

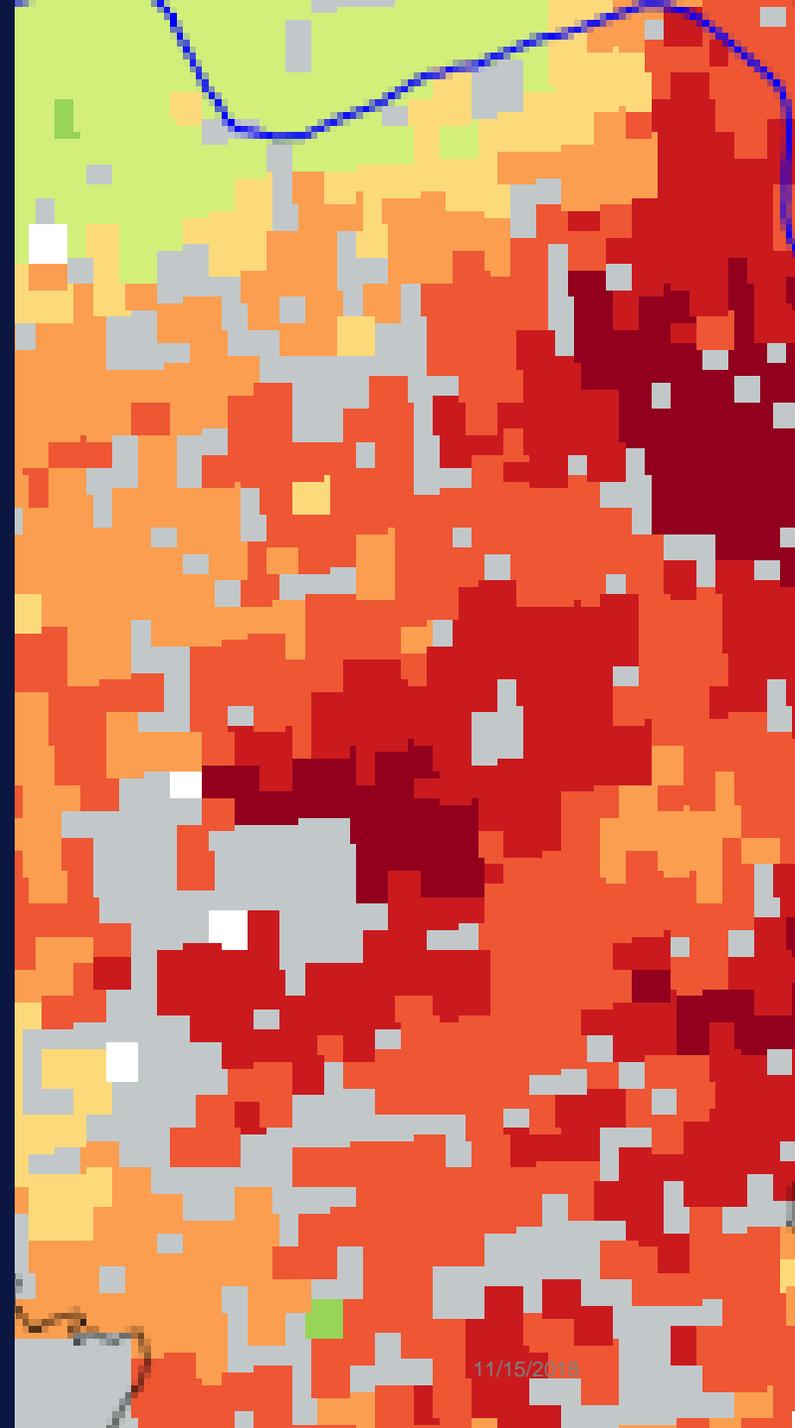
// Institutional data vs big data: why analyzing data on housing dynamics in cities matters? (housing, price, spatial analysis)

Introduction

- Housing prices have increased faster than the income of residents and buyers in major post-industrial city-regions, and real estate has become an important driver of these inequalities
- The aim is to spatially inform the tensions on the housing market, that have implications on the moving behavior of people, *i.e.* to document the spatial dynamics of the effort of households, and the spatial dynamics of socioeconomic inequalities.
- This paper elaborates on prefigurative case of Paris as an ideal case study because of the availability of institutional data.

1

BACKGROUND AND POLICY RELEVANCE: AFFORDABILITY AND SPATIAL INEQUALITIES

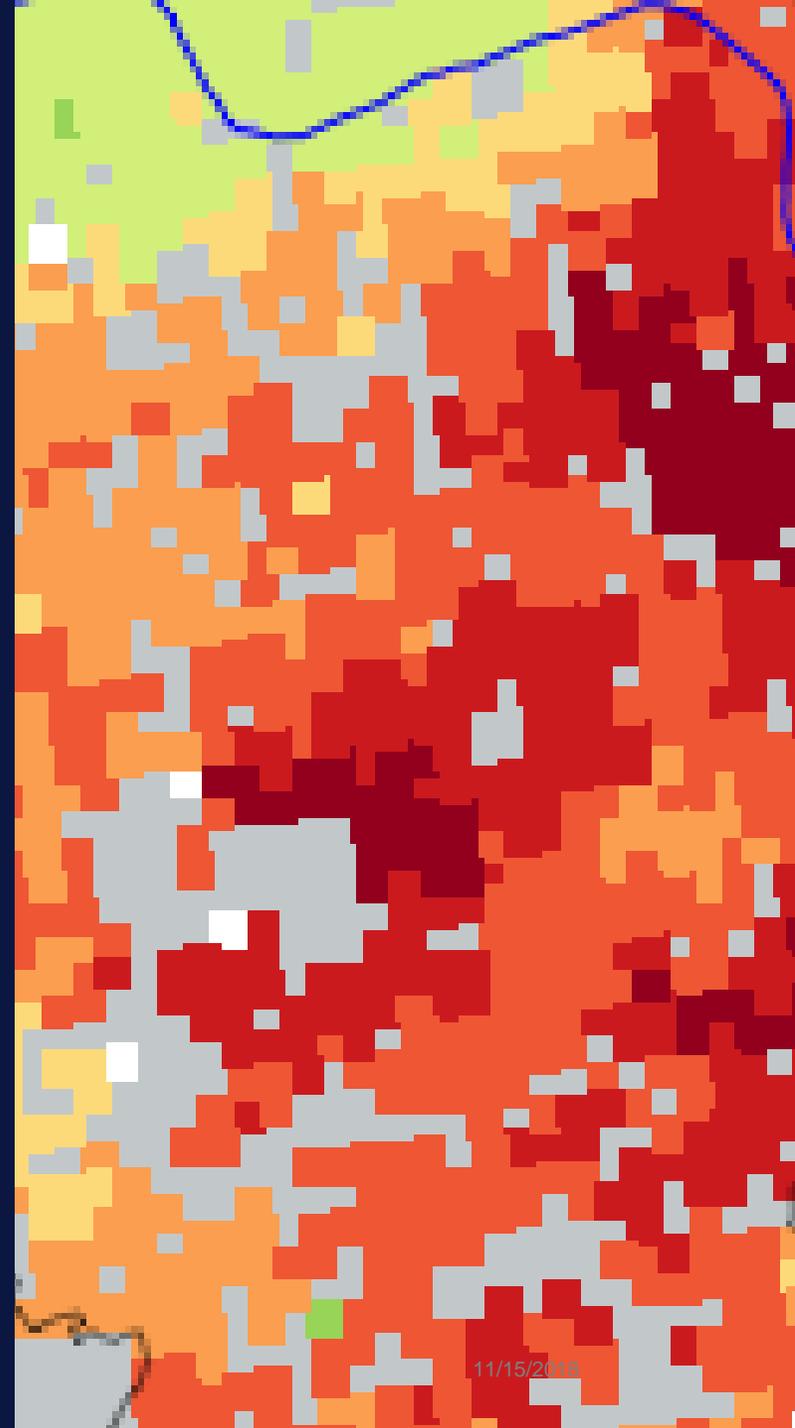


Background: analysis the outcomes of a policy shift

- The OECD database on affordable housing shows that increased price and income inequalities exacerbate unequal access to affordable housing (Oecd, 2018), a situation that spreads across the variegated housing provision systems (André and Chalaux, 2018; Kemeny, 2001).
- increased property prices sort out buyers and renders access to housing highly dependent of assets and access to credit.
- Second, the flows of household real estate investments are instrumental to the dynamics of asset capitalization (Piketty, 2013).
- Both access and assets directly affect social inequalities and spatial segregation patterns of residents and buyers.
- A path dependency-shift in almost every nation-state influenced by global World Bank policies (Rolnik, 2013)

2

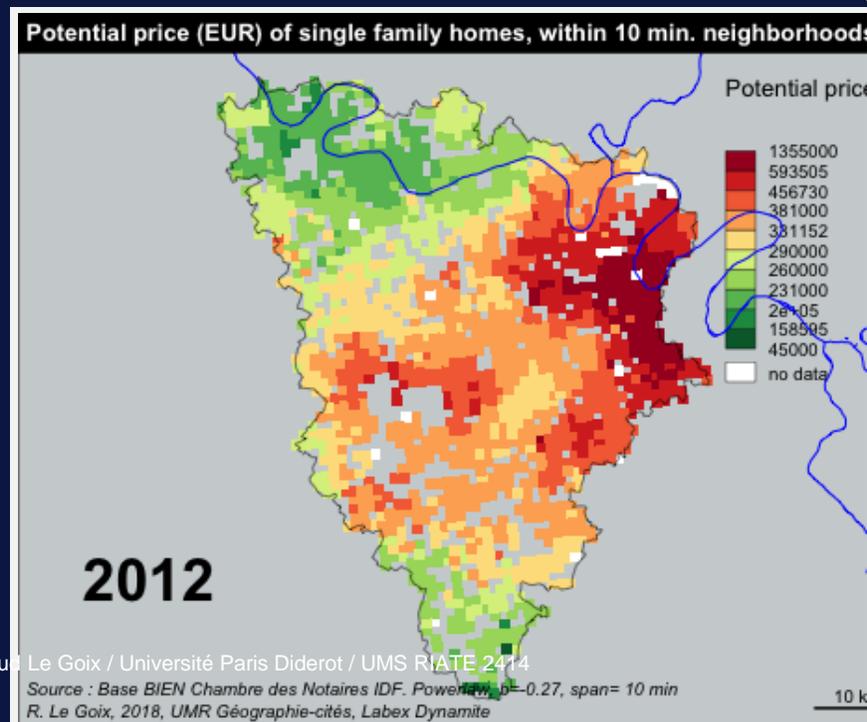
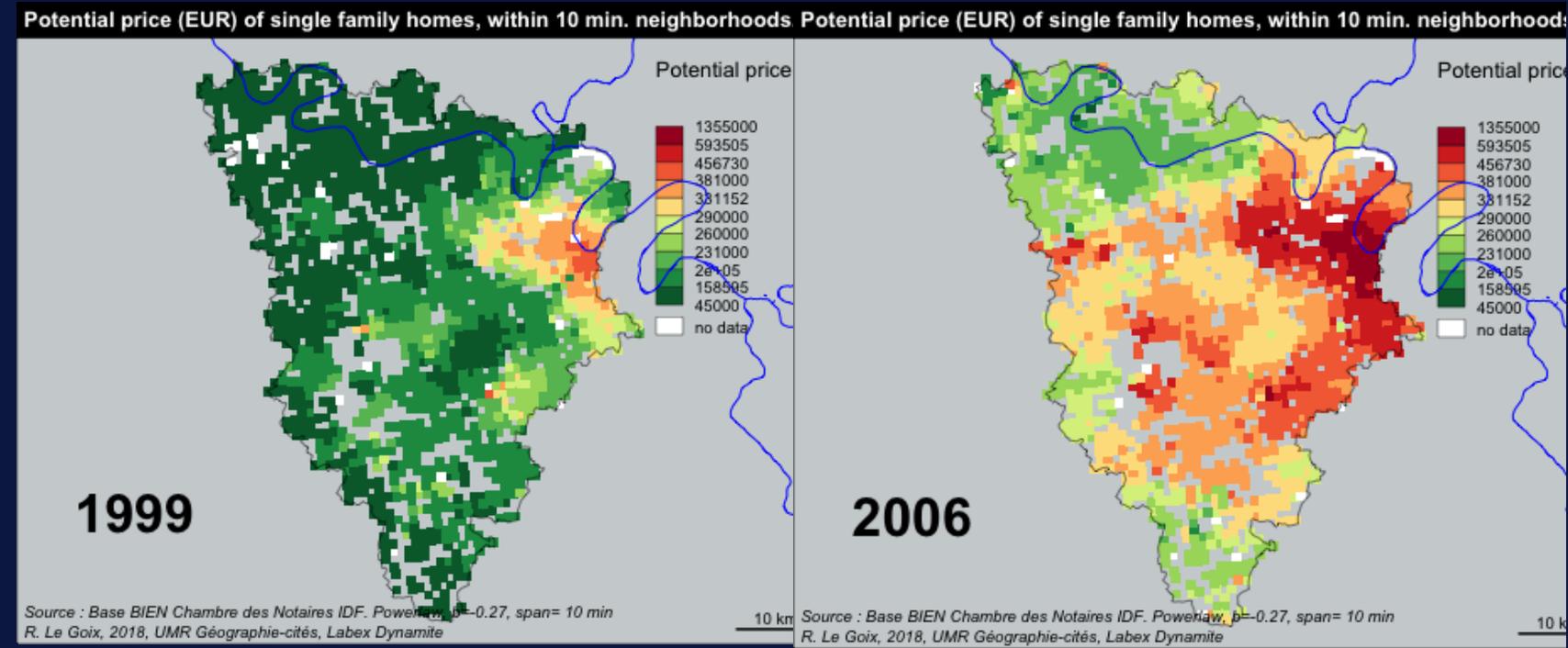
USING INSTITUTIONAL DATA TO ANALYZE THE DYNAMICS ON PROPERTY MARKETS



Methodological issues

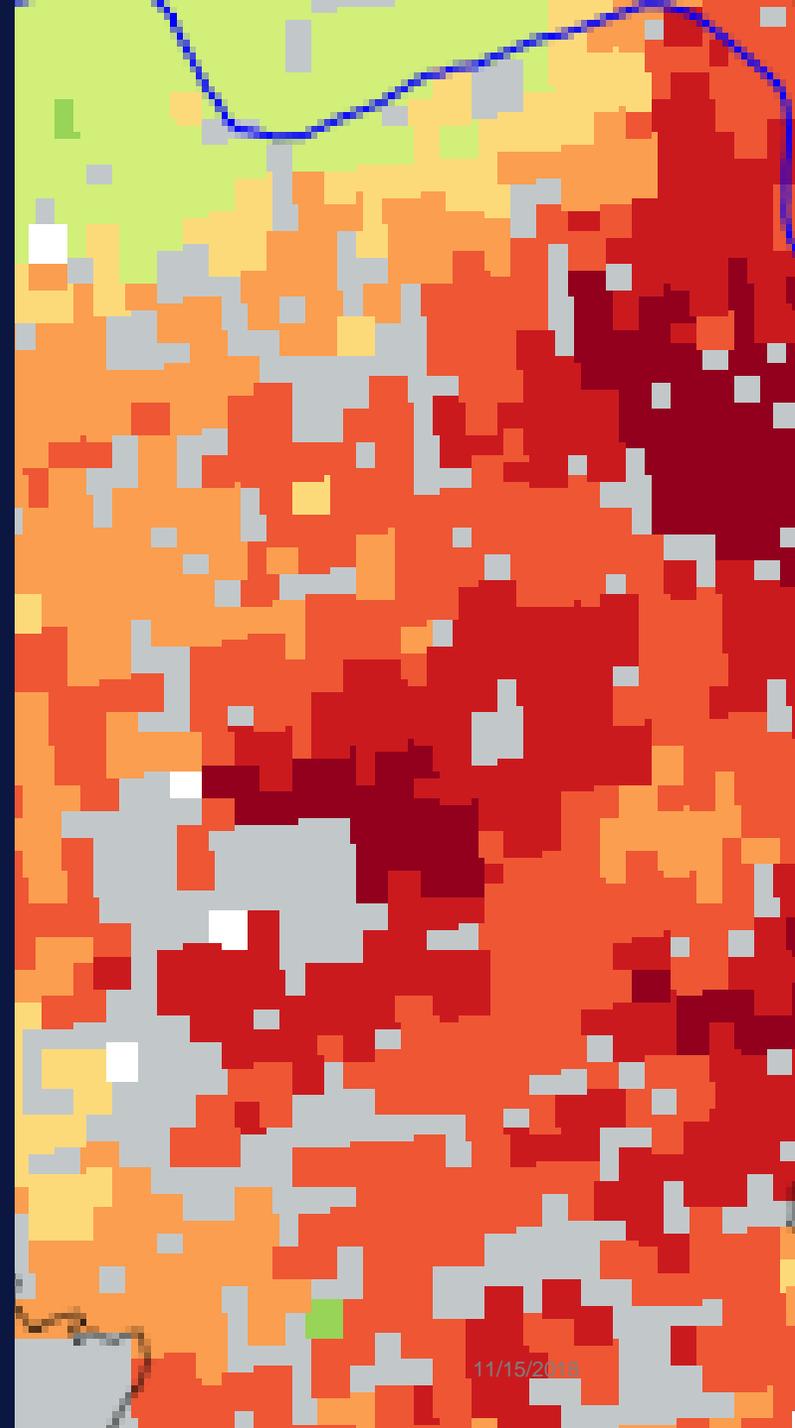
- Data secrecy, privacy control and legal and/or ethic requirements regarding the confidentiality of individual transactions. For instance, many data providers require that individual data cannot be reconstructed from aggregated data by the means of reverse engineering;
- the MAUP (modifiable areal unit problem) issue related to the spatial distribution of transactions and aggregation;
- the spatial sampling issues and missing data, grid interpolation allows to estimate a potential price in adjacent cells, with assumptions regarding the spatial autocorrelation of price and other market variables.

Fig 1
Potential price of
single family houses



3

HARMONIZED VARIABLES AND HETEROGENEOUS SOURCES



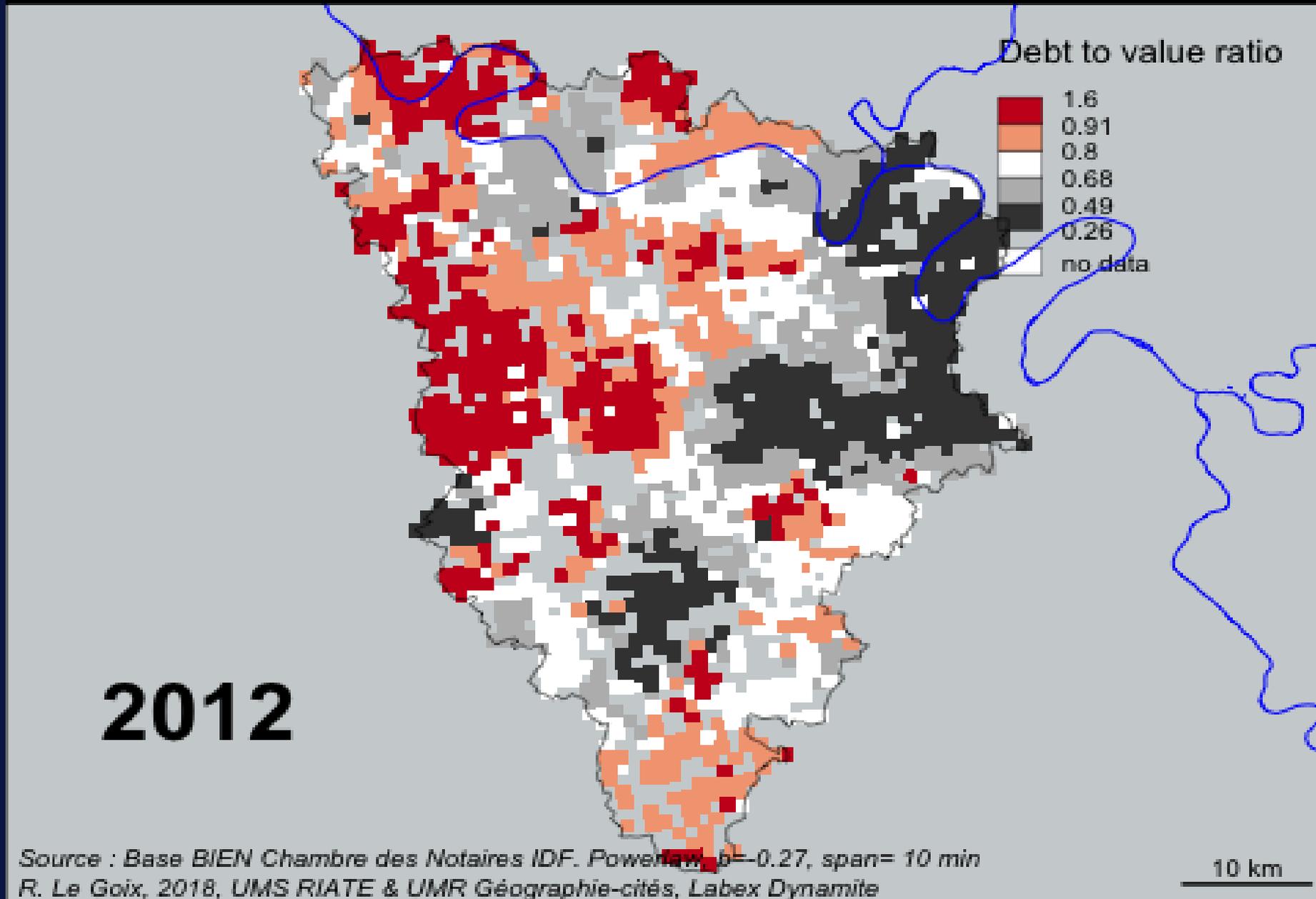
Some issues with unconventional data

- How the emerging sources of unconventional data are interesting proxies to measure, and hopefully better understand spatial behaviors and territorial dynamics (Kitchin 2013; Gallotti, et al. 2016).
- Higher spatio-temporal resolutions when compared to institutional data sources (FP7 EUNOIA final report, 2015).
- The key question– prior to relying exclusively upon them to study new research questions – is to evaluate to what extent these unconventional data are reliable, and if they provide accurate information when compared to the long established, statistically robust information collection protocols.

Debt to value ratio, within 10 min. neighborhoods.

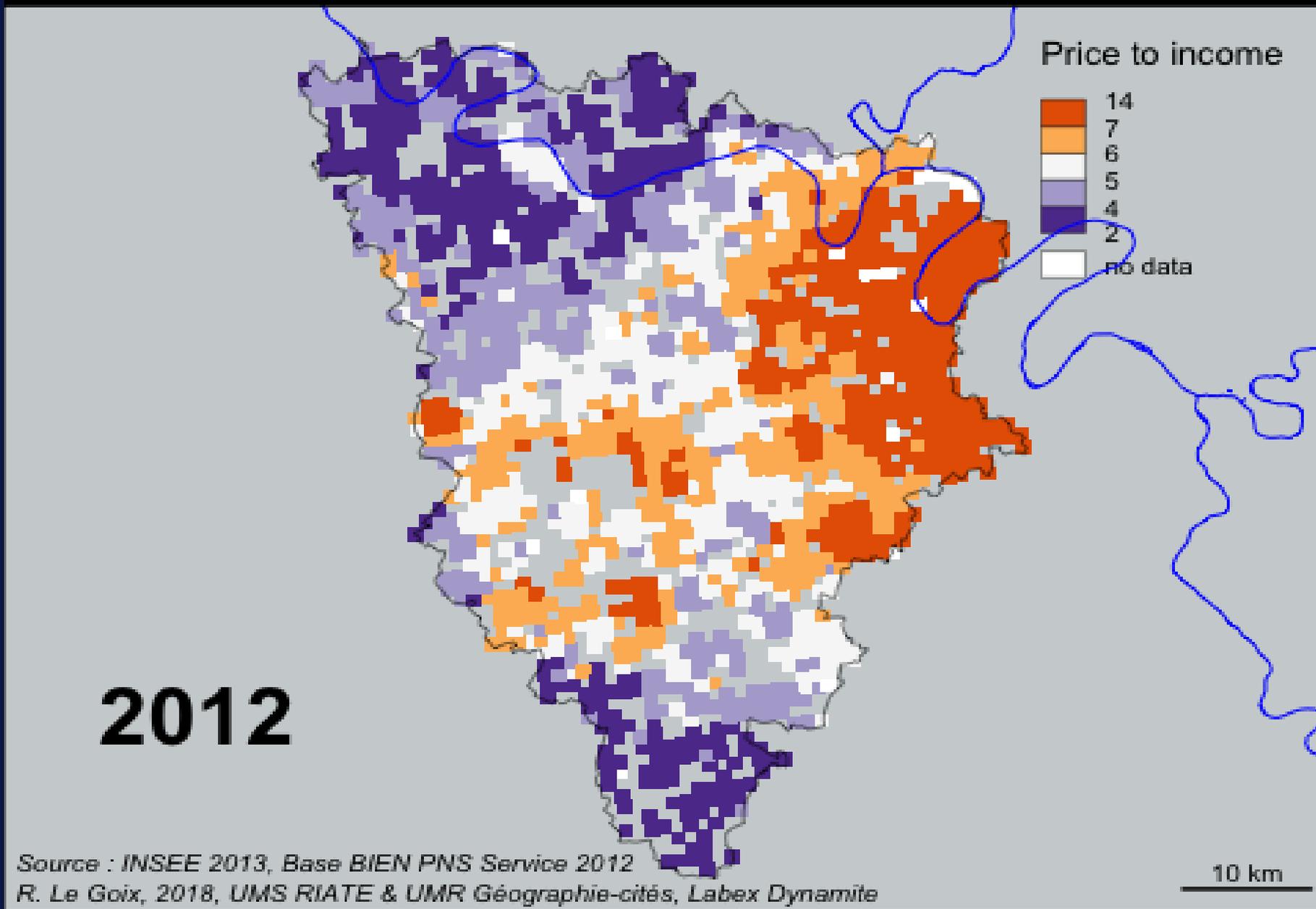
Fig 2a

Harmonized
variables



Estimated Home price to HH income ratio

Fig 2b
Harmonized
variables



4

UNCONVENTIONAL (“BIG DATA”) VS. INSTITUTIONAL DATA SOURCES

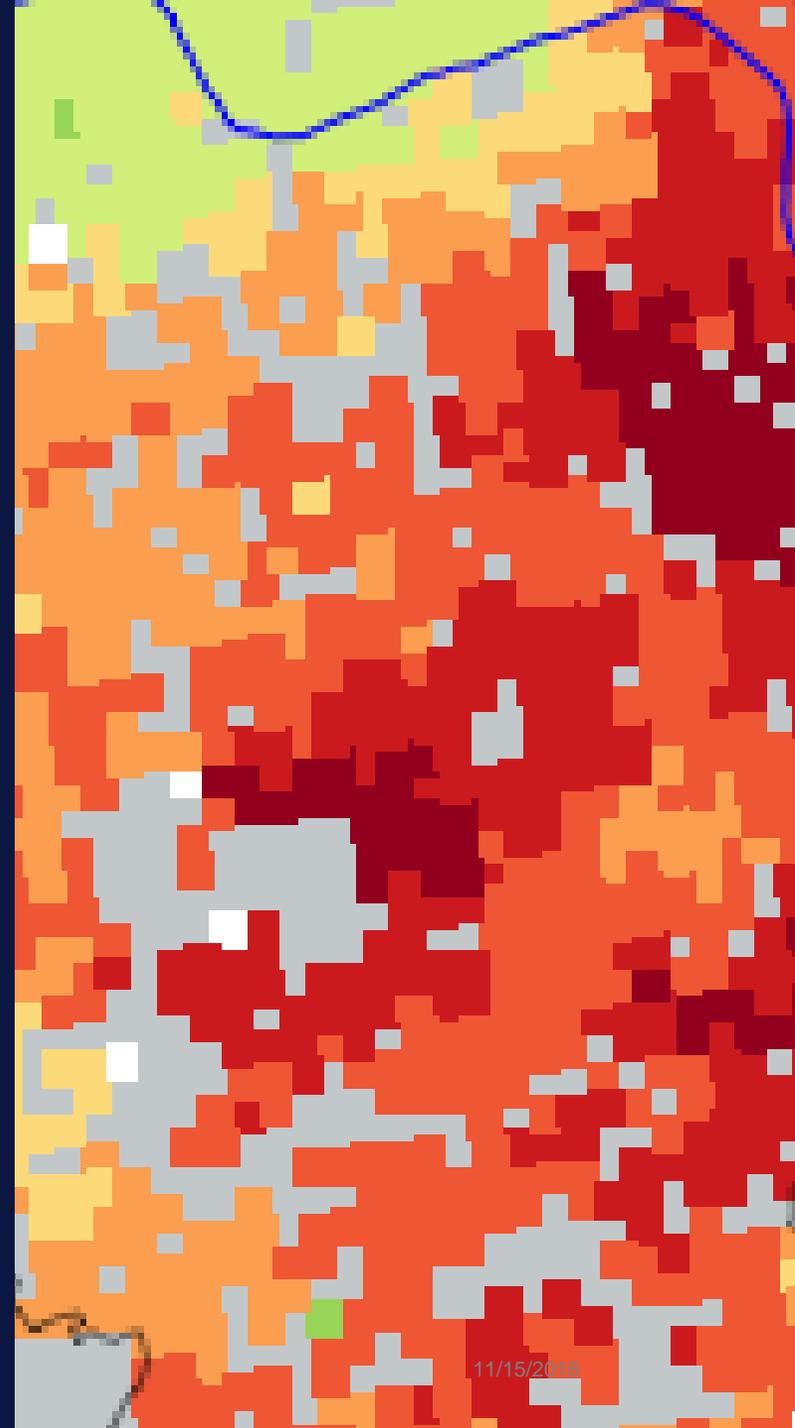
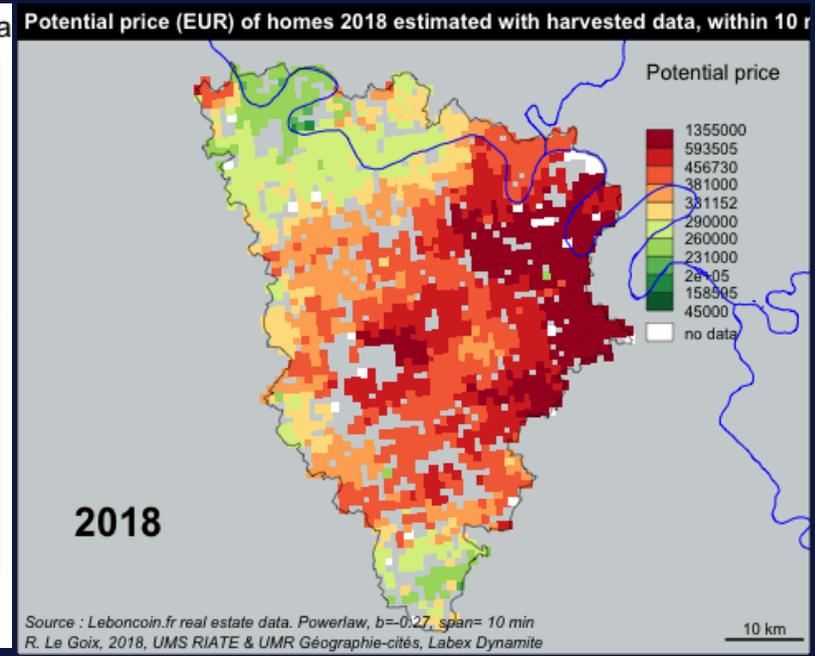
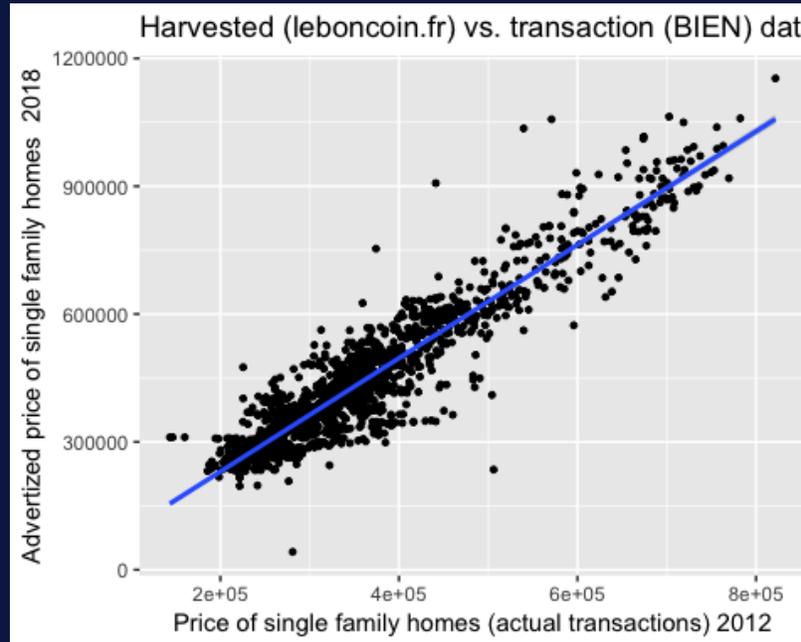
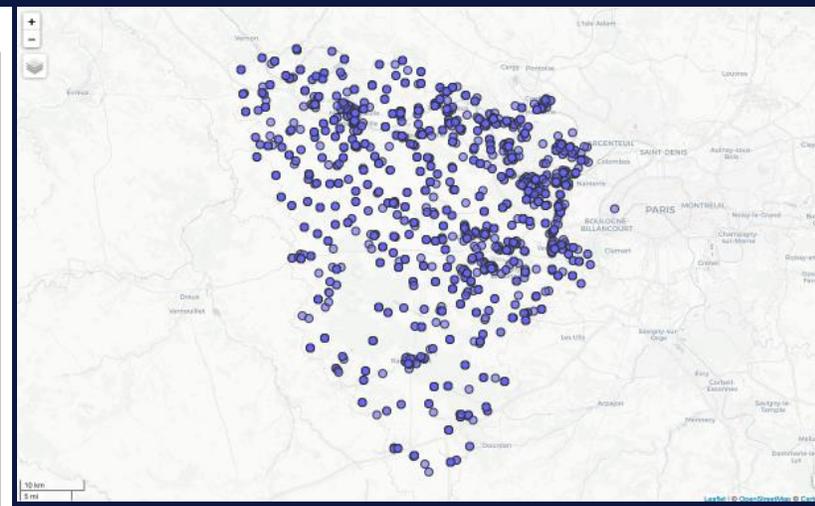
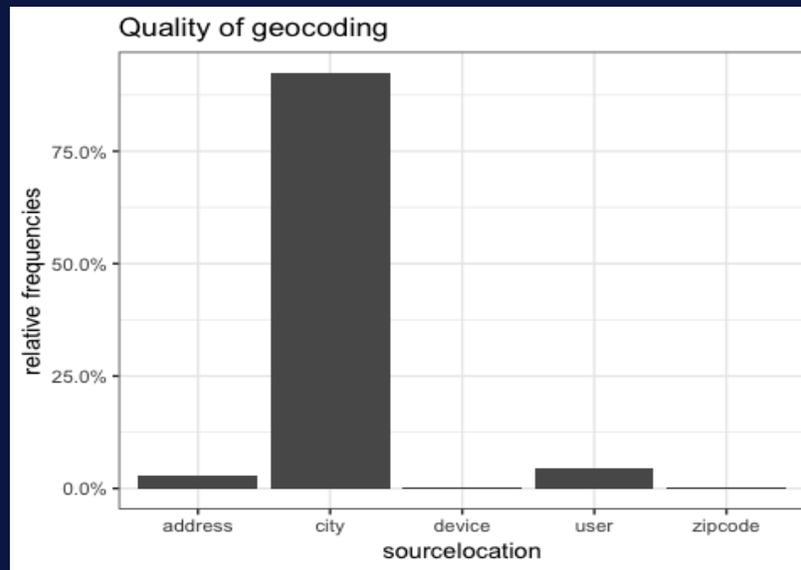
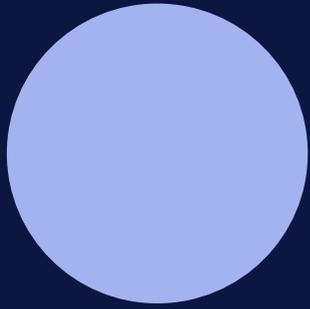


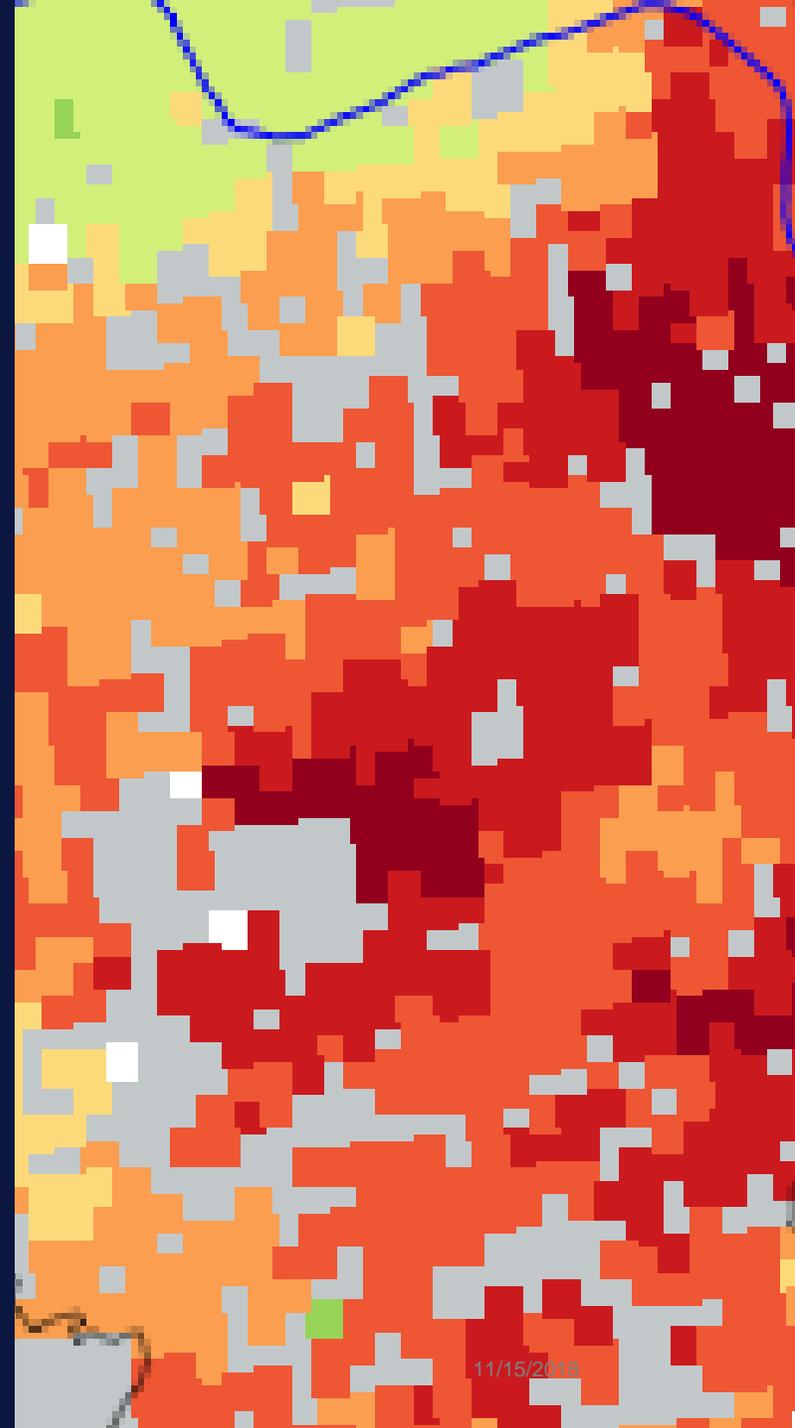
Fig 3

Summary of harvested data





DISCUSSION AND CONCLUSION



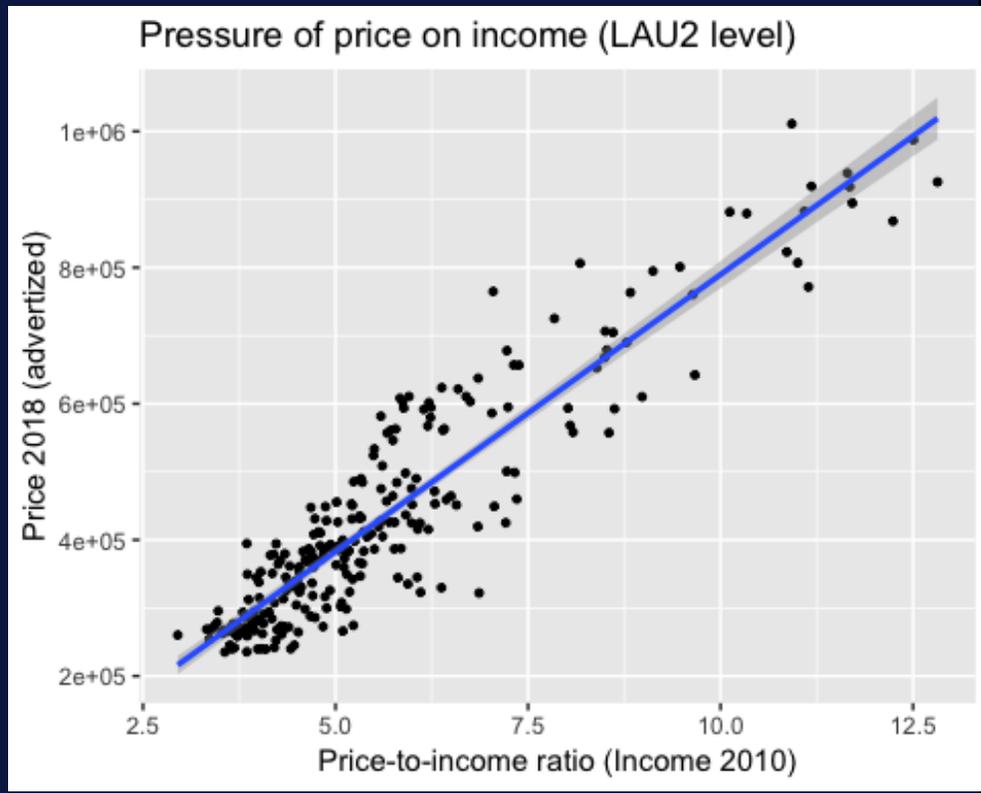
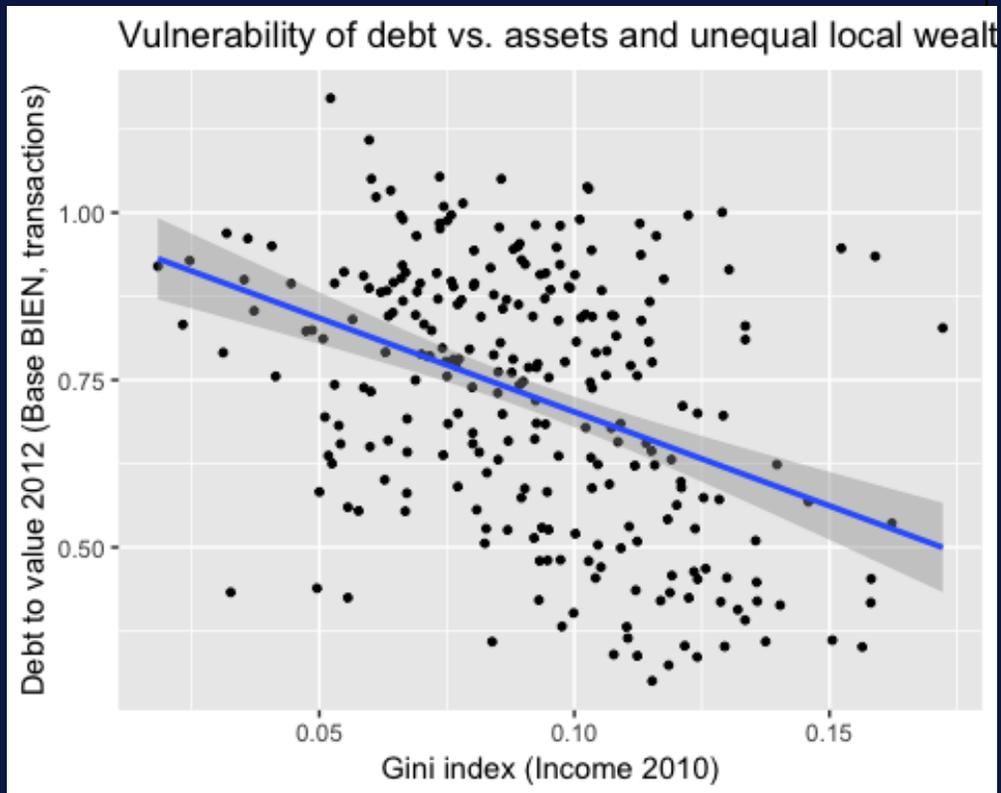


Fig 4. Comparison of aggregated harvested vs. institutional data at the LAU2 level

Discussion and conclusion

- The analysis a micro-data level relies in the induced flexibility in aggregating data to better inform policy making
- Jarmonized variables such as *Median transaction price*, *Median advertized price*, *Price interquartile range*, *Mean price to income ratio*, *Mean debt to value ratio*, *Income gini index* will be relevant to analyze inequalities of access to housing markets, and unequal vulnerability of neighborhoods in terms of price dynamics vs. endebttness of households



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Thank you

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