



Main Idea

Proposition:

1. Information about climate change provided by a trusted source is associated with decision-making
 1. Information about climate change: Certain areas in Singapore are likely to be affected by Sea-Level Rise
 2. Trusted source: Prime Minister of the country
 3. Making decisions: Price paid for the house.

Setup

	Treatment	Control
<p>1. Information about climate risk is associated with price change</p> <p>Hypothesis: SLR affected areas may observe a decline in transaction prices.</p>	Houses in SLR affected areas	Houses in non-SLR affected areas and within 2km radius of SLR affected houses.
<p>2. Government's commitment to mitigate risk is associated with price change</p> <p>Hypothesis: If Government is committed to protect the areas, then observed price decline should be lower</p>	Houses in SLR affected areas and within the City-East Coast Area	Houses in non-SLR affected areas and 2 km radius of treatment houses.
<p>3. Actual Events are associated with price change</p> <p>Hypothesis: Areas affected by flash-floods may observe a decline in transaction prices.</p>	Within 0.5km of flood area	Within 0.5-1km of flood area

Results

	HDB	Private	Private Leasehold	Private Freehold
<p>1. Information about climate risk is associated with price change</p> <p>Hypothesis: SLR affected areas may observe a decline in transaction prices.</p>	-1.1%	-2.9%	-1.9%	0.8% (n.s.)
<p>2. Government's commitment to mitigate risk is associated with price change</p> <p>Hypothesis: If Government is committed to protect the areas, then price decline should be lower</p>	-0.8%	-1.1%	-1.8%	1.0% (n.s.)
<p>3. Actual Events are associated with price change</p> <p>Hypothesis: Areas affected by flash-floods may observe a decline in transaction prices.</p>	-1.3% (n.s.)	-0.7% (n.s.)		

Comments (Preview)

1. Additional control variables: Total number of transactions.
2. Treatment Group: New flats built after announcement.
3. Groups with different time-trends.
4. Effect of COVID-19.
5. Sea-facing property vs in-land properties
6. Income gradient
7. Flash-Flood Prone areas vs Incidental Flash Flood.

1. Additional Controls

Issue:

- The percentage gain on a frequently transacted flat is likely to be lower.
- Every subsequent round of reselling lowers the percentage gain.
- Using log-transformed price as dependent variable provides estimate of percentage change in price, hence without adjusting for number of transactions per flat, may provide misleading estimate.

Potential fix:

- Additionally adjust for number of transactions for the flat.

2. Treatment Group

Issue:

- Treatment group includes flats built after the announcement.
 - These flats may already incorporate mitigation measures
 - These flats do not have pre-announcement data – may result in erroneous estimation of averages.

Potential Fix:

- Robustness check by excluding the flats built after the announcement.

3. Group-Specific Time-Trends

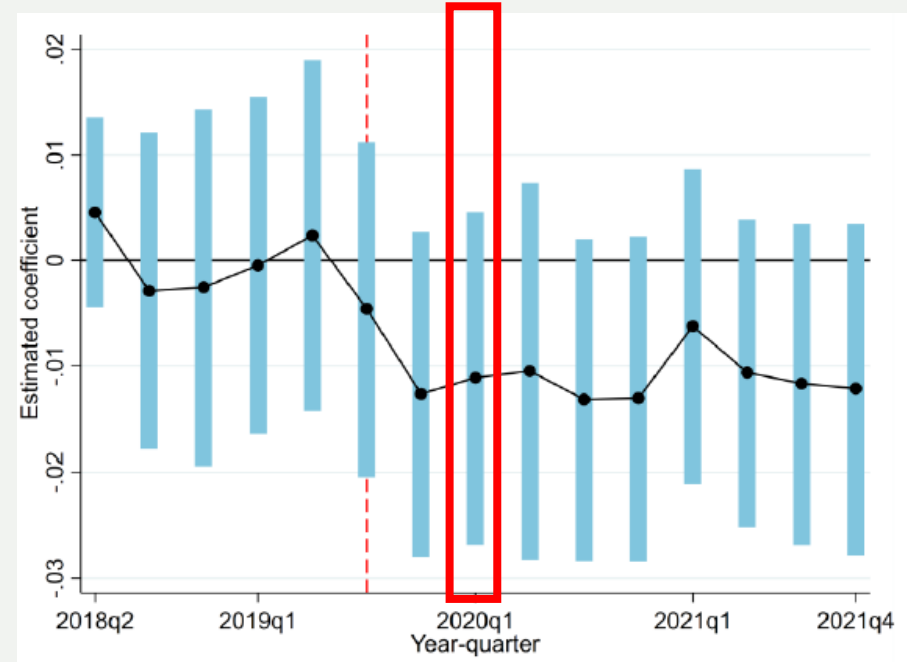
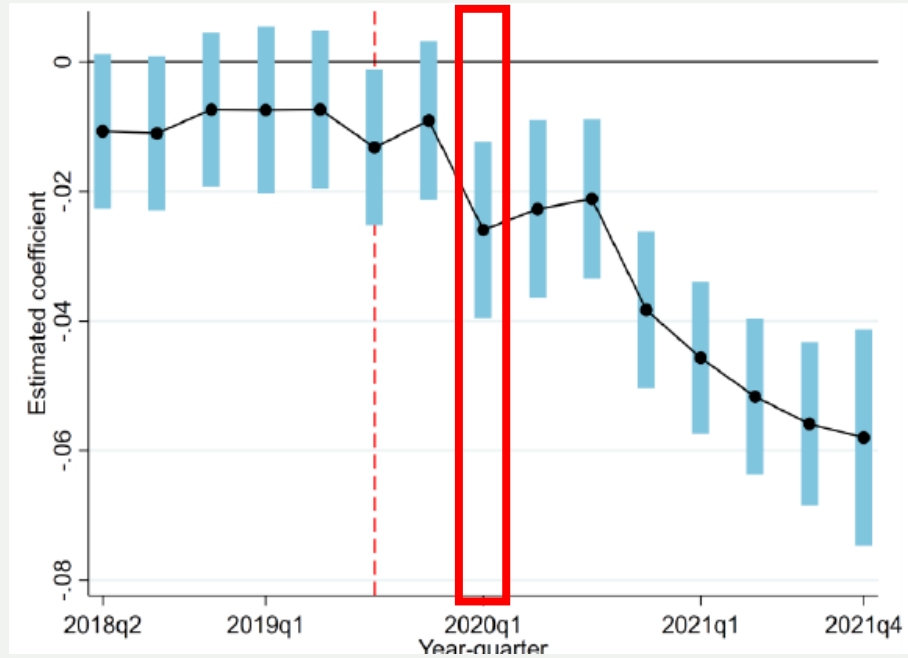
Issue:

- Time-trends could vary across treatment and control groups

Potential Fix:

- Provide a graph with trend in addition to the event study graph
- Conduct robustness check by including group-specific time-trend.

4. COVID-19



Issue:

- COVID-19 timing coincides with treatment timing.
- COVID-19 may have had differential impact by property type (size, location)

Potential Fix:

- Rule out the differential impact of covid on Treatment and Control groups.

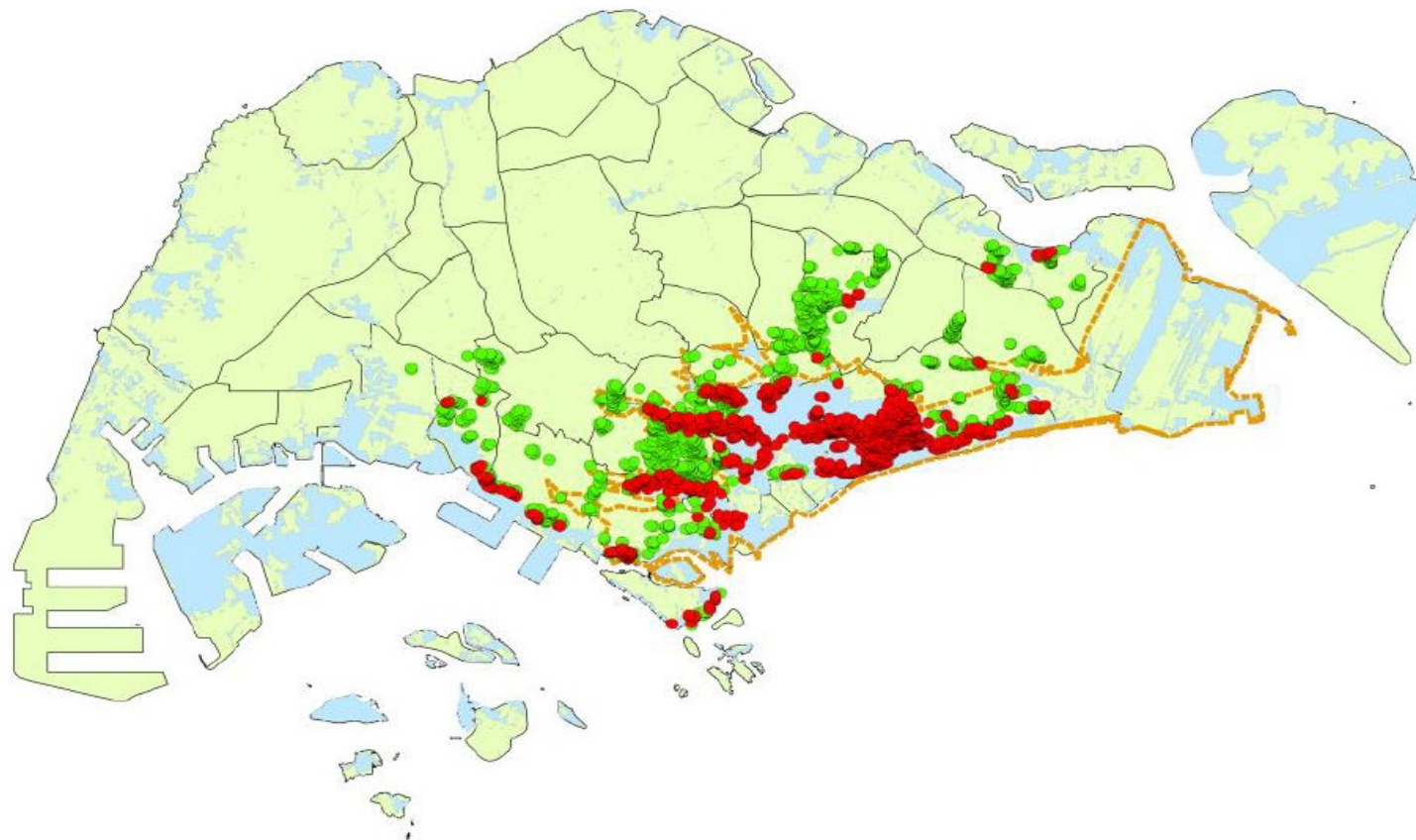
5. Sea-Facing vs In-land

Issue:

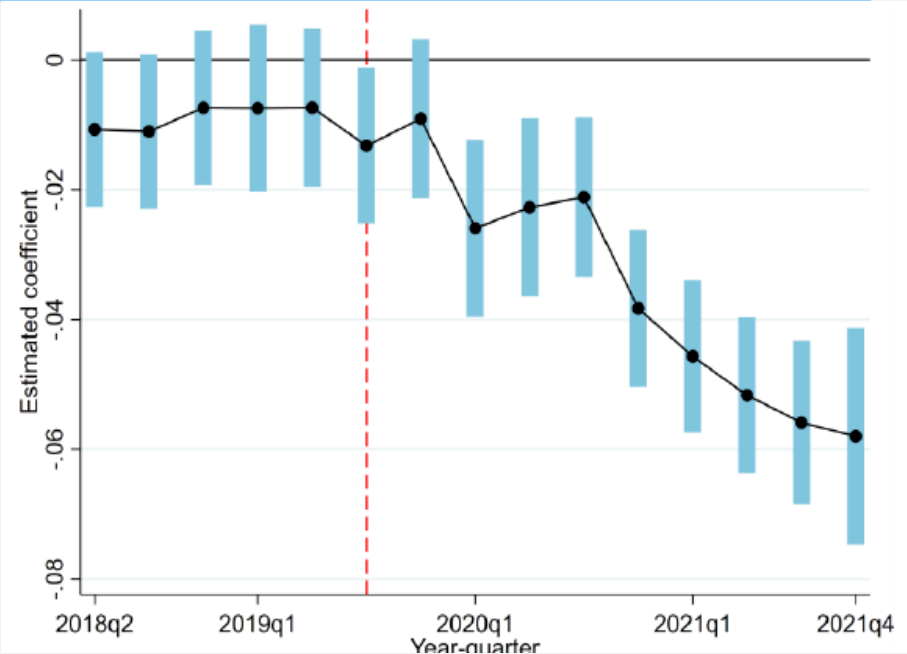
- Price trend may differ for sea-facing vs in-land properties

Potential Fix:

- Robustness check by excluding sea-facing properties if no appropriate control group could be found for these treated houses.
- RD along the boundary of SLR zones / altitude cut-off

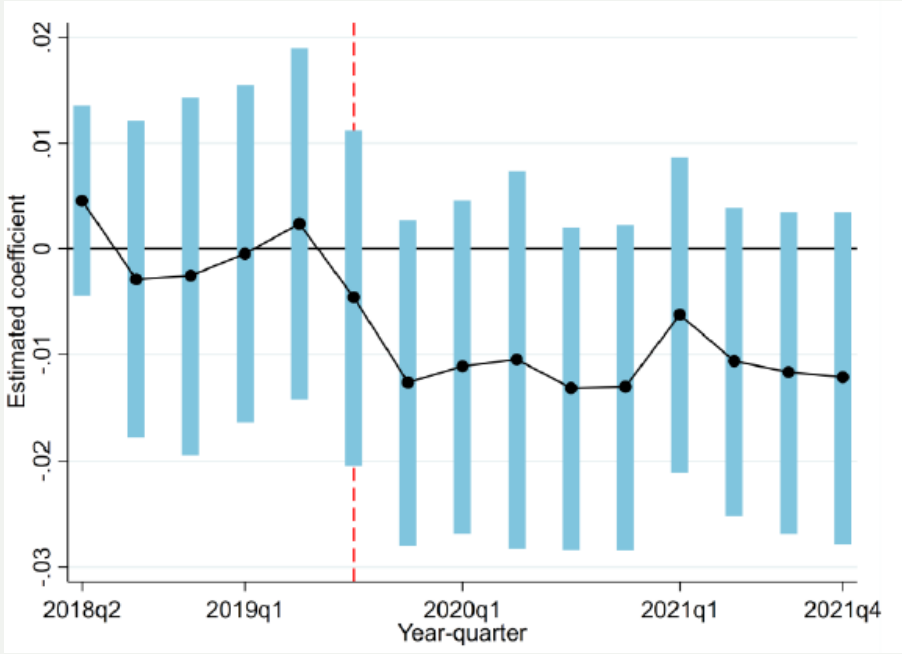


6. Income Gradient



HDB

Statistically significant effect-size for HDB



Private Property

No statistically significant effect-size

	HDB	Private	Private Leasehold	Private Freehold
1. Information about climate risk is associated with price change	-1.1%	-2.9%	-1.9%	0.8% (n.s.)
2. Government's commitment to mitigate risk is associated with price change	-0.8%	-1.1%	-1.8%	1.0% (n.s.)

6. Income Gradient

Issue:

1. Wealthier groups may be less risk-averse
2. Wealthier groups more adaptable by switching property types

Approaches:

1. Quantile regressions with property prices
2. Heterogenous responses by houses of different values.

7. Effect of Flash Floods

	HDB	Private
3. Actual Events are associated with price change	-1.3% (n.s.)	-0.7% (n.s.)

Hypothesis: Areas affected by flash-floods may observe a decline in transaction prices.

Issues:

1. Treatment: Within 0.5km of flash-flood and within 3 months of a flash-flood
2. Propensity of flash floods:
 1. Flash Flood Incident (one-time) vs Prone to Flooding
 2. Time-window for defining propensity
3. Decision making window
 1. Whether property buying decision would be affected in a short 3-month window

Potential Fix:

- Use a longer time-period
- Identify error-based flooding vs usual-flooding.

7.1. Flash Floods

Flash flood in Dunearn Road subsides, PUB warns of flood risks elsewhere



1 of 4 Flooded canal along Bukit Timah Road and Dunearn Road on Aug 24, 2021. PHOTO: LYDIA LEE



The scenes at the flooded junction of Tampines Avenue 10 and Pasir Ris Drive 12 on Aug 20, 2021. Photo: PUB/Facebook

PUB said that the location is not known to be a flood-prone area or a flood hot spot.

Source: Straits Times

<https://www.straitstimes.com/singapore/risk-of-flash-floods-in-several-areas-in-spore-including-upper-bukit-timah-woodlands-sime>

<https://www.todayonline.com/singapore/unauthorised-drainage-works-led-severe-flooding-tampines-pasir-ris-junction-pub-take>

7.2. Flash Floods

	HDB	Private	Landed Houses
3. Actual Events are associated with price change	-1.3% (n.s.)	-0.7% (n.s.)	?

Hypothesis: Areas affected by flash-floods may observe a decline in transaction prices.



ENVIRONMENT LATEST NEWS

A flash flood warning was issued on the adjacent roads.

By Sabrina Seng - 10 Nov 2021, 1:05 pm

Flash Flood Along King's Road In Bukit Timah On 9 Nov

TRENDING STORIES

Summary

1. Information about climate risk is associated with price change

2. Government's commitment to mitigate risk is associated with price change

3. Actual Events are associated with price change – NOT Observed

Comments:

1. Additional control variables: Total number of transactions.
 2. Treatment Group: New flats built after announcement.
 3. Groups with different time-trends.
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