The Effects of State Aid on Total Factor Productivity

Discussion

Mario Mariniello

Bruegel

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Quick Summary

- Aim: check effect of state aid on TFP
  - Does that depend on whether companies are **cash constrained**?
  - Does that depend on **distance from the technology frontier**?

- Empirical strategy:
  - Match Amadeus dataset with EU state aid notifications 2003 – 2011
  - Estimate TFP at company level – calculate TFP growth as $dTFP_{t+1}=TFP_{t+1}-TFP_t$
  - ***Firm fixed-effect*: $dTFP_{t+1}$ on [a] *distance from tech frontier* (at t) and [b] *sectorial PCM* (at t)**
  - Robustness checks: alternative measures for cash constraints (EBITDA, Minsky's, etc)

- Results:
  - **State aid has a positive effect** on TFP growth, particularly where firms experience **liquidity constraints** (eg post-crisis, laggard, competition)

Cash constraint as market failure?

A misunderstanding to clarify…

- Quote: *'less profitable prospects in declining markets' may imply 'binding cash constraint'… 'state aid may offer a solution to this type of market failure'*

- Note: <u>this is not necessarily a market failure</u>. If you do not have profits' prospect clearly you do not have resources – but most likely this is just <u>normal competition</u>.
- In a market that works well, <u>inefficient companies need to exit!</u> (and this is good)
- It is important to <u>get to know what is the source</u> of the financial constraint!
  - If lack of past profits… tough luck
  - If temporary shock – maybe OK (crisis) – need to be careful not to mix

Your number 1 problem

- Your biggest problem: **<u>you do not control for AID size / aim / type </u>**:
  - **Size** of aid can vary a lot + important *relative size* to companies' budget!
  - **Aims** are many: regional objectives, specific for SMEs, environment, female entrepreneurship… not all R&D!
  - **Types** are many: direct subsidies, tax exemption, debt write-off, guarantees etc.
  - *What about AID that were **rejected** by EC?*

- **Time lag / effect** is a big issue. It very much depends on AID type – but there is no reason to expect effect on TFP at **t+1** if the AID is granted at **t.** Important to distinguish between **short** and **long term** effects.

- Also, you possibly use **notification timing** as year of the aid – but *what does the time of notification to EU say about when the aid is actually received by the company*? Does the company get it earlier? Or later? What's the distribution of aid notification over the year?

Your second biggest problem…

- Your second biggest problem: **endogeneity**…
- You quote Garcia-Neven 2005: *an aid is less likely to distort competition if the market is less concentrated*
- But then you cannot really use measures of competition (eg PCM/Lerner) as proxies for being cash constrained… If you find an effect of AID maybe you're capturing the fact that *an aid in a more competitive market is more efficient*…
- Note also that the design/size of the aid must depend on the probability that the Commission will clear the scheme…
- Note: you do not account for **changes in EU policies during the observation period** (for example – you say that the 'balancing test' has started being used after it was proposed ie 2007…). At the moment this is an issue (the crafting of aid schemes is endogenous to the policy of the EC) – but you could use this and other policy changes as **instruments**…

Question marks on the econometrics

- <u>More clarity on **sample selection** is needed</u>. There are two groups of firms those who get the aid (your **treatment group**) and those who don't (your **control group**). *Is it correct that the treatment group has approx **<u>400</u>** (individual/ad hoc aid) observations while the control group is of an approx **<u>1:1,000 order of magnitude</u>**?* If yes – you need a far more convincing story about selection…

- Some key results are only **weakly significant** (eg: Competition x AID: 0.449* etc) and a **bit counterintuitive** (eg: why AID becomes negative weakly significant when controlling for competition? -0.389*)…

- **R-squared** is very low (0.01-0.04)… that should ring a bell…
- Would be interested to know more about **coverage** (eg: EBITDA, Minsky etc) – normally very low in companies' databases + worried about **correlations with PCM** – almost 0 and not significant
- PCM at **2-digit level** is a bit problematic…

Interpretation question marks

- When interpreting your results, you seem to **mix** *being a laggard company* with *being cash constrained company*…
  - This is not quite the same. A laggard may be cash constrained. However, you cannot impute a positive effect on TFP by AID to the release of the cash constraint.
  - Most likely the positive effect of AID would be due to the **higher marginal impact** that AID has on **laggard's technologies**.

- Effect on beneficiaries is interesting – but you need to look at **effects in the market**
  - AID may distort competition / alter industry restructuring
  - For example: suppose inefficient firms would not exit anymore… **Average TFP within the market** would be lower ex-post

POLICY BOTTOM LINE

- Your policy bottom line could be – **let's give more aid to laggards**… ***BUT…***
  - Wouldn't you end up rewarding least efficient companies?
  - Wouldn't you expect that the introduction of these types of frameworks would beg for an optimal response by firms to tend to be more cash constrained?
  - Wouldn't you reducing incentives for companies to get closer to the frontier?
  - Wouldn't you hamper the restructuring of the markets distorting exit/entry?
  - Etc etc

- These effects are crucial and in order to give some '**policy appeal**' to your results – you would need to shed light on those effects (check **market effects** with **different time lags**,– eg **average market TFP growth** etc.)

Conclusion

- Nice idea but further work necessary to make it convincing
- In particular:
  - Control for AID characteristics
  - Account for firm selection (propensity score matching?)
  - Account for endogeneity (use instruments such as changes in EC or national policy/rules)
  - Focus on wider effects – cannot focus only on AID beneficiaries – need to check what happens in their markets (you may miss the big picture…)

- Furthermore, a thorough **discussion on policy** is necessary. For example:
  - Assume you find indeed AID is effective with cash constrained firms. Would it still be optimal for EC to relax constraints for subsidies to laggards? Wouldn’t it be better to, for example, improve access to credit? Remember – by definition aid is unprofitable for the state (market investor principle) – therefore, it is always a second best…

mario.mariniello@bruegel.org