Escuela Superior Politécnica del Litoral

Un break científico

Mario A. Fernández
mario.fernandez@dairynz.co.nz
Dairy NZ, New Zealand

Gonzalo E. Sánchez
edsanche@espol.edu.ec
FCSH/CIEC

Santiago Bucaram
santiagobu@iadb.org
Inter-American Development Bank

Price effects of the special housing areas in Auckland

PROBLEM

- Housing prices have persistently increased in the last decade in major cities around the world.
- In Auckland they increased by 45% between 2014 and 2017.
- Many cities have implemented inclusionary zoning (IZ) programs to increase housing affordability.
    - Auckland: SHA (Special housing areas).
- It is important to study the effects of this kind of programs.

GENERAL OBJECTIVE

- To estimate the causal effect of the SHAs in Auckland using econometric methods.

DATA

- Study area: Auckland Region, includes about 170 thousand transactions between September 2011 and September 2016.
- Price data are extracted from the Auckland Council Valuation and Rates Base.
- Repeated cross-section.
- All transactions are georeferenced.
    - We can identify dwellings location inside a SHA.
    - Distances to the nearest SHA.

METHODS

- Difference-in-Difference (DiD) approach.
- Identifying assumption:
    - The trend of prices outside the SHAs is an adequate counterfactual of the trend of prices inside the SHAs.
- Under the IA:
    - The bias created by factors constant over time but particular to each group is eliminated.
    - It also cancels out the dynamic factors equally affecting both treatment and control groups.

$$\log(price_{it}) = \alpha + \beta SHA_{it} + \gamma D_{it} + \theta(SHA_{it} * D_{it}) + u_{it}$$

- ATET is captured by θ.
- Additional specifications:
    - Month-by-year fixed effects.
    - AU fixed effects.
    - Interactions between legacy districts and quarter-by-year indicators.
    - Age of the housing unit.
    - Restrict control group within 1km. to the nearest SHA.
    - Leading indicators for each of the 3 months prior to the treatment.
- Robust Standard Errors clustered at the AU level.

IDENTIFICATION

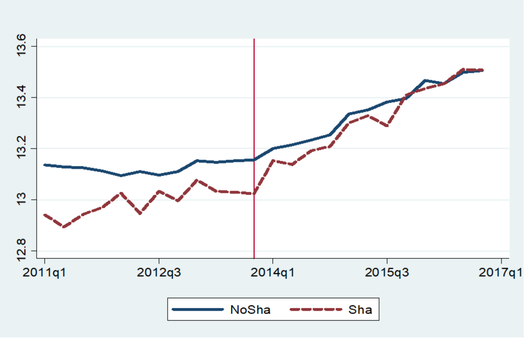

Figure 1. Log price (mean) before and after SHA creation

RESULTS

Table 1. Effect of the SHA on prices

	(1)	(2)	(3)	(4)	(5)
ATET on price	0.056*	0.060**	0.062**	0.056*	0.057*
	(0.029)	(0.030)	(0.031)	(0.030)	(0.031)
ATET on price/m2	0.037**	0.040**	0.044***	0.036**	0.037**
	(0.015)	(0.017)	(0.017)	(0.018)	(0.018)
N	174,47	174,47	167,713	100,445	100,445
AU & month-by-year FE	Yes	Yes	Yes	Yes	Yes
Q-by-year*District FE	No	Yes	Yes	Yes	Yes
Age	No	No	Yes	Yes	Yes
Distance SHA < 1 km	No	No	No	Yes	Yes
Monthly LI	No	No	No	No	Yes

Robust Standard Errors clustered at the AU level in parentheses; *p < 0.1; **p < 0.05; ***p < 0.01.

Table 2. Effect of the SHA on the probability of affordable and costly transactions

	(1)	(2)	(3)	(4)	(5)
ATET prob. Affordable	-0.042	-0.046	-0.049	-0.039	-0.037
	(0.034)	(0.031)	(0.032)	(0.030)	(0.030)
ATET prob. Costly	0.055*	0.054*	0.058*	0.058*	0.064*
	(0.031)	(0.032)	(0.033)	(0.033)	(0.036)
N	174,47	174,47	167,713	100,445	100,445
AU & month-by-year FE	Yes	Yes	Yes	Yes	Yes
Q-by-year*District FE	No	Yes	Yes	Yes	Yes
Age	No	No	Yes	Yes	Yes
Distance SHA < 1 km	No	No	No	Yes	Yes
Monthly LI	No	No	No	No	Yes

Robust Standard Errors clustered at the AU level in parentheses; *p < 0.1; **p < 0.05; ***p < 0.01.

CONCLUSIONS

- The SHA program caused price increases:
    - 5% on dwelling prices.
    - 4% on the price per square meter.
- No effect on the probability of affordable transactions.
- Increased the probability of costly transactions.
- No effect on probability of single unit transactions: houses versus apartments.
- → **The program did no improve affordability.**
- What weakened the SHA program?
    - Incentives relied on the fast-tracking of the resource consenting.
    - Rapid delivery → Higher price.
    - Uncertainty of permanence
        - Build expensive houses first, affordable ones later or never.
    - Lack of monitoring or enforcement.