BUILD-UP TERRITORY AND FUNCTIONAL URBAN REGIONS IN ITALY

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The strength of cities and regions

SCORUS Conference, Darmstadt 17-19 October 2007

Summary

- The administrative approach
  - No national definition of urban areas
  - No LAU1 level (LMAs often used as a proxy)

- The functional approach
  - Choosing LMAs as proxy of functional regions
  - Classification of LMAs based on main productive specialization
  - Main characteristics and aspects of the urbanized LMAs

- The morphological approach
  - Definition and construction of the morphological urban areas (MUAs)
  - Main characteristics and aspects of the MUAs
  - Identification of urbanized municipalities and urbanized Labour Markets Areas (LMAs)
Identifying urban areas

- **Functional approach**
  - Defining LMAs using commuting flows
  - From a monocentric pattern to more polycentric pattern

- **Morphological approach**
  - Use of the concept of “build-up” territory
  - Localities and inhabited nucleuses
  - Recommendations Unece/Eurostat

- **The comparison between the two approaches**
  - A first goal: show the complexity of the urban phenomenon
Features of LMAs

- **Main aspects:**
  - Based on commuting flows between house and workplace across municipalities (LMAs are a sum of municipalities)
  - Geography defined on Census data from 1981 to 2001

- **Features:**
  - Geographical: The grid covers the whole territory (no residuals)
  - Statistical: Transparent, internationally acknowledged method
  - Economic: LMAs approximate self-contained labour markets

- **Uses in the Italian experience:**
  - Regional analysis
  - Structural funds & Regional policies
  - Territorial Review of Italy

- **Limits:**
  - No corresponding authority (representative or administrative)
  - Limited availability of current data
The functional approach

- A different approach to investigate the different aspects of the phenomenon (size and density of the settlements, commuting flows and qualifying functions)

- The use of the LMAs grid allows:
  - Not to depend on the administrative organization of the territory
  - To take into account, by construction, of the flow among localities → self-contained areas → polycentric areas
  - To identify patterns of main productive specializations
Based on structural features of establishments in the industrial census of 2001

Namely:

- The variable considered is employment in local units (establishments)
- Industries are broken down into 52 economic activities (NACE Rev. 1) and 4 dimensional classes (1-9, 10-49, 50-249, 250 and above)
- The variable for each LMA is obtained by aggregation of municipal data
- Binary correspondence analysis → dimensionality reduction → cluster analysis
- Iteration after selection of stable groups
Resulting cluster (specializations of the LMAs) (*)

(*) For further details see Istat. Rapporto Annuale 2005
Focus on LMAs with urban features

- **Not urban specialization**
  LMAs: 614 LMAs with about 18 millions of inhabitants (32,5% of the total);

- **LMAs with urban features**
  72 LMAs with about 24 millions of inhabitants (more than 40% of the total);
  - With high urban specialization (4 LMAs and about 7 millions of inhabitants, equivalent to 12,1% of the total)
  - With low urban specialization (29 LMAs and equivalent to about 4 millions of inhabitants, equivalent to 6,9% of the total)
  - Not specialized urban areas (13 LMAs and little more than 4 millions of inhabitants, equivalent to 7,2% of the total)
  - Harbours and shipyards (26 LMAs and about 9 millions of inhabitants, equivalent to 15,5% of the total)
Area (sum of localities) of at least 2,000 inhabitants where the groups of population live in settlements far from each other less than 200 meters.
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MUAs 2001

Classi di popolazione residente

2.001 - 5.000 abitanti
5.001 - 15.000 abitanti
15.001 - 50.000 abitanti
50.001 - 100.000 abitanti
Oltre 100.000 abitanti
Main features of MUAs

<table>
<thead>
<tr>
<th>Classes of resident population</th>
<th>Number of MUAs</th>
<th>Resident population in MUAs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>a.v.</td>
<td>%</td>
</tr>
<tr>
<td>2.001 - 5.000 inhabitants</td>
<td>1.500</td>
<td>55,5</td>
</tr>
<tr>
<td>5.001 - 15.000 inhabitants</td>
<td>802</td>
<td>29,6</td>
</tr>
<tr>
<td>15.000 - 50.000 inhabitants</td>
<td>291</td>
<td>10,8</td>
</tr>
<tr>
<td>50.000 - 100.000 inhabitants</td>
<td>63</td>
<td>2,3</td>
</tr>
<tr>
<td>Oltre 100.000 inhabitants</td>
<td>49</td>
<td>1,8</td>
</tr>
<tr>
<td>Italia</td>
<td>2.705</td>
<td>100,0</td>
</tr>
</tbody>
</table>

Source: Istat Census 2001 data elaboration

46,5 millions of inhabitants (81,7 %) live in the MUAs, but they cover less than 5% of the national territory. Milan (4,4 millions) is the biggest; then Naples (3,4 millions) and Rome (2,5 millions). The first ten MUAs cover over 34% of the national population.
MUAs of Rome and Milan

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Morphological Urban Areas
Municipality of Rome

Morphological Urban Areas
Municipality of Milan
By overlapping (with GIS) the MUAs boundary over the municipality boundary, we found four types of municipalities:

- **Not urbanized**
- **Urbanized only for population** → share of population living in MUAs is greater than the equivalent share at national level
- **Urbanized only for “built-up” territory** → share of surface extension of MUAs is greater than the equivalent share at national level
- **Strongly urbanized** → both aspects are present
Main features of urbanized municipalities

- **Not urbanized.** 4,632 municipalities (more than 57%), equivalent to about 10 millions of inhabitants;
- **Urbanized only for population.** About 5,6 millions of inhabitants (8.9%) live in 717 municipalities;
- **Urbanized only for “build-up” territory.** 5,4 millions of inhabitants (9.5%) live in 610 municipalities;
- **Strongly urbanized (both aspects).** 2,142 municipalities (more than a quarter of the total), in which live more than 36 millions of inhabitants (nearly the two thirds of the Italian population).
From urbanized municipalities to urbanized LMAs

- **Not urbanized**: 494 LMAs equivalent to about 18 millions of inhabitants (32.5%);  
- **Urbanized only for population**: 12 LMAs and less than one million of inhabitants (1.4%);  
- **Urbanized only for “build-up” territory**: 4,2 millions of inhabitants (7.4%) live in 49 LMAs;  
- **Strongly urbanized (both aspects)**: 131 LMAs which represent, with about 33 millions of inhabitants, nearly 60% of the national population. The major concentration is in North-west (74.5%), whereas in the other areas is little more than 50%.
## Combining approaches: LMAs by degree of urbanization

<table>
<thead>
<tr>
<th>NUTS1</th>
<th>Not urbanized</th>
<th>Only for morphological aspects</th>
<th>Only for functional aspects</th>
<th>Strongly urbanized (both aspects)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nord-ovest</td>
<td>66</td>
<td>31</td>
<td>9</td>
<td>8</td>
<td>114</td>
</tr>
<tr>
<td>Nord-est</td>
<td>89</td>
<td>12</td>
<td>7</td>
<td>11</td>
<td>119</td>
</tr>
<tr>
<td>Centro</td>
<td>104</td>
<td>6</td>
<td>9</td>
<td>9</td>
<td>128</td>
</tr>
<tr>
<td>Mezzogiorno</td>
<td>265</td>
<td>41</td>
<td>6</td>
<td>13</td>
<td>325</td>
</tr>
<tr>
<td>Italia</td>
<td>524</td>
<td>90</td>
<td>31</td>
<td>41</td>
<td>696</td>
</tr>
</tbody>
</table>

### N. of LMAs

<table>
<thead>
<tr>
<th>NUTS1</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nord-ovest</td>
<td>114</td>
</tr>
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<td>325</td>
</tr>
<tr>
<td>Italia</td>
<td>696</td>
</tr>
</tbody>
</table>

### Resident population 2001 (thousands)

<table>
<thead>
<tr>
<th>NUTS1</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nord-ovest</td>
<td>14,972.1</td>
</tr>
<tr>
<td>Nord-est</td>
<td>10,589.3</td>
</tr>
<tr>
<td>Centro</td>
<td>10,961.7</td>
</tr>
<tr>
<td>Mezzogiorno</td>
<td>20,472.6</td>
</tr>
<tr>
<td>Italia</td>
<td>56,995.7</td>
</tr>
</tbody>
</table>

### % by level of urbanization

<table>
<thead>
<tr>
<th>NUTS1</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nord-ovest</td>
<td>100.0</td>
</tr>
<tr>
<td>Nord-est</td>
<td>100.0</td>
</tr>
<tr>
<td>Centro</td>
<td>100.0</td>
</tr>
<tr>
<td>Mezzogiorno</td>
<td>100.0</td>
</tr>
<tr>
<td>Italia</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Istat Census 2001 data elaboration
Combining the two approaches we found four typologies:

- 524 LMAs (about 77 per cent of the total) without features of urbanization; about 20 millions of inhabitants (35%); mainly in Mezzogiorno (44.4%).
- 90 LMAs have only morphological features of urbanization; live in these areas less than 14 millions of people (24%).
- 31 LMAs have only urban functions without being “urbanized” from the morphological point of view. In these areas live less than 4 millions of inhabitants (6.5%). The Mezzogiorno is not represented.
- 41 LMAs, which have both the features of urbanization, represent hardly 6% of the areas but nearly 35% of the national population. In detail, 3 of these (Milan, Trieste and Rome) are high specialized urban areas, 11 low specialized urban areas, 8 are non specialized urban areas and 19 harbors and shipyards LMAs.
The four typologies recognized
The main results of this study are:

- Applying the two approaches at the Italy case we found strongly different results.
- In Italy, particularly in the north, the urban sprawl is very widespread.
- We need more investigations and analysis about the features of urban LMAs (not only by the side of economic activities).
- Using LMAs as the reference territorial grid seems to be better than other alternative grids → municipalities are too little → NUTS3 (Province) are sometimes too big.
- Using both approaches we can better describe the complexity of the urban phenomenon.
Thanks for your attention