

INVESTIGATING ECONOMIC INDICATORS

WEBINAR SERIES

Understanding Construction and Housing Statistics

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Webinar Overview

- Construction and Housing Indicators
- Related Economic Indicators
- Q&A



Definitions Used in the Webinar

- Seasonal Adjustment - the process of estimating and removing seasonal effects from a time series in order to better reveal certain non-seasonal features.
 - SA – seasonally adjusted
 - SAAR – seasonal adjusted annual rate
 - NSA – not seasonally adjusted
- Recession –The National Bureau of Economic Research (NBER) defines recession as "a period of falling economic activity spread across the economy, lasting more than a few months."



Why are housing and construction important??

- Job creation
- Related sales
- Housing and construction contributes to Gross Domestic Product (GDP)
 - 2015 Quarter 1
 - Housing and utilities – 12.3%
 - Private investment in structures – 5.7%



New Residential Construction (NRC)

- Monthly estimates of single- and multifamily permits, starts, completions, and inventories
- Joint release by the Census Bureau and Department of Housing and Urban Development (HUD)
- Data are typically released on the 12th workday of the month after the reference month
- Seasonally adjusted annual rate and unadjusted estimates
- Estimates are used by economists, policy makers, and manufacturers and retailers
- Available at www.census.gov/construction/nrc/index.html

Where does the data come from?

Building Permits Survey (BPS)

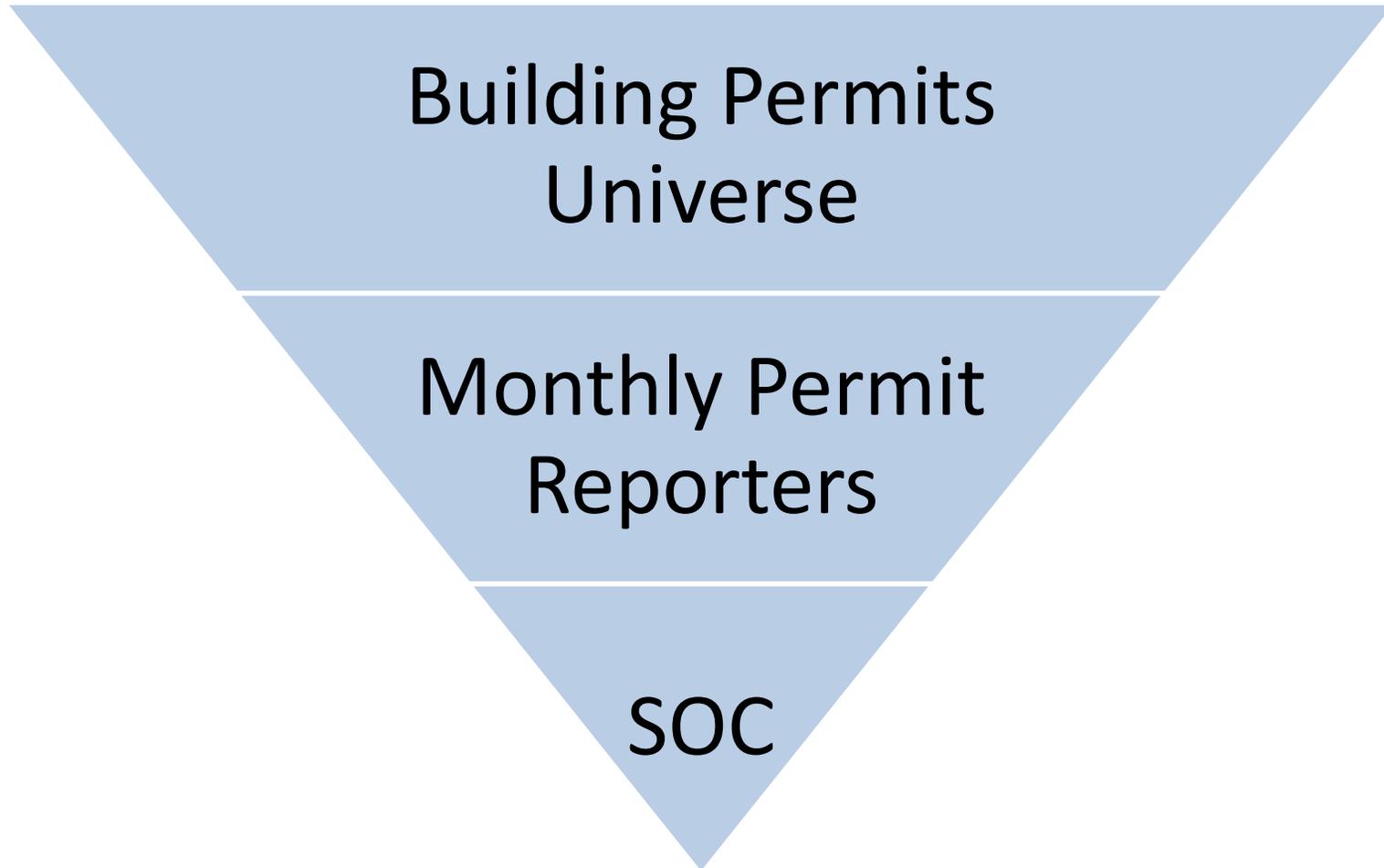
- Provides the number and valuation of units authorized by building permits
- 20,000 permit issuing jurisdictions are in the universe, approximately 9,000 are in the monthly sample
- Only data available at the state and local level
- State, county, metropolitan statistical area (MSA), and place level data are released on the 18th workday after the reference month

Where does the data come from?

Survey of Construction (SOC)

- Tells us what happens to units authorized
 - Follows a sample of units authorized
- Monthly estimates of units started, completed, and sold
 - National
 - Regional
- Annual and quarterly estimates of physical and financial characteristics
- Data collected by Census Bureau field representatives
- Follow both single- and multifamily housing

How BPS and SOC are Related



How BPS and SOC are Related

- Building Permits Universe
 - Every jurisdiction that issues building permits
 - Annual reporters
 - Charleston, IL
 - Monthly reporters
 - Chicago, IL
 - Springfield, IL
 - St. Louis, MO



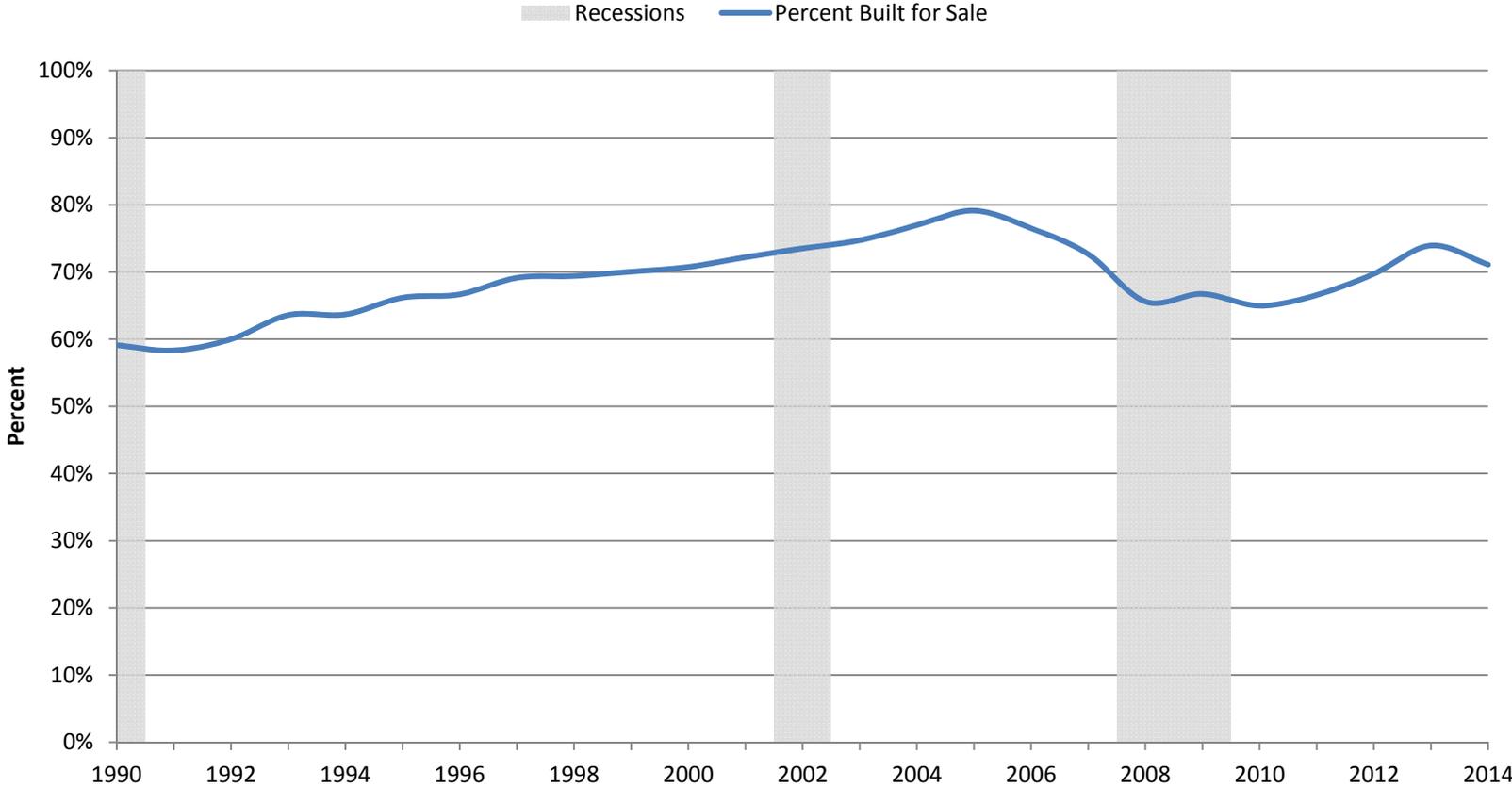
The SOC Sample

- Approximately 900 permit issuing places and 60 non-permit issuing places
- All permits listed and sampled monthly
- Field representatives canvass non-permit areas looking for units that have started

New Residential Sales (NRS)

- Estimates of new single-family homes sold
- Joint release by the Census Bureau and Department of Housing and Urban Development (HUD)
- Data comes from the Survey of Construction
- Seasonally adjusted annual rate and unadjusted estimates
- Estimates released on the 17th workday after the reference month
- A house is sold when a contract is signed or a deposit is taken
- A home can be sold at any stage of the construction process, even before a permit is issued

Percent of Single-Family Homes Completed Built For Sale



Source: U.S. Census Bureau, Survey of Construction

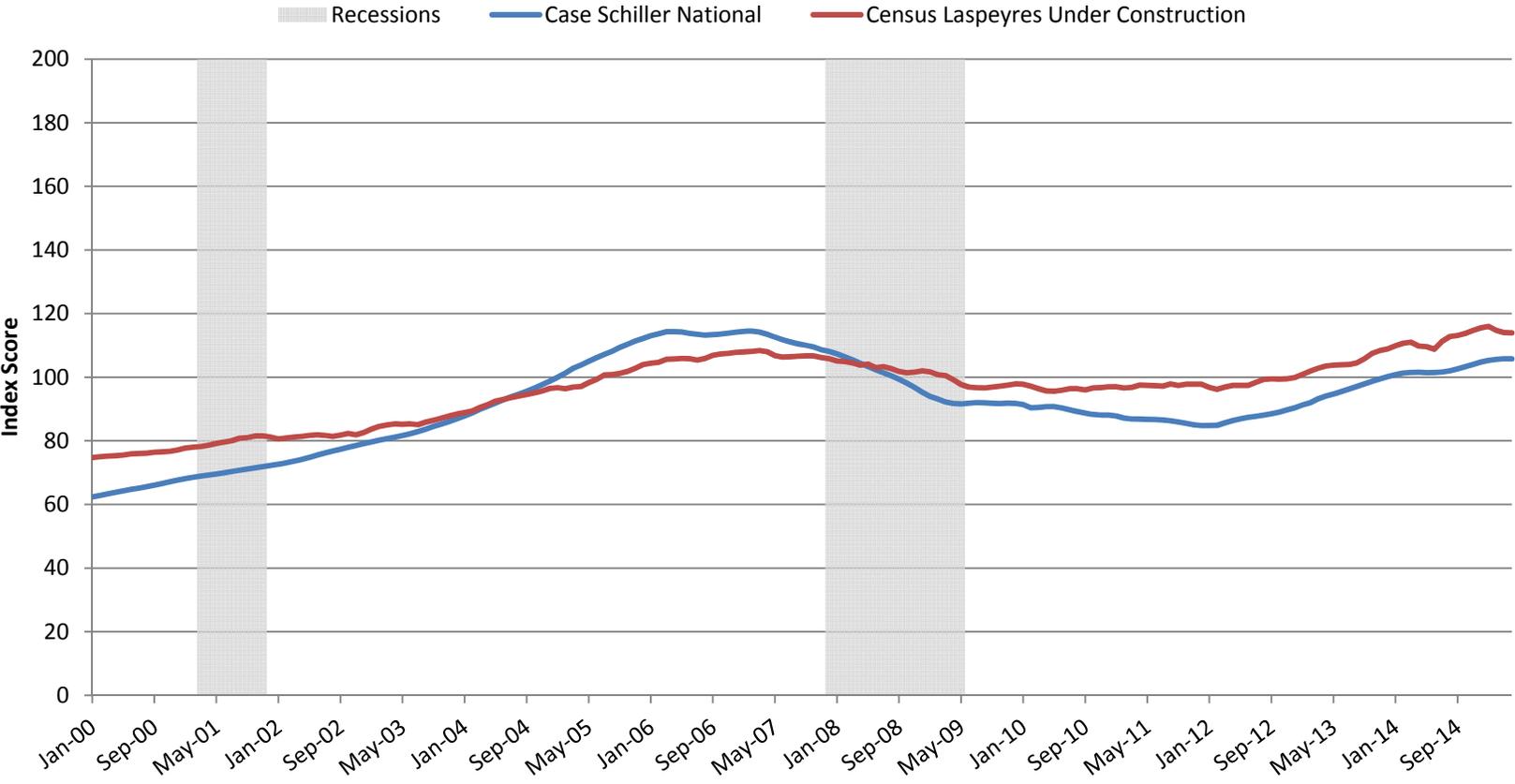
Price Indexes

- Census Laspeyres constant quality price indexes for new single-family houses
 - Released with New Residential Sales
 - Monthly – houses under construction
 - Quarterly – houses sold
 - Base year = 2005
 - Only measures price change for new homes
 - Control for quality by holding characteristics constant

Price Indexes

- S&P/Case-Shiller index is a constant quality index of single-family repeat sales
 - National, 10 city composite, 20 city composite, metropolitan areas
 - Monthly
 - Base year = 2000
 - Only measures price change for existing homes
 - Exclude
 - Sales occurring less than 6 months apart
 - Non-arms length transactions
 - Homes that had substantial physical changes
 - Index value is a 3 month moving average

Census Laspeyres Under Construction Index versus Case-Shiller National Index (SA)

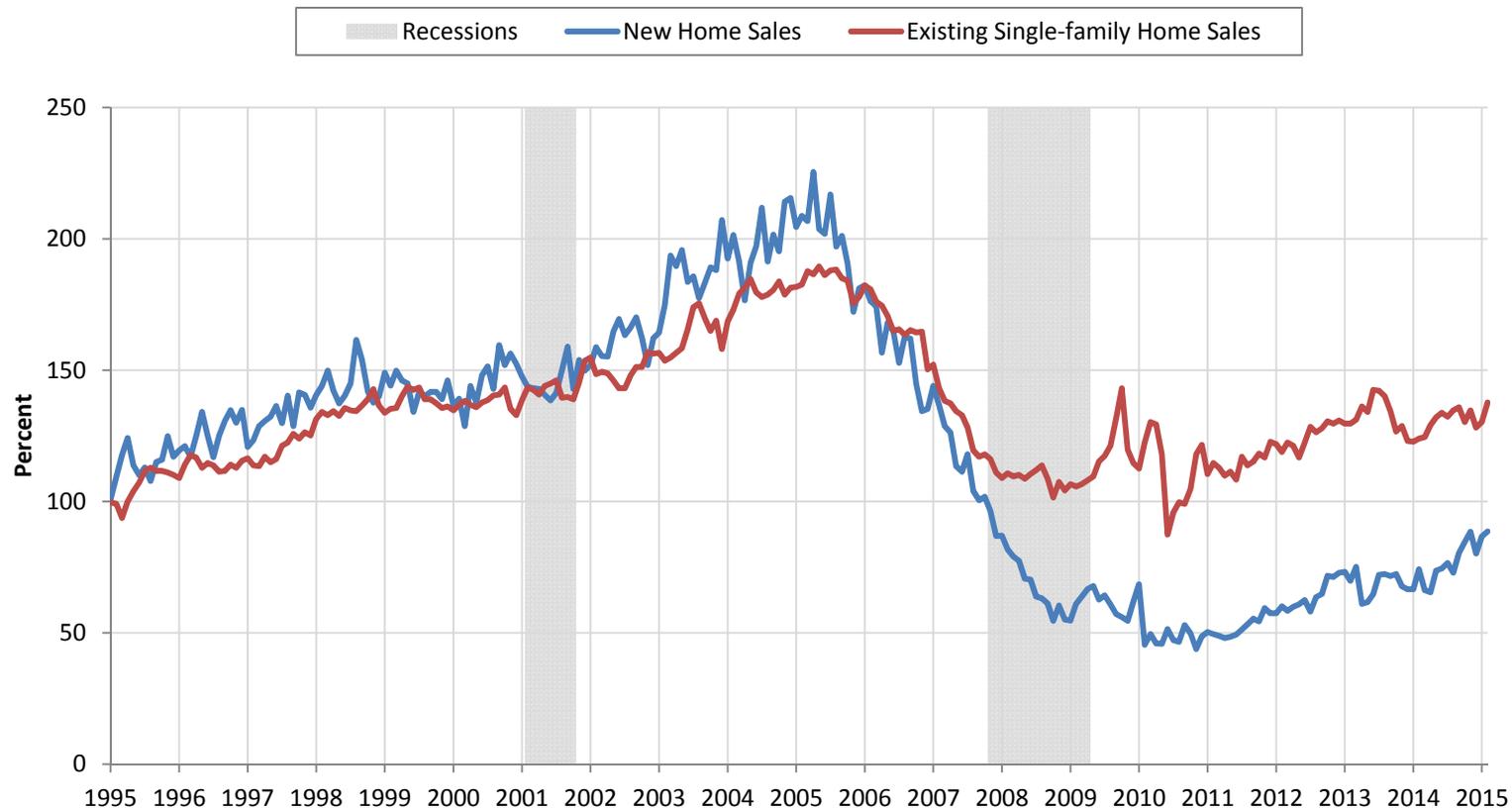


Note: Census and Case-Shiller base year are both 2005
 Source: U.S. Census Bureau - Survey of Construction, S&P Case-Shiller

Existing Home Sales

- Monthly estimates produced by the National Association of Realtors
 - Seasonally adjusted annual rate and unadjusted estimates
- A home is counted as sold upon closing
- Estimates come from a sample of 160 participating Multiple Listing Services (MLS)
- 4,344,000 existing single-family homes sold in 2014
- 437,000 new single-family homes sold in 2014

New Home Sales (SA) and Existing Home Sales (SA) as a Percent of January 1995 Estimates (New Home Sales Lagged 2 Months)



Source: U.S. Census Bureau - Survey of Construction, National Association of Realtors

Housing Vacancies and Homeownership

- Data are from the Current Population Survey (CPS) and the Housing Vacancy Survey (HVS)
- Data released quarterly and annually
- Housing inventory estimate
- Rates
 - Rental vacancy and homeowner vacancy
 - Homeownership
 - Seasonally adjusted and unadjusted

Population and Housing Estimates

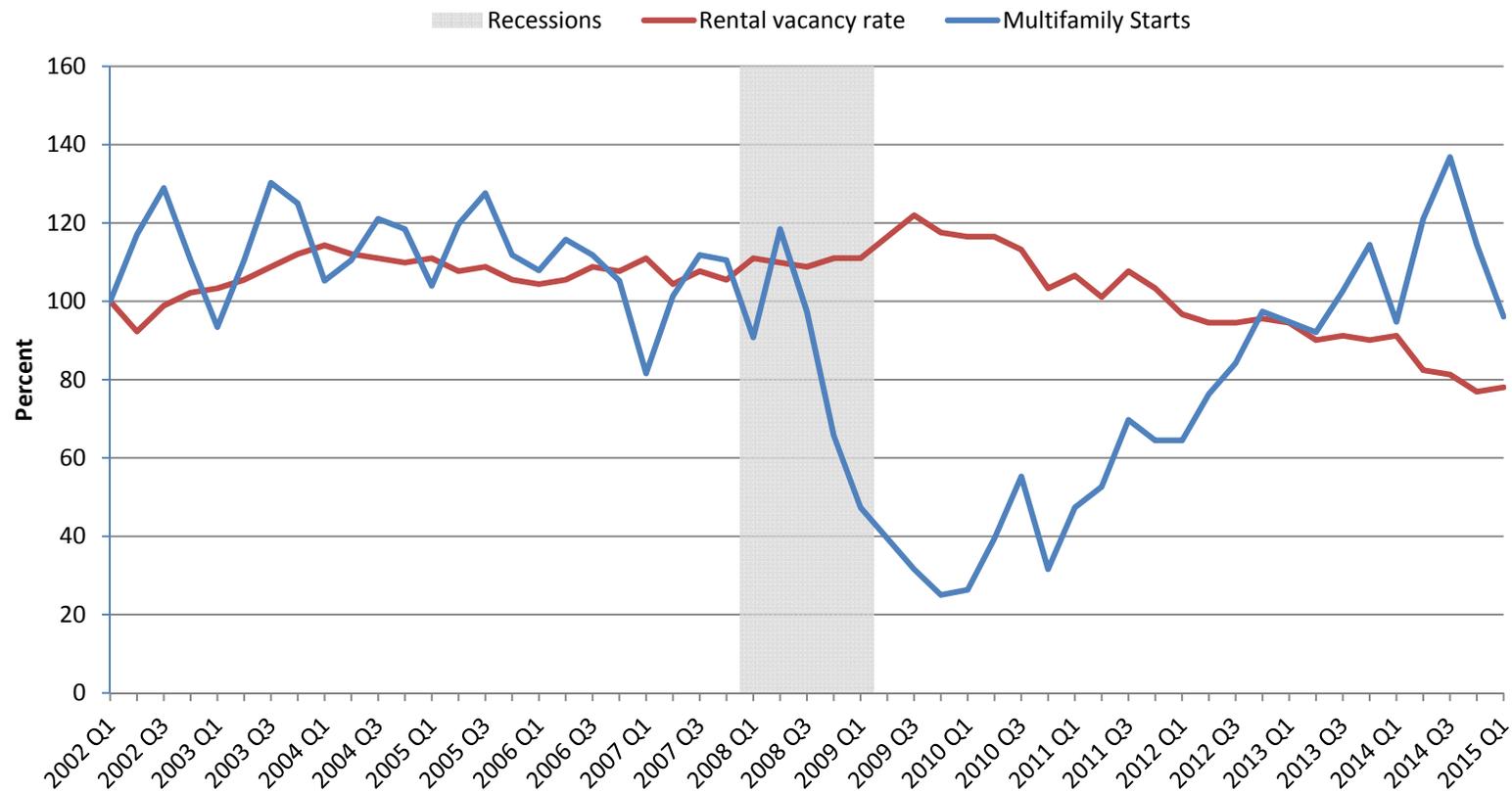
- Census Bureau produces annual population and housing unit estimates
- Used as survey controls
- Entire time series revised back to the last census with each release
- 4 components used to create the annual housing unit estimates



Understanding HVS Vintages

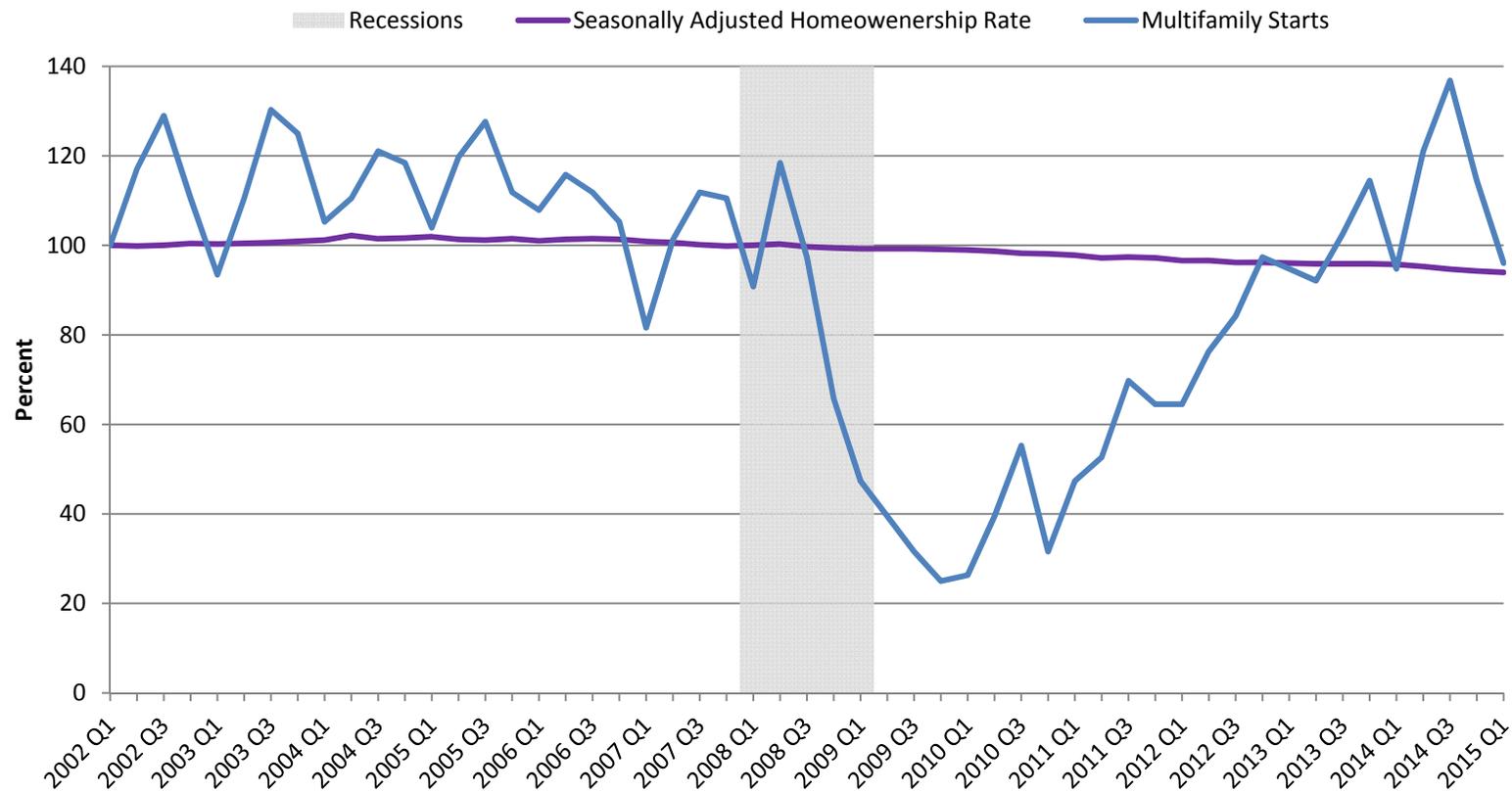
- HVS creates weighting factors based on the independent housing unit estimates that ensure that HVS estimates add up to the independent housing unit control totals and align with other housing surveys
- HVS publishes revised and unrevised estimates
 - Non-revised estimates are known as the “as published” data
 - Revised estimates are known as “vintages”

Rental Vacancy Rate and Quarterly Multifamily Starts as a Percent of the 2002 Quarter 1 Estimate



Source: U.S. Census Bureau - Housing Vacancy Survey, U.S. Census Bureau - Survey of Construction

Homeownership Rate (SA) and Quarterly Multifamily Starts (NSA) as a Percent of the 2002 Quarter 1 Estimate



Source: U.S. Census Bureau - Housing Vacancy Survey, U.S. Census Bureau - Survey of Construction

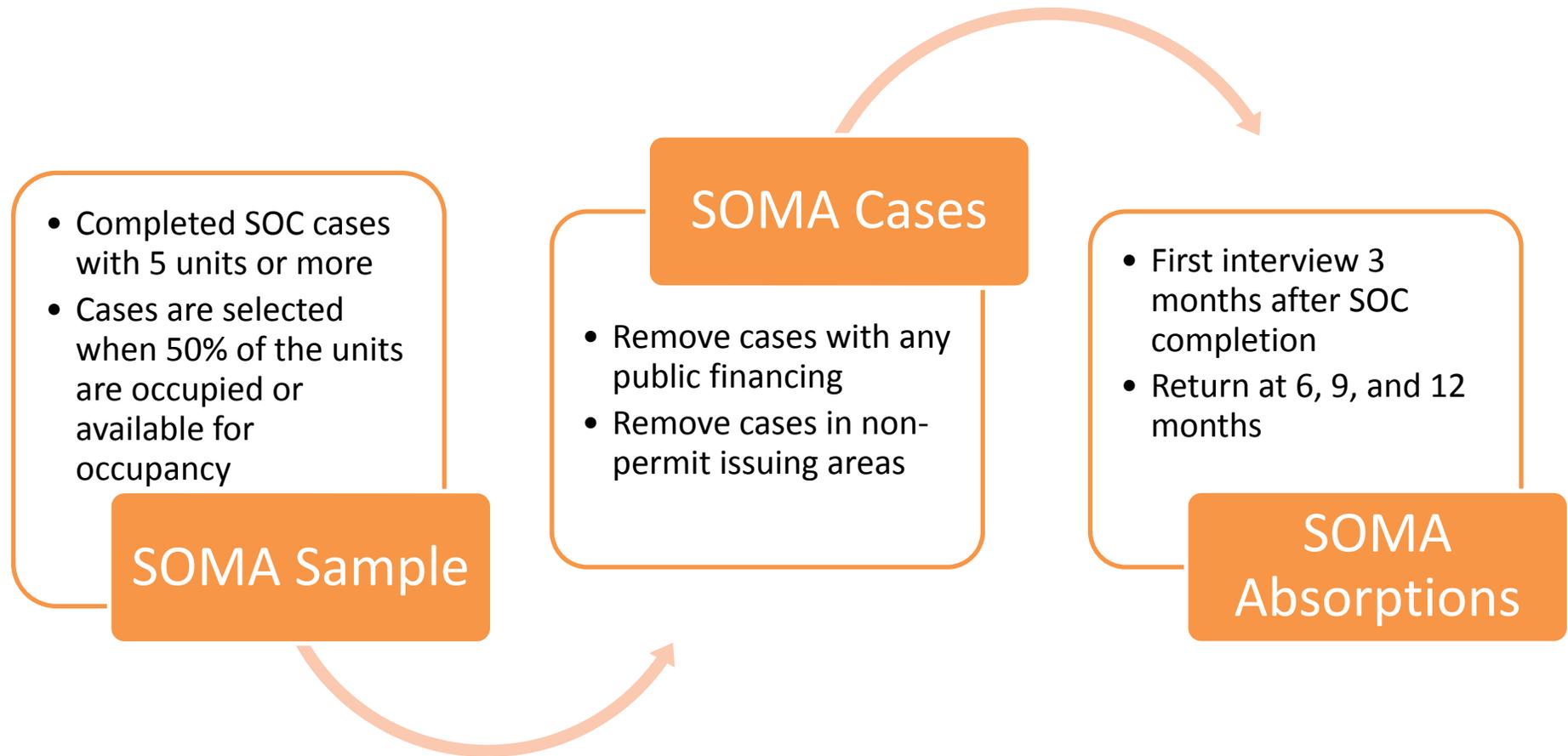
Household Formations

- Tells us about future housing needs and the health of the economy
- Derived statistic
- Change in total occupied housing units
(2014) 115,461,000 – (2013) 114,669,000 = 792,000
- Estimates of housing units
 - CPS Housing Vacancy Survey
 - CPS Annual Social and Economic Supplement
 - American Community Survey
 - American Housing Survey

Survey of Market Absorption (SOMA)

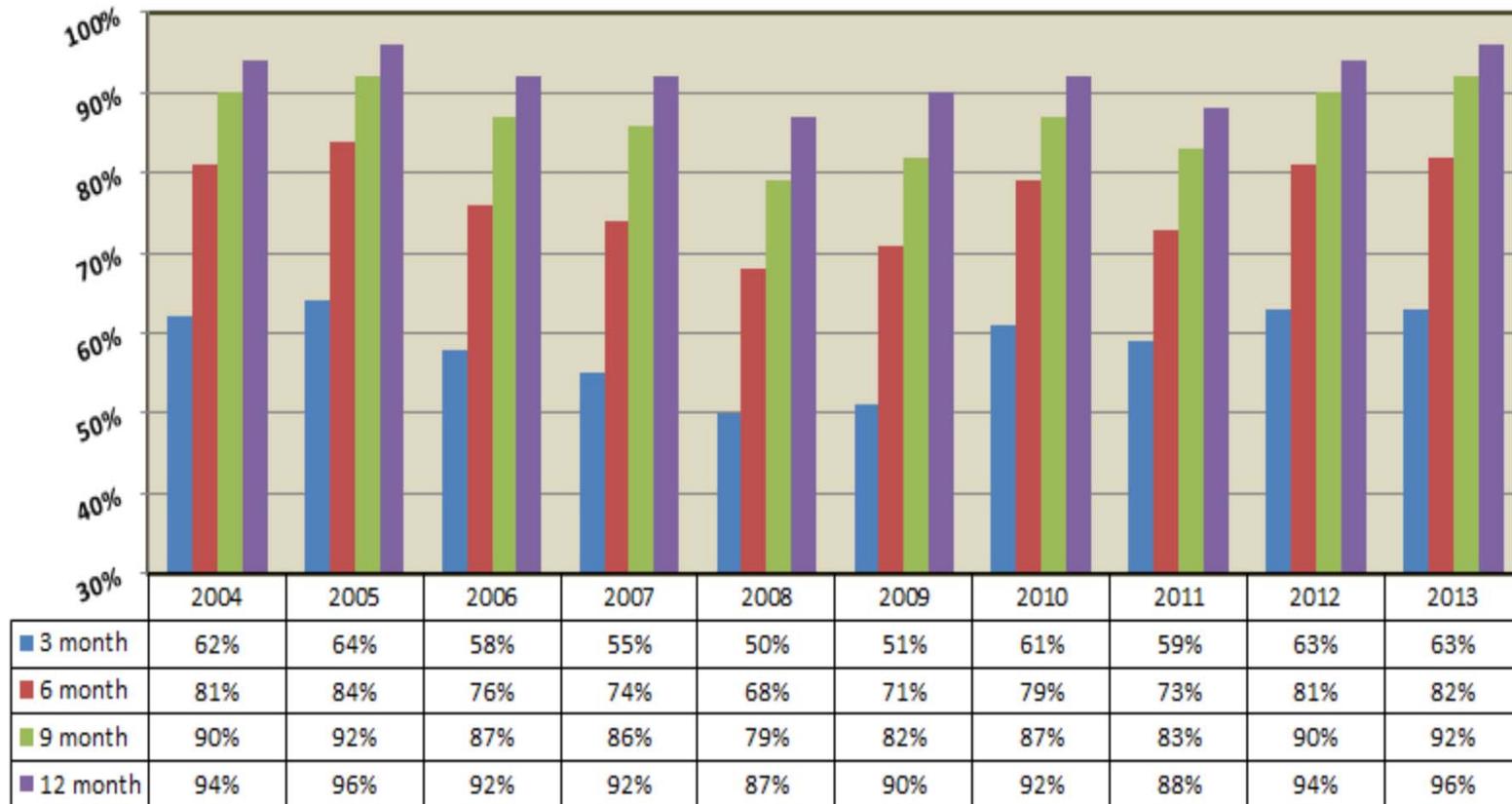
- Estimates of: number of units absorbed, rent and sales price, amenities, type of building, number of units
- Data are collected monthly and estimates are released quarterly and annually
- Sample comes from the Survey of Construction (SOC)
- Only source for estimates of rent or price of new multifamily units

How do SOC and SOMA relate?

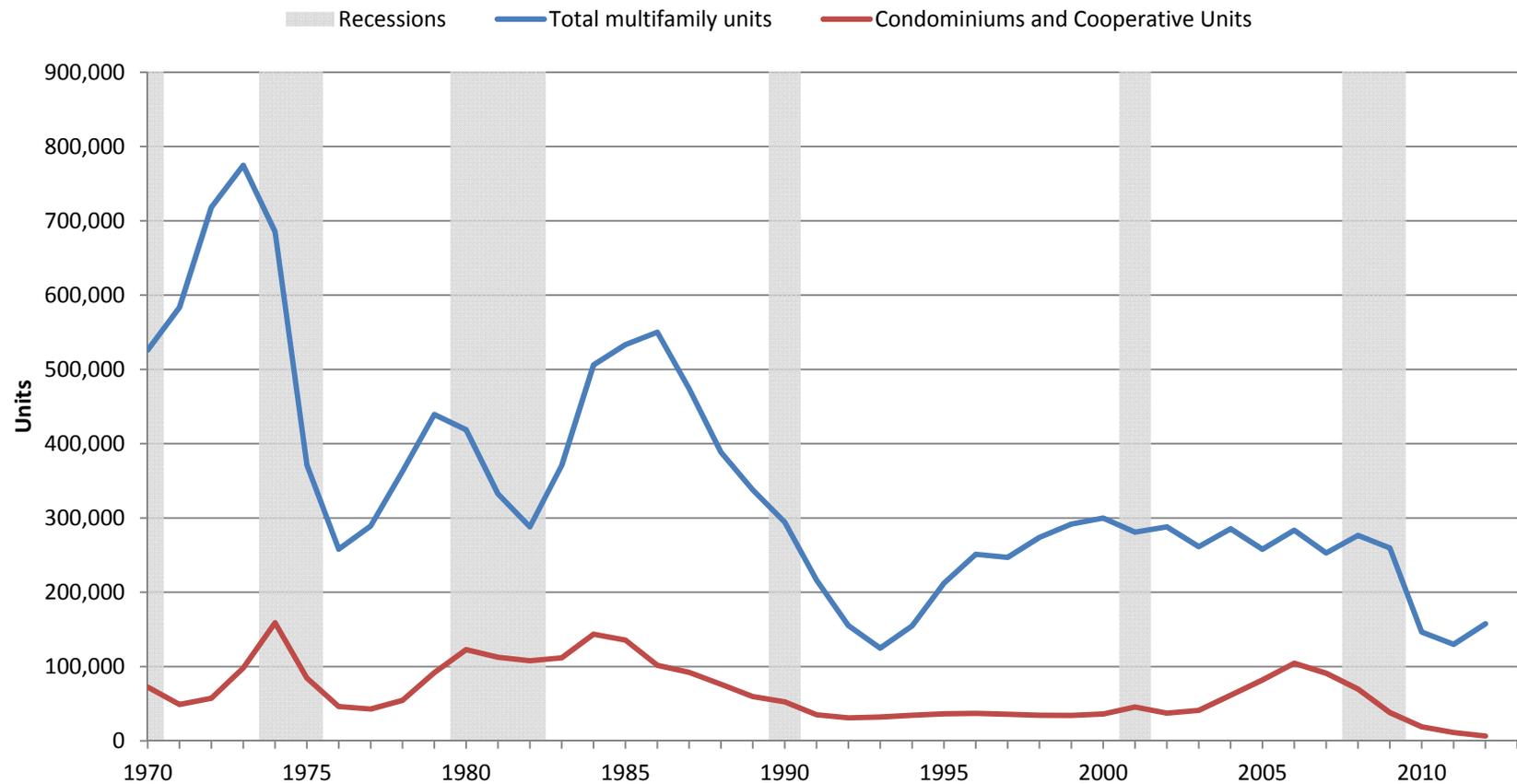


Unfurnished Apartment Absorption Rates 3, 6, 9, and 12 Months after Completion 10-Year Historical Comparison

(Data from SOMA 2014 Annual Report (2013 Completions) - Table 1)

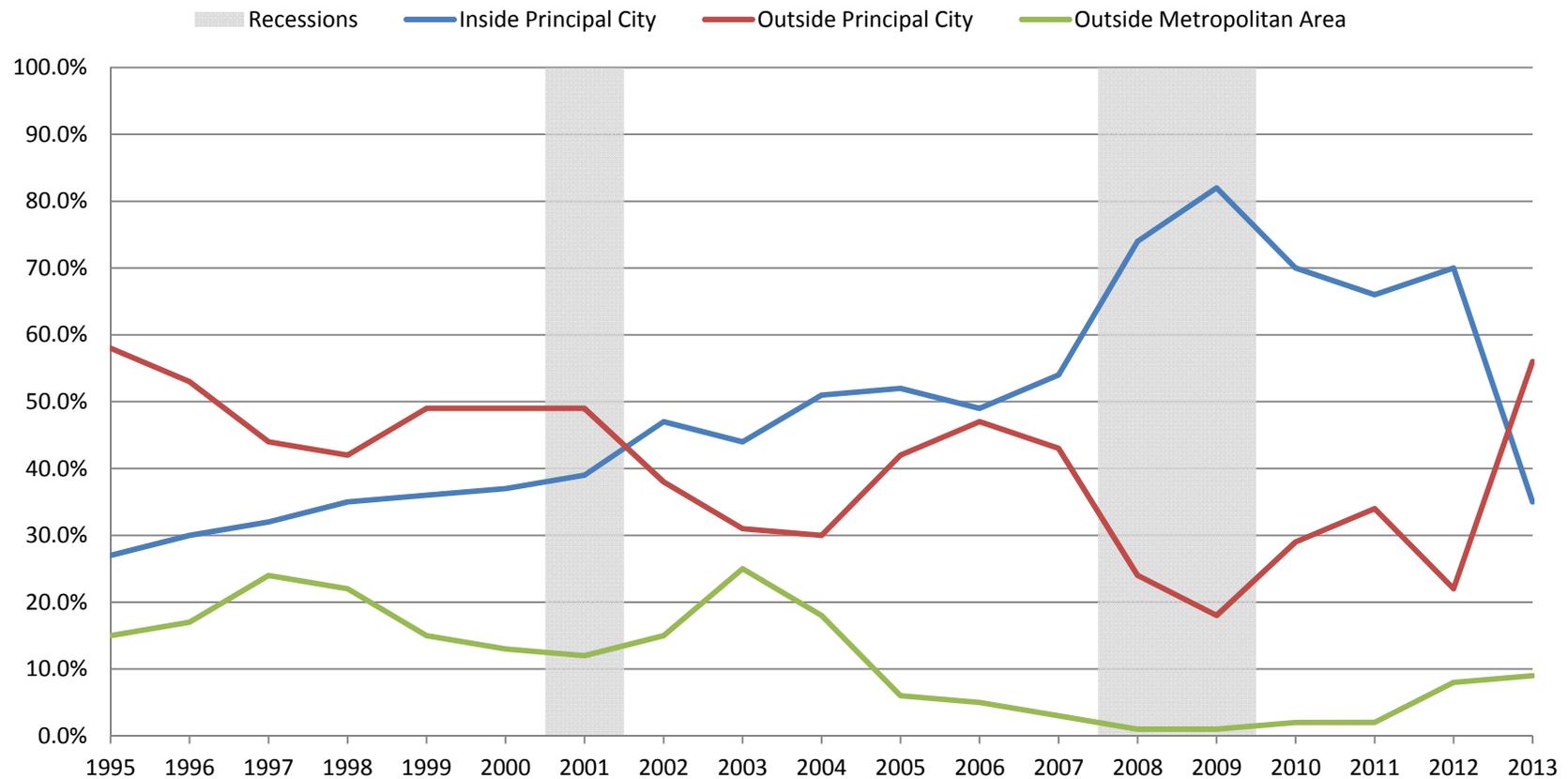


Annual Completions of Condominiums and Cooperatives



Source: U.S. Census Bureau - Survey of Market Absorption

Condo & Co-op Geographic Distribution Completed in 2013



Source: U.S. Census Bureau - Survey of Market Absorption

Note: Principal city is the largest city in a Metropolitan Statistical Area or Core Based Statistical Area

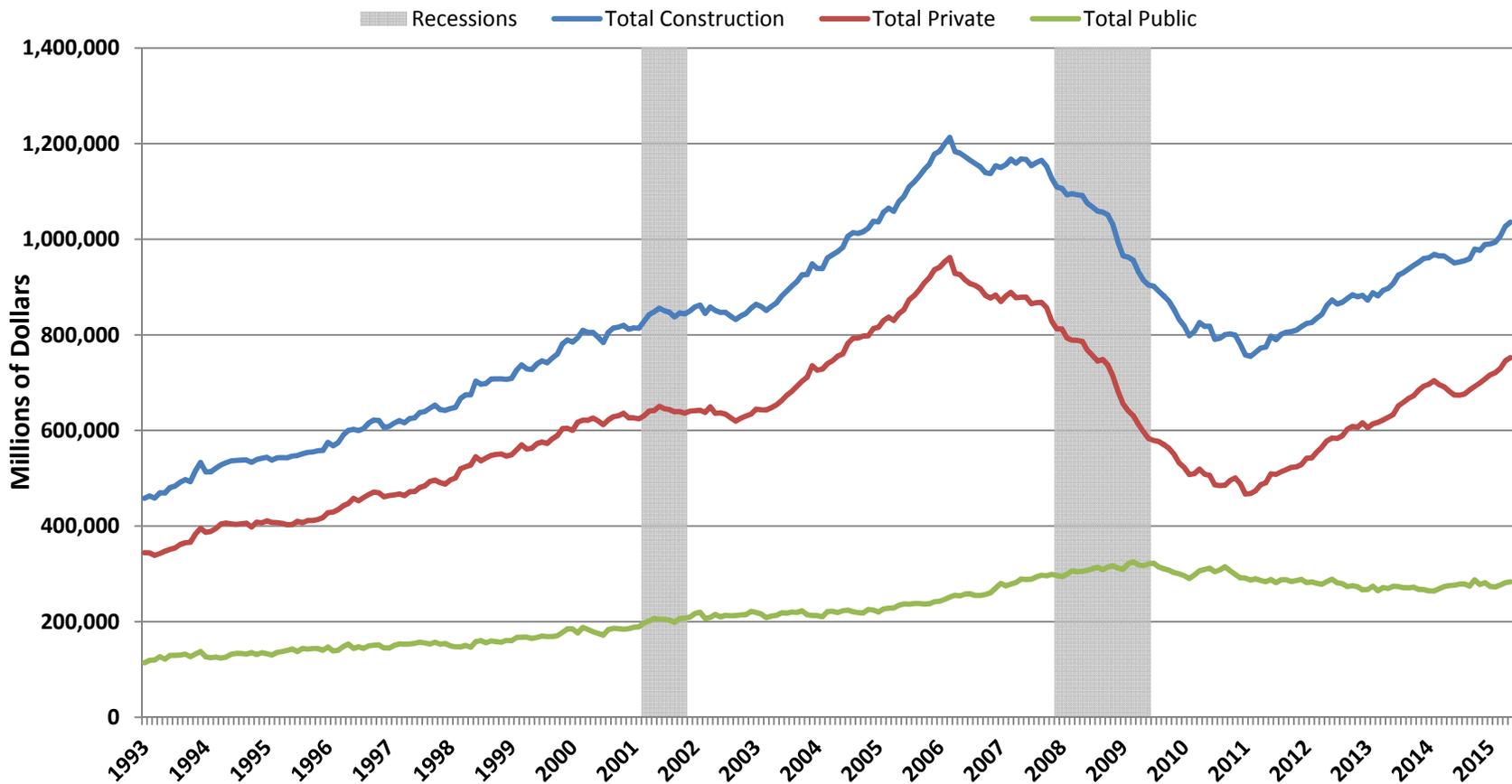
Construction Spending: Value of Construction Put in Place (VIP)

- Monthly and annual estimates of the value of work done on all projects
- Main components: private, federal, and state and local spending
- Construction includes: labor, materials, site preparation, architectural and engineering work, overhead, taxes, and profits, etc.
- Release contains both seasonally adjusted annual rates and unadjusted estimates
- Estimates are released on the first workday of the second month following the reference period

Where does Construction Spending data come from?

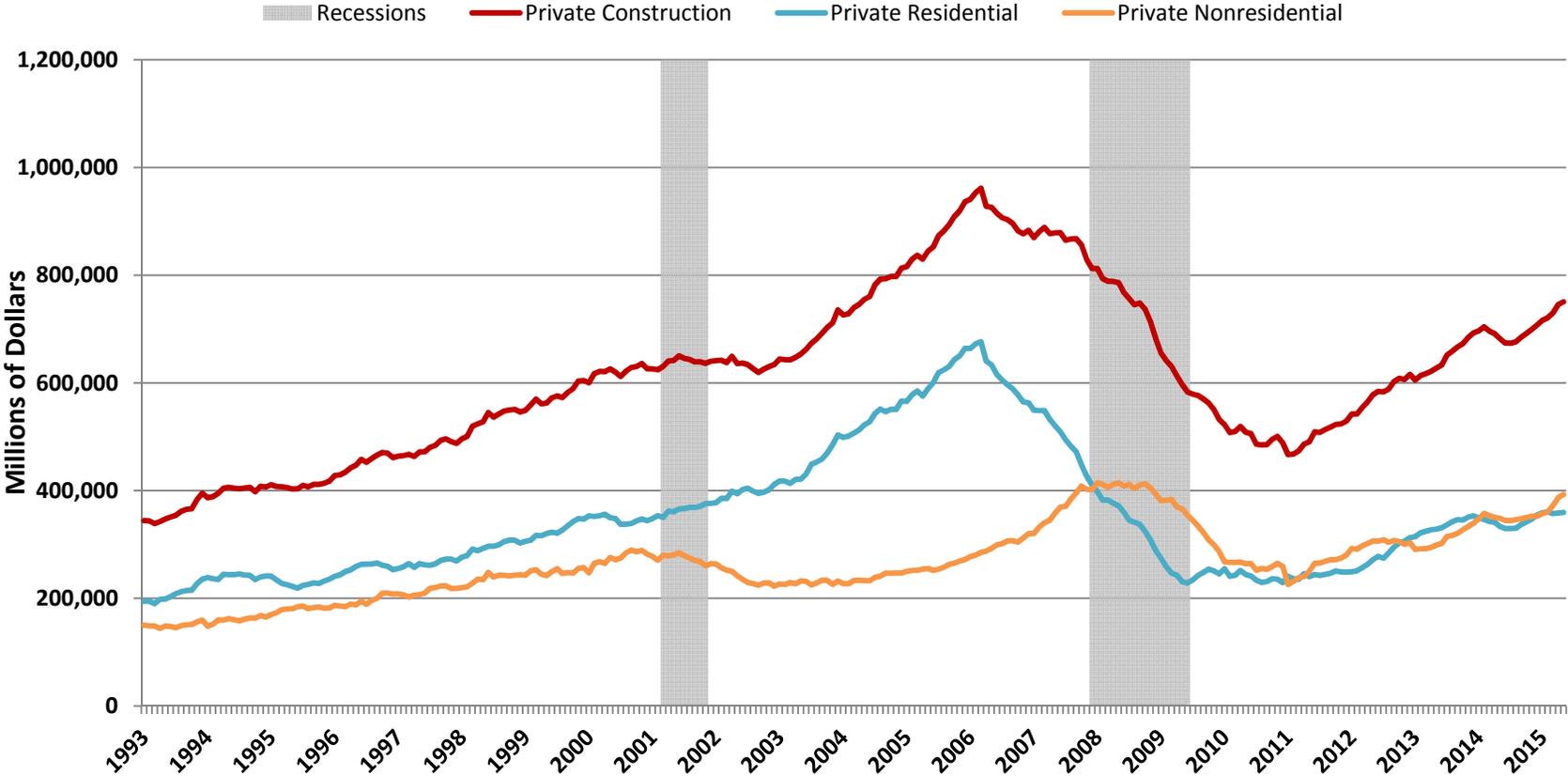
- Data come from multiple sources:
 - The 4 Construction Progress Reporting Surveys (CPRS)
 - The multifamily CPRS sample is drawn from SOC cases with 2 or more housing units
 - 3 other CPRS samples are drawn from Dodge Data and Analytics database of projects valued over \$75,000
 - Single-family spending is estimated from starts and adjusted price data from SOC
 - Residential improvements data from the Consumer Expenditures Quarterly Survey
 - Other sources

Total Construction Spending (SAAR)



Source: U.S. Census Bureau - Value of Construction Put in Place

Private Construction Spending (SAAR)

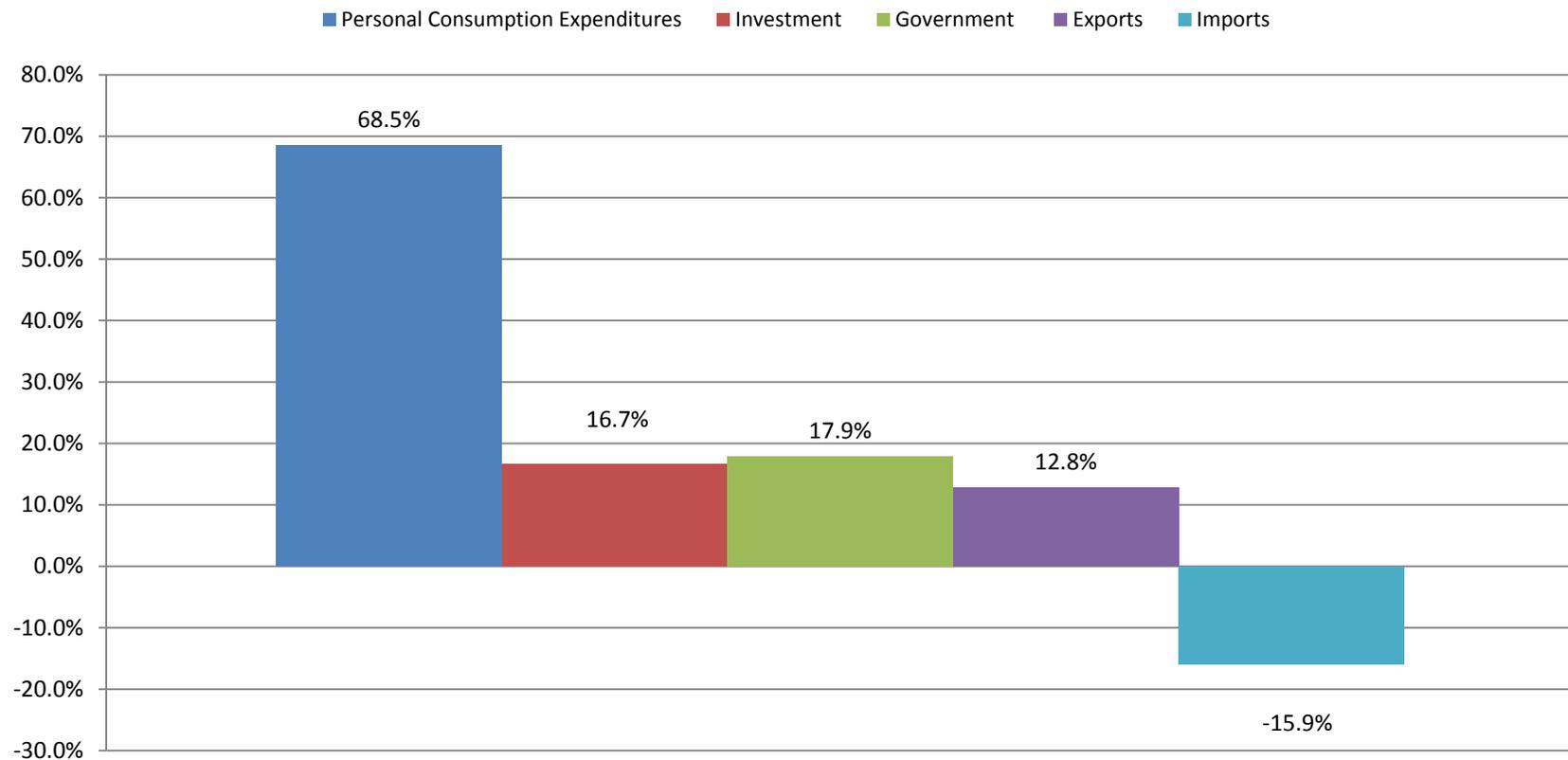


Source: U.S. Census Bureau - Value of Construction Put in Place

How do housing and construction contribute to Gross Domestic Product (GDP)?

- Released by the Bureau of Economic Analysis (BEA)
- Expenditure approach to measuring GDP
 - $\text{GDP} = \text{Consumption} + \text{Investment} + \text{Government Spending} + \text{Exports} - \text{Imports}$
- Gross Private Domestic Investment
 - The I in the GDP equation
- What is Gross Private Domestic Investment?
 - Private fixed investment
 - Change in private inventories

$$\text{GDP} = C + I + G + X - M$$

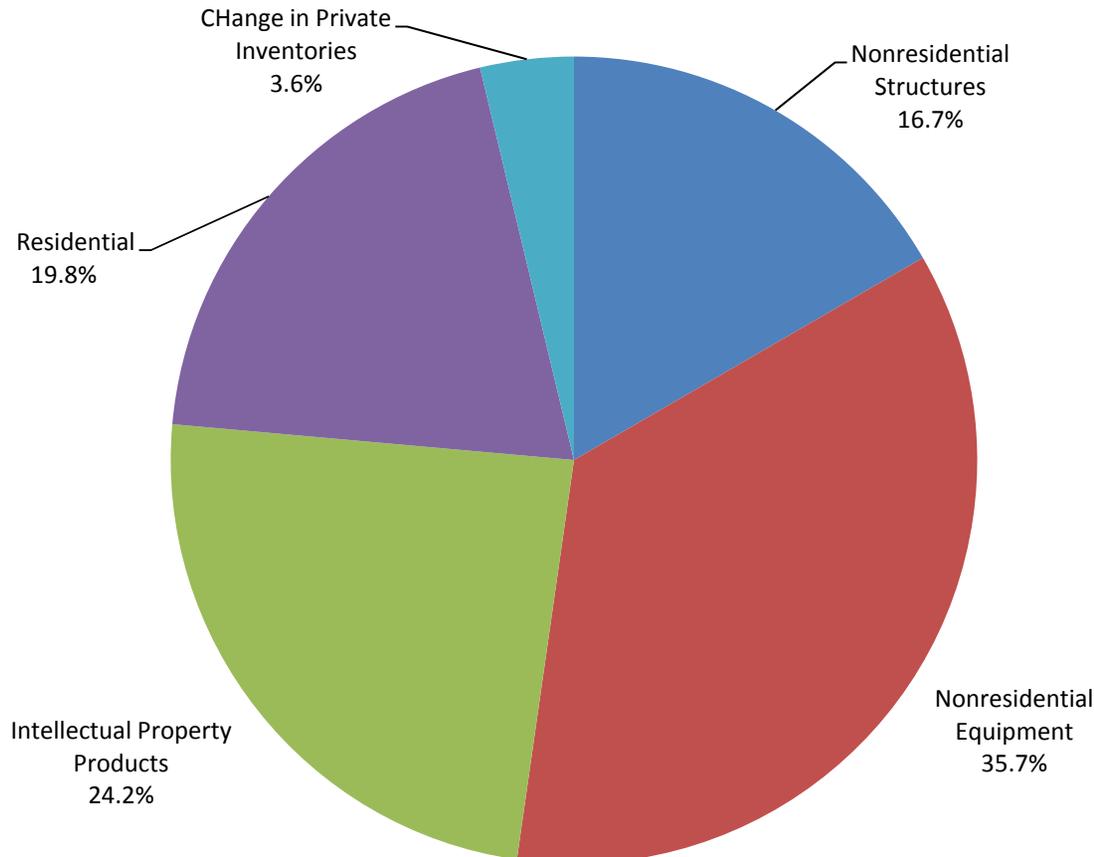


Source: Bureau of Economic Analysis - National Income and Product Accounts
Note: Calculated from 2015 Q1 third estimate (seasonally adjusted annual rate)

Gross Private Fixed Investment

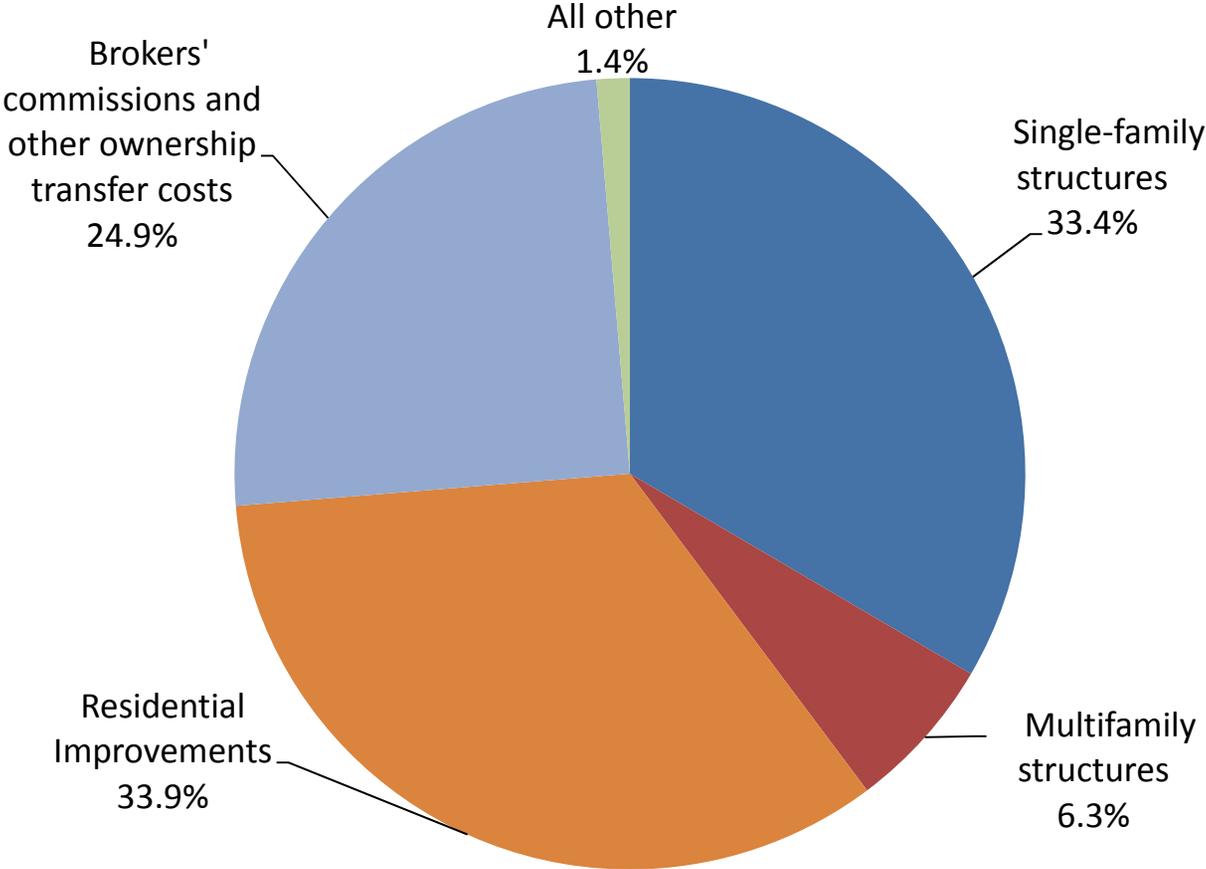
- Purchase of fixed assets by business and non-profits
- Purchases of new homes and other residential fixed assets by households

Gross Private Domestic Investment 2015 Q1 (current dollars)



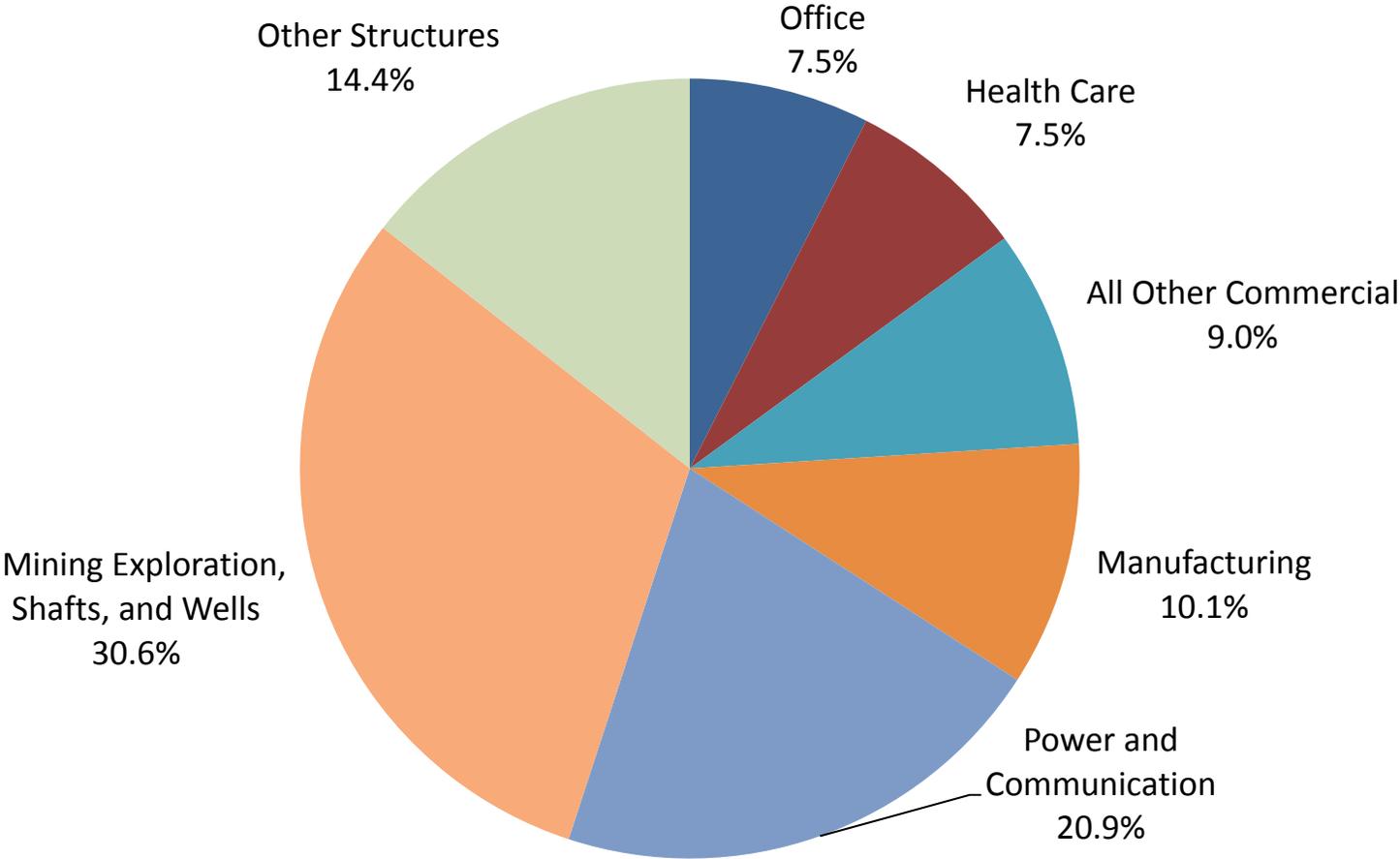
Source: Bureau of Economic Analysis - National Income and Product Accounts
Note: Calculated from 2015 Q1 third estimate (seasonally adjusted annual rate)

Gross Private Domestic Investment in Residential Structures 2013 (current dollars)



Source: Bureau of Economic Analysis - National Income and Product Accounts

Gross Private Domestic Investment in Nonresidential Structures 2013 (current dollars)



Source: Bureau of Economic Analysis - National Income and Product Accounts

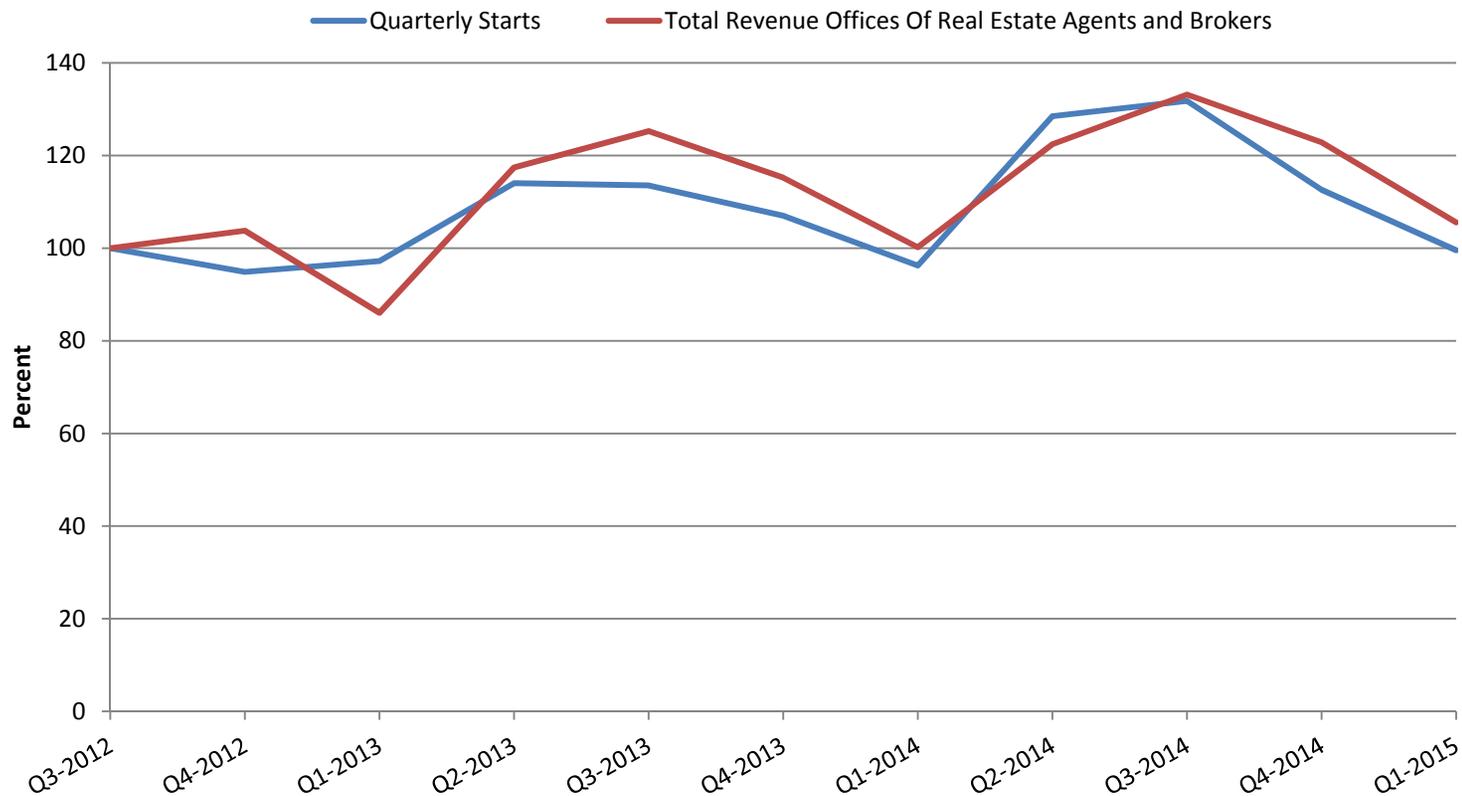
Construction and Housing Indicators

Release	Survey / Source	Release Frequency	How Are Data Collected?	Key Statistics
New Residential Construction	Building Permits Survey / Survey of Construction	Monthly, 12 days after the reference month	Reports from permit issuing jurisdictions and interview conducted with a knowledgeable respondent	Units authorized, Units started, Units completed, Units authorized not started, Units under construction
New Residential Sales	Survey of Construction	Monthly, 17 days after the reference month	Interview conducted with a knowledgeable respondent	New single-family homes sold, New single-family homes for sale, prices
Construction Spending	Construction Progress Reporting Surveys	Monthly, first workday 2 months after the reference month	Reports from owners on progress and spending, data collected from additional sources	Total spending, Private nonresidential spending, Private residential spending, Federal spending, State and local spending
Housing Vacancies and Homeownership	Current Population Survey / Housing Vacancy Survey	Quarterly	Interview conducted with resident or knowledgeable person	Homeownership rate, Rental vacancy rate, Homeowner vacancy rate
Survey of Market Absorption	Survey of Market Absorption	Quarterly	Interview with building manager or rental / sales agent	Absorption rates
Existing Home Sales	160 Multiple Listing Services	Monthly	Reports from participating Multiple Listing Services	Existing home sales, existing single-family sales, prices, inventory
Case-Shiller Price Index	Public transaction records	Monthly, last Tuesday of the month	Matched sales pairs are created and reviewed	National, 10 city composite, 20 city composite, and metropolitan indexes

Related Economic Indicators

- Quarterly Services Survey
 - Released by Census
 - Select series of interest:
 - Real estate
 - Architectural, engineering, and related services

Quarterly Housing Starts and Quarterly Revenue for Real Estate Offices as a Percent of the 2012 Quarter 3 Estimate

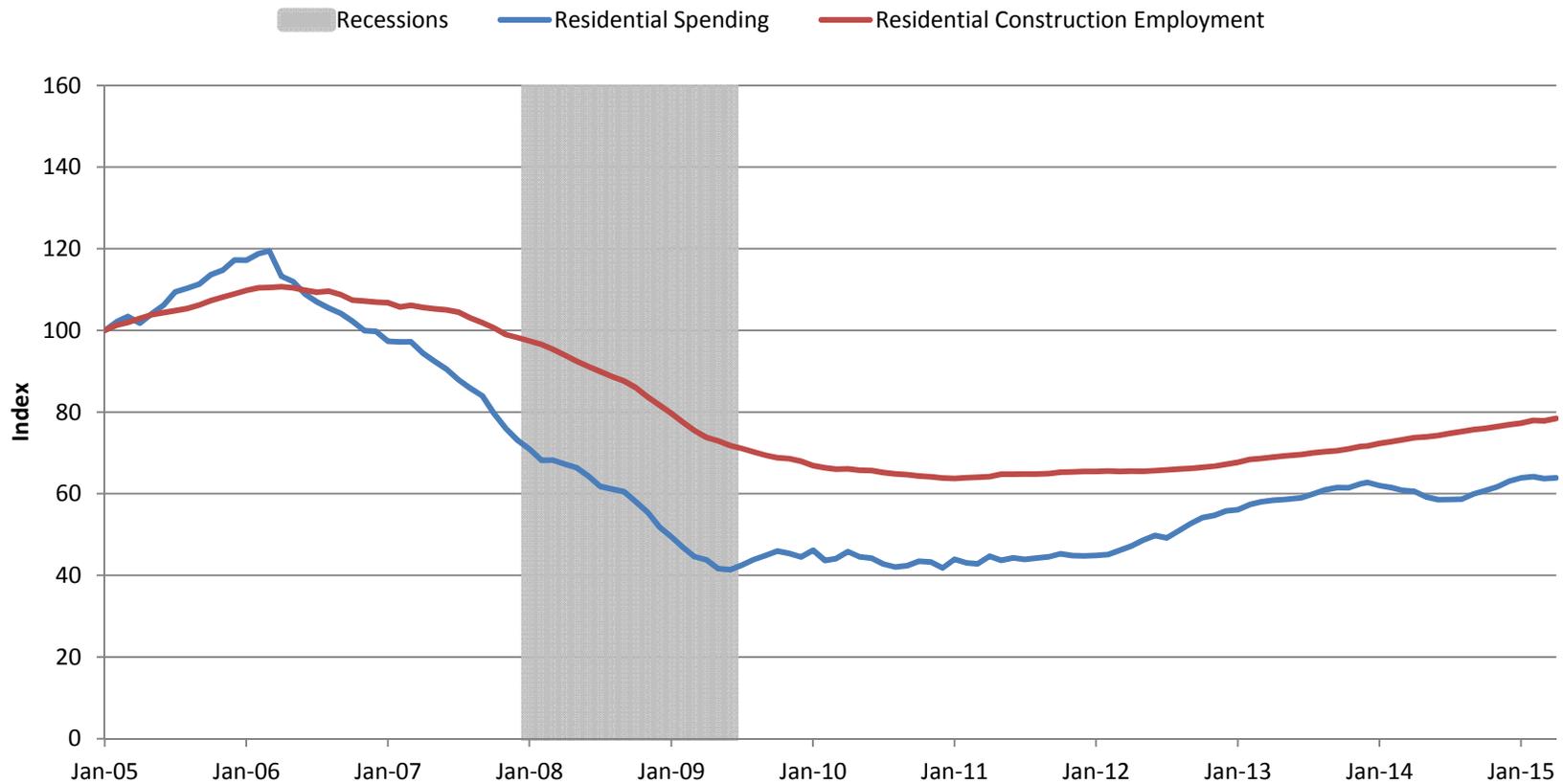


Source: U.S. Census Bureau - Survey of Construction, U.S. Census Bureau - Quarterly Services Survey

Related Economic Indicators

- The Employment Situation
 - Released by the Bureau of Labor Statistics
 - Unemployment rate
 - Payroll employment, hours, earnings
 - Construction employment: residential, non-residential, specialty trade contractors, etc.

Residential Construction Spending (SAAR) and Construction Employment (SA) as a Percent of the January 2005 Estimate



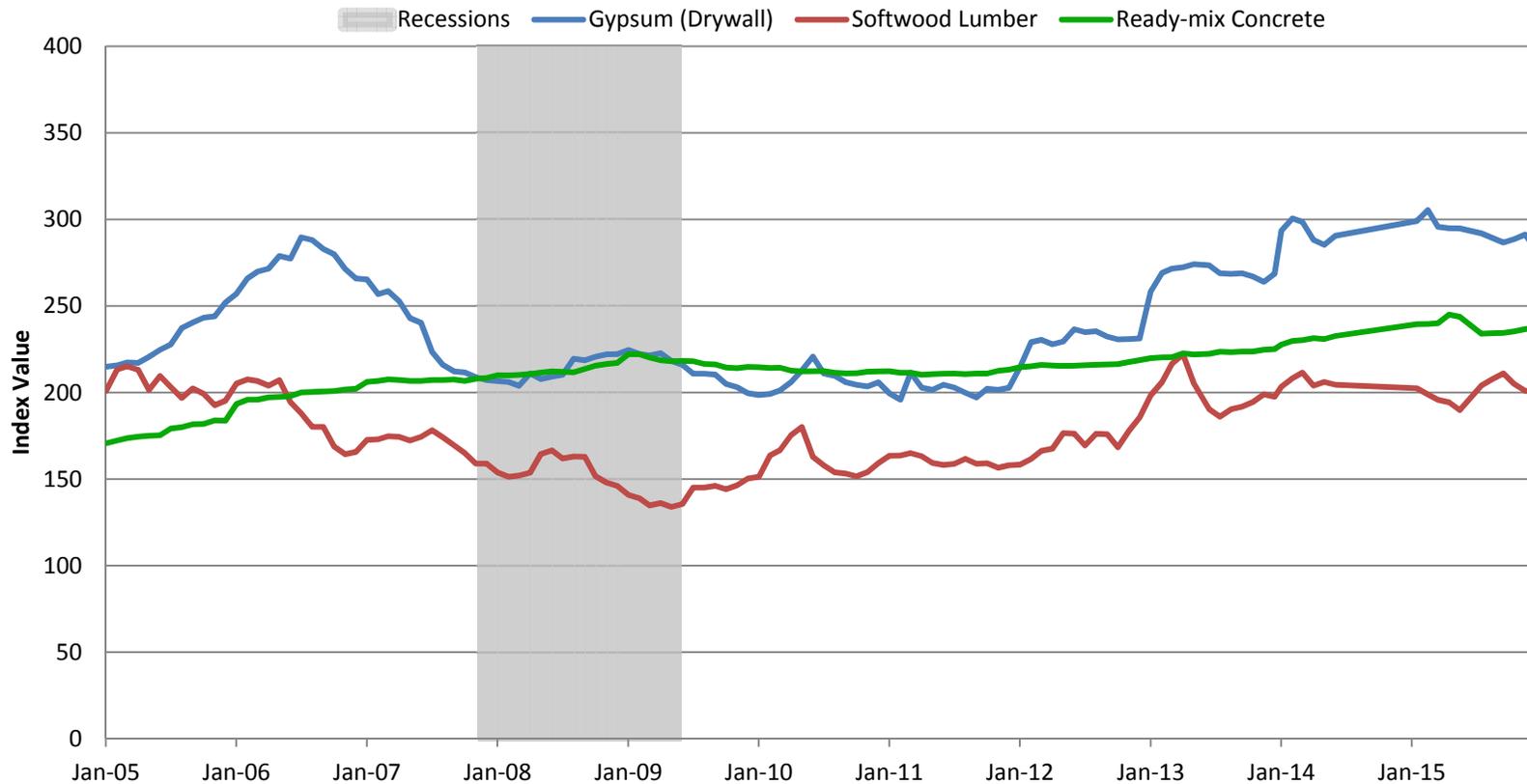
Source: U.S. Census Bureau - Value of Construction Put in Place, Bureau of Labor Statistics - Current Employment Statistics

Note: Residential Construction is comprised of Residential Buildings and Residential Specialty Contractors

Related Economic Indicators

- Producer Price Index (PPI)
 - Released by the Bureau of Labor Statistics
 - More than 10,000 indexes produced monthly
 - Price change from the seller's perspective
 - 3 types of indexes
 - Commodities
 - Net output of industries
 - Final demand – Intermediate demand

Price Indexes for Key Construction Materials

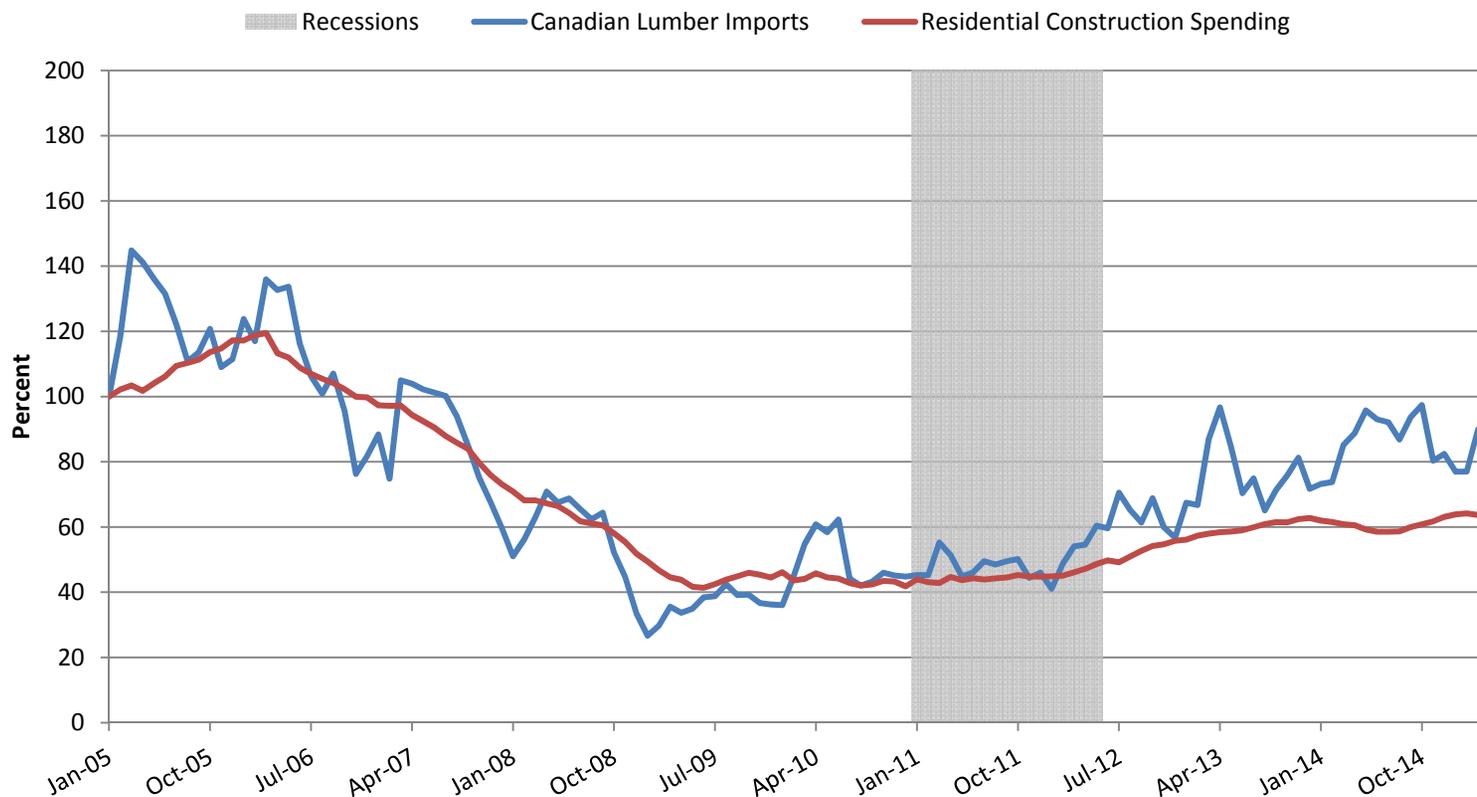


Source: Bureau of Labor Statistics
 Note: Base year is 1982

Related Economic Indicators

- U.S. International Trade in Goods and Services
 - Joint release of the Census Bureau and the Bureau of Economic Analysis
 - Exports, imports, and balance of trade

Dollar value of Canadian Lumber Imports (NSA) and Residential Construction Spending (SAAR) as a Percent of the January 2005 Estimate



Source: U.S. Census Bureau - U.S. International Trade in Goods and Services, U.S. Census Bureau - Value of Construction Put in Place

Wrapping Up

- Many economic indicators relate to construction and housing
- Pay attention to the nuances
- Call your friendly analyst!!!

Questions and Feedback

- Contact information:

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Upcoming Webinars

Manufacturing Products and Goods Across Indicators

Do you want to learn more about the relationship between Manufacturers' Shipments, Inventories, and Orders (M3), International Trade, and Quarterly Financial Report statistics? Are you interested in how manufacturing indicators relate to other federal data? In this webinar, we will explore the relationships between the different manufacturing-related Economic Indicators.

August 19th @ 1:00 PM EDT

Measuring Our Evolving Economy: Exploring the Quarterly Financial Report and the Quarterly Services Survey's Role in Tracking the Service Industries

Today's economy is not the same as the production-centered economy of just a few decades ago. As our economy changes, the tools for observing the economic landscape need to be developed and enriched. In this webinar, we will explore how the Quarterly Financial Report and Quarterly Services Survey address the need for timely service sector data in an era where services account for over 50 percent of the Gross Domestic Product.

September 23th @ 1:00 PM EDT

 **many
more**

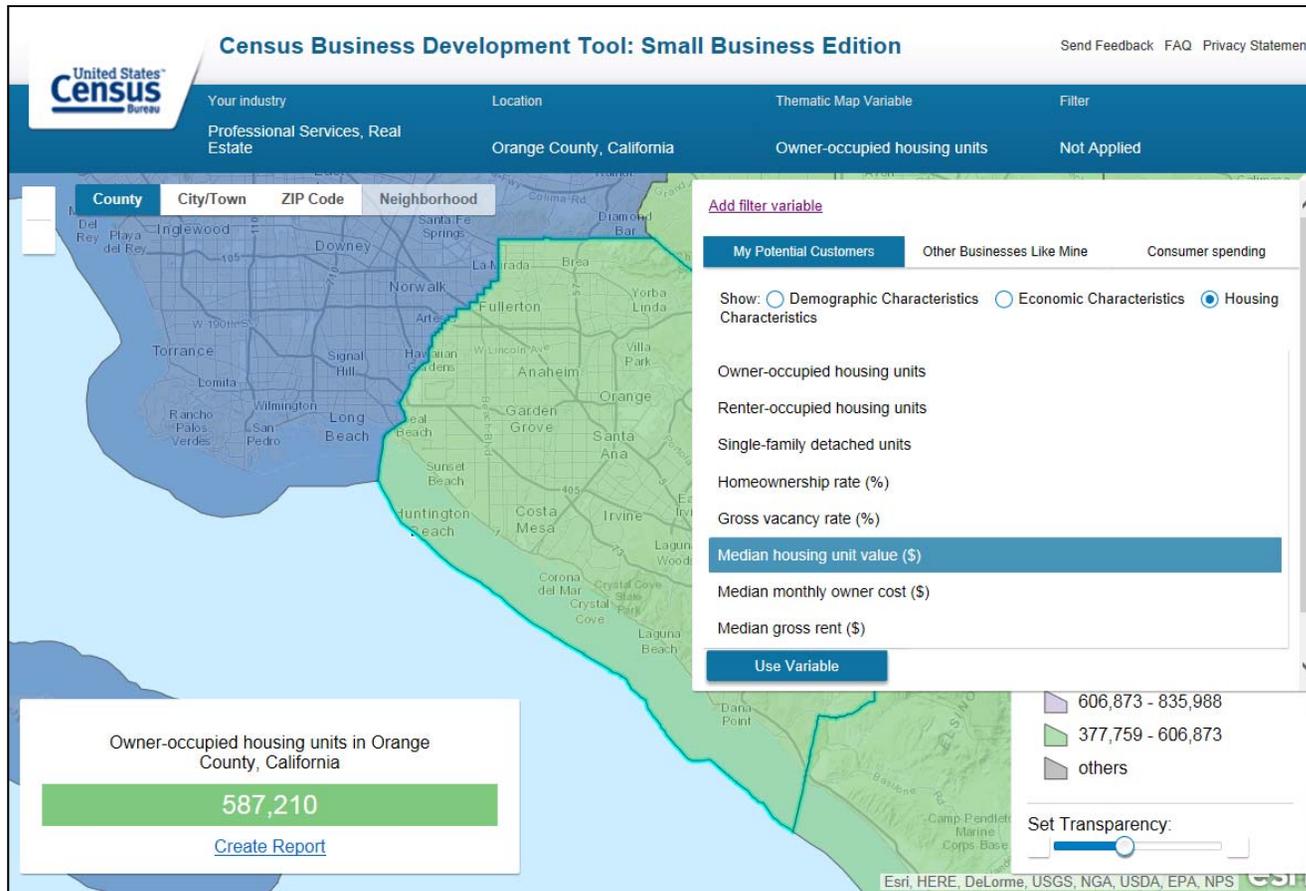
Visit www.census.gov/econ/webinar for a complete list of upcoming webinars

Additional Training

- Training Resource Library - <http://www.census.gov/mso/www/training/library.html>
- International Trade
 - Training on Foreign Trade Regulations, classification, filing, and more - <http://www.census.gov/foreign-trade/outreach/>
 - Global Reach Blog - <http://globalreach.blogs.census.gov/>

New: Census Business Builder

Scheduled for release during the week of July 13th.



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