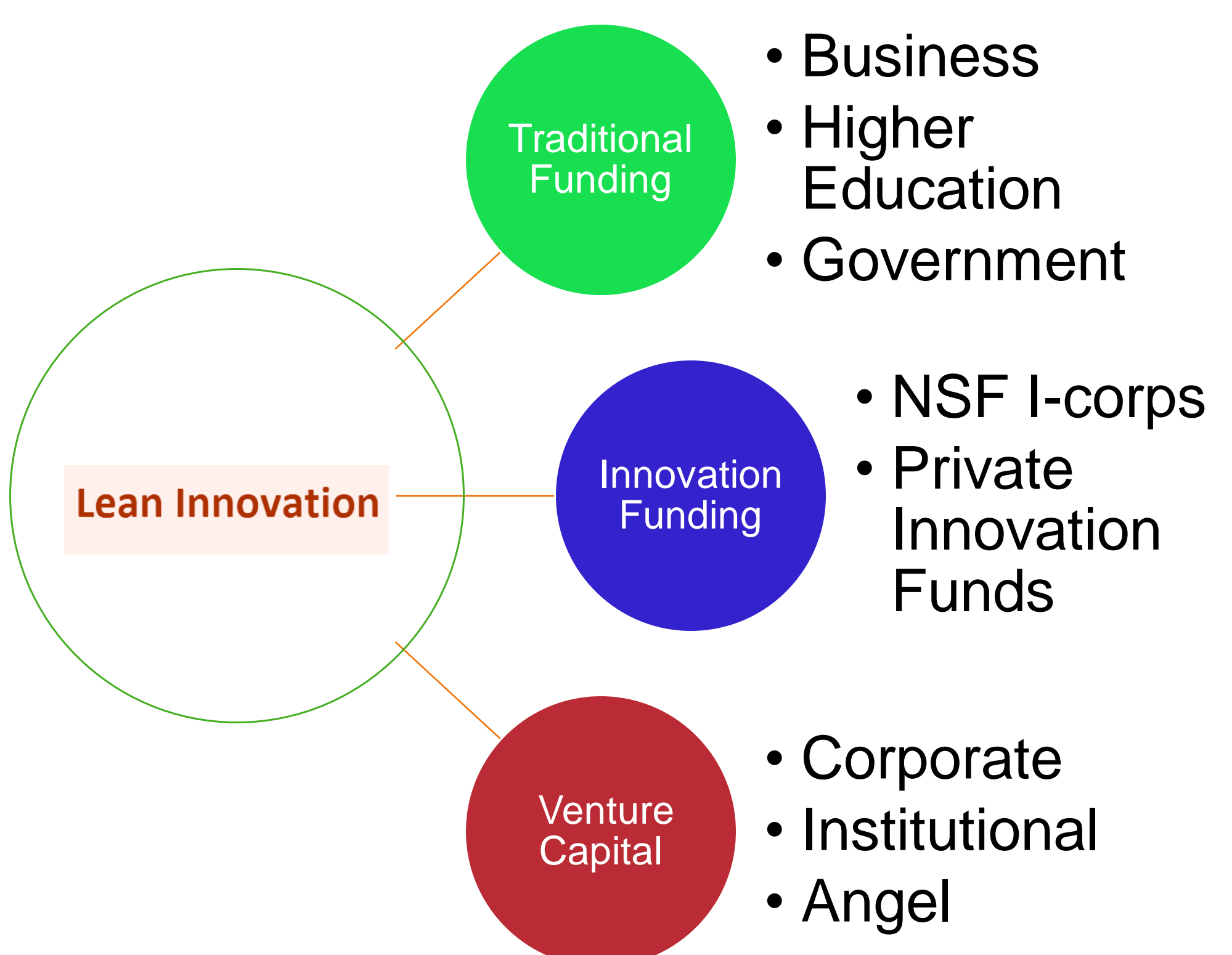
Hypothesis

- Traditional sources of funding have started drying up. To fill this void, Venture Capital & Private Equity have provided a new avenue for funding R&D through innovation and entrepreneurship.
- Empirical research may help verify whether STEM education may be funded through Accelerator-style funding

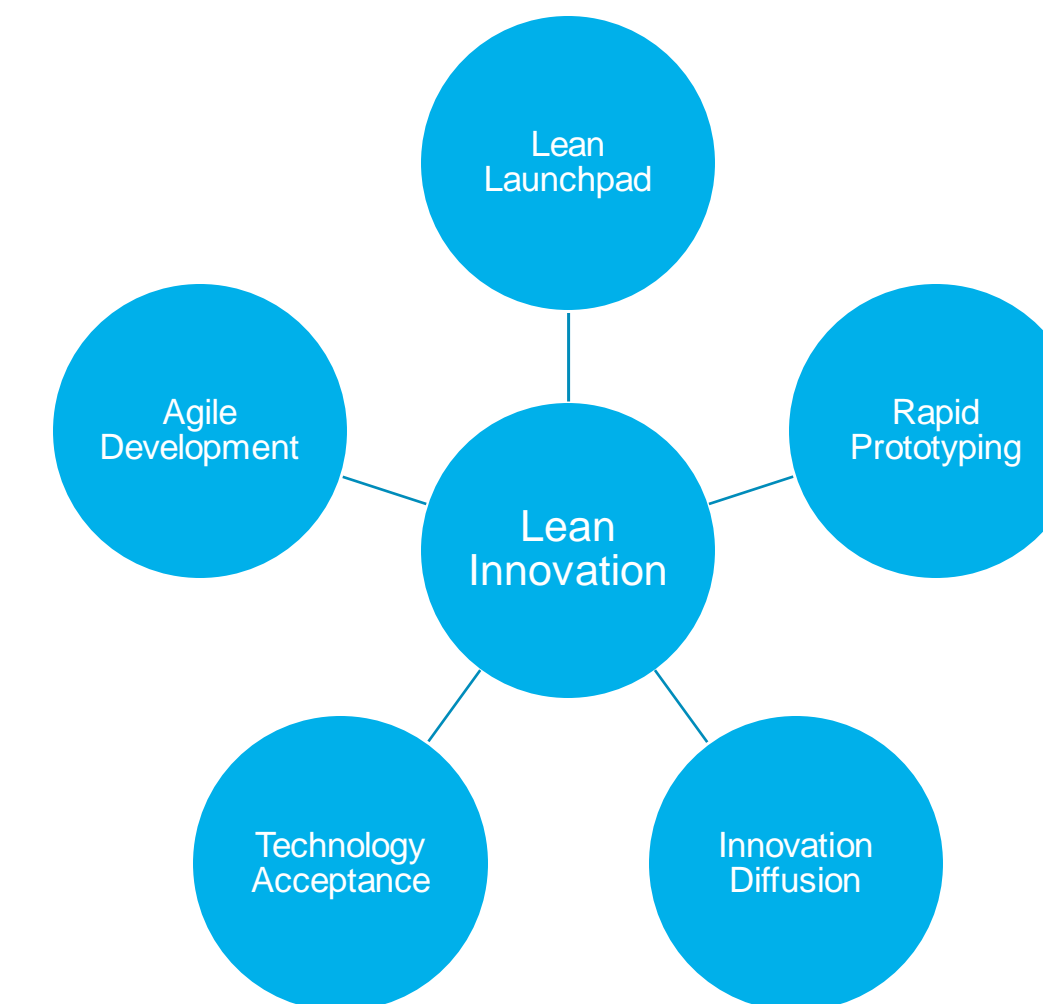
Project Overview

- NSF launched Innovation-Corps program in 2010. The American Innovation and Competitiveness Act, 2016 praised the NSF I-Corps efforts with France Cordova, NSF Director announcing a 14% jump in program funding.
- Steve Blank testified to the Congressional Committee on Science, Space and Technology (2012) that an unexpected result of lean launchpad was an impact on the professor's own thinking about how they teach their science and engineering students.
- President Obama in State of Union Address (2011) launched Startup America program with a focus on research community to help stimulate the economy through innovation and entrepreneurship.
- Lack of accountability due to absence of comprehensive models that explain, measure and quantify intended beneficial impacts has led to a shift from innovation-diffusion based research knowledge transfer to an active intervention based knowledge translation.
- It is expected that 75% of firms will have Bimodal capability by 2017: Gartner CIO Insights (2016)

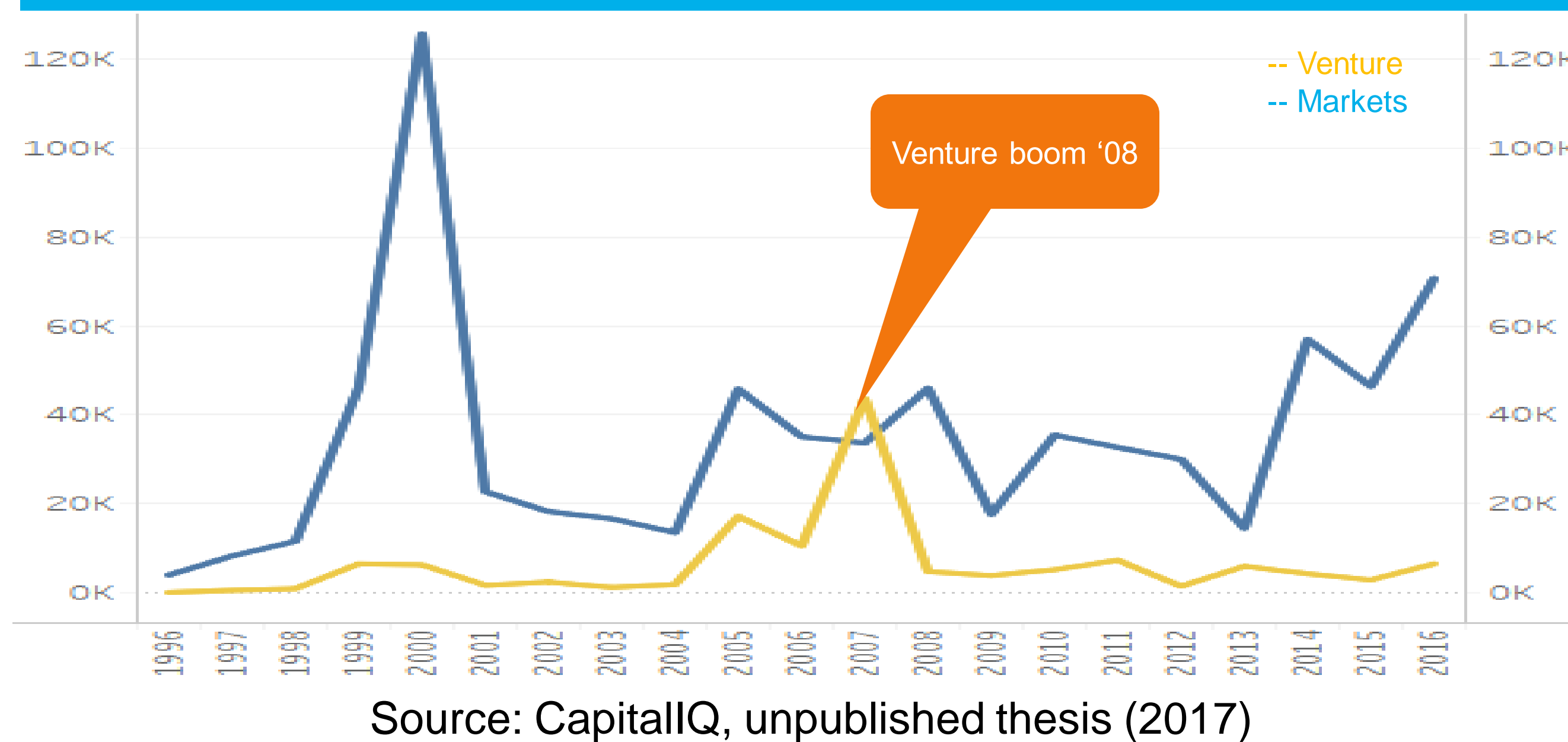
Variables



Key concepts



Motivation

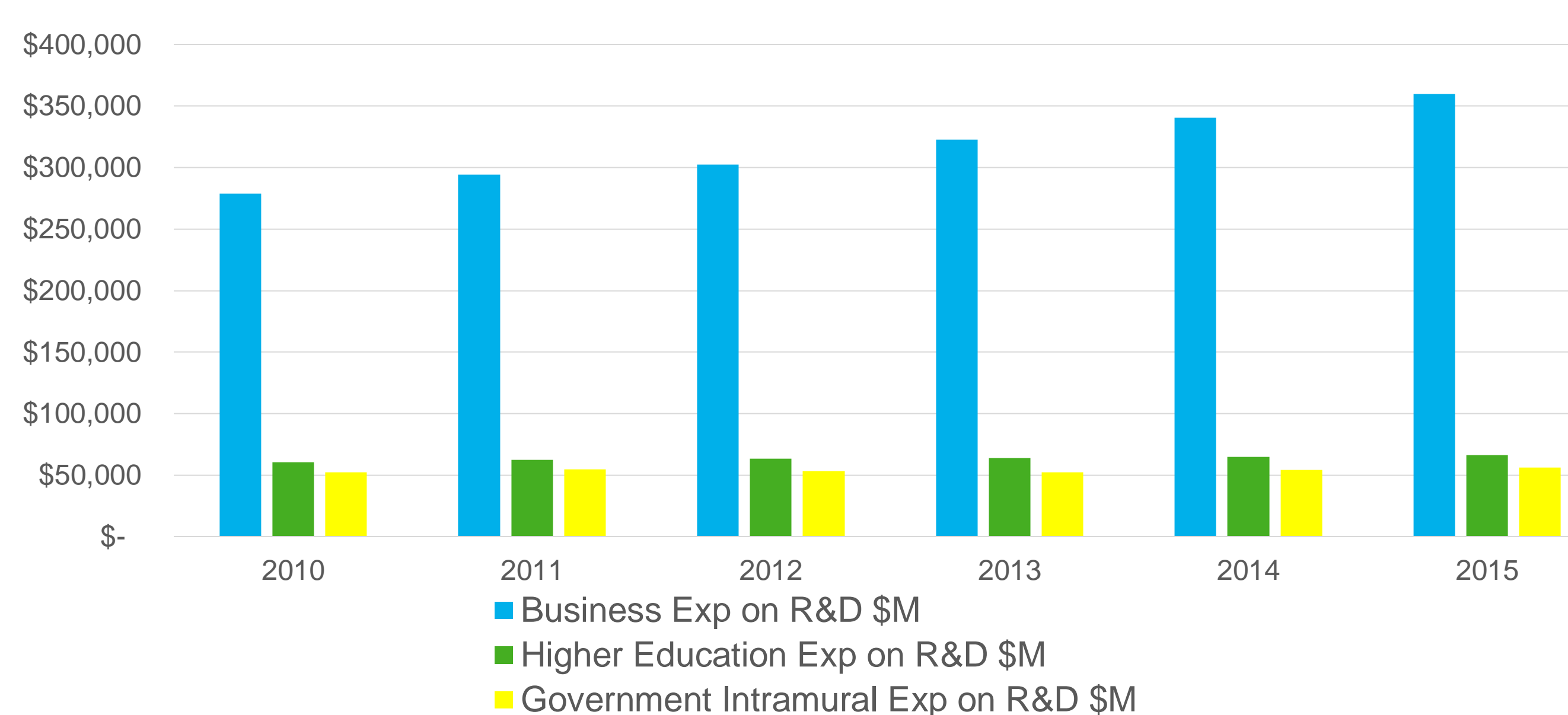


Source: CapitalIQ, unpublished thesis (2017)

Methods

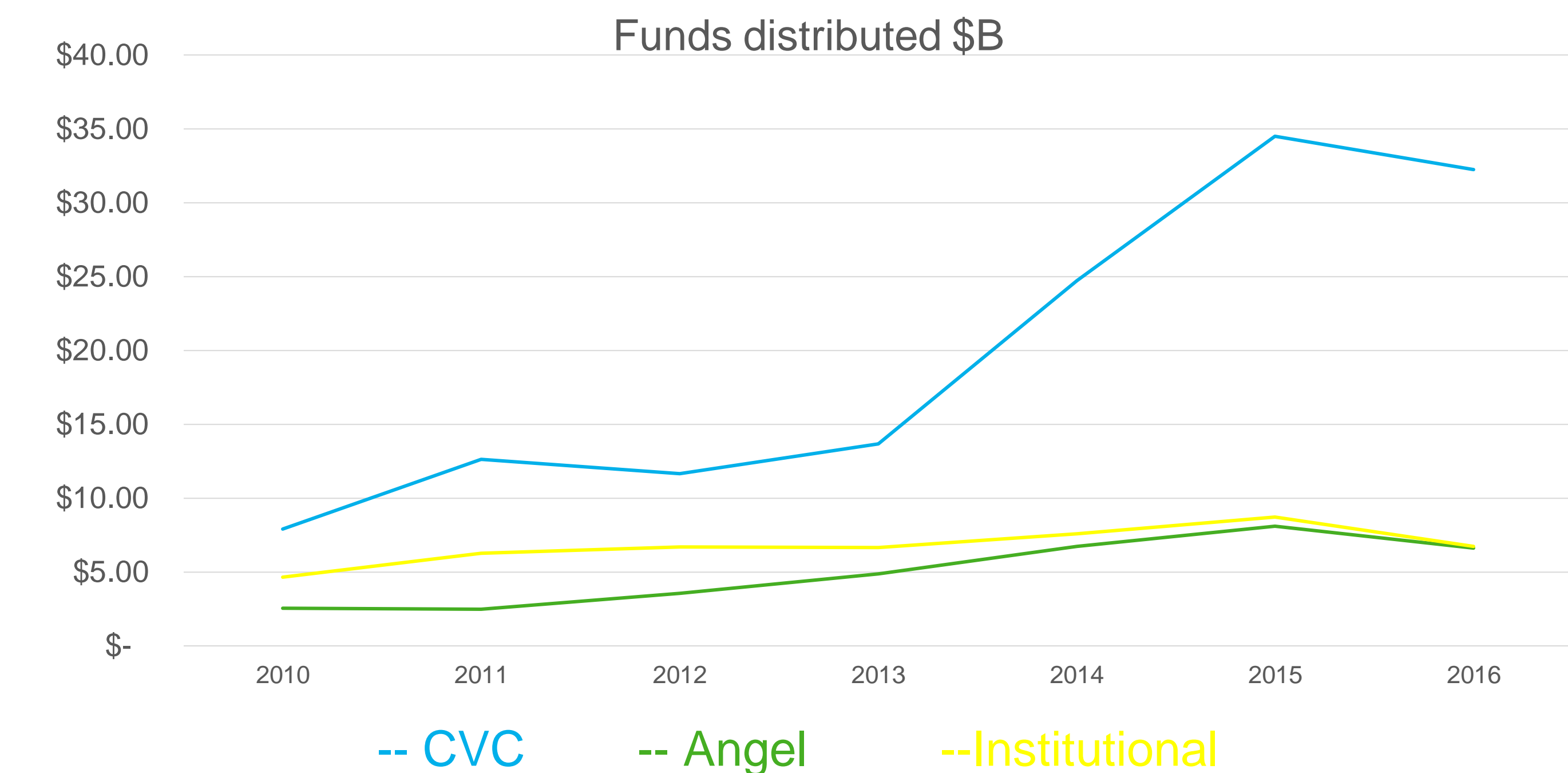
- The researcher extracted 117 MSTI variables from OECD website. The data was filtered by "Country" and "Year" to compare *BERD* against *GERD* and *HERD* variables to prove that traditional sources of funding are drying up.
- The researcher collected data from *Venture Monitor*, a report published by *NVCA* and *Pitchbook*. Page 7, 8 and 13 provide yearly data on Angel, Early-stage VC and Corporate VC respectively. More investment in CVC leads to higher contribution in innovation (Chemmanur et al, 2014)
- The researcher ran a scrape through *Pivot* database with the keyword "Innovation" to extract 1188 sources of innovation funding. These are then filtered by country, amount, upper limit and sponsor. The ten major sources of innovation funding are highlighted.

Traditional Funding



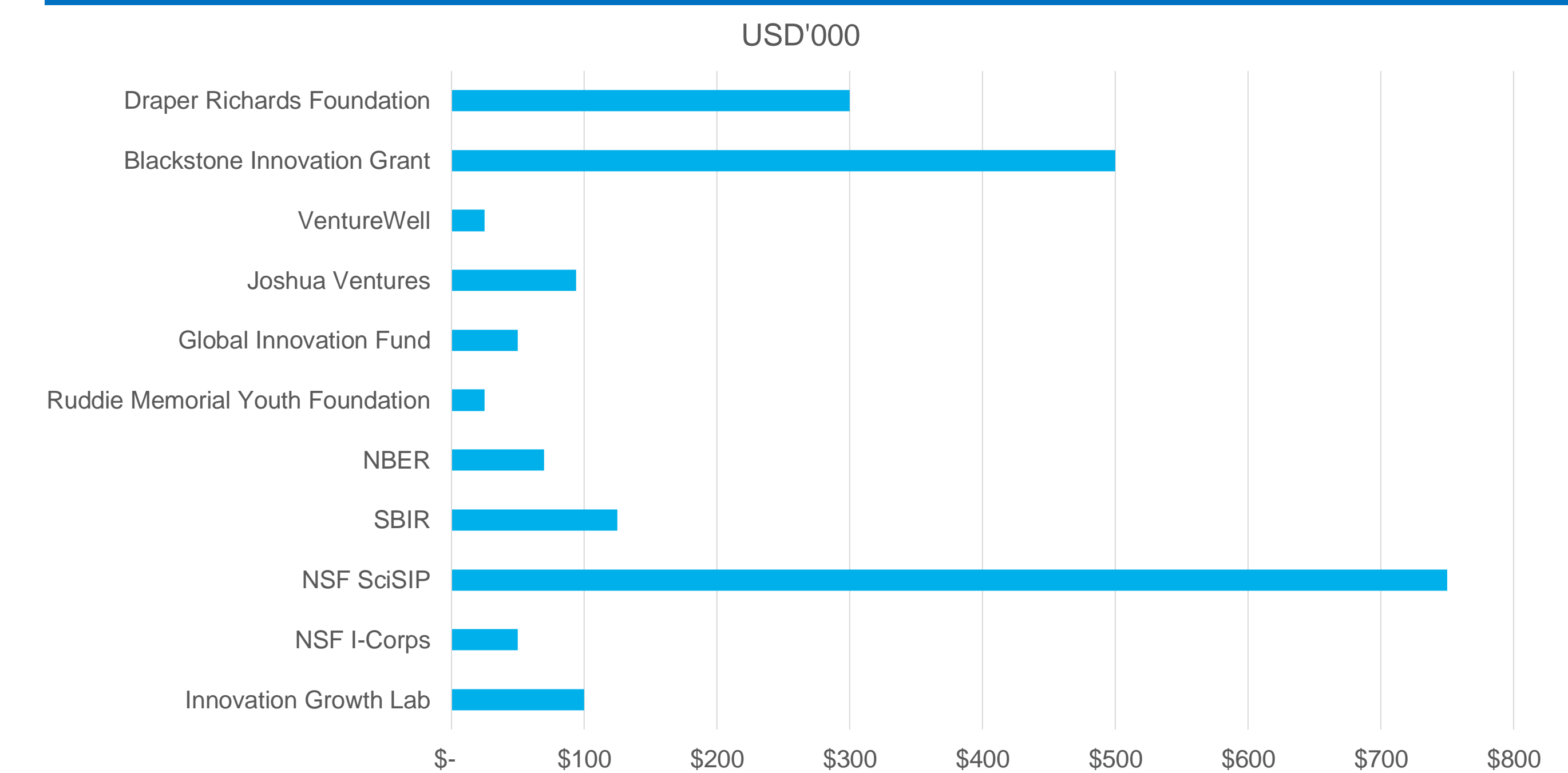
Source: Organization for Economic Cooperation and Development, 2016

Venture Funding



Source: National Venture Capital Association

Innovation Funding



Source: Pivot

Conclusion

- While government expenditure on R&D has been on a decline, business expenditure on R&D has actually increased
- Corporate Venture Capital groups have made huge investments as compared to Angel or Institutional Venture Capital groups. Higher investment in CVC leads to higher contribution to growth of innovation (Chemmanur et. al., 2014)
- With NSF leading the charge, Innovation funding for STEM Education has seen huge interest from private sponsors such as Blackstone and IGL.

Works Cited

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