



**Presented at the FIG Working Week 2016,  
May 2-6, 2016 in Christchurch, New Zealand**

# Analysis on Different Market Data for Real Estate Valuation

## Investigations on German Real Estate Market

FIG Working Week 2016

Recovery from Disaster

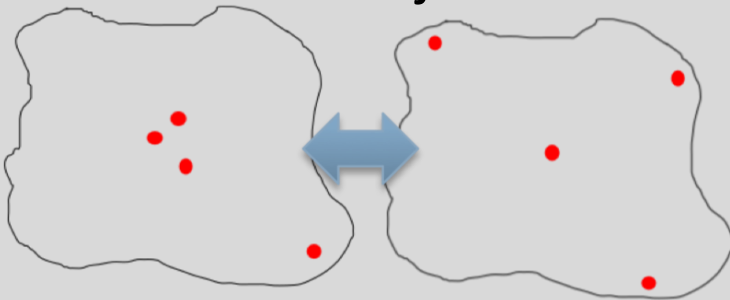
Christchurch - May 4<sup>th</sup>, 2016

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## Regions With Few Transactions

- Only 20-30 purchases/a
- ImmoWertV: Comparison approach with purchase prices
- Problem: Few purchases available for appraisers
  - ➔ Use data from “comparable” regions (objective?)
  - ➔ Use subjective knowledge (gut feelings)



## Motivation

- Need of reliable market description in regions with few purchases
- Improve valuation results
- Specifying accuracy
  - Today missing in most market reports

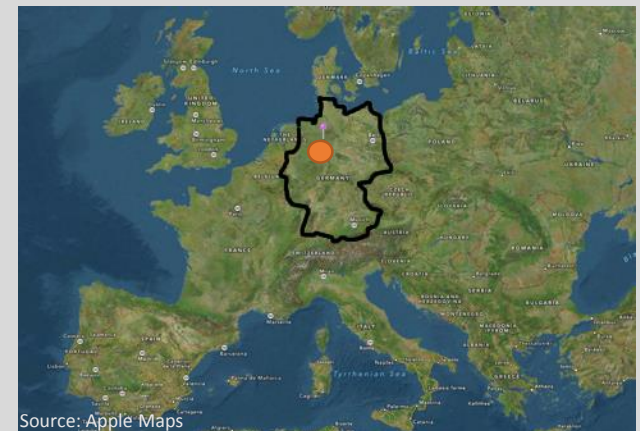
➔ Use of other data sources

## Market Data for Valuation Practice



## Subject of Investigation

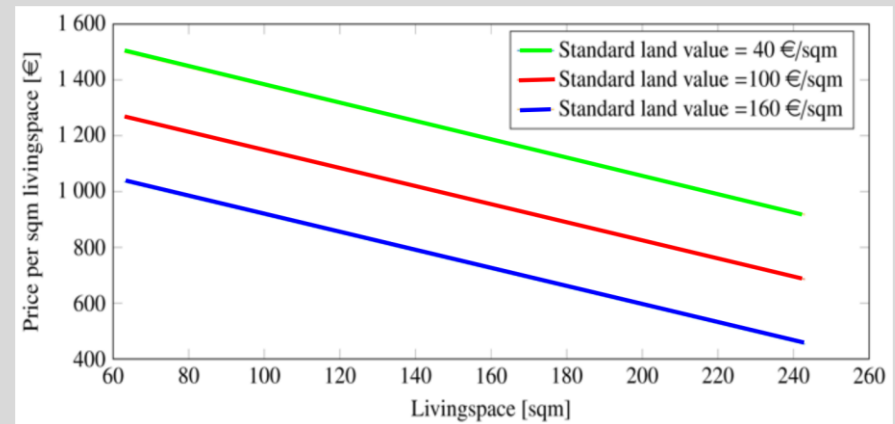
- Spatial submarket: City of Nienburg (Weser)
  - 50 000 inhabitants
  - North of Germany
  - Typical buildings: individual houses
  - Balanced supply-demand situation
- Functional submarket
  - One and two-family houses



Source: Apple Maps

## Purchase Prices

- Official purchase price database
- Reference dataset
- $\approx 300$  appropriate purchase prices within 4 years
- Method: multiple linear regression
  - 5 influencing factors
    - Age
    - Living space
    - Lot size
    - Equipping standard
    - Standard land value



## Experts' Knowledge

- Survey in Nienburg (Weser)
- 10 experts from the committee of valuation experts
- Valuate real estates
  - Provided information: pictures, quality description, market reports/data
- Self assesment of accuracy
  - $\approx$  200 pseudo prices
  - Pseudo price model

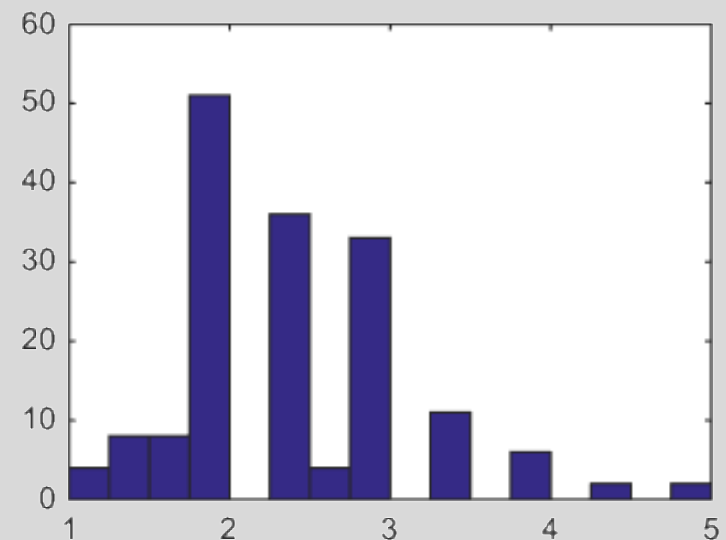
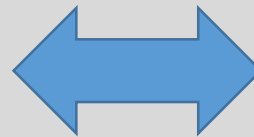
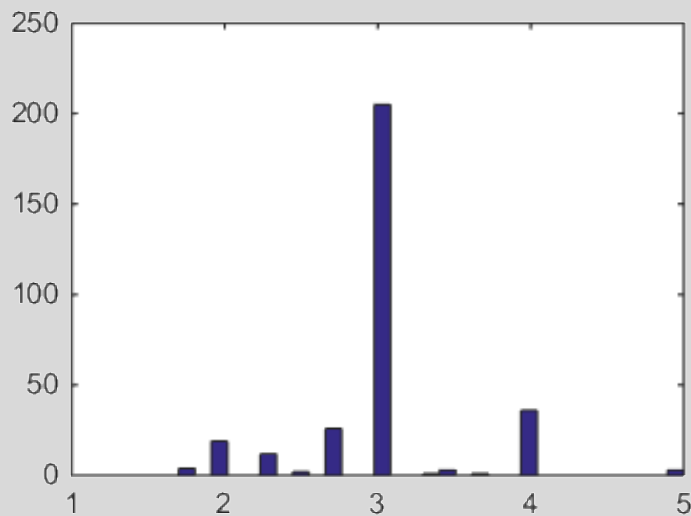
## Purchase Prices vs. Experts' Knowledge

- No significant differences between purchase prices and experts' knowledge for
  - Age
  - Living space
  - Lot size
  - Standard land value
- Significant difference in equipping standard

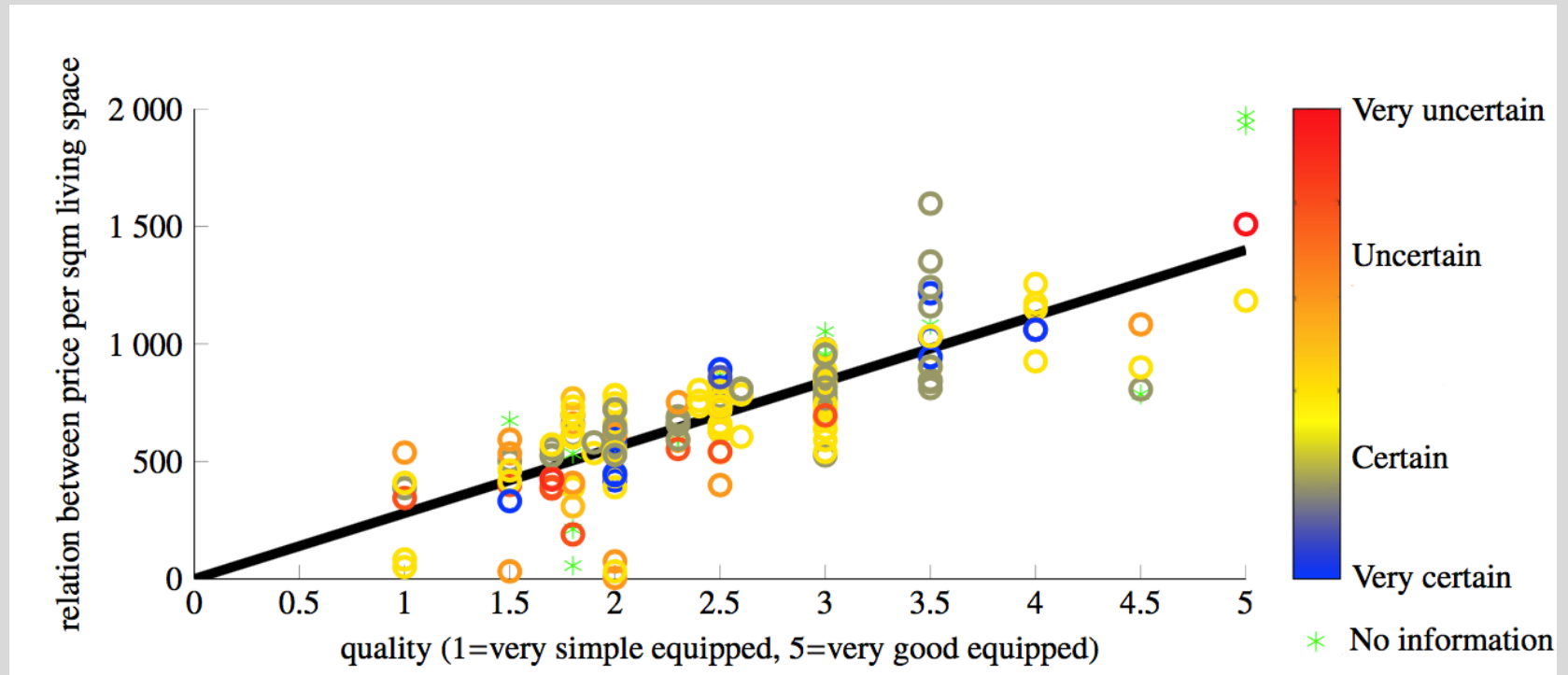


## Histogram of Equipping Standard

- 5 categories
  - 1=very simple equipped, 5=very good equipped



# Self-Assessment of Accuracies

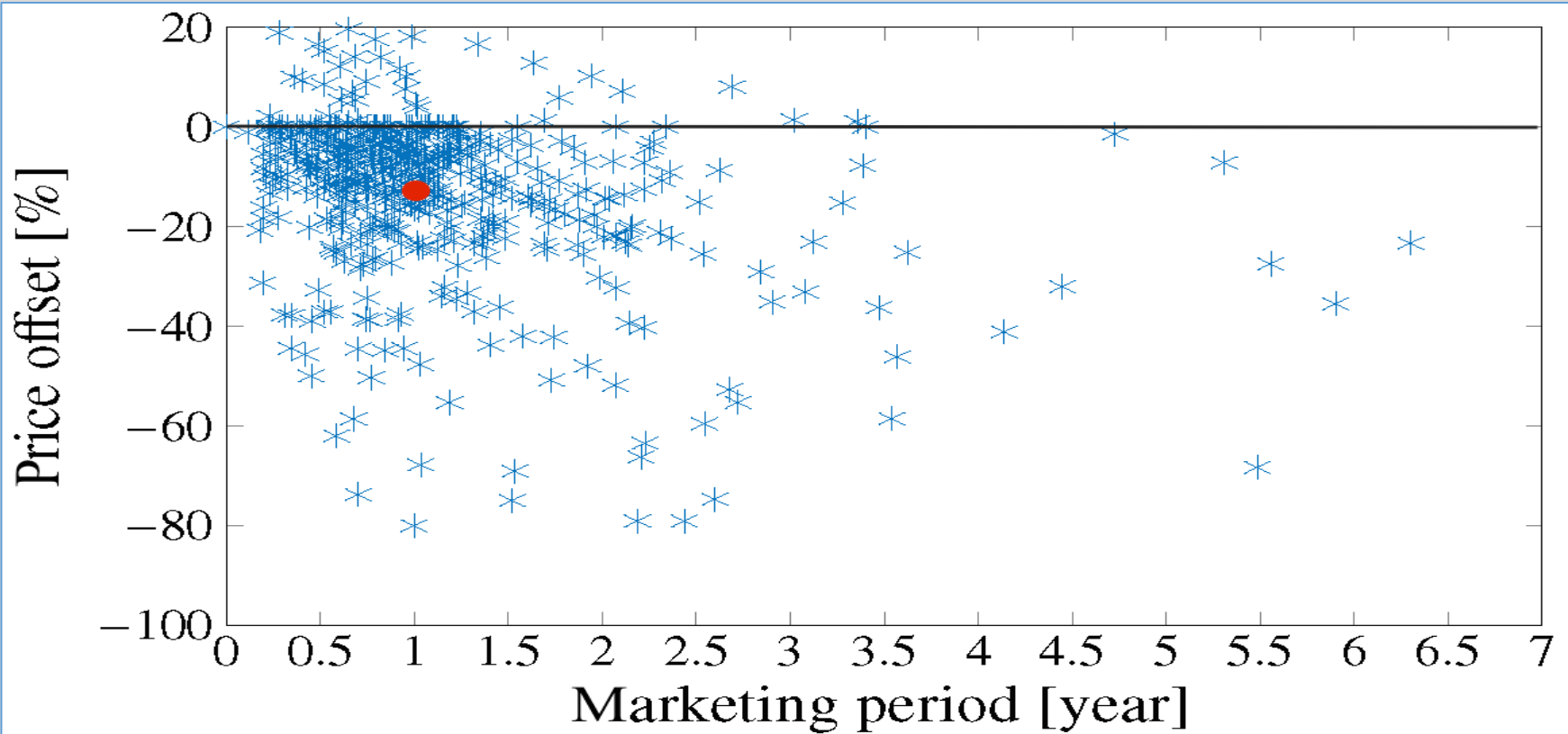


## Offer Prices



- Former marketing platform: newspaper → today: online platforms
  - Exposé: Described quality
  - Provider: Private person and real estate agents
- Offset to purchase prices

## Price Offset (Offer vs. Purchase)



## Conclusion & Outlook

- Relationship among data can be modelled
  - Need more investigation
- Approach to combine data (FIG Paper 8187)
- Outliers in data → robust approach
- Combining different data → Bayesian approach

## Thanks for your attention!

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