

# Improving Measures of Housing Services in BEA's Accounts

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# Improving Measures of Housing Services in BEA's Accounts

- Guiding language: “housing services produced are deemed to be equal to the rentals that would be paid on the market for accommodation of the same size, quality and type.”
- User cost v. rental equivalence approach. User cost approach is inherently volatile.
- Rental equivalence approach for AARV requires a measure of “owners premium.”

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## Current methodology to estimate the AARV

- Using a rental equivalence approach with ACS data (a large nationally and regionally representative sample) requires an adjustment to rental estimates, given omitted variables and the value of ownership itself, which would, if measures were available lead to higher estimated imputed rents.
- Currently, to compute this premium, outdated RFS data are used, extrapolated using two different extrapolators from 2002-7 and 2007-current.
- Hence the need for a more scientific basis to estimate and adjust for the owners premium.

## The Adjustment $B_i = \frac{Price_i}{Median(Price_i)}$

- Betas can be used to adjust the equivalent rent equivalence to provide an estimate of owner's premium.
- Shown to be valid by comparing to the user cost method increasing as the ratio of user costs to rental equivalence increases. ( $R^2 > 0.7$ )

$$\frac{user\ cost_i}{rent\ equivalence_i} = \delta_0 + \delta_1 \cdot B_i + error_i, \text{ with } B_i = \frac{Price_i}{Median(Price_i)}$$

Price/median price=beta	Owner's Premium	Owner's Premium Adjustment (OPA)
$B \leq 0.5$	$RE * 1.05$	5%
$0.5 < B < 1.0$	$RE * (1.05 + 0.20(b-0.5))$	5%-15%
$1.0 < B$	$RE * (1.15 + 0.30(b-0.5))$	15%+

Note: Aten (2018), Heston and Nakamura (2009); RE = rent equivalence.

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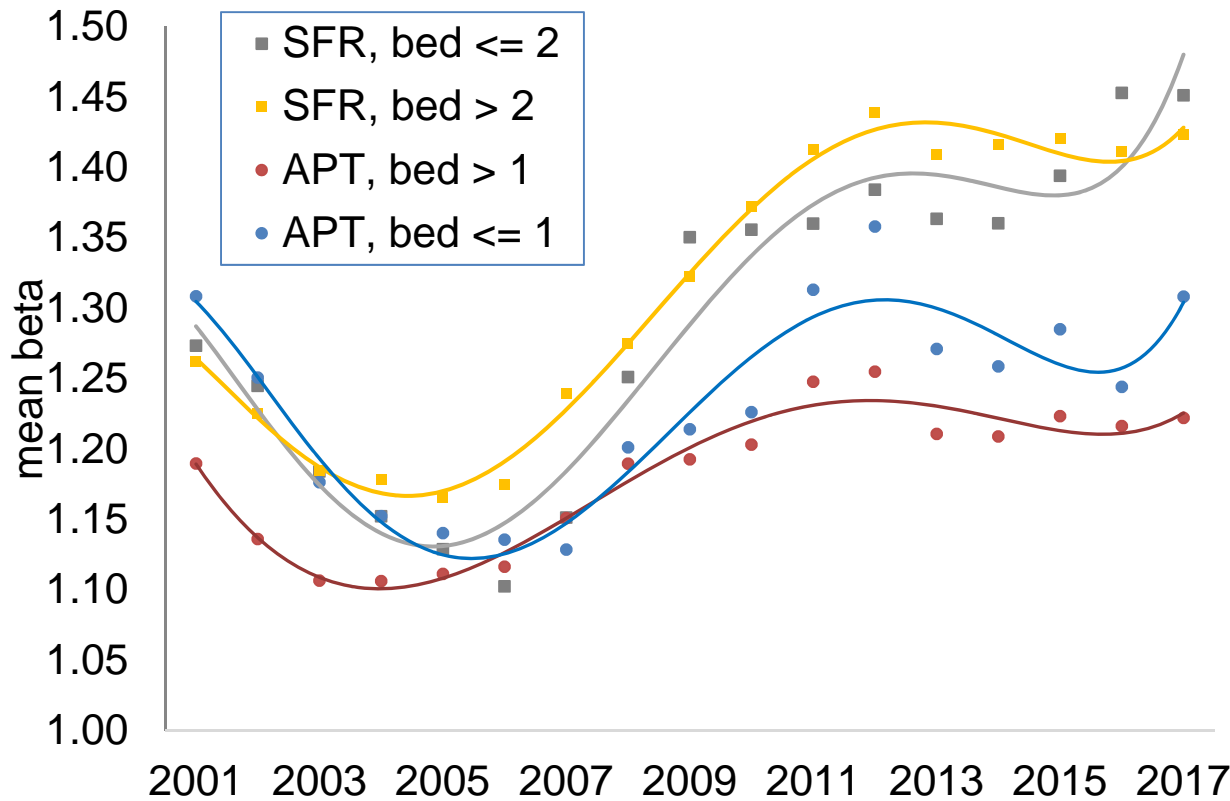
# Estimating the Owner's Premium

- Is beta stable?

Time Varying Owner's Premium	
Source	consistent with constant beta?
Omitted Variables	Yes
Rights of Ownership	Yes
Hedge (expected appreciation)	No
Constraints	No

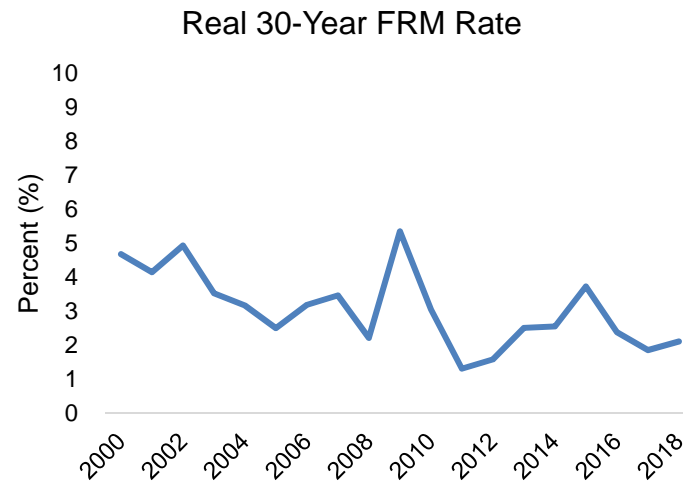
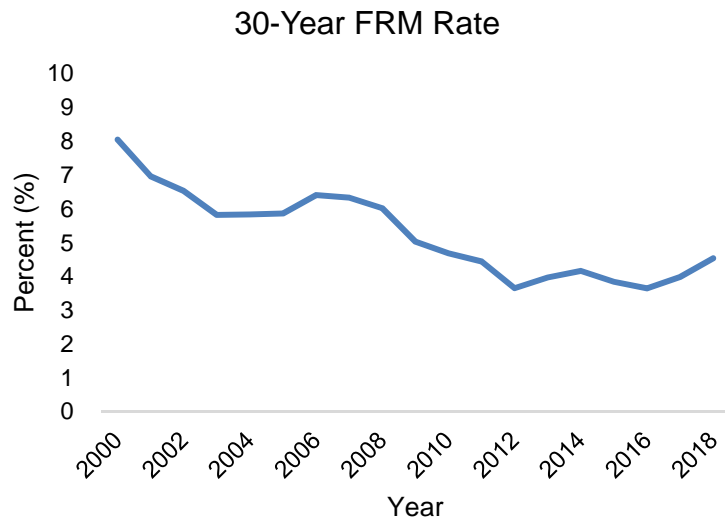
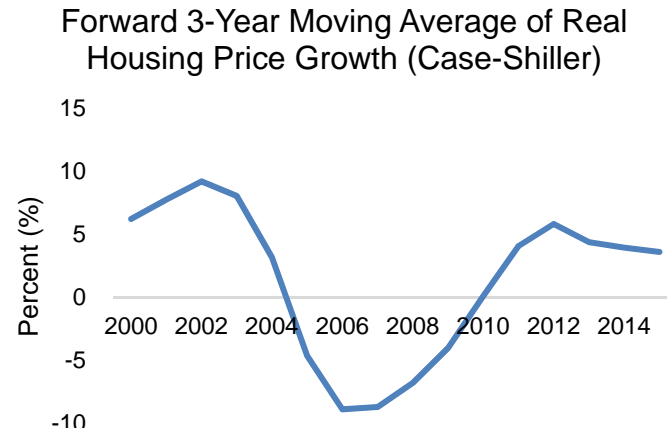
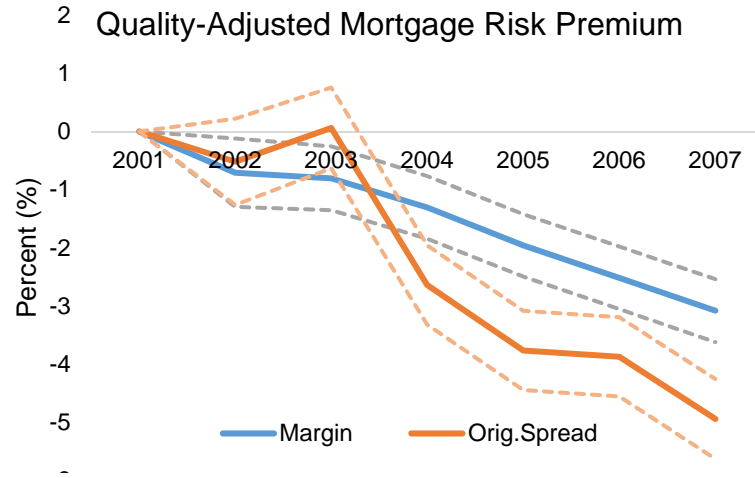
# Beta (mean/median) by Housing Type (Zillow)

Zillow Betas (California)



2008-2017	CA betas	
	ACS	Zillow
APT 1	1.31	1.27
APT 2+	1.33	1.22
SF 2	1.26	1.37
SF 3+	1.34	1.39
All	1.26	1.27

# User Cost Components



Source of Fig 1: Levitin, Lin and Wachter (JREFE, 2019) Mortgage Risk Premium During the Housing Bubble

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## Literature

- Gyourko and Glaeser (2007) [*“Arbitrage in Housing Market”*] finds imperfections in arbitrage due to transaction cost in the short run.
- Acolin, Bricker, Calem and Wachter (2016) [*“Borrowing constraints and homeownership”*] shows regime shifts in mortgage lending constraints.
- Heston and Nakamura (2009) [*“Questions about the equivalence of market rents and user costs for owner occupied housing”*] finds that contract rents understate understated the flow of rental services and suggest a premium to the RE estimates of the rents of homeowners for larger more expensive dwellings.



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## Conclusion

- The methodology is sound and based on the literature and an improvement in the measurement of housing services in the national income accounts.
- Thank you for the opportunity to comment.

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# Thank You

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