



SMART CITIES - BEYOND TECH

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CoR-Jaspers Workshop



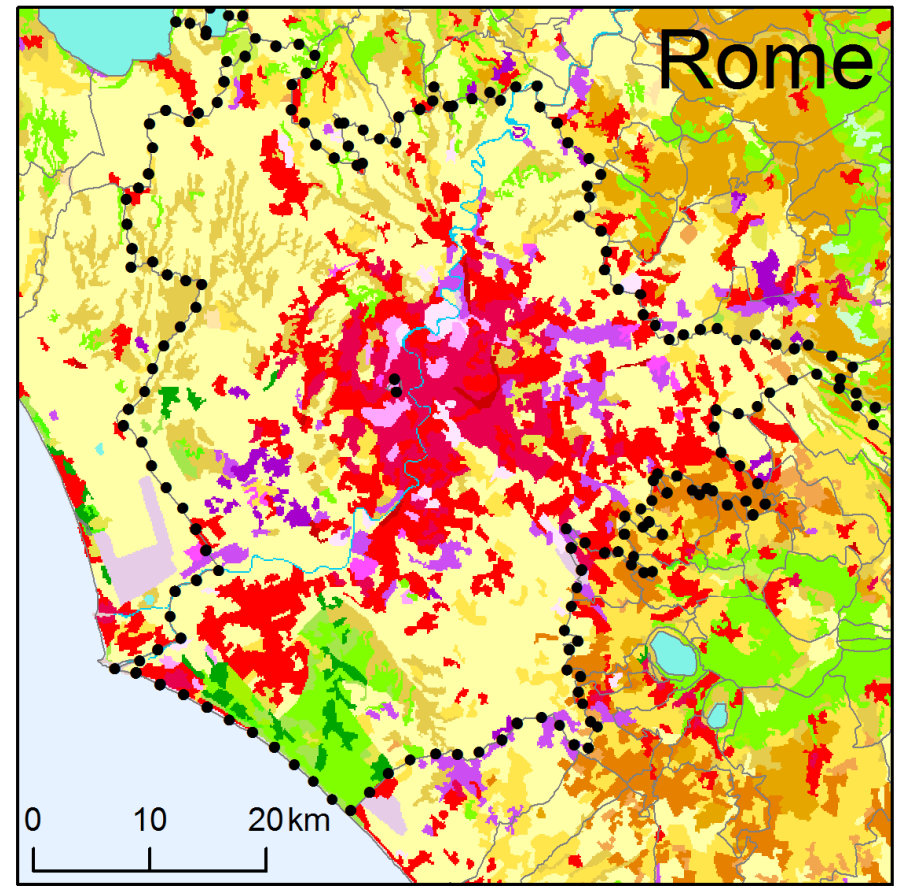
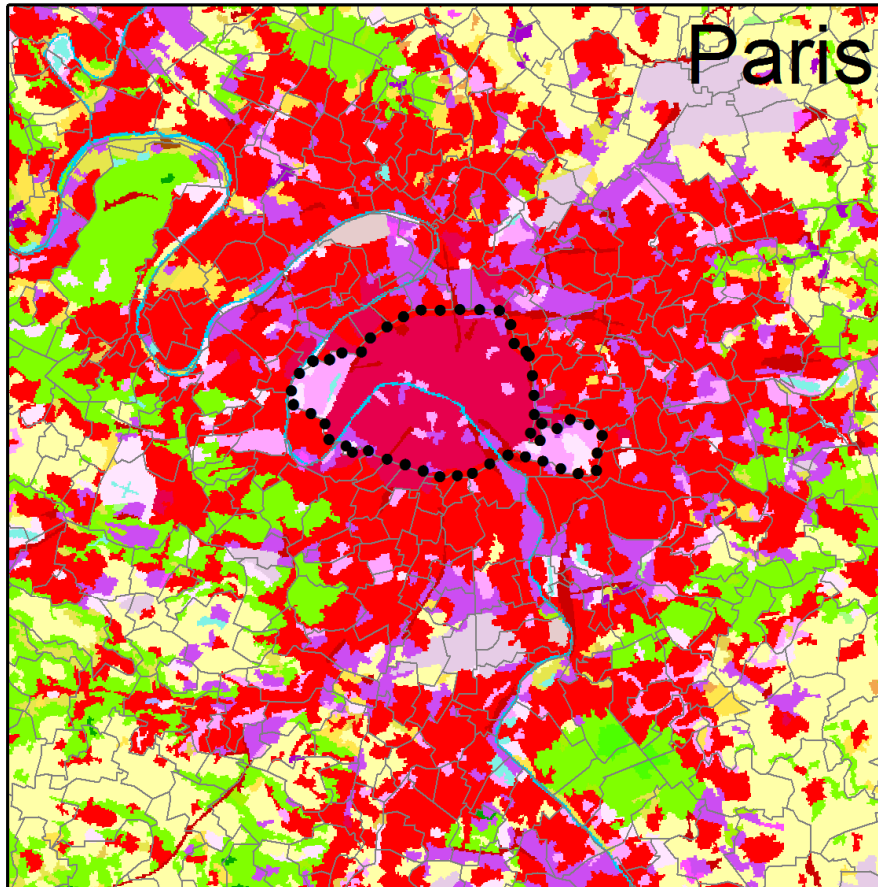
1. SMART IS NOT JUST ABOUT TECH



2. SMART MEANS BEING INTERNATIONALLY COMPARABLE



Administrative boundaries are not the answer





A functional definition for cities (EU/OECD)

- Definition of Functional Urban Areas based on population density in 1km² cells that are matched to municipal boundaries and connected via commuting patterns.
- Urban centres are identified by aggregating densely populated 1km² cells. Urban centres with at least 50,000 inhabitants are kept.
- They are matched with the boundaries of the lowest administrative level for which statistical data is typically available (NUTS5/LAU2)
- Urban centres and the less densely populated municipalities in the commuting zone are combined into Functional Urban Areas based on commuting flows (>15%).
- More info: OECD (2012) Redefining Urban
- <http://measuringurban.oecd.org>



3. SMART REQUIRES PRODUCTIVE



Agglomeration economies

Sources of agglomeration economies

Reviews by Rosenthal and Strange (2004), Duranton and Puga (2004) and Puga (2010); concepts already present in Marshall (1890).

- ***Sharing facilities, inputs, gains from specialisation***
firms may face lower costs for specialised non-traded inputs that are shared locally in a geographical cluster.
- ***Thicker labour markets: labour market pooling; better matching***
gain from reduced labour acquisition and training costs in thick local labour markets with abundant specialised labour force
- ***Knowledge spillovers: learning about and spreading new ideas***
face-to-face contact can enable tacit knowledge spillovers through increases in the intensity of the interactions with other firms or individuals



Cities make nearby cities more productive

- The productivity increase associated with increasing a city's population are in the order of 2-5.0% for a doubling in population size.
 - This implies, e.g., that moving from a city of roughly 50000 inhabitants to the Paris agglomeration – on average - increases productivity by an order of magnitude of 20%.
- Proximity to nearby populous cities affects positively the productivity of a city, implying that – in a certain sense - cities can utilise the agglomeration of their neighbours.
 - For a given city, if the population (discounted by distance) that lives in other cities within a 300 km radius, is doubled
 - => the productivity of the central city increases by 1-2 percent.

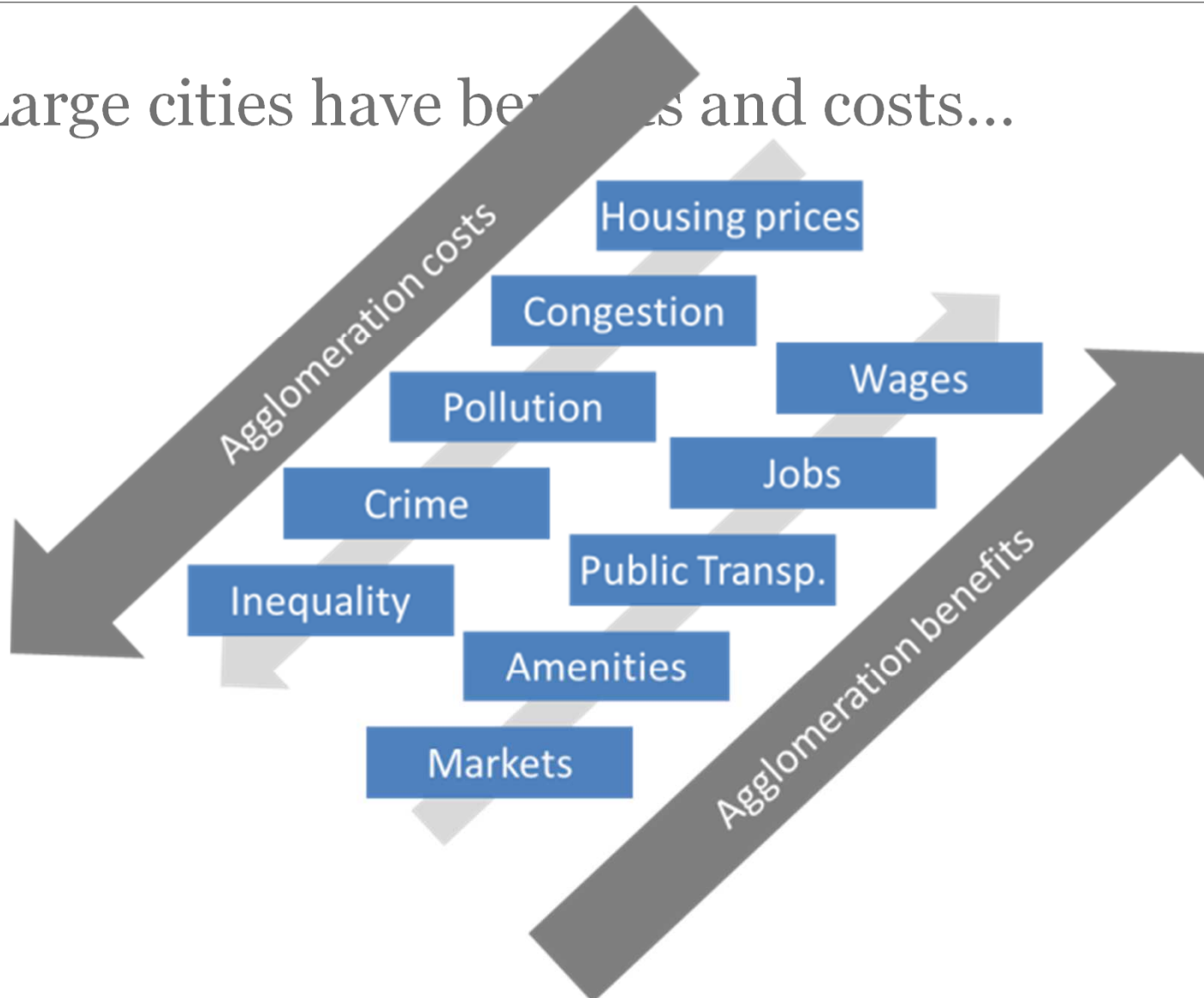


4. SMART MINIMISES AGGLOMERATION COSTS



Are large cities good for their residents?

- Large cities have benefits and costs...





5. SMART MEANS WELL GOVERNED



Urban areas are highly fragmented

Horizontal administrative fragmentation is common as cities outgrow their historic boundaries (more than 10 local governments in 75% of OECD Metropolitan Areas; more than 100 in 22%).

This may lead to undesirable outcomes due to lack of cooperation and negative externalities.

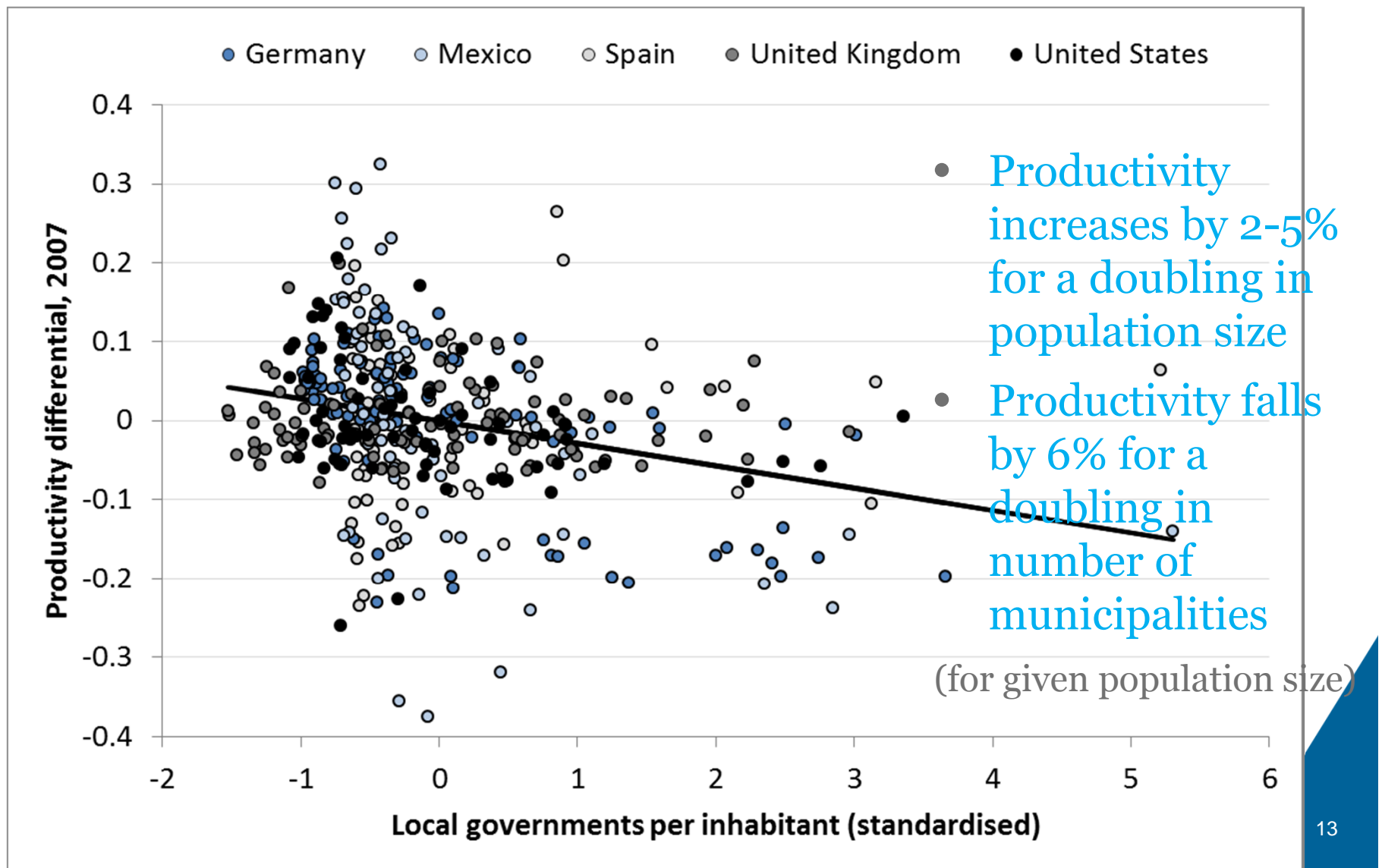
Evidence from case studies points to administrative fragmentation indeed having negative effects.

This is confirmed by more systematic econometric evidence:

[Ahrend, Farchy, Kaplanis and Lembcke \(2014\), “What Makes Cities More Productive? Agglomeration Economies & the Role of Urban Governance: Evidence from 5 OECD Countries”](#), forthcoming in Journal of Regional Science

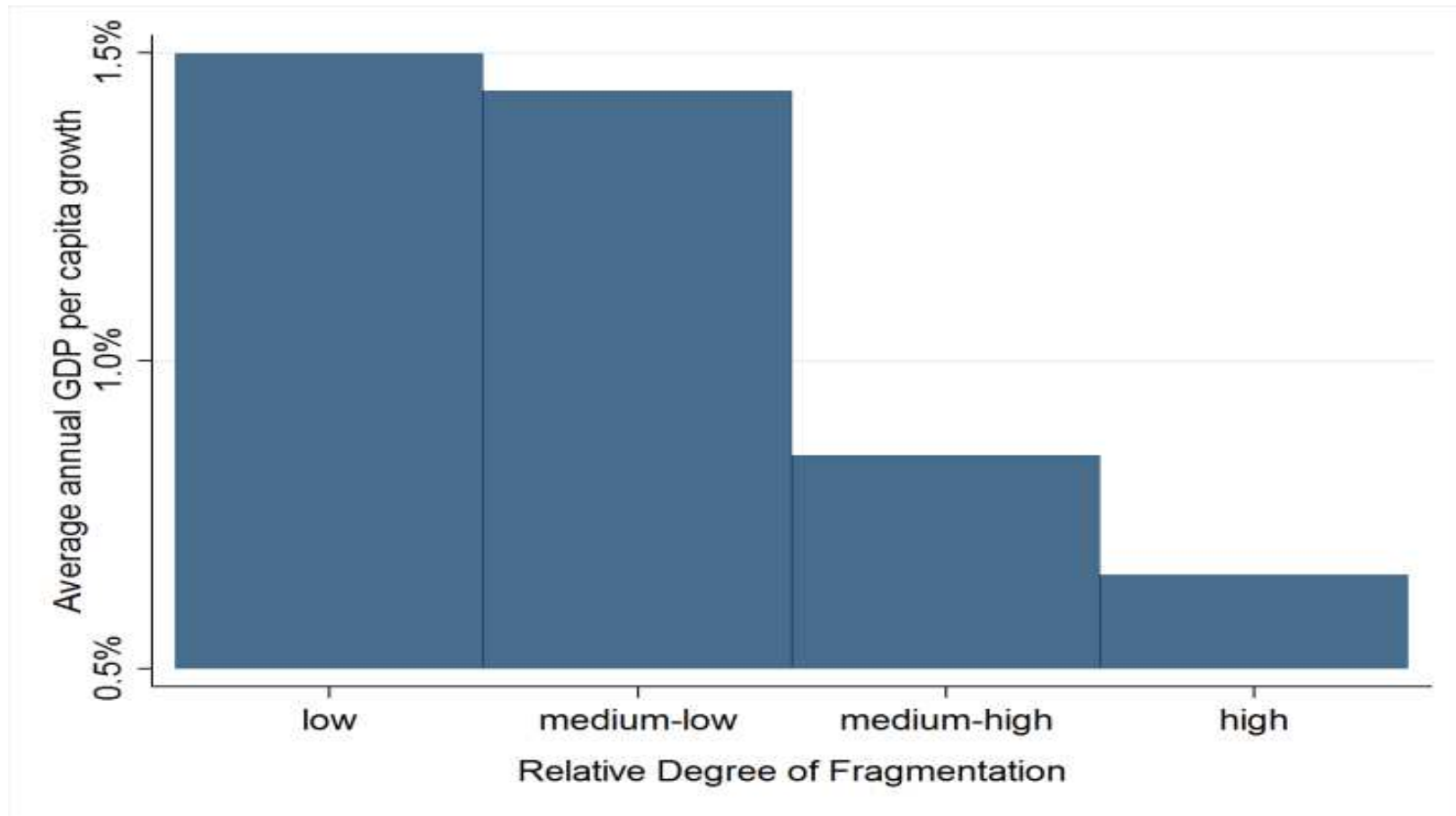


City productivity & administrative fragmentation





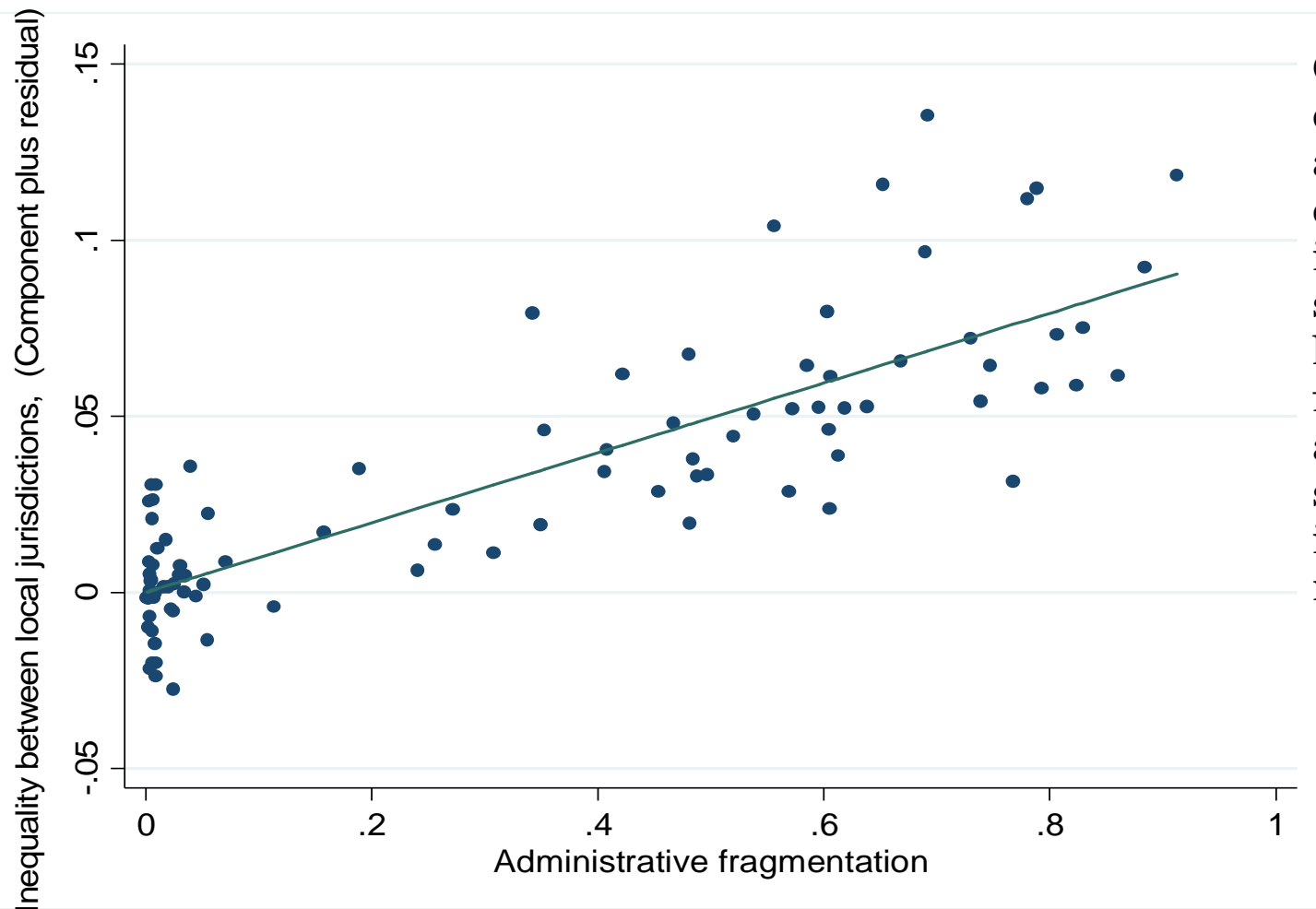
Less fragmented urban agglomerations have experienced higher economic growth





Higher administrative fragmentation is associated with higher segregation of people in different municipalities

Hypothesis: Fragmented metropolitan governance can facilitate segregation at the level of local units.



Controlling for country fixed effects and other city characteristics (i.e. income, population, spatial structure), higher administrative fragmentation is associated to higher spatial segregation by income in different municipalities

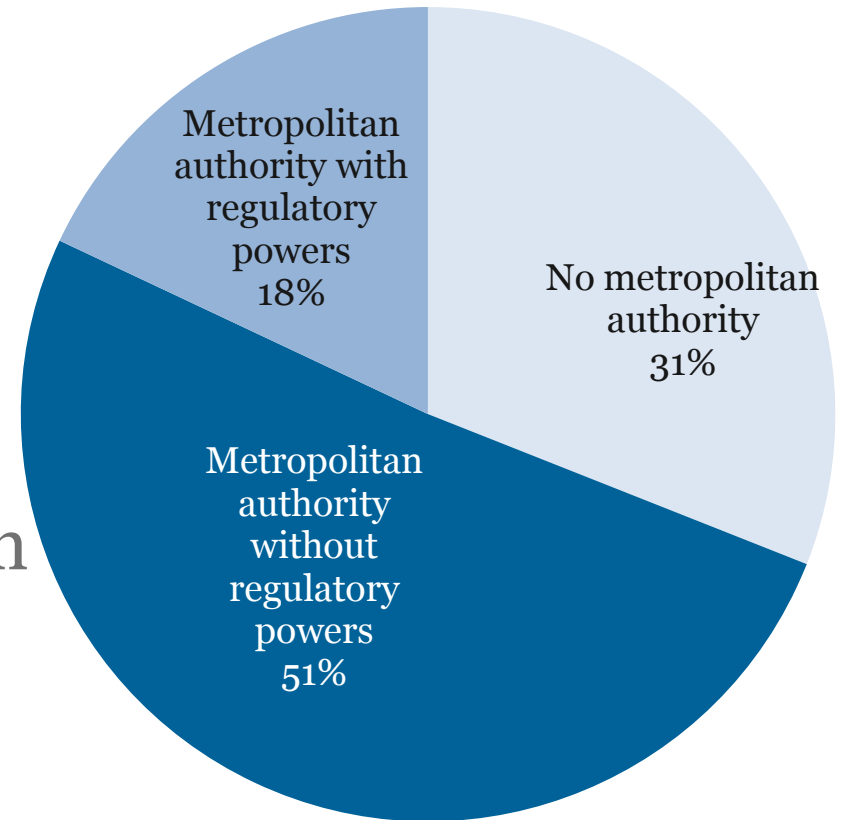


6. SMART MEANS SERIOUS ABOUT THE METROPOLITAN SCALE



Metropolitan authorities

- Approximately 280 metropolitan areas with more than 500,000 inhabitants exist in OECD countries
- Two-thirds of them have some form of metropolitan authority
- Great variety in tasks and competencies

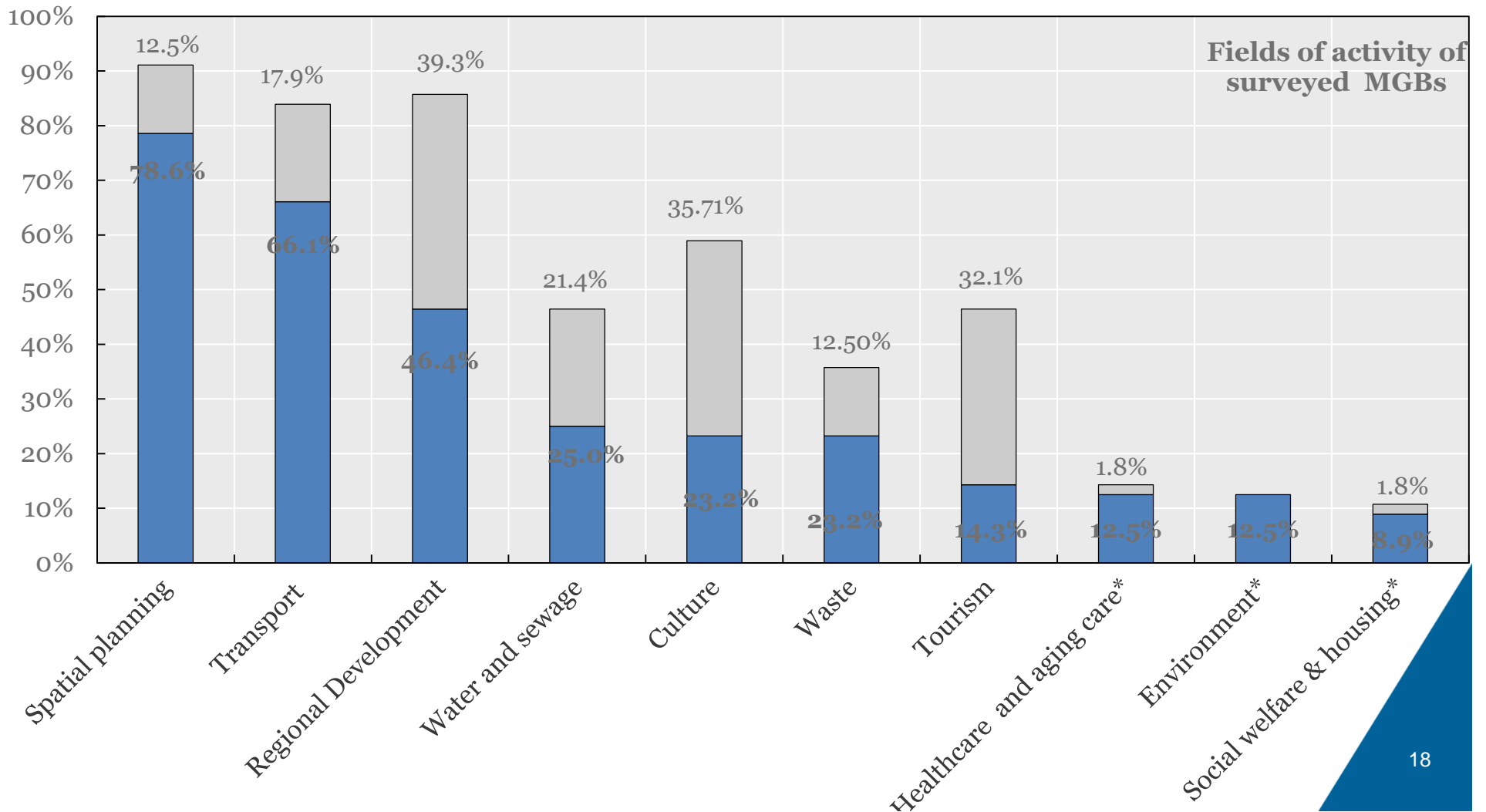




Fields of activity of surveyed MGBs

Primary Field

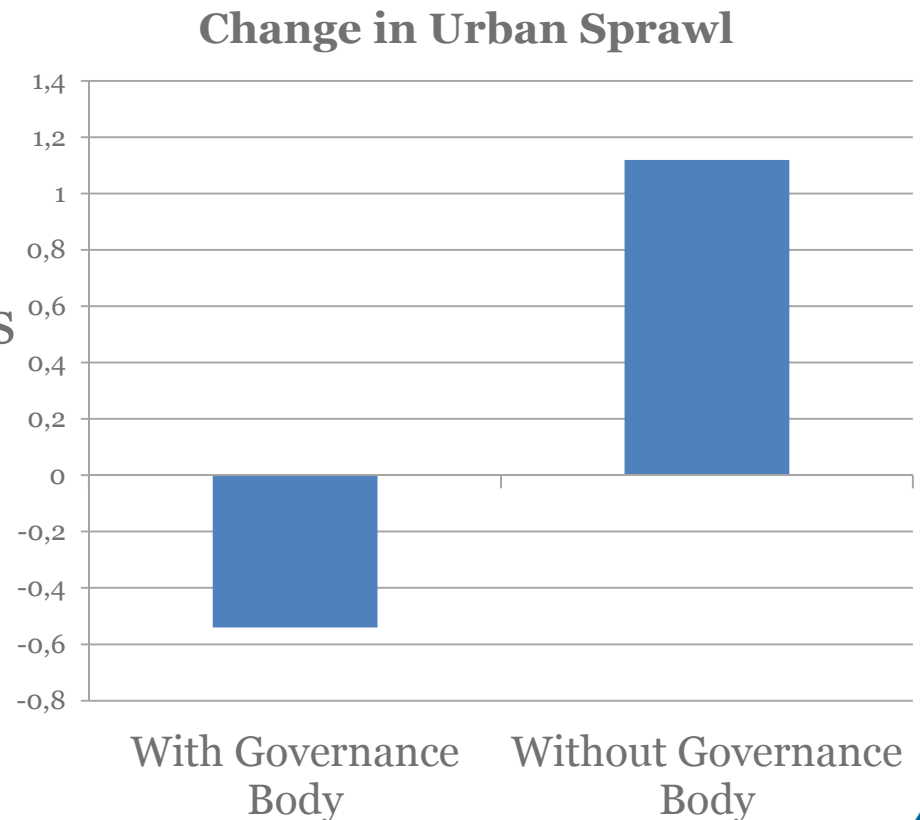
Secondary Field





Governance bodies can reduce sprawl

- Urban sprawl creates negative externalities in Metropolitan areas (MAs)
- Cooperation is a way to internalize the externalities when making policy decisions
- -> **Sprawl decreased in MAs with governance body, but increased in those without!**



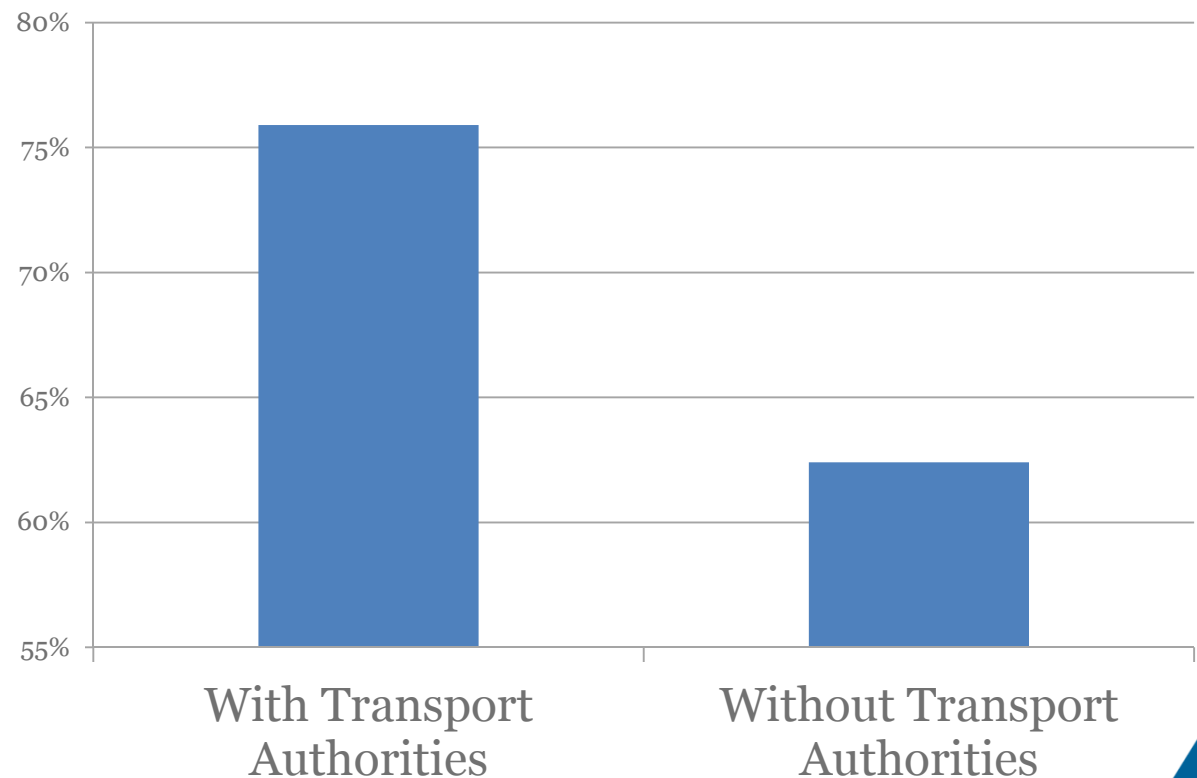
Difference significant at the 99%-level after controlling for log-population levels and country specific trends.



Governance bodies can increase well-being

- **Citizens are more satisfied in MAs that have sectoral authorities for public transport**
- **Those MAs have also lower pollution levels (PM)**

Share of Citizens Satisfied with Public Transport



Based on European Urban Audit perception survey.
Difference significant at 95% level.



Governance bodies positively affect economic productivity

- Within countries, cities with fragmented governance structures have lower levels of productivity.
 - For a given population size, a metropolitan area with twice the number of municipalities is associated with 5-6% lower productivity.
- Effect mitigated by almost half when a governance body at the metropolitan level exists.



7. SMART MEANS OPEN DATA



8. SMART USES & IMPROVES THE POTENTIAL OF YOUR SURROUNDING REGION

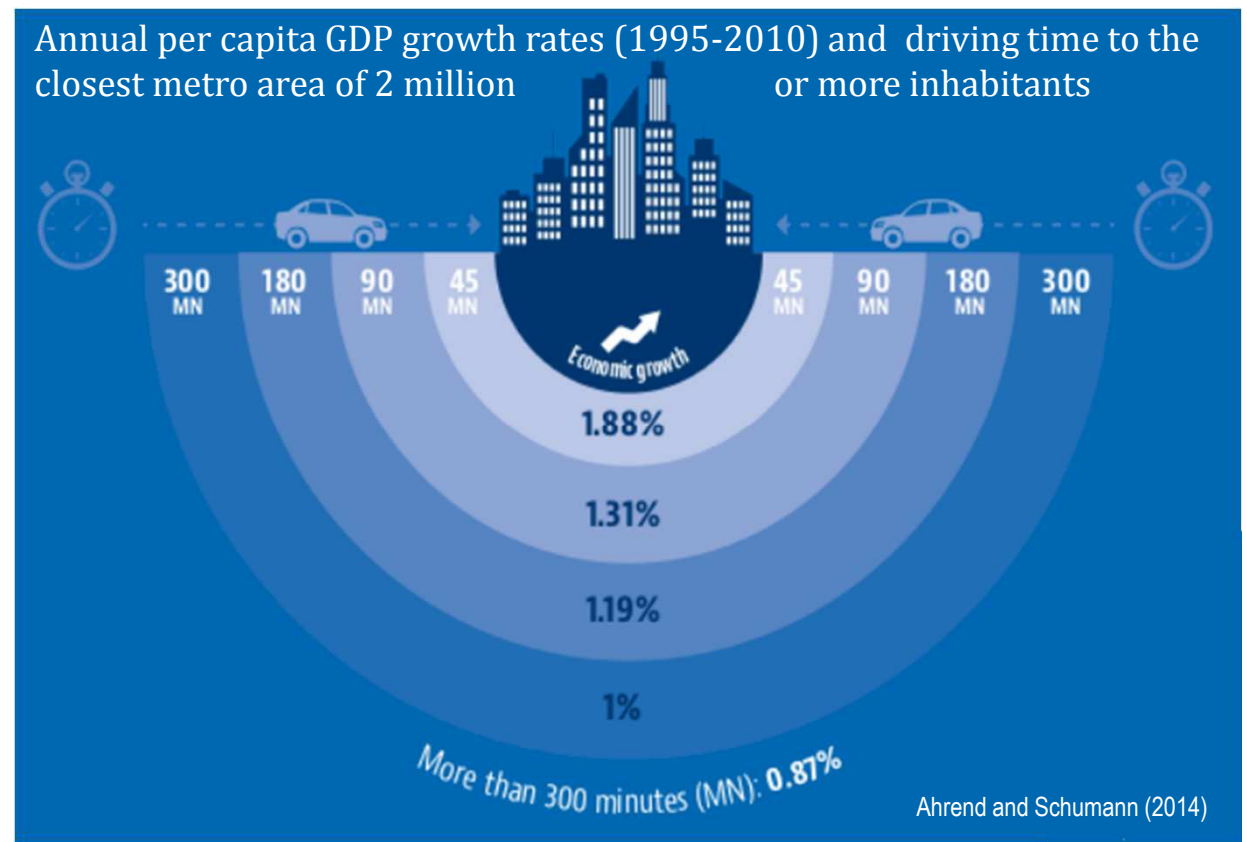


Beyond city size and governance

Human capital, high-tech and knowledge intensive services oriented cities make their residents more productive

Smaller cities can **“borrow”** agglomeration benefits

Benefits are not limited to cities but positively affect **accessible regions**





Thank you



The presentation draws from:

[Ahrend, Farchy, Kaplanis and Lembcke \(2014\), “What Makes Cities More Productive? Agglomeration economies & the role of urban governance: Evidence from 5 OECD Countries”](#)

[Ahrend and Schumann \(2014\) “Does regional economic growth depend on proximity to urban centres?”](#)

[Ahrend, Gamper and Schumann \(2014\) “The OECD Metropolitan Governance Database: A Quantitative Description of Governance Structures in Large Urban Areas”](#)

[OECD \(2015\) The Metropolitan Century: Understanding Urbanisation and its Consequences](#)

[OECD \(2015\) Governing the City](#)

[OECD \(2012\) Redefining Urban: a new way to measure metropolitan areas](#)



For info or further questions on this seminar and the activities of the JASPERS Networking Platform, please contact:

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