

Methodology for State and County Total Housing Unit Estimates (Vintage 2011): April 1, 2010 to July 1, 2011

The U.S. Census Bureau estimates the number of housing units for each year since the most recent decennial census. With each annual release of housing unit estimates, the entire time series of estimates beginning with April 1, 2010 is revised and updated. The housing unit estimates described in this document are the first estimates based on the 2010 Census counts.

We produce housing unit estimates for all states and counties annually. We release these estimates to the public, and they are used as controls for some Census Bureau surveys, including the American Community Survey (ACS), the American Housing Survey (AHS), and the Current Population Survey (CPS). In addition to state and county housing unit estimates, we also produce subcounty housing unit estimates. These estimates are the main input for the production of population estimates for cities and towns across the nation.

Method

Our method of producing housing unit estimates is different this year than in years past. The Vintage 2011 housing unit estimates do not rely on the usual components of housing change (building permits, non-permitted builds, mobile home shipments, and housing loss), which we used last decade to produce the housing unit estimates. Instead, we created the Vintage 2011 estimates by extrapolating the average monthly change in housing units at the county level, then summing these estimates to create estimates for the states and nation. To produce subcounty housing unit estimates, we distributed the extrapolated county estimates down to each subcounty area within a county based on 2010 Census proportions.

We chose not to use the components of change model for 2011 since we are presently evaluating the 2010 housing estimates relative to the 2010 Census results, and considering improvements to the existing housing unit method for the new decade. We expect to return to the components of change model for the 2012 estimates.

Estimates Base Housing Units

Every year, we retabulate the 2010 Census counts of housing units in current legal boundaries to form the base for the annual housing unit estimates. The base for the 2011 housing estimates reflects geographic boundary updates from the Boundary and Annexation Survey (BAS) that are legally effective as of January 1, 2011. The base changes do not include the results of any Count Question Resolution (CQR) actions. We will begin to incorporate these official corrections beginning with the 2012 housing unit estimates base.

County Housing Unit Estimates

To estimate the number of housing units in each county, we first calculated housing unit change between July 1, 2009 and April 1, 2010, using the 2000-2010 Intercensal Estimates and the 2010 Census counts.

Then, we averaged the amount of housing unit (HU) change across the 9-month period, as shown in this formula.

$$\textit{Monthly HU Change} = (\textit{HU on April 1, 2010} - \textit{HU on July 1, 2009}) / 9$$

We then extrapolated the average monthly housing unit change to create estimates for July 1, 2010 and July 1, 2011. To calculate the amount of housing unit change between April 1, 2010 and July 1, 2010, we multiplied the average monthly change by 3 months. We calculated the amount of change between April 1, 2010 and July 1, 2011 by multiplying the average monthly change by 15 months. To create the final time series of estimates, we added the appropriate amount of change, based on the number of months away from April 1, 2010 (N), to the updated estimates base, as shown in this formula.

$$\textit{July 1 HU Estimate} = \textit{HU Base} + (\textit{Monthly HU Change} * N)$$

State Housing Unit Estimates

We summed the extrapolated county housing unit estimates to produce the state housing unit estimates.

National Housing Unit Estimate

We summed the state housing unit estimates to produce the national housing unit estimate.

Estimates Review

The housing unit estimates are produced in preliminary form and distributed for review to members of the Federal-State Cooperative for Population Estimates (FSCPE). FSCPE members review the estimates for reasonableness, and may suggest revisions to the estimates based on information from local jurisdictions within their states. While we did not include any such revisions in the 2011 estimates, we plan to resume incorporating FSCPE revisions for the 2012 estimates.