

# What online data tells us about spatial segmentation in the housing market

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April 2024

Spatial segmentation of the housing market into submarkets has important implications for urban development [Bourassa et al., 2003]. Various perspectives have been implemented to define spatial housing submarkets, resulting in a high diversity of methods [Goodman and Thibodeau, 1998, Baumont, 2009, Usman et al., 2021], including clustering methods to infer patterns from the structure of the data. These approaches are commonly used to uncover submarkets from transactional data. However, with property portals being nowadays the dominant way to create and access market information, online listings constitute a new type of data to study housing markets [Boeing and Waddell, 2017, Boulay et al., 2021].

In this paper, starting from transactional data, we first revisit common methods to identify submarkets. The results shed light real estate market dynamics in the Paris metro area from the last twenty years [Le Corre, 2019]. Furthermore, based on a recent paper [Abella et al.], online listings are used to develop a new data-driven segmentation method that reveals housing submarkets. Indeed, listing includes a critical piece of information: the identity of the real estate agency. Building upon the literature, we define submarkets as the areas clustered together by the practices of real estate agencies, captured by their portfolio of listings. To analyze the spatial market structures that emerge from these portfolios, we apply complex networks techniques, taking into account two factors: the *presence* of an agency within a particular area through its portfolio; the relative *influence* of an agency, determined by the agency's proportional share of all listings located in the area. We apply this method to analyze collection of geolocated online listings posted by real estate agencies in two different countries: Spain and France. Finally, our results demonstrate the potential of these new methodological frameworks and data but also their limitations.

## References

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