# FHA Loan Limits and County Land Area

U.S. Department of Housing and Urban Development | Office of Policy Development and Research

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House Report 115-237 directs the Department of Housing and Urban Development to study the relationship between the maximum amount eligible for mortgage insurance through the Federal Housing Administration under Section 203(b) of the National Housing Act and the land area of counties over which those limits are administered with the following language:

> FHA loan limits.--The Committee directs HUD to review FHA loan limits in large land area counties that experienced a reduction of at least 25 percent to FHA loan limits in 2014 when the Housing Economic Recovery Act's loan limits replaced those in the Economic Stimulus Act of 2008. The study should analyze if a county's geographic size distorts the FHA loan limit calculation and if home sales price data shows that FHA loan limits are inadequate for distinct subareas

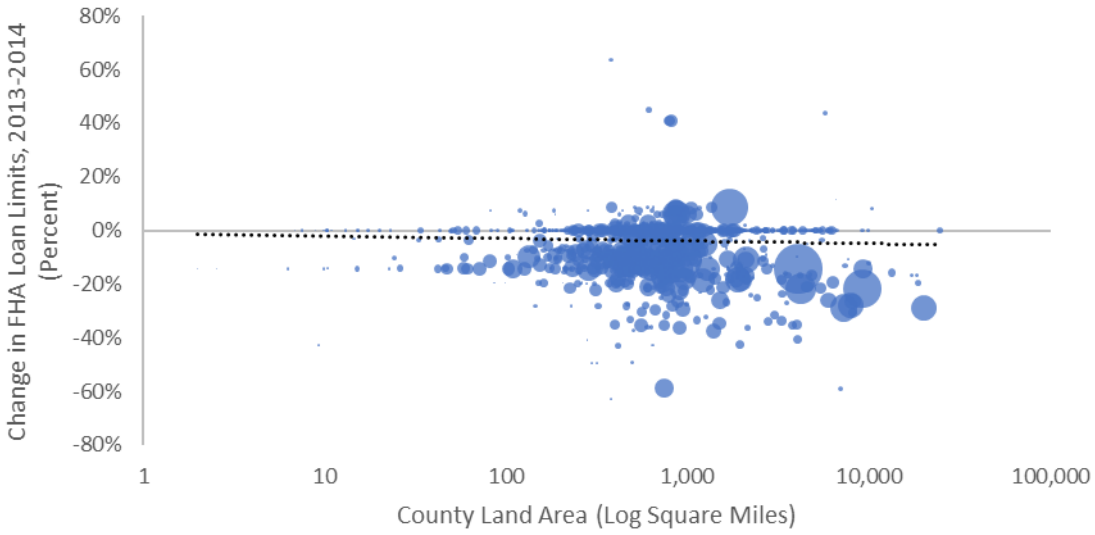
In January 2014, the statutory formula for computing FHA loan limits changed with the expiration of the Economic Stimulus Act. The loan limit for single-family properties fell from 125 percent of the area median house price to 115 percent, where "area" is the Core Based Statistical Area (CBSA) determined by the Office of Management and Budget. More specifically, "the median 1-family house price for an area shall be equal to the median 1-family house price of the county within the area that has the highest such median price." This limit applies up to a statutory "ceiling" which fell from 175 percent of the conventional conforming limit used by the government-sponsored enterprises to 150 percent with the expiration of ESA limits. The statutory "floor" or standard limit of 65 percent of the conforming loan limit remained unchanged. This current formula is described in 12 USC 1709(b).

We examine FHA single-family loan limits in 2013 and 2014 for 1,789 counties in CBSAs based on their 2013 delineation. Nearly two-thirds (1,177) of these counties had no change in loan limits between 2013 and 2014, but changes in the remaining 612 counties ranged from a 63% decline (Lake County, Colorado, which was removed from the Edwards micropolitan area) to more than a 63% increase (Culpeper County, Virginia, which was moved from its own micropolitan area into the Washington-Arlington-Alexandria metropolitan division). Notably, the largest changes in loan limits were caused by the redefinition of CBSA boundaries, also effective at the start of 2014, by the Office of Management and Budget after the 2010 decennial census, and not by the change in the formula used to compute loan limits.

County land area is obtained from the 2013 Gazetteer files provided from the US Census Bureau. Land areas range from less than 2 square miles (Falls Church, Virginia) to over 24,600 square miles (Matanuska-Susitna County, Alaska). The average land area of all 1,789 counties in CBSAs is 923 square miles and the median is 574 square miles.

Figure 1 plots the change in FHA loan limits against the log of county land area. There is a weak and not statistically significant correlation between county land area and decline in loan limits ($r$=-0.045).

## Figure 1. Land Area and Change in FHA Loan Limits, 2013-2014




Note: Size of circle indicates number of owner-occupied housing units.

However, Table 1 compares discrete increments of land area and loan limit changes. Very large counties (1,500 square miles or more) account for 10% of all counties in CBSAs but 35% of those that experienced a large decline in FHA loan limits (25% or more). Similarly, only 3% of counties in CBSAs saw a large decline in loan limits but 10% of large counties did.

## Table 1. Land Area and Change in FHA Loan Limits, 2013-2014

| | County Land Area (Square Miles) | | | | |
|---|---|---|---|---|---|
| | Under 500 | 500 to 999 | 1,000 to 1,499 | 1,500 or More | All |
| Large Decline (25% or More) | 14 | 17 | 4 | 19 | 54 |
| Small Decline | 230 | 169 | 28 | 67 | 494 |
| No Change | 421 | 562 | 96 | 98 | 1177 |
| Increase | 17 | 38 | 4 | 5 | 64 |
| All | 682 | 786 | 132 | 189 | 1789 |

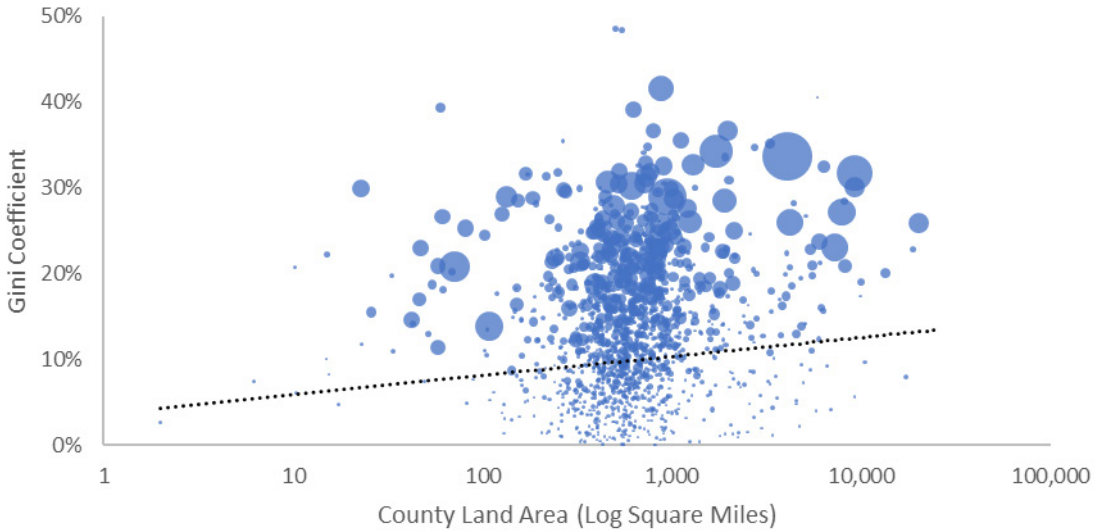
The impact of FHA loan limits may also vary within a county. Former FHA commissioner, Carol Galante, notes:

> Within many metropolitan areas, substantial variations in home prices sometimes result in FHA loan limits that preclude buyers from using FHA loans in certain parts of the region. Meanwhile, by virtue of their inclusion in the same metropolitan statistical area (MSA), some counties have loan limits that substantially exceed median home prices for that particular county. (Galante and Shultz 2017, p. 7)

Counties with greater land area may encompass more housing sub-markets and greater intra-county variation in house values.

To evaluate the distribution of house values within a county, we obtain information on aggregate house values and number of owner-occupied housing units by census tract from the five-year estimates of the 2013 American Community Survey. We use these to create county-level Gini coefficients, which compare the cumulative share of house value against the cumulative share of housing units. The higher the Gini coefficient, the more unevenly distributed are house values within the county.[i] Figure 2 shows a small but statistically significant correlation between the log of county land area and estimated Gini coefficient of housing value distribution ($r$=0.100, p=0.0003). Weighting counties by the number of census tracts used to compute the Gini coefficient increases the correlation to 0.263 (p<0.0001).

## Figure 2. Land Area and House Value Gini Coefficient, 2013




Note: Size of circle indicates number of census tracts with available data.

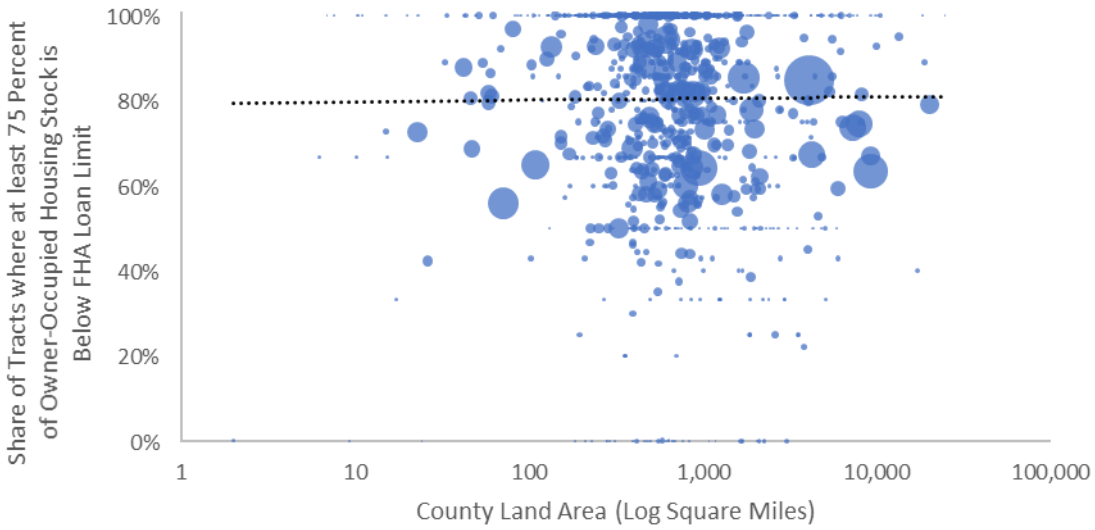
Similarly, Table 2 shows that very large counties account for less than 11 percent of all counties for which a Gini coefficient could be computed, but 29 percent with Gini coefficients over 30 percent. Roughly 8 percent of very large counties exhibit very uneven distribution of house values compared to less than 3 percent of all counties.

## Table 2. Land Area and House Value Gini Coefficient, 2013

| | County Land Area (Square Miles) | | | | |
|---|---|---|---|---|---|
| | Under 500 | 500 to 999 | 1,000 to 1,499 | 1,500 or More | All |
| Evenly Distributed (Gini under 10%) | 215 | 229 | 26 | 44 | 514 |
| Slightly Uneven (10-19%) | 197 | 261 | 52 | 59 | 569 |
| Moderately Uneven (20%-29%) | 72 | 93 | 21 | 28 | 214 |
| Very Uneven (Over 30%) | 8 | 17 | 2 | 11 | 38 |
| All | 492 | 600 | 101 | 142 | 1335 |

An alternative measure of house value distribution is the share of census tracts in a county for which at least 75 percent of the housing stock is eligible for FHA insurance. We compute this figure by determining whether the value of the 75th percentile of owner-occupied units is less than the 2014 FHA single-family loan limit (divided by 96.5% to account for the required down payment). In 62 percent of the 1,641 counties for which this metric could be computed, FHA insurance could be used to purchase at least 75 percent of the owner-occupied housing stock in every census tract in the county. In only 85 counties (5 percent) could FHA be used to purchase 75 percent of the housing stock in less than half of census tracts. Figure 3 shows a small but statistically significant negative correlation ($r$=-0.069, p=0.0053) between county land area and FHA coverage. The correlation does not meaningfully change after weighting by the number of census tracts.

## Figure 3. Land Area and FHA Limit Coverage, 2014




Note: Size of circle indicates number of census tracts with available data.

Table 3 further shows that very large counties account for 10 percent of all counties but over 30 percent of counties with weak FHA coverage (FHA loan limit is greater than the 75th percentile of house values in less than half of census tracts) and less than 7 percent of counties with full coverage. Similarly, less than 39 percent of very large counties have full FHA coverage.

## Table 3. Land Area and FHA Limit Coverage, 2014

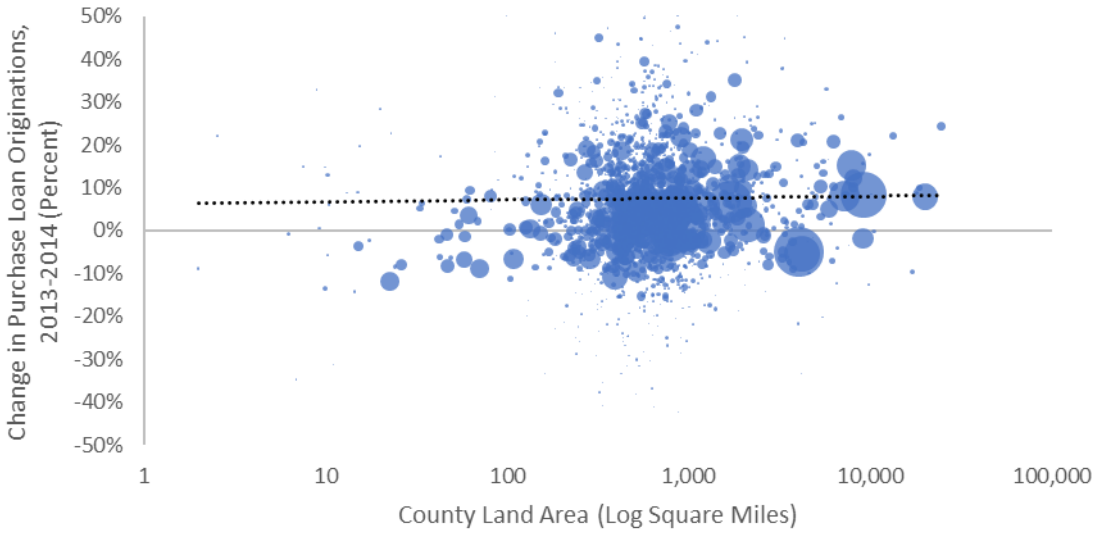
| | County Land Area (Square Miles) | | | | |
|---|---|---|---|---|---|
| | Under 500 | 500 to 999 | 1,000 to 1,499 | 1,500 or More | All |
| Weak Coverage (Less than 50%) | 31 | 22 | 6 | 26 | 85 |
| Moderate Coverage (50%-74%) | 80 | 104 | 15 | 43 | 242 |
| Strong Coverage (75%-99%) | 101 | 119 | 34 | 36 | 290 |
| Full Coverage (100%) | 405 | 480 | 72 | 67 | 1024 |
| All | 617 | 725 | 127 | 172 | 1641 |

Sub-county loan limits could be used to address the intra-county variation in house values. Galante and Shultz (2017) propose defining the housing market area using population-based geographies that could be as small as ZIP codes or census tracts in densely populated areas. Implicitly, this also abandons the practice of using the highest median sales price in the housing market area, meaning many neighborhoods would see a decline in FHA loan limits.

Sub-county limits would present numerous implementation challenges for HUD. First, smaller geographies would reduce the number of home sales used to compute the median. HUD already must use the American Community Survey to compute loan limits for over 14 percent of counties in CBSAs because of insufficient data on recent home sales. Even where sales data is available, fewer transactions in a smaller area would mean more volatility in the median sales price and therefore also the computation of loan limits. In addition, sub-county geographies like ZIP codes and census tracts change more often than county boundaries. As the counties with the most extreme loan limit changes in 2014 demonstrate, changes to the definition of a housing market area can have significant consequences on loan limits.

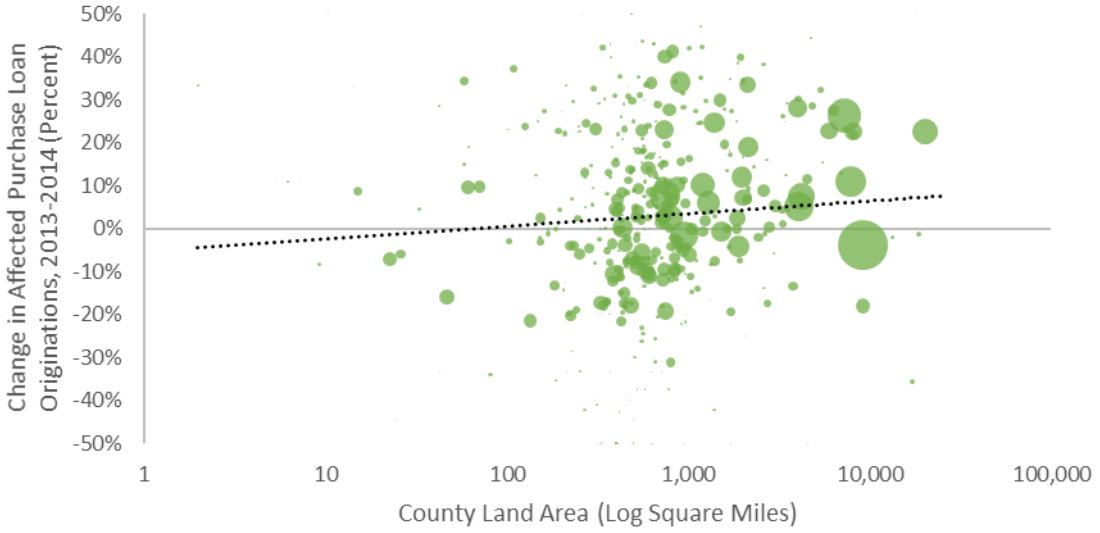
Finally, we examine the impact of loan limit changes on actual mortgage lending by county size. The last set of figures shows the change in first lien loans for purchase of owner-occupied one- to four-unit dwellings between 2013 and 2014 as reported under the Home Mortgage Disclosure Act. The first chart (Figure 4A) shows the overall change while the second (4B) shows the change for loan amounts impacted by the change in loan limits (i.e., above the lower 2014 limit but below the higher 2013 limit). In both cases, there is a small *positive* but not statistically significant correlation between county land area and change in lending ($r$=0.007 and 0.059, p=0.772 and p=0.184, respectively). Weighting counties by the number of loan originations in 2013 strengthens the correlation ($r$=0.144 and 0.187, respectively, and p<0.0001 for each).

## Figure 4A. Land Area and Change in Purchase Loan Originations, 2013-2014




Note: Size of circle indicates number of 2013 home purchase loan originations.

## Figure 4B. Land Area and Change in Affected Purchase Loan Originations, 2013-2014




Note: Size of circle indicates number of 2013 home purchase loan originations.

The tables further show the very large counties accounted for roughly 5 percent of counties that experienced large declines in purchase lending (10% or more decline in originations) but over 12 percent of counties that experienced large *increases* (10% or more increase). Similarly, very large counties accounted for 10 percent of counties that experienced large declines in loans within the affected loan amount range but over 20 percent of counties that experienced no change or increases.

## Table 4A. Land Area and Change in Purchase Loan Originations, 2013-2014

| | Under 500 | 500 to 999 | 1,000 to 1,499 | 1,500 or More | All |
|---|---|---|---|---|---|
| Large Decline (10% or More) | 65 | 77 | 13 | 9 | 164 |
| Small Decline | 154 | 141 | 25 | 40 | 360 |
| No Change or Small Increase | 242 | 303 | 55 | 65 | 665 |
| Large Increase (10% or More) | 220 | 263 | 38 | 75 | 596 |
| All | 681 | 784 | 131 | 189 | 1785 |

## Table 4B. Land Area and Change in Affected Purchase Loan Originations, 2013-2014

| | Under 500 | 500 to 999 | 1,000 to 1,499 | 1,500 or More | All |
|---|---|---|---|---|---|
| Large Decline (10% or More) | 74 | 39 | 6 | 12 | 131 |
| Small Decline | 28 | 27 | 6 | 10 | 71 |
| No Change or Small Increase | 33 | 34 | 3 | 19 | 89 |
| Large Increase (10% or More) | 77 | 76 | 17 | 44 | 214 |
| All | 212 | 176 | 32 | 85 | 505 |

That is, although counties with large land areas may have been disproportionately impacted by loan limit declines in 2014 and may encompass greater house value variation across sub-markets within the county, these do not appear to have translated into a disproportionate decline in mortgage lending in

large counties. This is consistent with research that shows that while the increase in loan limits by the Economic Stimulus Act helped boost lending in 2008, the decline in FHA lending after their expiration in 2014 was offset by an increase in conventional mortgage lending (Park 2017).

## Summary of Findings

The overall relationship between FHA loan limits and county land area is mixed. Larger counties in CBSAs are associated with larger declines in loan limits after the 2014 expiration of temporary higher limits under the Economic Stimulus Act. Larger counties are also associated with a more uneven distribution of house value within the county, but this is only weakly correlated with fewer neighborhoods eligible for FHA insurance. Moreover, larger counties are associated with an *increase* in mortgage lending in 2014 despite the disproportionate decline in loan limits.

The FHA loan limit formula is set by the National Housing Act as amended by the Housing and Economic Recovery Act. Changing the formula would therefore require an act of Congress. Moving to sub-county loan limits would encounter several implementation challenges, such less consistent boundaries and fewer homes sales to compute a reliable median value.

Further, the level at which loan limits are set relative to median house values is related to the area over which the median is computed. The proposal by Galante and Shultz (2017) would use sub-county housing market areas but also reduce the limit from 115 percent of area median price to 100 percent. As noted, sub-county limits also imply moving away from the current practice of using the highest county median value in the same CBSA and therefore would lower limits for most neighborhoods.

## Sources

Galant, Carol and Nathan A. Schultz (2017). "Mission Critical: Retooling FHA to Meet America's Housing Needs." Terner Center for Housing Innovation, University of California at Berkeley. https://ternercenter.berkeley.edu/retooling-FHA

Park, Kevin A. (2017). "Temporary Loan Limits as a Natural Experiment in Federal Housing Administration Insurance." *Housing Policy Debate* 27.3: 449-466. https://www.tandfonline.com/doi/pdf/10.1080/10511482.2016.1234501

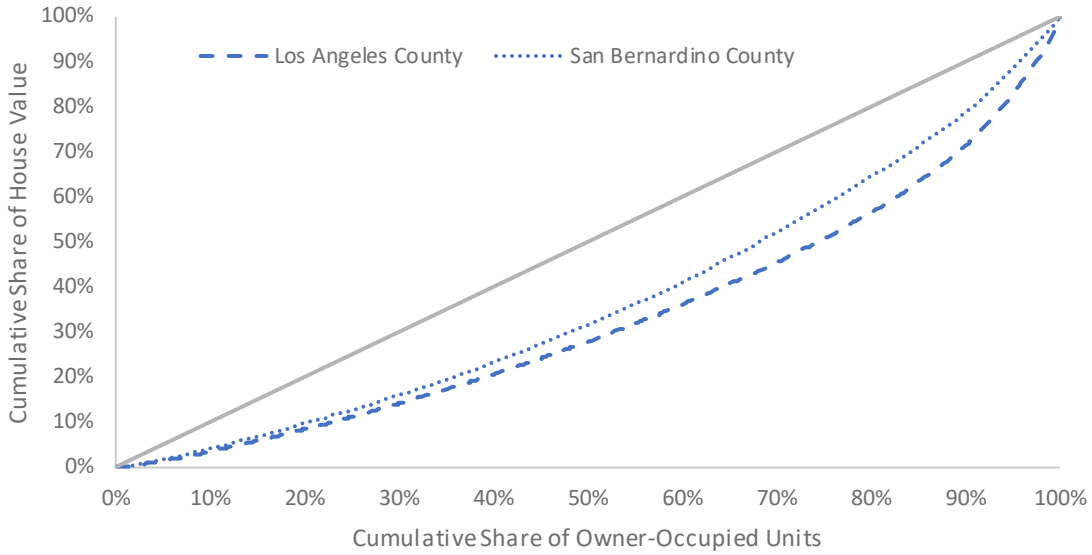
[i] The Gini coefficient ($G$) for a county is approximated by arraying census tractsin the county by average house value and using the formula

$$G = 1 - \sum_{k=1}^{n} (H_k - H_{k-1}) \times (V_k + V_{k-1})$$

Where
$H$ is the cumulative share of owner-occupied housing units in the county
$V$ is the cumulative share of aggregated value of owner-occupied homes, and
k is the number of census tracts in the county (minimum of 2).

The Gini coefficient can be visualized by the Lorenz curve. The figure below plots the cumulative share of owner-house value against the cumulative share of occupied units in Los Angeles County (4,058 square miles) and neighboring San Bernardino County (20,057 square miles) in California. The 45-degree line indicates an equal distribution of house value across the county. The further the curves bend away from this hypothetical, the more unequal the distribution. The Gini coefficient is equal to twice the area between the 45-degree line and the actual distribution and ranges from 0 (completely equal distribution) to 1 (completely unequal distribution). In this case, Los Angeles County, with a Gini coefficient of 0.337, has a more unequal distribution of house values than San Bernardino, with a Gini coefficient of 0.260.

## Gini Coefficient Estimate of House Value Distribution



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June 2019