

Making Sense of the Housing Recovery and Trends in Housing Affordability

John V. Duca*

Vice President, Federal Reserve Bank of Dallas

Danforth-Lewis Professor of Economics, Oberlin College

* I thank Laton Russell for excellent research assistance. The views expressed are solely those of the author and do not necessarily reflect those of the Federal Reserve Bank of Dallas or the Federal Reserve System. Any errors are my own.

Outline

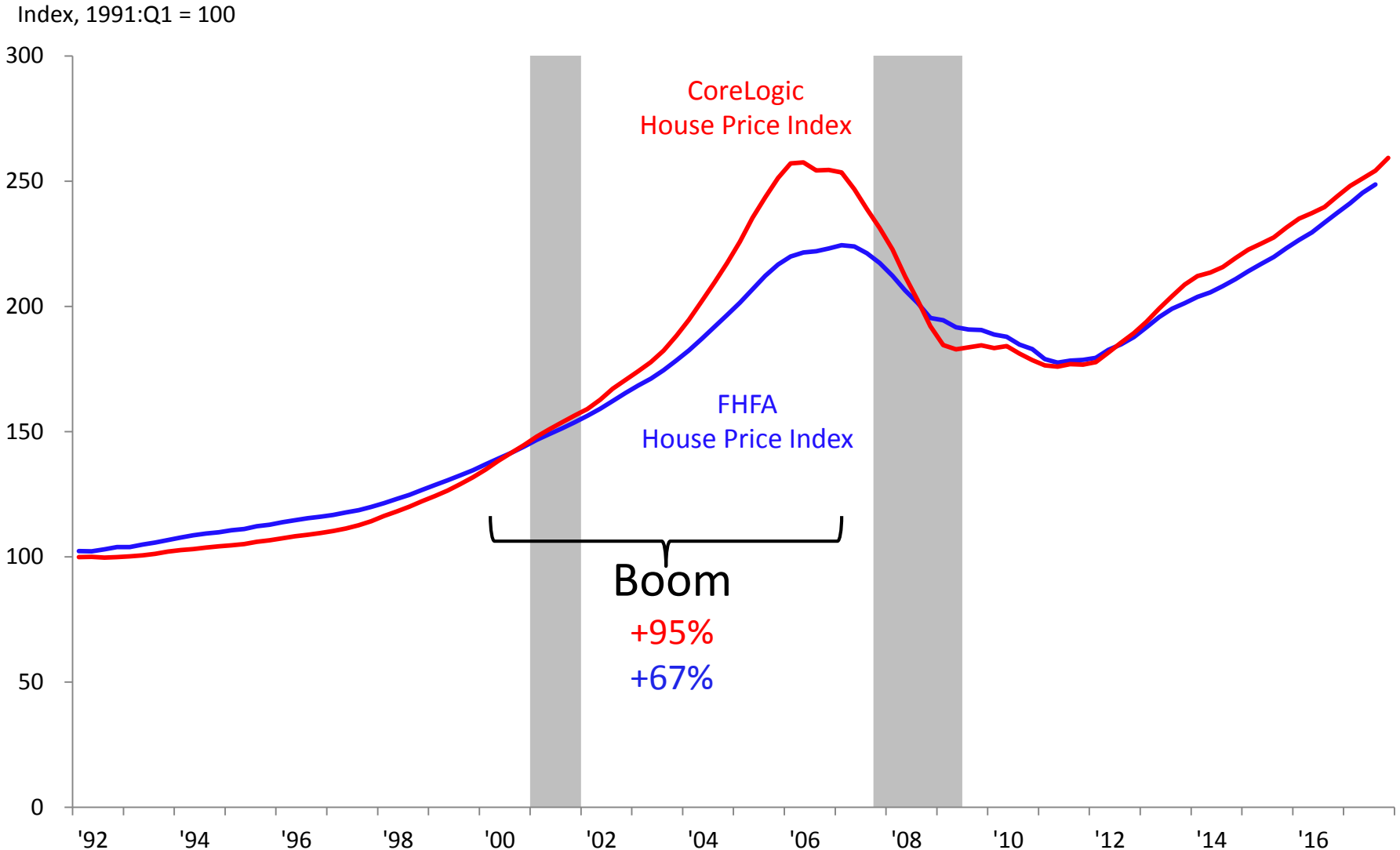
National economy: output near potential, inflation near target, interest rates low, but normalizing. Against this backdrop, assess national affordability by reviewing

- General patterns in housing activity
 - Strong price appreciation, but limited construction
- Role of demand factors
- Role of supply factors
- Housing affordability:
 - Ownership rate sags
 - Rents, low income, and co-residency suggest rent affordability also an issue
- Potential housing policy options

I. General Patterns of Housing Activity

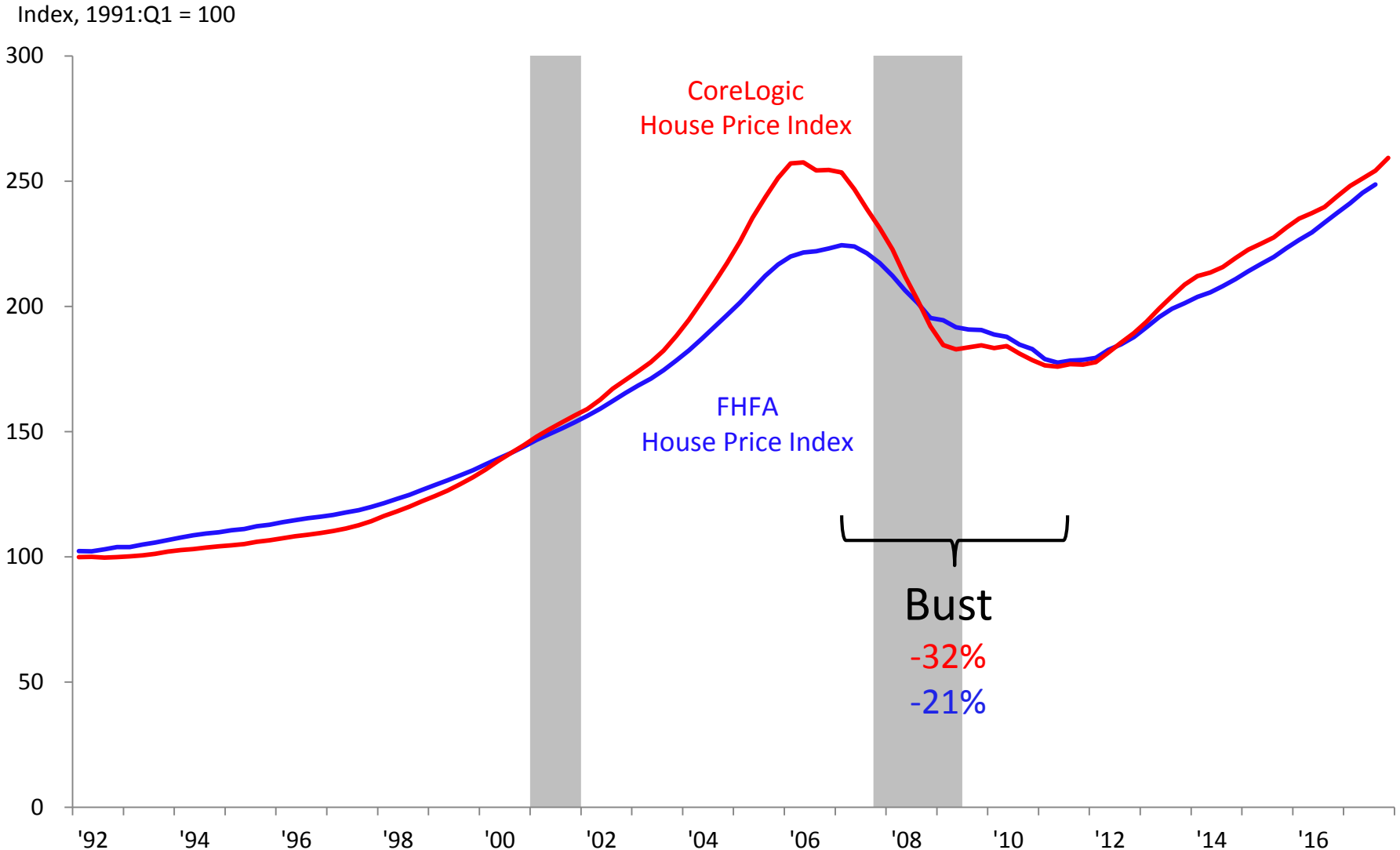
- U.S. house prices boomed, busted, and recovered
- But construction recovery muted
- ...and tilted toward multifamily

U.S. house prices boom,



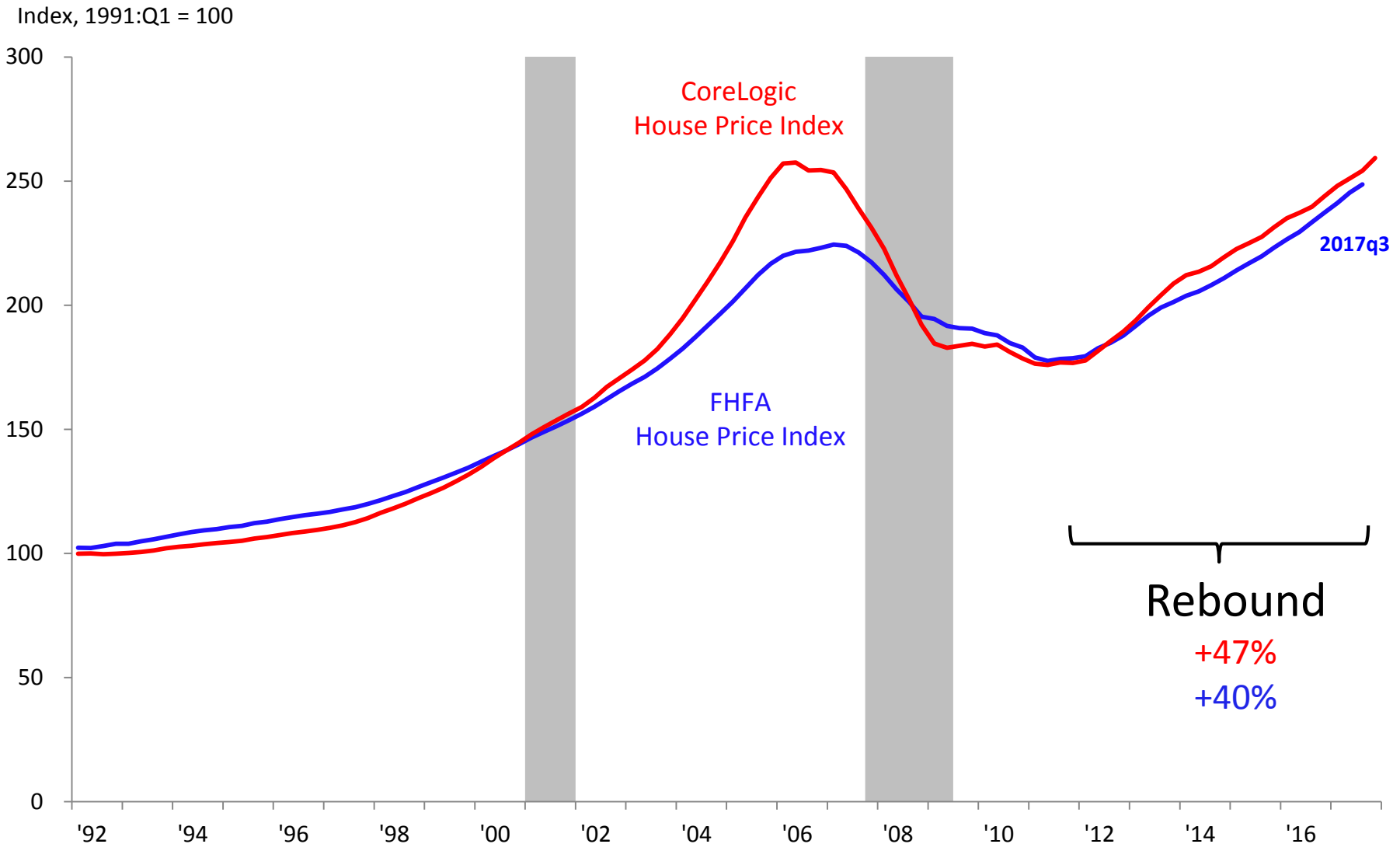
SOURCES: Author's calculations using data from Federal Housing Finance Agency and Haver seasonal adjustments of CoreLogic data. Boom: 1999q4-2007q1 (FHFA), 1999q4-2006q2 (CoreLogic); bust: 2007q1-2011q2 (FHFA), 2006q2-2011q2 CoreLogic; recovery since 2011q2 for both.

U.S. house prices boom, bust



SOURCES: Author's calculations using data from Federal Housing Finance Agency and Haver seasonal adjustments of CoreLogic data. Boom: 1999q4-2007q1 (FHFA), 1999q4-2006q2 (CoreLogic); bust: 2007q1-2011q2 (FHFA), 2006q2-2011q2 CoreLogic; recovery since 2011q2 for both.

U.S. house prices boom, bust and rebound

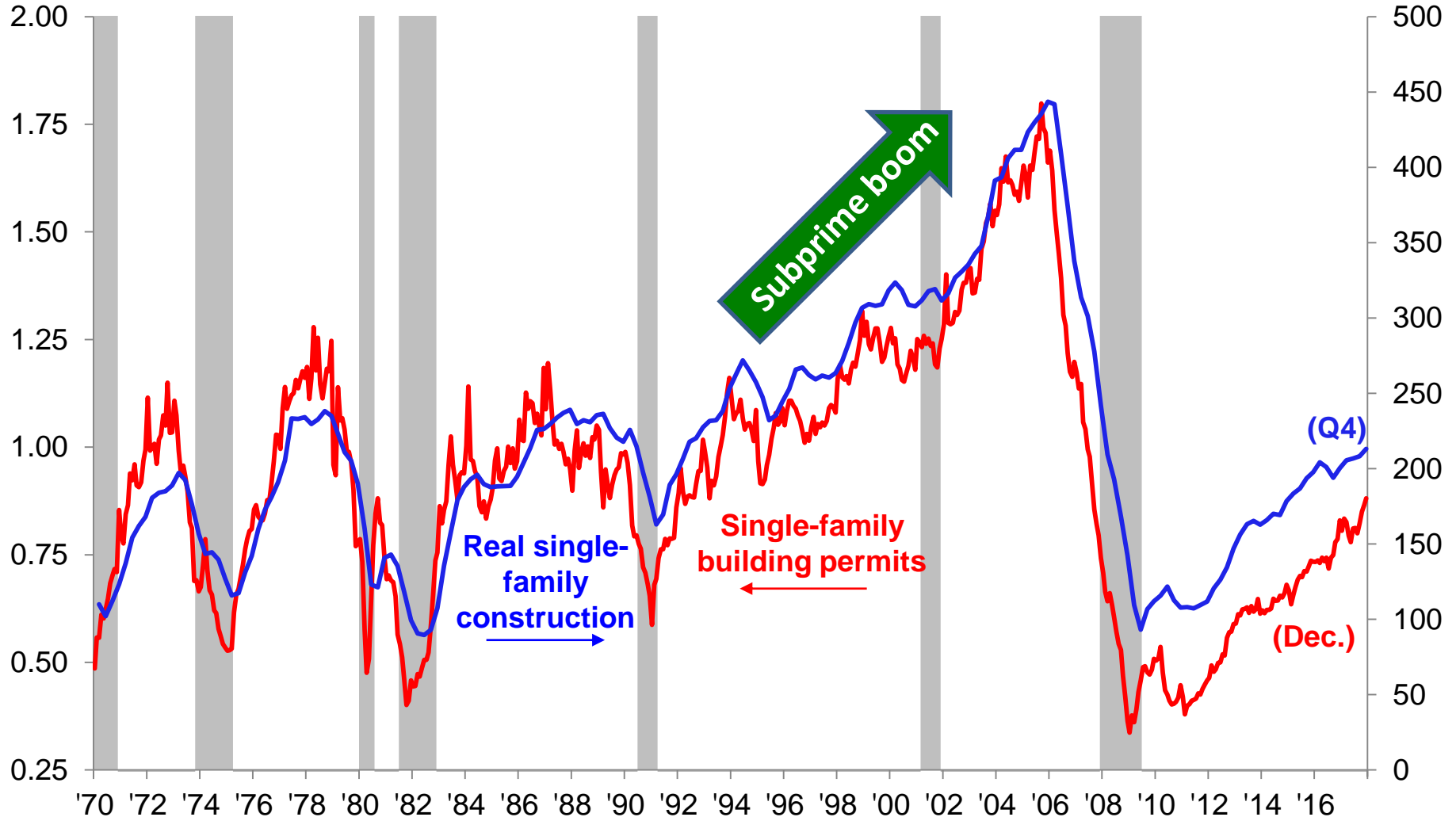


SOURCES: Author's calculations using data from Federal Housing Finance Agency and Haver seasonal adjustments of CoreLogic data. Boom: 1999q4-2007q1 (FHFA), 1999q4-2006q2 (CoreLogic); bust: 2007q1-2011q2 (FHFA), 2006q2-2011q2 CoreLogic; recovery since 2011q2 for both.

Single-family housing permits boom, then bust, and slowly recover

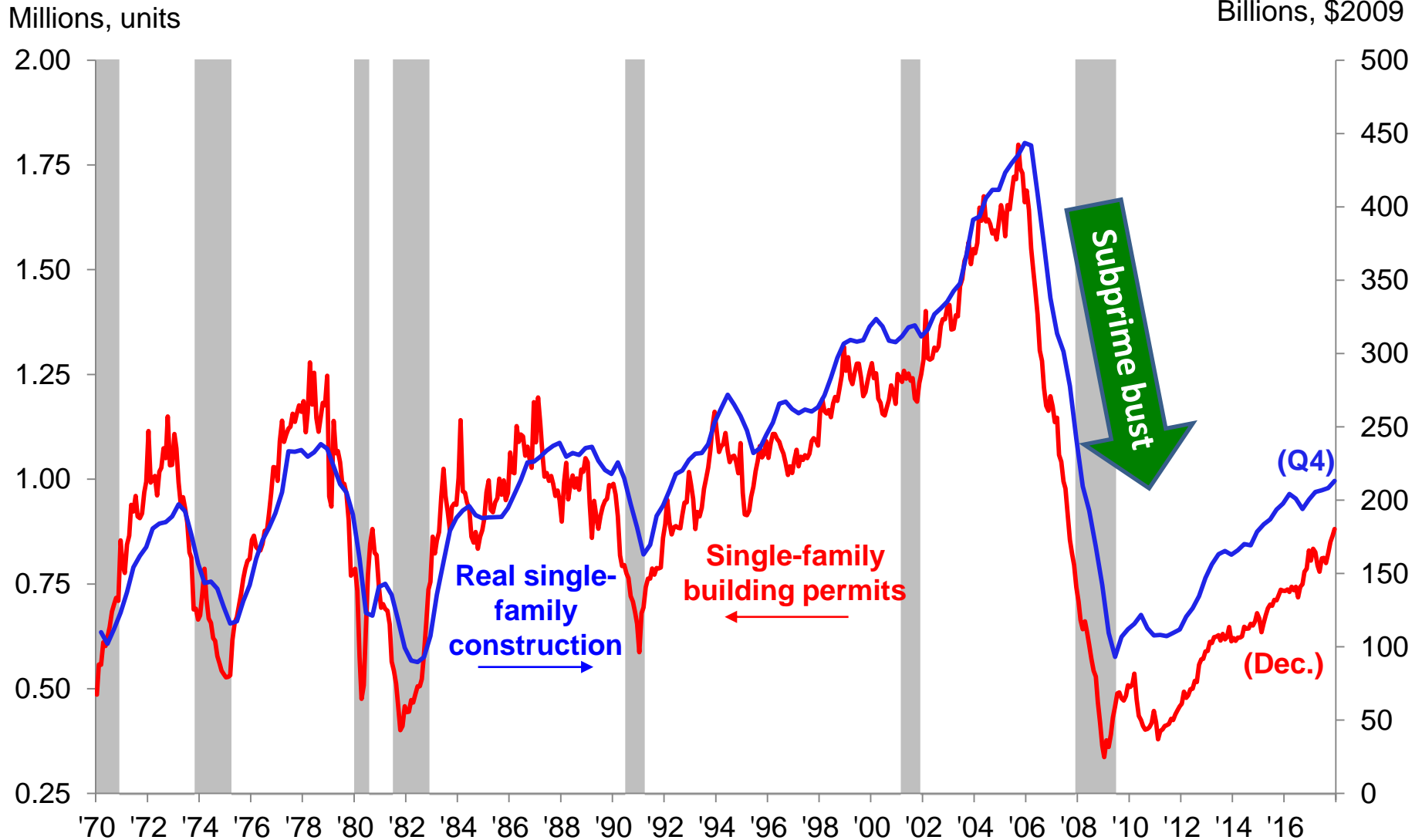
Millions, units

Billions, \$2009



Sources: Bureau of Economic Analysis, U.S. Census and author's calculations.

Single-family housing permits boom, then bust, and slowly recover

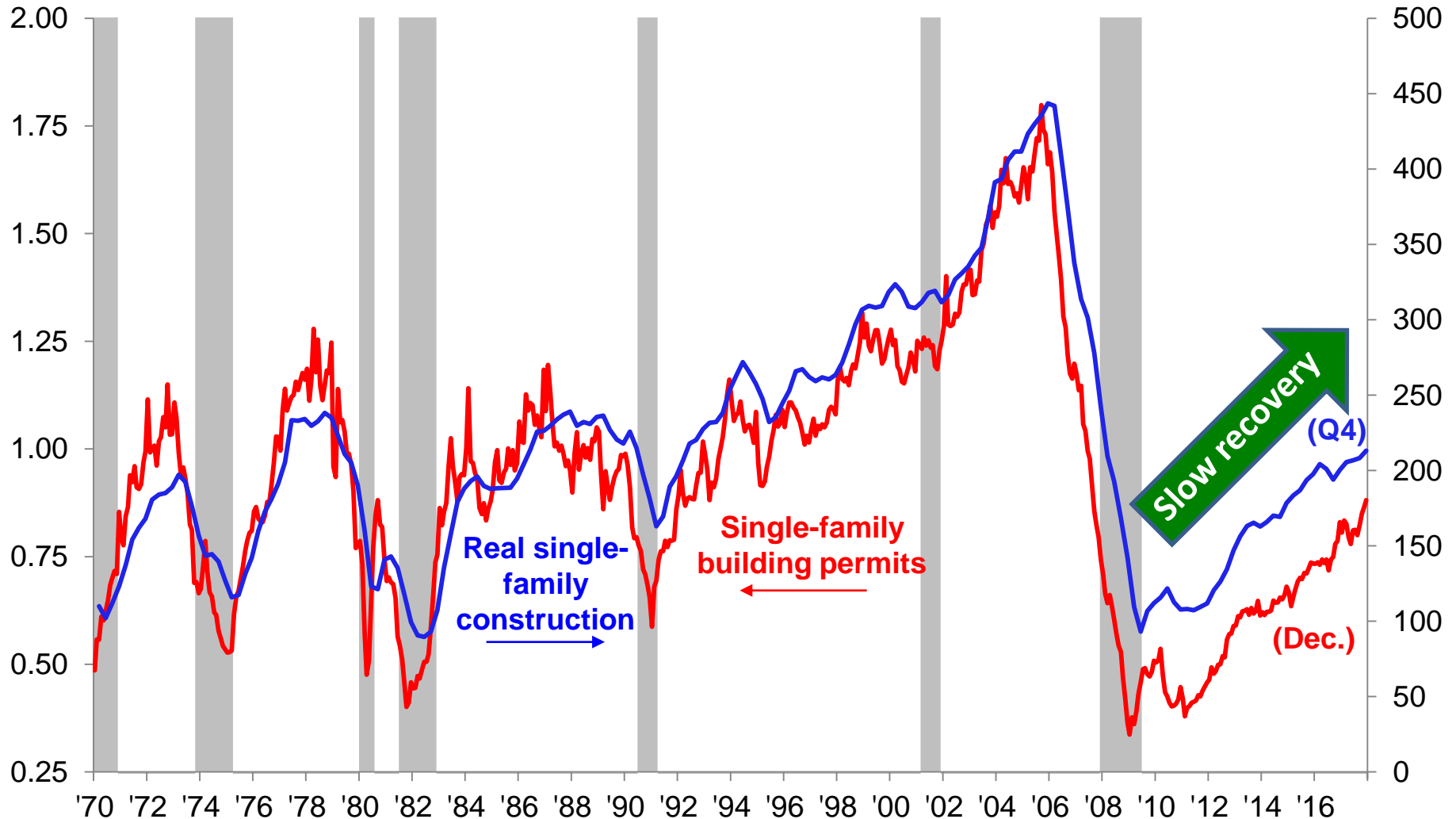


Sources: Bureau of Economic Analysis, U.S. Census and author's calculations.

Single-family housing permits boom, then bust, and slowly recover

Millions, units

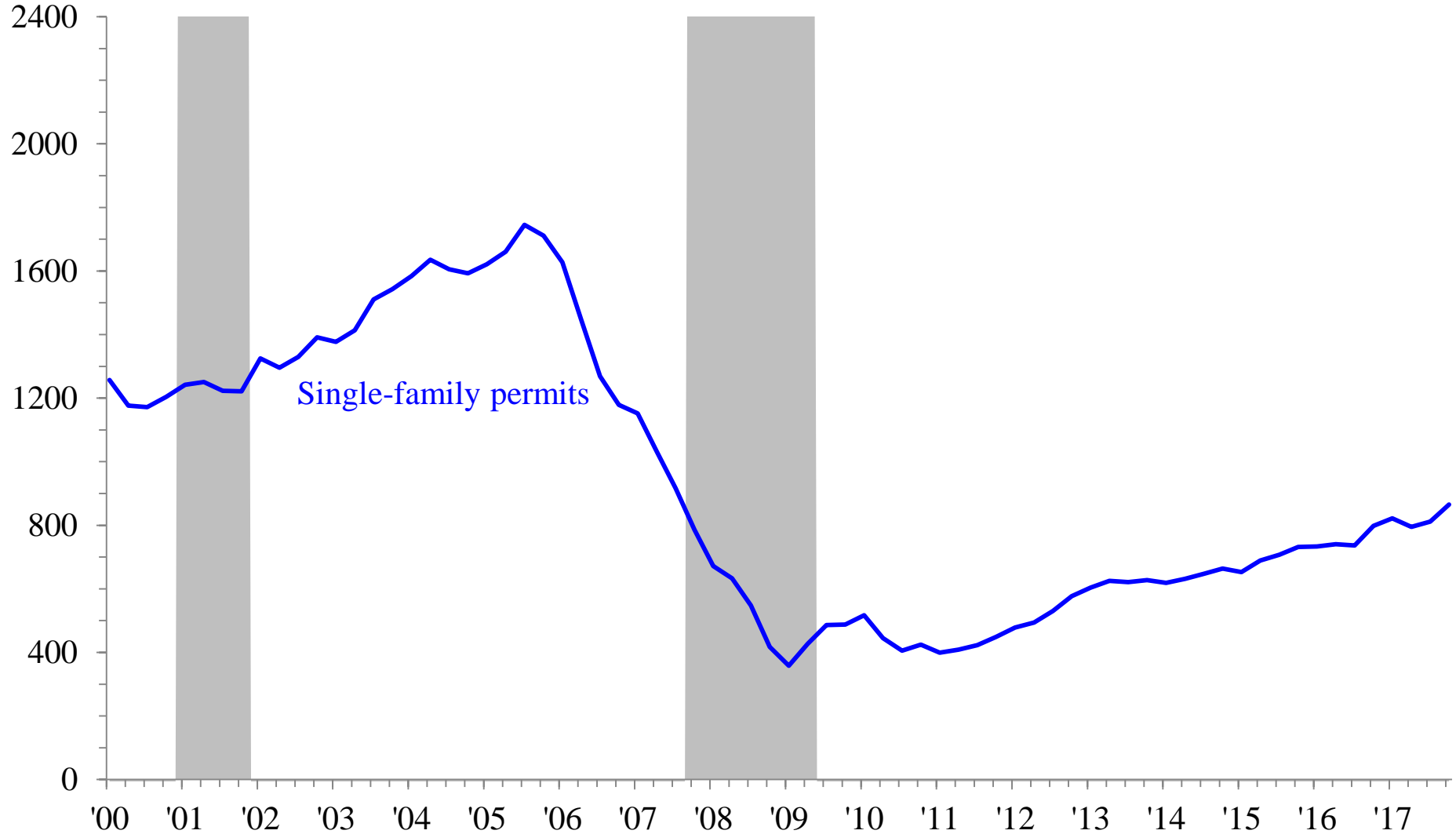
Billions, \$2009



Sources: Bureau of Economic Analysis, U.S. Census and author's calculations.

Shift to renting: construction recovery soft for single-family

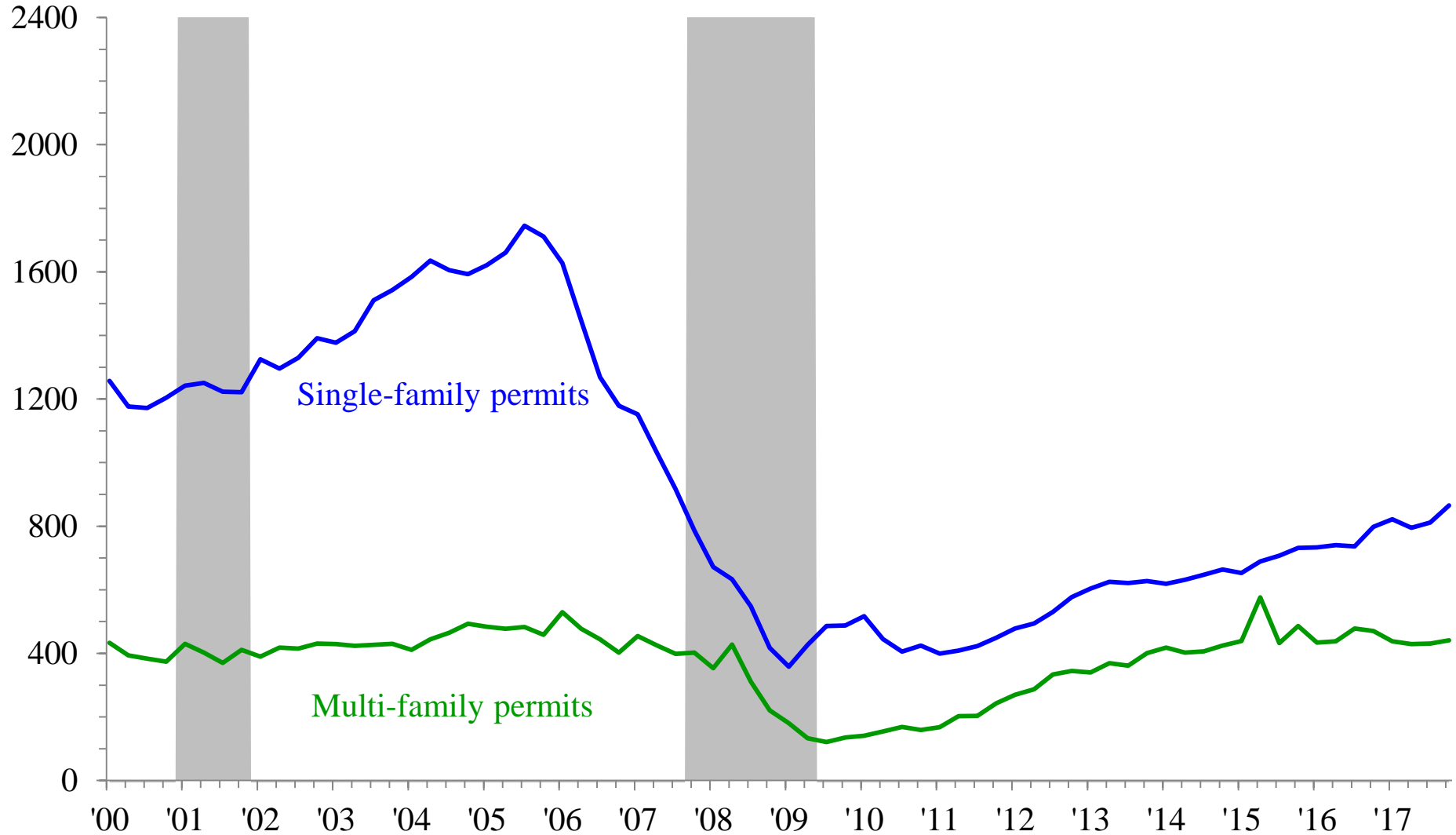
Thousands of Units, SAAR



SOURCES: National Bureau of Economic Research and the Census Bureau.

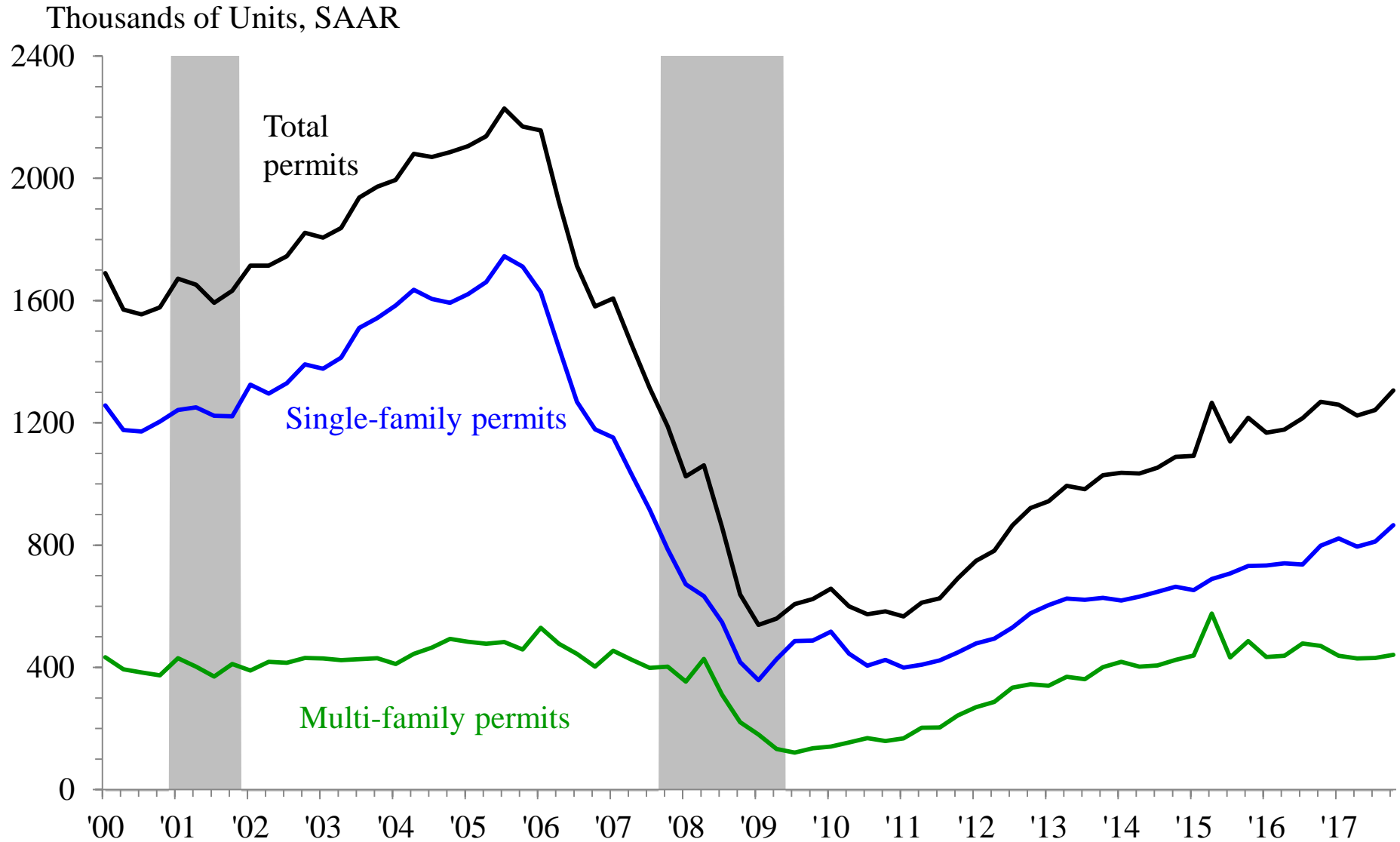
Shift to renting: construction recovery soft for single-family, stronger for multi-family

Thousands of Units, SAAR



SOURCES: National Bureau of Economic Research and the Census Bureau.

Shift to renting: construction recovery soft for single-family, stronger for multi-family, incomplete overall



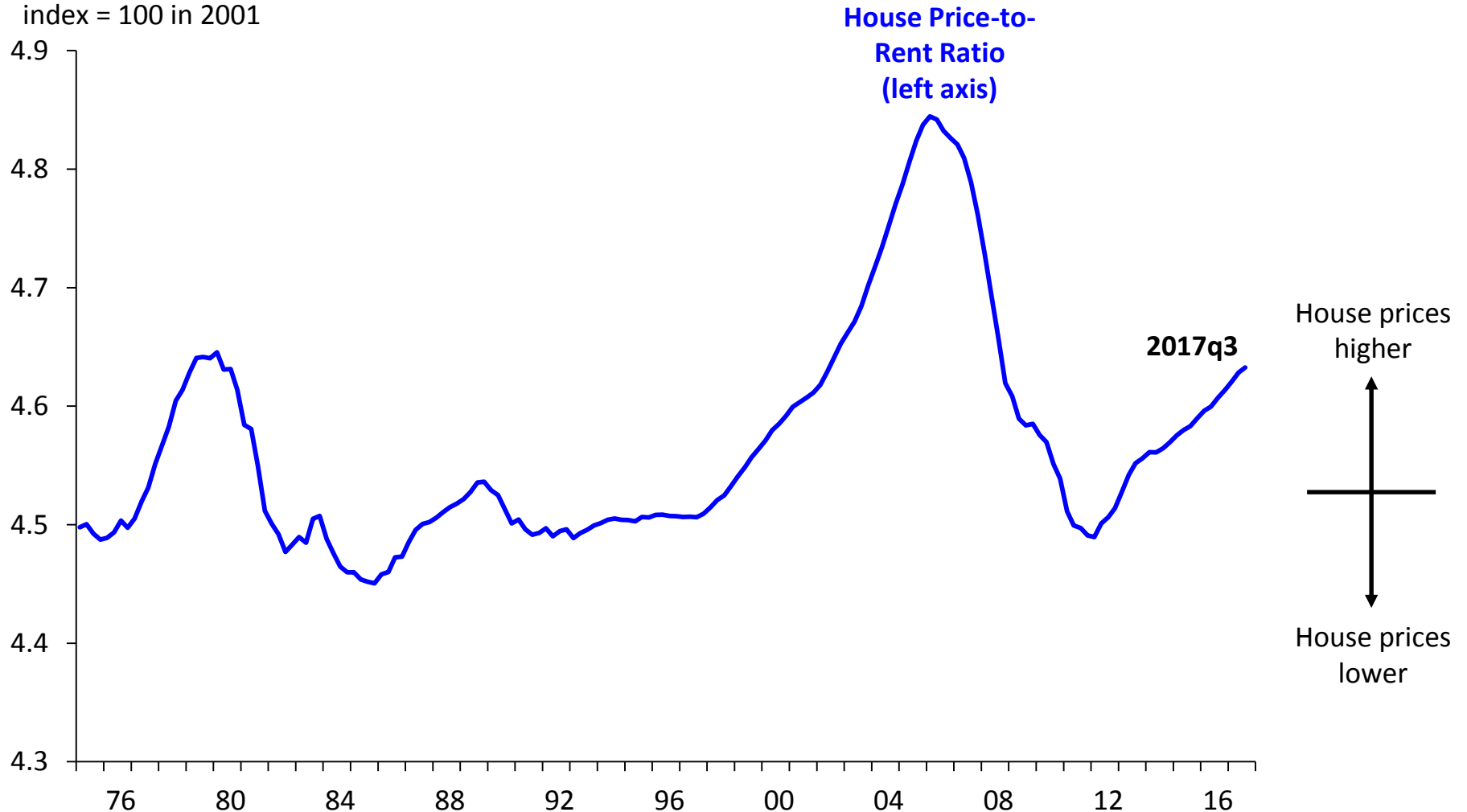
SOURCES: National Bureau of Economic Research and the Census Bureau.

II. The Role of Demand Factors

- House valuations high and *rising*
 - Gauge valuations with house price-to-rent ratio (aka P/E)
- Interest rates adjusted for house price appreciation drove valuations before subprime boom
- Early to mid-2000s boom fueled by both low interest rates and easier mortgage credit standards
- Current boom in price-to-rent ratio in line with interest rate and appreciation trends
- Higher levels of both prices and rents are partly masked by their ratio. Nevertheless, not only do high price-to-rent ratios reflect muted housing supply, but also so do the appreciation trends that drive real net mortgage rates. Supply also matters...

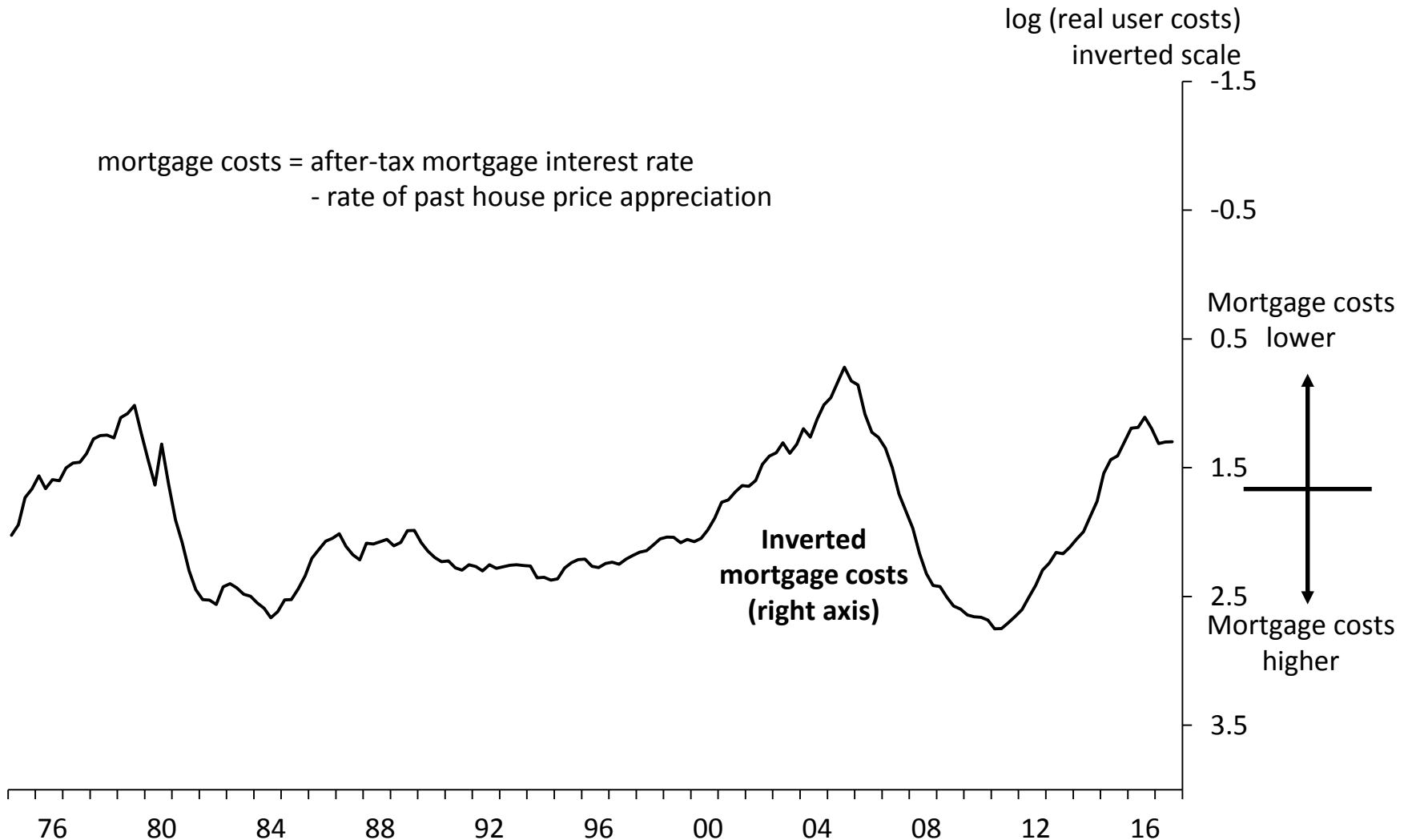
House price-to-rent ratios swing in subprime boom/bust, then partly recover on interest rates and appreciation

log (repeat sales/apt. rents);
index = 100 in 2001



SOURCES: FHFA, Freddie Mac, BLS, BEA, Federal Reserve Board, and Duca, Muellbauer, and Murphy (2016).

House prices are being stimulated by low after-tax mortgage rates accounting for house price appreciation

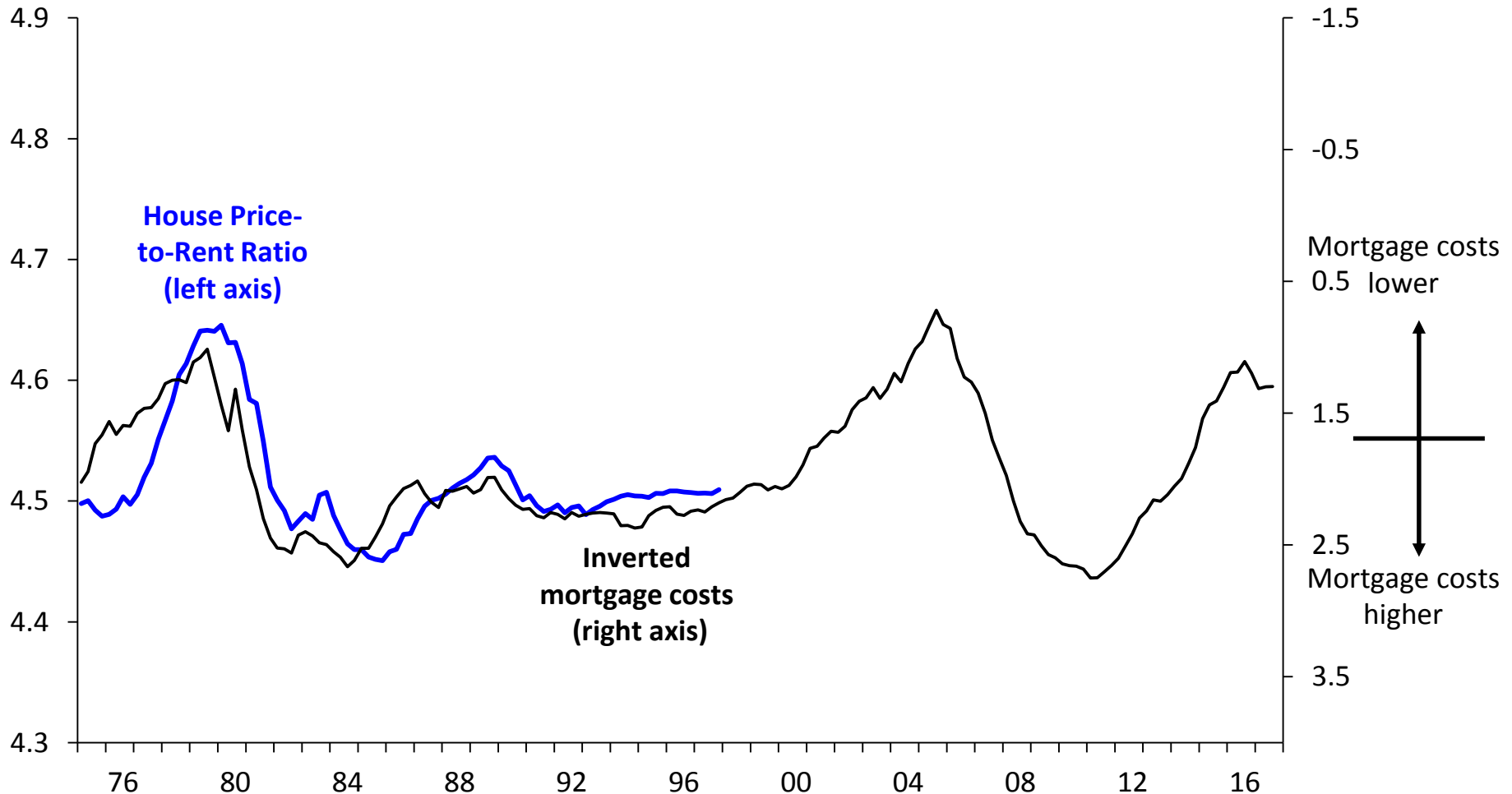


SOURCES: FHFA, Freddie Mac, BLS, BEA, Federal Reserve Board, and Duca, Muellbauer, and Murphy (2016).

House price-to-rent ratios swing in subprime boom/bust, then partly recover on interest rates and appreciation

log (repeat sales/apt. rents);
index = 100 in 2001

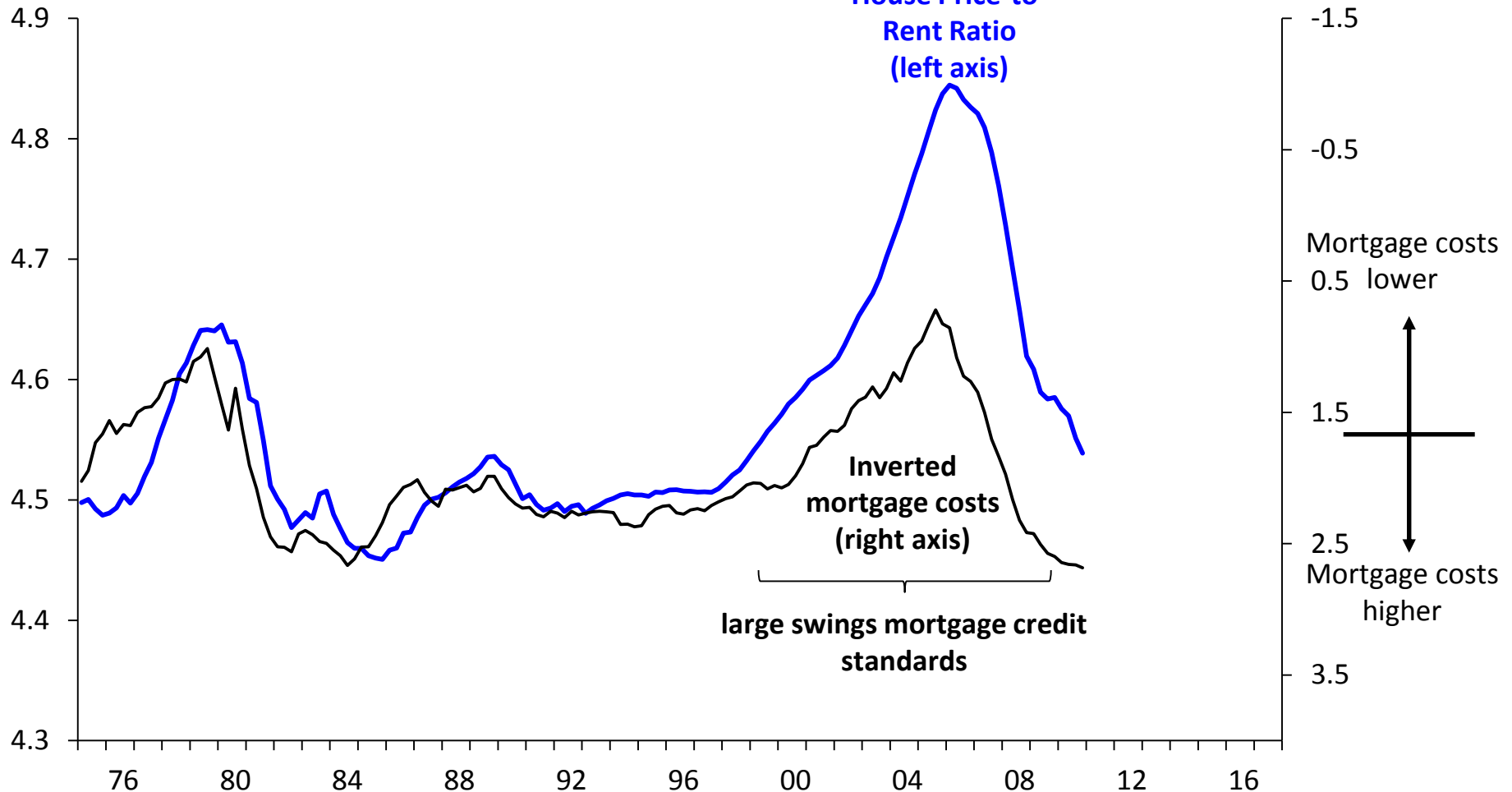
log (real user costs)
inverted scale



SOURCES: FHFA, Freddie Mac, BLS, BEA, Federal Reserve Board, and Duca, Muellbauer, and Murphy (2016).

House price-to-rent ratios swing in subprime boom/bust, then partly recover on interest rates and appreciation

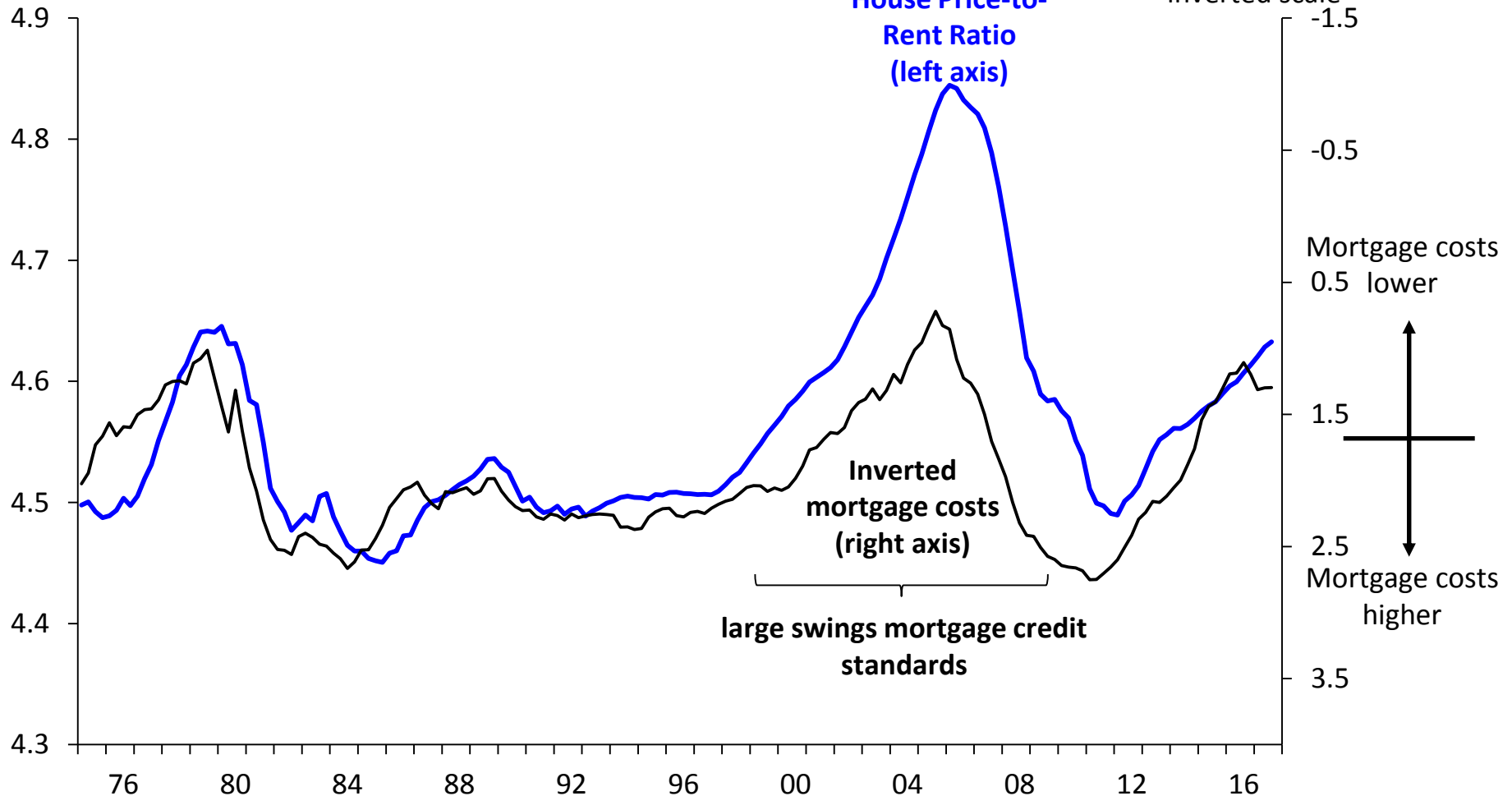
log (repeat sales/apt. rents);
index = 100 in 2001



SOURCES: FHFA, Freddie Mac, BLS, BEA, Federal Reserve Board, and Duca, Muellbauer, and Murphy (2016).

House price-to-rent ratios swing in subprime boom/bust, then partly recover on interest rates and appreciation

log (repeat sales/apt. rents);
index = 100 in 2001



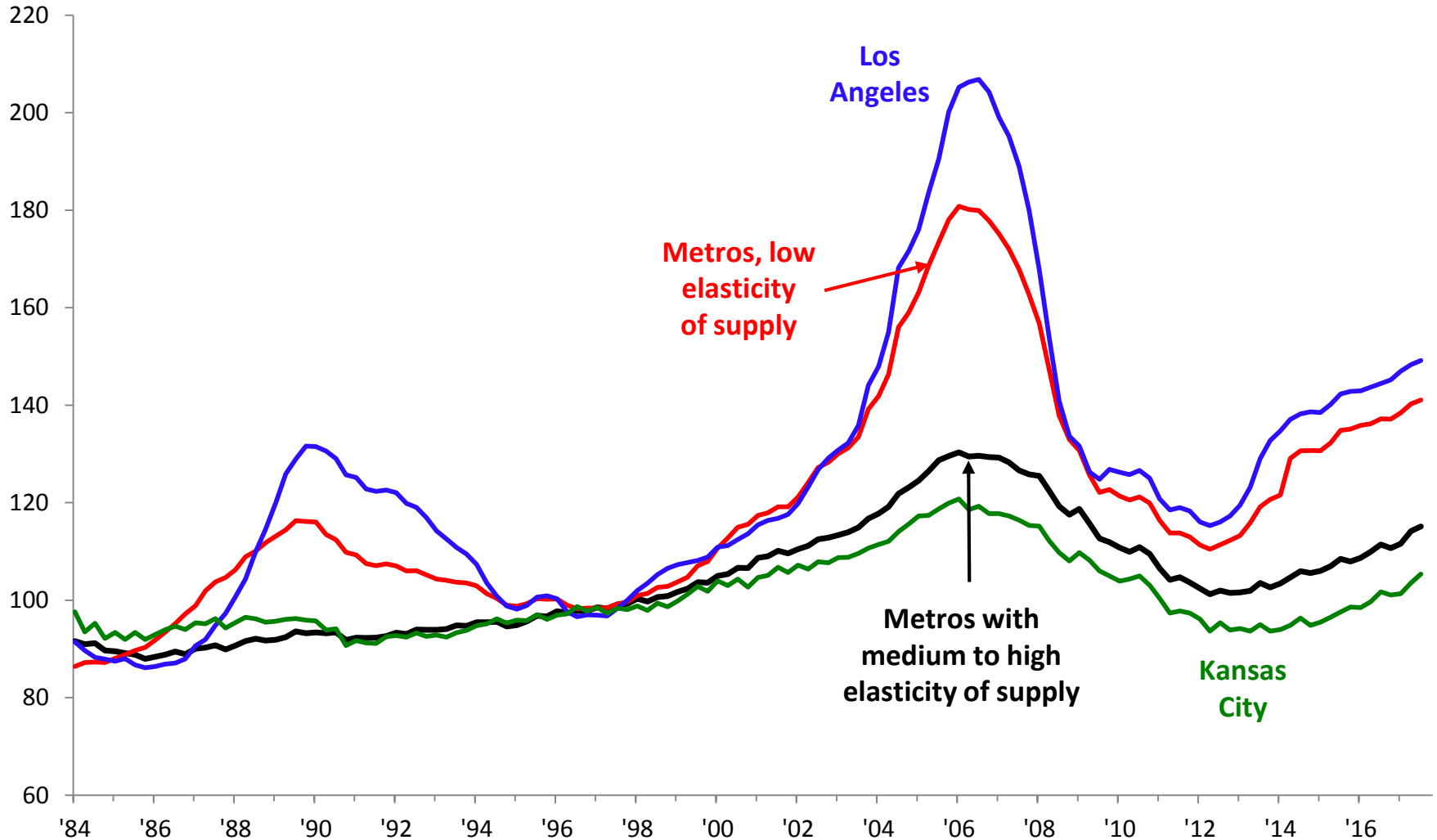
SOURCES: FHFA, Freddie Mac, BLS, BEA, Federal Reserve Board, and Duca, Muellbauer, and Murphy (2016).

III. The Role of Supply Factors: Housing Supply is Tight

- House valuation (price-to-rent) ratios are more volatile in supply constrained areas reflecting demand interacting with supply factors
- House price changes reflect inventories, now tight
- Inventories tight partly because the supply response to prices has been muted. Digging deeper, why?
 - Zoning limits supply, gap existing prices and building costs
 - Land prices trend upward—reflect zoning, lack of new infrastructure to raise effective (commutable) land supply, other regulations limiting construction
 - Higher barriers especially limit incentives to build starter homes

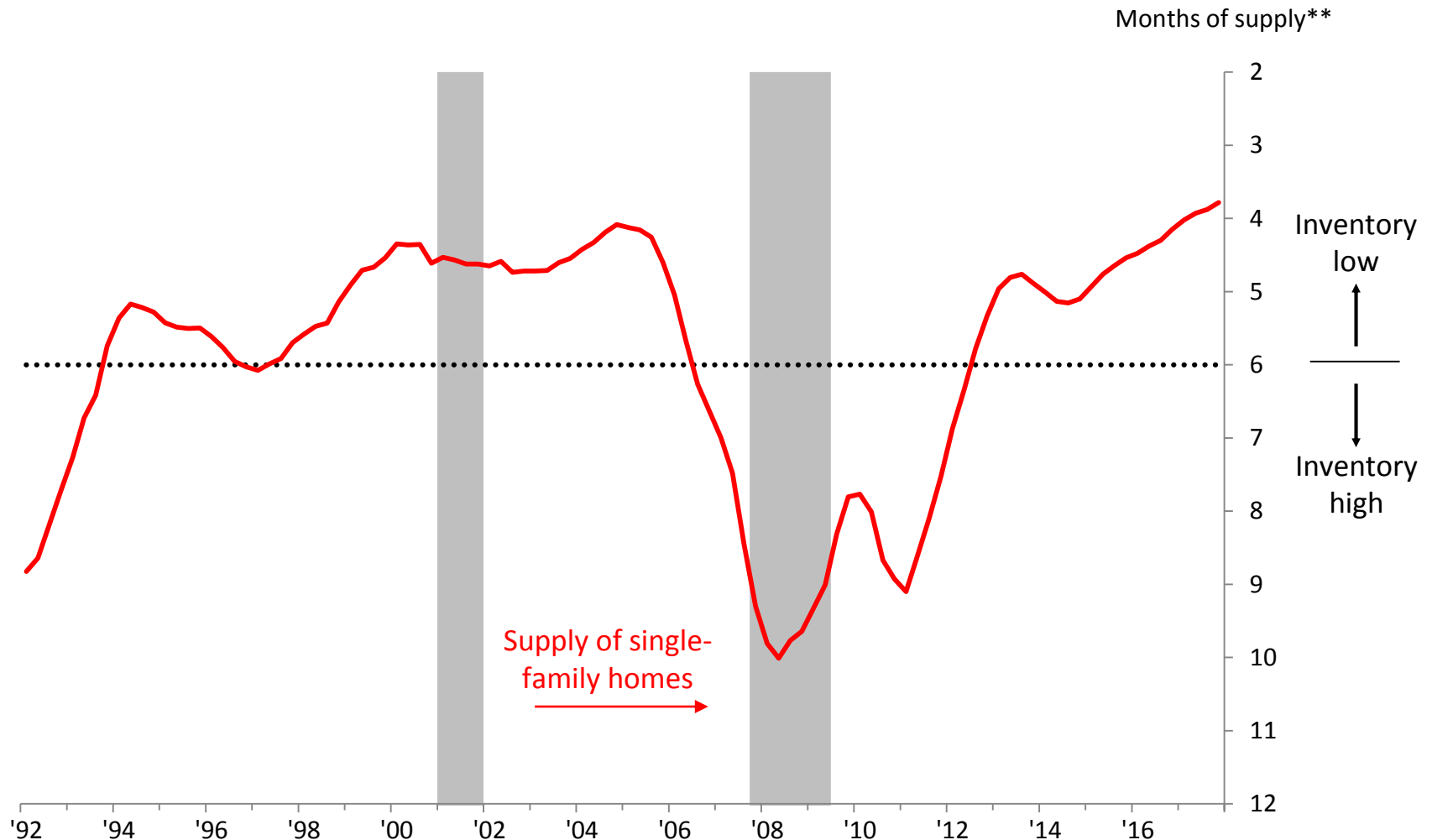
Price-to-Rent Ratios of U.S. Metros Vary More for Cities with Low Elasticities of Housing Supply

price-to-rent ratio
(1997:Q4 = 100)



SOURCES: Federal Housing Finance Agency; Bureau of Labor Statistics; "The Geographic Determinants of Housing Supply," by Albert Saiz, *Quarterly Journal of Economics*, vol. 125, no. 3, 2010, pp. 1253-96; author's calculations.

Lower inventories consistent with house price appreciation

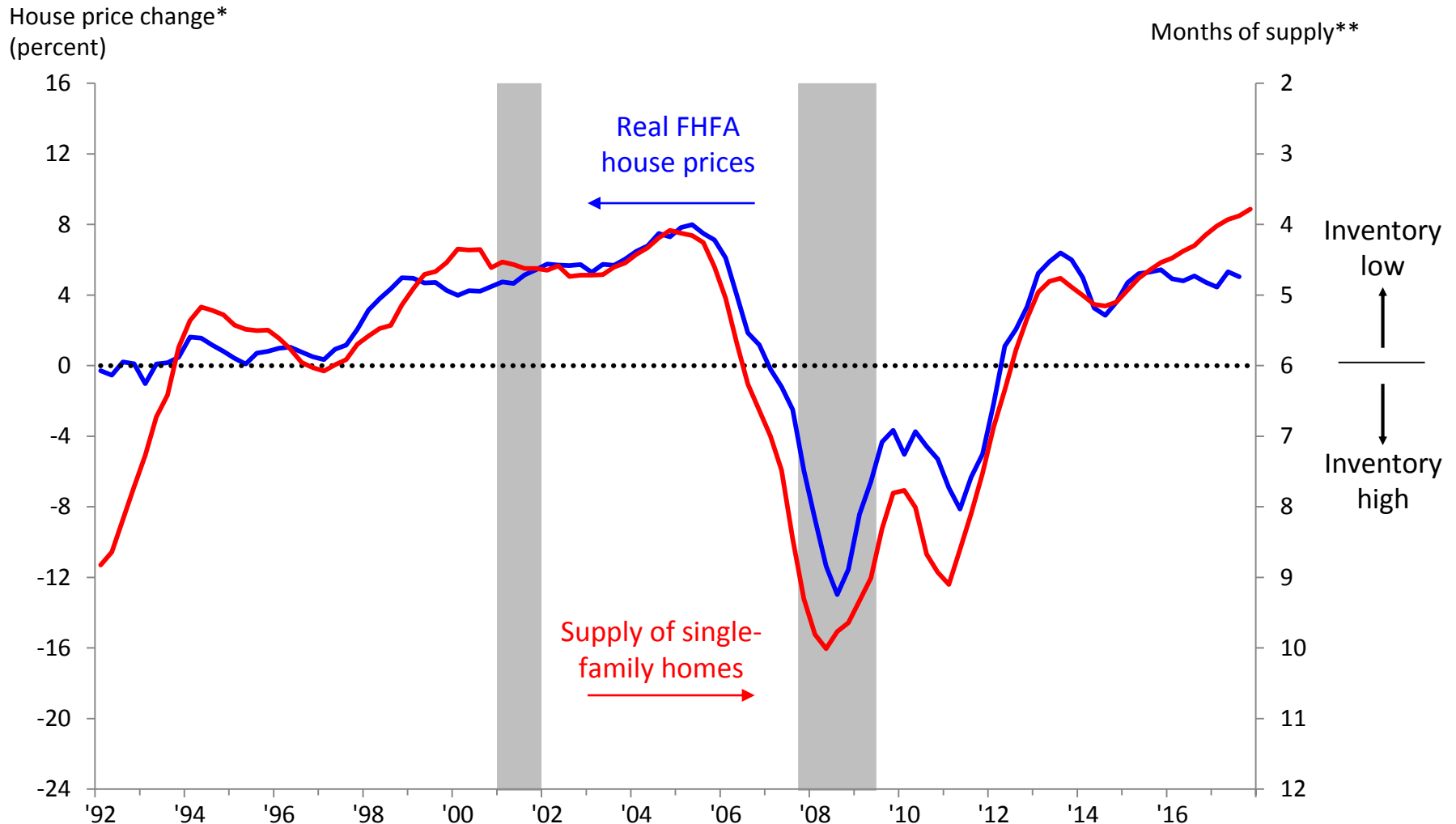


*Year-over-year rate of change, lagged one quarter **Three-quarter moving average

NOTE: The inflation-adjusted house price appreciation series is lagged by two quarters to more clearly align the two series.

SOURCES: Federal Housing Finance Agency; Freddie Mac; Bureau of Economic Analysis; National Association of Realtors; and author's calculations.

Lower inventories consistent with house price appreciation

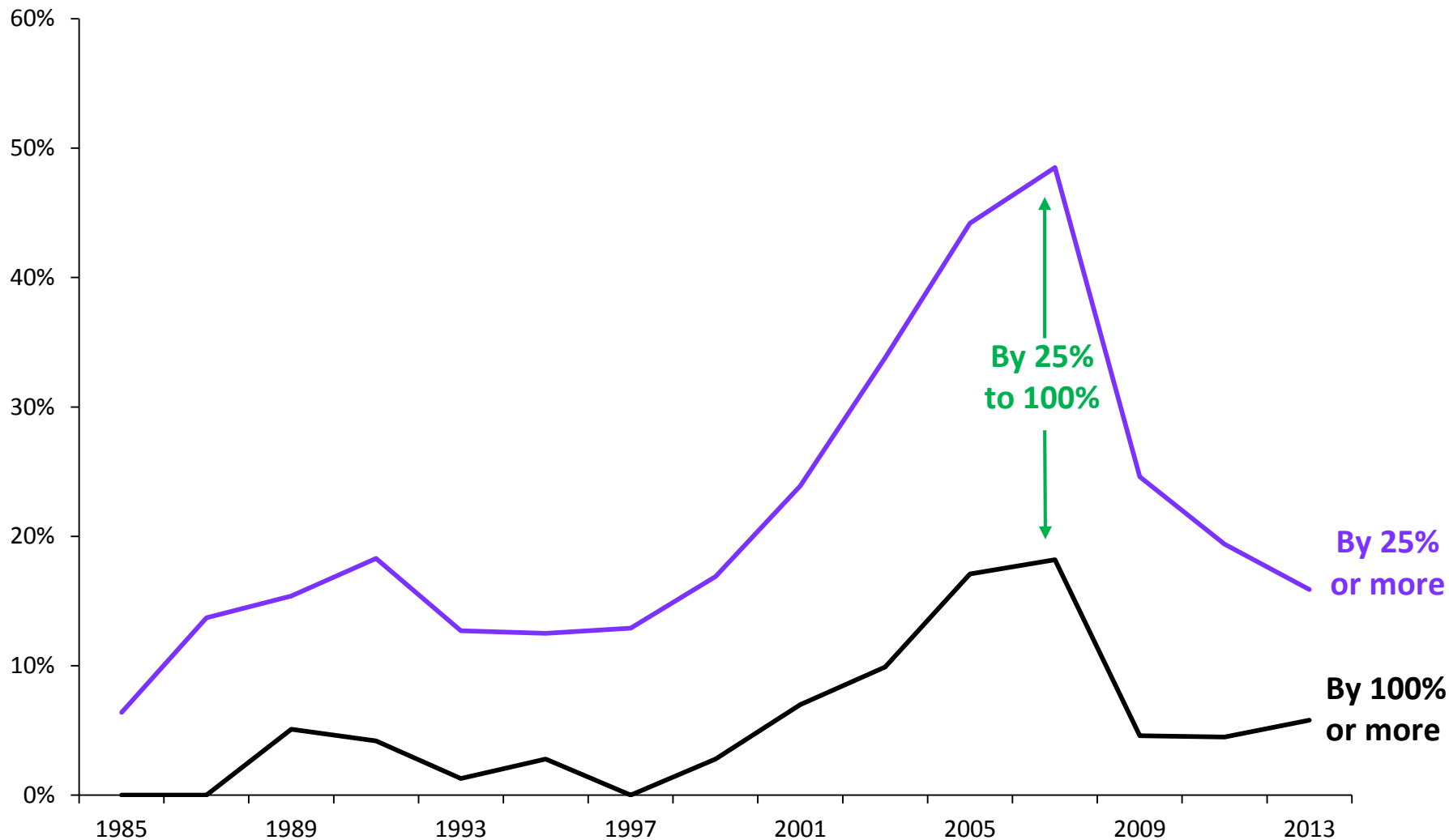


*Year-over-year rate of change, lagged one quarter **Three-quarter moving average

NOTE: The inflation-adjusted house price appreciation series is lagged by two quarters to more clearly align the two series.

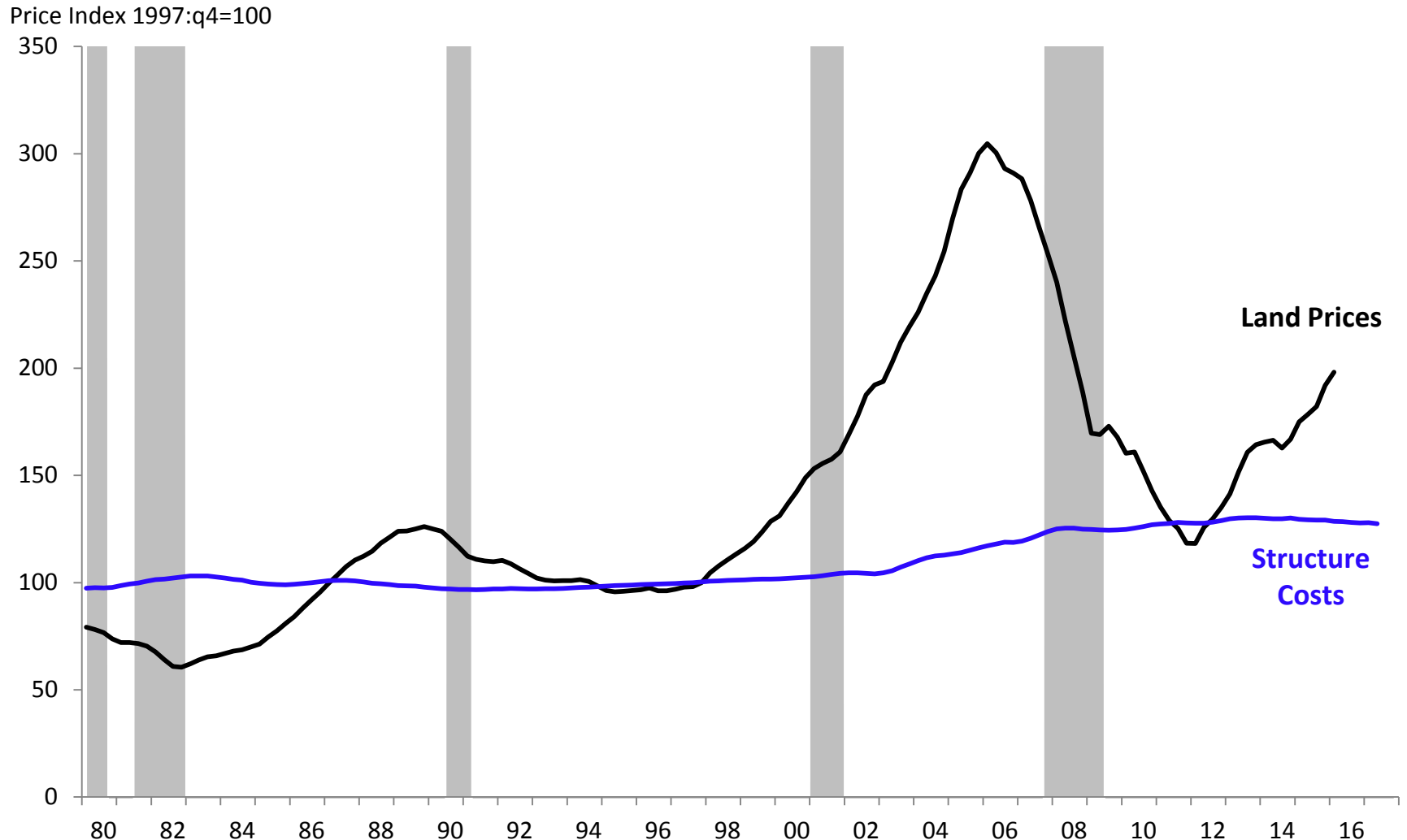
SOURCES: Federal Housing Finance Agency; Freddie Mac; Bureau of Economic Analysis; National Association of Realtors; and author's calculations.

Share Major U.S. Housing Markets Where Existing House Prices Notably Exceed Construction and Land Costs



Source: Gyourko and Glaeser (2018), "The Economic Implications of Housing Supply." *Journal of Economic Perspectives* 32 (1): 3–30.

Real Residential Land Costs Oscillate Upwards Relative to the Real Costs of Constructing Structures



Note: Recessions denoted by shaded areas. Series are deflated using the chain GDP price deflator.

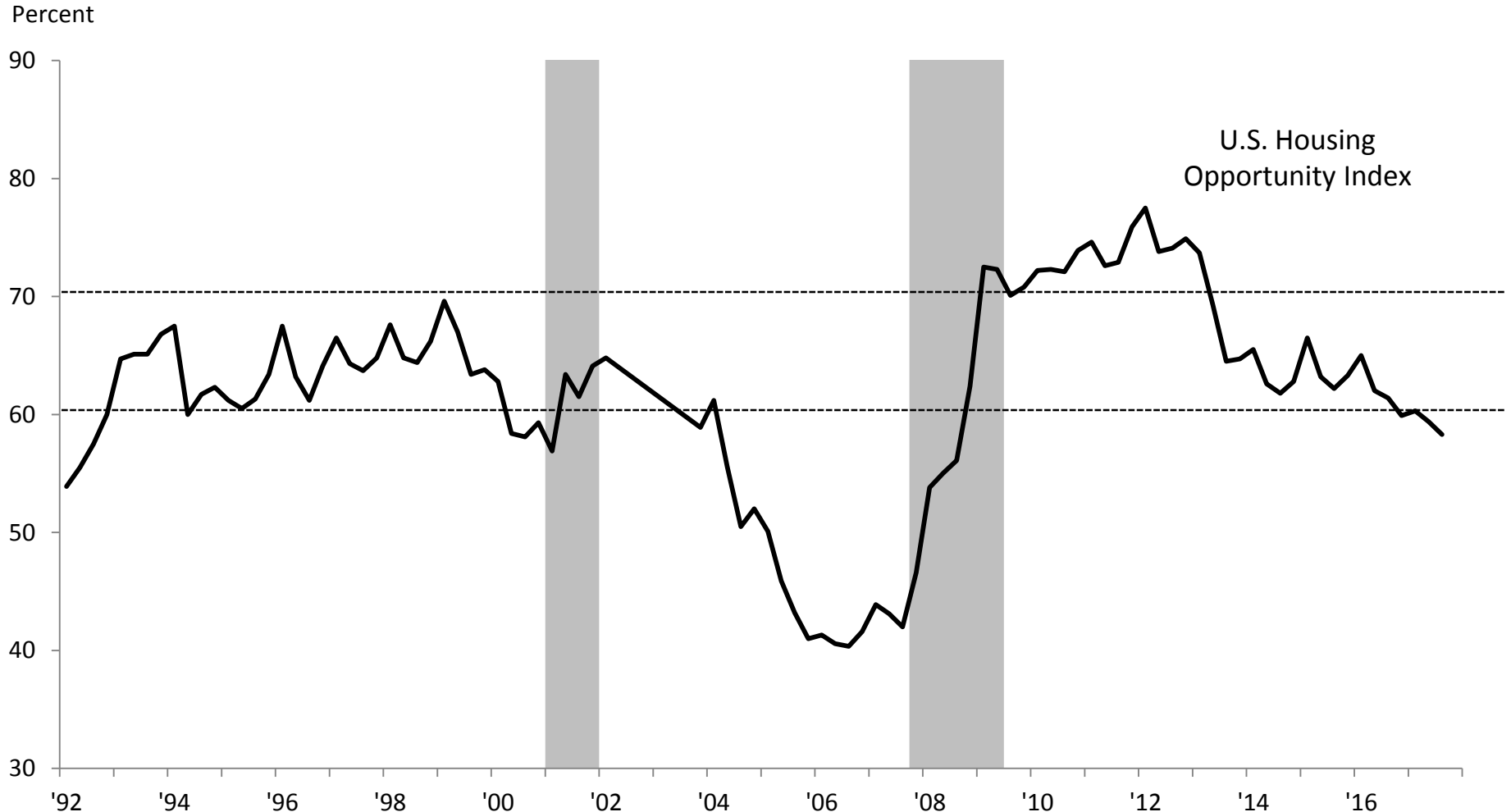
Sources: Authors' calculations and seasonal adjustment of underlying data from NCREIF, Bureau of Economic Analysis, the Lincoln Land Institute and the R.S.Means Corporation.

IV. Housing Affordability

- Home ownership affordability sags

Affordability Sagging Since 2012

(Share of homes sold that are affordable to median-income family)



NOTE: The Housing Opportunity Index assumes that the family spends 28 percent of its gross income on a 30-year, fixed-rate mortgage with a 10 percent down payment.

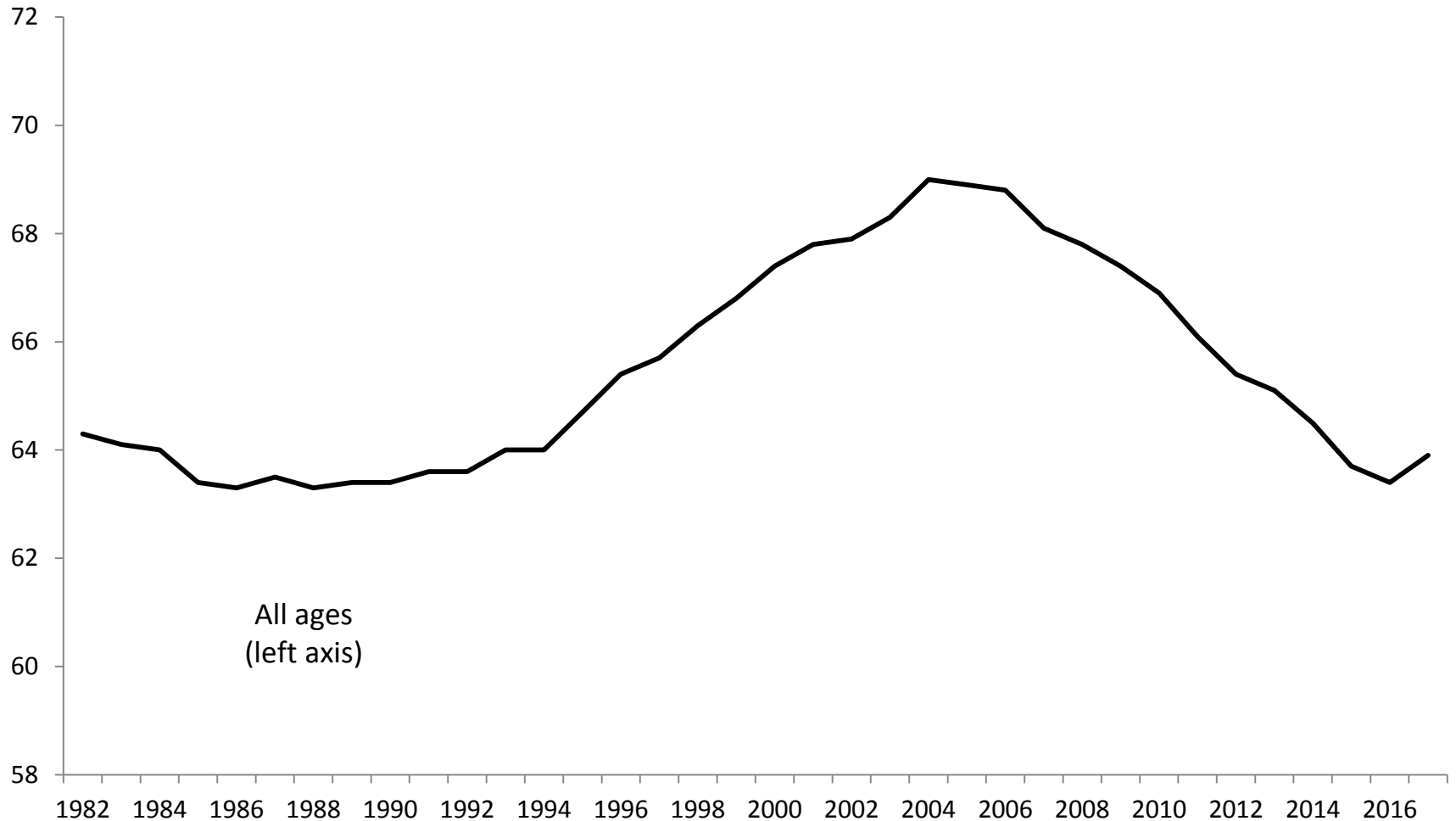
SOURCES: National Association of Home Builders and Wells Fargo.

IV. Housing Affordability

- Home ownership affordability sags
- Rentals becoming hard to afford:
 - Since 1999, rental prices have outgrown median household income
 - And median income growth has lagged among younger households
- Partly manifest in trends in the share of adults living with their parents...which mainly reflects trends in poverty among the non-elderly, and to a lesser extent, trends in rental costs (very little evidence for age, longevity, or shifts in marital status as factors)

Rise and fall of homeownership rates very pronounced among younger families

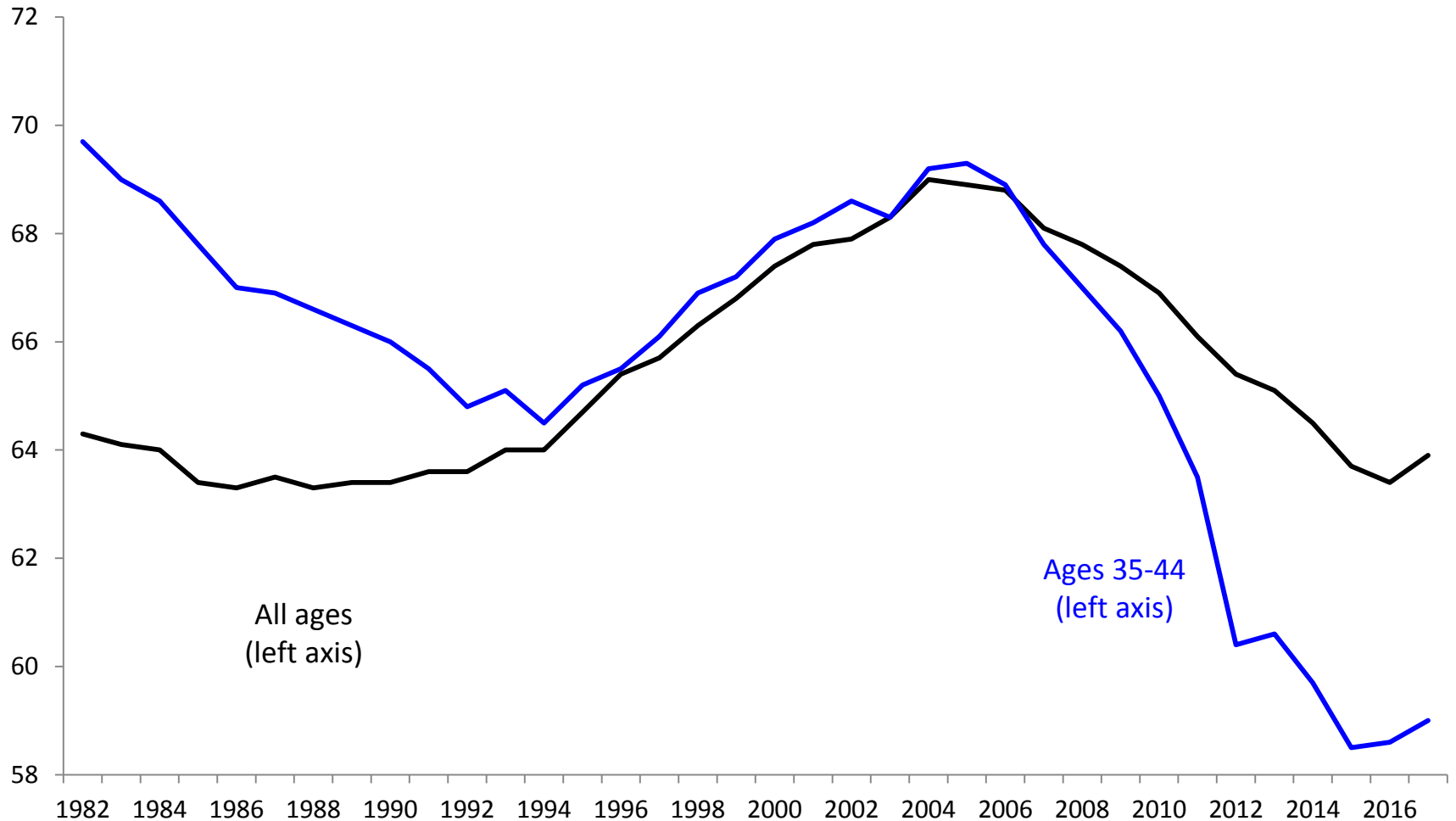
Percent of households



SOURCES: Census Bureau and author's calculations of adjustments for changes in decennial census-related survey procedures to make data more consistent over time.

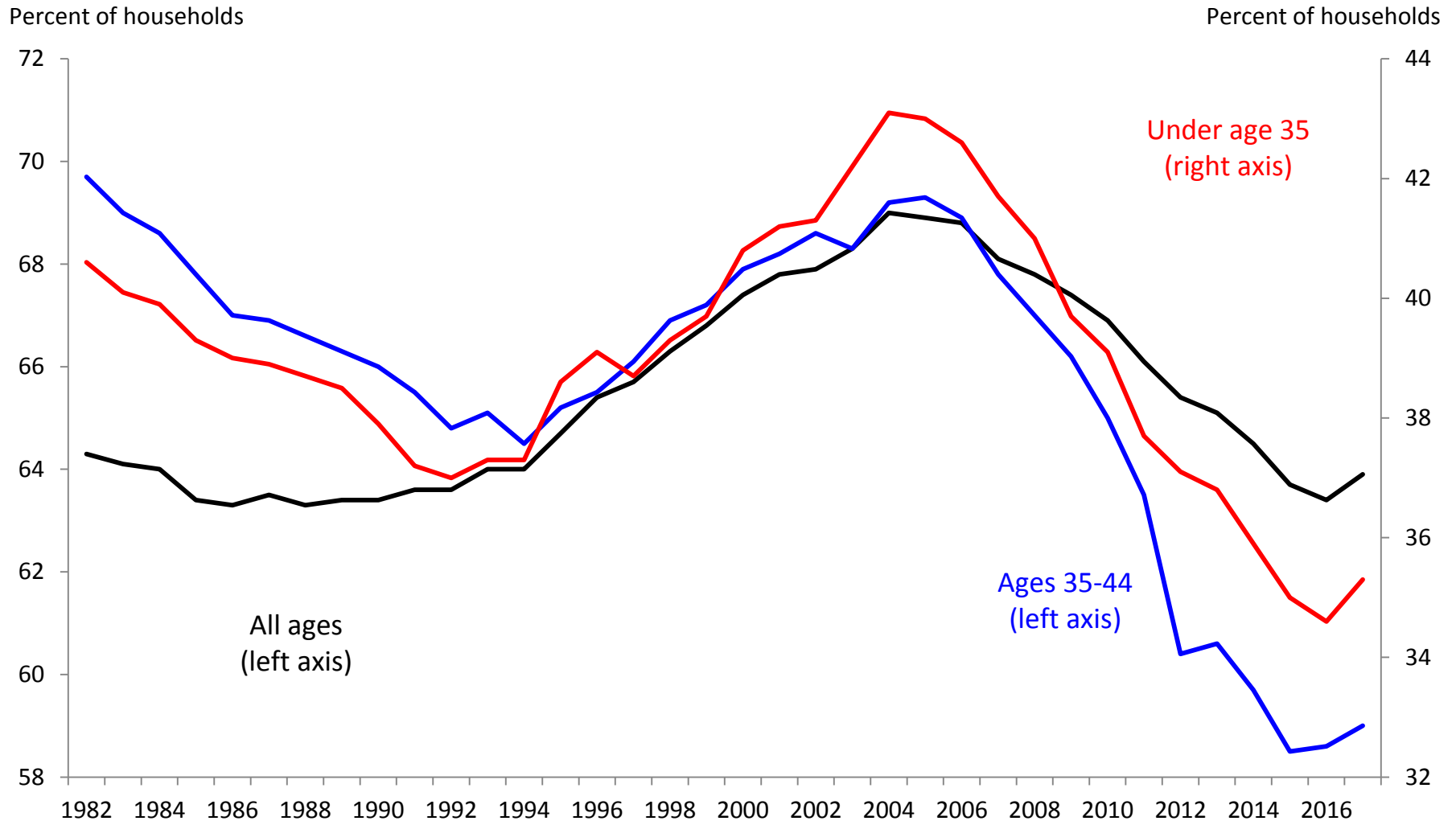
Rise and fall of homeownership rates very pronounced among younger families

Percent of households



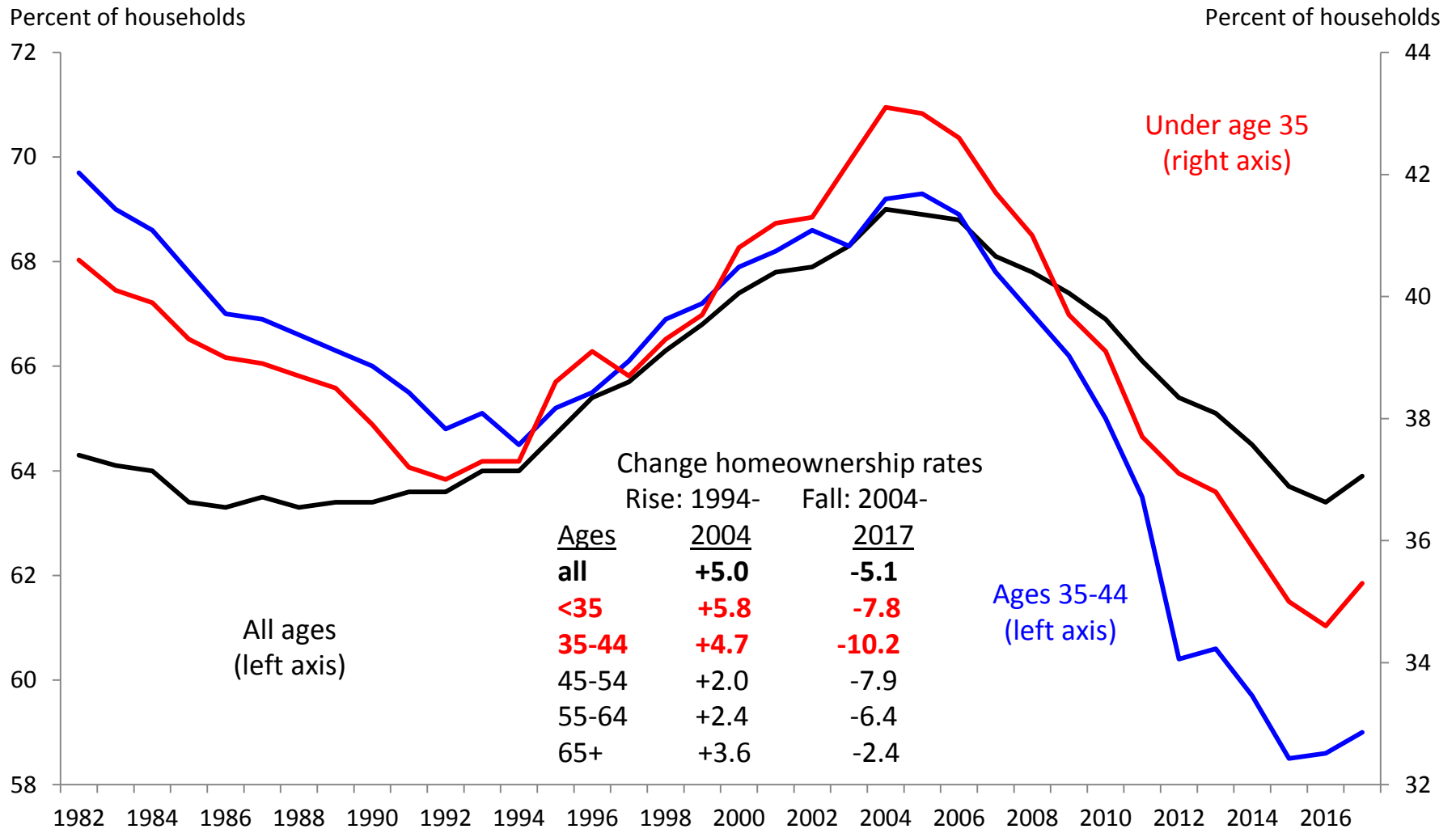
SOURCES: Census Bureau and author's calculations of adjustments for changes in decennial census-related survey procedures to make data more consistent over time.

Rise and fall of homeownership rates very pronounced among younger families



SOURCES: Census Bureau and author's calculations of adjustments for changes in decennial census-related survey procedures to make data more consistent over time.

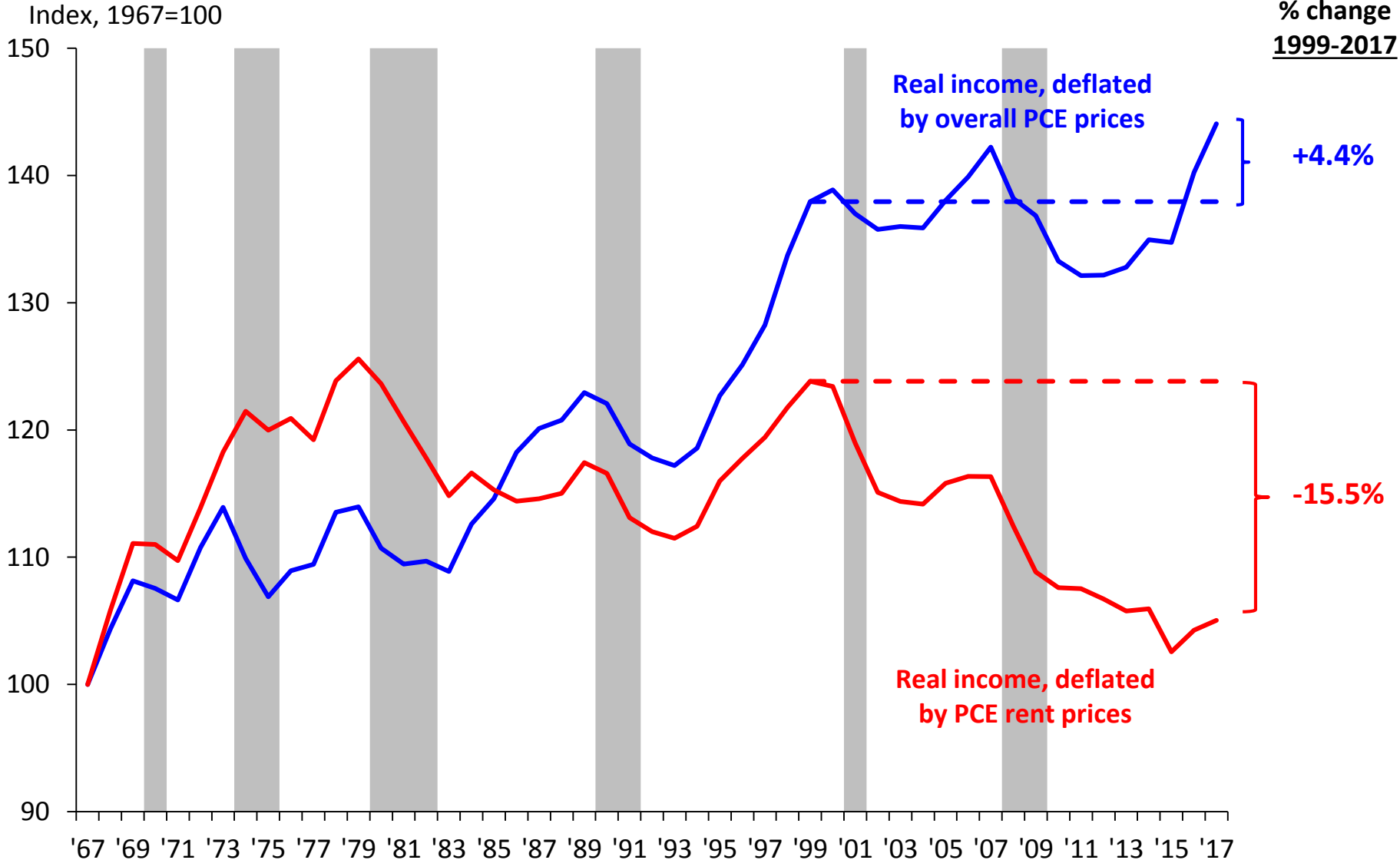
Rise and fall of homeownership rates very pronounced among younger families



SOURCES: Census Bureau and author's calculations of adjustments for changes in decennial census-related survey procedures to make data more consistent over time.

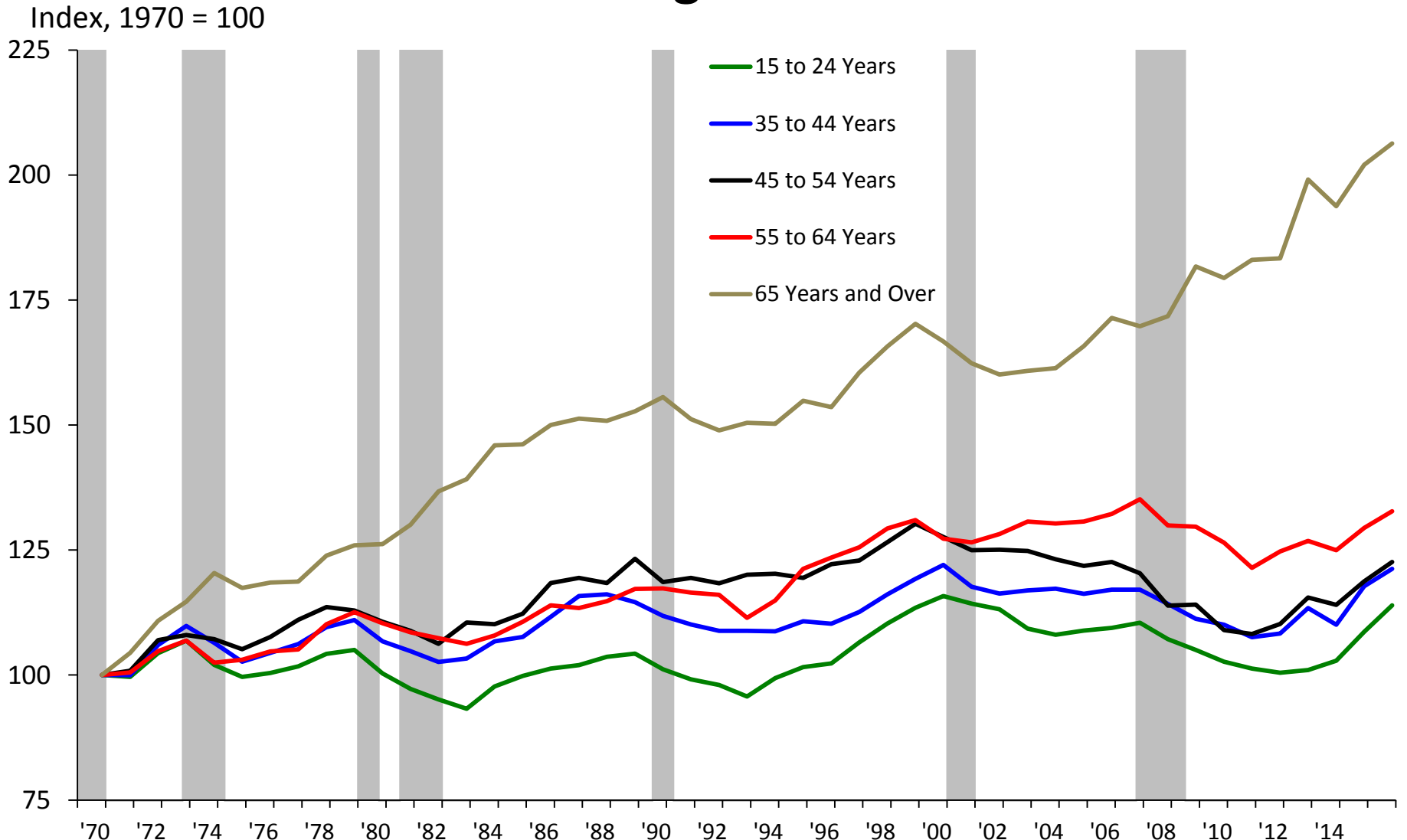
Real Median Household Income Has Inched Up Since 1999, But Has Fallen Relative To Rents

**% change
1999-2017**



Sources: U.S. Census, Bureau of Economic Analysis, and authors' calculations. Shaded areas denote NBER recessions.

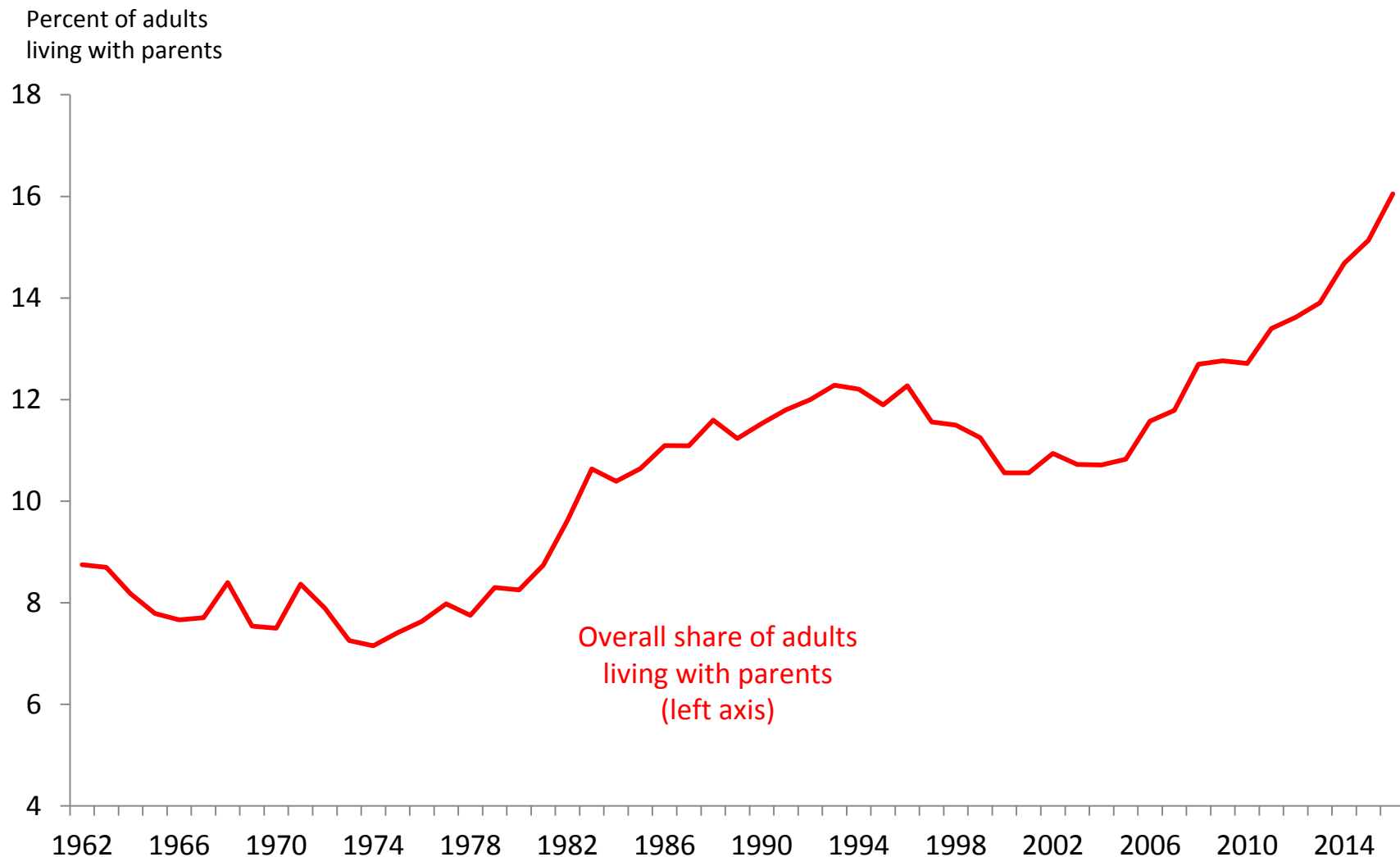
Median Income of Younger Households Has Stagnated



NOTES: Grey shaded areas indicate NBER recessions.

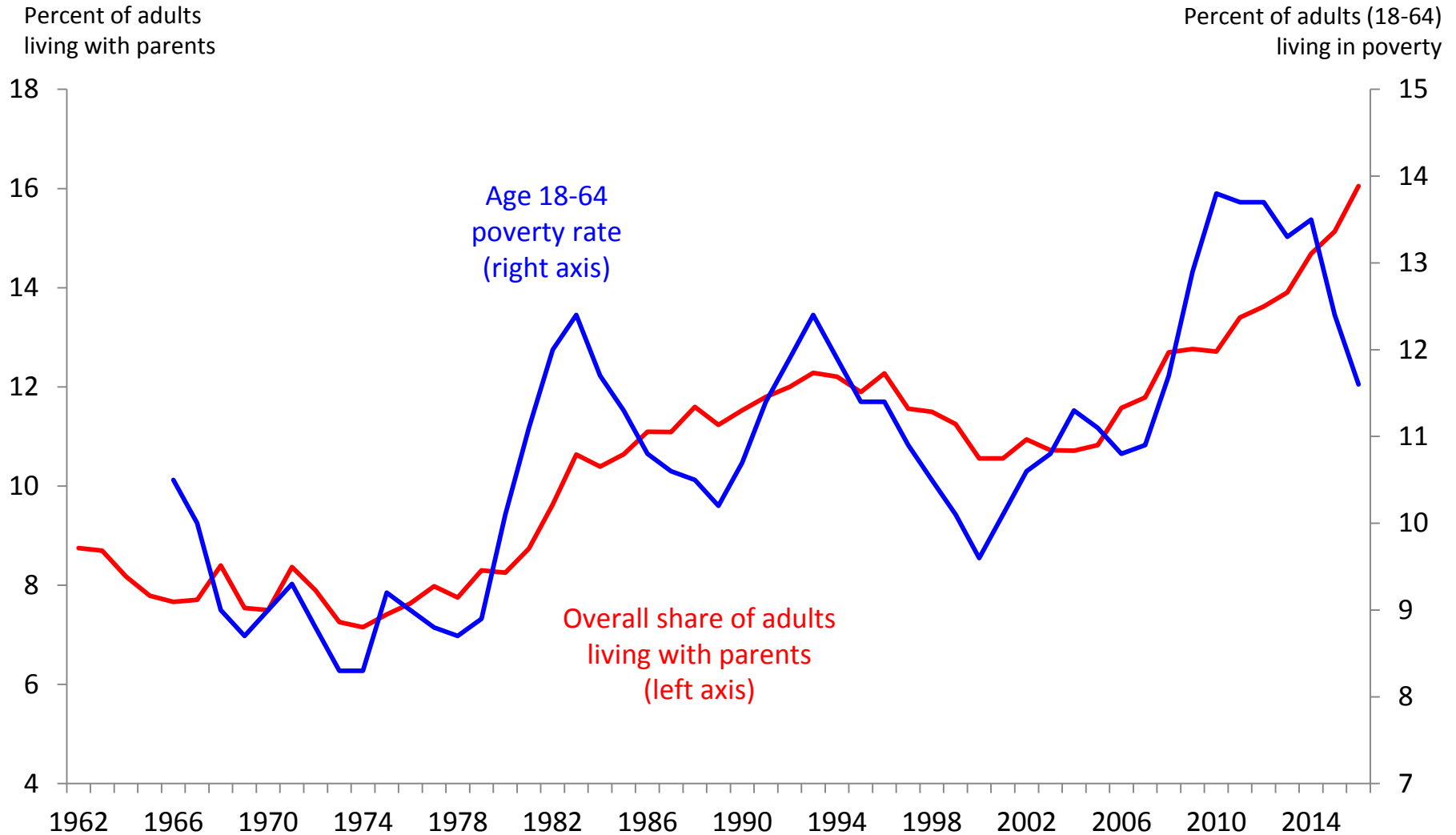
SOURCES: Census Bureau; NBER.

The share of adults living with their parents



SOURCES: Census, author's calculation using the IPUM-CPS (Integrated Public Use Microdata Series-Current Population Survey) data set, and "When Will the Kids Ever Move Out?" by John V. Duca, December 2014, manuscript.

The share of adults living with their parents trends with poverty among non-elderly adults



SOURCES: Census, author's calculation using the IPUM-CPS (Integrated Public Use Microdata Series-Current Population Survey) data set, and "When Will the Kids Ever Move Out?" by John V. Duca, December 2014, manuscript.

Conclusion

- Housing affordability has declined for both owning and renting, reflecting the confluence of several factors.
- Housing demand has been bolstered by low interest rates especially adjusted for recent house price appreciation.
- But housing supply has been constrained, with land prices and regulations posing barriers to construction.
- Renters also affected by anemic income growth.
- Against a backdrop of low unemployment and low interest rates, policy options geared toward boosting the supply of housing (transportation affects housing supply) and raising the income prospects of poorer families could be particularly effective in addressing affordability.

Some Relevant Articles

(John V. Duca, Federal Reserve Bank of Dallas and Oberlin College)

- **The Long-Awaited Housing Recovery** (2014 Dallas Fed Annual Report Essay) <http://www.dallasfed.org/microsites/fed/reports/2014/index.cfm>
- **How Mortgage Finance Reform Could Affect Housing:** (American Economic Review 106(5), John Duca, John Muellbauer and Anthony Murphy, May 2016). <https://www.aeaweb.org/articles?id=10.1257/aer.p20161083>
- **House Prices and Credit Constraints: Making Sense of the U.S. Experience** (*Economic Journal* 121, J. Duca, J. Muellbauer, and A. Murphy, May 2011). <http://onlinelibrary.wiley.com/doi/10.1111/j.1468-0297.2011.02424.x/pdf>
- **Housing Markets and the Financial Crisis of 2007-09: Lessons for the Future** (*Journal of Financial Stability* 6, John Duca, John Muellbauer and Anthony Murphy, December 2010). <http://www.sciencedirect.com/science/journal/15723089>
- **The Subprime Crisis** (Federal Reserve History Gateway Essay, Dec. 2013) <http://www.federalreservehistory.org/Events/DetailView/55>
- **When Will the U.S. Housing Market Stabilize?** (Dallas Fed *Economic Letter*, August 2011, John Duca, David Luttrell, and Anthony Murphy) <http://www.dallasfed.org/assets/documents/research/eclett/2011/el1108.pdf>
- **The Rise and Fall of Subprime Mortgages** (Dallas Fed *Economic Letter*, Nov. 2007, Danielle DiMartino and John Duca): <http://www.dallasfed.org/assets/documents/research/eclett/2007/el0712.pdf>
- **Early Signs of Home Overvaluation Emerging** (*Southwest Economy*, Spring 2004, J. Duca): <http://www.dallasfed.org/assets/documents/research/swe/2004/swe0402b.pdf>