Improving Measures of National and Regional Housing Services in the U.S. Accounts

Prepared for the BEA Advisory Committee

November 2019

1. Introduction

In May 2018, BEA consulted with the Advisory Committee on alternative data sources and methods to improve measures of owner-occupied housing services in both the National and Regional accounts. Since then, BEA has been working toward a goal of proposing improvements to BEA's national and regional measures of housing services—owner-occupied and tenant-occupied. A decision to proceed with a proposal to utilize the American Community Survey (ACS) has been driven by four factors. The first factor is the source: ACS is an official statistical source that replaced housing questions on the long-form decennial census, and it has been vetted with BEA internal and external stakeholders as a viable alternative to measure owner-occupied housing services (Aten 2018, 2017, 2012). The second factor is scope: ACS is inclusive of all categories of housing (e.g., tenant, owner, vacant, occupied, farm, non-farm, mobile, stationary, etc.), so it can potentially be used for all housing series and not just owner-occupied housing. The third factor is coverage: ACS is a large nationally and regionally representative sample with regional information, so it can potentially facilitate a fully integrated approach to measuring housing services across BEA's regional and national directorates. The fourth factor is practicality: ACS supports a stratified rental equivalence methodology for owner-occupied housing, which is the preferred methodology in international guidelines for countries with robust rental markets like the U.S. In addition, rental equivalence is favored by statistical agencies for practical purposes, is used by BLS to construct the CPI for owner's equivalent rent, and is transparent and replicable.

While we have been focused on ACS and stratified rental equivalence for the core methodology, there are also plans for other data sources, such as Zillow, and other methodologies, such as user cost, to play a role for robustness checks, supplements, and further improvements in BEA's housing measures.

The purpose of this background paper is to briefly summarize BEA's current methodology for housing services and the methodology BEA is proposing to improve measures of housing services in the U.S. accounts.

2. BEA's Current Methodology for Housing Services

BEA currently estimates housing services for two main tenure categories: owners and tenants. Each of these can be further divided into the following sub-categories: occupied, vacant, farm, non-farm, permanent-site, and mobile. Table 1 summarizes the tenure categories. Some sub-categories are separately published, and some are rolled up into higher level categories. In addition, there are some sub-categories that exist but are omitted here for simplicity.

Table 1: BEA Tenure Categories

Category	*Published in NIPAs*
Owner-occupied	Yes
Non-farm	Yes
Permanent	Yes
Mobile	Yes
Farm	Yes
Tenant-occupied	Yes
Non-farm	Yes
Permanent	Yes
Mobile	Yes
Farm	Yes
Vacancies	
Tenant-occupied at 50%	No
Owner-occupied at 100%	No

For benchmark and annual estimates, the current methodology for each tenure category relies on two main components: 1) number of units and 2) average annual rental value (AARV) per unit. These two components are multiplied to come up with an aggregate current-dollar rental value for tenant units or an aggregate current-dollar imputed rental value for owner units. Current-dollar values for tenant-occupied units and owner-occupied units are deflated using the BLS CPI for rent and the BLS CPI for owners' equivalent rent, respectively.

BEA uses several uncoordinated data sources to estimate the current-dollar non-farm tenure categories, including the decennial census, the Housing Vacancy Survey, the American Housing Survey, the Residential Finance Survey, CPIs for rent and owners-equivalent rent, and real dollar stocks for owner-occupied structures. Farm estimates generally come from ERS at USDA using an estimation methodology consistent with BEA's current methodology. In addition, responsibilities for estimating housing at BEA are spread across multiple program areas in the National and Regional directorates.

We focus in the remainder of this section on the current methodology for owner-occupied non-farm permanent-site housing because it is the largest component of overall U.S. housing services – about 71 percent in 2018 – and it has been the focus of attention at BEA because the AARV is currently an extrapolation of a 2001 benchmark value. For a comprehensive summary of BEA's current methodology for all housing, see Mayerhauser and McBride (2007).

2.1. Current Methodology for National Level Owner-Occupied Non-Farm Permanent-Site Housing

Owner-occupied non-farm permanent-site (OONFP) housing services are currently measured with an AARV that is an extrapolation of a 2001 benchmark value that was estimated with data from the Residential Finance Survey (RFS) and the American Housing Survey (AHS). Number of OONFP units is extrapolated using the Housing Vacancy Survey. The most recent benchmark for the AARV is 2001 because funding for the RFS program was subsequently discontinued—a more recent data source under BEA's current methodology has not come available.

Benchmark AARV Estimate: Rent-to-Value Approach

To derive the 2001 benchmark AARV, BEA used a rent-to-value approach, which assumes that owner-occupied units with similar values as tenant-occupied units have similar rent-to-value ratios. Weighted-average rent-to-value ratios by value class for tenant-occupied units from the RFS were applied to the mid-point market value of owner-occupied units within the corresponding value classes reported in the AHS. The imputed total rental value was then divided by the number of owner-occupied units reported in the AHS to derive an AARV. The AARV was then multiplied by the number of owner-occupied housing units reported in the decennial census to calculate aggregate current-dollar OONFP housing services. The 2001 benchmark AARV for OONFP housing services ultimately reflected in published estimates is $11,829.

Annual AARV Estimates: Actual Extrapolation

The $11,829 AARV has been extrapolated since 2001 using two extrapolators over time. For 2002-2007, the extrapolator was the percent change in average housing expenditures in the BLS Consumer Expenditure Survey (CEX). For 2008-present, the extrapolator has been the product of the percent change in the BLS CPI for owner's equivalent rent and the percent change in the "real dollar stocks of owner-occupied structures, of additions and alterations, and of major replacements" (Mayerhauser and McBride 2007) using values from BEA's fixed assets accounts divided by the number of owner-occupied units (CPI&CapStk). The capital stock adjustment in this current extrapolator is "a quality adjustment that attempts to account for changes in the real value of housing per unit" (Mayerhauser and McBride 2007). Without a quality adjustment in the extrapolation, current-dollar values of OONFP housing services would not be accurate because the CPI for owner's equivalent rent is a constant-quality (i.e., quality adjusted) price index. With a quality adjustment in the extrapolation, the CPI for owner's equivalent rent is the appropriate deflator for current-dollar OONFP housing services.

The actual AARV series used by BEA for 2001-2017 is presented in figure 1. The vertical line denotes the last year the CEX was used as an extrapolator.

Annual AARV Estimates: Alternative Extrapolations

The effects of the change in extrapolator from the CEX to the CPI&CapStk is shown in figure 2. If the CEX had been used over the entire period 2001-2017, the AARV series is demonstrated in orange with a noticeable decline after 2008 and an extrapolated value of $18,256 in 2017. If the

CPI&CapStk had been used over the entire period 2001-2017, the AARV series is demonstrated in grey with a subtler decline after 2009 and an extrapolated value of $20,955 in 2017. The NIPA actual AARV series is shown for reference.

Another alternative extrapolation is shown with the ACS in figure 3. If the ACS had been used to extrapolate the RFS-AHS benchmark value of $11,829 over the entire period 2001-2017, the AARV series is demonstrated in orange with no declines and an extrapolated value of $19,741 in 2017. The NIPA actual AARV series is again shown for reference. In addition, the ACS actual AARV is shown with values of $10,316 in 2001 and $17,216 in 2017. The level difference in 2001 between the ACS and the RFS-AHS benchmark is clearly driving the level difference of the series. These differences are also reflected in different current-dollar values between the ACS and the NIPAs, and BEA is studying the sources and solutions for these differences.

Number of Units

In the NIPAs, number of units are benchmarked to the decennial census and extrapolated using the Housing Vacancy Survey (HVS). There are known differences between the number of units across each of the U.S. housing surveys and the decennial census, which are documented in McCue et al. (2015). Owner-occupied units in the HVS, ACS, and Annual Social and Economic Supplement of the CPS are not benchmarked to the decennial census and they each use different weighting techniques and sample sizes. McCue et al. (2015) point out that the ACS lacks a lengthy history and has undergone several significant improvements over time, which makes an assessment of its reliability for annual counts and growth over time difficult. They conclude that the ACS holds promise as an important data source.

Figure 4 demonstrates differences between number of OONFP housing units in the NIPAs and the ACS. In addition to the differences in the AARV for OONFP housing services, these differences in the number of units are reflected in different current-dollar values between the ACS and NIPAs.

2.2. Current Methodology for State Level Owner-Occupied Non-Farm Permanent-Site Housing

Housing services are currently reflected in three state-level measures: personal consumption expenditures (PCE), rental income of persons, and GDP. National controls for each measure are taken from the NIPAs and then allocated to the states using the best available allocation factors. For PCE by state, owner-occupied housing expenditures are estimated by calculating a ratio of owner-occupied expenditures to tenant-occupied expenditures from the Regional Price Parities program, multiplying the ratio by an estimate of tenant-occupied housing expenditures derived using ACS data, and then scaling the resulting product to the NIPA PCE totals for owner-occupied housing. Tenant-occupied and owner-occupied housing expenditures along with utilities are published together as one estimate for each state. For rental income of persons by state, owner-occupied housing income (imputed rent) is allocated with data on housing values from the ACS. Owner-occupied imputed rental income is published separately from other rental income of persons for each state. For GDP by state, housing gross operating surplus is estimated by scaling imputed rental income of persons by state to the NIPA total of owner-occupied housing mortgage interest, consumption of fixed capital, and imputed rental income of persons. Tenant-occupied

and owner-occupied gross operating surplus are published together as one estimate in the real estate industry for each state.

Thus, the state-level measures of housing services reflect the methodology for national level measures of housing services.

3. Proposed Methodology

BEA has estimated housing services using the ACS for each of the BEA categories presented in table 1 because data are available in the ACS for each category. Tenant rents are sums of actual observations of tenant-occupied units. Owner imputed rents in the proposed methodology include two components: 1) rental equivalence and 2) an owner premium.

Rental equivalence is the core of the proposed methodology and is calculated from stratified averages of reported tenant rents applied to owner-occupied units following Aten (2017). Stratified rental equivalence for owner units is imputed by regressing tenant rents on characteristics of tenant units reported in the ACS. Characteristics include structure type, number of rooms, number of bedrooms, age of structure, and state. ACS data on the same characteristics of owner units are then applied to the parameter estimates from the tenant regressions to calculate the imputed owner rental value. These imputations are done at the unit level.

The owner premium proposed here is only one alternative to adjust for known quality differences between owner units and tenant units (e.g., Glaeser and Gyourko 2009, 2018)—akin to the rent-to-value approach currently used by BEA for OONFP housing services. The owner premium reflects amenities and other characteristics that are known to exist but are unobserved in data for owner-occupied units, and it also adjusts for high-valued homes that are not well-represented in rental markets.

The owner premium is different from BEA's current use of a capital stock adjustment in the extrapolator for the AARV (i.e., CPI&CapStk) because the owner premium reflects quality differences between two tenure categories – i.e., owner and tenant – in a given year, whereas the capital stock adjustment reflects quality differences between years for housing stock within a single tenure category—i.e., OONFP. In contrast to BEA's current methodology, the proposed methodology should not require an explicit intertemporal quality adjustment because quality changes over time should be reflected in the reported tenant rents that are used to impute owner rents.

The owner premium is introduced in Aten (2018) and explained further in Aten and Heston (2019). Like the rental equivalence component of the methodology, we can calculate the owner premium at the unit level by stratum – state, type of structure, and number of bedrooms – using data from the ACS. The owner premium depends on a ratio that Aten (2018) and Aten and Heston (2019) denote β, which is equal to the value of the owner-occupied unit divided by the median value of all owner-occupied units belonging to the same stratum as the owner-occupied unit. The assumption is that the premium is higher for a $200,000 single-family house with three bedrooms in a state where the stratified median value is $100,000 than in a state where the stratified median value is $300,000.

Aten and Heston (2019) propose two variations of the owner premium: 1) beta only and 2) a linear function of beta using empirical results from a study by Heston and Nakamura (2009a, 2009b) that implies an owner premium at the median of approximately 15 percent. Let β_{ijn} be the house value divided by the median house value in state *i* with structure type *j* and number of bedrooms *n*. Under the second variation, the calculated adjustment to the rental equivalence (RE) for each owner-occupied unit is presented in table 2.

Table 2: Second Variation of the Owner Premium

House Value ÷ Median Value	*Formula*	*Factor*
$\beta_{ijn} \leq 0.5$	$RE \times 1.05$	5%
$0.5 < \beta_{ijn} \leq 1.0$	$RE \times \left(1 + 0.05 + 0.2\left(\beta_{ijn} - 0.5\right)\right)$	5% - 15%
$1.0 < \beta_{ijn}$	$RE \times \left(1 + 0.15 + 0.3\left(\beta_{ijn} - 1.0\right)\right)$	15% +

Source: Aten (2018) and Aten and Heston (2019).

If the house value is exactly equal to the stratified median value of houses, the owner premium is 15 percent. If the house value is less than the stratified median value, the premium decreases linearly to a minimum of 5 percent. If the house value is greater than the stratified median value, the premium increases linearly. This variation of the owner premium tends to yield a smoother adjustment.

Appendix table 1 summarizes the weighted average betas by state and by stratum that result from the first variation. Appendix table 2 summarizes the weighted average owner premium factors by state and by stratum that result from the second variation.

For more information on the proposed methodology for OONFP housing services and alternatives, see Aten (2018) and Aten and Heston (2019).

4. Zillow Data and the Owner Premium

House values are currently top-coded in the ACS at $9.999 million, which can yield a more conservative owner premium calculation. In addition, owner-occupied house values in the ACS are reported by the owner based on the owner's *understanding* of the value rather than a *professional assessment* or *market transaction*. Under the proposed methodology, the stratified rental equivalence component does not depend on the owner-reported value. However, the owner premium component does depend on the owner-reported value, which may differ from actual market values. Census Bureau published a recent report that compares house values from property tax records to house values reported in the ACS and finds frequent disagreement between them within ranges of 1 and 5 percent (Census Bureau 2019). The Federal Reserve also published a recent study that compares ACS house values with Zillow market-based values and finds the median difference between owner valuations in ACS and market values in Zillow is small with

frequent large deviations and a slight positive bias in owner valuations (Malloy and Nielsen 2018). Comparisons across the distribution show that deviations are not uniform, which may affect the choice of a median for the owner premium. If the owner-reported value for a given housing unit reflects a deviation similar to the stratum to which it belongs, then the ratio of owner-reported value to stratified median value will mitigate the effects of deviations. BEA plans to engage in further research with Zillow transactions data and linked ACS-Zillow data to test this assumption. If results do not support the assumption, then Zillow data may offer a useful alternative for measuring the owner premium.

References

Aten, Bettina H. 2018. "Valuing Owner-Occupied Housing: An empirical exercise using the American Community Survey (ACS) housing files," paper prepared for the BEA Advisory Committee, https://www.bea.gov/system/files/papers/WP2018-3_1.pdf.

Aten, Bettina H. 2017. "Rental Equivalence Estimates of National and Regional Housing Expenditures," BEA Working Paper, https://www.bea.gov/system/files/papers/WP2017-5.pdf.

Aten, Bettina H., Eric B. Figueroa, and Troy Martin. 2012. "How Can the American Community Survey (ACS) be Used to Improve the Imputation of Owner-Occupied Rent Expenditures?" BEA Working Paper, https://www.bea.gov/system/files/papers/WP2012-2.pdf.

Aten, Bettina H. and Alan Heston. 2019. "The Owner-Premium Adjustment in Housing Imputations," paper prepared for the BEA Advisory Committee, November.

Glaeser, Edward L. and Joseph Gyourko. 2009. "Arbitrage in Housing Markets" in E.L. Glaeser and John M. Quigley, eds., *Housing Markets and the Economy: Risk, Regulation, and Policy*, Essays in Honor of Karl E. Case, Lincoln Institute of Land Policy, Cambridge, MA.

Glaeser, Edward L. and Joseph Gyourko. 2018. "The Economic Implications of Housing Supply" Journal of Economic Perspectives, 32(1), pp. 3-30, Winter.

Heston, Alan and Alice Nakamura. 2009a. "Reported Prices and Rents of Housing: Reflections of Costs, Amenities or Both" in *Price and Productivity Measurement*, Volume 1 Housing, Chapter 7, eds. Erwin Diewert, Bert Balk, Dennis Fixler, Kevin Fox, and Alice Nakamura, Tafford Press.

Heston, Alan and Alice Nakamura. 2009b. "Questions about the Treatment of Owner-Occupied Housing in Spatial and Temporal Price Indexes and in National Accounts" *Journal of Housing Economics*, 18(3), pp. 273-279.

Katz, Arnold J. 2017. "Imputing Rents to Owner-Occupied Housing by Directly Modelling their Distribution," BEA Working Paper, https://www.bea.gov/system/files/papers/WP2017-7.pdf.

Malloy, Raven and Eric Nielsen. 2018. "How Can We Measure the Value of a Home? Comparing Model-Based Estimates with Owner-Occupant Estimates" *Feds Notes*.

Mayerhauser, Nicole and Denise McBride. 2007. "Treatment of Housing in the National Income and Product Accounts" Prepared for the Society of Government Economists Annual Meeting of the Allied Social Science Association.

McCue, Daniel, George Masnick, and Chris Herbert. 2015. "Assessing Households and Household Growth Estimates with Census Bureau Surveys," Harvard Joint Center for Housing Studies Working Paper W15-5.

U.S. Census Bureau. 2019. "2018 American Community Survey Research and Evaluation Report" Memorandum Series #ACS18-RER-02.

Figure 1: NIPAs Actual Extrapolation for AARV

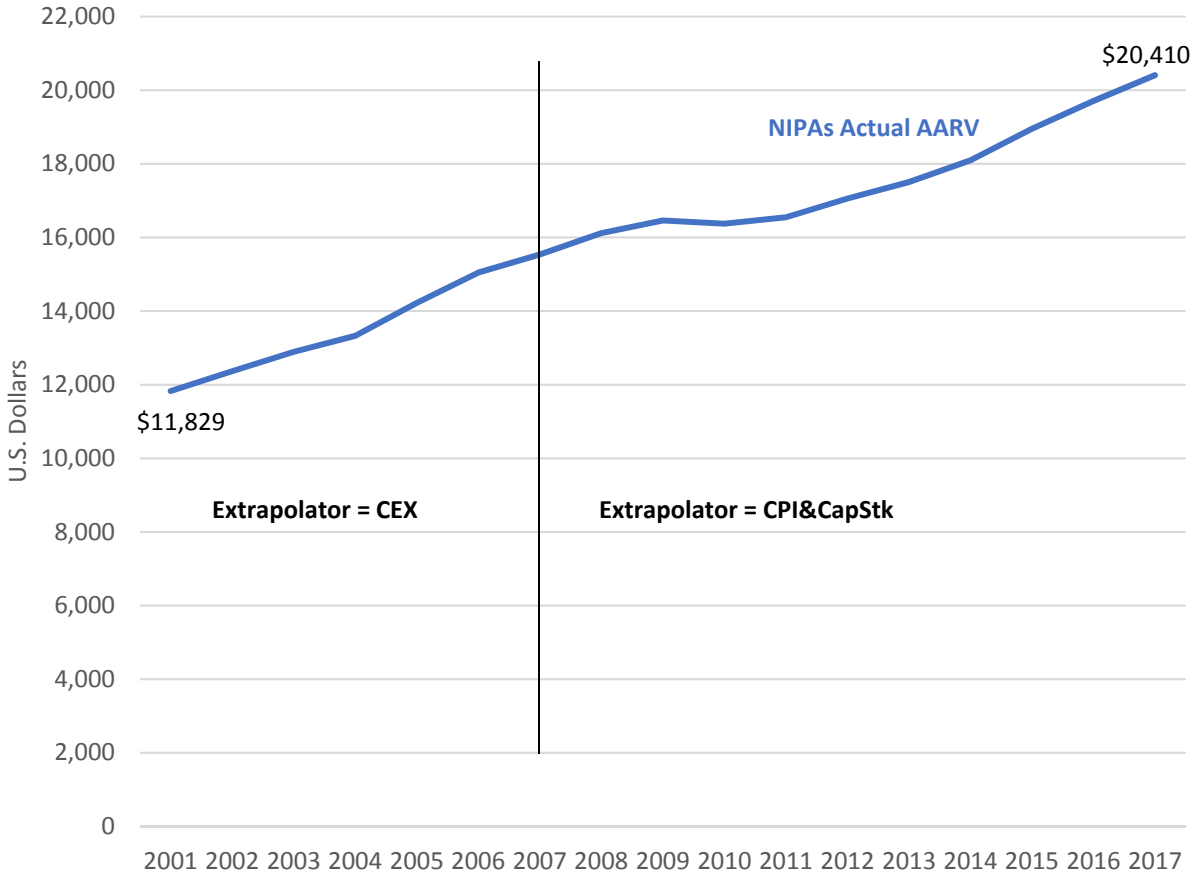


Figure 2: Alternative Extrapolations for AARV – CEX and CPI&CapStk

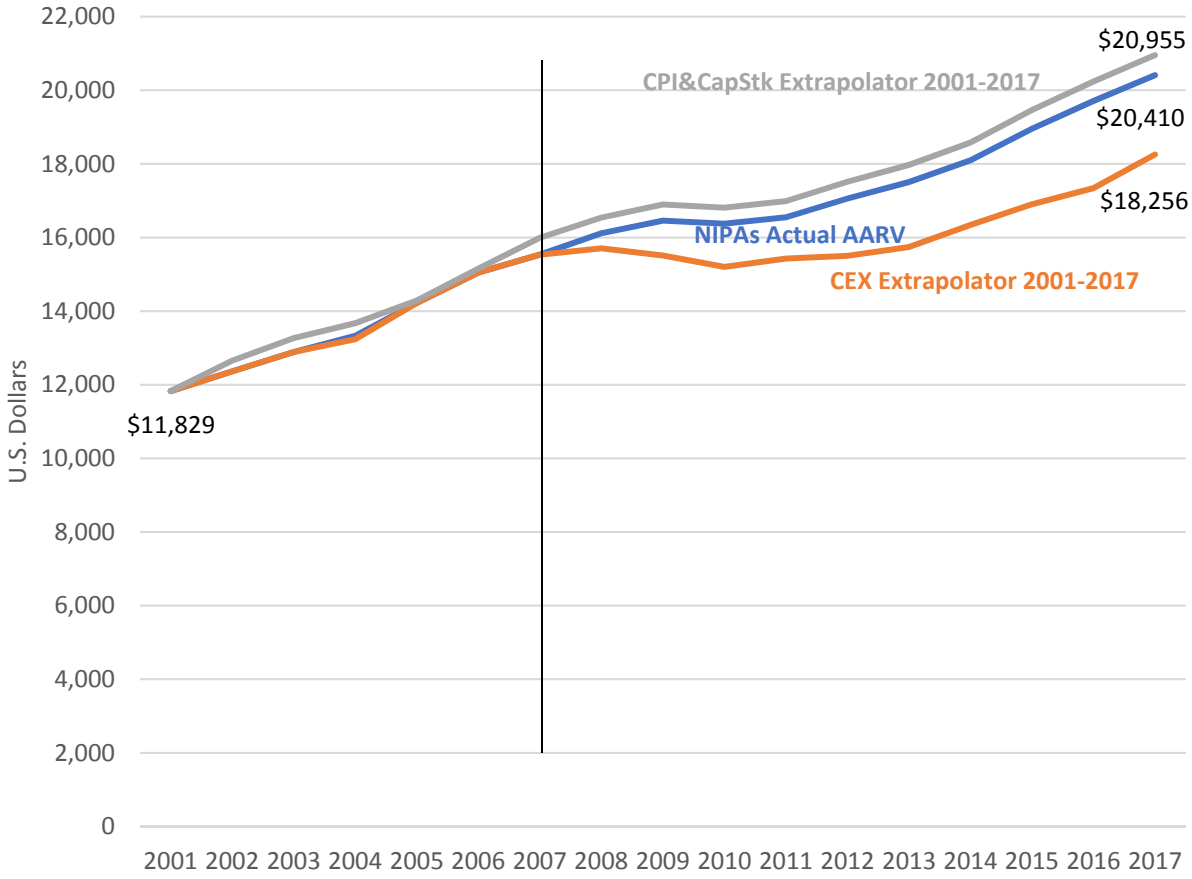


Figure 3: Alternative Extrapolations for AARV – ACS

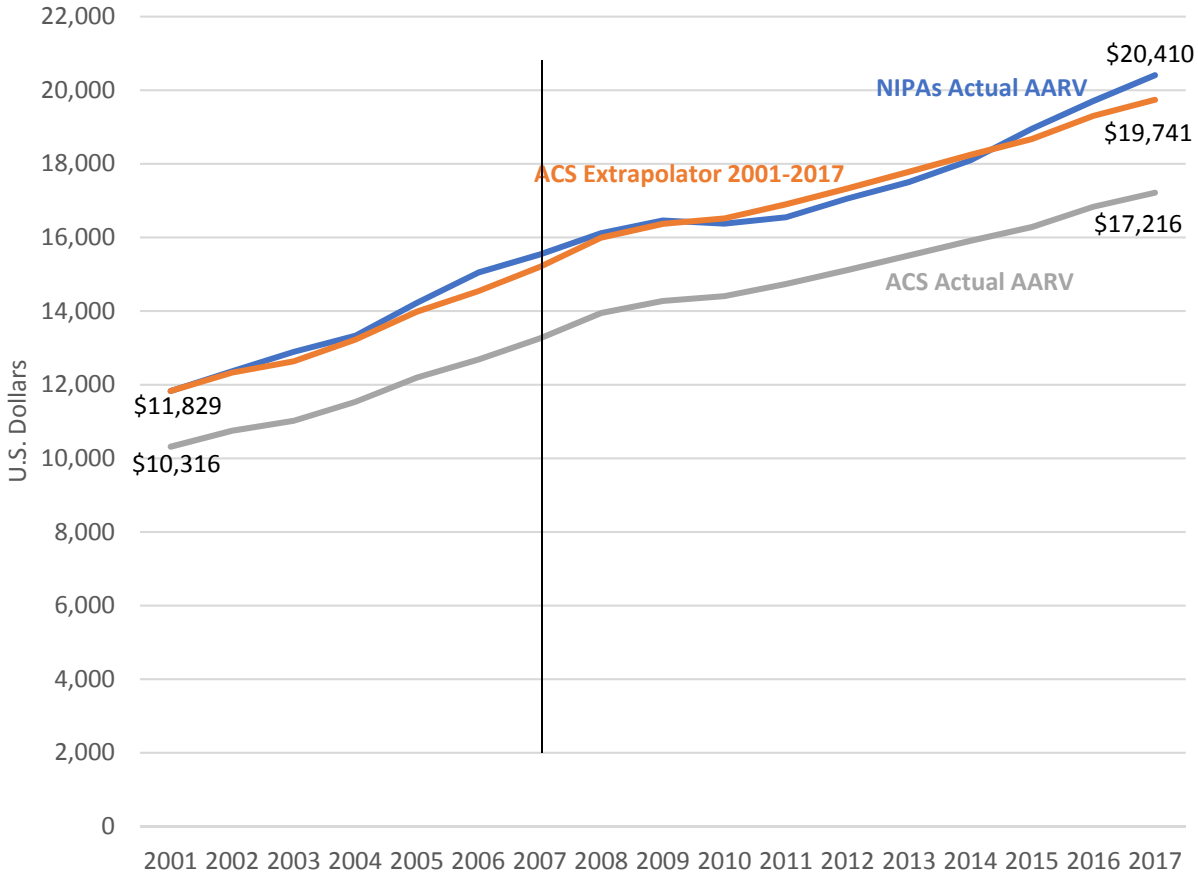
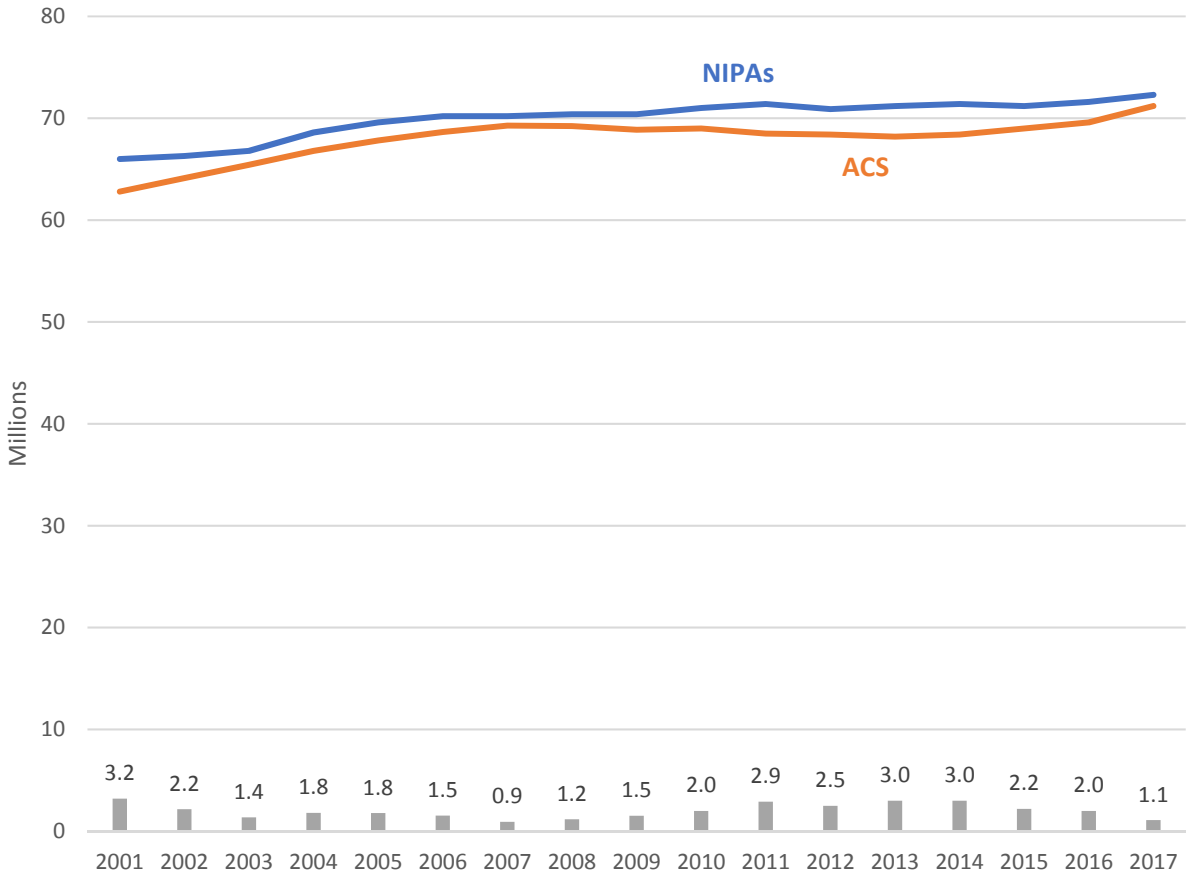


Figure 4: ACS and NIPAs Number of Units



Note: Columns show differences between the ACS and NIPAs number of OONFP units.

Appendix Table 1: Weighted Average Betas by State and Stratum, 2017

	State	*Mobile*	*Multi-Family 1 BR*	*Multi-Family 2+ BR*	*Single Family 2 BR*	*Single Family 3+ BR*
AL	1.35	1.55	1.57	1.36	1.38	1.31
AK	1.12	1.46	1.42	1.19	1.12	1.09
AZ	1.27	1.42	1.42	1.21	1.22	1.26
AR	1.28	1.51	1.38	1.13	1.34	1.23
CA	1.37	1.72	1.34	1.30	1.26	1.37
CO	1.24	1.82	1.21	1.43	1.19	1.20
CT	1.39	2.47	1.23	1.33	1.23	1.42
DE	1.24	1.57	1.55	1.21	1.24	1.21
DC	1.17	N/A	0.98	1.10	1.22	1.23
FL	1.35	1.37	1.41	1.79	1.27	1.31
GA	1.37	1.55	1.36	1.45	1.34	1.36
HI	1.17	2.43	1.16	1.32	1.20	1.13
ID	1.26	1.54	0.91	1.25	1.26	1.24
IL	1.40	2.44	1.19	1.46	1.25	1.39
IN	1.37	2.63	1.55	1.26	1.40	1.30
IA	1.30	2.20	1.60	1.36	1.32	1.25
KS	1.32	1.76	1.92	1.35	1.36	1.29
KY	1.35	1.80	1.47	1.22	1.31	1.29
LA	1.28	1.45	1.42	1.84	1.31	1.24
ME	1.28	1.30	0.99	1.24	1.18	1.32
MD	1.24	1.51	1.10	1.28	1.21	1.24
MA	1.26	1.69	1.31	1.31	1.16	1.27
MI	1.30	1.88	1.53	1.31	1.33	1.26
MN	1.24	2.15	1.28	1.21	1.15	1.22
MS	1.28	1.43	1.17	1.35	1.40	1.23
MO	1.36	2.18	1.07	1.36	1.34	1.31
MT	1.37	1.85	1.00	1.24	1.37	1.31
NE	1.31	5.04	1.46	1.33	1.23	1.21
NV	1.28	1.73	1.38	1.81	1.16	1.23
NH	1.21	1.46	1.06	1.05	1.18	1.21
NJ	1.23	1.99	1.26	1.15	1.12	1.25
NM	1.46	1.81	1.19	1.13	1.52	1.36
NY	1.44	1.68	1.50	1.71	1.41	1.37
NC	1.30	1.35	1.10	1.37	1.34	1.29
ND	1.28	2.49	1.64	1.29	1.15	1.19
OH	1.34	2.25	1.55	1.42	1.28	1.30
OK	1.35	1.30	2.18	1.38	1.40	1.34
OR	1.21	1.62	1.19	1.38	1.19	1.15
PA	1.27	1.88	1.70	1.42	1.23	1.24
RI	1.26	1.41	1.16	1.15	1.35	1.25
SC	1.39	1.47	1.77	1.57	1.28	1.38
SD	1.25	1.74	1.30	2.21	1.26	1.18
TN	1.37	1.34	1.29	1.24	1.31	1.38
TX	1.38	1.50	1.50	1.59	1.51	1.35
UT	1.26	1.53	1.02	1.43	1.25	1.24
VT	1.17	1.29	1.53	1.06	1.18	1.15
VA	1.27	1.42	1.09	1.24	1.35	1.25
WA	1.32	1.32	1.09	1.28	1.31	1.33
WV	1.28	1.56	1.66	1.18	1.35	1.20
WI	1.22	1.78	1.37	1.24	1.21	1.19
WY	1.50	2.91	0.94	1.35	1.26	1.31

Appendix Table 2: Weighted Average Owner Premium Factors by State and Stratum, 2017

	State	*Mobile*	*Multi-Family 1 BR*	*Multi-Family 2+ BR*	*Single Family 2 BR*	*Single Family 3+ BR*
AL	1.28	1.36	1.35	1.28	1.29	1.27
AK	1.21	1.33	1.28	1.22	1.22	1.19
AZ	1.25	1.33	1.30	1.23	1.24	1.25
AR	1.26	1.35	1.30	1.21	1.28	1.24
CA	1.28	1.41	1.28	1.26	1.25	1.28
CO	1.24	1.44	1.24	1.30	1.23	1.23
CT	1.28	1.63	1.24	1.27	1.24	1.29
DE	1.24	1.37	1.35	1.23	1.24	1.23
DC	1.22	N/A	1.16	1.20	1.24	1.24
FL	1.28	1.30	1.30	1.41	1.25	1.27
GA	1.29	1.35	1.28	1.31	1.28	1.28
HI	1.22	1.64	1.21	1.26	1.25	1.21
ID	1.25	1.37	1.15	1.25	1.25	1.24
IL	1.29	1.63	1.23	1.31	1.25	1.29
IN	1.28	1.69	1.34	1.25	1.29	1.26
IA	1.26	1.56	1.36	1.27	1.27	1.25
KS	1.27	1.43	1.45	1.27	1.29	1.26
KY	1.28	1.44	1.32	1.23	1.27	1.26
LA	1.26	1.33	1.31	1.42	1.28	1.25
ME	1.26	1.28	1.16	1.24	1.22	1.26
MD	1.24	1.35	1.21	1.25	1.24	1.24
MA	1.25	1.38	1.27	1.27	1.22	1.25
MI	1.27	1.46	1.34	1.27	1.28	1.25
MN	1.24	1.54	1.26	1.24	1.22	1.24
MS	1.26	1.32	1.25	1.27	1.30	1.25
MO	1.28	1.55	1.21	1.28	1.28	1.26
MT	1.29	1.45	1.18	1.24	1.29	1.26
NE	1.27	2.40	1.31	1.26	1.24	1.24
NV	1.25	1.42	1.29	1.41	1.22	1.24
NH	1.23	1.32	1.20	1.19	1.22	1.23
NJ	1.24	1.48	1.26	1.22	1.21	1.24
NM	1.32	1.44	1.22	1.21	1.34	1.28
NY	1.32	1.40	1.33	1.40	1.30	1.29
NC	1.27	1.30	1.20	1.28	1.28	1.26
ND	1.26	1.64	1.36	1.26	1.23	1.23
OH	1.27	1.57	1.35	1.30	1.26	1.26
OK	1.28	1.28	1.52	1.29	1.30	1.27
OR	1.24	1.39	1.23	1.28	1.23	1.21
PA	1.26	1.46	1.38	1.30	1.25	1.25
RI	1.24	1.30	1.23	1.22	1.27	1.24
SC	1.29	1.33	1.40	1.35	1.26	1.29
SD	1.25	1.43	1.32	1.52	1.26	1.23
TN	1.28	1.29	1.27	1.24	1.27	1.29
TX	1.29	1.34	1.33	1.36	1.33	1.28
UT	1.24	1.34	1.17	1.29	1.24	1.24
VT	1.22	1.28	1.32	1.18	1.22	1.22
VA	1.26	1.33	1.19	1.24	1.28	1.25
WA	1.27	1.30	1.20	1.26	1.27	1.27
WV	1.26	1.37	1.38	1.24	1.28	1.24
WI	1.24	1.43	1.29	1.24	1.24	1.23
WY	1.32	1.78	1.14	1.27	1.25	1.26