

# TRACKING OWNERS' SENTIMENTS: SUBJECTIVE HOME VALUES, EXPECTATIONS AND HOUSE PRICE DYNAMICS IN EUROPE

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“If molecules could talk, would physicists refuse to listen?” (Alan Blinder)

Subjective data is often seen as flawed when compared to objective counterparts. This comes from the suspicion that what individuals say does not reveal their preferences while choices do, as stated by the **revealed preferences theory**.

However, subjective data are more and more used in various fields of economics – e.g., self-assessed health, life or job satisfaction, and well-being – as they turn out to carry important information explaining behaviour and decision making.

Subjective data are **neither idiosyncratic noise nor imperfect substitutes for objective data**. They rather **complement** them.

We study subjective, owner-estimated home values (OEVs). In contrast to previous studies (see, for instance, Agarwal, 2007), we do not classify deviations from market data as **assessment er-**

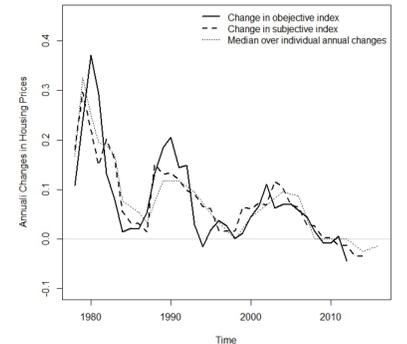
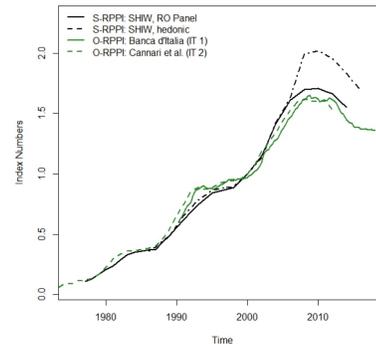
**rors** but rather investigate what additional information subjective data tell us about the housing market.

In turns out, that in the aggregate **subjective and objective house price indices coincide almost perfectly**. Hence, subjective house prices pass a test of **convergent validity**.

We hence proceed by estimating a **subjective hedonic model** that links **owners' expectations on future house price growth to OEVs**. Since OEVs elicit willingness-to-accept prices, our analyses focus on the **supply side of the housing market**.

We find a positive (negative) impact of optimism (pessimism) on prices. The magnitudes of the effect differ, which we argue may be driven by **loss aversion**.

## Subjective vs. Objective Indices



Left: Subjective (SHIW) and objective (Banca d'Italia; Cannari and Faiella (2008)) RPPIs for Italy.

Right: Annualized change in O-RPPIs and S-RPPIs as well as median individual changes from matched panel observations.

## Data and Methodology

### Data

We use owner-estimated house values (OEVs) from country-representative wealth surveys: the **European HFCS** and the **Italian SHIW**. While there are only two waves available for the HFCS, the biennial SHIW dates back to 1977.

### Subjective Indices

We adjust the repeat-sales methodology: we either pair the **acquisition price with the current OEV (HFCS)**, or **repeatedly estimated prices from a panel survey (SHIW)**. Additionally, we make use of dwelling characteristics to compute a **hedonic time-dummy index**.

### A Subjective Hedonic Model

Piazzesi and Schneider (2009) show that the share of optimists among buyers increased during the built-up of the 2007 US housing bubble. For an increase in market prices, such beliefs need to be shared among sellers and buyers. If beliefs coincide, joint high expecta-

tations justify price growth as also explicitly derived in the **user cost formula for housing** (Poterba, 1984; Himmelberg et al., 2005).

Due to the experimentally well-documented gap between the willingness-to-pay (WTP) and willingness-to-accept (WTA) price, WTAs may diverge from a market price potentially driven by an endowment effect (Thaler, 1980). We argue that **OEVs measure WTAs**, which we link to owners' expectations on future price growth to study the **impact of expectations on WTAs**. Hence, we perform a pure **supply side analysis of the housing market**.

The subjective hedonic model explicitly takes owners' beliefs into account by including a measure of expectations on future house prices next to physical  $X$  and locational  $L$  characteristics:

$$\log(P_{WTA}) = \alpha \cdot \text{optimist} + X\beta + L\lambda + \varepsilon.$$

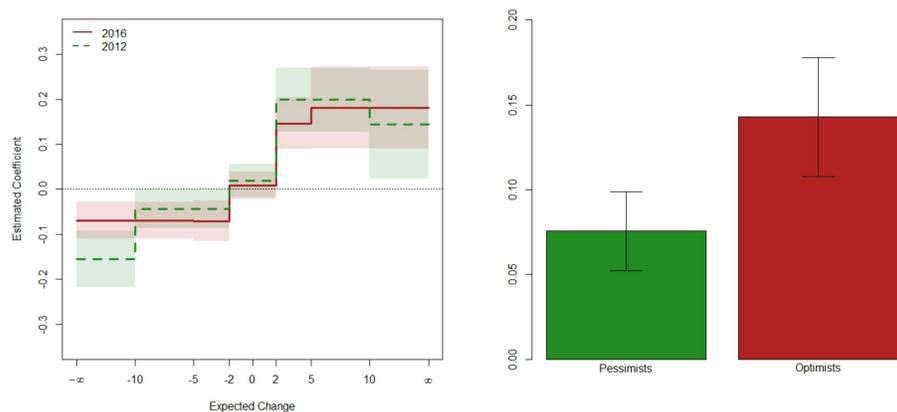
We find a strong link between expectations and WTAs. We vary the measurement of optimism (and pessimism) and find consistent results across more than 20 specifications.

## A Subjective Hedonic Regression

	2016	2014	2012	2010 <sup>†</sup>
<b>Optimist</b>	0.073***	0.103***	0.143***	0.052*
Intercept	8.824***	8.855***	8.643***	8.023***
$\log(\text{surface})$	0.733***	0.755***	0.764***	0.801***
Number of bathrooms $\geq 2$	0.189***	0.188***	0.186***	0.226***
age	-0.001***	-0.001***	0.000	0.000
age <sup>2</sup>	0.000***	0.000***	0.000*	0.000*
<i>Rating of the property:</i>				
Luxury (baseline)				
Highly desirable	-0.304***	-0.351***	-0.269***	
Mid-Range	-0.580***	-0.572***	-0.460***	
Modest	-0.717***	-0.776***	-0.655***	
Low-Income	-0.862***	-0.885***	-0.793***	
Very Low-Income	-0.969***	-0.983***	-0.863***	
<i>Location of the dwelling:</i>				
Isolated area, countryside (baseline)				
Town outskirts	0.061*	-0.012	-0.017	0.079 <sup>o</sup>
Between outskirts and town centre	0.070*	-0.004	-0.019	0.117*
Town centre	0.121***	0.042	0.038	0.204***
Hamlet	0.057 <sup>o</sup>	-0.021	-0.076*	0.065
<i>Size of the municipality (no. of inhabitants):</i>				
up to 20,000 (baseline)				
from 20,000 to 40,000	0.217***	0.189***	0.222***	0.107***
from 40,000 to 500,000	0.232***	0.235***	0.280***	0.207***
more than 500,000	0.431***	0.489***	0.614***	0.511***
<i>Administrative region dummies are included.</i>				
Adj. R <sup>2</sup> (in %)	58.06	60.82	58.78	54.12
n	5,337	5,805	5,799	1,866

<sup>†</sup> Low number of valid observations (“Don't know” option was not explicitly given in later waves).

## Optimists vs. Pessimists: Loss Aversion?



Left: The full distribution of beliefs:  $\log(P_{WTA}) = \alpha \cdot \mathbb{P}(\Delta \in I) + X\beta + L\lambda + \varepsilon$ . Shaded areas: 95% confidence intervals. Right: We sum over all negative and positive scenarios, respectively, i.e., we compare the estimated coefficient for  $\mathbb{P}(\Delta \leq -2\%)$  versus  $\mathbb{P}(\Delta \geq 2\%)$ . Results are pooled over 2012 and 2016. Bars: 95% confidence intervals.

## Summary and Conclusions

- \* We construct **subjective hedonic and repeat-observations RPPIs**.
- \* In aggregate, **subjective data track objective data very well** – even when using the very limited information from the HFCS. We even compute a euro area RPI from subjective data, which tracks its objective counterpart well.
- \* We argue that subjective house prices pass a test of **convergent validity**.
- \* Subjective data carry **additional information** on owners' beliefs.
- \* For **Italy**, we relate the owner-estimated value of her home to her **expectations on future house price growth**.
- \* Owner-estimated values elicit the **willingness-to-accept price (WTA)** and measure price pressure on the supply side.
- \* **Optimistic expectations** coincide with **higher WTAs**, and **negative expectations** with **lower WTAs**.
- \* Results are robust across more than 20 ways to elicit expectations.
- \* We find a stronger effect when the question on expectations directly relates to the respondent's home rather than house prices in general.
- \* The magnitude of the effect is larger for optimists than for pessimists, which could be explained by **loss aversion**.

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We use the SHIW (Banca d'Italia; historical database, v.10.0) and the HFCS (European Central Bank).