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Updated Household Projections, 2015-2035: Methodology and Results

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Abstract

Using new Census Bureau projections and a revised methodology for predicting headship rates, this paper updates the Harvard University Joint Center for Housing Studies' (JCHS) household projections for 2015 to 2035. The paper incorporates new population projections from the US Census Bureau that are substantially larger than the Census Bureau's previous projections. The paper also makes methodological changes related to headship rates designed to reflect the fact that recent shifts in headship rates have significantly impacted household growth over the past decade. In particular, rather than continuing JCHS's recent practice of holding current headship rates constant, we use trended headship rates as the basis for the revised projections.

With these changes, JCHS now projects that the United States will add 13.6 million households between 2015 and 2025 and 11.5 million households between 2025 and 2035. The former figure is a significant increase from JCHS' 2013 "middle-series" estimate that the

U.S. would add 12.4 households between 2015 and 2025. The increase stems entirely from the new Census Bureau population projections and not from the methodological changes, which actually produce slightly lower projected growth than the JCHS' previous methodology. However, the change does affect the distribution of household growth by age, race and ethnicity. In particular, it increases household growth among older households and also among non-Hispanic whites. Projected growth in the adult population, due to aging and immigration, continue to have the largest influence on future household growth, which will become more pronounced after 2025 when adult population growth levels peak and begin to moderate.

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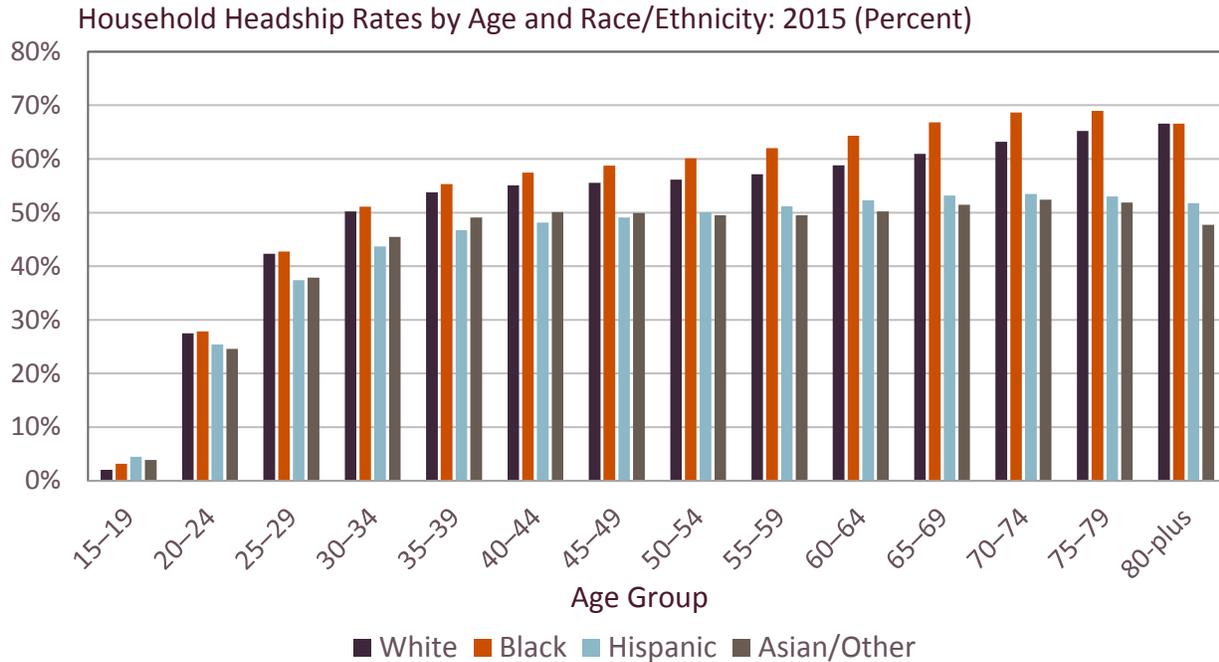
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Background

The JCHS household projections calculations involve two primary inputs: population projections, which are obtained from the US Census Bureau, and headship rates (the share of people that head an independent household), which are calculated by the JCHS and are used to convert population projections into household projections. Mathematically, the headship rate is the ratio of households-to-people for a given population group. Headship rates of different segments of the population vary according to preferences, cultural tendencies, financial circumstances, and abilities to live independently. Age is a particularly significant determinant. Headship rates increase with age throughout adulthood. Rates increase sharply when adults pass through their 20s and early 30s and begin to live independently, then stabilize after roughly the age of 40, when most people have already formed independent households. However, rates rise again when people are in their 60s, 70s, and 80s as mortality rates reduce the share of people living with a spouse or partner and increase the share of single people living alone (thus increasing the ratio of households to population). In addition, headship rates also differ by race and ethnicity (**Figure 1**). Because headship rates differ so widely by age, race, and ethnicity, the JCHS methodology calculates separate headship rates for each 5-year age group within four categories of race and ethnicity.

Figure 1. Household Headship Rates Differ by Age, Race and Ethnicity



Source: JCHS tabulations of CPS/ASEC data via IPUMS-CPS, University of Minnesota, <http://www.ipums.org>

Although headship rates differ by age, race, and ethnicity, they have historically been relatively stable within specific age, race, and ethnicity groups. Since the 1990s, growth in the size of the adult population, and the shifting of the population distribution towards older ages with higher headship rates has accounted for nearly all of the growth in households, while changes in headship rates within age, race, and ethnicity groupings had only minimal effect.

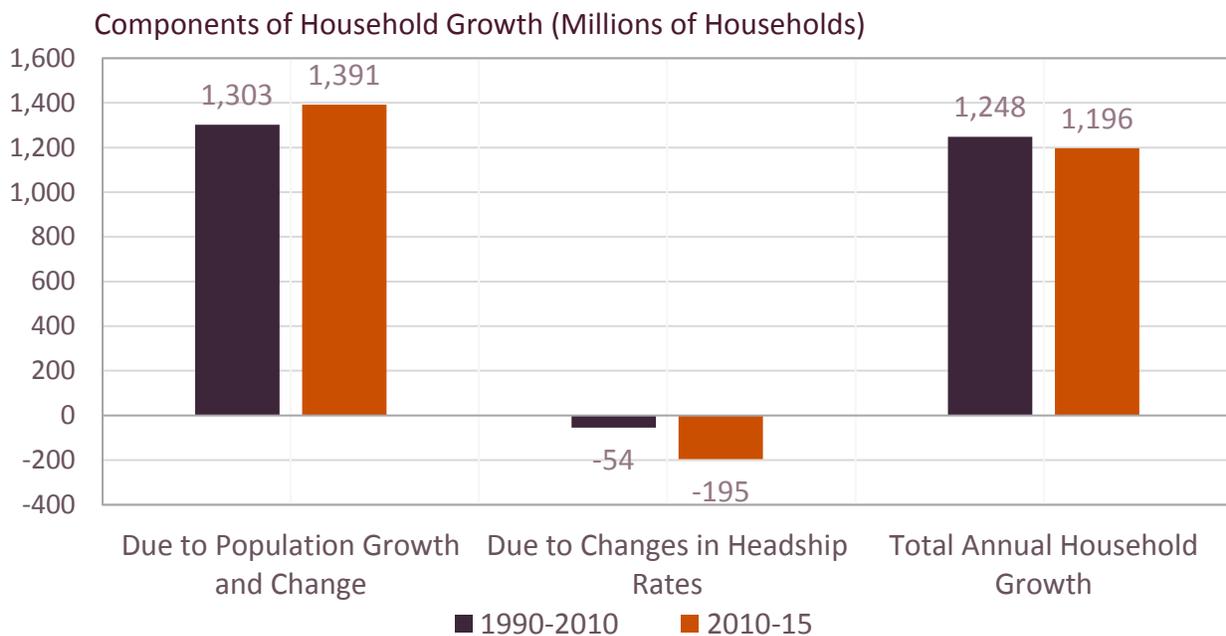
Changes in headship rates had been such a minor component to household growth that, since 2004, JCHS household projections employed a constant headship rate for each 5-year age group within each race and ethnicity category from the most recent year of available data. This was because headship rates and family type trends stabilized after shifting significantly over the course of the 1970s, 1980s, and, to a lesser degree, the 1990s. The view was that major structural changes affecting headship rates most over the previous decades, such as the growing presence of women in the workforce, had levelled off by the 1990s such that when the 2004 projections were made there had been little movement in headship rates within each age, race, and ethnicity category over the previous five years¹. Absent any

¹ Masnick G.S., E.S. Belsky and Z.X. Di. June 2004. The Impact of New Census Bureau Interim National Population Projections on Projected Household Growth in the United States. Harvard Joint Center for Housing Studies, Working Paper N04-1, <http://jchs.harvard.edu/research/publications/impact-new-census-bureau-interim-national-population-projections-projected>.

large cultural shifts, changing social trends seemed unlikely to have a major effect on headship rates and the number and types of net new households that would be formed in the following years.

However, in recent years, changes in headship rates have had a much larger impact on household growth levels than in the past. From 1990-2010 population growth and changes in the age distribution of the population alone would have supported 1.30 million additional households a year had headship rates remained constant, while changes in headship rates within age, race, and ethnicity groupings reduced that growth by just 54,000 households per year from 1990-2010 (Figure 2). In contrast, from 2010-2015, when population growth and change would have produced 1.39 million additional households a year, declines in headship rates reduced that growth by nearly 200,000 households per year.

Figure 2. Population Growth Has Been the Dominant Factor behind Household Growth since the 1990s



Source: JCHS tabulations of CPS/ASEC data via IPUMS-CPS, University of Minnesota, <http://www.ipums.org>

The increased impact that changes in headship rates have had on household growth led JCHS to re-examine its assumption that headship rates should be held constant when projecting the growth in households. Changing the JCHS methodology from using constant headship rates to assuming and projecting future changes in headship rates requires that we consider two possible scenarios for the future. The first is the possibility that the decline in headship rates from 2010 to 2015 represents a short-term situation created by the Great Recession that is likely to reverse itself if the economic

recovery continues. The second is the possibility that the decline in headship rates from 2010 to 2015 represents a long and lasting trend that is only partially related to the recent recession. Under the first scenario, headship rates—at least for some ages - would be expected to rebound in the future, which means that holding current headship rates constant in the projections would underestimate future household growth. In contrast, under the second scenario the recent decline in headship rates would continue for a significant period of time. If this occurs, holding headship rates constant in the projections would overestimate future household growth.

A third, and more likely scenario, is that aspects of both of these scenarios will come to pass. Long-term trends suggests that headship rates will change slowly over time. However, short-term trends related to economic cycles will temporarily push rates above or below the longer-term trend. Specifically, headship rates for groups affected by the recession could increase from recessionary lows, but only to levels predicted by the longer-term trends rather than levels from the recent past. Methodological changes to the 2016 JCHS Household Projections therefore aim to allow for both short and long-term trends in headship rates over the next decade to reach a new stable rate thereafter.

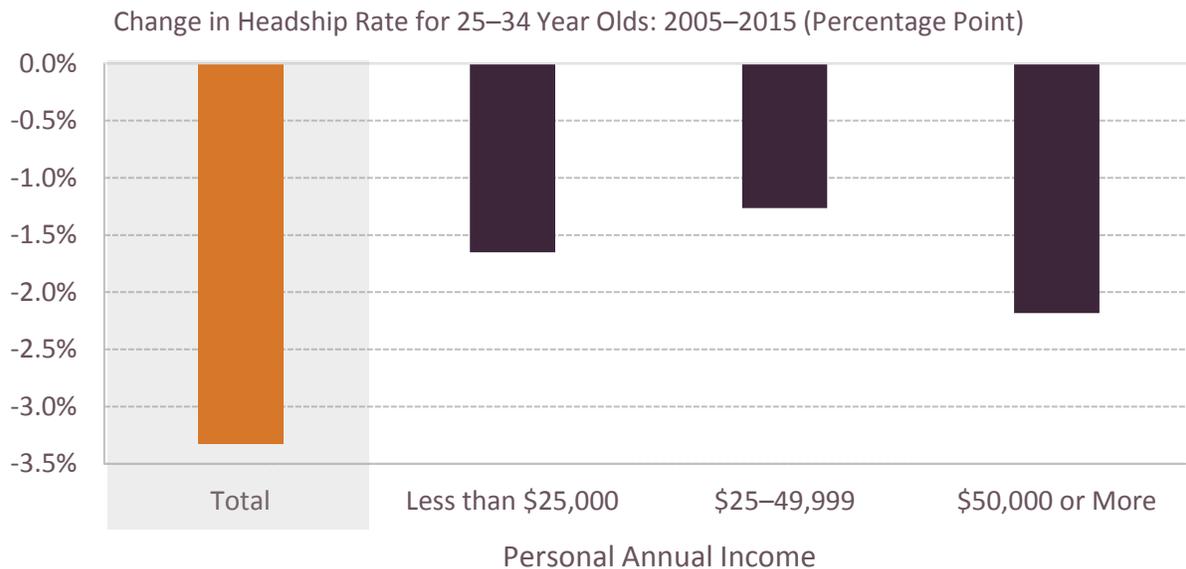
The Case for a Post-Recession Rebound in Headship Rates

The housing downturn and Great Recession of 2008 had a significant impact on headship rates, particularly those of young adults just entering the workforce, which declined to levels at or near historic lows and remained there as of 2014 for the American Community Survey and in 2015 in the Current Population Survey/Annual Social and Economic Supplement (CPS/ASEC). As Paciorek (2013) has noted, *“...poor labor market outcomes have played an important role in depressing the headship rate in recent years. Consequently, household formation could increase substantially as the labor market recovers and the headship rate returns to trend.”* Similarly, Lee and Painter (2013) conclude that young adults, *“...may choose to delay entry into the housing market by remaining with one’s parents during times of economic hardship or by combining with other persons to share housing costs. Using a variety of modeling approaches, we find that both the increase in the unemployment rate and the presence of recessions reduce the rate of household formation.”*

JCHS tabulations of person-level income data from the CPS/ASEC show much of the decline in headship rates for 25-34 year olds since 2005 was due to declines in incomes (**Figure 3**). Indeed, the decline in the headship rate for this age group as a whole was more severe than declines observed within each income segment, suggesting that changes in income played a major role. We estimate that

had the income distribution of 25-34 year olds remained at 2005 levels, the decline in headship rates among this age group from 2005-2015 would have been nearly half as severe as it was.

Figure 3. Overall Headship Rate Declines for 25-34 Year Olds Exceeded Declines within Income Groups



Source: JCHS tabulations of CPS/ASEC data via IPUMS-CPS, University of Minnesota, <http://www.ipums.org>

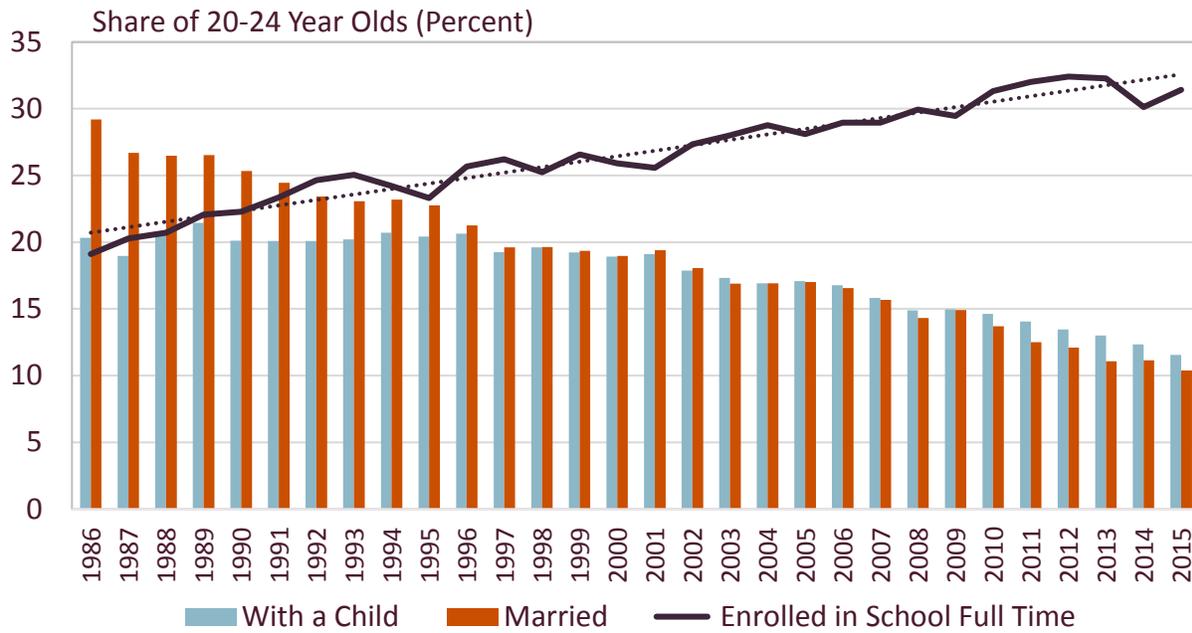
This literature and analysis suggests that headship rates for young adults will rise if and when their economic fortunes improve. And there are signs that the foundation for such a recovery is only just taking hold. While employment growth has been recovering for several years, CPS/ASEC income data shows that real incomes for individuals age 25–34 did not stabilize until 2014 and recovered even more strongly in 2015 and 2016.

Longer-Term Trends and their Impacts on Future Headship Rates

Short-term recovery in headship rates will take place in the context of longer-term trends. Over the past 20 years there have been some signs of underlying structural changes that have caused headship rates of different age groups to drift up or down over time. For young adults, several long-term trends are pulling rates downward. Young adults are more likely to be enrolled in full-time undergraduate or graduate school programs, which makes them less likely to be living independently. Young adults are also waiting longer until marriage, which has a negative effect on headship rates for those in their early 20’s. Indeed, age at first marriage has been steadily increasing, while the share of 20-24 and 25-29 year olds who are currently married has been steadily decreasing since 1990 (**Figure 4**). In addition, the share of 20-24 and 25-29 year olds with children has been decreasing over the past two

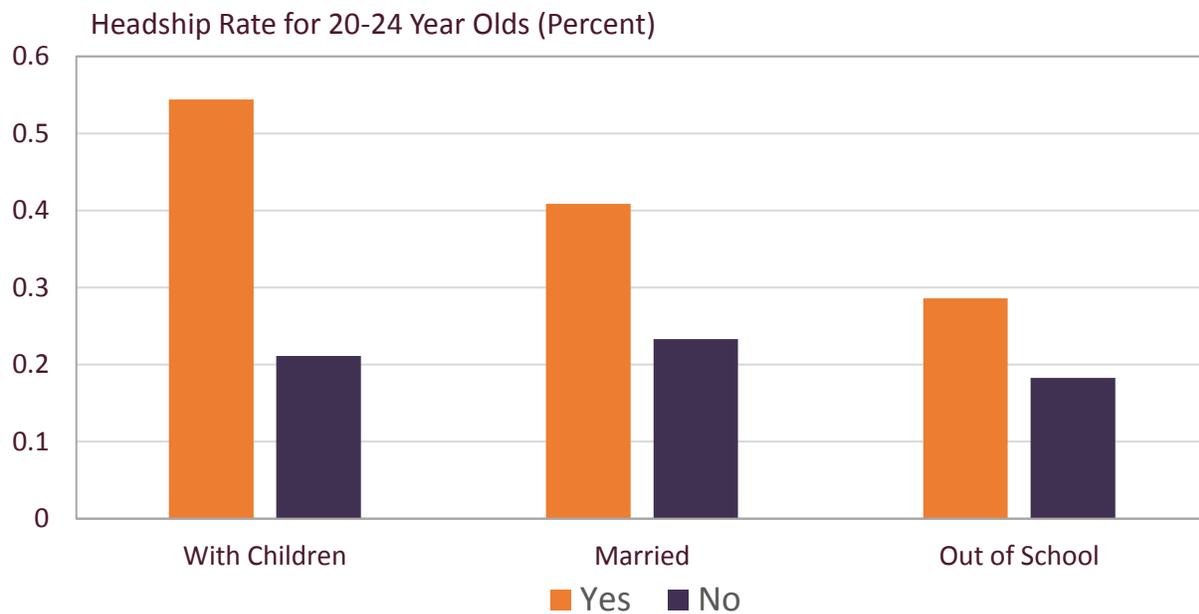
decades. Since those with children are much more likely to live independently, this trend has also had a downward influence on headship rates for young adults.

Figure 4-a. Advanced Schooling & Delayed Family Formation Have Worked to Delay Housing Independence of Younger Adults



Source: JCHS tabulations of CPS/ASEC data via IPUMS-CPS, University of Minnesota, <http://www.ipums.org>

Figure 4-b. Advanced Schooling & Delayed Family Formation Have Worked to Delay Housing Independence of Younger Adults



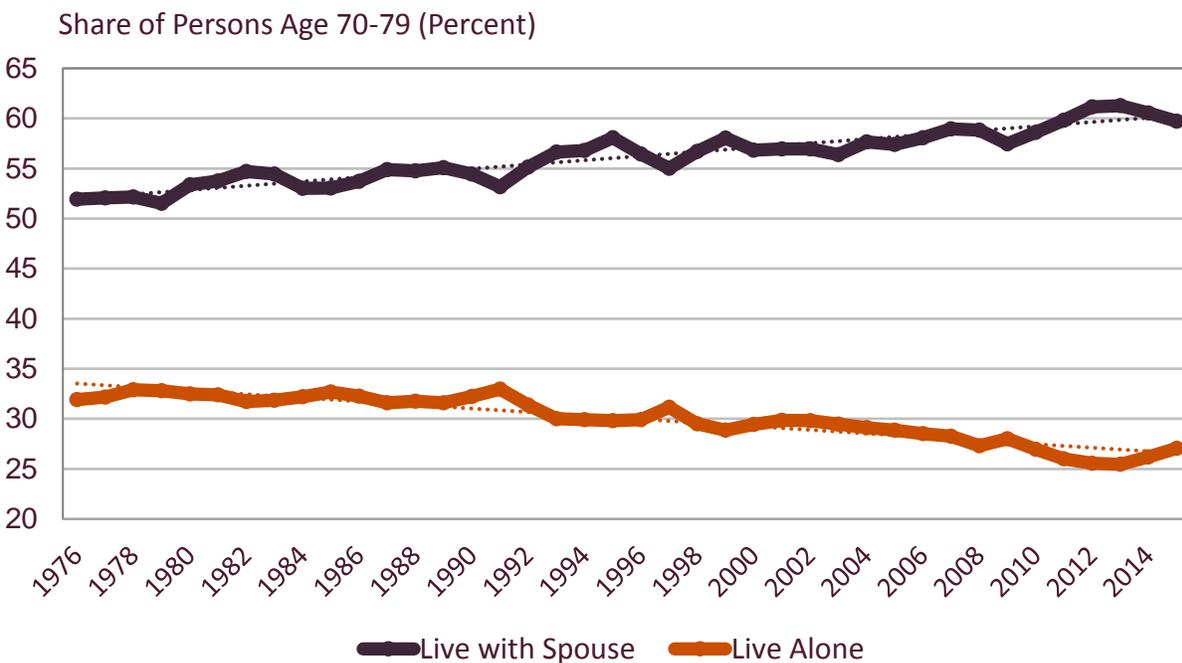
Source: JCHS tabulations of CPS/ASEC data via IPUMS-CPS, University of Minnesota, <http://www.ipums.org>

Finally, there is a growing gap between the earnings of young adults and those of older adults. Since 1980, real personal incomes are up for every 5-year age group aged 40 and over and by 10 percent. However, incomes are down 16 percent for people age 25-29 and 41 percent for those aged 20-24. As a result, more young adults cannot afford the typical rental unit on their own, which means they are more likely to double up or live with their parents even if they are employed.

In contrast, headship rates for those in their 40s and 50s have remained virtually flat over the years. This suggests that the factors that have caused the decline in headship rates among young adults are not permanent. Instead, they seem to delay household formation rather than reduce it.

Several factors have also changed headship rates for older adults. Most notably, the decline in mortality rates, mainly for males, over the past two decades has led to an increased share of married-couple households among those in their 60s and 70s and a smaller share of one-person households (Figure 5). In terms of headship rates, this has translated into lower headship rates for those in their 60s and 70s that has become increasingly apparent over the past 20 years.

Figure 5. Improvements in Spousal Mortality Rates Have Kept More Retirement-Aged Couples Living Together, Lowering Headship Rates of 70-79 Year Olds

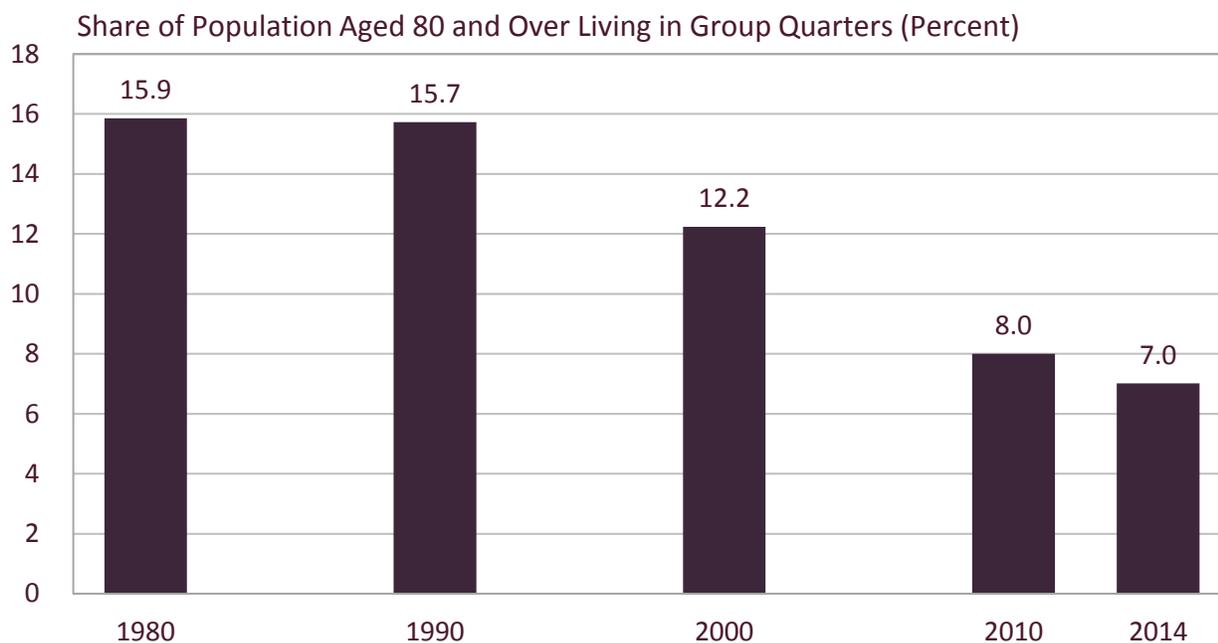


Source: JCHS tabulations of CPS/ASEC data via IPUMS-CPS, University of Minnesota, <http://www.ipums.org>

In contrast, for those in the oldest age groups (aged 80 and over), trends in health and mortality have been driving up headship rates. For the oldest age groups, gains in health and longevity and the

increased prevalence and availability of at-home health care and age-focused housing with services have had dramatic effects on increasing rates of household headship, as more adults in this oldest age group live in households and out of nursing care facilities. Since 1990, the share of people age 80 and over living in group quarters such as nursing care facilities has dropped by more than half – from 16 percent in 1990 to 7 percent in 2014 (**Figure 6**).² Given that nearly two-thirds of all households aged 80 and over are single-persons living alone, this shift away from nursing homes has raised headship rates for the most elderly.

Figure 6. Reduced Nursing Care Living Is Increasing Household Headship Among the Most Elderly



Source: JCHS Tabulations of US Census Bureau, Decennial Censuses and 2010 and 2014 American Community Survey 1-Year Estimates

Methodology

The JCHS household projections methodology involves two major inputs: 1) population projections, obtained from the US Census Bureau’s 2014 Population Projections; and 2) headship rates by age, race, and ethnicity which are calculated by the JCHS. Headship rates are calculated using household counts from the Census Bureau’s annual CPS/ASEC) and historic population estimates from the US Census Bureau Population Estimates Program. Data available from the Census Bureau allows for

² See also: “Smaller Share of Women Ages 65 and Older Are Living Alone”, <http://www.pewsocialtrends.org/2016/02/18/smaller-share-of-women-ages-65-and-older-are-living-alone/>

us to assemble compatible annual historical data from these surveys back to year 1994. The CPS/ASEC rather than the ACS or other Census Bureau surveys is used for household counts in headship rates due to the relatively long span of annual history available for the CPS/ASEC and its track record of remaining relatively close to the benchmark counts from decennial censuses.³ However, we average three years of counts in order to reduce the effects of random errors present in any one year.⁴

Given the changes in headship rates discussed above – particularly the strong negative impact that the Great Recession has had on young adult headship rates – JCHS’ prior methodology of holding headship rates at current levels has the potential for underestimating the share of households headed by young adults. At the same time, any post-recession rebound in headship rates in future years will be bounded by longer-term underlying trends. Indeed, analysis of headship rate data since the 1990s suggest headship rates for young adults and some key older age groups have been trending for reasons unrelated to the recession, and these trends would not be captured if headship rates were held constant or alternatively assumed to revert to some historical level from some ‘typical’ past year prior to the recession. Therefore, to account for the combined influence of both long-term and short-term trends in headship rates, the 2016 JCHS Household Projections no longer hold current headship rates constant. Instead, we instead forecast a headship rate for year 2025 by projecting forward the long-term trends for each 5-year age and race/ethnicity for ten years.

In particular, the 2016 JCHS projections set headship rates in 2025 equal to what the historical linear trend would put headship rates if projected out to 2025. This not only recognizes both that rates of young age groups may be below-trend in 2015 and subject to recovery, but also that there may be other underlying forces driving rates for different groups up or down over the longer term. After year 2025, the projections assume headship rates stabilize at the projected 2025 rate.⁵

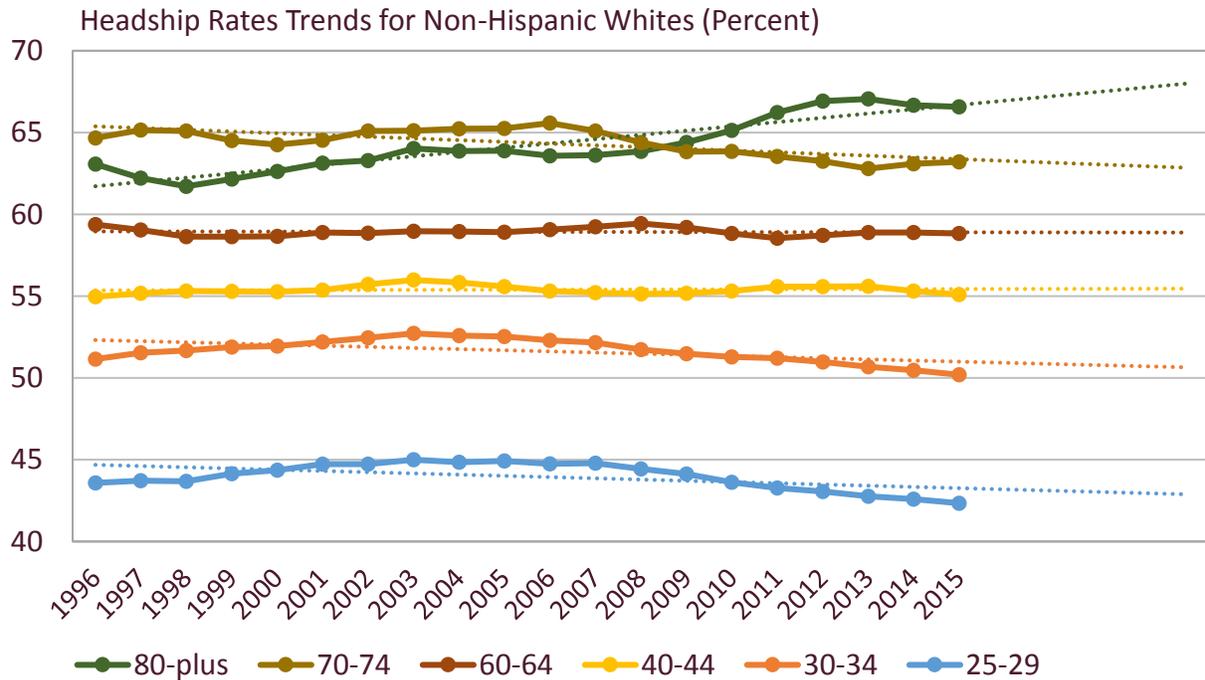
³ See McCue, D. G. Masnick and C. Herbert. 2015. Assessing Households and Household Growth Estimates with Census Bureau Surveys. Joint Center for Housing Studies of Harvard University.

⁴ The headship rate calculations use the Census Bureau’s population estimates rather than the CPS/ASEC population estimates because the CPS/ASEC population universe does not include people living non-institutional group quarters. As a result, it is not a full accounting of the total population. Moreover, unlike the Census Bureau’s population estimates, it is not compatible with the Census Bureau’s population projections to which the resulting headship rates are applied.

⁵ This allows the household projections in this second decade to be driven by projected population growth and demographic change, which is a conservative measure to reduce the risk of error in carrying past headship rate trends out too far into the future, recognizing that some of the longer-term trends that have appeared over the last 20 years may not continue to hold 20 years out into the future and therefore the effects should be muted in the 2025-2035 period to recognize the increasing uncertainty of past trends holding over time.

The JCHS household projections provide separate household counts for each 5-year age group within four race and ethnicity categories of the population. As a result, there are 56 individual headship rate trends - one for each of the four race and ethnicity groups that are in 14 different five-year age groups in each of our four race/ethnicity groups (Figure 7).

Figure 7. Long-Term Headship Rate Trends by Age among Non-Hispanic Whites



Source: JCHS tabulations of US Census Bureau data

The graph in Figure 7, looking at headship rate trends by age for non-Hispanic whites, highlights four notable patterns that hold true for the wider population as a whole. The first is the downward trend in headship rates for younger adult age groups. Specifically, for the 25-29 and even the 30-34 year old age groups, headship rates were above-trend in the peak boom years of 2004-2006 and then fell faster than the trend after 2007. As a result, by 2015 headship rates for these age groups were well below the underlying trend. For these age groups, reverting to trend by year 2025 therefore involves both an upward shift in headship rates to get back to the long-term trendline and then a downward drift as that trendline declines with time.

Second is the relatively flat headship rate trend among the middle age groups. This reflects stability in headship rates at these age groups since the 1990s. Combined, the consistency among headship rates at age 40-45 and the fluctuations seen in younger age groups suggest that the currently

low headship rates among 25-29 and 30-34 year olds are simply delayed household formations that will occur when people in these cohorts get older.

The third notable pattern is the long-term decline in headship rates of retirement-aged households, represented here with the 70-74 year old age group. This is consistent with an increase in married-couple households in this age group due to reduced spousal mortality. Because people in this cohort were less affected by the recession, headship rates for this group remained on the trendline and are projected to continue on that trendline through 2025.

The fourth notable pattern is the increase in headship rates for the 80-and-over age group. This illustrates the decline in group quarters and the concurrent rise in single-person households. Because the 2015 rates for this group are neither above nor below the trendline in 2015, trending headship rates for this group simply allows its headship rates to continue to move upwards as they have in the past.

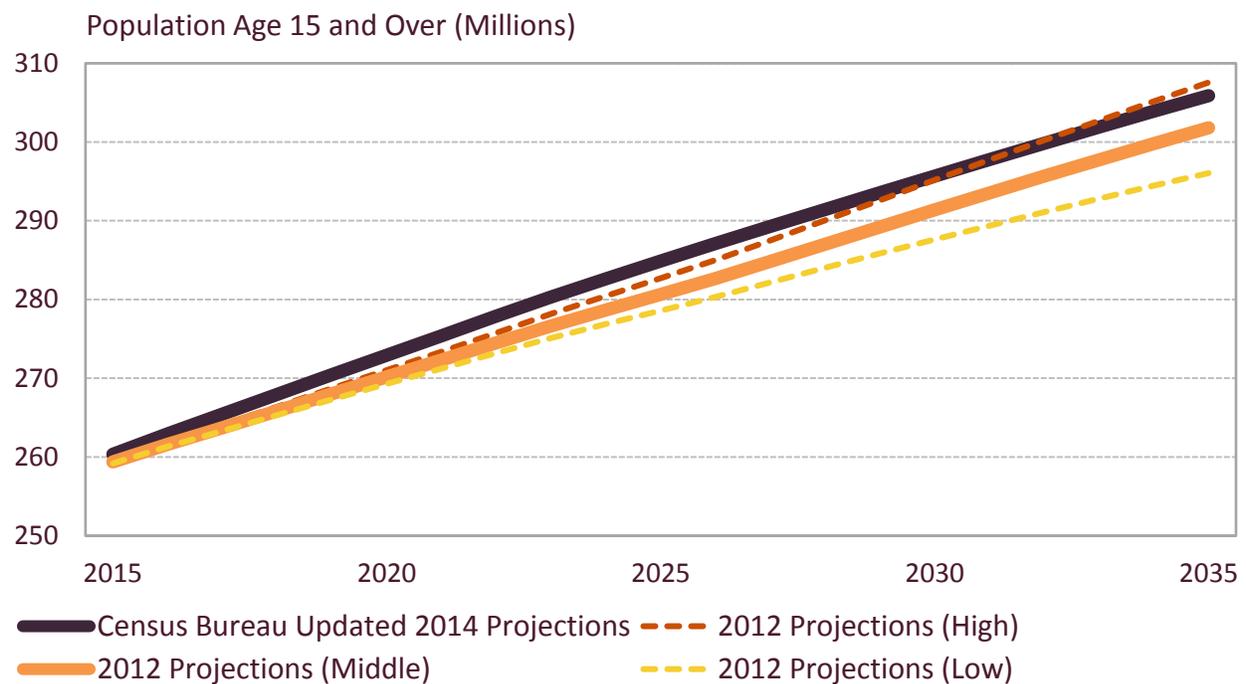
Trending headship rates requires much greater level of sensitivity to errors relative to holding rates constant. In particular, the relatively small sample size of the CPS/ASEC survey leads to limited data in some 5-year age groupings, which at times produces spurious annual fluctuations in headship rates for certain age groups that could unduly influence trendlines. To reduce the potentially harmful effect of these year-to-year fluctuations, we first smooth the data by using a trailing three-year average for headship rates. To further smooth data before trending, headship rates were polynomial-smoothed across age groupings before they were used to determine trends. This is the same smoothing methodology used in JCHS household projections prior to 2006 when headship rates were trended across cohorts (See Masnick 2000).

Finally—and similar to previous JCHS household projections—the 2016 household projections also include a distribution of households by household type. Five household types are trended from 1996-2015 for each 5-year age group for each race and ethnicity group using annual CPS/ASEC household data. Because trending household types means splitting already thinly populated cells five ways, household type trends use a log trend, rather than a linear trend to moderate the magnitude of change and limit the impact of sharp recent changes that, if taken linearly, would result in unreasonable shares of households with certain household types in just a few years' time. The result is very modest adjustments to the current distribution of households by type within each age and race and ethnicity grouping in the direction that past trends would suggest.

Updated Census Bureau Population Projections

In addition to the methodological changes involved in the treatment of headship rates, the 2016 JCHS Household Projections also use updated underlying population projections from the Census Bureau. As we discuss below, the impact of this change, far outweighs the impact of the methodological changes described above primarily because the Census Bureau's 2014 population projection is much higher than the 2012 Census Bureau projection used in the previous JCHS projections (**Figure 8**).⁶

Figure 8. The Single 2014 Census Bureau Population Projection Calls For Higher Growth Through 2025 than the Previous High-Series Projection from 2012



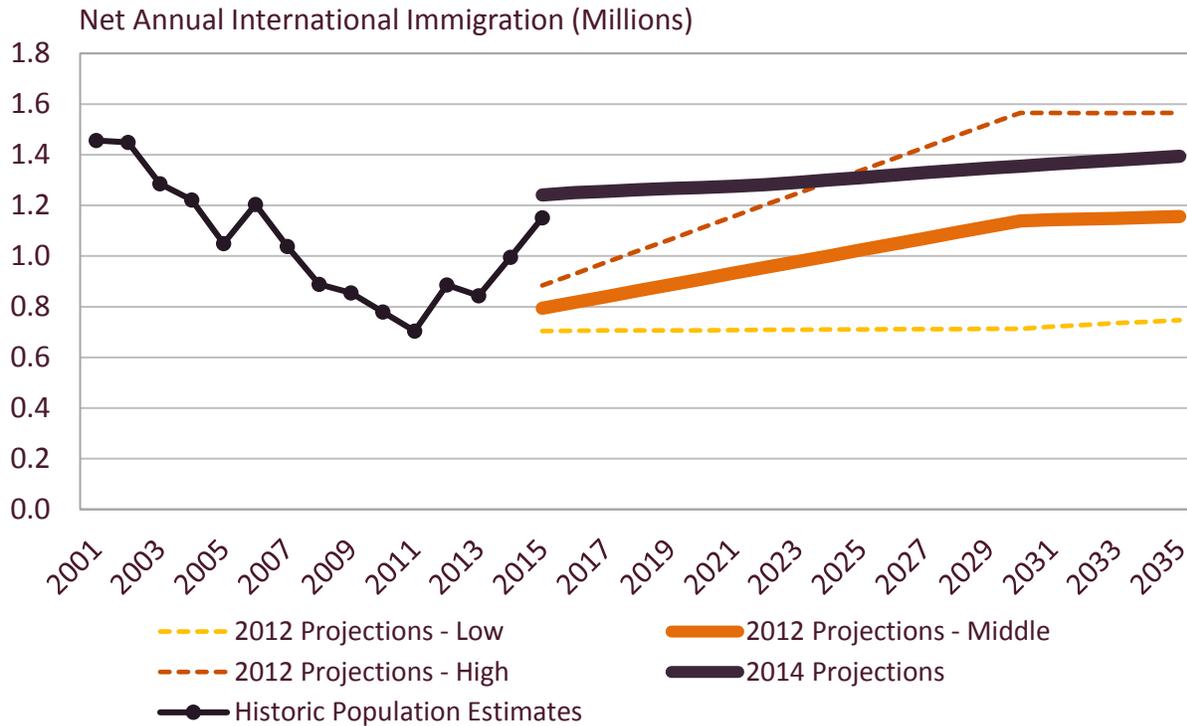
Source: JCHS tabulations of US Census Bureau, 2012 and 2014 Population Projections

The greatest source of difference between the 2014 population projection and the previous projections is the assumption for future immigration. Although the new methodology results in a significant boost to immigration projections, recent data suggest the 2014 projection assumption is not unreasonably high. In fact, the latest estimates of net international immigration show that immigration levels have rebounded to nearly match those assumed in the 2014 population projections (**Figure 9**).

⁶ The Census Bureau's 2014 population projections are a single series rather than the low, middle, and high immigration scenarios published in 2012. The 2014 population projection is most similar to the previous high-series projection. However, the 2014 projections call for even higher adult population growth over the next decade than the 2012 high-series projection.

The 2014 projections also assume much more consistent immigration levels after 2015, which keeps them closer to recent estimates and less erratic than immigration levels assumed in the 2012 projections.

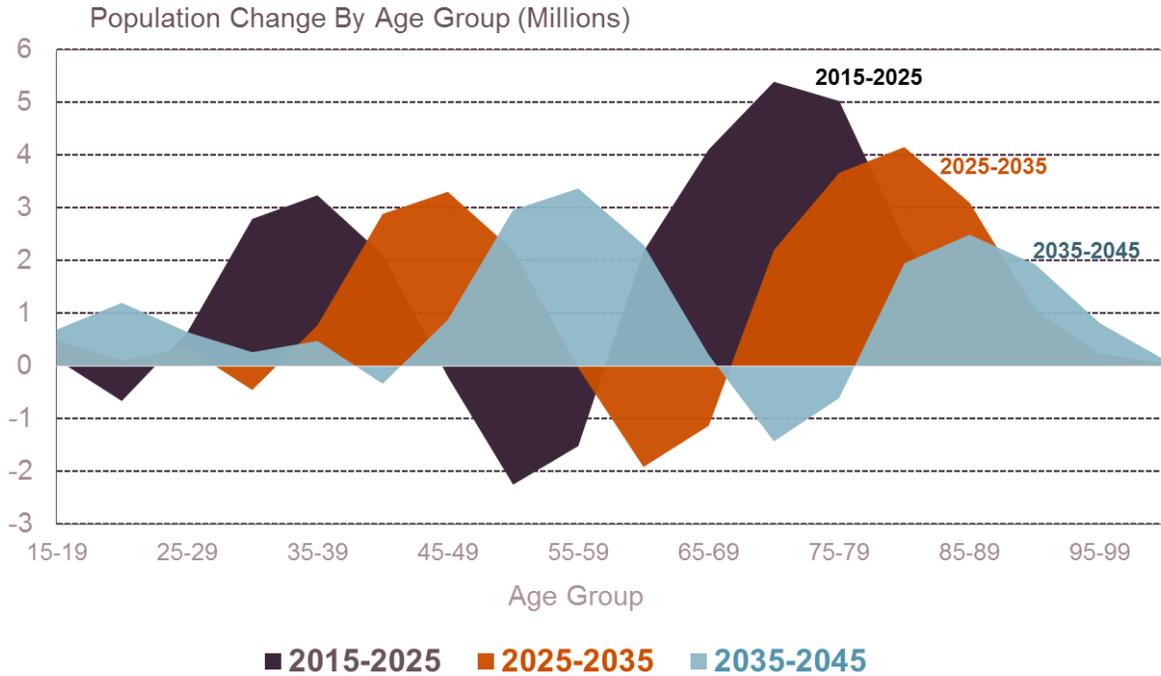
Figure 9. Immigration Levels in the 2014 Population Projections are Close to Recent Estimates



Source: JCHS tabulations of US Census Bureau, National Population Estimates and 2012 and 2014 Population Projections

The upwards adjustment to the immigration assumptions in the 2014 Census Bureau population projections had a positive impact on future household growth. However, the rate of growth in adult population is still projected to decline over the coming decades. Over the past decades, the growth in adult population has been driven by the Baby-Boom generation supplanting the much smaller generation that came before them. Going forward, as more boomers age and pass away, their numbers will begin to fall. As a result, by 2035-2045 population growth in the older age groups will be smaller than the growth in younger age groups caused from Millennials replacing Generation X (**Figure 10**). The net result will be a significant reduction in adult population growth, and, therefore, the rate of household growth, after the 2015-2025 period.

Figure 10. Baby “Boom” Related Population Growth Will Subside in the Coming Decades, Pulling Down Overall Adult Population Growth



Source: JCHS Tabulations of US Census Bureau, 2014 Population Projections

Results of the 2016 JCHS Household Growth Projections

Results Section 1: Overview of Household Growth Between 2015 and 2025

The 2016 JCHS Household Projections estimate that the US will add 13.6 million households between 2015 and 2025 and 11.5 million households between 2025 and 2035 (Figure 11).

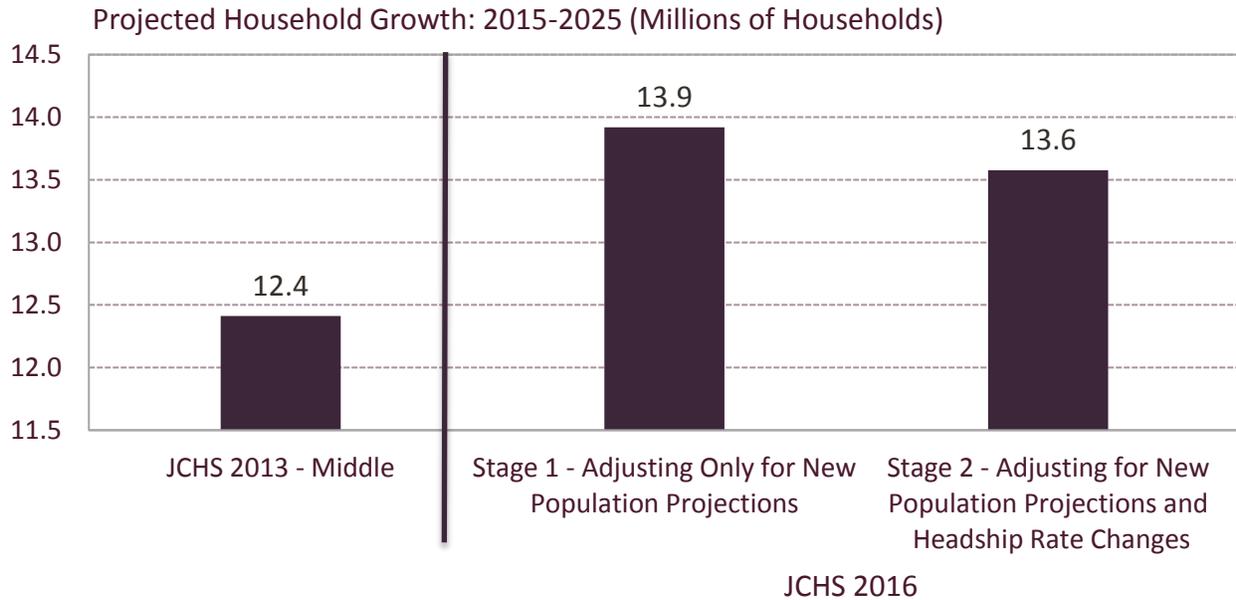
Figure 11: Household Growth, Past & Projected: 2005-2035

	2005-2015	2015-2025	2025-2035
Total	11,344,673	13,576,385	11,475,103
Under 25	(246,898)	(128,704)	33,681
25-34	934,851	1,253,711	(245,802)
35-44	(2,350,907)	2,466,166	1,759,330
45-54	382,352	(1,564,368)	2,907,442
55-64	6,047,989	226,865	(1,349,447)
65-74	5,087,053	5,477,290	441,004
75 and Over	1,490,232	5,845,425	7,928,896
White	2,717,366	3,848,169	1,063,063
Black	2,095,771	1,965,154	1,996,126
Hispanic	4,258,057	4,587,855	5,476,386
Asian	2,273,479	3,175,207	2,939,529

Source: 2016 JCHS Household Projections

The 13.6 million projected growth for the 2015-2025 period in the 2016 JCHS Household Projections represents a significant upwards adjustment from the 12.4 million households foreseen by the 2013 JCHS middle-series projections. Comparing the relative impact of the two methodological changes made between the 2013 and 2016 projections, we find that the biggest impact was from the updated Census Bureau Population Projections. Simply updating the underlying population projections from the 2012 to the 2014 series boosts projected household growth in the 2015-2025 period by fully 1.5 million households more than the 2013 middle-series projection. In contrast, the methodological change to using trended headship rates reduces the projected household growth level by about 300,000 households over the 10 year period (**Figure 12**).

Figure 12. Higher Population Estimates are Behind the Majority of the Difference Between the 2013 and 2016 JCHS Projections



Source: JCHS tabulations of 2013 and 2016 JCHS Household Projections

Trending headship rates does lead to more significant differences in household growth by age level. Compared to holding rates constant, our projections have lower projected household growth levels for young adults age 25-34, negligible difference for ages 35-44 and 45-54 groups, lower growth for ages 65-74, and higher growth for ages 75 and over (**Figure 13**). This is consistent with the reasoning behind trending headship rates, which tried to take into account factors such as delayed household formation among young adults, declining mortality rates lowering headship rates of those aged 65-74; and increased headship among the oldest ages as more seniors are living in their own homes rather than nursing care.⁷

⁷ The comparison of growth levels between 2015 and 2025 with and without trending headship rates is the net sum of the impact of two factors: the trend in the headship rate itself and the correction needed to get 2015 rates back to trend if they are off-trend in 2015. The amount of off-trend correction in young adult headship can be shown by comparing actual headship rates and household counts for young adults to household counts that would exist in 2015 under the 'trend' headship rates. Comparing all ages and races in 2015, there were just under 700,000 fewer households measured in 2015 than would have been expected in 2015 according to long term trends.

Figure 13. Trending Headship Rates vs. Constant Headship Rate Scenario

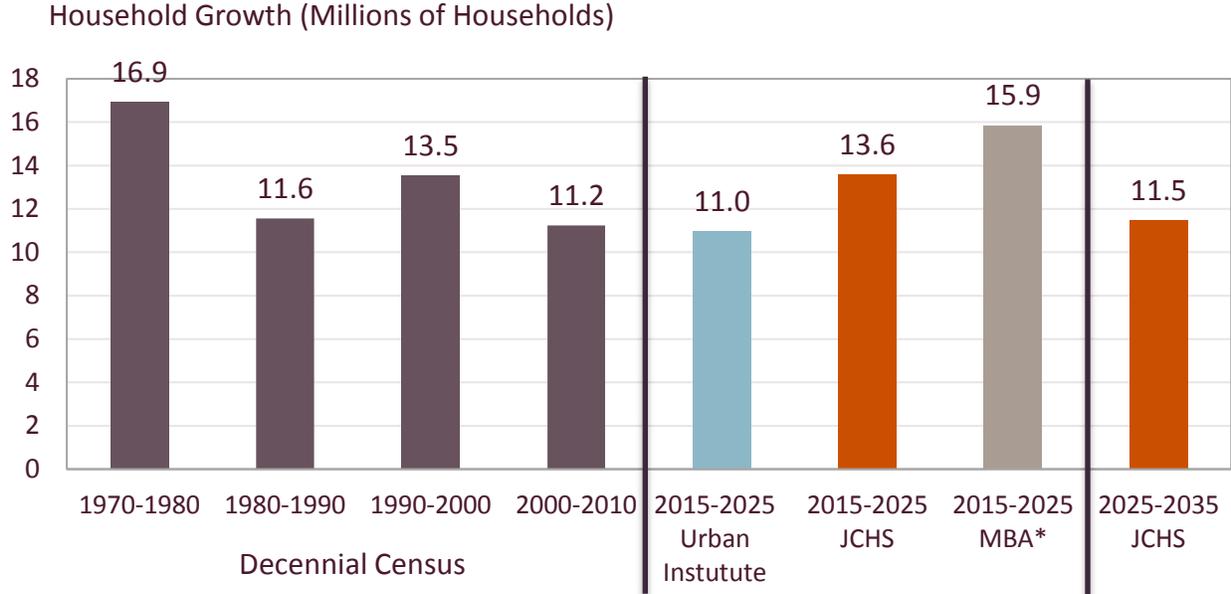
	Trend	Constant	Difference
Total	13,576,384	13,918,302	(341,917)
Under 25	(128,704)	(179,748)	51,045
25-34	1,253,711	1,505,071	(251,361)
35-44	2,466,166	2,744,530	(278,364)
45-54	(1,564,368)	(1,552,679)	(11,689)
55-64	226,865	239,377	(12,512)
65-74	5,477,290	5,745,205	(267,916)
75 and Over	5,845,425	5,416,546	428,879
White	3,848,169	3,415,019	433,150
Black	1,965,154	2,395,207	(430,054)
Hispanic	4,587,855	5,520,981	(933,126)
Asian	3,175,207	2,587,095	588,113

Source: 2016 JCHS Household Projections

The 13.6 million increase in households projected for 2015 to 2025 is comparable to the 13.5 million household growth level in the 1990s. Such growth would be a marked rebound from the 11.2 million increase in households in the 2000s. However, it would not be as large as the growth levels that occurred in the 1970s when the Baby-Boom generation was coming of age and formed 16.9 million households (**Figure 14**).

The JCHS projections are also in line with projections made by entities such as the Urban Institute (2015) and the Mortgage Bankers Association (2015). The primary source of difference between the JCHS projections and others is in different assumptions as to the direction and magnitude of future changes in headship rates. The Urban Institute, which projects slightly lower growth, assumes more significant ongoing declines in headship rates without a short-term, post-recession recovery. The MBA, which projects slightly higher growth than the JCHS, assumes a much more robust, post-recession recovery in headship rates.

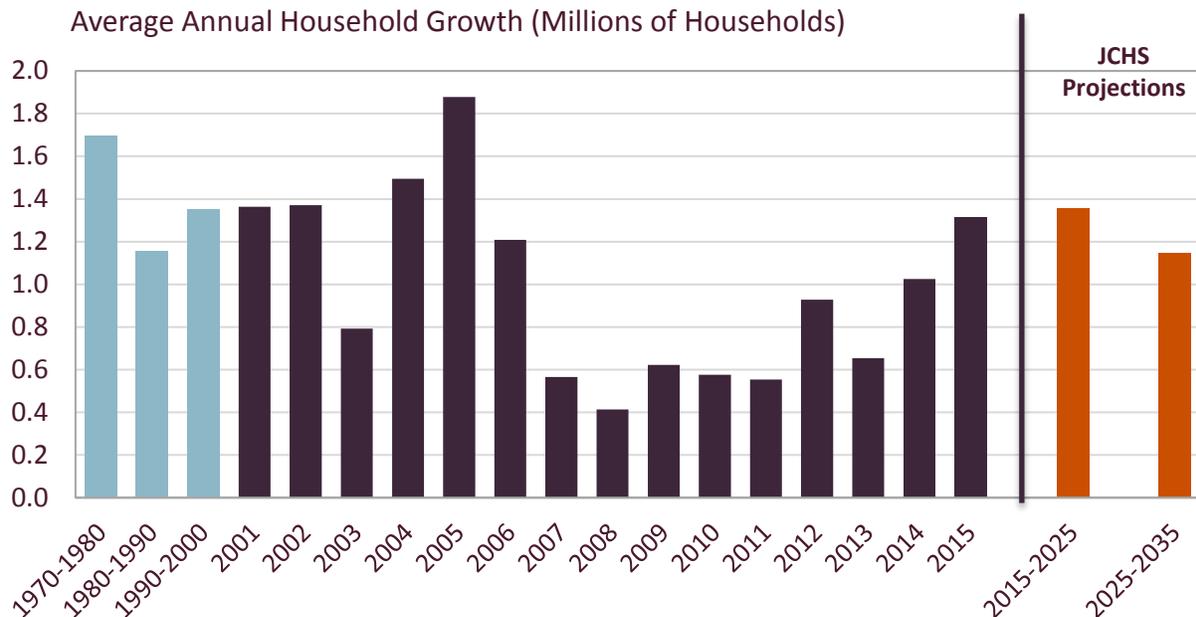
Figure 14. JCHS Projections for 2015-2025 Fall Firmly In Between Others' Estimates, and are Consistent with Historic Growth Levels from the 1990s



Note: MBA Projections are for 2014-2024.
 Source: JCHS tabulations of Urban Institute (2015); Mortgage Bankers Association (2015); and 2016 JCHS Household Projections

In addition to being comparable to average household growth levels observed in past decades, the JCHS projections are also closely in-line with the most recent annual household growth levels as measured in the Housing Vacancy Survey, which reported household growth of 13.2 million in 2014-2015 (**Figure 15**). This suggests that the JCHS projections are consistent with a continued recovery in household growth at current levels.

Figure 15. JCHS Projections are Also In-Line with Recent Annual Estimates of Household Growth

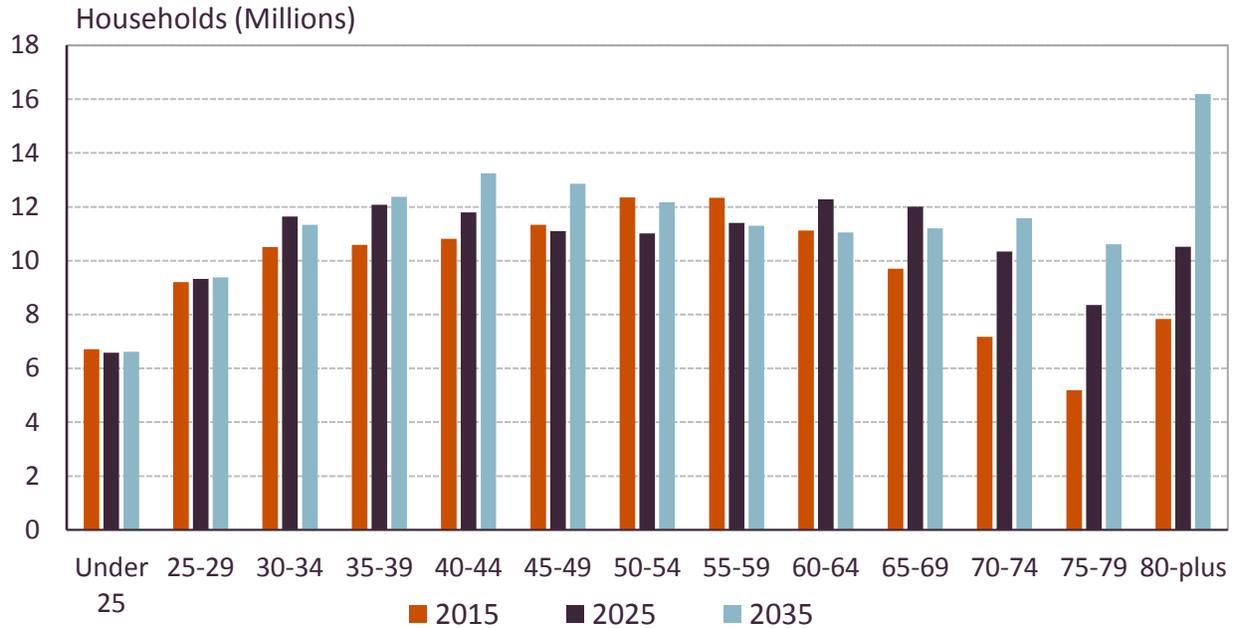


Source: JCHS tabulations of US Census Bureau, Decennial Censuses, Housing Vacancy Surveys; and JCHS 2016 Household Projections

Characteristics of Household Growth: 2015-2025

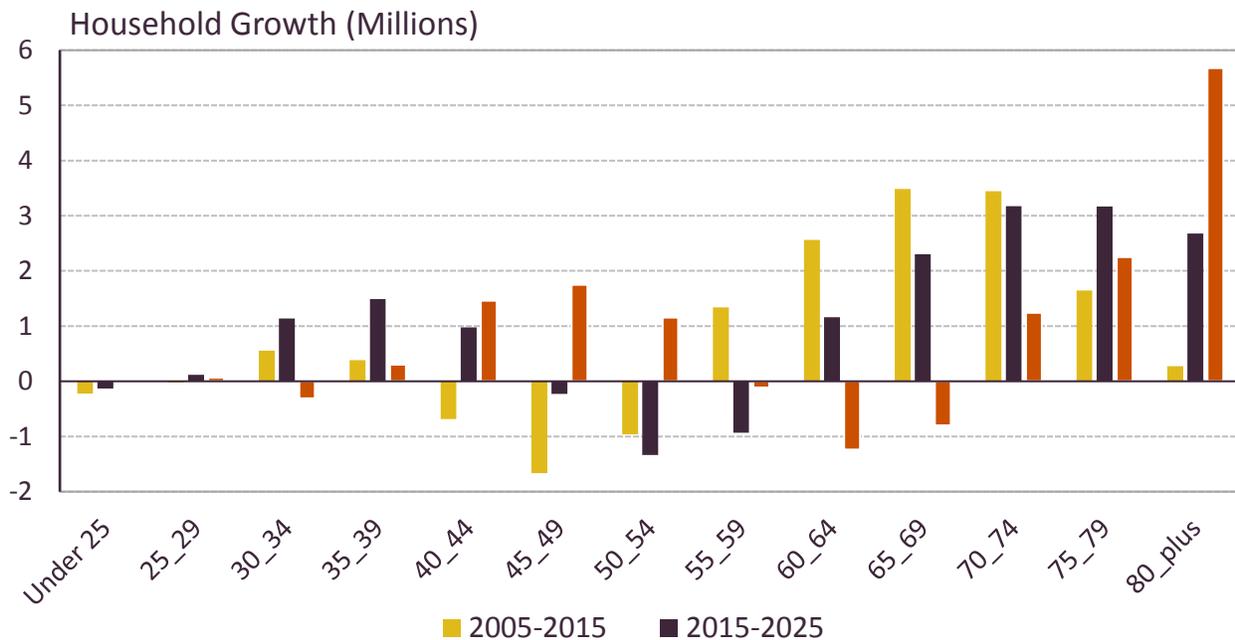
In the 2015-2025 period, the projections call for significant growth of older households as the Baby-Boom generation age. In this time, the number of households age 65 and over is projected to increase by 11.3 million, equivalent to over 83 percent of the total household growth. More than half of this growth will occur in households age 75 and older, which are projected to increase by fully 5.8 million between 2015 and 2025. Projections also show significant growth at some younger age groups driven by Millennials as they supplant Generation-X. For instance, the number of 35-44-year-old households is projected to increase by 2.5 million between 2015 and 2025, while the number of 25-34-year-old households is projected to grow by 1.25 million. In-between Boomers and Millennials, movement of Gen-X into the 45-54 year old age group will reduce the number of households in that age group by 1.6 million between 2015 and 2025 (**Figure 16**).

Figure 16-a. We Will Soon Have Significantly More Households in Older Age Groups



Source: 2016 JCHS Household Projections

Figure 16-b. The Bulk of Household Growth Will Continue to Shift to Older Age Groups, With Millennials Contributing at Younger Ages



Source: 2016 JCHS Household Projections

Significant growth in the number of households over age 65 will drive up the number of single-person households as well as married couples without children, which will be the two largest and

fastest-growing household types in the next two decades (**Figure 17**). Single-person households are projected to grow by 5.3 million between 2015 and 2025, while the number of married couples without children are projected to grow by 5.1 million households. These two household types will account for fully 77 percent of all household growth over the next ten years. Additionally, Millennial-driven growth in households age 35-44 should also produce a resurgence of growth in the number of married-with-children households, which are expected to grow by 1.7 million households between 2015 and 2025. All other household types, which includes single parents and unmarried couples, are expected to grow by a combined 1.5 million households.

Figure 17. Aging of Boomers Will Drive Growth in Single-Person Households and Married Couples without Children, While Millennials will Drive New Growth in Married Households with Children

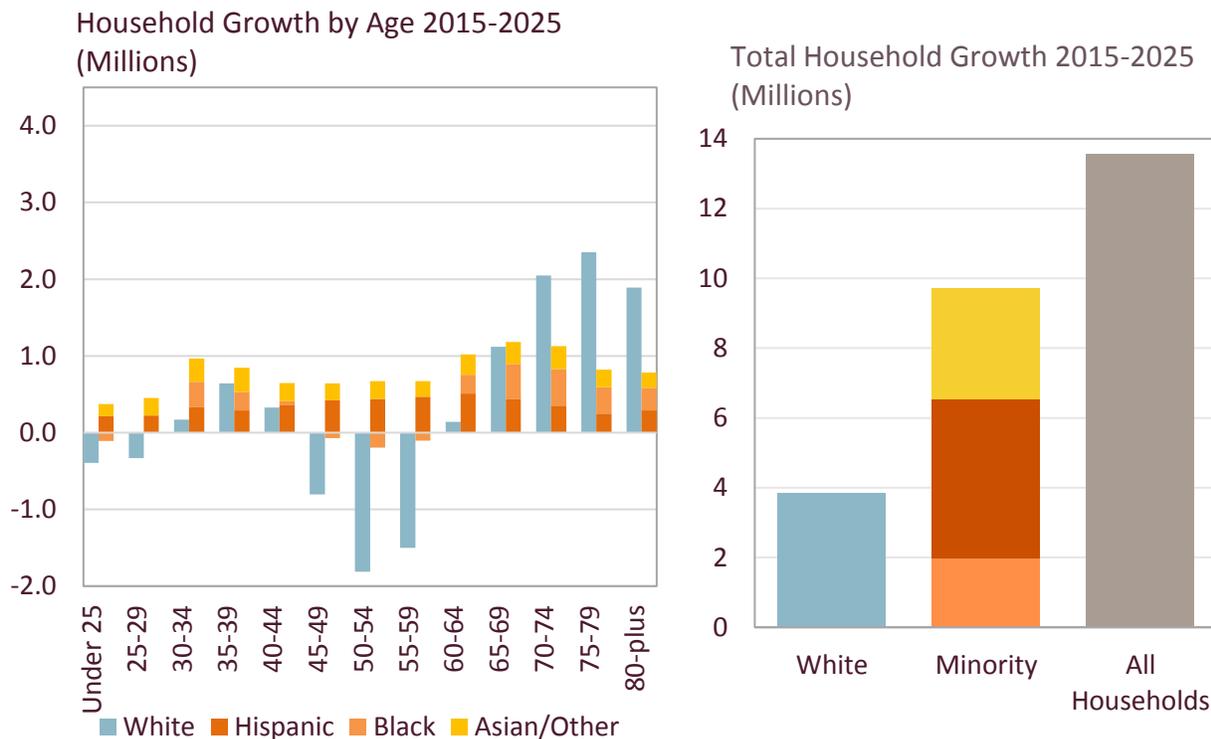
	2015-2025		2025-2035	
	Total	Share	Total	Share
Total	13,576,385	100%	11,475,103	100%
Single Person	5,281,435	39%	4,767,228	42%
Married without Children	5,096,825	38%	2,562,925	22%
Married with Children	1,727,896	13%	1,400,335	12%
Unmarried with Children	449,193	3%	733,042	6%
All Other	1,021,035	8%	2,011,574	18%

Source: 2016 JCHS Household Projections

Another major facet of household growth over the next two decades will be the significant share of growth accounted for by Hispanics and non-Hispanic blacks, Asians and other minorities. The projections show these households will make up the majority of household growth between 2015 and 2025. In this time, fully 72 percent of all household growth will be from households other than non-Hispanic whites (**Figure 18**). Hispanics, which are projected to increase by 4.6 million households between 2015 and 2025, will grow the most. Non-Hispanic white households are projected to have the second largest share of household growth, increasing by 3.8 million households, while non-Hispanic black households will grow by 1.97 million households. The fastest growth rate will be among Asian and other non-Hispanic minority households, which are projected to grow by 3.2 million households. As a

result of this growth, the overall minority share of households will grow from 32 percent in 2015 to 36 percent in 2025 and 40 percent in 2035.

Figure 18. Minority Household Growth in 2015-2025 will be Significant and Extend Across All Age Groups



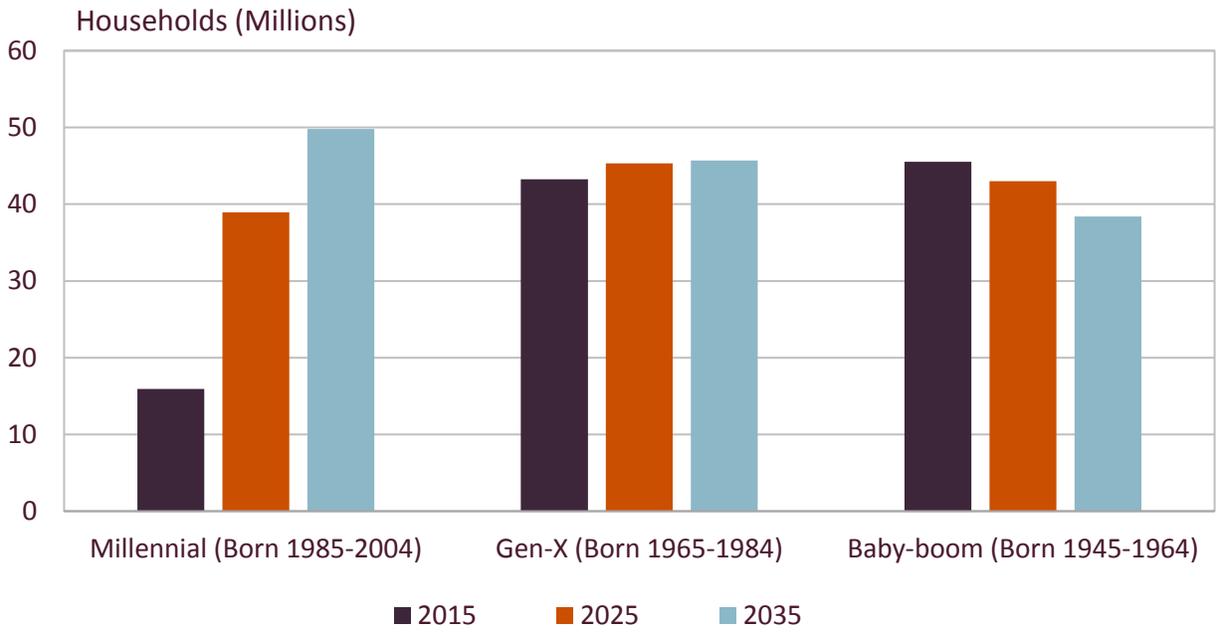
Note: White, black, and Asian/other households are non-Hispanic. Hispanics may be of any race.
 Source: 2016 JCHS Household Projections

Characteristics of Household Growth: 2025-2035

Between 2025 and 2035, household growth is expected to slow to 11.5 million households, which is roughly equal to the growth that occurred between 2005 and 2015. However, the slowdown in household growth after 2025 will not be due to a decline in the number of new household formations by young adults. In fact, because the Millennial generation and the generation following them are so large, new household formations among young adults are actually expected to continue to rise over the next two decades, from 25.8 million between 2015 and 2025 to 26.8 million between 2025 and 2035. In the process, the number of Millennial-headed households alone is expected to grow by fully 23 million over the next 10 years from the 16 million in 2015 to 39 million in 2025, to fully 50 million households by year 2035. In contrast, as Baby Boomers age and begin to pass away, the number of households headed by

Baby Boomers will decline from 45.5 million in 2015 to 43.0 million in 2025 and 38.4 million in 2035 (Figure 19).

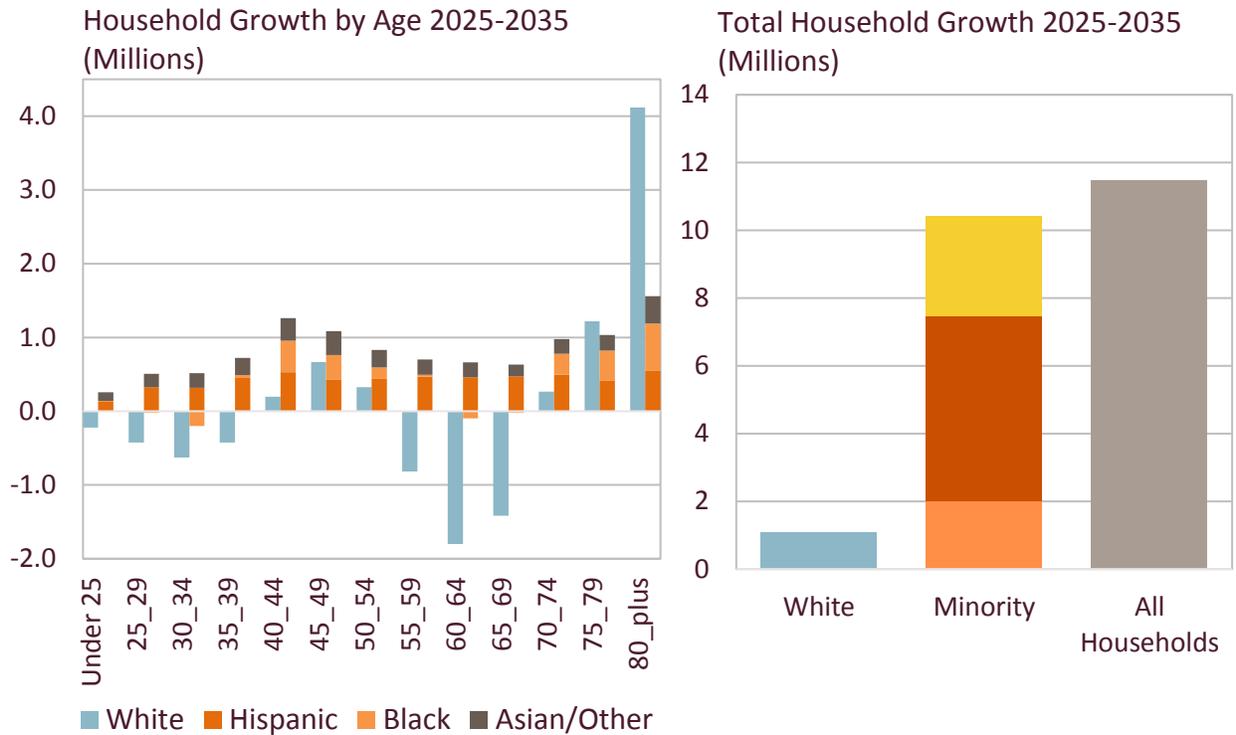
Figure 19. Millennials will Form 23 Million Households over the Next Decade, While Boomers will Begin to Decline



Source: JCHS tabulations of 2016 JCHS Household Projections

The household growth that will occur between 2025 and 2035, will also be even more concentrated among minorities and skewed to even older age groups than between 2015 and 2025. In all, the minority share of household growth will rise from 72 percent between 2015 and 2025 to over 90 percent between 2025 and 2035 (Figure 20). Moreover, growth in the number of households aged 80 and over will be equivalent to 54 percent of all household growth in that decade.

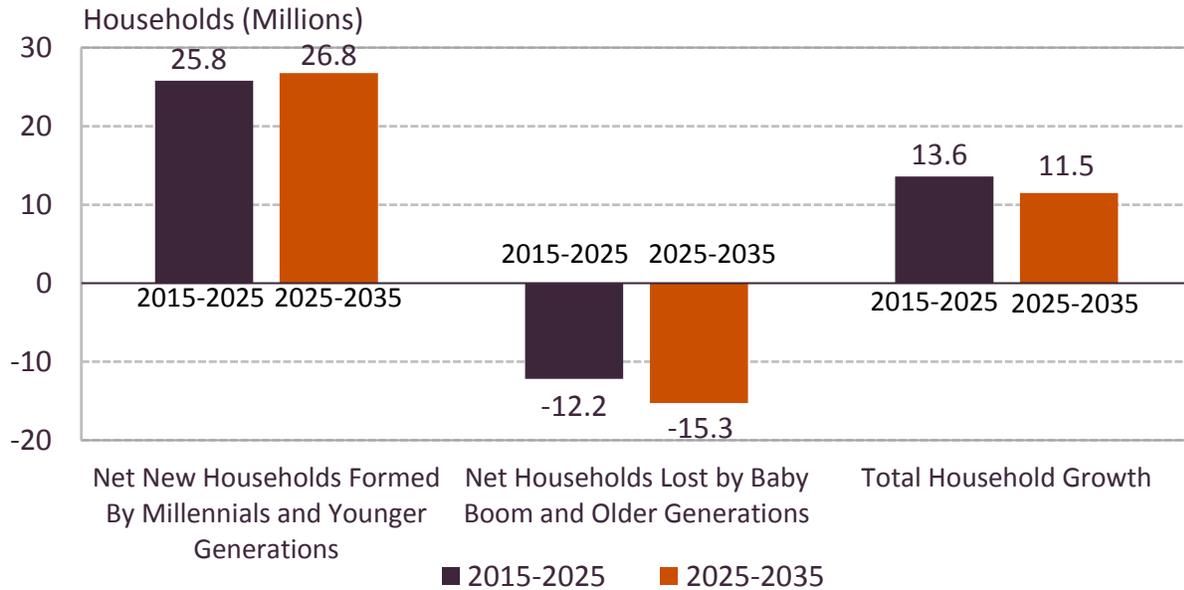
Figure 20. Household Growth in 2025-2035 will be Even More Skewed Towards Seniors and Minorities



Note: White, black, and Asian/other households are non-Hispanic. Hispanics may be of any race.
 Source: 2016 JCHS Household Projections

Growing dissolutions of older households by baby boom and older generations will drive the overall slowdown in household growth after 2025. Household dissolutions, the opposite of household formations, are net losses of households among older adult cohorts who give up households as a result of death, movements into group quarters, or into homes of others. Household dissolutions are concentrated among the 80 and over age group, and therefore are projected to accelerate after year 2025 as the Baby Boom population ages. In all, the number of households lost by older generations will grow from 12.2 million households between 2015 and 2025 to 15.3 million households between 2025 and 2035 (**Figure 21**). Household dissolutions among the 80 and over age group will grow such that after 2025 the rate will be over 1 million households per year.

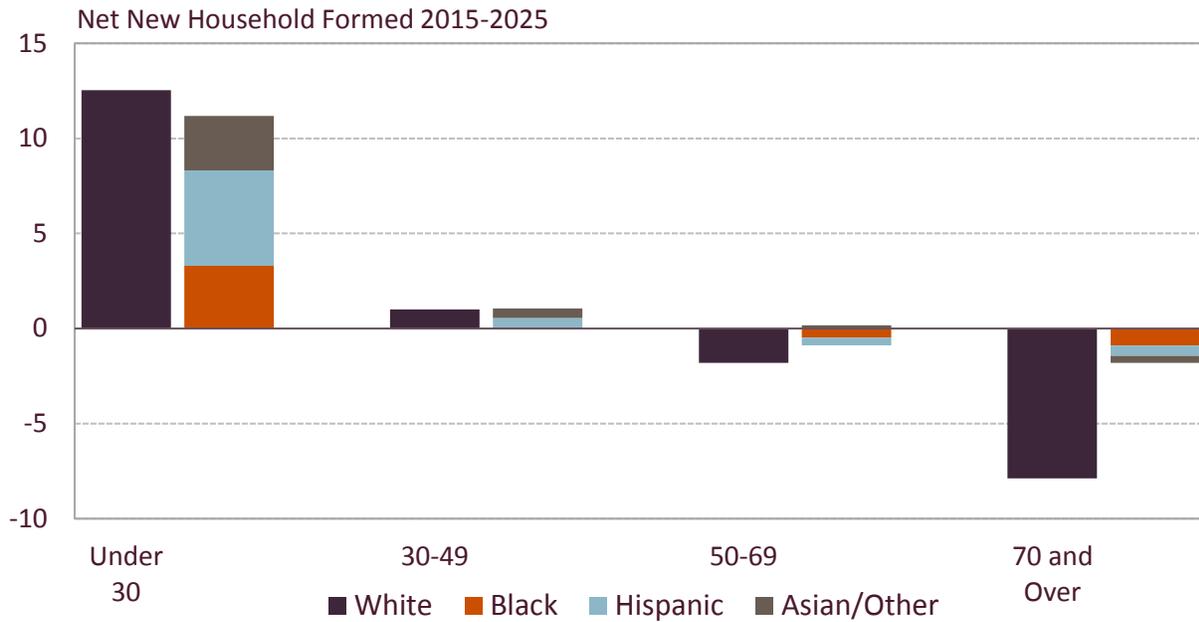
Figure 21. After 2025, Dissolutions among Older Households will Accelerate, Dragging Down Household Growth



Source: 2016 JCHS Household Projections.

The rising number of dissolutions of older white households in the coming decades is a key factor in the increasing share of household growth among minorities. Because they are such an overwhelming majority of older households, whites will make up fully 80 percent of all household dissolutions by those age 70 and over in the 2015-2025 time period. Interestingly, the rise in the minority share of all US households expected over the next decade will not be driven by an overwhelming share of new households formed being minority-headed, but rather by the overwhelming share of household dissolutions that will be whites. Moreover, even with the dissolutions, non-Hispanic white households will still make up the majority (53 percent) of all new household formations by adults under age 35 until 2025 (**Figure 22**).

Figure 22. New and Diverse Young Households Formed will Replace Mostly Older, White Households Lost over the Next Decade



Source: 2016 JCHS Household Projections

Conclusion

The 2016 JCHS projections, which incorporate new population projections from the Census Bureau and a revised methodology for predicting headship rates, are that the U.S. will add 13.6 million households between 2015 and 2025. This significant increase from the most recent prior JCHS projections from 2013 is not primarily due to the methodological change. Rather, it is due changes in the underlying Census Bureau population projections, which increased significantly between 2012 and 2014. In fact, compared to holding 2015 rates constant by age, race and ethnicity the methodological change actually lowered the projected growth by from 13.9 to 13.6 million, or just over 30,000 households per year. However, the change in methodology does affect the distribution of household growth by age, race and ethnicity. In particular, it increases household growth among older households and also among non-Hispanic whites between 2015 and 2025. Projected growth in the adult population, due to aging and immigration, continue to have the largest influence on future household growth, which will become more pronounced after 2025 when adult population growth levels peak and begin to moderate.

To download an excel file with the complete household projections dataset, visit

<http://www.jchs.harvard.edu/research/publications/updated-household-projections-2015-2035-methodology-and-results>

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Addendum A: Translating Household Growth Into New Housing Demand

In 2007, Harvard Joint Center for Housing Studies began extending the household growth projections by presenting an estimate of the total baseline demand for new housing units needed (as a combination of construction starts and mobile home placements) that these new household growth projections would suggest.

Household growth is the largest factor in new housing demand, but it is not the only component. As detailed in Belsky (2007), there are three other main sources of demand for new housing: replacement units, second homes, and natural vacancies. We define replacement units as those needed to replace homes lost from demolition or disaster as well as from any net losses resulting from mergers and splits of units and conversions of units to and from non-residential use⁸; second homes as units built for reasons other than full-time occupancy such as second and seasonal homes; and natural vacancies as the nominal share of additional vacant units needed to maintain a basic level of mobility for households within the housing stock⁹.

In addition to these three factors, the actual amount of new construction needed to meet this demand is also influenced by market imbalances. In this manner, accounting for any existing shortage or excess supply of housing units at the beginning of the projection period (and assuming markets will be in balance at the end of the projection period) can have a significant impact on future construction levels. However, the determination as to whether or not the housing markets are currently in balance, and if not, the degree to which they are out of balance, is a difficult exercise that must rely on multiple assumptions and imprecise measures for which we can hold little confidence. Therefore, we describe these estimates as ‘baseline’ demand in that they are net of any corrections for current or future imbalance in the market – effectively assuming markets will remain in the current balance going forward, and leave it to others to make their own assumptions to factor in corrections for over- or undersupply.

⁸ Historically, conversions to and from residential have been roughly similar in magnitude and resulted in minimal net changes in the residential stock. See HUD, Components of Inventory Change (CINCH) reports, <https://www.huduser.gov/portal/datasets/cinch.html>.

⁹ Belsky, E.S., R.B. Drew and D. McCue. November 2007. Projecting the Underlying Demand for New Housing Units: Inferences from the Past, Assumptions about the Future. Harvard Joint Center for Housing Studies, Working Paper W07-7, <http://jchs.harvard.edu/research/publications/projecting-underlying-demand-new-housing-units-inferences-past-assumptions>.

Net Replacements of Stock Lost

Our estimate for net replacement demand loosely follows the methodology detailed in Belsky (2007). We first calculate an effective replacement rate by comparing the change in size of the housing stock as measured by the Census Bureau with the number of new units built over previous 10 year periods. Since growth in the housing stock is less than the number of new units built, net replacements are the residual difference. In this updated analysis, we find that the implied net replacement rate has declined significantly from the 2.5 percent 10-year net replacement rate used in the 2007 paper. Matching construction data for 2000-2010 with the change in stock measured between the 2000 and 2010 decennial censuses suggests the effective net replacement rate was just 1.0%. Using changes in stock in the annual Housing Vacancy Survey, we find 10-year replacement rates from the 2000-2010 through 2004-2014 periods ranging from 1.30% to 1.64%¹⁰. The following tables show the results using the latest Housing Vacancy Survey (HVS) annual consistent vintage stock estimates since 2000 and the Census Bureau decennial census estimates over the last three decades.

Table A-1. HVS-Based Calculation of Net Replacements Rate

Units (Thousands)

Time frame	Stock at Start	Stock at End	Total Completions & Placements	Net change in stock	Implied net replacements	Implied 10-year replacement rate
2000-2010	116,264	131,778	17,022	15,514	1,508	1.30%
2001-2011	117,994	132,172	15,870	14,178	1,692	1.43%
2002-2012	119,697	132,605	14,735	12,908	1,827	1.53%
2003-2013	121,466	133,203	13,615	11,737	1,878	1.55%
2004-2014	123,355	133,952	12,617	10,597	2,020	1.64%

Average HVS 10-Year Residential Replacement Rate (Share of Stock) 1.49%

Table A-2. Decennial Census-Based Calculation of Net Replacements Rate

Units (Thousands)

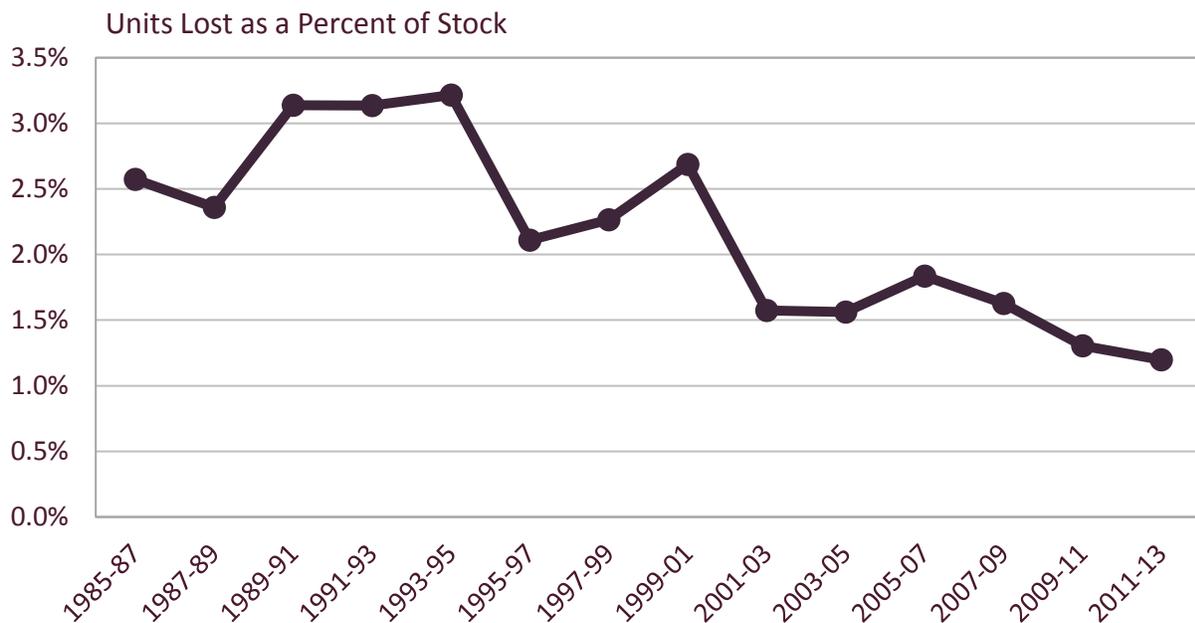
Time frame	Stock at Start	Stock at end	Total Completions & Placements	Net change in stock	Implied net replacements	Implied 10 year replacement rate
1980-1990	88,411	102,264	17,365	13,853	3,512	3.97%
1990-2000	102,264	115,905	16,121	13,641	2,480	2.43%
2000-2010	115,905	131,705	17,022	15,800	1,222	1.05%

Average Decennial Census 10-Year Residential Replacement Rate (Share of Stock) 2.48%

¹⁰ Historically comparable mobile home placements data are only available through 2014, limiting the HVS analysis.

The decennial census table shows the net replacement rate averages 2.5% over the past three decades, but also that has been on a consistent and significant decline over the past three decades (**Figure A-1**). The presence of such a trend suggests averaging historical data may not be the best approximation for a future baseline rate, at least in the near-term. There are a few possible explanations for the decline in net replacements over the decades, but the most likely is a reduction in stock losses since 1980 concurrent with revitalization of many cities and urban areas and related improvements in housing stock.

Figure A-1. Declines in Stock Loss Rates Have Reduced Demand for Replacement Units



Source: JCHS tabulations of HUD Components of Inventory Change (CINCH) reports
<https://www.huduser.gov/portal/datasets/cinch.html>

Ultimately, we use the 1.49 percent rate as averaged from the HVS since 2000 for our preferred rate of net unit replacements over the next decade because it represents both a recent and mid-range estimate among those calculated. Following the range in the data tables, we will also calculate a historical low estimate of 1.0 percent and use the 2.5 percent rate as the historical high estimate.

Second Home Demand

Demand for second homes comes as a function of ownership rates by age, but rates of owning second homes also differ significantly by race. Adding on a control to differentiate between ownership rates of non-Hispanic whites and all other households as derived from the Surveys of Consumer

Finances (SCF), we can update our estimates to better account for the effect of changes in the white/minority mix of households on second home demand.

As described in Belsky (2007), due to the small sample size of the SCF survey, the estimates for second-home ownership have a great deal of volatility. The approach detailed in Belsky (2007) is concerned with obtaining the most conservative (i.e. lowest), but still recent estimate for second-home ownership rates and does this by taking the lowest rate of second-home ownership from the two most recent SCF survey results and applying it onto the household projections. When we apply the lower of the 2010 and 2013 SCF rates of second home ownership to the household growth projections by age and minority status, resulting baseline new demand for second homes in 2015-2025 is 605,793 units (**Table A-3**). However, this approach may not be entirely suitable for the current time period, given that year 2010 was the worst of the downturn and may be unusual, and also because the more finer-grained split of rates by age and minority status may result in second-home ownership rates within these small groups that are too volatile to take at face value for any one survey year. For these reasons, we provide an alternative assumption for second-home ownership rates that uses averages rates from the two most recent years of SCF data, which are also slightly higher.

Table A-3. Share of Households Owning Second Homes

		Second-Home Ownership Rate (Percent)				Implied Growth in Second Home Owners 2015-2025	
		2010	2013	Low	Average	Low	Average
	Age						
Non-Hispanic White	Under_30	0.76	1.70	0.76	1.23	-5,528	-8,946
	30_39	2.34	4.34	2.34	3.34	18,994	27,108
	40_49	7.29	5.65	5.65	6.47	-26,837	-30,729
	50_59	12.49	11.94	11.94	12.22	-395,779	-404,974
	60_69	15.98	14.17	14.17	15.07	178,698	190,083
	70_79	12.29	12.21	12.21	12.25	537,078	538,840
	80_plus	6.73	3.49	3.49	5.11	66,015	96,678
All Minority	Under_30	1.51	1.42	1.42	1.47	10,154	10,468
	30_39	2.65	1.49	1.49	2.07	26,990	37,488
	40_49	5.26	3.54	3.54	4.40	43,162	53,661
	50_59	6.79	3.57	3.57	5.18	37,471	54,339
	60_69	6.61	3.06	3.06	4.83	67,347	106,369
	70_79	3.38	2.46	2.46	2.92	47,795	56,799
	80_plus	5.11	0.03	0.03	2.57	232	20,169
TOTAL	All Ages					605,793	747,353

Source: JCHS tabulations of US Census Bureau, Surveys of Consumer Finance

Changes in the number of second homes by age group in the rightmost columns of Table A-3 above may not be intuitive since they largely reflect the expected change in the age distribution of the population in 2015-2025, not new second-home ownership. To get a better sense of what age groups will be responsible for net new second home demand in 2015-2025, we follow ownership levels by cohort across 2015-2025. Doing this in Table A-4 below, we find largest new demand for second homes to be among the cohort of white households who are 40-49 years old in 2015 and will be age 50-59 years old in 2025 (**Table A-4**). The number of second homes owned by this group will increase by over 800,000 over the next 10 years in both scenarios, reflecting their passage through the ages that second home ownership rates increase most rapidly.

Table A-4. Net New Projected Second-Home Ownership Levels by Cohort in 2015-2025

Age in 2025	Lower of 2010 and 2013 SCF Rates			Average 2010 and 2013 SCF Rates		
	Whites	Minorities	Total	Whites	Minorities	Total
Under 40	304,321	165,940	470,261	433,279	226,852	660,132
40-49	463,350	208,786	672,136	448,490	240,795	689,285
50-59	880,992	9,077	890,069	806,312	74,083	880,395
60-69	345,326	(41,527)	303,799	450,624	(31,197)	419,427
70-79	(494,015)	(45,911)	(539,926)	(630,061)	(116,012)	(746,073)
80-plus	(1,127,333)	(63,213)	(1,190,546)	(1,100,585)	(55,228)	(1,155,812)
Total	372,641	233,152	605,793	408,059	339,293	747,353

Source: JCHS table A-2 and 2016 JCHS Household Projections

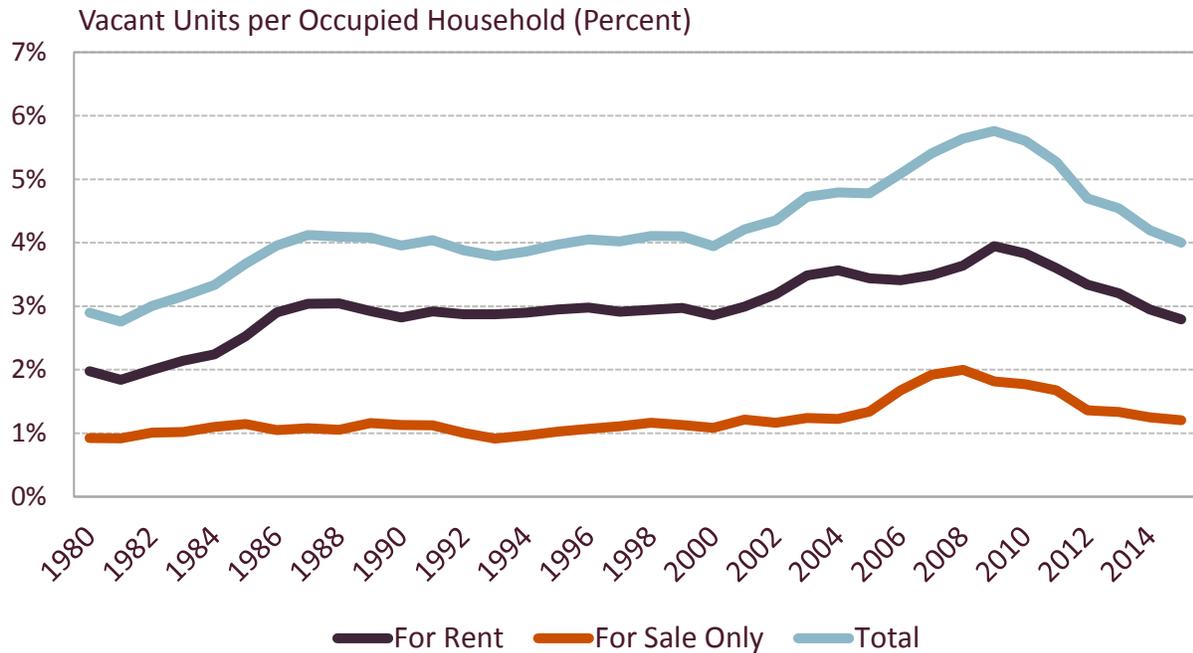
Expected Future Vacancies

Adjustment in the stock of vacant homes based on an assumed natural vacancy rates is the smallest component of new residential construction demand. In short, an estimate of the number of vacant units needed under normal market conditions is estimated by applying a ratio of vacant units to households to future household projections. This estimate is then compared to the current number of vacant units to determine how many additional vacant units will be needed to maintain this ratio.

Rental vacancy rates have been particularly difficult to predict. Given that the recent decline in rental vacancy rates is beyond any experienced since the mid 1960's, the future reaction to this decline is unclear. In the past, from the 1960s through 2000s, HVS data show that increases in the rental vacancy rate were not followed by declines, but rather established new periods of stability at ever higher levels. Only time will tell if the recent decline in rental vacancy rates will continue, if rates will bounce back higher, or if they will stabilize temporarily at a new lower level.

With this uncertainty, the following ‘baseline’ demand expectations for additional vacant units simply assume a constant ratio of vacant units to occupied households based on the most recent annual data. As last measure in 2015, this ratio of vacant units to occupied households was 4.0 percent, which is roughly what this metric averaged from 1986 through year 2000 (Figure A-2).

Figure A-2. Vacancies as a Share of Households Have Declined Back to Rates Common in the Late 1980s and 1990s



Source: JCHS tabulations of US Census Bureau, Housing Vacancy Surveys

Holding current ratios of vacant units per occupied household constant, the 13.6 million growth in households in 2015-2025 would support an additional 379,400 vacant rental units and 163,900 additional vacant owner units relative to current levels. Changes in vacancy rates could alter this number only very slightly. If we assume vacancies were to continue to decline for another year (at the same rate as in the past year) before stabilizing, then total demand for vacant units in 2015-2025 would be just 26,500 units less than that derived from holding rates constant. Even if vacancy rates repeat the steep decline seen in the past two years before stabilizing, then the affect would reduce total new vacant demand by just 73,000 units relative to holding current rates constant over ten years. Therefore we simply hold rates constant in our preferred baseline demand calculations.

Projecting Construction Levels from Components of Demand

Adding up each of the components above, baseline net new demand for housing units is displayed in Table A-5. In all, these calculations show that baseline demand for replacements, second homes, and future vacancies would suggest approximately 3.1 million additional new housing units needed over the 2015-2025 period, or roughly 310,000 units per year, on top of demand for new units to accommodate expected household growth during that period. This results in total baseline demand for new housing units of 16.7 million housing units in in 2015-2025, or 1.67 million units per year (**Table A-5**).

Table A-5. Baseline Demand for Additional Housing Units: 2015-2025

Units (Thousands)

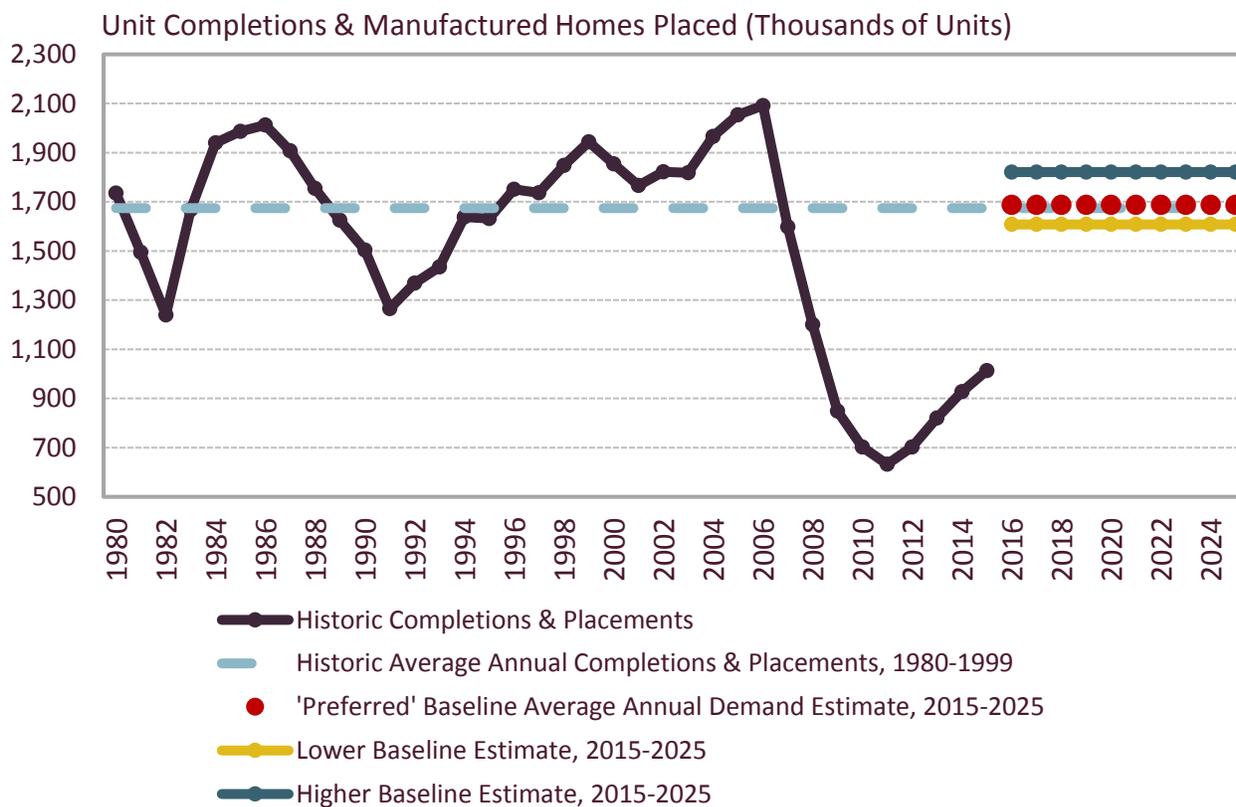
	Preferred	Lower	Higher
Projected Household Growth	13,576	13,576	13,576
Projected Total Vacant Unit Demand	1,291	1,088	1,291
<i>Vacant For Rent</i>			
<i>Current Rate: 2.79% of households</i>	379		379
<i>Additional 2yrs of Decline: 2.38% of households</i>		324	
<i>Vacant For Sale</i>			
<i>Current Rate: 1.21% of households</i>	164		164
<i>Additional 2yrs of Decline: 1.08% of households</i>		158	
<i>Second Homes</i>			
<i>Average of 2010 and 2013 SCF Rates</i>	747		747
<i>Lower of 2010 and 2013 SCF Rates</i>		606	
Projected Total Estimated Net Replacements	2,005	1,420	3,347
<i>Recent Average Rate(2000-2015): 1.49% of total units</i>	2,005		
<i>Lowest Recent Rate(2000-2010): 1.05% of total units</i>		1,420	
<i>Historic Average Rate(1980-2010): 2.48% of total units</i>			3,347
Projected Total Baseline Demand for New Units	16,872	16,084	18,214
Annual Average	1,687	1,608	1,821

Plotting out these estimates for baseline demand alongside historical data in Figure A-6 shows that the preferred estimate for annual new housing demand of 1.687 million units per year is in line with the 1.674 million historical pre-housing-boom average for years 1980-1999. Comparing 10-year periods, the low estimate of 1.608 million units per year, which uses the lowest assumptions for each demand

component, is comparable to the lowest ever pre-boom 10-year total completions and placements level of 1.571 million units that occurred in 1988-1997. During that period, however, total household growth was just 9.9 million—well below the projected 13.6 million growth in households expected in 2015-2025. Meanwhile, the higher estimate of demand for 1.821 million units per year using the highest assumptions for each demand component, is slightly below construction in the 10-year period in 1977-1986, of 18.29 million and well below the 18.90 million completions and placements that occurred in the 10-year period spanning the housing boom in 1997-2006.

Each of these estimates for baseline demand for new housing units in 2015-2025 call for a rate of construction that is far above the most recent annual levels of housing completions and placements which, according to the Census Bureau New Residential Construction and Manufactured Housing surveys, was just 1.013 million units at last annual measure in 2015 (**Figure A-3**). Given that current construction levels are so far below baseline demand levels, future completions and placements in 2015-2025 will likely be well below our baseline demand estimates for that period unless construction levels ramp-up sharply in the next few years.

Figure A-3. Baseline Net New Unit Demand for 2015-2025 is in Line with the Pre-boom/bust Average from the 1980s and 90s, But Well Above Current Levels of Completions & Placements



Source: JCHS tabulations of US Census Bureau, New Residential Construction data

Summary

These data suggest that baseline demand from the 13.6 million additional households expected in 2015-2025, the need for units to replace existing units lost over the next 10 years, for additional second homes, and for some naturally occurring vacancies will support housing construction level of 16.87 million units in the next 10 years. That level is in line with historic averages that occurred prior to the boom and bust period of the 2000s and 2010s. The lower and higher estimates for net new demand from the detailed component-based approach of 16.1 million and 18.2 million units are also within the bounds of historical high and low 10-year period total construction levels. However, given that current construction levels were occurring at a rate of just 1.01 million per year as of 2015, actual construction levels will likely be well below those supported by baseline demand absent a significant acceleration. For this reason, we reiterate that this is not a forecast for new construction, rather it is an estimate for what the underlying baseline demand for new construction is. Also complicating the ability to use this as a forecast, the method assumes that housing markets are relatively in balance in both the beginning and end period, with no excess supply to work off or undersupply to account for. Additional assumptions for these scenarios would add or subtract from actual expectations for new development during the 2015-2025 period, but are not included in this effort. Overall, these baseline demand estimates for housing construction are meant to provide a rough sense of construction levels that our household projections suggest could be supported in the next 10 years, and should not be considered a forecast.