The Dance between Public and Private Investors: Public Entrepreneurial Finance around the Globe

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Introduction

- In recent decades, governments around the world have been increasingly interested in boosting innovation and the "knowledge economy."
- One manifestation of this is efforts to boost financing for early-stage ventures.
  - In fact, over the last decade, such government programs around the globe reached a scale similar to the global venture capital industry (~$150 billion/year).
- But young high-growth businesses face substantial uncertainty, information asymmetry and require significant technological expertise.
  - Skillful allocation of capital to such companies may be difficult:
    - Gompers and Lerner 1999; Kaplan and Stromberg 2003; etc.
- This paper seeks to explore whether government entrepreneurial funding programs can address capital allocation through ties with private capital markets:
  - Ties to literature on collaboration between investors with varied skills and information in private and public markets.

Why might government programs may benefit from private entrepreneurial finance?

- Substantial informational asymmetries that affect the selection of new ventures:
  - VC frequently make decisions based on “soft information”:
    - Kaplan and Stromberg 2004; Bernstein et al. 2016; etc.
  - These may be difficult for public officials to duplicate.
- Substantial issues surround governance and refinancing of new firms:
  - VCs have developed various mechanisms to ensure ability to make “tough” decisions:
    - E.g., staged financing (Gompers 1994; Neher 1999).
  - May be difficult for government operating alone.
- Unlike public officials, private financiers’ compensation is strongly tied to the success of their investments, affecting sorting of individuals’ and their effort.
- Highly effective governments can anticipate these problems and collaborate with private capital markets to address them:
  - Acemoglu and Robinson 2013; Stiglitz, Lin, and Monga 2014.

When would governments and venture investors collaborate?

Provide a conceptual framework based on Lach, Neeman, and Schankerman (2021):

- Governments seek to maximize private returns *and* project externalities.
- Private investors do not internalize externalities but *improve* likelihood of success.
- We incorporate heterogeneity in (1) project quality and externalities, (2) VC effectiveness, (3) private investors' search costs, and (4) government ability to extract rents.

We characterize *when* governments would attempt to attract VC investors by providing subsidized equity in projects.

Empirical approach

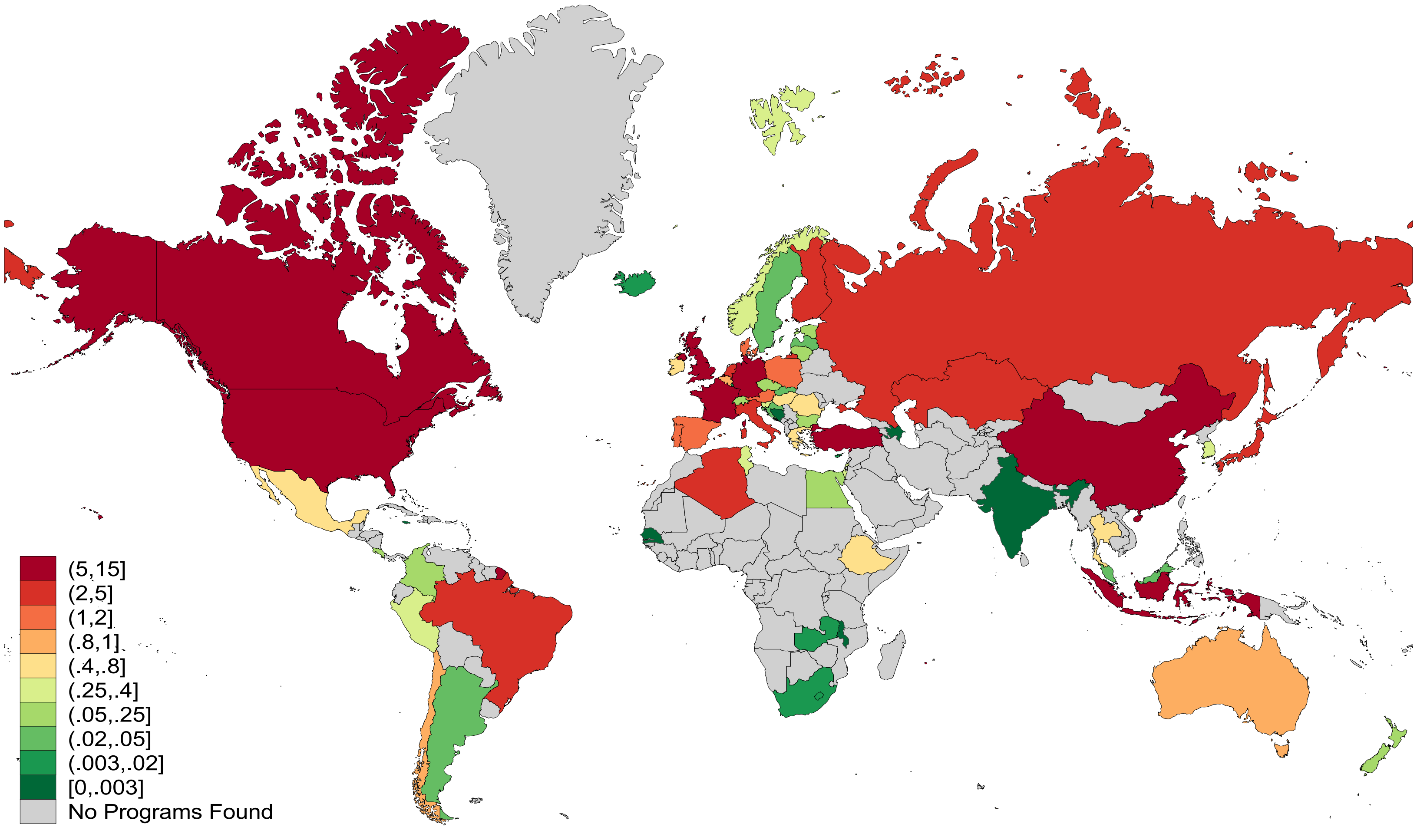
- The literature to date has largely focused on efficacy of a single program or a single nation, exploiting a discontinuity associated with the program:
  - Bronzini and Iachini 2014; Howell 2017; Le and Jaffe 2017; Myers and Lanahan 2020; Santoleri et al. 2020; and many others.
  - Or multiple programs in a single nation:
    - Kisseleva 2020; Pless 2020.
- These approaches **cannot** explore *when* collaboration between public and private entrepreneurial finance emerge:
  - Put differently, existing approaches cannot test framework predictions.
- Remarkably understudied, but key challenge: information about government funding efforts of early-stage ventures around the globe is not widely available.

Empirical approach (2)

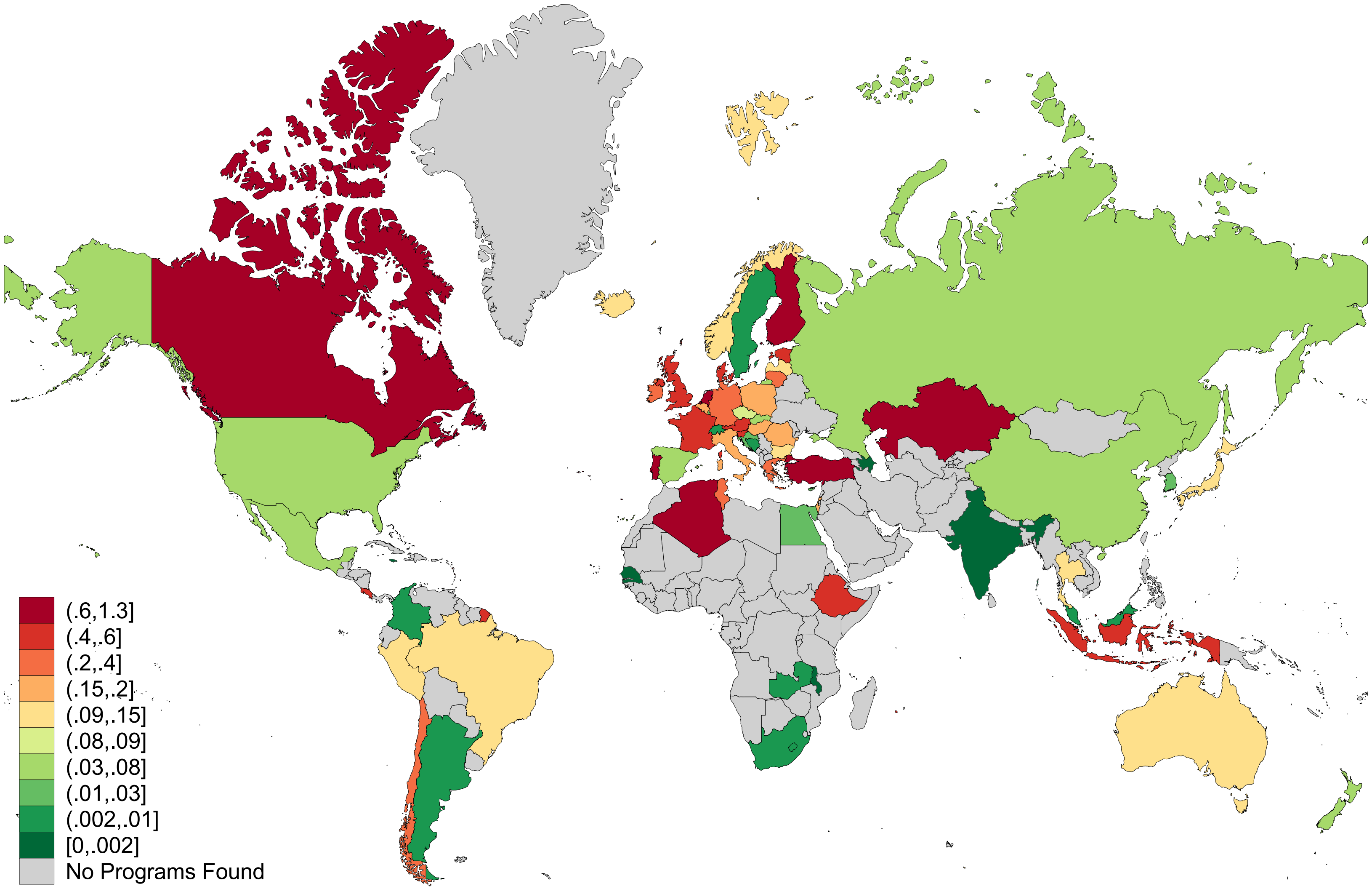
- Hand collect novel data on government funding programs around the globe:
  - 755 programs in 66 countries active between 1995 and 2019.
  - Attempt to create as complete and unbiased a sample as possible.
  - Compile information about the structure and budget of these programs and their reliance on private capital markets.

- Test theoretical suggestions about the relationship between public entrepreneurial finance initiatives with local venture capital markets.

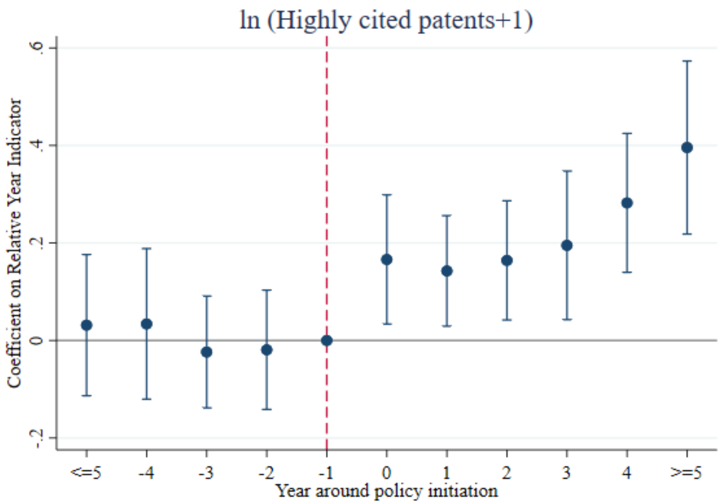
Annual budgets, entrepreneurial finance programs ($B)



Average of annual budget/GDP (in %)



Key findings



- Looking at the <u>appearance</u> of these programs, results are consistent with the model:
    1. Private sector involvement more pronounced when governments are more effective.
    2. Private sector involvement more pronounced when programs focus on early-stage firms.
    3. More private venture activity is associated with subsequent government entrepreneurial finance, especially in better-run countries.

- Looking at <u>impact</u> of these programs, public entrepreneurial finance programs are associated with a higher growth in patenting activities.

- Results suggest that private entrepreneurial finance can help public programs mitigate information and capture issues.

Thank You!

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