



## Is accommodation 'sharing' disrupting the regional housing market?



RSA Conference Christchurch 2019

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The Building Better Homes, Towns and Cities | Ko ngā wā Kāinga hei Whakamāhorahora National Science Challenge (BBHTC)

**Challenge Vision** - Ka ora kainga rua: Built environments that build communities

**Airbnb in Aotearoa New Zealand**

## Is accommodation 'sharing' disrupting the regional housing market?

This presentation explores the role of an accommodation sharing platform, AirBnB, which is seen as a disrupter to conventional accommodation providers and housing markets in many regions worldwide. We focus on New Zealand, showing a snapshot in time of both the scale and spatial distribution of the accommodation provided through this platform. We have blended AirBnB data collected by the research team, with New Zealand (NZ) Census data 2013. This allows us to begin exploring information from the 2013 NZ Census in combination with the AirBnB data to determine some of the wider impacts of this phenomenon on populations and places.

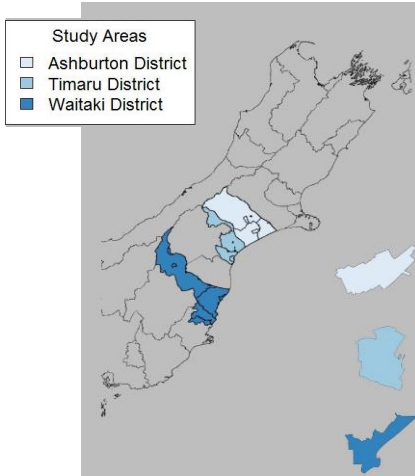
Moreover, using exploratory spatial analysis we can uncover the spatial patterning of this disruptive accommodation sharing phenomenon. As we might expect, the traditional regional tourism destinations in NZ, Queenstown or the Coromandel peninsula for example, are areas with 'hotspots' of AirBnBs provided, but other places emerge as well. This phenomenon, accommodation sharing, poses challenges to the local authorities who collect local taxes (rates) usually based on the value of the property, with several local councils (e.g. Auckland, Christchurch) proposing or enacting specific legislation in order to better regulate and capture revenue from accommodation provided by such platforms. The longer term aim of this project is to more fully understand the social consequences for vulnerable communities and the effects on the housing market and housing affordability more broadly. The project forms part of a larger research endeavour funded by the National Science Challenge: building better homes towns and cities

**Malcolm Campbell, Hamish McNair, Michael MacKay, Harvey Perkins**



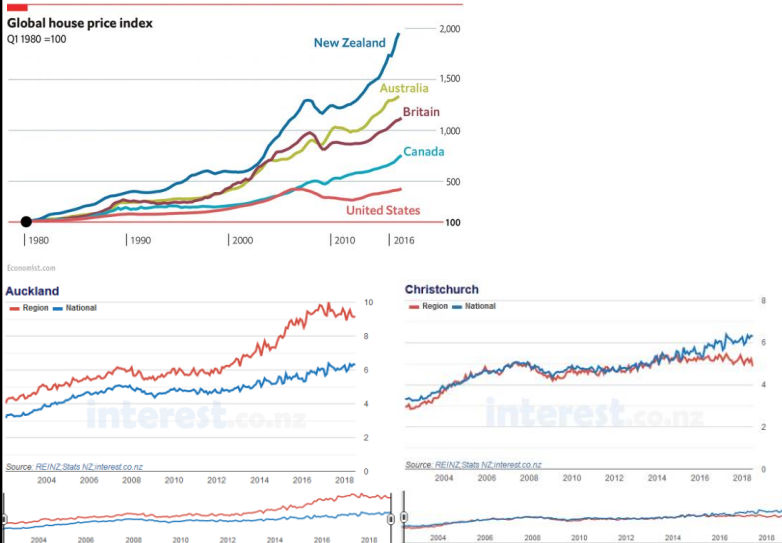


# Context: Supporting Success in Regional Settlements



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## Context NZ: Housing affordability



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## Context NZ: 'generation rent' versus 'baby boomers'

The rental market now matters much more for young(er) generations than previously – especially if there is a swap between “long” term rentals (in NZ usually 1 year term) to “short” term rentals (Airbnb)

(ps: if in doubt, blame the boomers...)

	Average house value	Avocado on toasts for a 10% deposit
North Shore City	\$1,195,292	7969
Waitakere City	\$826,454	5510
Auckland City	\$1,223,387	8156
Manukau City	\$903,160	6021
Christchurch City	\$495,855	3306
Selwyn District	\$545,261	3635
Ashburton District	\$347,607	2317
Timaru District	\$335,241	2235
MacKenzie District	\$455,779	3039
Waimate District	\$220,009	1467
Waitaki District	\$267,631	1784
Central Otago District	\$434,656	2898
Queenstown-Lakes District	\$1,041,830	6946

SOURCE (FOR AVERAGE HOUSE VALUES): QV HOUSE PRICE INDEX

stuff



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## Literature: disruptive effect of short term rentals

### Wachsmuth and Weisler (2018)

- Airbnb has created a **new category of rental housing**, short-term rentals (STR / STL) and creates a disruption because the only change needed is to displace a long-term rental tenant to enable this transition.

### Gutierrez et al. (2017)

- Barcelona focused – “Mass tourism alters the relationship between tourists and residents” (p.278) but also Tourists use the city differently
- *Little academic research...*

### Gurran and Phibbs (2017)

- **Housing affordability pressures afflict the world's major cities, while spare capacity within existing dwellings lies untapped**” (p.80)
- local land use **planning frameworks are not equipped to regulate** the new forms of visitor accommodations enabled by the Airbnb platform or the potential conflicts arising from increasing numbers of tourists staying (p.81)
- Sizeable **impact in certain areas**
- More longitudinal data needed
- *Little academic research...*

### Schaefer and Braun (2016)

- Evidence of **misuse of rentals** in Berlin
- Concentrated in a few neighbourhoods

### Crommelin et al. (2018)

- remains **concentrated in high-demand inner city areas**
- **likelihood that STL** is removing properties from the long-term rental market, thereby **contributing to increasing unaffordability**.

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# Methods and Data: crowdsourcing and ‘big’ data

## Methods

Web scraping - from the Airbnb website using python and PostgreSQL + NZ Census data  
Exploratory Spatial Data Analysis (ESDA)

## Data limitations

- Census data – now (getting) out of date (2013)
- Plenty of work in “data wrangling”
- Airbnb data – Dynamic listing / delisting [potential undercount of up to 20%].
- The Airbnb listings contain a latitude and longitude with a randomisation component of up to 450 feet.

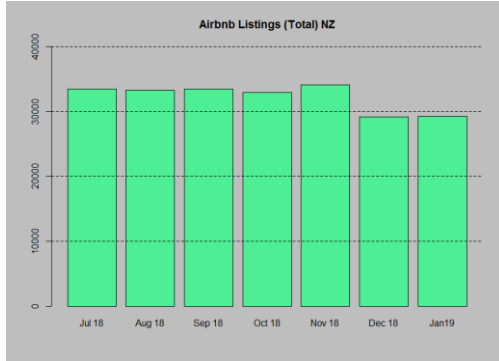


Figure: Listings of Airbnb NZ, Jul 2018 – Jan 2019



# Summary: NZ National Data

## Summary

Data from July 2018 to Jan 2019 collected NZ (Nationally)  
Fairly static over time (seasonality too soon to tell) - ~ 30,000 listings

- 17,173 – 20,367 whole dwellings/apartments (56 ~ 59%)
- 11,699 – 14,074 Private rooms (39 ~ 42%)
- 300 - 350 Smaller numbers of shared room(s) (~1%)

Date	Entire home/apt	Private room	Shared room	%Entire	%Private	%Shared
Jul-18	19,012	14,074	350	56.9	42.1	1.0
Aug-18	18,991	13,954	343	57.1	41.9	1.0
Sep-18	19,305	13,816	332	57.7	41.3	1.0
Oct-18	19,510	13,111	322	59.2	39.8	1.0
Nov-18	20,367	13,420	324	59.7	39.3	0.9
Dec-18	17,173	11,717	298	58.8	40.1	1.0
Jan-19	17,253	11,699	309	59.0	40.0	1.1

Table: Airbnb listings, listing type



## Summary: NZ National Data, price

### Summary

Data from July 2018 to Jan 2019 collected NZ (Nationally)

Again, reasonably static over time (mean price)

Decline in total value of all listings – i.e. Max revenue from Airbnbs in NZ

More work needed here to accurately estimate occupancy..

Date	Mean Price per Listing per night	Total Value of all Listings	Scenario: Potential Maximum Tax Revenue on Listings (28%)
Jul-18	\$119.89	\$4,008,722.00	\$ 1,122,442.16
Aug-18	\$116.07	\$3,863,677.00	\$ 1,081,829.56
Sep-18	\$116.23	\$3,888,221.00	\$ 1,088,701.88
Oct-18	\$120.70	\$3,976,273.00	\$ 1,113,356.44
Nov-18	\$126.47	\$4,314,107.00	\$ 1,207,949.96
Dec-18	\$119.98	\$3,501,978.00	\$ 980,553.84
Jan-19	\$118.74	\$3,474,592.00	\$ 972,885.76

Table: Airbnb listings, Price

## Summary: how many people / bedrooms?

### Summary

Data from July 2018 to Jan 2019 collected NZ (Nationally)

Again, reasonably static over time... until Dec 18

Decline in listings apparent for Summer 2018-2019, too soon to say if a trend

Date	Max accommodation (per night)	Max Bedrooms (per night)
Jul-18	131,918	59,204
Aug-18	132,233	59,235
Sep-18	133,675	59,911
Oct-18	134,472	60,100
Nov-18	138,385	62,075
Dec-18	115,996	52,008
Jan-19	115,935	51,748

Table: Airbnb listings, Accommodation and Bedrooms

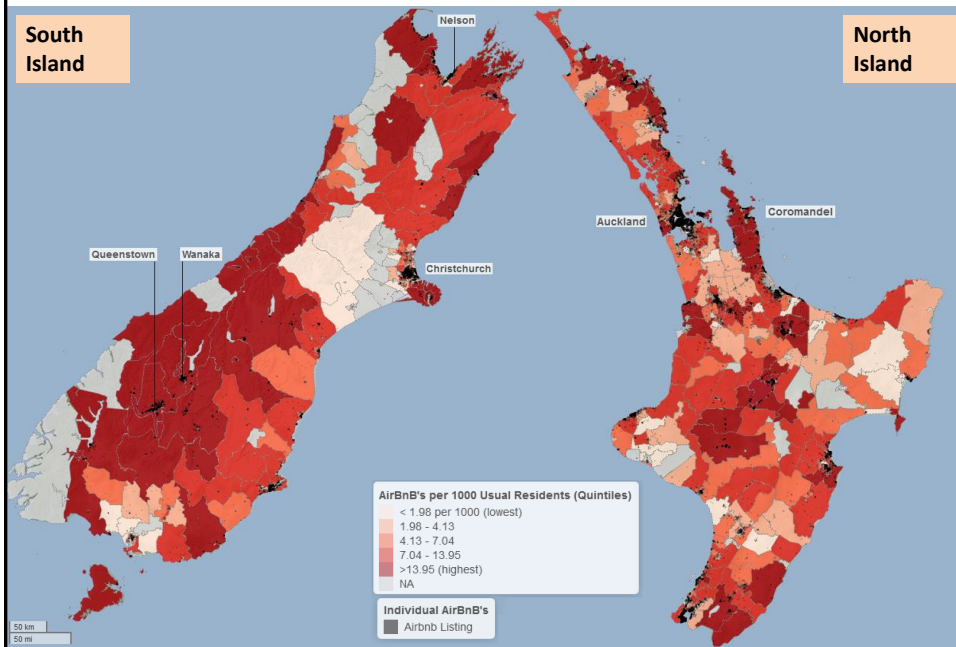
## Spatial Patterns: in NZ, its not just an 'inner Urban' problem. The regions are key

Census Area Unit	Airbnb Count	POP 2013	Airbnb per 1000	Rank NZ
Wanaka	752	6471	116	1
Queenstown Hill	722	3537	204	2
Waiheke Island (Auckland)	574	8238	70	3
Auckland Central West	379	11700	32	4
Auckland Central East	334	10104	33	5
Te Rerenga (Coromandel Peninsula)	329	4107	80	6
Lake Hayes South (Queenstown)	249	1638	152	7
Sunshine Bay (Queenstown)	216	2355	92	8
Auckland Harbourside	216	4500	48	9
Whitianga (Coromandel Peninsula)	202	4368	46	10

Table: Census Area Units with the most Airbnb listings per 1,000 usual residents, November 2018



## Spatial Patterns: National



## Auckland only: plateau?

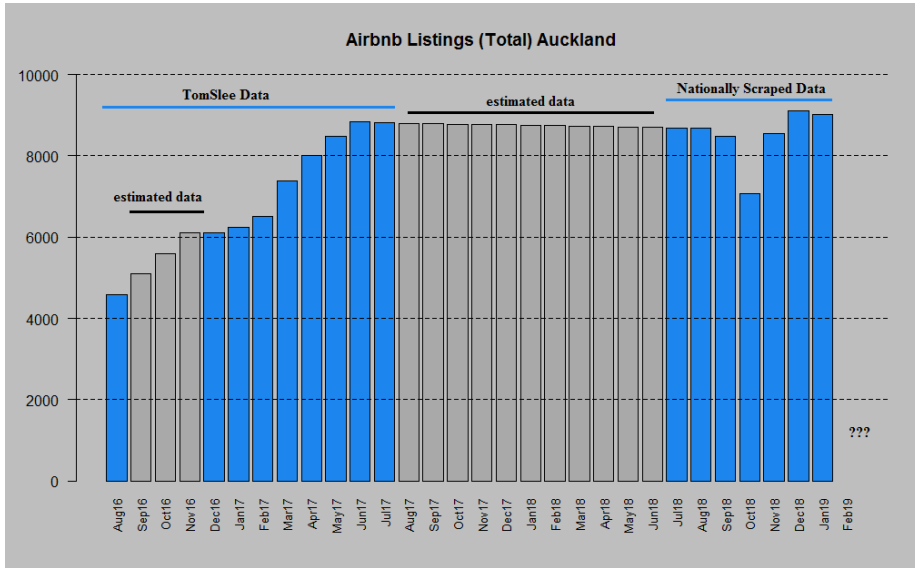


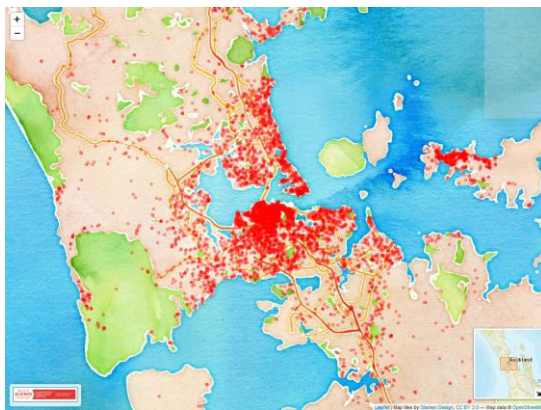
Figure: Listings of Airbnb in Auckland Area

## Spatial Patterns: MAPS!!

We focus on New Zealand, showing a snapshot in time of both the scale and spatial distribution of the accommodation provided through this platform.

We have blended AirBnB data collected by the research team, with New Zealand (NZ) Census data 2013.

This allows us to begin exploring information from the 2013 NZ Census in combination with the AirBnB data to determine some of the wider impacts of this phenomenon on populations and places.



## Results: Spatial Patterns

### Nationally

- Regional tourism destinations in Queenstown / Wanaka or the Coromandel peninsula, are areas with 'hotspots' of AirbnBs provided.
- Mildly positive clustering (Moran's I = 0.33, p<=0.05) of Airbnb's.
- A few of the highest ranked places also feature a high intensity per usually resident person, for example, Queenstown Hill has 204 Airbnb listings per 1000 residents.
- The CAU with the highest number of Airbnb's is Wanaka, a smaller South Island tourist destination.
- NZ is distinct – not just an inner urban phenomenon

### Auckland

- Central West, East, Highbourside and Waiheke Island feature – better match to 'international' pattern
- E.g. "intense geographic concentration - Wegman and Jiao (2017) – 5 US cities
- Concentrated in high-demand inner city areas -Crommelin et al. (2018) – Australia
- Clear centre-periphery pattern - Gutierrez et al. (2017) - Barcelona

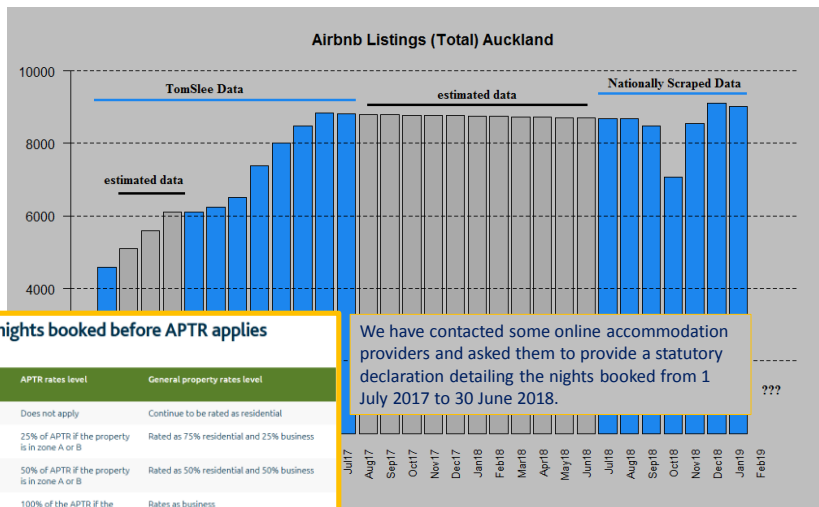
Have a look at the data?

<https://malcolmhcampbell.shinyapps.io/AirbnbBasic>

Note: There may be a short delay in loading of the Shiny web application due to volume of data visualised



## Auckland only: Policy responses



### Number of nights booked before APTR applies

Number of nights booked per year	APTR rates level	General property rates level
Up to 28	Does not apply	Continue to be rated as residential
29 to 135	25% of APTR if the property is in zone A or B	Rated as 75% residential and 25% business
136 to 180	50% of APTR if the property is in zone A or B	Rated as 50% residential and 50% business
More than 180	100% of the APTR if the property is in zone A or B	Rated as business

The upper limit of 180 nights, where full business and APTR applies, is around the occupancy level for motels.

We have contacted some online accommodation providers and asked them to provide a statutory declaration detailing the nights booked from 1 July 2017 to 30 June 2018.

Figure: Listings of Airbnb in Auckland Area





# Its not just Auckland...Policy responses

## Queenstown council calls for urgent bed tax pilot

Jo McKenzie-McLean · 17:35, Jul 25 2018



Queenstown Lakes mayor Jim Boulton

Queenstown will face economic decline and its hard-fought international reputation will hang in the balance without a bed tax, a district council submission to central government says.

The Queenstown Lakes District Council has called for a law change to enable a Local Visitor Levy (bed tax) for high-visitor growth areas, in its submission to the Government's proposed International Visitor Conservation and Tourism Levy (IVCTL).

In the submission, Mayor Jim Boulton says the proposed contestable levy would not go far enough to meet the "quantum" of challenges facing the district.

"Due to the sheer magnitude of the visitor numbers and the low ratings base within the district, QLDC will be unable to maintain or improve existing visitor infrastructure effectively in future without the provision of a Local Visitor Levy."

## Christchurch Airbnb-type operators could face \$1000 bill

Michael Hayward and Tina Law · 16:56, Nov 07 2018



### Airbnb surge triggers Canterbury research

Jo McDonald · 18:46, Jul 09 2018



Airbnb and its They're also se

Christchurch has about 2400 venues on Airbnb.

New research could help Christchurch's tourist industry handle the Airbnb phenomenon after the provider's bed numbers almost doubled in a year.

ChristchurchNZ figures show Airbnb options in the city jumped from about 1100 to 2000 in the year to September, and have now stabilised at about 2400. This represents 21 per cent of the city's available accommodation.

See Wegmann and Jiao (2017) for an excellent overview on policy responses



Is accommodation 'sharing' disrupting the regional housing market?

...Probably....

More work to be done to 'prove' a link



## Next Steps / Future work:

Analyse Airbnb data over time in more depth

- We have national (NZ) data collected regularly since June 2018 – more to do in terms of our regional case studies (e.g. Ashburton, Timaru, Oamaru)
- Specific case study – e.g. Auckland – data available historically (i.e. since 2016) <http://tomslee.net/airbnb-data-collection-get-the-data> in more depth
- Merge with more recent Census NZ data (2018) – still waiting.....

The longer term aim of this project is to more fully understand the social consequences for vulnerable communities and the **effects on the housing market and housing affordability** more broadly.

**Collaboration:** Happy to talk after (or email / twitter) if you would like to work with this data.

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### Auckland

Survey dates: 2016-08-19 (4590 listings), 2016-12-26 (6103 listings), 2017-01-16 (6230 listings), 2017-02-12 (6507 listings), 2017-03-25 (7384 listings), 2017-04-13 (7889 listings), 2017-04-22 (8010 listings), 2017-05-10 (8487 listings), 2017-06-14 (8847 listings), 2017-07-19 (8815 listings)

[Download zip file](#)

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Thanks for listening. Any questions or comments?



<https://malcolmhcampbell.shinyapps.io/AirbnbBasic/>



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8. ? Campbell et al. (under review)



‘sharing’ and ‘disrupting’ – issue of scale?

Is this really a ‘new’ problem?

