

# Territorial servitisation in Italy: towards territorial recoupling

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# Introduction

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Look for empirical support of **territorial servitisation** in Italy

**Knowledge intensive business services** (KIBS) as knowledge intermediaries to improve competitiveness of manufacturing activities

**Co-location** as source of **competitiveness in new global context** due to local externalities and complementarity

Distinguish between **Professional KIBS** and **Technological KIBS**, between and **High-** and **Low- tech manufacturing**, and among different **types of productive systems**

KIBS in Italy **largely decoupled** from manufacturing but **recent trends of recoupling**

# Literature review

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Expect **spatial decoupling** between manufacturing and services

**Marshallian externalities** and industrial clustering: high production specialization, skilled labour force, lower costs of transportation of goods, people and ideas (tacit knowledge sharing)

Raise of **services in knowledge-based economy**: from R&D, consulting, design, marketing, and IT solutions to product-service integration (servitisation)

Services (KIBS) **agglomerate in cities** to exploit connectivity, amenities, **Jacobian externalities**

**Territorial servitisation as structural change**: co-location between KIBS and manufacturing industries create competitive advantages

# Research questions

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- KIBS activities tend to **co-locate** with manufacturing activities in Italy?
- Does co-location change **over time**?
- Is the process of co-location the same in different **types of production systems**?
- Are there differences between **P-KIBS** and **T-KIBS**?

# Data

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| Data                                          | Source          | Resolution             | Period    |
|-----------------------------------------------|-----------------|------------------------|-----------|
| Employment data                               | ASIA            | Municipality - NACE 2d | 2012-2018 |
| Local Labour Systems in Italy                 | ISTAT           | Local Labor System     | 2018      |
| Classification of Italian Local Labor Systems | ISTAT           | Local Labor System     | 2018      |
| High- & Low-tech manufacturing                | Eurostat        | NACE 2d                | 2020      |
| P-KIBS & T-KIBS                               | Vaillant et al. | NACE 2d                | 2021      |

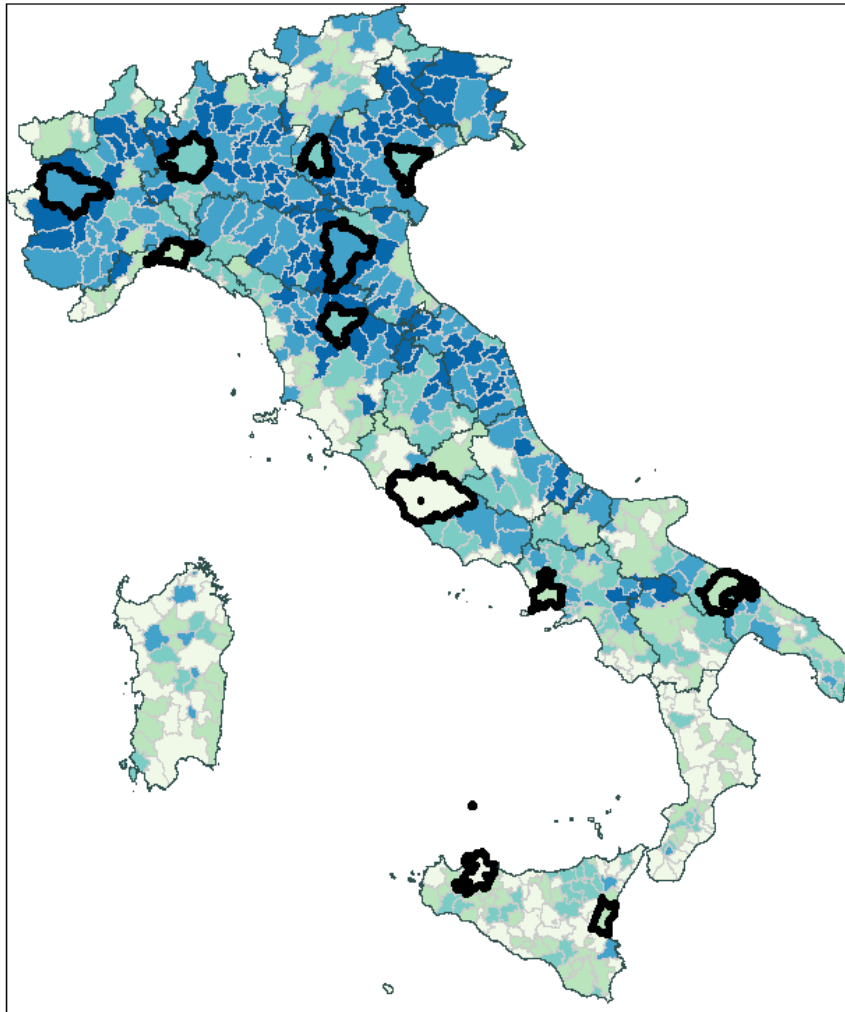
Relative specialization of LLS using **Location Quotients**

LQ of **four main economic activities**: HT-MAN, LT-MAN, P-KIBS, T-KIBS

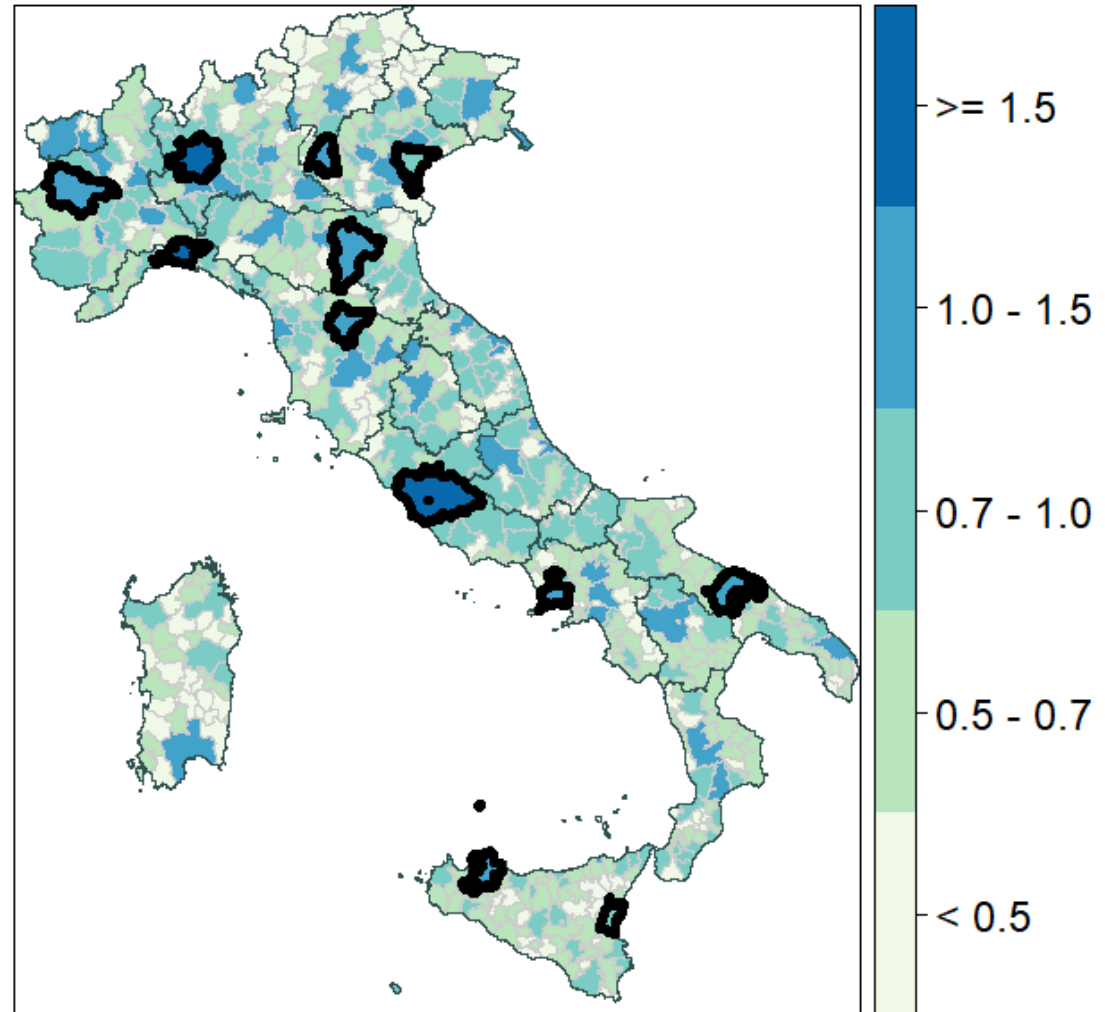
**Typologies of LLS**: large urban areas, SMEs, large enterprises, other

# Results

LQ Manufacturing



LQ KIBS



# Results

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| <b>LLS typology</b>      | <b>T-KIBS</b> | <b>P-KIBS</b> | <b>HT-MAN</b> | <b>LT-MAN</b> |
|--------------------------|---------------|---------------|---------------|---------------|
| <b>Large urban areas</b> | 1.336         | 1.220         | 0.809         | 0.634         |
| <b>SMEs</b>              | 0.464         | 0.746         | 1.220         | 1.808         |
| <b>Large Enterprises</b> | 0.462         | 0.753         | 1.771         | 1.501         |
| <b>Other territories</b> | 0.413         | 0.668         | 0.291         | 0.788         |

**Average LQ of 2018.** KIBS tend to locate in Large Urban Areas while, by definition, manufacturing agglomerate in manufacturing LLSs of SMEs and of LE

# Results

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| LLS typology      | T-KIBS | P-KIBS | HT-MAN | LT-MAN |
|-------------------|--------|--------|--------|--------|
| Large urban areas | 6.77%  | 20.82% | -6.41% | -1.81% |
| SMEs              | 15.45% | 24.62% | 3.63%  | -2.94% |
| Large Enterprises | 17.56% | 27.07% | -1.64% | -6.87% |
| Other territories | 7.45%  | 13.57% | 2.31%  | -4.60% |
| National average  | 8.95%  | 20.48% | -0.70% | -3.74% |

**Percentage change in employment between 2018 and 2012.** KIBS employment grows more than national average in manufacturing areas. P-KIBS grow more than T-KIBS. T-KIBS grow much more in LLSs of SMEs and LE than in LUA

# Results

$$LQ_{it,n}^{KIBS} = \sum_k \sum_m \gamma_{k,m} TYPE_{i,k} LQ_{it,m}^{MAN} + \sum_k \sum_m \beta_{k,m} TYPE_{i,k} LQ_{it,m}^{MAN} TREND_t + X_{it} \delta + \varepsilon_{it,n}$$

| Variable                         | Coefficient    | LQ P-KIBS         | LQ T-KIBS         |
|----------------------------------|----------------|-------------------|-------------------|
| TYPE (LE) - LQ HT-MAN            | $\gamma_{k.m}$ | -0.186 (0.016)*** | -0.072 (0.026)*** |
| TYPE (LE) - LQ LT-MAN            |                | -0.296 (0.045)*** | -0.127 (0.073)*   |
| TYPE (LUA) - LQ HT-MAN           |                | 0.018 (0.226)     | -0.416 (0.371)    |
| TYPE (LUA) - LQ LT-MAN           |                | -0.196 (0.492)    | -0.483 (0.808)    |
| TYPE (Other) - LQ HT-MAN         |                | -0.153 (0.019)*** | 0.006 (0.031)     |
| TYPE (Other) - LQ LT-MAN         |                | -0.200 (0.022)*** | -0.117 (0.037)*** |
| TYPE (SME) - LQ HT-MAN           |                | -0.154 (0.017)*** | -0.030 (0.028)    |
| TYPE (SME) - LQ LT-MAN           |                | -0.334 (0.029)*** | -0.176 (0.048)*** |
| TYPE (LE) - LQ HT-MAN - TREND    | $\beta_{k.m}$  | 0.003 (0.001)***  | 0.002 (0.002)     |
| TYPE (LE) - LQ LT-MAN - TREND    |                | 0.01 (0.001)***   | 0.004 (0.002)*    |
| TYPE (LUA) - LQ HT-MAN - TREND   |                | 0.002 (0.008)     | -0.002 (0.012)    |
| TYPE (LUA) - LQ LT-MAN - TREND   |                | 0.014 (0.012)     | -0.006 (0.019)    |
| TYPE (Other) - LQ HT-MAN - TREND |                | 0.011 (0.002)***  | -0.005 (0.003)*   |
| TYPE (Other) - LQ LT-MAN - TREND |                | 0.006 (0.002)***  | 0.007 (0.003)**   |
| TYPE (SME) - LQ HT-MAN - TREND   |                | 0.006 (0.001)***  | -0.001 (0.002)    |
| TYPE (SME) - LQ LT-MAN - TREND   |                | 0.007 (0.001)***  | 0.004 (0.002)**   |

# Conclusions

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Manufacturing services **largely decoupled** from KIBS in Italy

**T-KIBS** decouple from **large enterprises** and from **low-tech industry**

**Growth of KIBS** employment higher than national average in manufacturing LLS of **SMEs** and of **Large Enterprises**

**Recoupling** seem to involve **largely P-KIBS**, and **T-KIBS with low-tech** manufacturing

Recoupling as **evidence of territorial servitisation**

# Thank you

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# Data

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| T-KIBS                                                                                                                                                                                                                     | P-KIBS                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 60 - Programming and broadcasting activities<br>61 - Telecommunications<br>62 - Computer programming. consultancy. and related services<br>63 - Information service activities<br>72 - Scientific research and development | 50 - Water transport<br>51 - Air transport<br>69 - Legal and accounting activities<br>70 - Activities of head offices; management consultancy activities<br>71 - Architectural and engineering activities; technical testing and analysis<br>73 - Advertising and market research<br>74 - Other professional. scientific. and technical activities<br>78 - Employment activities<br>80 - Security and investigation activities |

# Data

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| High/Medium-high tech manufacturing                                                                                                                                                                                                                                                                                                                                                                                           | Low/Medium-low tech manufacturing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 20 - Manufacture of chemicals and chemical products<br>21 - Manufacture of basic pharmaceutical products and pharmaceutical preparations<br>26 - Manufacture of computer, electronic and optical products<br>27 - Manufacture of electrical equipment<br>28 - Manufacture of machinery and equipment n.e.c.<br>29 - Manufacture of motor vehicles trailers and semi-trailers<br>30 - Manufacture of other transport equipment | 10 - Manufacture of food products<br>11 - Beverages<br>12 - Tobacco products<br>13 - Textile<br>14 - Wearing apparel<br>15 - Leather and related products<br>16 - Wood and of products of wood<br>17 - Paper and paper products<br>18 - Printing and reproduction of recorded media<br>19 - Manufacture of coke and refined petroleum products<br>22 - Manufacture of rubber and plastic products<br>23 - Manufacture of other non-metallic mineral products<br>24 - Manufacture of basic metals<br>25 - Manufacture of fabricated metals products, excepts machinery and equipment<br>31 - Manufacture of furniture<br>32 - Other manufacturing<br>33 - Repair and installation of machinery and equipment |

# Results

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| LLS typology               | KIS   | KIBS  | T-KIBS | P-KIBS | LKIS  | HT-MAN | LT MAN | Other sectors |
|----------------------------|-------|-------|--------|--------|-------|--------|--------|---------------|
| LLS with large urban areas | 1.144 | 1.247 | 1.336  | 1.220  | 1.063 | 0.809  | 0.634  | 0.892         |
| Manufacturing LLS of SMEs  | 0.726 | 0.681 | 0.464  | 0.746  | 0.843 | 1.220  | 1.808  | 1.081         |
| Manufacturing LLS of LEs   | 0.812 | 0.685 | 0.462  | 0.753  | 0.840 | 1.771  | 1.501  | 1.099         |
| Other territories          | 1.014 | 0.608 | 0.413  | 0.668  | 1.211 | 0.291  | 0.788  | 1.380         |

# Results

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| LLS typology               | KIS    | KIBS   | T-KIBS | P-KIBS | LKIS  | HT-MAN | LT MAN | Other sectors |
|----------------------------|--------|--------|--------|--------|-------|--------|--------|---------------|
| LLS with large urban areas | 10.66% | 16.44% | 6.77%  | 20.82% | 9.62% | -6.41% | -1.81% | -7.62%        |
| Manufacturing LLS of SMEs  | 8.64%  | 22.92% | 15.45% | 24.62% | 3.56% | 3.63%  | -2.94% | -15.28%       |
| Manufacturing LLS of LEs   | 8.62%  | 25.27% | 17.56% | 27.07% | 2.40% | -1.64% | -6.87% | -15.39%       |
| Other territories          | 9.15%  | 12.30% | 7.45%  | 13.57% | 3.31% | 2.31%  | -4.60% | -14.14%       |
| National average           | 9.58%  | 17.59% | 8.95%  | 20.48% | 5.41% | -0.70% | -3.74% | -12.84%       |

# Results: technological level?

$$\begin{aligned} LQ_{it,n}^{KIBS} = & \mu_i + d_t + \delta \overline{LQ}_{it}^{OTHER} + \\ & \varphi LQ_{it-1,n}^{KIBS} + \rho W^{(1)} LQ_{it,n}^{KIBS} \\ & + \sum_m \alpha_m W^{(2)} LQ_{it,m}^{MAN} \\ & + \sum_k \sum_m \gamma_{k,m} TYPE_{i,k} LQ_{it,m}^{MAN} \\ & + \sum_k \sum_m \beta_{k,m} TYPE_{i,k} LQ_{it,m}^{MAN} TREND_t + \\ & \varepsilon_{it,n} \end{aligned}$$

|                                  |                | M1                | M2                | M3                |
|----------------------------------|----------------|-------------------|-------------------|-------------------|
|                                  |                | LQ KIBS           | LQ T-KIBS         | LQ P-KIBS         |
| Variable                         | Coefficient    |                   |                   |                   |
| LQ KIBS (t-1)                    | $\varphi$      | 0.546 (0.014)***  | 0.604 (0.015)***  | 0.581 (0.015)***  |
| $W^{(1)}$ - LQ KIBS              | $\rho$         | 0.148 (0.045)***  | -0.090 (0.101)    | 0.154 (0.044)***  |
| $W^{(2)}$ - LQ HT-MAN            | $\alpha_m$     | -0.090 (0.041)**  | 0.245 (0.097)**   | -0.182 (0.056)*** |
| $W^{(2)}$ - LQ LT-MAN            |                | -0.095 (0.057)*   | -0.217 (0.134)    | -0.090 (0.078)    |
| TYPE (LE) - LQ HT-MAN            | $\gamma_{k,m}$ | -0.160 (0.013)*** | -0.072 (0.026)*** | -0.186 (0.016)*** |
| TYPE (LE) - LQ LT-MAN            |                | -0.266 (0.036)*** | -0.127 (0.073)*   | -0.296 (0.045)*** |
| TYPE (LUA) - LQ HT-MAN           |                | -0.077 (0.182)    | -0.416 (0.371)    | 0.018 (0.226)     |
| TYPE (LUA) - LQ LT-MAN           |                | -0.218 (0.397)    | -0.483 (0.808)    | -0.196 (0.492)    |
| TYPE (Other) - LQ HT-MAN         |                | -0.117 (0.015)*** | 0.006 (0.031)     | -0.153 (0.019)*** |
| TYPE (Other) - LQ LT-MAN         |                | -0.184 (0.018)*** | -0.117 (0.037)*** | -0.200 (0.022)*** |
| TYPE (SME) - LQ HT-MAN           |                | -0.129 (0.014)*** | -0.030 (0.028)    | -0.154 (0.017)*** |
| TYPE (SME) - LQ LT-MAN           |                | -0.303 (0.024)*** | -0.176 (0.048)*** | -0.334 (0.029)*** |
| TYPE (LE) - LQ HT-MAN - TREND    |                | 0.003 (0.001)***  | 0.002 (0.002)     | 0.003 (0.001)***  |
| TYPE (LE) - LQ LT-MAN - TREND    |                | 0.009 (0.001)***  | 0.004 (0.002)*    | 0.01 (0.001)***   |
| TYPE (LUA) - LQ HT-MAN - TREND   | $\beta_{k,m}$  | 0.001 (0.006)     | -0.002 (0.012)    | 0.002 (0.008)     |
| TYPE (LUA) - LQ LT-MAN - TREND   |                | 0.008 (0.009)     | -0.006 (0.019)    | 0.014 (0.012)     |
| TYPE (Other) - LQ HT-MAN - TREND |                | 0.007 (0.001)***  | -0.005 (0.003)*   | 0.011 (0.002)***  |
| TYPE (Other) - LQ LT-MAN - TREND |                | 0.006 (0.001)***  | 0.007 (0.003)**   | 0.006 (0.002)***  |
| TYPE (SME) - LQ HT-MAN - TREND   |                | 0.005 (0.001)***  | -0.001 (0.002)    | 0.006 (0.001)***  |
| TYPE (SME) - LQ LT-MAN - TREND   |                | 0.006 (0.001)***  | 0.004 (0.002)**   | 0.007 (0.001)***  |
| AVG LQ Other                     | $\delta$       | -0.489 (0.023)*** | -0.376 (0.046)*** | -0.511 (0.029)*** |
| 2013                             | $d_t$          | -0.010 (0.005)**  | 0.013 (0.01)      | -0.019 (0.006)*** |
| 2014                             |                | -0.016 (0.005)*** | 0.010 (0.011)     | -0.026 (0.006)*** |
| 2015                             |                | -0.026 (0.006)*** | -0.002 (0.012)    | -0.035 (0.007)*** |
| 2016                             |                | -0.031 (0.006)*** | 0.005 (0.013)     | -0.043 (0.008)*** |
| 2017                             |                | -0.036 (0.007)*** | -0.003 (0.015)    | -0.048 (0.009)*** |
| 2018                             |                | -0.050 (0.008)*** | 0.004 (0.016)     | -0.066 (0.01)***  |