



SPATIAL DISTRIBUTION OF AIRBNB ACCOMMODATIONS IN SWITZERLAND



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RESEARCH INTEREST (1)

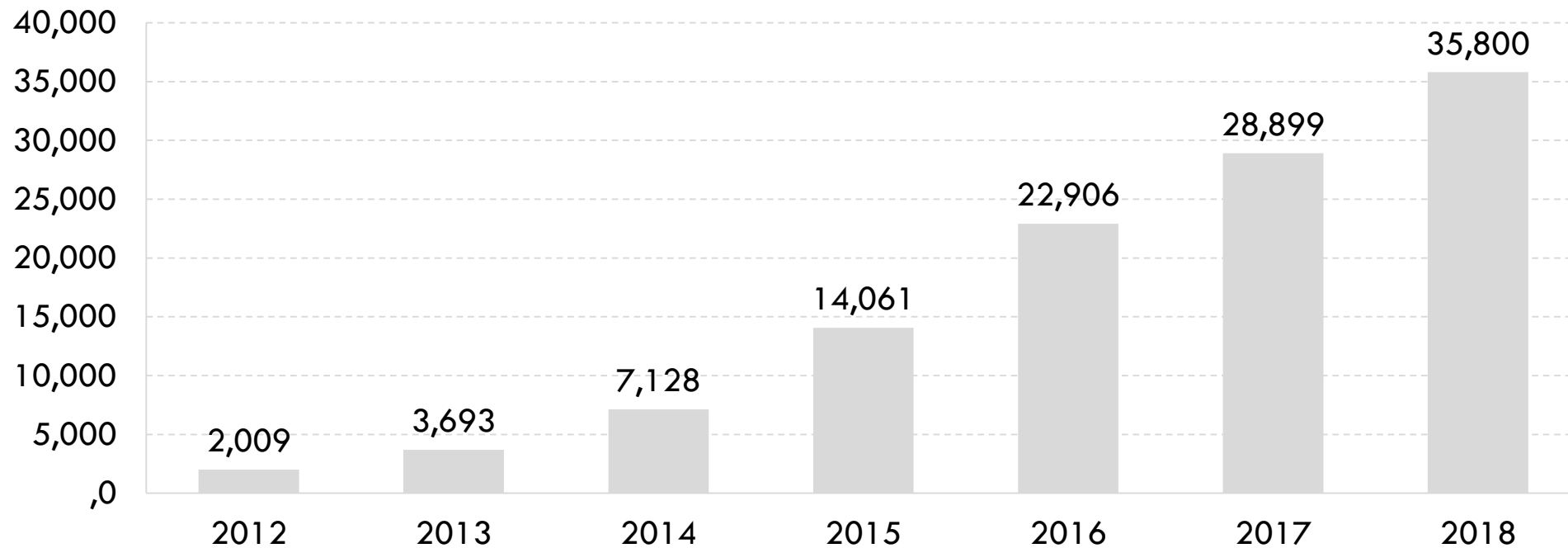
- **Unprecedented growth since its creation in 2008:** the platform overpasses 3 millions of listings in more than 190 countries
- Multiple researchers argue that this digital platform **has changed the concept of sharing accommodation into a for-profit model.**
- Several research questions have been addressed very recently in time:
 - ❑ Does the presence of Airbnb listings **influences the rental price of residential housing units?**
 - ❑ Does Airbnb act in some neighbourhoods as **a driver of gentrification** and processes of displacement?
 - ❑ Does Airbnb influences the **price of the regulated tourist accommodations?**

RESEARCH INTEREST (2)

- To unravel these research questions related to the impacts of Airbnb accommodations, some studies have used **spatial analysis techniques**:
 - Most part of these researches are focused on **urban areas**.
 - Sparse and selective studies can be found at different territorial scales of analysis:
 - Comparative studies of the spatial distribution of Airbnb supply **across European cities**.
 - **Between countries**.
 - **Until the moment there is not yet any research that analyses the spatial distribution of the Airbnb supply in a whole country** (to the better of the authors' knowledge).
- **Growth of Airbnb listings in Switzerland** (see graph on the next slide).

RESEARCH INTEREST (3)

Evolution of Airbnb listings in Switzerland during the period 2012-2018



Own elaboration from data extracted from Airbnb's Travel Report Switzerland 2018

RESEARCH INTEREST (4)

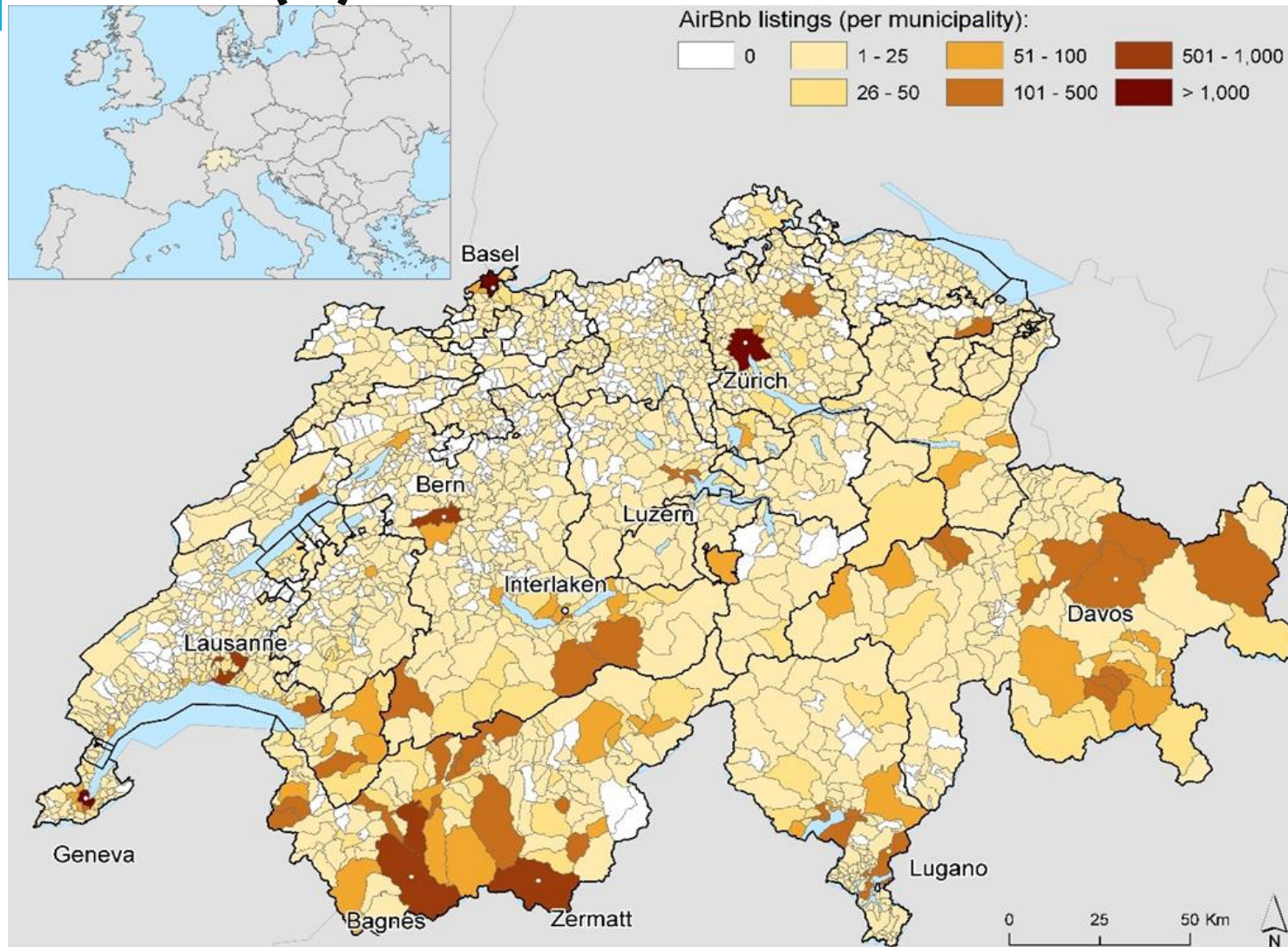
Very little is known about both the spatial distribution of the accommodations offered in this platform and the association with other territorial and touristic variables.

Two research questions:

(1) Are the Airbnb accommodations clustered in specific areas of the country?

(2) What are the territorial and touristic factors that explain the geographical distribution of the Airbnb listings across the country?

DATA (1)



Valais Tourism Observatory:

- Airbnb API
- 32,761 Airbnb listings
- January 2018
- Data aggregated at a municipal level

DATA (2)

* Data aggregated at municipal level

Variable *	Description	Source
Airbnb listings	Number of Airbnb listings per municipality	Valais Tourism Observatory (Airbnb API)
Airbnb listings per 1.000 homes	Number of Airbnb listings per municipality standardised per 1.000 homes	Own elaboration by means of data of the Valais Tourism Observatory and the Federal Office for Spatial Development of Switzerland
Airbnb listings (%) offered by multihosts	Percentage of Airbnb listings offered by multihosts (>5 listings)	Own elaboration by means of data of the Valais Tourism Observatory
Secondary homes	Number of secondary homes per municipality	Federal Office for Spatial Development of Switzerland
Hotel rooms (%) – Hotels 4*-5*	Percentage of rooms offered per 4* and 5* hotels	Own elaboration by means of data of the Federal Office for Spatial Development of Switzerland
Employed population in the 1 st sector (%)	Percentage of employed population in the primary economic sector of activity	Federal Office for Spatial Development of Switzerland
Employed population in the 2 nd sector (%)	Percentage of employed population in the secondary economic sector of activity	Federal Office for Spatial Development of Switzerland
Employed population in the 3 rd sector (%)	Percentage of employed population in the tertiary economic sector of activity	Federal Office for Spatial Development of Switzerland

METHODS (1)

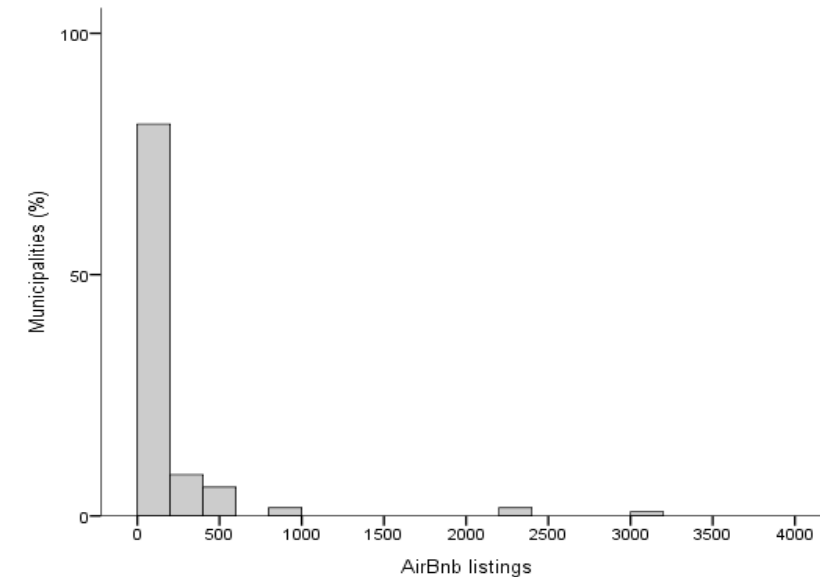
To analyse the spatial distribution of Airbnb listings (1st research objective):

- **Technique:** Local Moran spatial autocorrelation indicator (Anselin, 1995): It will identify areas (clusters) formed by municipalities with statistically significant high values of Airbnb listings (hot spots), as well as areas with low values (cold spots) and spatial outliers (sig. at least at $p < 0.05$)
- **Variable:** Number of Airbnb listings standardised per 1,000 homes. It has been standardised to ensure comparability between municipalities of different demographic sizes.
- **Parameters:** threshold metric distance of 20.5km and a minimum number of neighbours of 1.

METHODS (2)

To identify the determinants of the spatial distribution of Airbnb (2nd research objective):

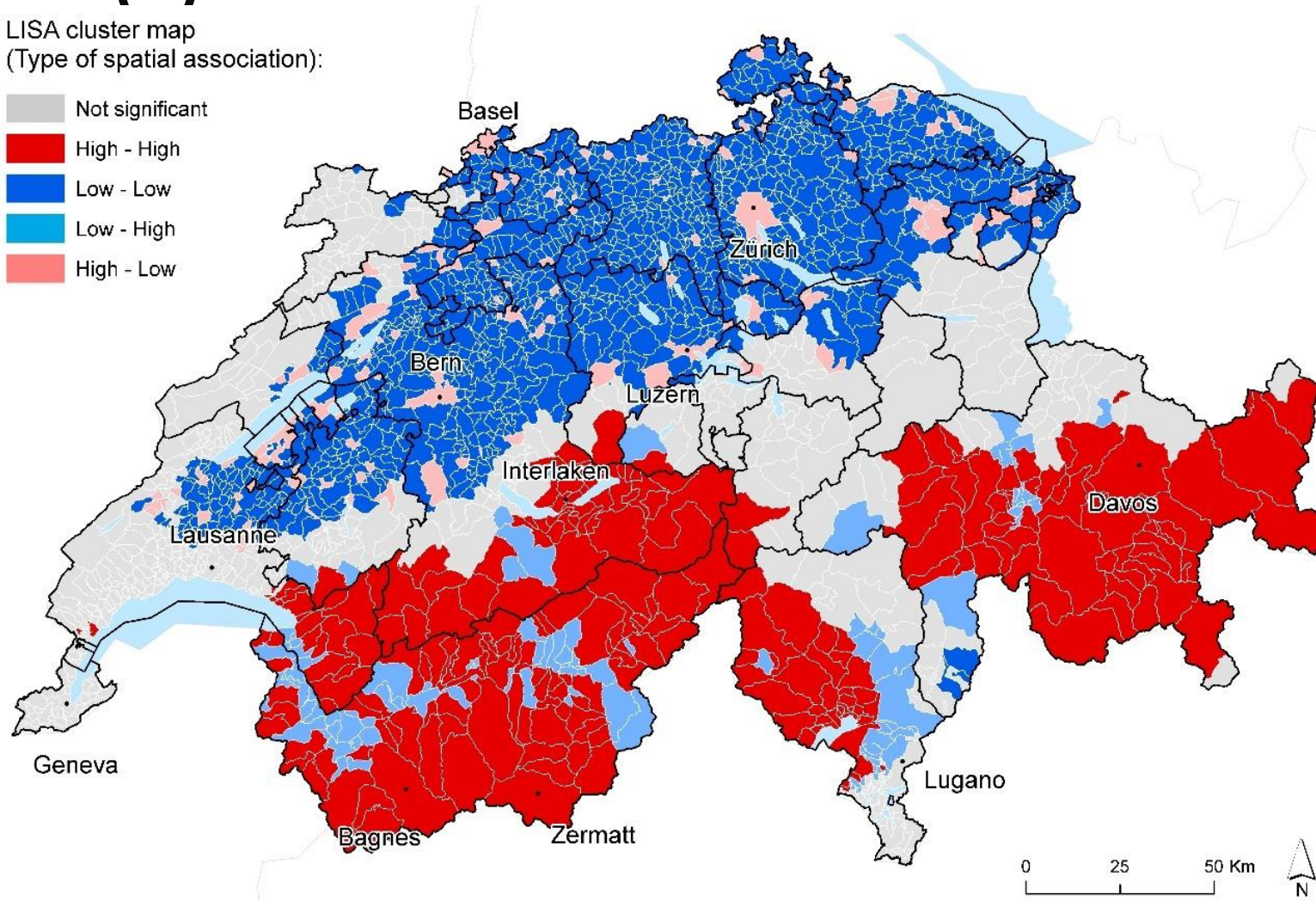
- **Econometric technique:** Negative Binomial Models (2)
- **Dependent variable:** Number of Airbnb listings by municipality (Poisson distribution)
- **Explicative variables:**
 - Categories of the local Moran indicator. (1/2)
 - Number of secondary homes (1/2)
 - Percentage of rooms offered by hotels of 4 and 5 stars (1/2)
 - Percentage of listings in Airbnb offered by multihosts (1/2)
 - Percentage of employed population segmented per economic sectors of activity (2)



RESULTS (1)

LISA cluster map
(Type of spatial association):

- Not significant
- High - High
- Low - Low
- Low - High
- High - Low



0 25 50 Km



RESULTS (2)

	(1)	(2)
Intercept	1.100** (0.056)	0.899** (0.1359)
Cluster High – Low (4)	0.2761* (0.1086)	0.5010** (0.1083)
Cluster Low – High (3)	-0.5531** (0.1374)	-0.5140** (0.1337)
Cluster Low – Low (2)	-0.5567** (0.0622)	-0.6520** (0.0616)
Cluster High –High (1)	0.6693** (0.0900)	0.8740** (0.0880)
No significance	Reference category	
Secondary homes	0.0014** (0.0000)	0.0010** (0.0000)
Airbnb listings offered per multihosts (%)	0.0158** (0.0023)	0.0170** (0.0023)
Rooms offered per 4 and 5* hotels (%)	0.0114** (0.0016)	0.0080** (0.0015)
Employed population in the 1st sector (%)		-0.0280** (0.0022)
Employed population in the 2nd sector (%)	Reference category	
Employed population in the 3rd sector (%)		0.0120** (0.0018)
AIC	11,296	10,797
BIC	11,341	10,853
Log likelihood	-5,619.034	-5,388.198

CONCLUSIONS (1)

- The Local Moran indicator of spatial autocorrelation has pinpointed a **prominent division between the northern and the southern parts of the country.**
 - ✓ This has confirmed the existence of clustering of Airbnb listings in specific areas (1st research objective).
 - ✓ the spatial distribution of Airbnb in Switzerland could not be understood without considering, precisely, the spatial component.
- The development of the two negative binomial models have brought noteworthy results:
 - ✓ In accordance with previous researches, **Airbnb accommodations are acting as a competence of traditional accommodation supply.**
 - ✓ The platform enables the **commercialisation of private secondary homes** and, therefore, **Airbnb listings are expanding the accommodation supply indistinctly in both areas with important accommodation offer and underdeveloped offer.**

CONCLUSIONS (2)

- Further analysis have to be developed at other territorial scales in order to see if the trends detected in this study can also be identified.
- Analysis at inframunicipal level would be especially useful to study how the proliferation of Airbnb accommodations is affecting both the housing and the tourism markets in Switzerland.



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Many thanks for your attention



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