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RESEARCH INFRASTRUCTURE FOR SCIENCE
AND INNOVATION POLICY STUDIES

Cheetah firms in EU regions

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Content

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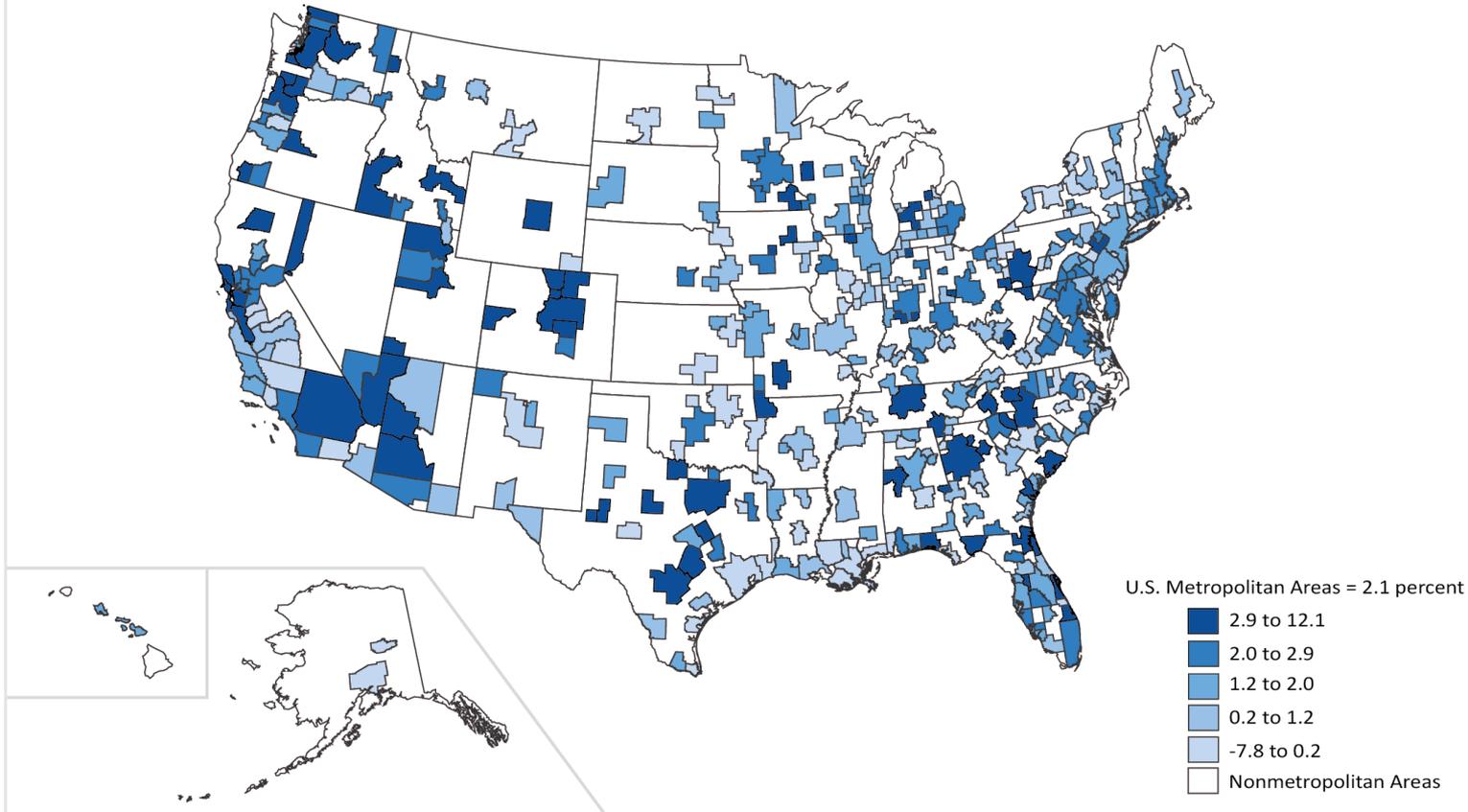
- Rationale
- Data and methods
- Results
- Conclusions



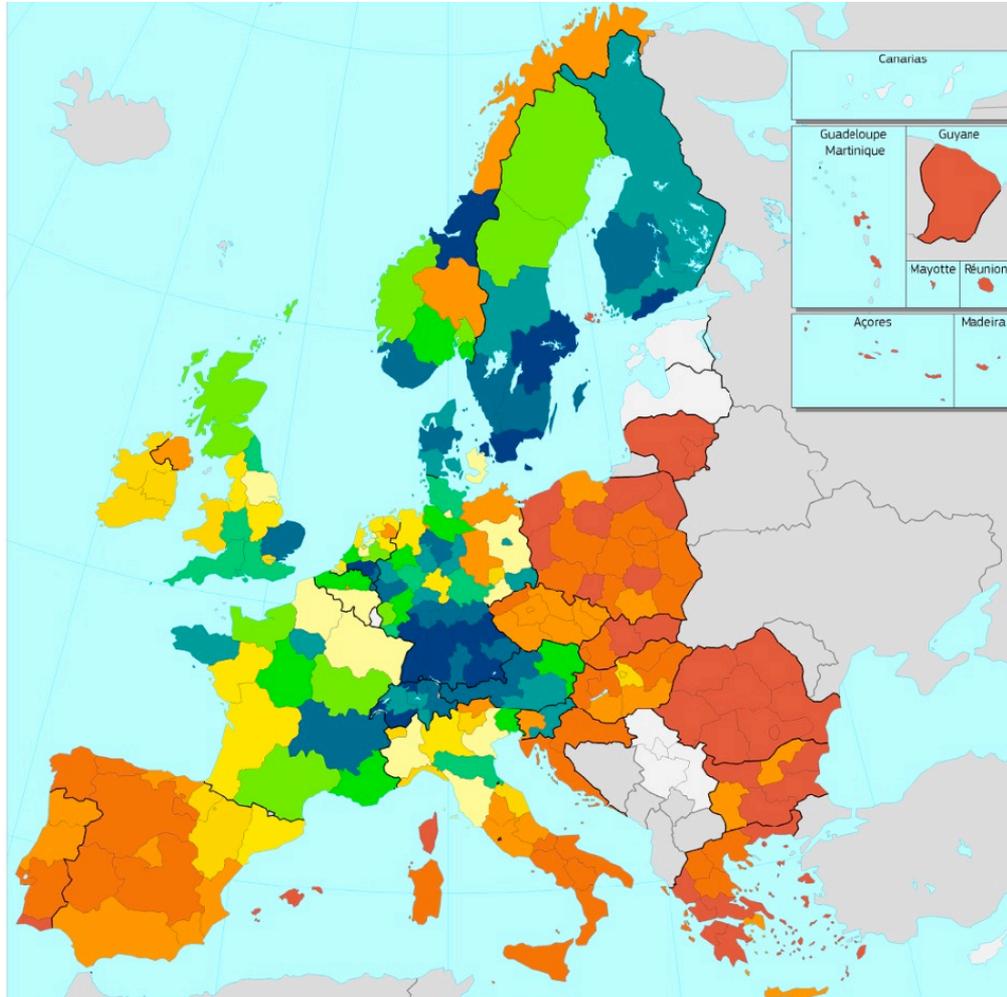
- Key messages from the descriptive analyses:
 - Not only differences across countries, but also **clusters of Cheetah firms within the different European countries**
 - Substantial differences emerged also when looking at **different sectorial specializations**
- In general, **geography matters** for explaining differences in the level of economic activity across and within countries
 - Certain locations constitute a more favorable environment for establishing a business
 - There are regions that are more innovative than other regions



Percent Change in Real Gross Domestic Product (GDP) by Metropolitan Area, 2017



U.S. Bureau of Economic Analysis



- Bottom one-third low performers
- Middle one-third low performers
- Top one-third low performers
- Bottom one-third moderate performers
- Middle one-third moderate performers
- Top one-third moderate performers
- Bottom one-third strong performers
- Middle one-third strong performers
- Top one-third strong performers
- Bottom one-third high performers
- Middle one-third high performers
- Top one-third high performers

PCT patent applications per billion regional GDP - Regional Innovation Scoreboard (2019)



- **Agglomeration** creates substantial advantages for firms in a geographical area (Marshall 1920; Glaeser and Kerr 2009):
 - Proximity to customers and suppliers reduces transportation costs
 - Larger supply of labor in metropolitan regions
 - Better socio-economic conditions attract talented people
 - Knowledge externalities: firms/universities located nearby are “suppliers of ideas”

A increased interest in regions

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- Increasing focus from the academic literature on the role of local/regional factors for stimulating economic development:
 - **Industrial districts** (Becattini 1989)
 - From national to **regional systems of innovation** (Braczyk et al. 1998; Cooke et al. 1997)
 - **Entrepreneurial ecosystems** (Stam and Spigel 2017)
- EU policy initiatives are taking into account that certain locations have specific competitive advantages:
 - **Smart specialization strategy**

- An exploratory analysis on **the role of regions for the emergence of Cheetah firms**
- Key issues:
 - Do **regional factors** play a role in the **emergence of Cheetah firms across European regions?**
 - **Which ones?**
 - Are **country-level institutional factors** still relevant when taking into account the role of regional-level factors?
 - **Are technology-oriented regional clusters different?**

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- **Multivariate econometric analysis** (negative binomial regression model)
- **Unit of analysis:**
 - Regions: level 2 of the NUTS 2016 classification
 - Sectors: high- vs. low-tech sectors and manufacturing vs. service industries
- We relate the **n. of Cheetah firms in a certain region/sector (dependent variable)** to:
 - Country-level factors
 - Regional-level factors
 - Sector-level factors

Top regions

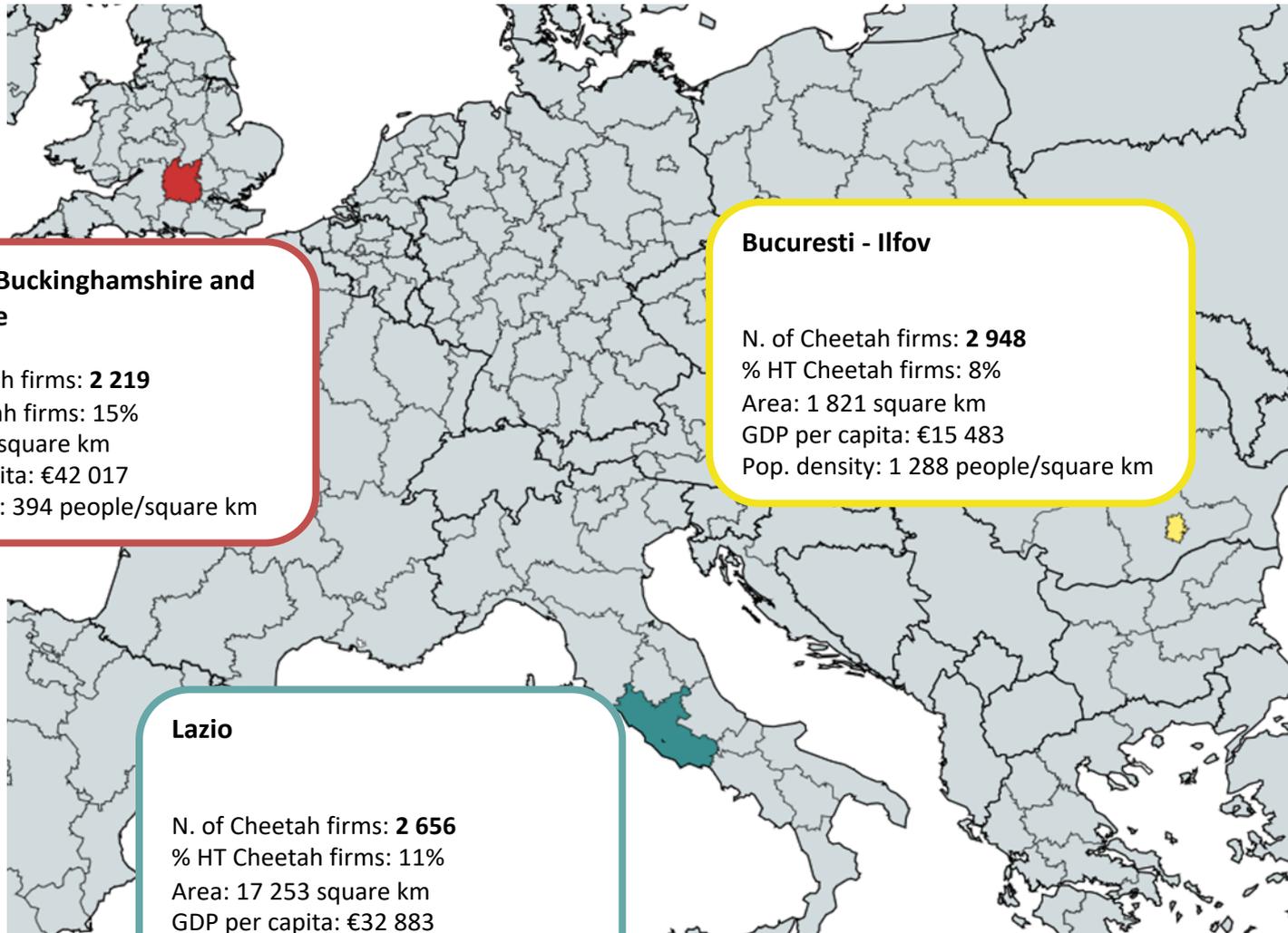
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NUTS2 region	N. of Cheetah firms	% HT Cheetah firms
FR10 - Île de France	8 366	10.5
ITC4 - Lombardia	7 793	6.9
UKI3 - Inner London - West	6 542	9.4
ES30 - Comunidad de Madrid	5 977	9.2
PL12 - Mazowieckie	5 244	8.4
ES51 - Cataluña	4 855	5.3
BG41 - Yugozapaden	3 597	6.3
DEA1 - Düsseldorf	3 391	4.3
ITH3 - Veneto	3 200	3.2
RO32 - Bucuresti - Ilfov	2 948	7.9
DE21 - Oberbayern	2 935	10.3
CZ01 - Praha	2 929	8.2
LT02 - Vidurio ir vakaru Lietuvos regionas	2 913	0.9
ITH5 - Emilia-Romagna	2 876	4.0
SE11 - Stockholm	2 857	10.3

Differences across regions

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Berkshire, Buckinghamshire and Oxfordshire

N. of Cheetah firms: **2 219**
% HT Cheetah firms: 15%
Area: 5 743 square km
GDP per capita: €42 017
Pop. density: 394 people/square km

Bucuresti - Ilfov

N. of Cheetah firms: **2 948**
% HT Cheetah firms: 8%
Area: 1 821 square km
GDP per capita: €15 483
Pop. density: 1 288 people/square km

Lazio

N. of Cheetah firms: **2 656**
% HT Cheetah firms: 11%
Area: 17 253 square km
GDP per capita: €32 883
Pop. density: 324 people/square km

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Regional-level

Mid-sized firms density no

Population density +

Area size +

GDP per capita +

Human capital no

Private R&D +

Public R&D ∩

Agglomeration around larger, richer and densely populated regions

Knowledge spillovers?



Country-level

Northern countries*	
Southern countries*	
Eastern countries*	
UK*	

Country-level factors still matter

Profit taxation	
Access to credit	
Investor protection	no

Role of taxation and financial development

* vs. Western countries



Sector-level

High-Tech Manufacturing*	
Medium-Tech Manufacturing*	no
Knowledge-Intensive Services*	
Less-Knowledge-Intensive Services*	

Most Cheetah firms are in services

* vs. Other sectors



Moderation effects

High-Tech * Population density



High-Tech * GDP per capita



High-Tech * Human capital



**In high-tech sectors, the
role of agglomeration
and availability of skilled
human capital is stronger**

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A summary of results

- The n. of Cheetah is **significantly higher in Eastern countries** (including the Baltic countries) **and in the UK** with respect to Western countries
- **Institutional factors at country level matter**
- **More densely populated and richer regions** are better environments for Cheetah firms
- **Regional private R&D spending is positively associated to the emergence of these firms**, while the **public R&D spending exhibit an inverted-U shape relationship**
- On average, **regional human capital does not play a significant role** for the emergence of fast growing mid-sized firms in the different sectors
- In **high-tech manufacturing and services** sectors we observe **stronger agglomeration effects** and a **positive role of human capital**



- **Turnover vs. employment** growth
- Inclusion of **additional regional-level variables** (e.g. university knowledge)
- More detailed analysis on the **different role played by regional-level factors in high- vs. low-tech sectors**
- Testing different **geographical units of analysis** (city vs. rural areas)
- **Count vs. incidence**
- **Panel-data analysis** (new cohorts of Cheetah firms needed):
 - Evolution across regions in the emergence of Cheetah firms
 - Identification of causal effects
- ...

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