



Fannie Mae ESR Household Projections 2023-2032

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Contents

Methodology	4
2023 vs 2017 Census Population Projections	7
Headship Rates by Lookback Period	8
Homeownership Rates by Lookback Period	9
Historic and Projected Growth Rates	11
Short-Term Outlook	13
Long-Term Outlook	15



Methodology

1. Population projections based on Census 2023 Population Projection growth rates
 - i. Projections are converted to annual percentage changes, which are applied to annual American Community Survey (ACS) data to project population levels for 2023-2032
2. Headship and ownership rates projection using cohort analysis modeling framework
 - i. Cohorts are 5-year age buckets for the population aged 15 to 100 years old, by five race and ethnicity categories (White NH, Black NH, Hispanic, Asian NH, other NH)¹
 - ii. Transition rates are calculated as annual average percentage point changes for the equivalent cohort that moved into the target age bucket in the last year of the lookback period
 - iii. 2023-2032 headship and ownership rates are projected by adding multiples of the annual percentage point change to the headship and ownership rates of the 2022 age cohort that will transition into the target age group in each projection year
3. Headship levels calculated by multiplying population level projections by projected headship rates
4. Ownership levels calculated by multiplying headship level projections by projected ownership rates



Scenarios

Population scenarios – Growth rate for population aged 15 to 100 years old implied by growth rates implied by 2023 Census Projections

- Low immigration
 - Population +4.7% from 2023-2032
 - Annual average change: 1.49 Mln
- Mid immigration
 - Population +6.0% from 2023-2032
 - Annual average change: 1.89 Mln
- High immigration
 - Population +7.9% from 2023-2032
 - Annual average change: 2.49 Mln

Lookback periods for anchoring headship and ownership rate projections

- 2012-2022 - High growth
- 2000-2010 – Low growth

- 1990-2000 – Mid growth *BASELINE*

- Mixed *STRESS*
 - 1990-2000 headship transition rates
 - 2000-2010 ownership transition rates

Cohort Analysis Modeling Details

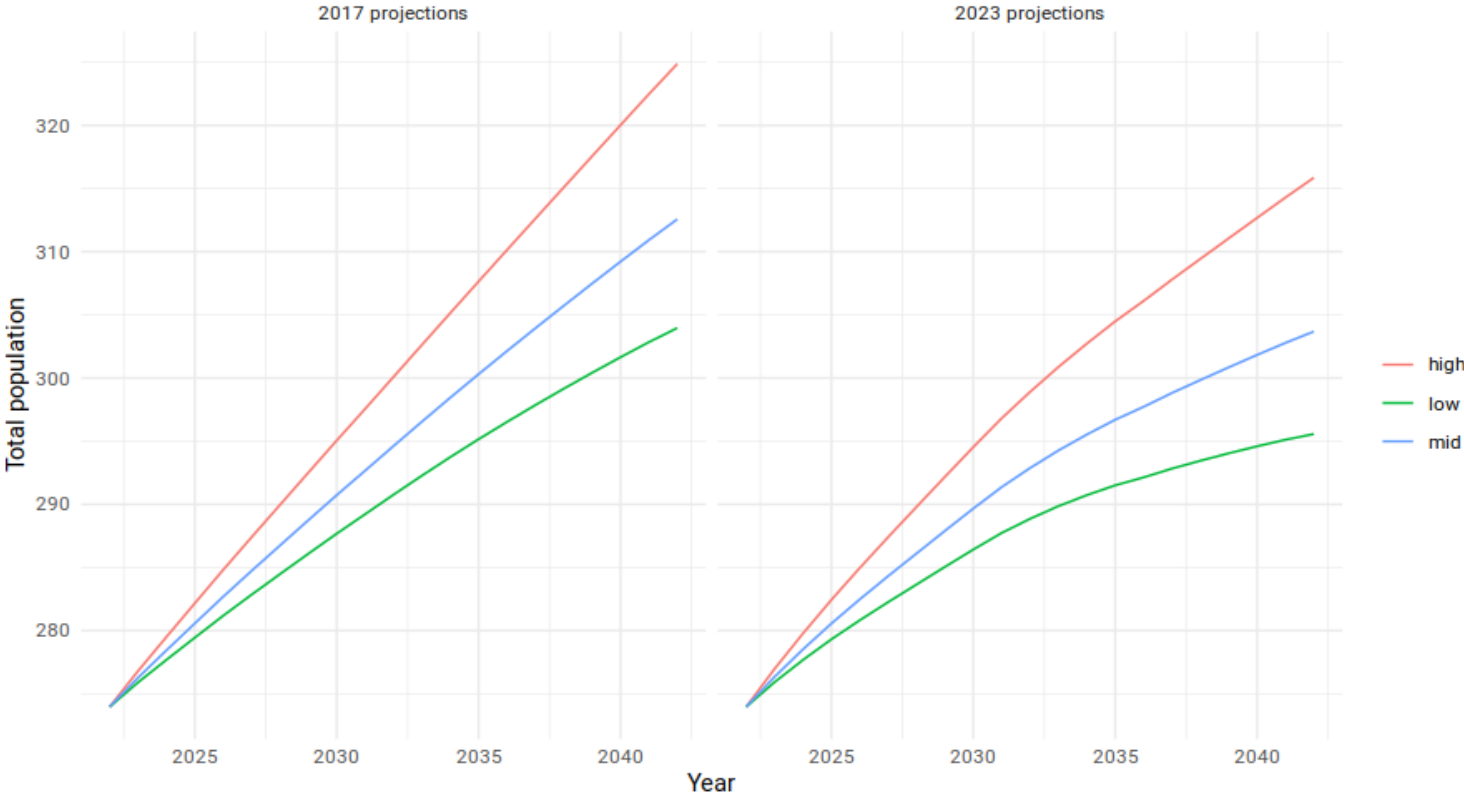
- Headship and ownership rates are calculated for 5-year age buckets and five race and ethnicity buckets covering 15- to 100-year-olds
- Headship and ownership rates are projected using observed transition rates for the set of birth-year cohorts that were in each five-year age bucket at the end of each lookback period
- For example, to project headship for cohorts that will be 30- to 34-year-olds in 2023-2032 using 2012-2022 lookback:
 - First, calculate headship rates for 30- to 34-year-olds in 2022 and 20- to 24-year-olds in 2012, since 20- to 24-year-olds in 2012 will be 30-34 year-olds in 2022
 - Then, calculate percentage point change in these two numbers and divide by the number of years in between (10)
 - Finally, project out to 2032 using transition rate calculated above and headship rates of each age cohort that will turn 30-34 in each projection year
 - E.g., to get 2023 headship rates for 30- to 34-year-olds, add the percentage point calculated above to the headship rates for 29- to 33-year-olds in 2022
 - E.g., to get 2028 headship rates for 30- to 34-year-olds, multiply the annual percentage point change by 6 and add it to the headship rate for 24- to 28-year-olds in 2022
- Same procedure for all five-year age buckets and ownership rates, except:
 - 15-19 and 20-24 age buckets run into calculation errors due to limited data of earlier age cohorts. Linear trends in headship/ownership rates for those age-buckets are used instead
 - 95-100 age bucket runs into age censoring issues in 1990 and 2000 Censuses. Transition rates for the 90-94 age bucket are used for the 95-100 bucket when using 1990-2000 lookback



2023 vs. 2017 Census Population Projections

Relative to the 2017 iteration, 2023 Census projections exhibit moderated population growth paths, particularly in the latter half of the projection horizon.

Population aged 15 - 100, 2022 - 2042

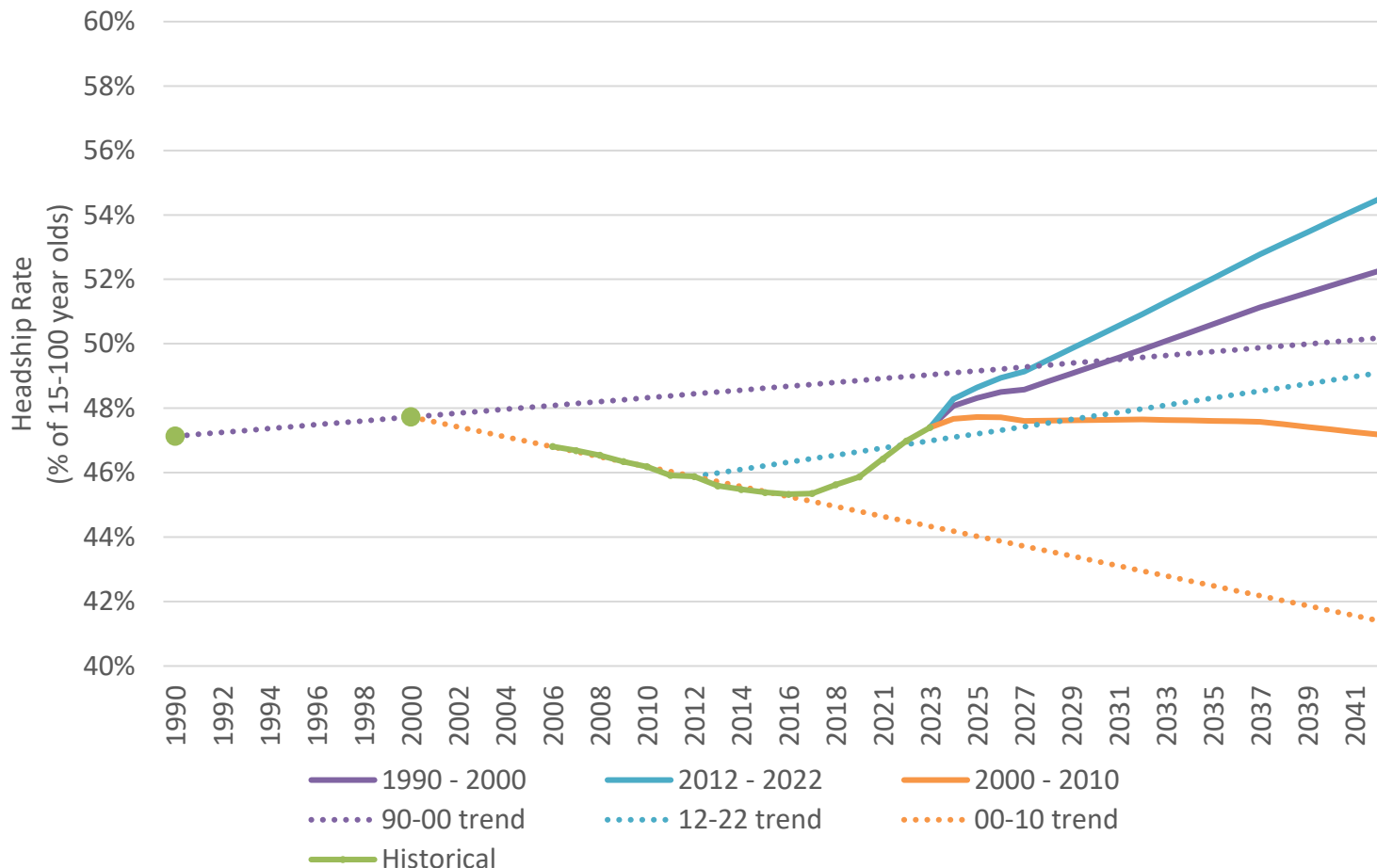


Source: ESR calculations applying 2023 Census Population Projections by 5-year age group and racial categories used in projections to the corresponding 2022 ACS population counts for each group.



Headship Rates by Lookback Period

Combining 5-year age and ethnicity group-specific headship transition paths with the Census mid-population series leads to strong projected annual growth in headship for all but the 2000-2010 lookback period.

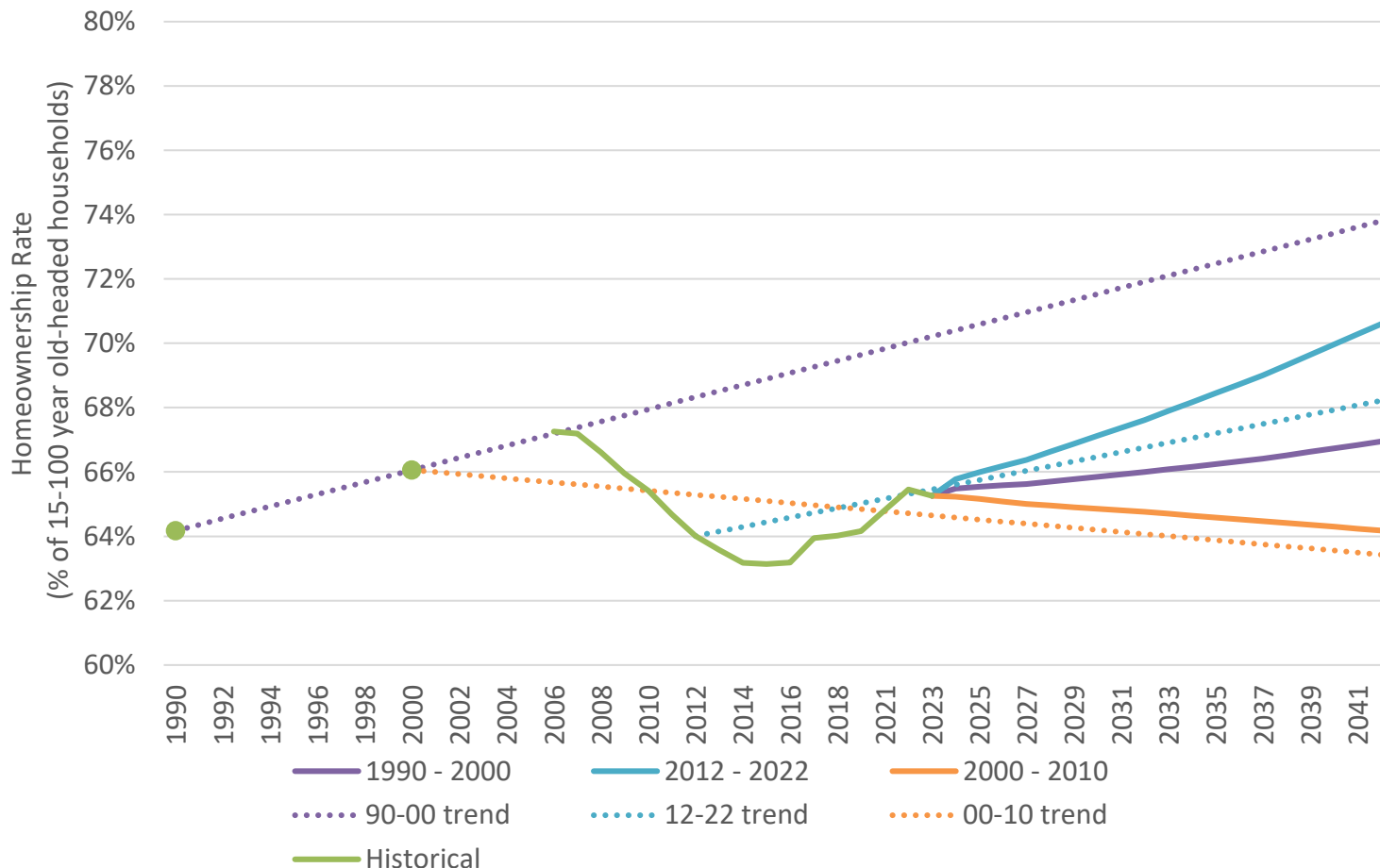


Source – ESR calculations for the age 15-100 population from 1990, 2000 Decennial Census and 2006-2022 American Community Survey data.



Homeownership Rates by Lookback Period

Combining 5-year age and ethnicity group-specific headship and homeownership transition paths with the Census mid-population series leads two of the three paths exhibiting homeownership growth rate increases in the projection horizon.

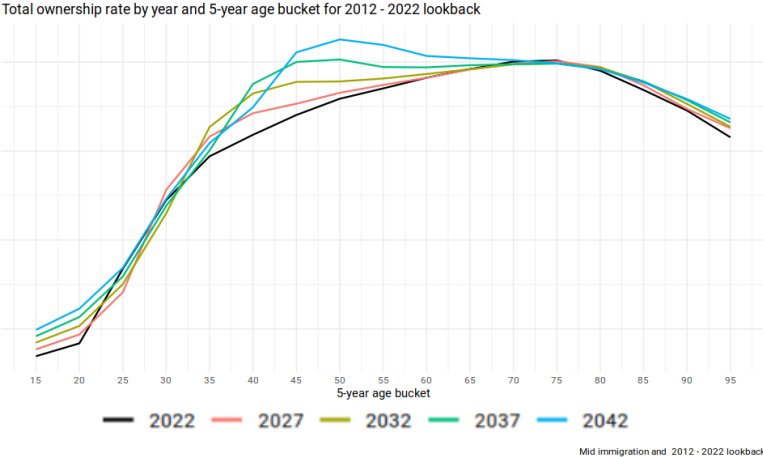


Source – ESR calculations for the age 15-100 population from 1990, 2000 Decennial Census and 2006-2022 American Community Survey data.

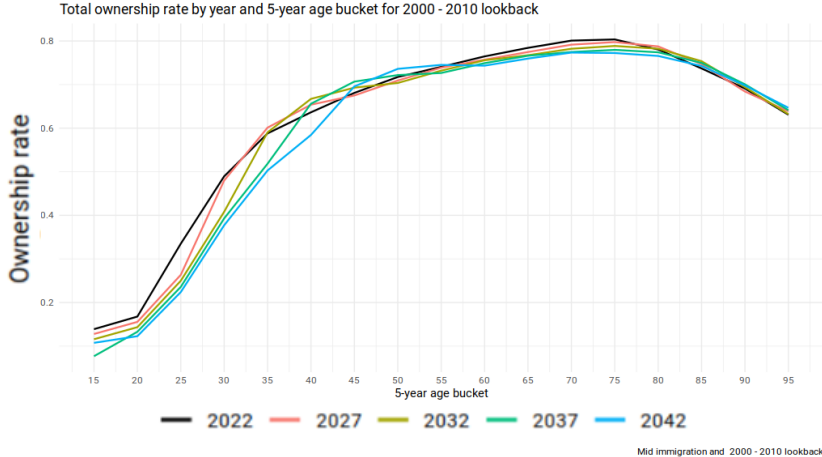


Age-Specific Homeownership Rates by Lookback Period

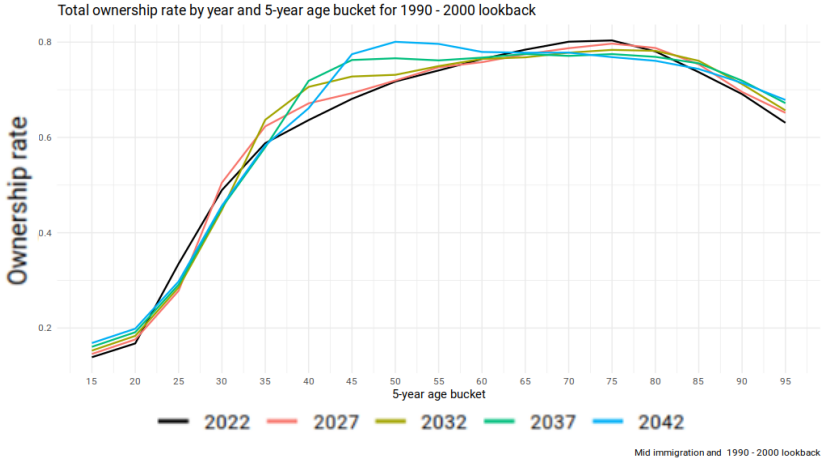
The charts below highlight which age groups drive the variation in projected homeownership rates totals for alternate lookback periods.



2012-2022 – High



2000-2010 – Low



1990-2000 – Mid

Source: ESR Household Projections from cohort model using 1990 and 2000 Decennial Censuses and 2010, 2012, and 2022 American Community Survey samples.



Historic Growth Rates

Contrasting across the three alternate lookback periods reveals that growth rates were markedly lower in the 2000-2010 period. We also observe that growth rates for household and households by tenure over the 2012-2022 were close to those in the 1990-2000 period, even though there was a markedly lower population growth rate during this last decade.

Historic Growth Rates				
Period	Population	Households	Owners	Renters
1990 - 2000	2.65	1.38	1.05	0.33
2000 - 2010	2.69	0.90	0.46	0.44
2012 - 2022	2.12	1.39	1.05	0.34

Note – Table above displays annual growth rates in millions.

Source – ESR calculations of average annual growth in millions for the age 15-100 population from 1990, 2000 Decennial Census and 2012-2022 American Community Survey Data.



Projected Growth Rates

Table below displays alternative projections based on different lookback periods and Census immigration series

Low immigration					
Lookback period	Horizon	Population	Households	Owners	Renters
1990 - 2000	2023 - 2032	1.49	1.42	1.06	0.37
2000 - 2010	2023 - 2032	1.49	0.80	0.47	0.33
2012 - 2022	2023 - 2032	1.49	1.74	1.50	0.24
Mixed	2023 - 2032	1.49	1.42	0.73	0.69
Mid immigration					
Lookback period	Horizon	Population	Households	Owners	Renters
1990 - 2000	2023 - 2032	1.89	1.60	1.15	0.45
2000 - 2010	2023 - 2032	1.89	0.97	0.56	0.41
2012 - 2022	2023 - 2032	1.89	1.92	1.61	0.32
Mixed	2023 - 2032	1.89	1.60	0.82	0.78
High Immigration					
Lookback period	Horizon	Population	Households	Owners	Renters
1990 - 2000	2023 - 2032	2.49	1.87	1.30	0.57
2000 - 2010	2023 - 2032	2.49	1.22	0.70	0.53
2012 - 2022	2023 - 2032	2.49	2.20	1.76	0.44
Mixed	2023 - 2032	2.49	1.87	0.96	0.91

BASELINE

STRESS

Note – Table above displays annual growth rates in millions.

Source – ESR Household Projections from cohort model using 1990 and 2000 Decennial Censuses and 2010, 2012, and 2022 American Community Survey samples



Short-Term Outlook

At this point our short-term outlook is our **STRESS** scenario based on Mixed lookback period and a mid immigration population series.

- This captures recent trends in headship rates and accounts for deteriorated homeownership attainment conditions (with markedly higher interest rates) evident today, but not captured in recent headship transitions
- Decision to adopt the mid immigration population series is based on 2023 Census population estimates closely matching this population projection series
- Final projected annual growth rate for the 2023-2032 horizon of:
 - 1.89 Mln for population
 - 1.60 Mln for total households
 - 0.82 Mln for Owner Households
 - 0.78 Mln for Renter Households



Short-Term Outlook

Under this **STRESS** scenario the table below shows the breakdown in growth rates for the 2023 to 2032 10-year horizon by race and ethnicity group.

	Asian NH	Black NH	Hispanic	Other NH	White NH
Population Growth Rate (Mln/yr)	0.34	0.27	1.00	0.35	-0.07
(Share of Total)	18%	14%	53%	19%	-4%
Household Growth Rate (Mln/Yr)	0.19	0.27	0.48	0.19	0.47
(Share of Total)	12%	17%	30%	12%	30%
Homeowner Household Growth Rate (Mln/Yr)	0.14	0.05	0.26	0.10	0.27
(Share of Total)	17%	6%	32%	12%	33%

ESR calculations of ESR Household Projections from cohort model using 1990 and 2000 Decennial Censuses and 2010, 2012, and 2022 American Community Survey samples

- 70% of net new households will be minority (non-white NH) households
- 67% of net new homeowner households will be minority (non-white NH) households



Long-Term Outlook

Our long-term outlook is our *BASELINE* scenario, based on 1990-2000 lookback period and a mid immigration population series.

- Final projected annual growth rate for the 2023-2032 horizon of:
 - 1.89 Mln for population
 - 1.60 Mln for total households
 - 1.15 Mln for Owner Households
 - 0.45 Mln for Renter Households

Note that the difference between *BASELINE* and *STRESS* scenario is only visible in the owner and renter household growth rates



Long-Term Outlook

Under this **BASELINE** scenario the table below shows the breakdown in growth rates for the 2023 to 2032 10-year horizon by race and ethnicity group.

	Asian NH	Black NH	Hispanic	Other NH	White NH
Population Growth Rate (Mln/yr)	0.34	0.27	1.00	0.35	-0.07
(Share of Total)	18%	14%	53%	19%	-4%
Household Growth Rate (Mln/Yr)	0.19	0.27	0.48	0.19	0.47
(Share of Total)	12%	17%	30%	12%	30%
Homeowner Household Growth Rate (Mln/Yr)	0.11	0.16	0.34	0.08	0.47
(Share of Total)	9%	14%	29%	7%	41%

ESR calculations of ESR Household Projections from cohort model using 1990 and 2000 Decennial Censuses and 2010, 2012, and 2022 American Community Survey samples

- 70% of net new households will be minority (non-white NH) households
- 59% of net new homeowner households will be minority (non-white NH) households

