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"An integrated vision about the role of cities"
1 – The new challenge: enlarging the interpretive paradigm

2 – The functional-geographical approach: the city as agglomeration

3 - The cognitive-relational approach: the city as milieu

4 - The hierarchical-distributive approach: the city as territorial control

5 - A tentative model of income distribution in space

6 - Conclusions
The new challenge: enlarging the scientific interpretive paradigm

Since the last decade of last century, we assisted to a **paradigm shift** in the economy and society:

*the transition to the ‘cognitive-cultural society’.*

**Cities** were at the forefront of change;

«they have not only become the dominant settlement pattern on our planet ...but have also turned into important **power blocks in a global economy**» (Kourtit and Nijkamp, 2018).

**Cities as cognitive systems in a globalised world**

**Cognition** = "the mental action or process of acquiring knowledge and understanding through thought, experience, and the senses“ (Oxford Dictionary) encompassing processes such as **judgement, evaluation, reasoning, computation, problem solving, comprehension, production of concepts, codes and language.**
Interpreting the present role and nature of cities and their consequences requires a *parallel scientific paradigm shift*, beyond the traditional *functional approach* to the city, typical of mainstream spatial economics and geography, which addresses mainly elements such as technology (‘smart cities’), economic efficiency (‘agglomeration economies’), locational advantages (‘accessibility’) and physical territorial capital.

This approach should be complemented by (Camagni, 2016a and 2017):

A. a *relational-cognitive approach*, acknowledging the specific and non-mediated role of the *city as a collective learning device*, enhancer of creativity and knowledge, producer of knowledge, codes and symbols;

B. a *hierarchical-distributive approach*, addressing themes such as *territorial power and control* and the related question of *income distribution in space*.

*Approach A is increasingly followed, approach B not at all!*
The functional-geographical approach: the city as agglomeration

“One of the central features of urbanization has always been its efficiency-generating qualities via agglomeration”; ”cities have always functioned as nodes in systems of long-distance trade” (Scott and Storper, 2014).

City and its center as a public goods: non-excludability and interaction among users: utility increases with number of users (R. Artle ‘73).

People absorb knowledge through contacts and probability increases with city size (Glaeser, 1999)

F-2-F contacts (Jacobs 1969) allow inclusion of visual and body language, acquisition of shared values → easier interpretation of information and higher efficiency of transactions (Storper and Venables, 2003).

In all cases a conceptual advancement is present, but the link contact → information → knowledge → innovation is not explained; the role of local economic space remains linked to increasing efficiency and lowering transaction costs (static approach).
The cognitive-relational approach: the city as *milieu*

If growth is intended as structural change and innovation, there is sufficient agreement that *the city should be analysed* as a ‘*milieu*’ (Cusinato, 2016).

The *milieu* (Camagni, 1991) is a system of actors and activities characterised by the *sharing of behavioural and cognitive codes, values, representations* and sense of belonging, so that →

- pure contacts become *social relationships* and potential *synergies*;
- static agglomeration externalities become dynamic ones, generating a *reduction of dynamic uncertainty* and processes of *collective learning*;
- the *role of the city* becomes *generative*: of knowledge and creativity;
- the approach becomes *cognitive-relational*: an “*evolutionary regional economics*” (Calafati, 2009).

The ‘*urban milieu*’ becomes “a specific production unit *generating*, along original processes, *some products* in which it maintains a *monopoly power*”, namely “*knowledge*” (Rémy, 1999).
The hierarchical-distributive approach: the city as territorial control

“The greatest division of material and mental labour is the separation of town and country. This antagonism begins with the transition from barbarism to civilization” (Marx and Engels, *The German Ideology*).

Cities “were born from the most ancient, the most revolutionary division of labour: countryside and agriculture on the one side and so-called urban activities on the other” (F. Braudel, 1979): → the “tyranny of the city”.

The city “presents itself, in different degrees, as the place from which a territorial control is established” (M. Roncayolo, 1990).

*Adam Smith* observed that in urban history not just a functional division of labour existed between city and countryside but also a *hierarchical, unbalanced* division of labour, based on *exchange of urban services (monopolistically priced) vs. agricultural goods (competitive prices)* (“terms of trade”) (p. 102-3).
## The three approaches to the nature of cities

<table>
<thead>
<tr>
<th>SPATIAL LOGIC HERMENEUTIC LOGIC</th>
<th>TERRITORIAL DIMENSION</th>
<th>NETWORK DIMENSION</th>
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<tbody>
<tr>
<td><strong>FUNCTIONAL - GEOGRAPHIC DIMENSION</strong></td>
<td>CITY AS AGGLOMERATION</td>
<td>CITY AS INTERCONNECTION</td>
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<td>volume and density of contacts</td>
<td>node in multiple and interacting</td>
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<td>internal heterogeneity,</td>
<td>transport, economic and</td>
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<td>specialization</td>
<td>communication networks;</td>
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<td>concentration of externalities</td>
<td>interconnection between place and</td>
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<td>reduction of transaction costs</td>
<td>node; global connectivity</td>
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<td><strong>RELATIONAL-COGNITIVE DIMENSION</strong></td>
<td>CITY AS MILIEU</td>
<td>CITY AS KNOWLEDGE-</td>
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<td></td>
<td>relational density, sharing codes</td>
<td>CREATING MILIEU</td>
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<td></td>
<td>and values, sense of belonging;</td>
<td>link among global milieus</td>
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<td>substratum for collective learning,</td>
<td>creator of global symbols and lang.</td>
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<td>uncertainty-reducing operator:</td>
<td>city as powerhouse / transformer of</td>
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<td>socialized informat. transcoding</td>
<td>internal and external energy</td>
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<td>collective action</td>
<td>blending of different knowledges:</td>
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<td>image space, symbolic representat.</td>
<td>analytic, synthetic, artistic</td>
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<td></td>
<td>enjoyment, affection, emotions</td>
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<tr>
<td><strong>HIERARCHICAL-DISTRIBUTIVE DIMENSION</strong></td>
<td>CITY AS TERRITORIAL CONTROL</td>
<td>CITY AS CONTROL ON</td>
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<td></td>
<td>continuous recreation of strategic</td>
<td>INCOME DISTRIBUTION</td>
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<td></td>
<td>and driving functions,</td>
<td>control over space and time,</td>
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<td>monopoly power on urban funct.,</td>
<td>symbol of territorial mastery,</td>
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<td>control on spatial divis. of labour</td>
<td>exploitation of monopoly powers in</td>
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<td>terms of income distribution</td>
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Soruce: Camagni, 2016a
The hierarchical-distributive approach, widely ignored up to now, may be implemented on tree main scientific fields:

A. **Personal income distribution** (inside the city);

B. **Functional income distribution, among W, II and Rents** (inside the city)

C. **Spatial income distribution between the city and the non-city.**

**A. Personal income distribution.**

Early evidence in urban development shows an already visible divide in social (and spatial) terms: a new social polarization between a class of workers endowed with intellectual and creative skills, operating on symbols and codes and a class of low-wages manual and service workers (Scott, 2017; Florida, 2017; Aghion, 2015).
B. The hierarchical-distributive approach: functional income distribution

B. Functional income distribution.

*Which is the relevance of urban land rent?* Apparently recent urban renaissance and success of large cities should feed land rents at the expense of profits, in a prey-predator logics (Camagni, 2016b).

Early evidence on 14 advanced countries (Knoll, Schularick, Steger, 2017 on AER) shows that in the mid-1980’s, *a boom of the residential housing market* started, partly reversing after the 2008 crisis.

- In the period 1950-2010 *real house prices* rose by a factor of 3.3
- *construction costs* by a factor of 1.5
- *land prices* by a factor of 7.5 and
- *81% of the 1950-2012 increase in real house prices was represented by an increase in land prices* (pure land rents).
B. The hierarchical-distributive approach: functional income distribution (14 countries)

Decomposition: 1880-2012, 1990 = 100
mean real house prices
real construction costs
mean imputed land prices

Share of land in total housing value (year 2010)

<table>
<thead>
<tr>
<th>Country</th>
<th>Share</th>
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<tbody>
<tr>
<td>Germany</td>
<td>33%</td>
</tr>
<tr>
<td>US</td>
<td>38%</td>
</tr>
<tr>
<td>Canada</td>
<td>53%</td>
</tr>
<tr>
<td>Netherlands</td>
<td>53%</td>
</tr>
<tr>
<td>France</td>
<td>59%</td>
</tr>
<tr>
<td>Australia</td>
<td>71%</td>
</tr>
<tr>
<td>Japan</td>
<td>77%</td>
</tr>
<tr>
<td>(Japan, 1990)</td>
<td>90%</td>
</tr>
</tbody>
</table>

Source: Knoll, Schularick, Steger, American Economic Review, 107 (2), 2017
A similar evaluation was done for Italy, reconstructing data for real residential house prices, construction costs and land prices 1927-2012 and decomposing real houses value (1927= 1)

Source: Cannari et al., 2016, Ufficio Studi Banca d’Italia, 2016

2012/1950
Construction costs: 1,7
House prices: 2,7
Land prices: 3,9

Share of land on real house prices in 2012: 58% (own calculation)
The hierarchical-distributive approach: functional income distribution - Italy

Real residential house prices in major cities in Italy (1927=1)

→ Major cities
2008/1950 = 4.9

→ Italy
2008/1950 = 2.9

Share of land on real house prices in 2012 in major cities 74%
(own calculation*)

* Hypothesis of similar construction prices throughout the country

Source: Cannari et al., 2016, Ufficio Studi Banca d'Italia, 2016
A recent inquiry on land prices in the Netherlands (H. de Groot et al., 2015) confirms that «the price of land in the Amsterdam city centre is 200 time as high as that in the countryside of East Groningen. This difference more than doubled between 1985 and 2007».

«The wage surplus of agglomeration and urbanisation ranges ... between 0,5% to 2% of GDP», while «total differential land value corresponds to 3% of GDP» (and more probably 4%).

Figures on land rents should also incorporate the ‘transformation rent’ (capital gain) appropriated by developers (‘The city as business’: Camagni, 2017)

All this is a consequence of the new economic cognititive and cultural paradigm and its crucial link with an urban environment.
Open problems:

I. *In an urbanized world (>80% of population), one should start to distinguish between CITIES and cities.*

II. *How to measure quality of advanced urban services?* Ph. Aghion, 2017, claims that these services (consulting, entertainment, retail trade, health) are underrated by official statistics. This fact underrates contribution by large cities to GDP (better to use GDP at current prices).

III. *This contribution is likely to include a monopoly element* acting directly on prices of urban productions

IV. *How to measure relative prices (terms-of-trade)* in the exchanges between CITIES and cities (countryside), generating a spatial distributive effect?
The tree approaches to the nature and role of cities illustrated might be synthesized in three elements:

- **typology of productions (agglomeration effect),**
- **quality of productions (cognitive content), and**
- **their pricing (distributive element).**

A tentative, partial and highly simplified model for an initial empirical investigation can be built:

\[ Y = K^\alpha L^\beta A^\gamma (P/C)^\delta \]  

[1]

The population term \( P \) indicates **agglomeration economies**; it is divided by \( C \) (constant), an element indicating the **minimum urban size for the appearance of a superior urban efficiency**, that we interpret as a monopoly power of the city in the exchanges with the countryside.
Unfortunately, this equation cannot be estimated directly, as the C term merges into the constant term.

**An alternative specification:**
- the contribution of the traditional production factors is estimated first,
- the residual error term (referring to $Y$) is then regressed against population, in search of an evidence of the form of agglomeration economies.

\[
\ln Y_r = \text{const.} + \alpha \ln K_r + \beta \ln L_r + \gamma \ln A_r + \ln \varepsilon_r \quad [2a]
\]
\[
\varepsilon_r = \text{const.} + \delta_1 P_r + \delta_2 P^2_r + \delta_3 P^3_r + \omega_r \quad [2b]
\]

This model is applied to the Italian metro areas (Nuts3 regions: provinces). The results look statistically robust and quite interesting: the entire model shows *increasing returns to all factors altogether*, decreasing returns to capital and labour and *agglomeration economies clearly visible starting from the fourth quintile* (medium-large and large metro areas).
A tentative model of income distribution in space

In search of agglomeration economies (current prices)
Predicted values of the GDP residual in equation 2a as explained by population size – Italian Provinces, 2006

Source: Camagni, 2016a)
## A tentative model of income distribution in space

### Equation [2a]

| VARIABLES     | Coef.    | Robust Std. Err. | t     | P>|t| |
|---------------|----------|------------------|-------|-----|
| Capital (ln)  | 0.373*** | (0.115)          | 3.24  | 0.002 |
| Labour (ln)   | 0.621*** | (0.127)          | 4.88  | 0    |
| Area (ln)     | 0.127*   | (0.065)          | 1.95  | 0.054 |
| Constant      | -2.626** | (1.094)          | -2.4  | 0.018 |

Observations: 103
R-squared: 0.728

### Equation [2b]

| VARIABLES     | Coef.    | Robust Std. Err. | t     | P>|t| |
|---------------|----------|------------------|-------|-----|
| Population    | 0.131**  | (0.056)          | 2.35  | 0.021 |
| Population^2  | -0.006°  | (0.004)          | -1.57 | 0.120 |
| Population^3  | 0.000°   | (0.000)          | 1.47  | 0.145 |
| Constant      | 0.646*** | (0.149)          | 4.33  | 0.000 |

Observations: 103
R-squared: 0.118

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**Prof. Roberto Camagni – Politecnico di Milano**
Very large metro areas show **positive and increasing returns to urban scale**: size, and consequently quality and price of urban output, rise continuously at the expense of lower ranks of the urban system.

Interestingly the exponent of usable land $A$ is positive: we interpret it as the **distributive share of rents, independently** with respect to agglomeration advantages.
Conclusions

The paper shares the emerging criticisms of the *reductionist character of purely functional-geographical approaches* of the role of cities. They should be complemented by two other approaches:

- **the relational-cognitive approach**, interpreting the city as a cognitive *milieu*, generating knowledge, creativity and innovation
- **the hierarchical-distributive one**, interpreting relationships with the non-city in terms of *control* and monopolistic determination of relative prices.

This means acknowledging the *generative role* of the city and its *control on income distribution*.

The first is quite consolidated; the second still needs in depth reflections; the third looks today quite unexplored.
Hopefully, there is wide space for new, fresh theoretical and empirical elaborations……
glory and pleasure for new generations!

**Many thanks!**

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Some references


Many thanks!

«The garden of delights»)