The House Price Index and its development from mean price thru Repeat Sales to SPAR

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November 29 – December 3, 2009
Starting 1628

The graph illustrates the real price (euro 2009) x1000 from 1630 to 2010. Key events highlighted include:

- Crisis Tulipmarket, 1637
- 3rd English War, 1672-1674
- Napoleon in Amsterdam, 1795
- Industrial Revolution, 1850
- Oil crisis, 1979
- Credit Crunch, 2009

These events are marked on the timeline to provide context for the price fluctuations shown on the graph.
Starting 1995 we use the nominal house price for estimating the House Price Index.
House Price Index

Jan 1995 = 100

Depends on registration

Monthly ~ 16,500 transactions
Outline

• Aim

• 2005: Mean Price to Repeat Sales Index (RSI)

• 2008: RSI to Sales Price Appraisal Index (SPAR)

• Comparison Hedonics – RS – SPAR
Aim
Aim of the index: the actual house price

- **Dutch Central Bank:**
  - No trust in common summary methods;
  - Valuation portfolios: Haircut 25% by Price Rise;
  - Thus: actual house price to low and higher reserve for mortgage risk;
  - Solution: House Price Index for the housing market.
Mean price and the Index

![Graph showing the House Price Index and Mean price over time](image-url)
Hedonic regression
Hedonic Valuation Process

*Observed*  
House Quality  
House Price  

\[ \text{Hedonic regression} \]

- ‘some’ characteristics  
- House Price  

*Estimated*  
House Price  

\{ Sold or On-the-Market \}  
\{ All properties \}
2005

Repeat Sales Index
Data Dutch Land Registry Office (Kadaster)

- Actual (delay: two weeks)
- Complete (all transaction)
- Less characteristics (only type)
- Only existing homes (no new dwellings)

- 2005:
  - Given the data, we chose the Repeat Sales Model for calculation the index
Why Repeat Sales

Based on
- Price for single property at different points in time

Literature

Practice
- OFHEO House Price Index (USA)

Problem
- revision
Housing stock and transactions

Owners occupied stock
3,500,000

Sold
44%
1,500,000

Sold twice or more
46%
720,000

Sold once
54%

Not sold
56%

560,000 repeat sales
Repeat Sales

The House Price Index and its development
Impression Data
Results

The House Price Index and its development

The Netherlands Total

Revision
Results

South apartements

Revision

The House Price Index and its development
2008

Sales Price Appraisal Ratio
Background

- Owner-occupied housing currently excluded from HICP
- Eurostat pilot study
Sale Price Appraisal Ratio method

Bourassa et al. (Journal of Housing Economics, 2006)

• “… the advantages and the relatively limited drawbacks of the SPAR method make it an ideal candidate for use by government agencies in developing house price indexes.”

• Used in New Zealand since early 1960s; also in Sweden and Denmark
• Promising results in Australia (Rossini and Kershaw, 2006)
• Based on (land registry’s) sale prices $p$ and official government appraisals $a$
• Model-based approach using appraisals
Reliability of Appraisals

- 1995: 0.90
- 1999: 0.94
- 2003: 0.95

- Appraisal reasonably useful for SPAR
Distribution: Ajt / Sjt ~ 1

Black bars: 0.95 – 1.00
1.00 – 1.05
Housing stock and transactions

- Owners occupied stock: 3,500,000
- Sold: 44% (1,500,000)
- Sold twice or more: 46% (720,000)
- Sold once: 54%
- Not sold: 56%
- 560,000 repeat sales
- 1,500,000 repeat sales (SPAR)
Sale Price Appraisal Patio (SPAR) principle

Ratio of Sum Sale Prices \( (S_{jt}) \) in current period and sum Appraisals \( (A_{j0}) \) in base period \n\[ \frac{\sum_{j}^{n} S_{j0}}{\sum_{j}^{n} A_{j0}} \]
\*divide by\*
ratio of Sum Sale Prices \( (S_{j0}) \) and sum Appraisals \( (A_{j0}) \) in base period
Sale Price Appraisal Ratio (SPAR)

\[
\text{SPAR index} = \frac{\sum_{j=1}^{n_t} S_{jt}}{\sum_{j=1}^{n_t} A_{j0}} / \frac{\sum_{j=1}^{n_t} S_{j0}}{\sum_{j=1}^{n} A_{j0}}
\]

Period \( t = t \)
SPAR <> Repeat Sales (development)
SPAR <> Repeat Sales: precision
Conclusion

• The Repeat Sales Index is an efficient model
• Drawback RSI: revision
• SPAR Method most precise index
• Appraisals (in the Netherlands) are reliable
• We use the SPAR Model
Finish

De bocht van de Herengracht (1671-72) Gerrit Berckheyde