

Market-Based Innovation Policy: Evidence from High-Tech Incubators in China

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My qualifications

- I got my master degree in Technology Management
- My second publication as a master student is exactly on incubators
- I have been examining Chinese innovation policies these years

Exploring the interaction between incubators and industrial clusters: the case of the ITRI Incubator in Taiwan

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What are incubators?

- “孵化器” in China; “育成中心” in Taiwan
- Definition: Business incubators are facilities that provide shared resources for young businesses, such as office space, consultants, and personnel. They may also provide access to financing and technical support. For new businesses, these services provide a more protected environment in which to grow before they becomes self-sustaining. The ultimate goal of any business incubator is to produce viable businesses, called "graduates" of the incubator
(<https://www.inc.com/encyclopedia/national-business-incubation-association-nbia.html>)
- Some times also called “accelerators”

Summary

- The authors collected a unique and comprehensive dataset of 20,243 incubator-years and 1,032,383 startup-years from 2015 to 2019 from Ministry of Science and Technology (MOST)
 - Detailed information of the incubators and start-ups
- They design a DID based on:
 - Post: 13th Five-Year Plans (**13 FYP**) released by all provinces in 2016
 - Treated: Different policy-targeted industries listed as the top 3 in province-level **13 FYP**
- They show that incubators and start-ups in treated industries perform better in growth and innovation after the 13FYP

Anhui's targeted industries in 12 and 13 FYP

- **12 FYP:** (1) Information tech; (2) Environmental industry; (3) New energy....
 - <https://fzggw.ah.gov.cn/group6/M00/04/78/wKg8BmGpyYCAVAUIAEHZfwwsVhl195.pdf>
- **13 FYP:** (1) Information tech; (2) Advanced materials; (3) Bio and health; (4) Green and low-carbon; (5) Information economics
 - (提出未来五年全省重点发展新一代信息技术、高端装备和新材料、生物和大健康、绿色低碳和信息经济等五大战略重点产业。
http://www.gov.cn/xinwen/2016-10/24/content_5123538.htm)

From 12 to 13 FYP

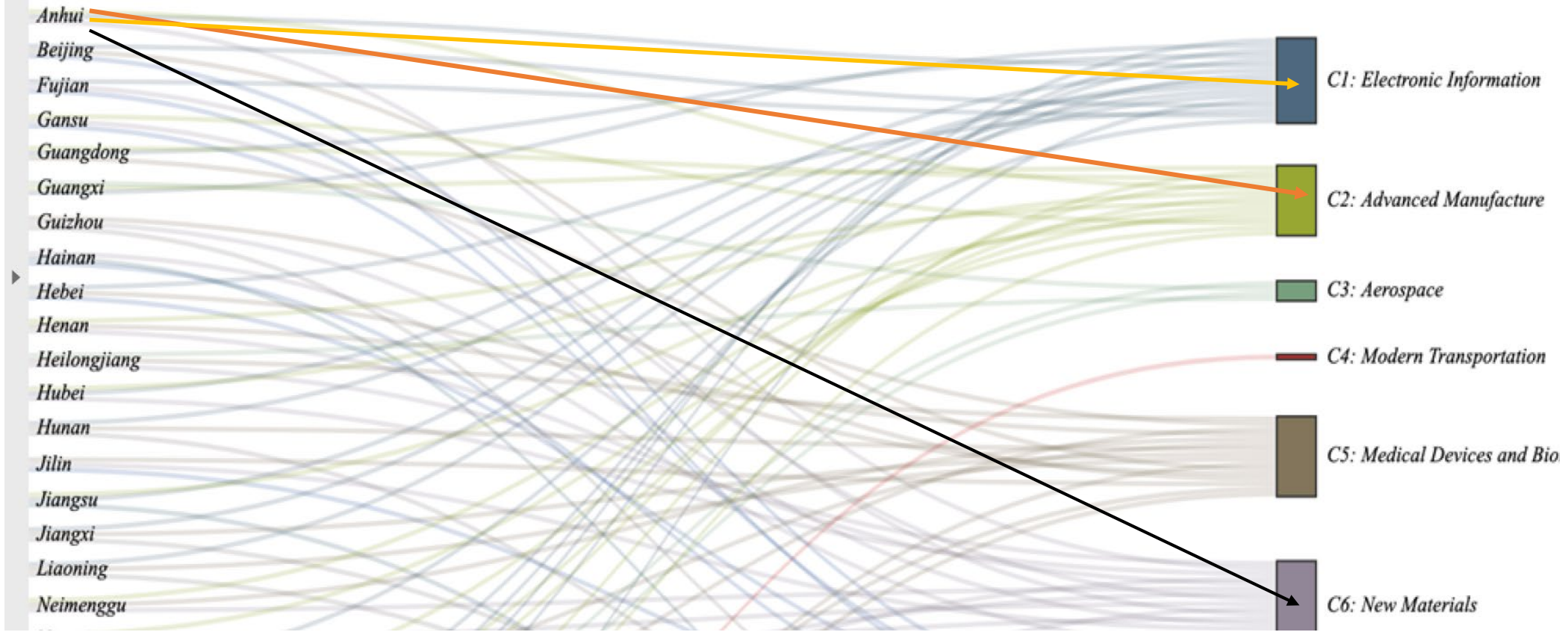
- Five-Year Plan (FYP) was first released by the central government, and then adopted and modified by province governments
- Since the 12th FYP, province governments have started list some selected industries
 - A industry can be selected in both the 12 and 13 FYP – thus, some industries may have been “treated” before 13 FYP
 - Check the parallel trend assumption between treated and control industries?
 - Why not use the changes in targeted industries/priority in 13 FYP to define treatment?

Treated industries

- The authors collected each province's list of selected industries and then use the first 3 industries as "treated industries"
 - Anhui's list: (1) **New information technology**; (2) **Advanced equipment and materials**; (3) **bio and health**; (4) Green and low-carbon; and (5) Information economics (http://www.gov.cn/xinwen/2016-10/24/content_5123538.htm)
 - They argue that the list is ordered by priority – justifications from government documentations or references?
 - My own search does not match Figure 3: (1) **Advanced manufacturing**; (2) **Electronic information**; and (3) **new materials**
 - Maybe the authors want to provide a complete list of selected industries (and links) in the Appendix or Online Appendix

Example: Anhui

Figure 3. Province-Specific Industrial Policy



The figure suggests that Anhui's in 13 FYP focus is on (1) Advanced manufacture; (2) Information; (3) new materials

Endogeneity

- The authors also examine the relation between government support and incubator performance, and use two instrumental variables (IVs) to instrument endogenous government support
 1. Local Politician's Tenure: governors tend to work harder and invest more in their first 2 years in tenure (新官上任三把火)
 2. Local Exposure to Anti-Corruption Campaign
- The 1st IV seems to affect too many things so may not justify the exclusion restriction, so I will suggest to focus on the 2nd
- Also, since the authors only use one IV in 2SLS, it is better to just stick to the 2nd because the reviewers may ask to include both

State-owned vs. private incubators

- The authors find that private incubators receive less government resources but perform better
 - I like this part the most as it offers an interesting contrast and could offer richer policy implications
- How do the authors classify university incubators? We know that there are many university-owned incubators, such as 清华创业园=> 启迪孵化器 (<https://www.tusstar.com/about>)
- Private incubators are defined as those with government ownership less than 50%
- Maybe the shareholders/holding companies of private incubators inject even more resources? Table 10 does not control for other resources for incubators

Innovation output

- The authors have considered several standard measures, such as startups' R&D investment, # employees, # patent applications, sales, VC funding, and I(graduation) at the incubator/startup level
- I would suggest to consider some more “radical/novel” measures:
 - Recognition/award of incubators (金蛋獎 “Gold Egg awards”:
https://www.sohu.com/a/421902805_120099921)
 - Industry-university collaboration, especially knowledge/talent flow (Hsu et al., 2023)
 - Invention awards (Wang, Li, and Furman, 2017)
 - Academic papers (Hsu, Hsu, and Zhao, 2021)

Literature

- Prof. Wei's keynote speech on Tuesday luncheon "Mild Government Failure" has discussed the effectiveness and efficiency of Chinese governments' innovation policy
- There is a large literature debating on Chinese governments' subsidies. I think that it will be very helpful for the authors to link their studies to this literature.
 - Patent subsidy (Li, 2012; Hu, Zhang, and Zhao, 2017)
 - Seed funding/grant for startups (Stuart and Wang, 2016; Fang et al., 2018)

Miscellaneous

- I probably would not emphasize “market-based innovation policy” in the title because (1) there are state-owned incubators; and (2) the contrast between market vs. innovation policy may create unnecessary confusion

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