# Discussion of "Subjective expectations and house prices" by Jeppe Bro and Jonas N. Eriksen

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# Brief Summary

- Empirically, quantify (and more importantly, re-examine) the relative contribution of variations of future cash flows and the discount rates to the riskiness of U.S. housing prices

- key innovation
  - directly evaluating the variation in the subjective expectations (Coibion and Gorodnichenko, 2012, 2015; Bordalo et al., 2019, 2020)

- main findings:
  - the *future cash flow channel* is dominant
  - relative to the existing literature assuming Full Information Rational Expectation (FIRE), a typical VAR system predicts the oppsite (Campbell et al., 2009 JoF)

# Key Identification Strategy

- data regarding the subjective expectations on income and returns on housing investment: sourced from Michigan Surveys of Consumers (SoC)
- empirical specifications for estimations

1. one-year horizon of forecasts: $1 = CF + DR + LT$
   - $LT = \rho \frac{Cov(\mathbb{E}_t^* py_{t+1}, py_t)}{var(py_t)}$ with $\rho \approx 1$
   - technically, persistence of price-income ratio (later on this)
   - separate estimations of different components

# Key Identification Strategy (Cont.)

2. Longer-run (Full Horizon)
   - to ensure stationarity, with mean-reverting of series (De La O, R. and S. Myers, 2021 JoF) assuming income/return decaying through AR(1)
   - $1 = \frac{CF}{1-\rho\phi_y} + \frac{DR}{1-\rho\phi_h}$
   - estimate for $\phi_y$ and $\phi_h$ first and then back out $DR$ using estimated component of $CF$
   - primarily due to lack of return expectation data for longer horizon

- A well-executed paper with very solid and rich results!

# 1: More on the Mechanisms

1. in theory: VAR $\neq$ FIRE, i.e. results of VAR can differ even if FIRE is assumed

- depending on the setup of the dynamic system, e.g. suppose we consider the financial frictions in form of consumers borrowing constraints in a VAR system
- considering occasional binding constraint, the FIRE system would give a larger correlation of housing prices and the aggregate output/income (stronger cash flow channel)
- does it mean FIRE fail or not to uncover the decomposition of channels?

# 1: More on the Mechanisms

2. this paper: expectations on housing returns are surveyed among "home owners only"

- SoC Question "By about what percent do you expect prices of homes **like yours in your community** to go (up/down)?"
- expected returns at the intensive margin: home owners evaluating future gain/loss vs. expecation of returns at the extensive margin: house renters seeking to buy new homes

- heterogeneity of responding housing investors complicate the measure of expected returns in the data

- e.g. renters evaluate rents vs. own income stream vs. house prices to make a purchase decision

- heterogeneity of responding housing investors with respect to financial constraint tightness may affect the results of cash flow vs. discount rate channels

- Question, representativeness of the responding consumers

# 2: Persistent and Housing Bubbly Periods

- a technical assumption: decomposition of the cash flow and discount rate channels requires the "transversality" condition to hold
  - perhaps true for other asset class but may be critical for the housing market
  - bubbly housing prices may potentially creating persistent $LT = \rho \frac{Cov(\mathbb{E}_t^* py_{t+1}, py_t)}{var(py_t)}$
  - Table 3, for one-year housing price variations, LT takes a major portion up to 100%
  - suppose transversality condition doesn't hold or not always hold, this blurs the boundary between "subjective" criterion and the "objective" VAR benchmark
- try allowing for a persistently bubbled component in the estimation and double housing prices?
- try removing some slow-moving trend in $py_t$, then confirm the robustness of results on the decomposition

# 3: Quantitative Relevance

- Key contribution of this paper is to argue that the VAR setup gives the wrong decomposition
- so far, belief distortion and forecast error cyclicality help explain the *qualitative* or potentially the gaps between results of this paper and others in the literature, *but this may not be enough*
- how well and how much the overestimation of the discount factor channel using the VAR structure can be explained by the adjusted belief distortion that better aligns the beliefs?
- any controlled regression setting to show that non-rational beliefs help explain the variance decomposition?
  - so far, belief distortions are to predict the subjective expectations

# 4: Alternative Story: Measurement issue

- aggregate income or cash flows are more clearly defined, perceived and forecastable using private information, and is thus well measured
- expected returns are driven by *horizon duration of investment*, *market liquidity*, *counterparty risk*, *correlations among asset classes*, *past experience of investment*
  - alternative is that cash flow matters more because they are better *measured*?

# 4: Alternative Story: Measurement issue

- Suggestions

1. to exploit other data sources, e.g. Survey of Professional Forecasters data?
   - professionals know better of the primitives than consumers
2. to focus the decomposition exercises over short windows (1) when risk-free rates or (2) the risk premium for discounting changes but not the stream of cash flows
   - FOMC announcement windows
   - periods when credit risk premium changes a lot (Gilchrist and Zakrajšek, 2012 AER)

# Additional Details

- estimation issues: robustness issue.
  - how about estimating the DR channel first and then back out the CF channel
  - robustness if jointly estimating the three components $CF$, $DR$, $LT$
- explain why $CF$ and $DR$ variability tends to cancel each other

# Additional Details

- estimation issues: robustness issue.
  - how about estimating the DR channel first and then back out the CF channel
  - robustness if jointly estimating the three components $CF$, $DR$, $LT$
- explain why $CF$ and $DR$ variability tends to cancel each other
- a really fascinating and interesting paper with rich findings

**Best of lucks!**