Towards a big data CPI for New Zealand

Paper presented at the Ottawa Group 2017, Eltville, Germany

Alan Bentley and Frances Krsinich
The century-old inflation measurement paradigm

View of Karangahape Road, Auckland. Ref: 1/2-001196-G. Alexander Turnbull Library, Wellington, New Zealand. /records/22686552
New data sources

Online data trial:
Spread across products and outlets

- Food
- Alcohol and tobacco
- Clothing
- Housing
- Furnishings
- Health
- Transport
- Communication
- Recreation
- Education
- Restaurants and hotels
- Miscellaneous

Retail industry:
- Supermarket
- Electrical
- Hardware
- Sports
- Book
- Clothing
- Department
- Pharmacy
- Not Available

Source: Stats NZ | PriceStats
Paradigm shift

Traditional data
Designed sample surveys

Big data
Found digital footprints

Target population
Data available
Assessing coverage

- Product
- Place
- Time
Online data trial:
Spread across products and outlets

Daily observations

Weight in CPI

Source: Stats NZ | PriceStats
Product coverage

Online data trial:
Better coverage of goods than services

Available □ Not available

<table>
<thead>
<tr>
<th>Goods</th>
<th>Services</th>
</tr>
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<tbody>
<tr>
<td>Food</td>
<td>Housing</td>
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</tbody>
</table>

Source: Stats NZ | PriceStats
Regional coverage

Little significant regional variation

- Food
- Alcoholic beverages and tobacco
- Clothing and footwear

- Housing and household utilities
- Household contents and services
- Health

- Transport
- Recreation and culture
- Miscellaneous goods and services

Year: 2008 to 2016

Weight in CPI: 2, 4, 6, 8

Region: Auckland, Wellington, Rest of North Island, Canterbury, Rest of South Island

Source: Stats NZ
Implementation

Current data sources

Field | Online
---|---

Survey | Transaction

Mode of collection
- Mode used for collection
- Mode not used

Weight in CPI
- Food
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Field: physically visiting shops
Online: using web browsers
Survey: directly from businesses
Transaction: point-of-purchase scanner data

Source: Stats NZ
Rent

Cottages in Pulham Road, Warkworth part of Cottages in Pulham Road, Warkworth.
records/23190869
Rent

Growing coverage of tenancy bond data

Source: Stats NZ | Ministry of Business, Innovation and Employment
Rent: data sources

All rental properties

- Census
- Tenancy bonds
  - Non-active bonds
  - Missing from census and bonds

Census over-coverage
Rent: regional coverage

Better coverage of main centres

Source: Stats NZ | Ministry of Business, Innovation and Employment
Rent: temporal coverage

Stabilising coverage of lodged bonds

Source: Ministry of Business, Innovation and Employment
Rent: timing

Tenancy bond data appears a leading indicator, but does not account for quality change

Source: Stats NZ | Ministry of Business, Innovation and Employment