Exploring the diversity of ruins in the Portuguese perforated city: a cluster analysis-based approach

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Paper's mission: investigate the diversity of ruins

Which typologies?
Old or new?
Theoretical Framework and Hypothesis

Main reasons for urban ruination...

- Deindustrialization
- Crisis and capital circulation
- Progress, societal changes and material obsolescence
Deindustrialization
Crisis and Capital Circulation
Methodology

Data Collection (Remote Sensing)

Selection & Inventory (Fieldwork)

Cluster Analysis (Ward & Euclidian)
Variables in analysis

Area
- Less than 200m²
- 200m² to 1000 m²
- More than 1000m²

Construction
- Before 1919
- Between 1920-60
- Between 1961-80
- Between 1981-2000
- Between 2001-2005
- Post 2005

Abandonment
- Before 1985
- Between 1986-1995
- Between 1996-2005
- After 2005
- No use yet
Variables in analysis

- **Type**
  - Industrial
  - Equipment
  - Office
  - Trade
  - Infrastructure
  - Single Family
  - Multi family building
  - Other

- **Last Use**
  - Habitation
  - Industry
  - Warehouse
  - Services
  - Trade
  - Religious
  - Education
  - Health
  - Military/Security
  - Garage
  - Road
  - Railroad
  - Other

- **Morphology**
  - Grid
  - Walls
  - Other obstacles
Findings: Cluster Analysis - 5 Groups
<table>
<thead>
<tr>
<th>%</th>
<th>G1 (1.029m²)* N=89 (19%)</th>
<th>G1 (234 m²)* N=110 (24%)</th>
<th>G3 (258m²)* N=137 (29%)</th>
<th>G4 (221m²)* N=56 (12%)</th>
<th>G5 (207m²)* N=74 (16%)</th>
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<td>98</td>
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<td>Multi Family</td>
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<td>8</td>
<td>4</td>
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</table>

* Square meters average for each group
Conclusions

- Regarding the clusterization process into five groups, multiple causes for ruination exist;

- Obsolescence is likely to be the most important: 53% of ruins are old residential buildings, single and multi-familiar (built up prior to 1919); a large proportion of them are long-lasting ruins (about 48% were abandoned before 2005);

- Deindustrialization isn’t a crucial reason for ruination: old industrial plants correspond to less than 19% of the ruins; buildings of different ages constitute this group; as expected, regarding the square meters average for each group, industrial ruins are much bigger than housing ruins, thus being highly impressive in cityscape;

- Modern and ‘new ruins’ correspond to a small part or urban ruins, although they also exist and contribute to urban ruination.
Thank you

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