Rentals for housing:
A model-based estimator of inflation from administrative data


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Digital-age drivers for change

• Competing measures of price change
  – other publically available rent price statistics

• Demand for greater granularity
  – higher-frequency (eg Monthly)
  – regional disaggregation

• Efficient public services
  – costs
  – respondent burden

• Multilateral models: Emerging international best practice

See Bentley and Krsinich (2017) Towards a big data CPI for New Zealand, Ottawa group paper
Why are these series so different?

Current rent price statistics, percent change

Source: Stats NZ and MBIE
Property fixed-effects regression

\[ \ln p_i^t = \alpha + \sum_{t=1}^{T} \delta^t D_i^t + \sum_{i=1}^{N-1} \gamma D_i^t + \epsilon_i^t \]  

(1)

\[ P_{TPD}^{0,t} = \exp(\hat{\delta}^t) \]  

(2)
Impact of data window length

Administrative data, mean index–chain alignment

Cumulative percent change

Model of window length (quarters)

Proposed

Source: MBIE
Price observations per property

Source: MBIE
Impact of data source

Mean index–chain alignment, 8 year rolling window

Source: MBIE & Stats NZ
Impact of data source: Trends

Mean index–chain alignment, 8 year rolling window

Source: MBIE & Stats NZ
Impact of data source: Trends

Mean index–chain alignment, 8 year rolling window

- - published series

Data source

- administrative
- survey, price change observations only

Source: MBIE & Stats NZ
Compared with published series

Proposed model

Source: Stats NZ and MBIE
Conclusions

- Using a **multilateral model** to perform quality-adjustment, differences between data sources are short-lived

- Relatively **long data window** (8 years) appears necessary to provide reasonable transitivity and property-level matches

- **Stock versus flow** measures of rent price inflation: which is preferred?

- **Administrative data** is a clear winner on cost and efficiency
Tenancy bond data appears a leading indicator

Annual percent change: Trends

Auckland

Canterbury

Wellington

Geometric mean, administrative data
Quality-adjusted price index, survey data

Source: Stats NZ and MBIE
Inflation model needed for bond data

Cumulative percent change

<table>
<thead>
<tr>
<th></th>
<th>Auckland</th>
<th>Canterbury</th>
<th>Wellington</th>
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<tr>
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Geometric mean, administrative data
Quality-adjusted price index, survey data

Source: Stats NZ and MBIE
Impact of data source: by region

Mean index–chain alignment, 8 year rolling window

Auckland
Canterbury
Rest of North Island

Rest of South Island
Wellington

Annual percent change


−4% 0% 4% 8%

−4% 0% 4% 8%

−4% 0% 4% 8%

−4% 0% 4% 8%


Source: Stats NZ & MBIE

Proposed model

administrative
survey

Source: Stats NZ & MBIE