

# ECB FORUM ON CENTRAL BANKING

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**Entrepreneurship  
Across Cities:  
Uncovering Policy  
Implications**



**EUROPEAN CENTRAL BANK**  

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**EUROSYSTEM**

# Entrepreneurship Across Cities: Uncovering Policy Implications

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## The Spatial Dimension of Entrepreneurship

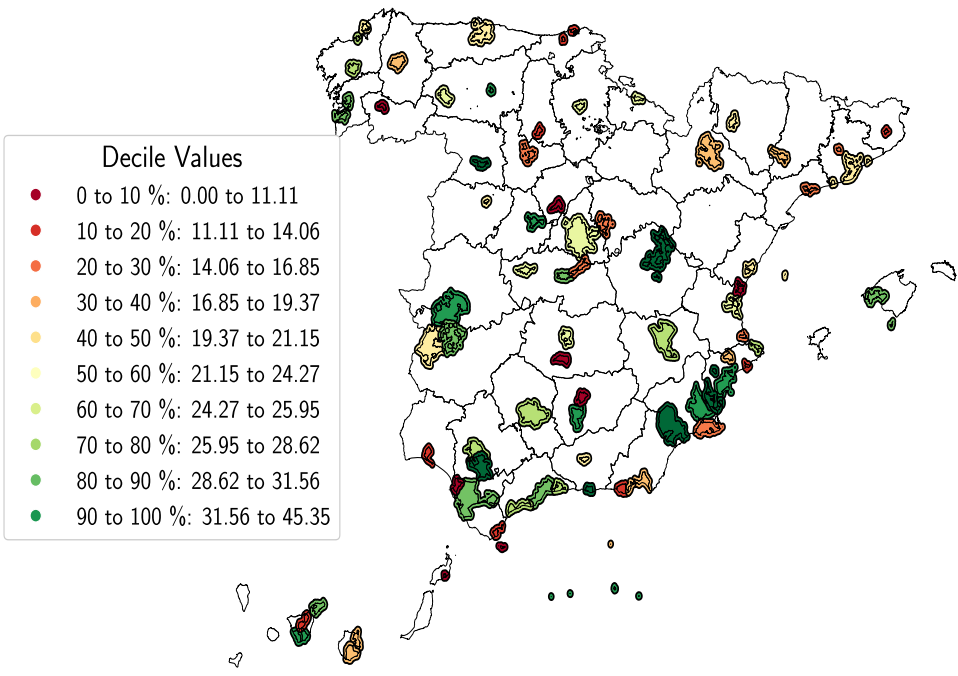
### Motivation:

- Policymakers aim to subsidize entrepreneurship to foster job creation and growth
- However, individual productivity of entrepreneurs difficult to observe in practice
- But: entrepreneurs operate in local economies with heterogeneous productivities and workforce compositions

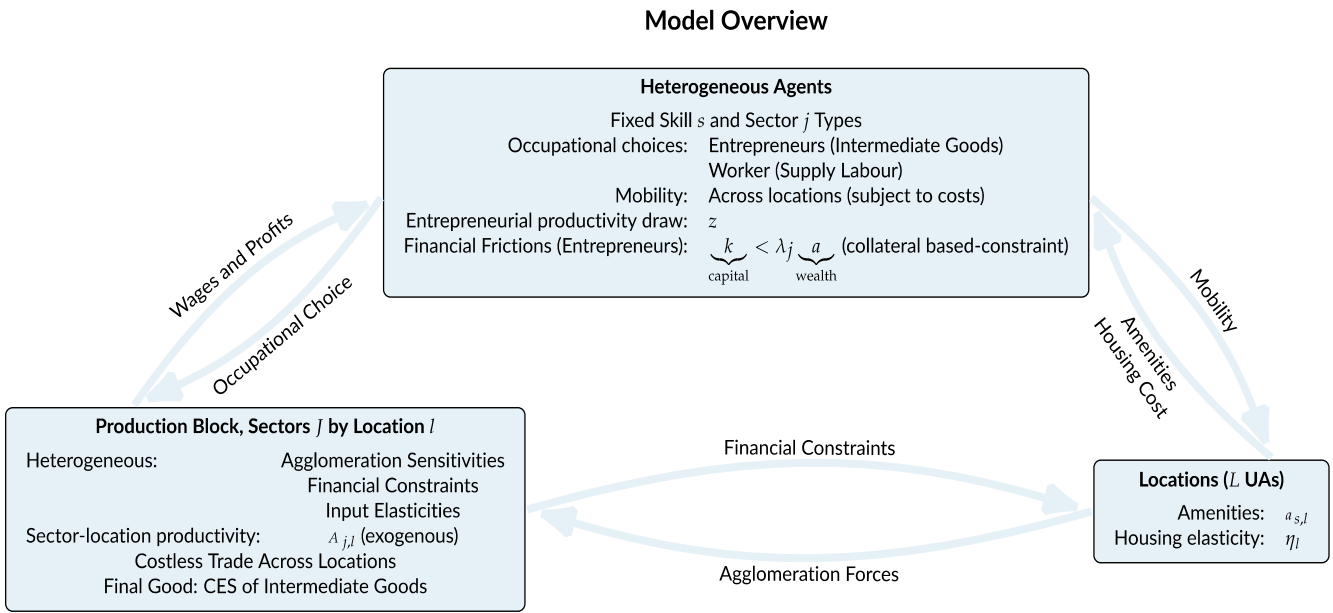
### Research Questions:

- Are entrepreneurs and their capital optimally allocated across space?
- Should policymakers employ place-based entrepreneurial subsidies?

Entrepreneurial Rate: New Incorporated per 10,000 inhabitants (Working Age)  
Averaged Over 2013-2018, by Urban Area (MCVL data)



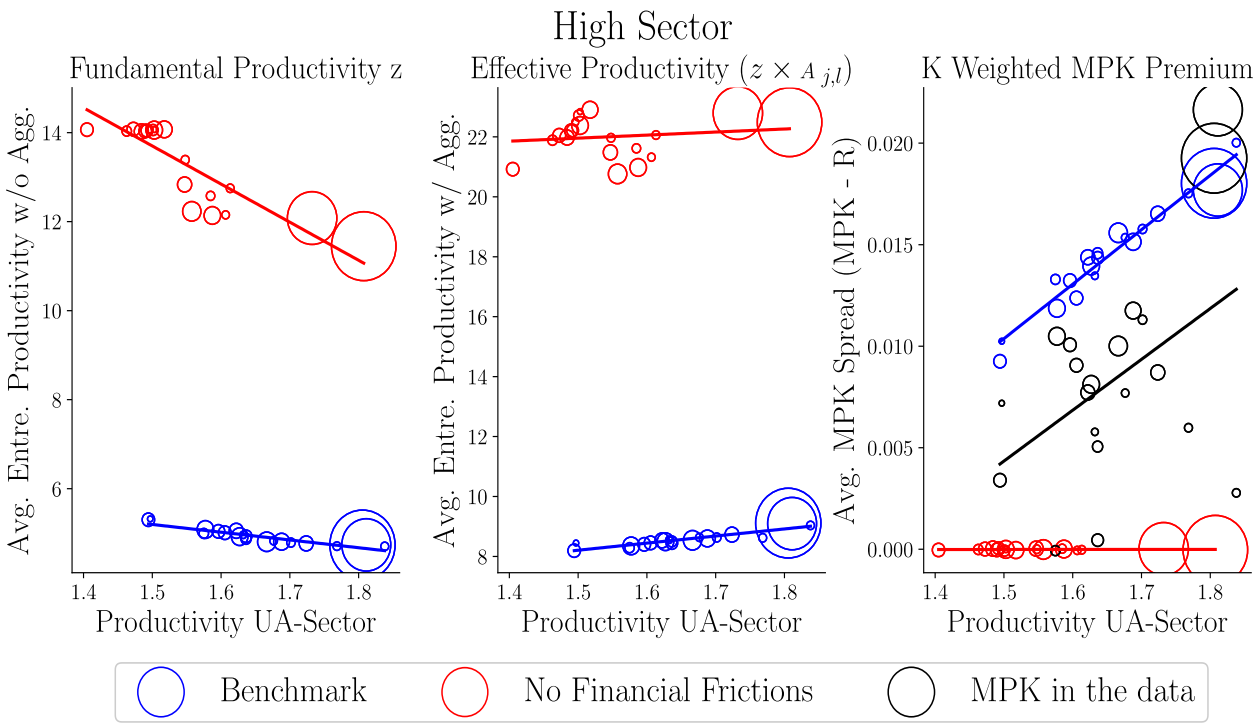
## A Dynamic Spatial Model of Entrepreneurship



- Cities  $c$  differ in their productivity  $z_{c,j}$ , workforce composition, housing costs and amenities
- Entrepreneurs with productivity  $z$  need to choose where to locate and their scale of production
- Key friction: entrepreneurs are borrowing constrained, and need to accumulate wealth  $a$  to finance their production capital  $k$
- With tradable goods, a given entrepreneur will desire more capital in more productive cities
- Financial constraints (MPK Premium) are city dependent!
- $MPK \text{ Premium} = MPK\left(\frac{a}{-}, \frac{z}{+}, \frac{z}{+}\right) - (r + \delta)$  (rental rate)

## Findings: Larger, more Productive Cities are more Capital Constrained

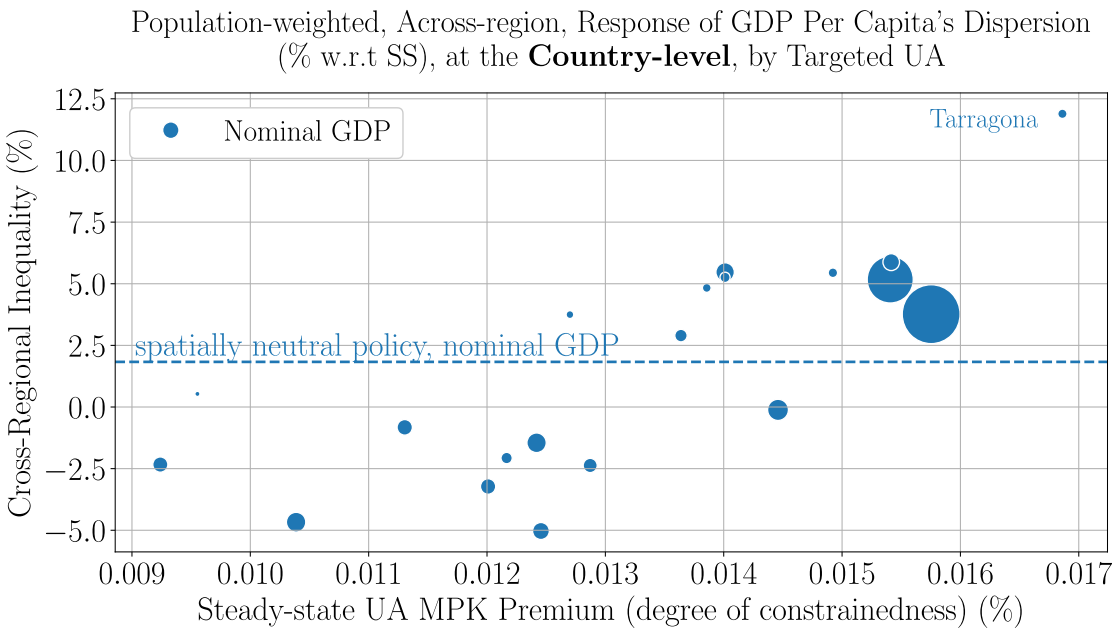
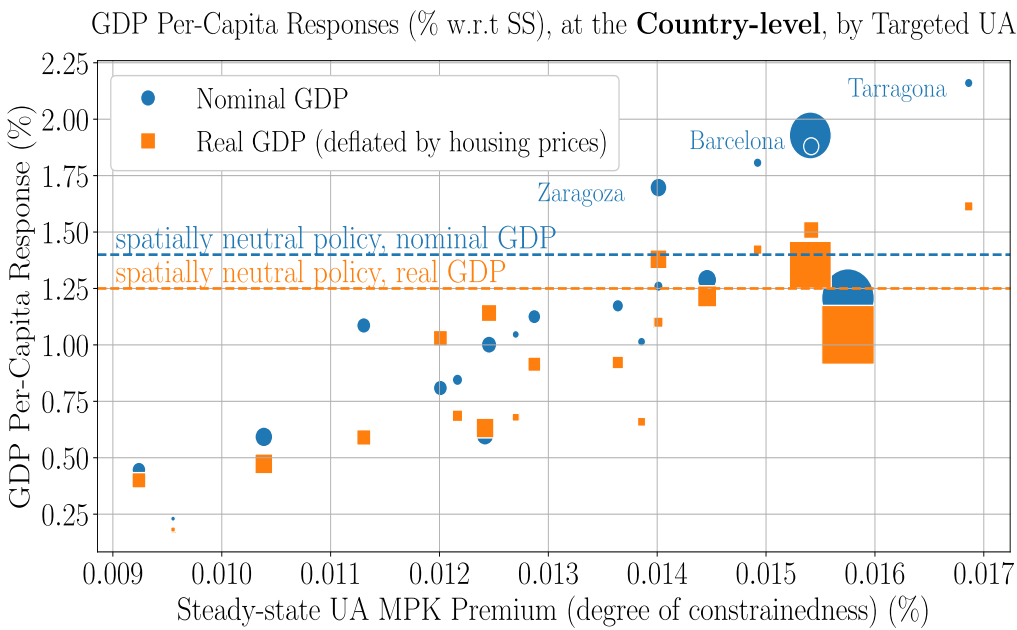
- In what cities will entrepreneurs be more capital constrained? Two key margins
- Intensive margin: a given entrepreneur is more constrained in more productive cities, as demand for capital increases with city productivity for given wealth and productivity
- Extensive margin: compositionally, wealthy but less productive entrepreneurs can survive more easily in more productive cities
- On the aggregate, the intensive margin dominates, as the required scale of production limits the entry of wealthy unproductive types
- Thus, entrepreneurs in more productive cities are more capital constrained!



## Policy Experiment: Lump-sum, Place-based Entrepreneurial Transfers with a 0.1% of GDP Expenditure at the Country-level, financed through an increased Labour Tax

Targeting the Large, Productive, Constrained Cities attains the highest Welfare and Production Gains at the Country Level...

But comes at the Cost of Exacerbating Regional Economic Disparities, posing a Challenging Trade-off to Policymakers...



## Conclusions / Summary

- Proposed a framework to study capital misallocation and entrepreneurship across space
- Calibrated the model to the largest 20 Cities of the Spanish State with administrative social security data (MCVL) + balance sheet data (SABI)
- Proposed an efficient implementation to solve Dynamic Spatial Models with GPUs, up to 20,000 times faster than standard methods
- Policy experiments suggest a trade-off between welfare and production gains at the country level when targeting cities that are productive and constrained and increased regional economic disparities