



28
APRILE
2022

Progetti di ricerca tematica all'Istat

Risultati della prima call

#IstatWebinar

Tech on the ROC: Export threshold and technology line interacted

Stefano Costa, Federico Sallusti, Claudio Vicarelli, Davide Zurlo

discussion by

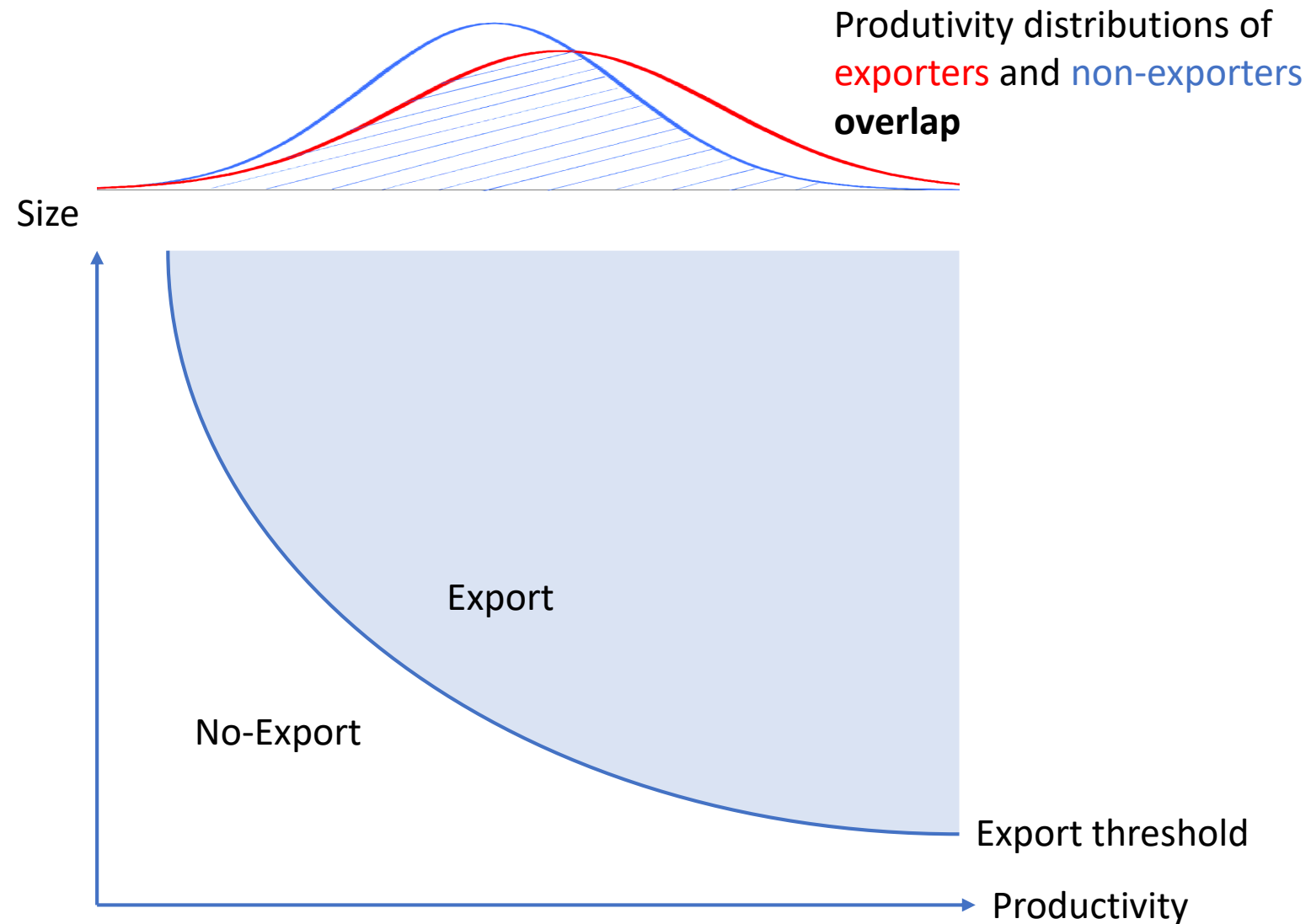
Enrico Marvasi

ROMA TRE UNIVERSITY

Main idea of the ROC methodology

- Exporters are on average larger and more productive
- Productivity is one of the main determinants of export (Melitz, 2003)
- Export activity implies fix (sunk) costs that are more easily afforded by larger and productive firms
- How can we identify an «export threshold»?
 - In terms of firm's productivity
 - But also in terms of firm's size

Basic intuition: from 1D to 2D

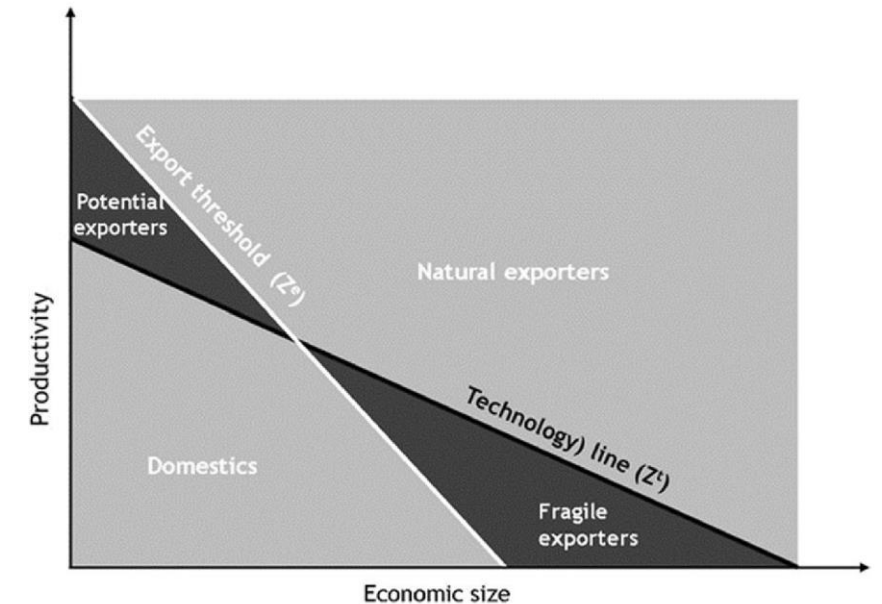


Main findings

- The «composite» size-productivity model tends to perform better than the «pure size» and the «pure productivity model»
 - Higher precision (share of true positives among positives)
 - i.e. if a firm is an exporter, the composite model does a better job at correctly identifying it as an exporter
- In line with the basic intuition, there is trade-off between size and productivity, and their combination matters
- Policy implications:
 - we can identify and might target the firms at the margin
 - we can see whether size or productivity are relatively more effective
 - we can measure the distance from the threshold and how it is affected by policy

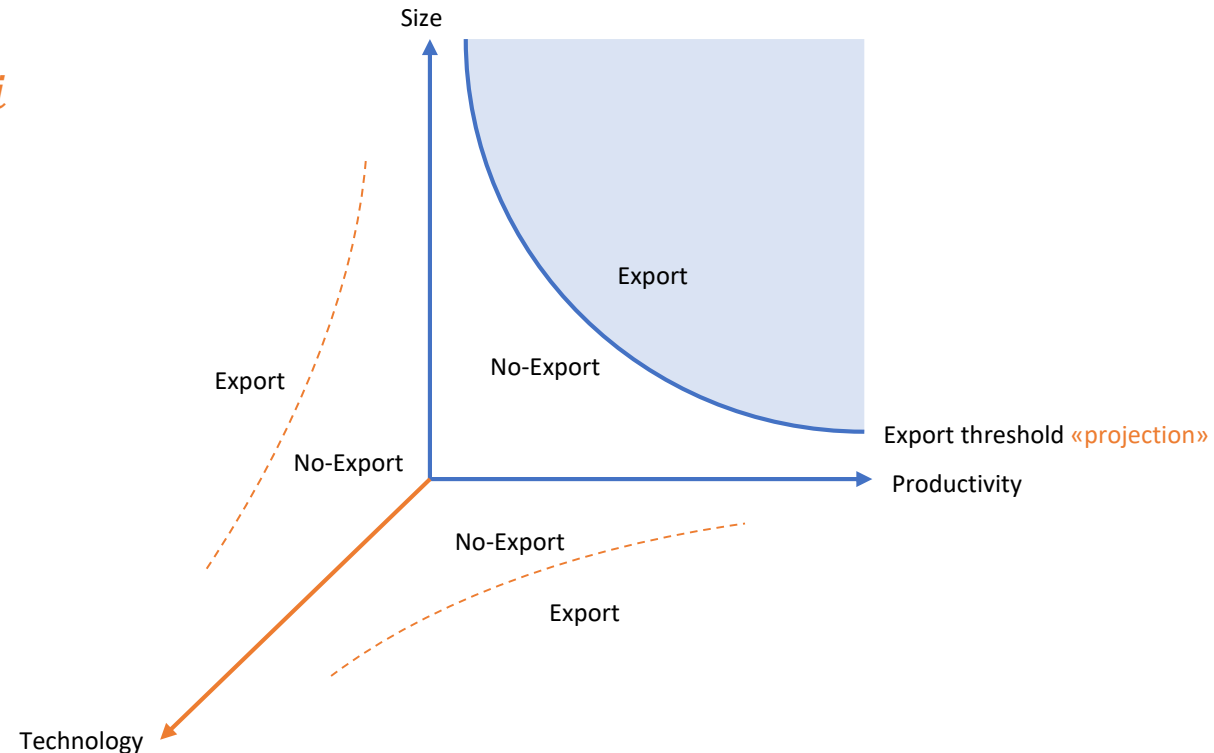
What about tech?

- Also technology adoption matters...
- How would the «export threshold» change if marginal exporters adopted a better-than-average technology?
- → this defines the **counterfactual** «technology line»
- We can answer the question: *how would technology help firms becoming exporters?*
 - Potential exporters: do not export despite being high-tech
 - Fragile exporters: export despite lagging behind in tech



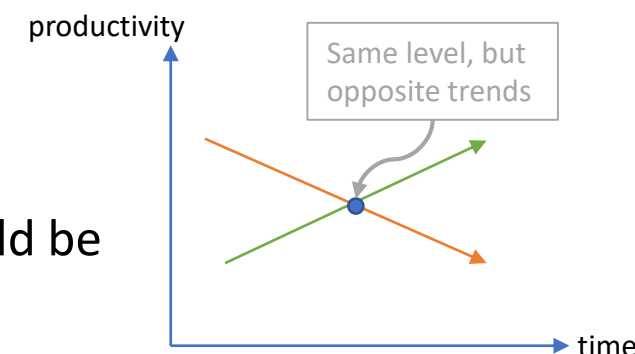
Why a technology line?

- Why a technology line rather than an additional dimension on top of size and productivity?
- Intuition: a 3D version...
- $Z_{hi} = \hat{\alpha}_{1i}size_{hi} + \hat{\alpha}_{2i}prod_{hi} + \hat{\alpha}_{3i}tech_{hi}$
- (non-linear?)



Possible extensions

- The method is applied to the levels, i.e. it is static
- Can it be made **dynamic**, to some extent?
- Large and productive firms might be in a static or declining phase, they could be former-exporter, who exited
- Small innovative rapidly expanding firms may become early exporters
- You could try to augment the logit by including **lags or variations**
- It would be interesting to check whether the model does a good job at **predicting exporters**
- Especially, by checking size/prod/tech-driven exporters



Useful and relevant work



A very relevant contribution



Data-driven thresholds



Useful for policy



Points toward the importance of targeting policies



Very flexible methods, can probably be adapted to several cases, also to include other aspects, depending on context