Timely Rental Price Indices for thin markets: Revisiting a chained property fixed-effects estimator

17th meeting of the Ottawa Group on Price Indices,

Rome, 7-10 June 2022

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Overview

- Relevance of New Zealand rental prices*
  - Why care about **regional rental prices?**

- **NZ rental price statistics**: Overview and opportunities

- Proposed **enhancements**:
  - New **subnational** series
  - **Revisable** flow (new tenancy) index:
    - Smoother
    - Longer-timeseries
    - Stocks in correct time period

*In this paper *'rentals' is used as shorthand for 'actual rentals for housing'*

Why care about rental prices?

Figure 2: Rental price pressures in New Zealand
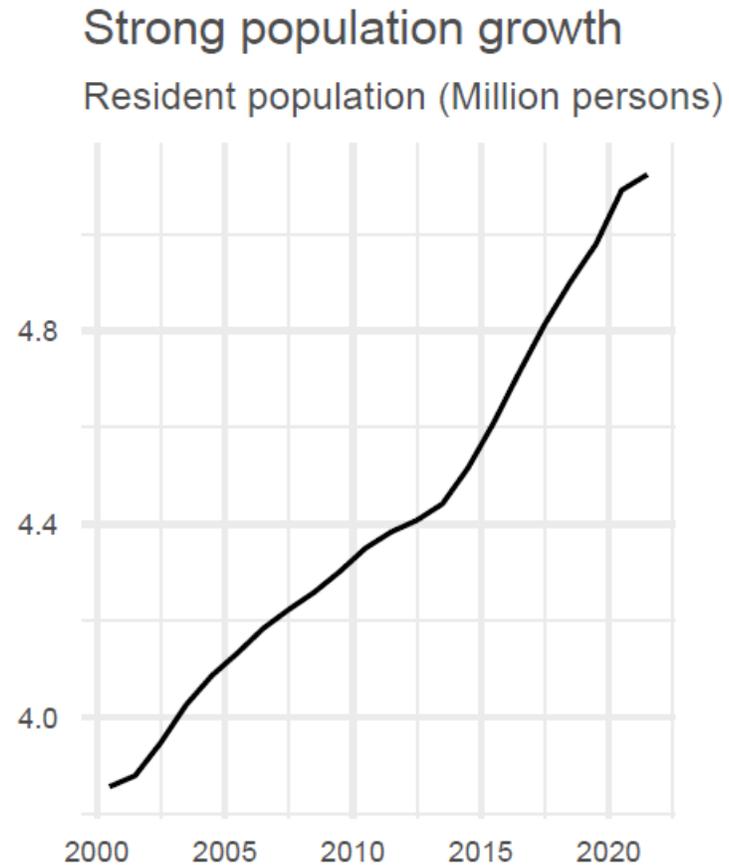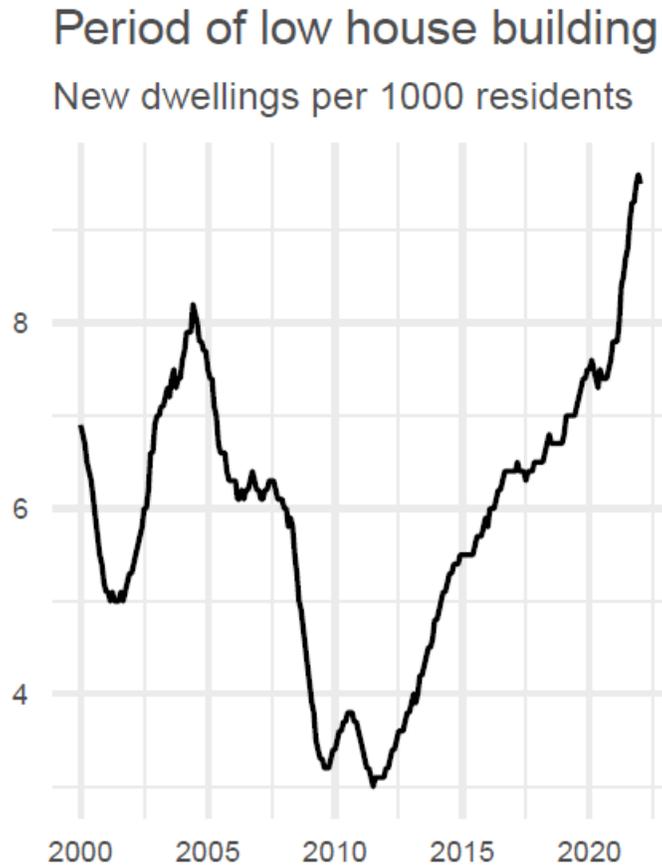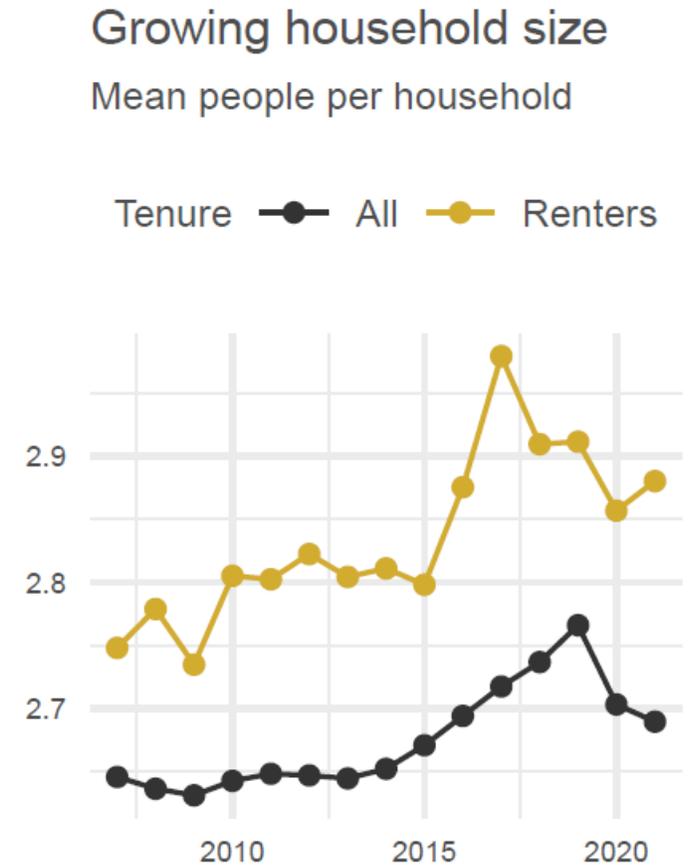
Why care about **regional** rental prices?

Figure 3: Regional misalignment between growth in people population and new dwellings

Growth misalignment

People population compared with new dwellings
Change since June 2014
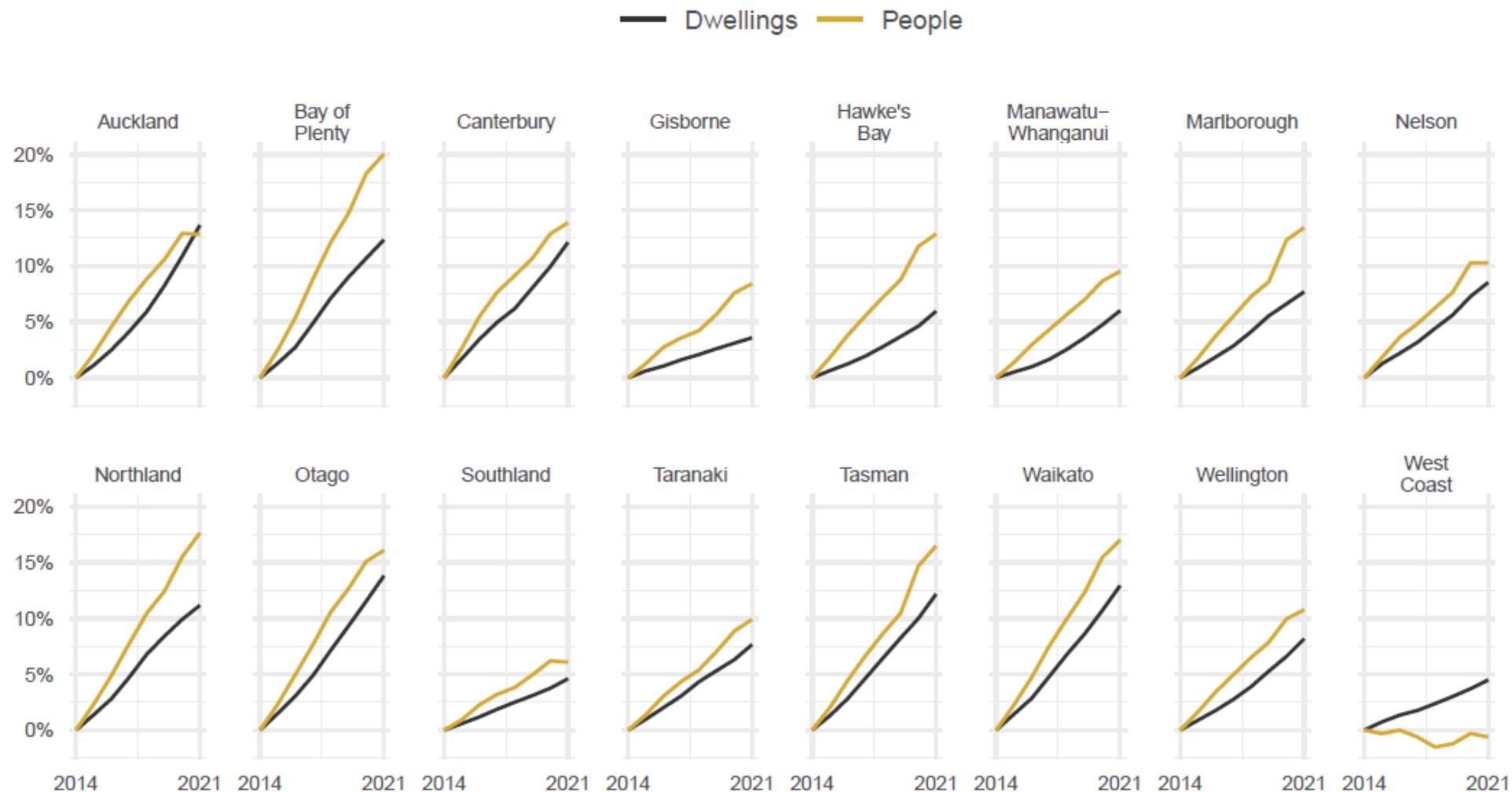
— Dwellings — People

Two Rental Price Indices (RPIs): stock & flow

Born in 2000

CPI, rent ('actual rentals for housing' class)
Postal survey, matched-pairs quality adjustment

Born in 2019

Flow, RPI
New Tenancies

Inherited CPI conventions

Opportunities in 2022:

- *Regional?*
- *Revisable?*
- *Longer timeseries?*

Stock, RPI
All Tenancies

- *New method & data source since 2019*
- *CPI 'stock' concept: price change across all tenancies*
- *Non-revisable*
- *Limited regional breakdowns*

The full story:

Bentley, A. (2022). Rentals for Housing: A Property Fixed-Effects Estimator of Inflation from Administrative Data. Journal of Official Statistics, vol.38, no.1, 2022, pp.187-211. https://doi.org/10.2478/jos-2022-0009

Bentley, A. (2021). Sticky Rents and The Affordability of Rentals for Housing in New Zealand. New Zealand population review 47:145-170. Population Association of New Zealand.

Revisions policy revisited

Figure 1: More precise RPI with an open revision policy

New Zealand Rental price index (flow)

Change since November 2006

Annual change

Open revisions, chained method
Published series:
no data revisions, spliced method
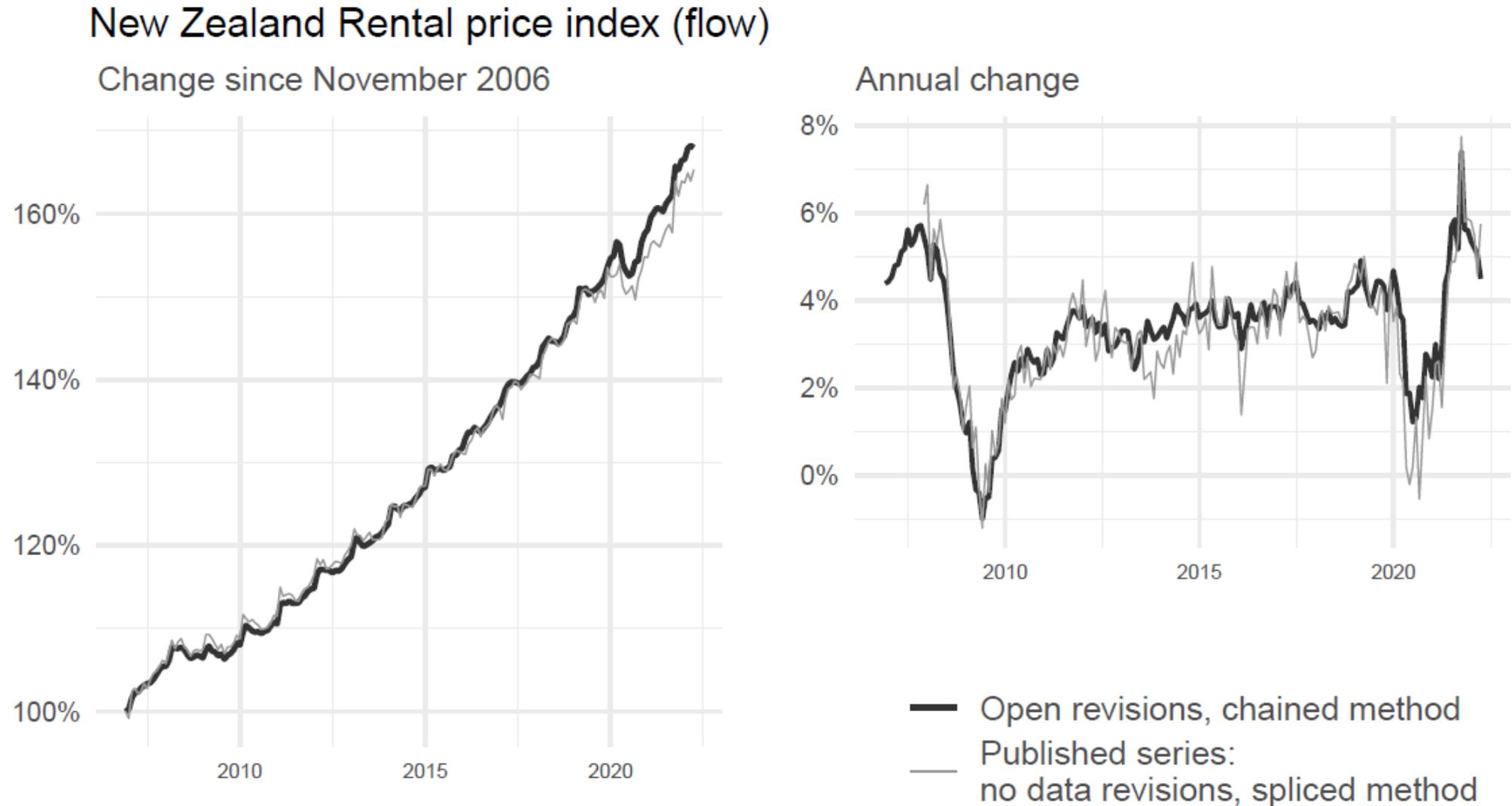
Choice of chain position to create series longer than window length (with no revision constraint)
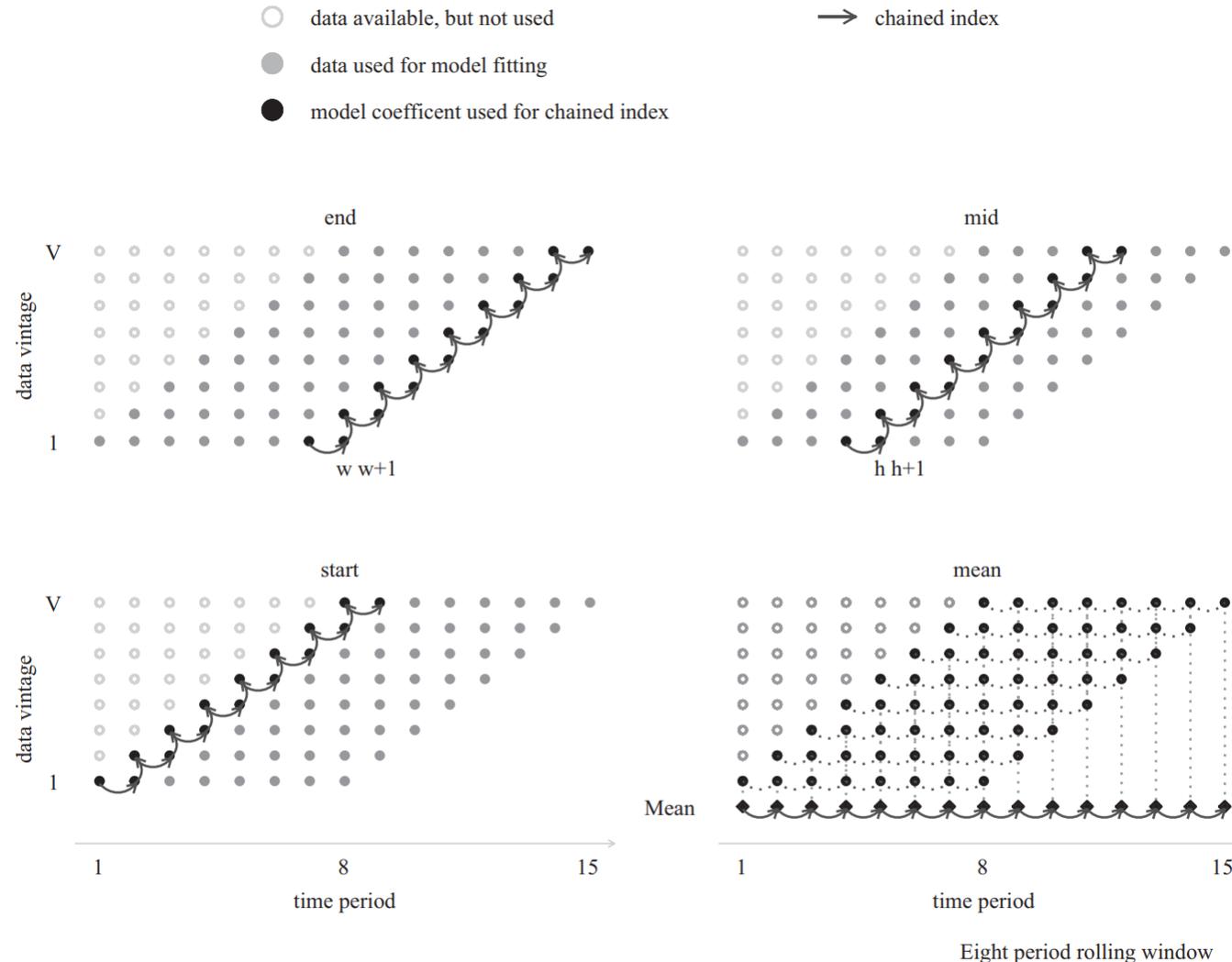
Fig. 1. Index-chain alignment options.

Bentley, A. (2022). Rentals for Housing: A Property Fixed-Effects Estimator of Inflation from Administrative Data. Journal of Official Statistics, vol.38, no.1, 2022, pp.187-211.
https://doi.org/10.2478/jos-2022-

Benefits of revisable series

1. Less volatility

2. Longer timeseries

3. Shocks in correct time period

Rental price index
Comparisons of methods
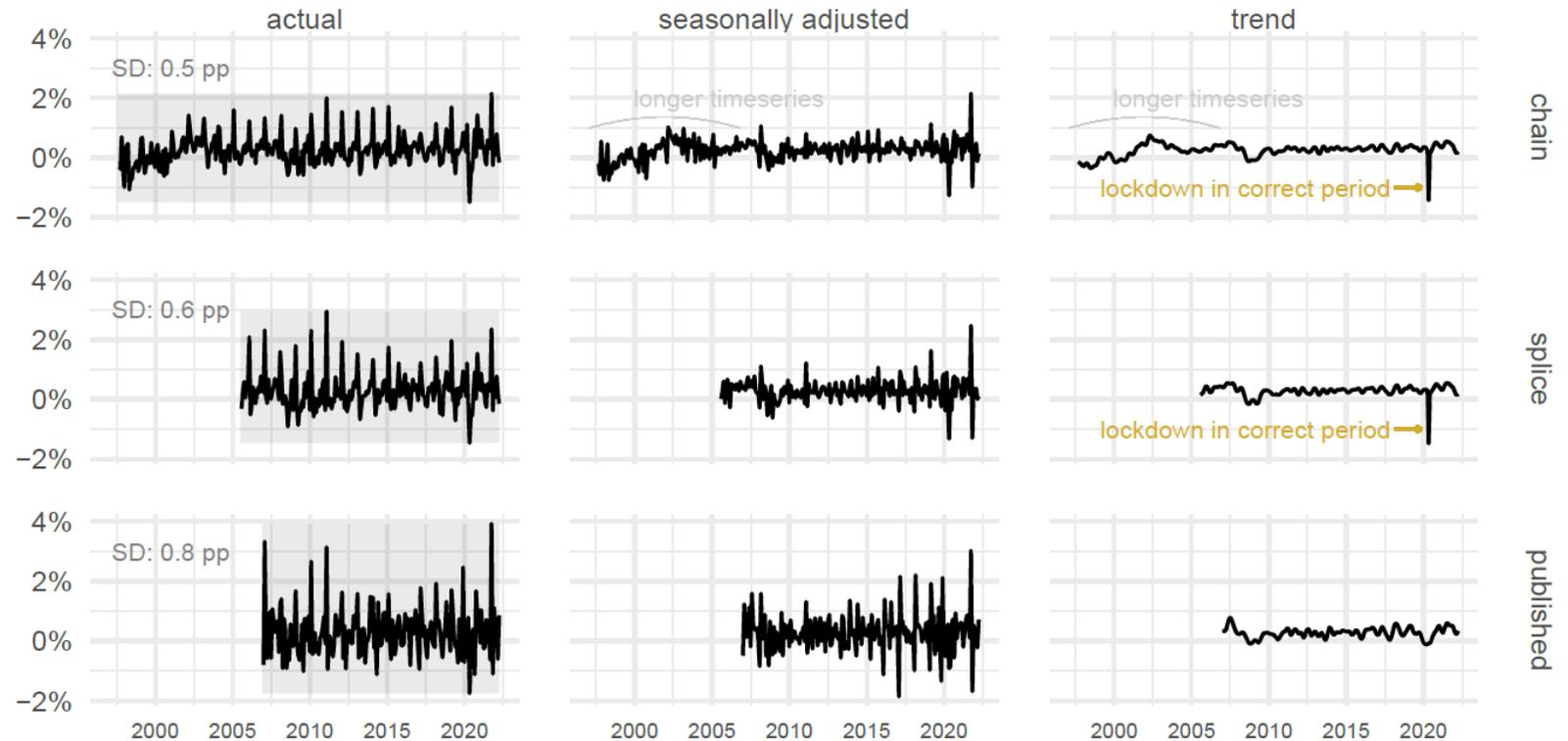
Large real-time reporting bias
in raw administrative, Tenancy Bond data:

A cautionary tale

Rents soar after Covid-19 freeze ends

Dileepa Fonseka and Kate Newton · 09:03, Jan 27 2021

Average weekly rent, nationwide

The end of the Covid-19 rent freeze signalled a sharp increase in average rents
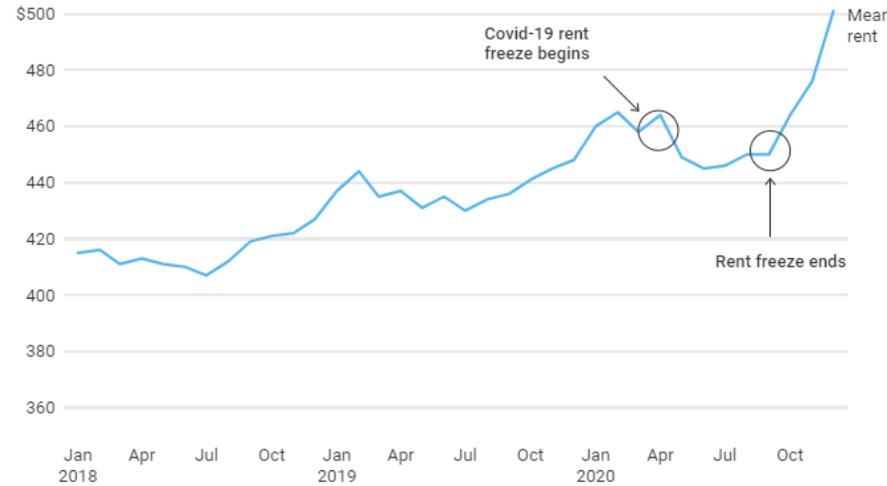
Weekly rent shown is the 'geometric mean', as calculated by MBIE
Chart: Kate Newton · Source: MBIE

stuff

Rents shot up around the country when last year's rent freeze was lifted, including the largest monthly rent increase in recorded history.

Renters have been knocking on the door of advocacy organisations and taking cases to the Tenancy Tribunal in an attempt to fight increases of nearly 40 per cent in some cases after the Government's Covid-19 rent restrictions were lifted.

Across the country, average rents rose 11 per cent between when rents were unfrozen on September 25 and the end of 2020. The average rent rose 3 per cent in the month immediately after restrictions were lifted, according to Ministry of Business Innovation and Employment (MBIE) rental bond data.

Raw average price: Looks like big increase in real time (without treatment)

Geometric mean weekly rental amount

By vintage of data

— Originally published: January 2021

$500

$450

$400

2018   2019   2020   2021

MBIE, Tenancy Bonds
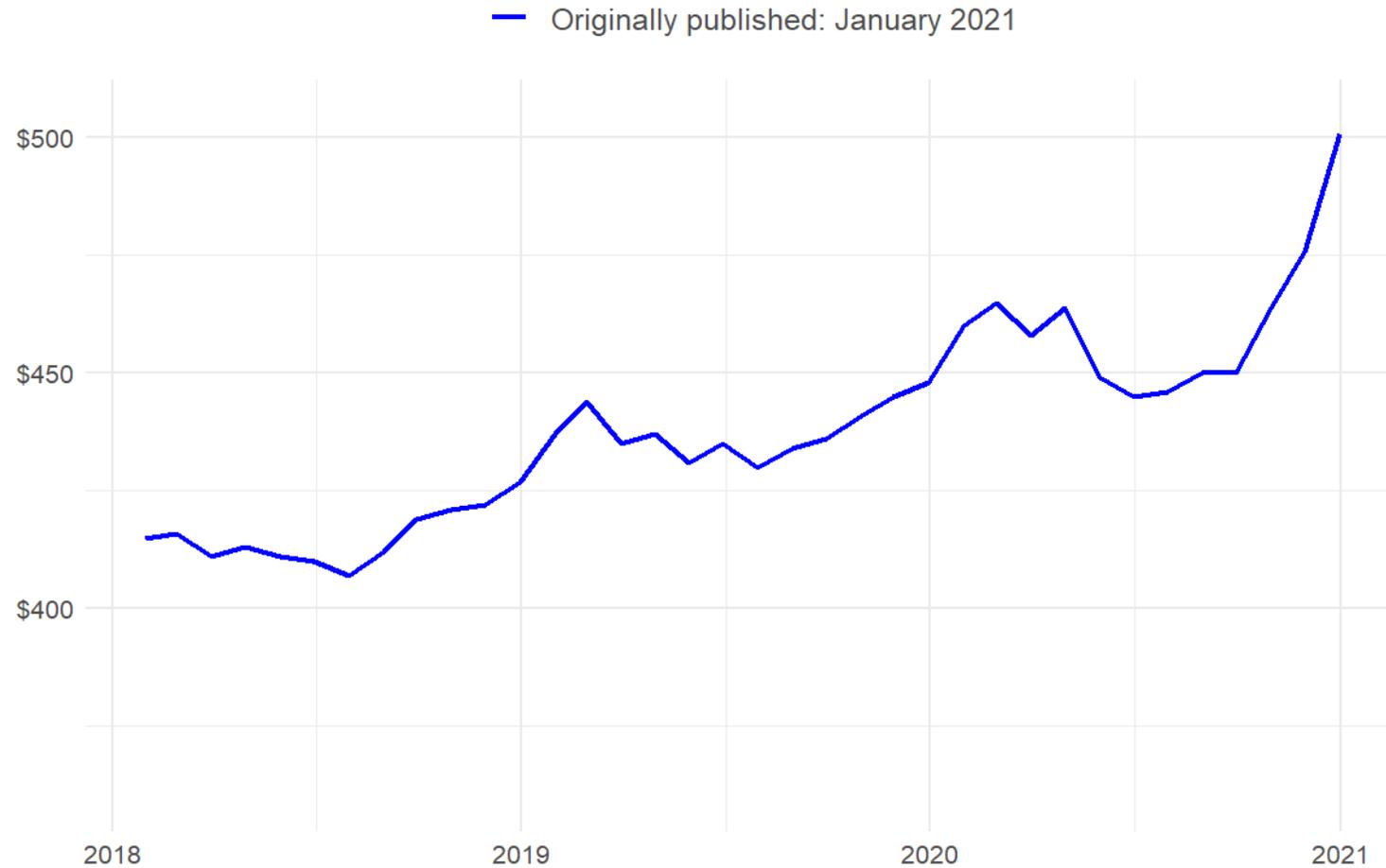
Substantial revision bias (without treatment)

Geometric mean weekly rental amount
By vintage of data

Currently published: April 2022   Originally published: January 2021

MBIE, Tenancy Bonds
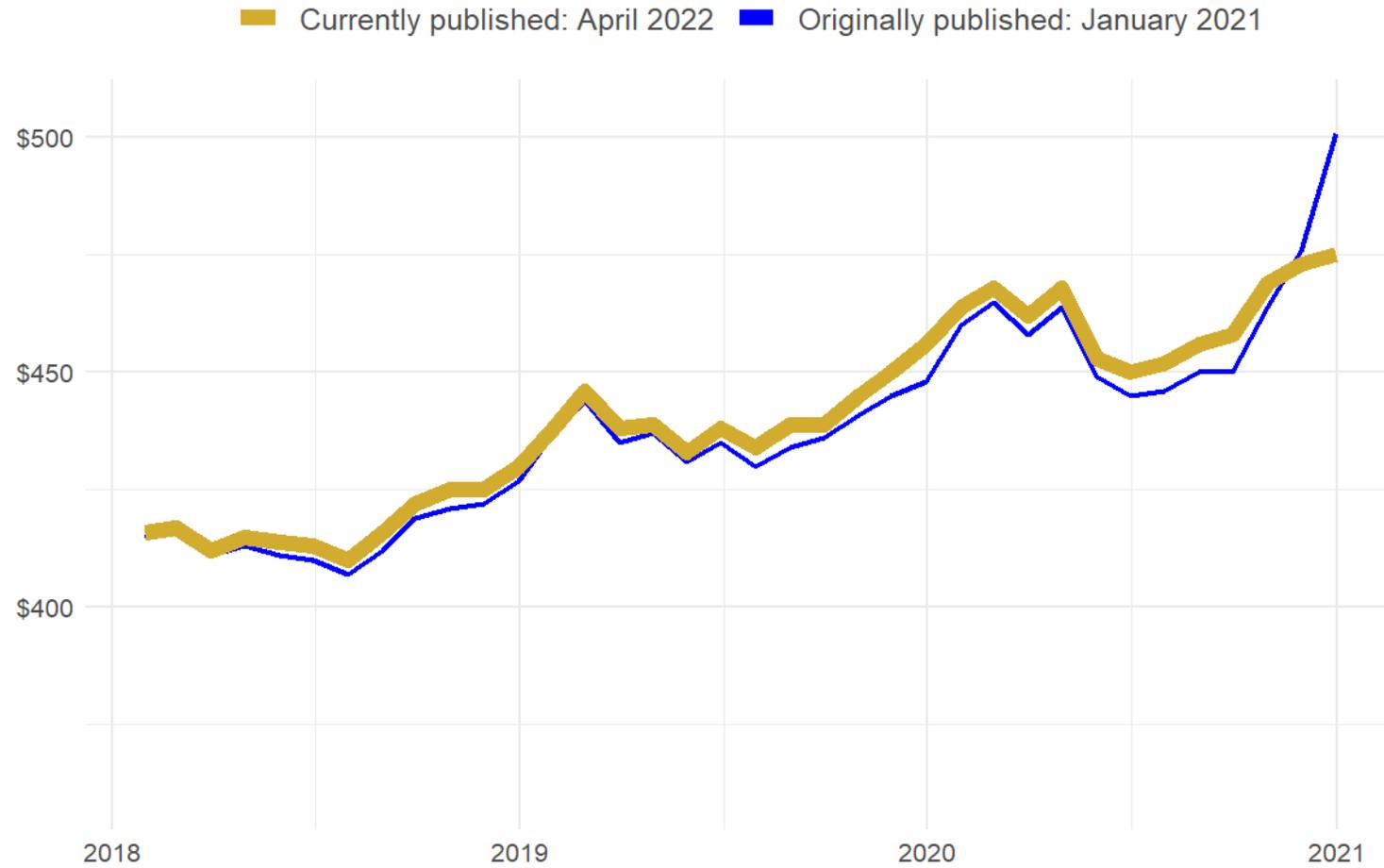
Little to report after statistical treatment:
Price index, with consistent input data

Geometric mean weekly rental amount
With RPI (Jan 2018 = $415)

Currently published: April 2022 ■ Originally published: January 2021 ■ RPI
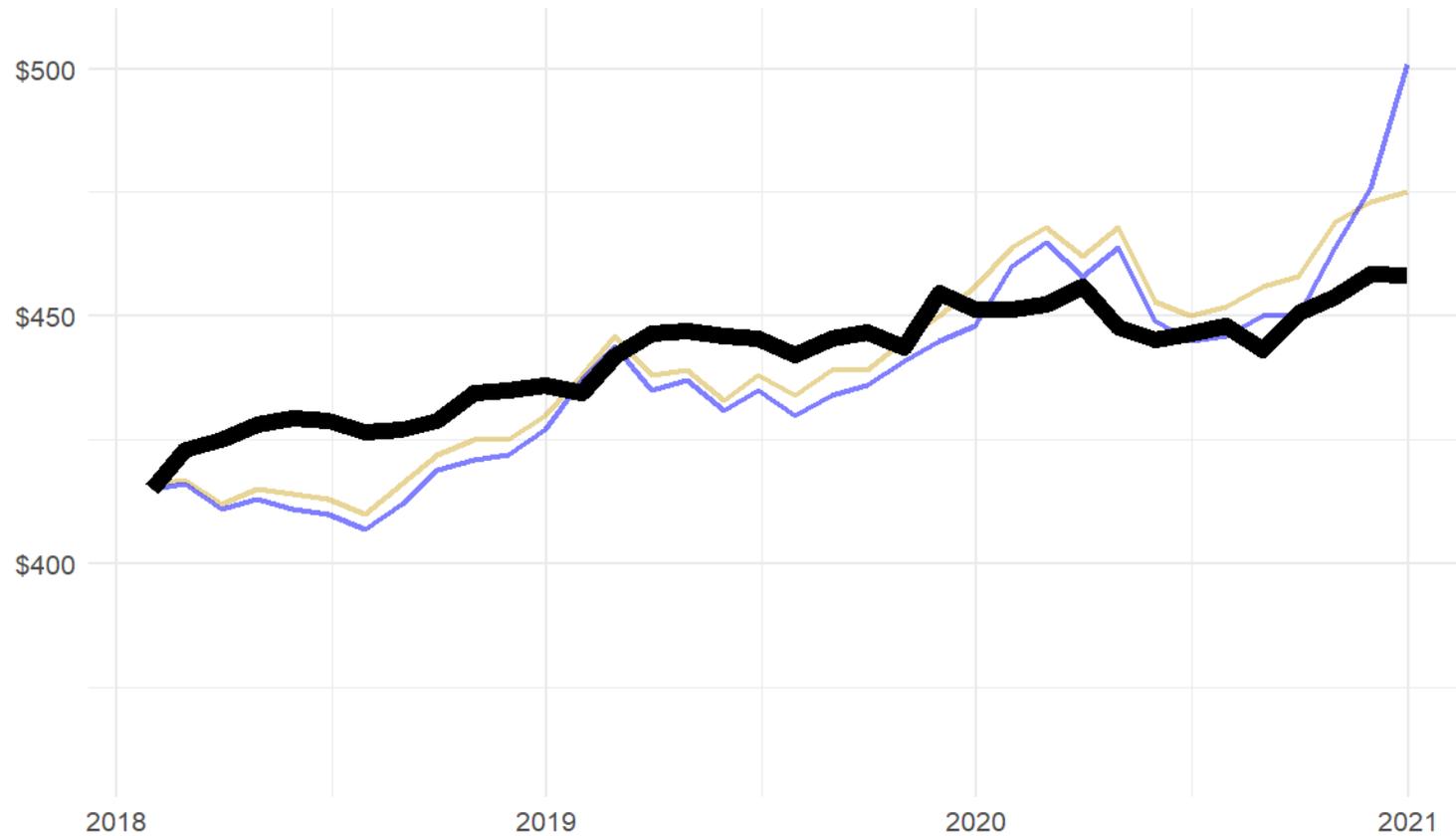
Annual change to Dec 21
NZ
Raw average, original: 11.8%
Raw average, revised: 4.2%
RPI: 1.5%

Auckland
Raw average, original: 13.8%
Raw average, revised: 3.1%
RPI: 0.0%

$500

$450

$400

2018   2019   2020   2021

MBIE, Stats NZ

Figure 4: Real-time availability of data

Bond data availability

Proportion of data available relative to all available
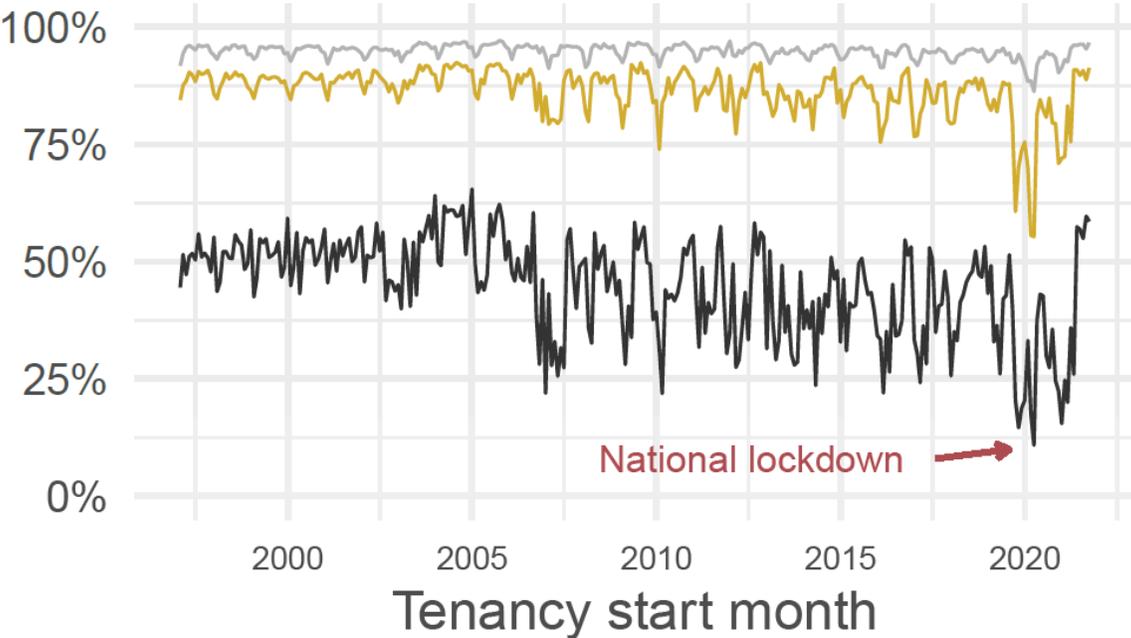
Days after reference period — 0 — 28 — 56

Real−time accuracy

Geometric mean of weekly rental amount

Ratio of estimates using available data relative to estimate using all available data
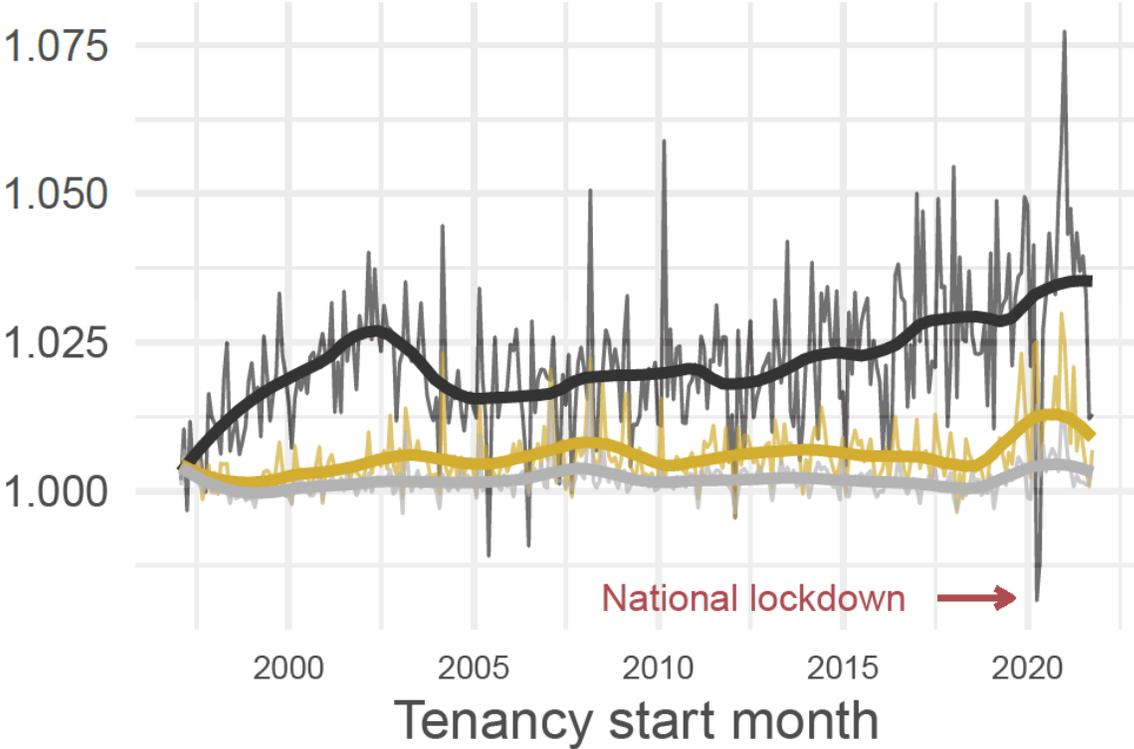
Treatment of real-time bias

Price index methodology controls for most of the bias, BUT …

Consistent subset of data need for initial month to minimise systematic revisions

Figure 6: Systematic revisions to initial estimates using full data
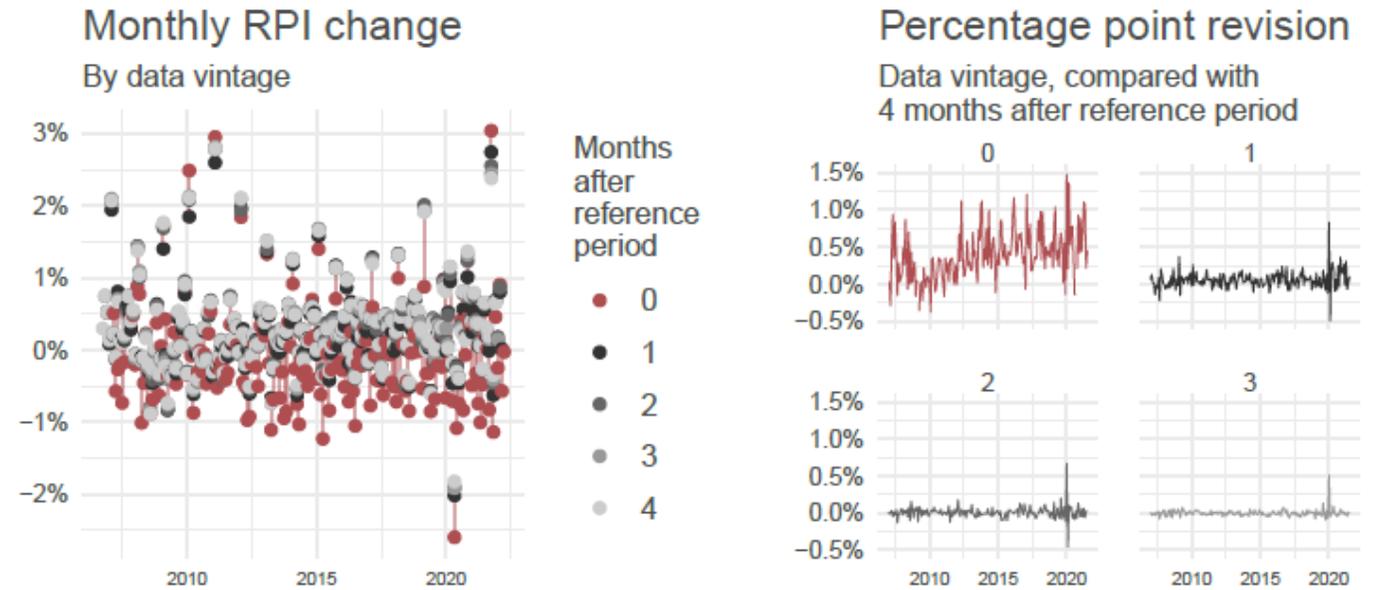
Figure 7: Random revisions to initial estimates using consistent 'flash data' subset
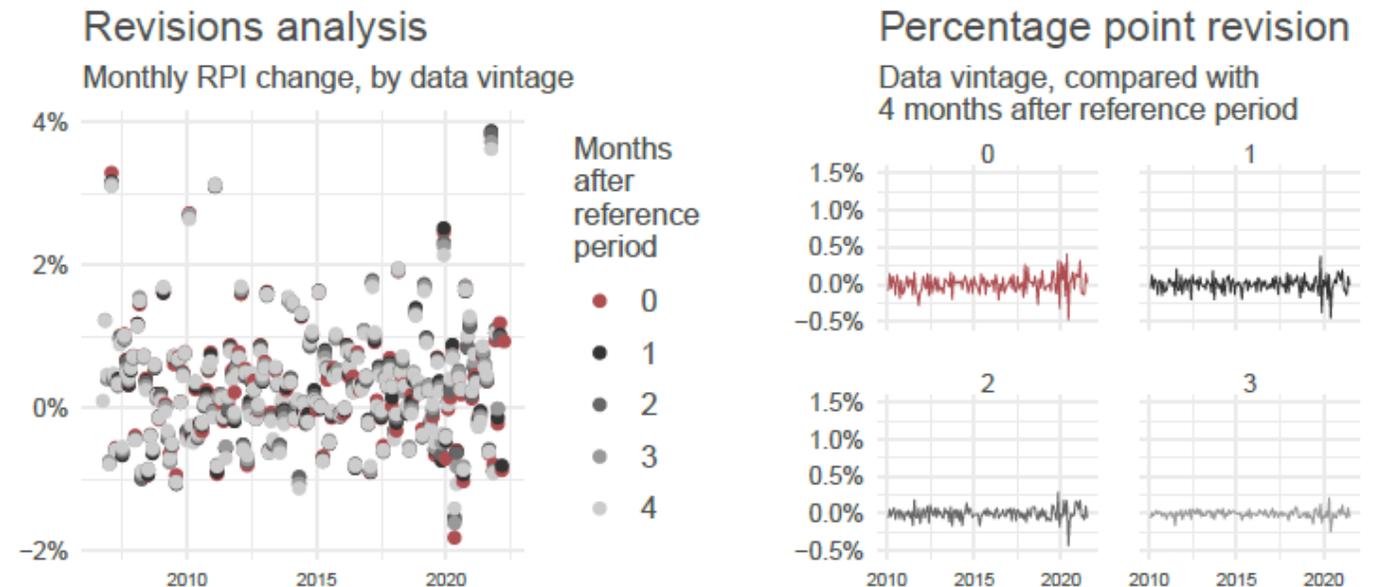
Subnational series

- Change to **revision policy**: Revisable flow RPI maximises number of price observations (reduces volatility)

- Regional data **practicalities**
  - Additional regional RPIs available after ~6 weeks
  - Small regions (< 15,000 rental properties) to use 3 month rolling data

Practicalities: 3-month rolling data

Figure A2: Number of rental properties by region, with proposed monthly data use

Size of rental markets
and proposed monthly data usage

Number of rental properties, by Regional Council
Log scale

Auckland Region			201K
Canterbury Region		73K	
Wellington Region		65K	
Waikato Region		59K	
Bay of Plenty Region	37K		
Manawatu–Wanganui Region	30K		
Otago Region	27K		
Northland Region	21K		
Hawke's Bay Region	20K		
Taranaki Region	14K		
Southland Region	12K		
Gisborne Region	7K		
Nelson Region	6K		
Marlborough Region	5K		
Tasman Region	5K		
West Coast Region	4K		

large (actual)

small (3−monthly)

15,000   50,000   200,000

Number of people in households who don't own
a small proportion of these will be 'rent free'

Stats NZ, Census of Population and Dwellings 2018

Supplementary slides

Full research paper at:

Pure price change: Value of quality adjustment

Growth in dwellings correlates better with RPI, compared with raw geometric mean
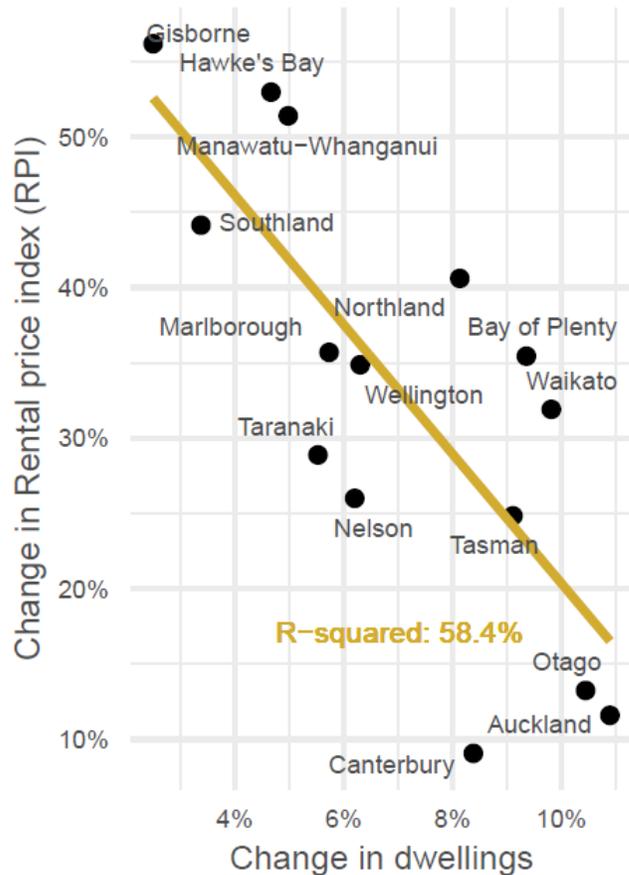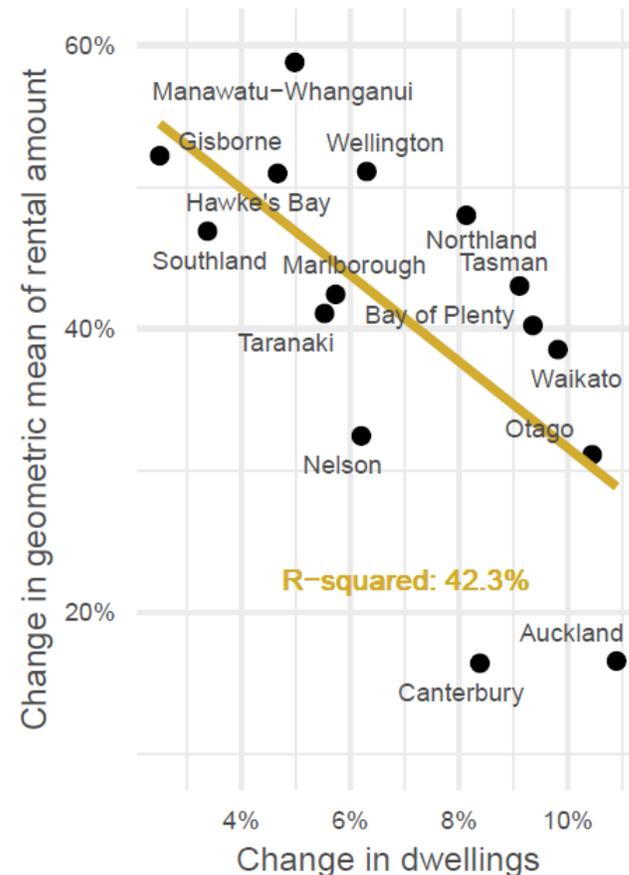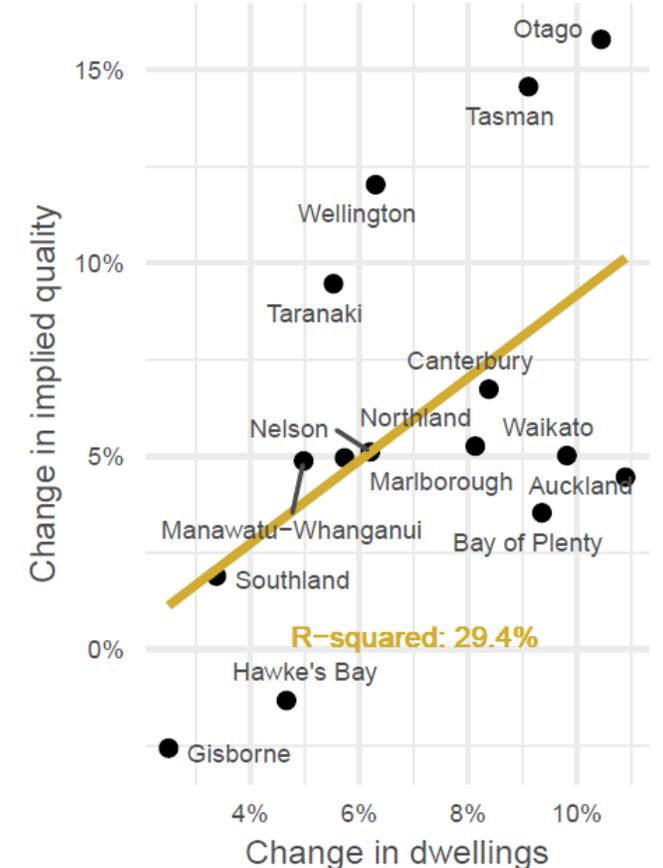
A4: Trends in regional rental prices and mean people per dwelling

Trends in regional rental prices and people per dwelling

Change since June 2006