How to use a city's information and complexity to assess the quality of life of citizens living in it?

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Content

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Two approaches are proposed

Each approach is related with finding the answer to one of the following questions:

- How to use a city's **entropy** measurement to assess the quality of life of citizens living in it?
- Does socio-economic variables correlate with **complexity** level of a city?

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Information level (Entropy)

Procedure

Compare periods of time where differences in the elements of a city are bigger against periods of time where those elements became more similar to each other.

Mechanism

Assuming an initial *quality of life level* I would expect that periods of time where elements of the city became more different have *relatively* reduce the quality of life for the citizens (Balconies and Flats examples).

Complexity level

Procedure

At an certain time and city see if population density - as measured with fractal dimension - is correlated with socio-economic variables such as: income, access to health, education, water, electricity, security, employment, etc..

Mechanism

I would expect to see population density to response to socio-economic variables. Citizens would want to live in places of the city that are affordable to their level of income and have a great amount of public goods.

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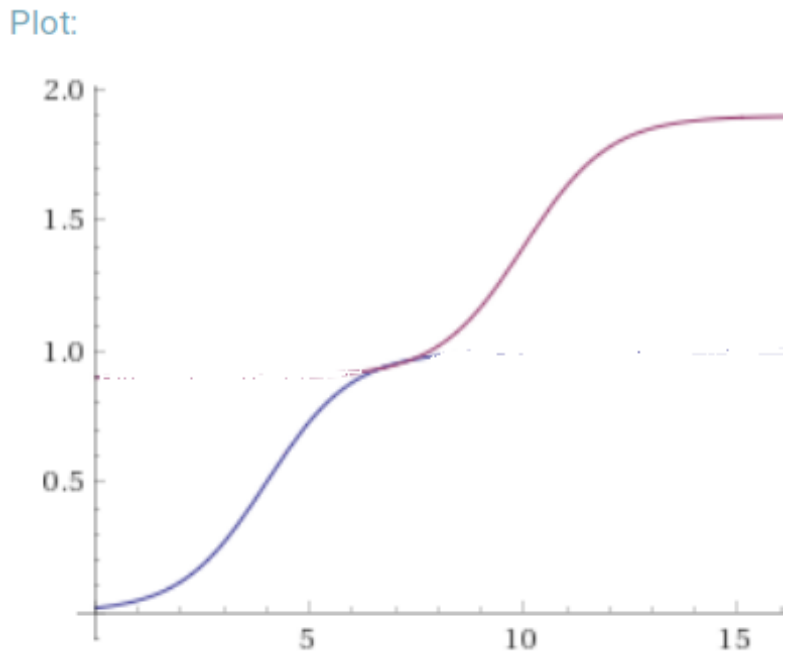
Information level (Entropy)

Steps

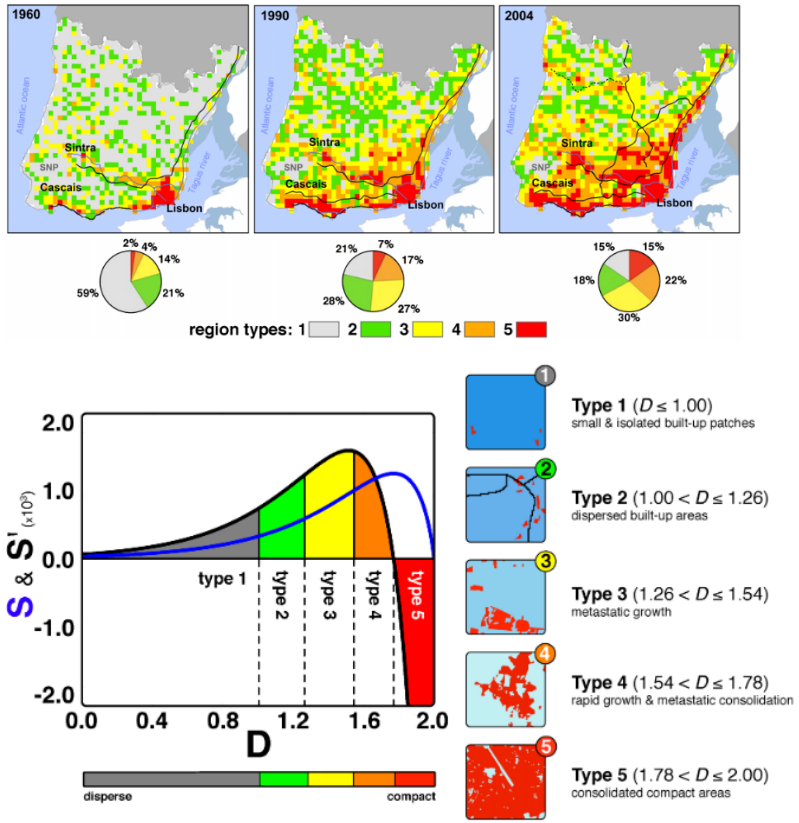
1. Initial Level of Welfare selection
2. Characterization of the elements of the city (buildings by number of stores, windows, balconies, etc..)
3. Estimate information entropy in each period for the city: $S = -\sum_i P_i log_2 P_i$
4. Calculate correlation between Welfare and S



Complexity level

Steps

1. Replicate Study of LMA
2. Estimate correlation among socio-economic variables and fractal dimension of each cell



Study available in: https://www.nature.com/articles/srep00527.pdf

References

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