Housing Generations

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VERY PRELIMINARY - DO NOT CITE!

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Abstract

Household measures of homeownership rates in the U.S. have changed little since 1960, despite concern that homeownership is increasingly unaffordable. Here, we construct an individual measure of homeownership by age, using relationship to the household head, which includes spouses of owners but excludes cohabiting adult children. Leveraging this individual measure, we chronicle how age profiles of homeownership have shifted forward and backward over the last century. Holding ownership by age constant since 1980, population aging would have led individual homeownership to rise by 6 percentage points; instead it fell by 5 points. Comparing cohorts at similar ages, the odds of owning a home are one-third lower for those born in the 1980s than for those born in the 1940s. State-level drops in the home-purchasing power of young wage earners explains most of the decline in homeownership rates for those under 40.

Keywords: Homeownership, intergenerational equity, household structure, housing affordability

JEL Numbers: D10, R21, R30

1 Introduction

The idea that homeownership rates are low for recent American generations has generated an extraordinary amount of media attention. Yet, traditional homeownership rates, measured at the household level, have been relatively stable across the last several decades, hovering over 60 percent most of the time and dipping slightly only recently. Homeownership has always been low for young adults, whose wealth and income are low while their mobility is high. Furthermore, contradictory messages, from articles with headlines such as "How Gen Z outpaces past generations in the homeownership race," (CNBC, 2024) help sow confusion among the public about homeownership for younger generations.

As we argue below, much of this confusion arises from the fact that traditional homeownership rates are based on households, which typically contain multiple adults of different ages. Most analyses look only at the age of the household head, which produces misleading measurements. For instance, when a 25 year-old chooses to live with their parents as opposed to renting on their own, this raises the measured homeownership rate, both in the aggregate and for all 25 year-olds. As more young adults have chosen to live with their parents, this has hidden considerable declines in homeownership for younger generations.

In this paper, we calculate homeownership rates for individuals by age and use them to shed light on homeownership patterns across the United States over a century. Our proposed measure considers homeowners to be adults who are either a home-owning household head, or married or partnered to one in a family-like arrangement (including LGBTQ+ couples). The measure specifically excludes adult children living with their parents, who are counted among non-homeowners, as opposed to being completely ignored.

We use the individual rate to compare homeownership by age for different birth cohorts, as well as the same cohort over different ages. We see that homeownership have declined monotonically by birth year for cohorts born after 1940. While there is almost no difference between the household and individual measures of homeownership in cohorts born around 1940, they are several percentage points apart for those born around 1980. The age profiles of these measures

show an even greater shift of homeownership toward older adults. While previous authors, such as Haurin and Rosenthal (2007), have noticed a shift in the age profile between 1980 and 2000, this shift has since accelerated. To evaluate how likely different generations are to own homes, we use an additive regression model that separates birth year effects from life-cycle age effects common across the population. It appears that those who came of age during the Great Recession, namely those born from 1988 to 1992, have the lowest propensity to own homes given their ages. Their homeownership rates are about 15 percentage points lower than those born between 1938 and 1942.

Finally, we examine the cause of the decline in homeownership among the young, primarily through the channel of housing affordability. High housing costs are a well-documented explanatory factor for the recent decline in homeownership for young adults, and their effects are two-fold (Khater, Kiefer, Atreya, & Yanamandra, 2018).[1] Because many young adults find it challenging to purchase homes, they usually rent when first forming their own households. However, because their expenditure on rent is high relative to their income, these younger cohorts have difficulty saving for a lofty home purchase. In turn, growth in both house prices and rents contribute to an increase in young adults' tendency to live with their parents (Acolin, Lin, & Wachter, 2023). Weak labor market demand and increased tuition costs in areas with high college attendance rates have further encouraged numerous young adults to co-reside with their parents (Bleemer, Brown, Lee, & van der Klaauw, 2017; Matsudaira, 2016).

Changing lifestyle patterns have also influenced household formation, as adult children are now not only more likely to live with their parents, but also less likely to marry and co-reside with their spouses. Declines in headship have been particularly sharp since the Great Recession, namely for adults under the age of 30 (Furlong, 2016).[2] The related tightening of credit further discouraged young adults from purchasing homes and forming their own households (Choi, Zhu, & Goodman, 2019; Xu, Johnson, Bartholomae, O'Neill, & Gutter, 2015). Because housing equity

[1] Analysis covers years 1982 to 2016.

[2] A headship rate is equal to the number of households divided by population size. An inverse of headship rate yields average household size (Goodman & Zhu, 2021).

plays a critical role in household wealth accumulation, younger cohorts' delay in homeownership may reduce intergenerational mobility, particularly for low-income individuals (Paz-Pardo, 2024).

Housing economists such as Hendershott (1988) had long ago predicted that with the aging of the population, homeownership rates should rise substantially. However, as will be shown, the observed increases were actually tepid, as homeownership rates fell for all groups under the age of 60. Had the population not aged, the aggregate homeownership rate would have fallen more. Furthermore, the household-based rates have arguably hidden declines in effective homeownership seen at the individual level.

In order to estimate a causal effect of housing affordability on generational homeownership, we build a measure of house purchasing power, based on how many houses a young person could purchase by a certain age using 30 percent of their wage income and no credit.[3] An average man born in 1940 could buy two homes by age 40; for one born in 1980, it was less than one. Increases in women's income in young adulthood have not surpassed increases in home prices, as the number of homes an average woman could purchase by age 40 has stayed roughly constant at just over two for all years of birth since 1940. These purchasing power numbers vary considerably by state and have changed over time. Importantly, we show that changes in homeownership rates among the young at the state level is explained quite well by changes in youth home affordability.

This paper proceeds as follows. Section 2 outlines the data sources used and defines individual measures of homeownership. Section 3 leverages these new measures to construct corresponding age profiles, putting emphases on birth year effects and tracking birth cohorts' homeownership over their lifetimes. Section 4 provides a novel measure of home purchasing power and explores declining affordability as a mechanism for lower individual homeownership among young adults in recent birth cohorts. Section 5 presents a model of individual tenure choice subject to a down-payment constraint, as well as a possible option to live with parents, potentially to save for future purchases. Section 6 discusses potential directions for future research. Finally, the paper concludes

[3]Researchers and policymakers often consider housing expenses equal to 30 percent of pre-tax income to be the threshold of what is "affordable" (Belsky, Goodman, & Drew, 2005; Bieri & Dawkins, 2019; Friedman & Rosen, 2019; Hamidi, Ewing, & Renne, 2016; Linneman & Megbolugbe, 1992; Nelson, 1994).

with Section 7.

2 Data, Household Relationship, and Housing Tenure

We study successive cohorts from the Census Population of Housing and the American Community Survey (ACS), using IPUMS data for years 1960, 1970, 1980, 1990, 2000, and 2005-2021 (Ruggles et al., 2023). Henceforth, we refer to the multi-year ACS samples using their end years of 2007, 2010, 2013, 2017, and 2021.[4] Individual-level observations include age, area of residence, as we well relationship to household head, levered below.

2.1 Age Profiles of Housing Tenure and Household Relationship

In order to see how home-owning and renting households have evolved over time we split individuals along two dimensions. First, those who live in owned homes from those who live in rented ones. Second, we consider their relationships to their household heads.

(i) Household head

(ii) Spouse of head

(iii) Partner, friend, or visitor of head

(iv) Non-child relative or non-relative of head

(v) Child, step-child, or grandchild of head

We separate spouses first, since they often co-own houses with the heads, and they may in some ways act as owners.[5] Next, we separate potential partners, but the Census does not distinguish

[4]For sampling purposes, we typically combine ACS years 2005 to 2007, 2008 to 2010, 2011 to 2013, 2013 to 2017, and 2017 to 2021. The inclusion of 2013 in both the 2013 3-year and the 2017 5-year ACS samples provides smoothing. The same can be said for 2017, which appears in both the 2017 and the 2021 5-year ACS samples.

[5]The designation of "head" is assigned to the first household member listed in the survey response. Per the American Community Survey 2022 questionnaire, "Person 1 is the person living or staying here in whose name this house or apartment is owned, being bought, or rented. If there is no such person, start with the name of any adult living or staying here" (U.S. Census Bureau, 2022).

among partners, friends, and visitors.

Among all the remaining adults, we then separate all children of household heads, including step-children and grand-children, from everyone else. Here "everyone else" can include relatives, such as siblings or parents of household heads, or even non-relatives.

Each individual i observed in year t at age a was born in year $b = t - a$. We denote their housing tenure with the indicator O, which equals to 1 if they live in an owner-occupied home, or to 0 if they live in a rented home. The variable R refers to their relationship to household head, according to the Roman numerals above; for example, $\rho \in \{ii, iii\}$ means the individual is either a spouse or a partner of the household head.

2.2 Individuals in single-year cross-sections by age

Here we examine in greater detail the proportion of individuals that belongs to each Census relationship category, interacted with their housing tenure. This breakdown is shown in detail in Figure 1 for the 1940 and 1980 Censuses and 2018-2022 ("2020") ACS. The area graph is constructed so that all of the categories total to 100 percent.

The most notable feature of these graphs is the remarkable change in the percentage of those living in owner-occupied homes between 1940 and 1980, with the average rising by roughly 20 percentage points. The shape of age profiles also changed, as the valley of the demarcation between the renting and the owning population shifted to a younger age–from age 28 at 33 percent to age 23 at 48 percent. Furthermore, an interior peak appeared in 1980 near the age of 55, at 82 percent, while the percentage homeowner fell noticeably after 60. In contrast, in 1940 it had risen almost monotonically to age 80, up to only 66 percent. In 2020, the age profile of those living in owned homes stayed at the same average height as in 1980, but the valley moved up to age 25, at 45 percent, and the peak to age 73, at 83 percent.

Not all adults who live in owned homes would count as homeowners. Focusing on the period from 1980 to 2020, we see a large increase in the number of adult children who live with their parents. Table 3 reveals that the share of these individuals rose by over 3 percent of the entire

adult population between 1980 and 2020. Figure 1 shows how this increase is especially apparent for those between the age of 23 and 60. This pattern is even observed among younger individuals in rented homes. Meanwhile, we see a decrease in the proportion of young adult home-owning household heads, while the share of renting household heads seems to have climbed slightly.

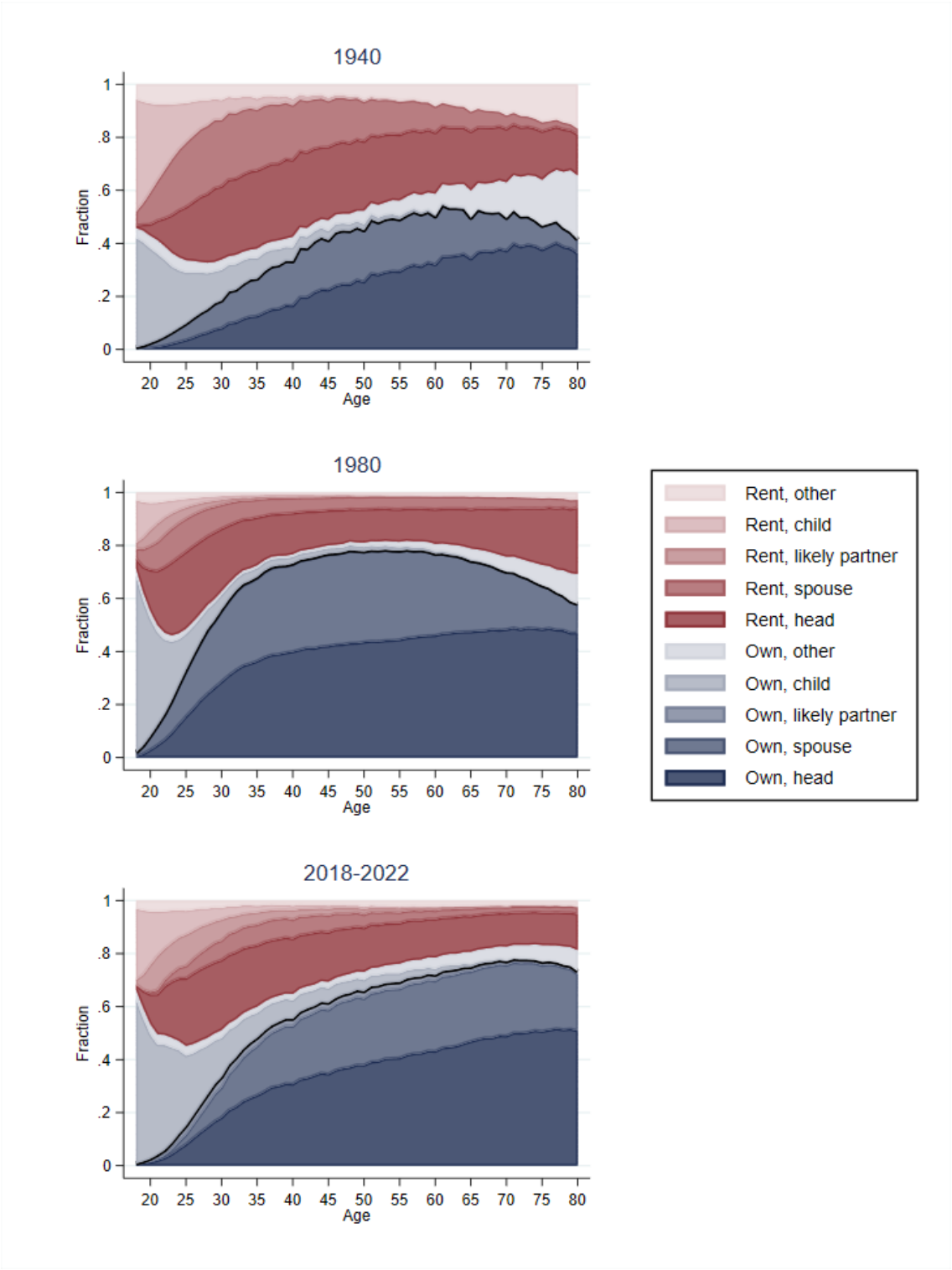
In the figure, we also see that the number of young spouses declined from 1980 to 2020, due to the decline in marriage rates. This decrease is more pronounced in rented homes. The rise in the prevalence of partners is visible but much smaller than this drop in the proportion of young spouses in rented homes.

Table 1: Percentage of Homeowners and Renters in Each Adult Group: 1940, 1980 and 2020

	Head	Spouse	Likely Partners	Adult Children	Others
			1940		
Percentage	39.5	30.1	0.2	17.0	13.2
In owned unit	43.3	43.4	20.9	55.8	48.3
			1980		
Percentage	50.8	31.7	2.1	10.8	4.6
In owned unit	65.0	78.3	20.5	80.7	58.4
			2020		
Percentage	49.5	24.1	6.3	12.9	7.2
In owned unit	64.2	80.7	39.5	74.5	64.5

Notes: Data from IPUMS. The values shown are relative frequencies of renters and homeowners within each adult group, differentiated by one's relationship to household head. The 1940, 1980 and 2018-2022 values are based on all adults (except institutional inmates) from age 18 to 80, weighted using IPUMS person-level weights.

Figure 1: Adults' Relationship to Household Head and Housing Tenure: 1940, 1980, 2018-2022



Notes: Data from IPUMS and includes all adults (except institutional inmates) ages 18 to 80 in the 1940, 1980 and 2020 (2018-2022 5-Year ACS) cross-sections. Graphs depict Census and ACS relationships to household head interacted with tenure. Likely partners include individuals listed as partners, friends, or visitors. Child category consists of children, children-in-law, and step-children.

2.3 Individual-oriented measures of homeownership by age

Traditional measures of homeownership only consider household heads in both the numerator and the denominator. Thus for age a in year t, the traditional measure is denoted

$$H_{at} = Pr(O|A = a, T = t, \rho \in \{i\}) \tag{1}$$

where ρ refers to relationship to the household, using the roman numerals refer to our categorization above, and O is an indicator of homeowner status.

The fall in the number of young household heads, as well as their spouses and partners, suggests that we supplement this household measure of homeownership, with an individual measure, which we denote with a lower-case h. We propose three different individual measures, with varying levels of leniency.

$$h^s_{at} = Pr(\rho \in \{i, ii\} \cap O|A = a, T = t) \tag{2a}$$

$$h^b_{at} = Pr(\rho \in \{i, ii, iii\} \cap O|A = a, T = t) \tag{2b}$$

$$h^g_{at} = Pr(\rho \in \{i, ii, iii, iv\} \cap O|A = a, T = t) \tag{2c}$$

The benchmark measure h^b includes both partners and spouses; the strict measure h^s excludes partners, to exclude possible visitors or friends; the generous measure h^g includes all adults who are not children of some kind to the household head. As such, the benchmark measure deals flexibly with changes in marriage patterns to include partners.[6] For most of our analyses, we compare the "benchmark" (henceforth, referred to as "individual") to the traditional homeownership measure, as it addresses housing co-ownership among household heads and spouses or partners.

The household measure gives more weight to singles, while the individual measure gives more weight to cohabiting couples. Imagine a situation with two couples, one living in a rented unit, the

[6] An alternative in the literature, seen in Haurin and Rosenthal (2007) is to model the changing selection in headship independently. While there are merits to this approach, this would make a couple living separately in owned homes, divorced or even just living apart, contribute twice as much to the homeownership rate just by virtue of their living arrangement.

other in a home they own. In this case, both household and individual homeownership rates are one half. Say an adult in the owned home dies, and the survivor stays put, the household rate stays the same, but the individual rate falls to one third. If instead, one of the adults in the owner-occupied moves out (divorced or not) into a newly built rental unit, the household rate falls to one third, while the individual rate falls to one quarter.

We judge the rate that includes spouses and likely partners to be the most compelling individual measure for two reasons. First, most spouses and many partners of household heads are likely to share in some of the home equity, as well as rights to inheritance. In case of divorce, most legal spouses are entitled to a significant portion of the home equity, even if they are not included explicitly on the housing deed. Second, a spouse or partner likely plays a large role in who gets to live in a home and how housing in the home is allocated among its members. Additionally, it is common for spouses or partners to hold property rights to the home through joint ownership (Pugliese & Belleau, 2022). For this reason, we call the rate that includes spouses and partners the benchmark rate.

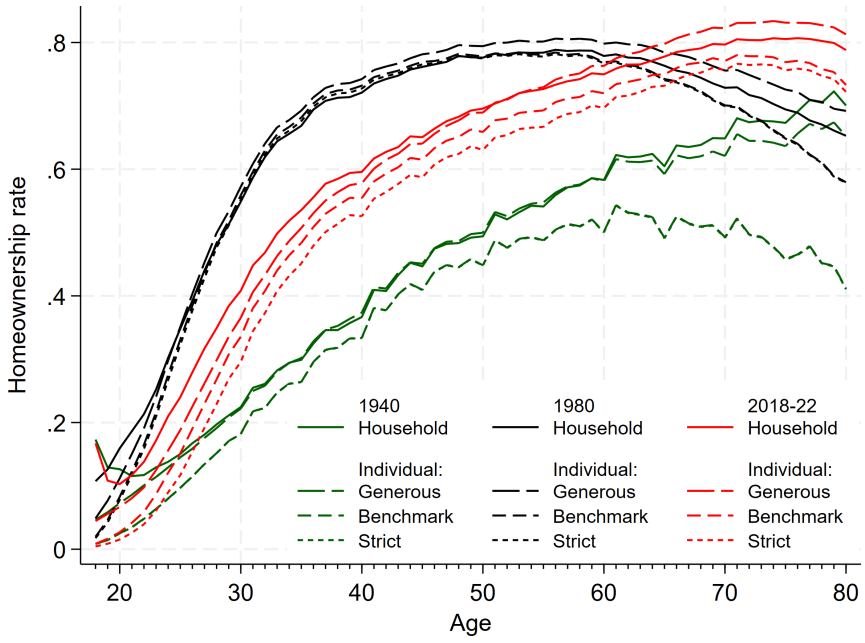
Figure 2 depicts all four rate measures in the 1940, 1980, and 2018-2022 cross-sections. A striking feature of this graph is how similar the traditional household and individual benchmark and strict measures are to each other in 1980 during the prime working ages of 25 to 55. Except for the beginning and latter parts of adulthood, the individual measures add little information.

The majority of those who are 55 and older own; as they are also more likely to be single, their household homeownership rate is higher than the individual rate, which puts more weight on couples. Only when we include other non-child relatives or non-relatives in the generous measure does the individual rate rise above the household rate.

Oppositely, as the majority of those under 25 do not own as heads, their greater singledom would push the individual homeownership rate higher. However, this is more than countered by counting adult children living with their parents as not owning, making the individual rate lower than the household rate at early ages.

In 2020, the entire age profile of homeownership shifts considerably to older ages. All ages

Figure 2: Traditional and Alternative Individual Homeownership Measures, by Age



Notes: Data from IPUMS and includes all adults (except institutional inmates) ages 18 to 80 in the 1940, 1980 and 2018-22 cross-sections. Graph depicts four measures of homeownership: the traditional measure and three individual measures with varying levels of leniency. More information on these measures can be found in Section 3.2.

below 60 see a decline in their homeownership rate. Furthermore, the shift downwards of the individual rate, relative to the household one, accentuates this decline as it is more pronounced for the young. For instance, between ages 25 and 40, the homeownership rate for households is approximately 15 percentage points lower, while for individuals it is more than 20 points lower. The odds that a 25 year-old owns a home in 2020 is less than half their odds in 1980; at 40, it is less than three-quarters as likely.

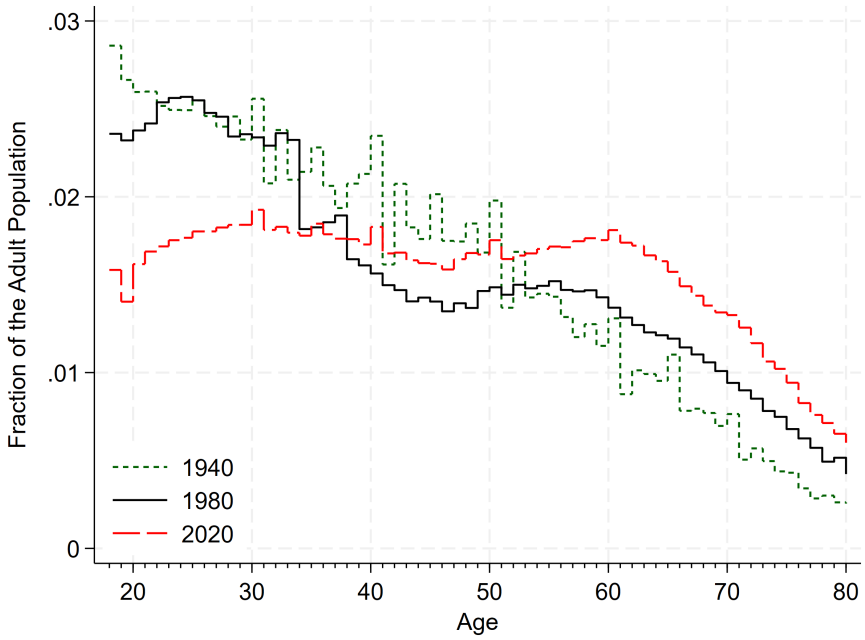
While less topical, it is edifying to examine patterns in 1940. Homeownership was in general much lower throughout all ages and rose at a much more gradual rate. Both the strict and benchmark individual rates are lower than the overall household rate, as many individuals stop being heads of their own households at a certain age. Those who continue to be heads are more likely to homeowners, leading to a particular survivorship bias in the household rate. It is also much more of an issue how adult siblings are treated, as it was far more common for them to cohabit.

Another advantage of using the individual rate is seen at the very youngest adult ages. In both the 1940 and 2020 cross section, homeownership rates using the head of household rate actually decline over the first couple of years of adulthood, while the individual rates always rise monotonically.

2.4 Aggregate homeownership rate comparisons

Given that the age profile is almost everywhere substantially lower in 2020 than in 1980, it may seem surprising that the total homeownership rate did not fall by more. However, the population of the U.S. became substantially older, with the average age of American adults, 18 to 80, rising from 43 in 1980 to 47 in 2020. As shown in Figure 3, the age distribution in 1980 had roughly double the number of adults in their 20s as in their 40s or in their 50s, with a strong drop off at 35, reflective of the baby boom. In 2020, the proportions of those in their 20s, 30s, 40s, and 50s were roughly uniform. Thus in 2020, the aggregate homeownership rate reflects more the higher rates among older adults. In contrast, the distribution of adult ages in 1940 shows a rather uniform, monotonic, and steep decline throughout adult ages.

Figure 3: Distribution of Ages, Adults 18-80



Notes: Data from IPUMS. Graph considers adults (excluding institutional inmates) ages 18 to 80 in the 1940, 1980, and 2020 cross-sections, weighted using IPUMS person-level weights

The age distribution does influence the differences in aggregate homeownership rates seen in Figure 4. To begin, the solid green line shows the traditional homeownership rate fluctuating, but being roughly the same in 2020 as in 1980, at 65 percent. However, the pattern for the individual rate is different. First, the individual rate is already 7 percentage points lower than the household rate, despite the fact that the age profiles for the individual and household rates are almost identical. This occurs because the individual rate puts more weight on non-household heads, who tend to be younger. Second, the individual rate drops by 4 percentage points between 1980 and 2020.

Observed decreases in homeownership are primarily driven by young adults, as highlighted in Table 2. Per Panel A, traditionally-measured homeownership for adults under 40 dropped 8 percentage points from 1980 to 2020. Meanwhile, as shown in Panel B, traditional homeownership for adults over age 40 decreased just over 2 percentage points during this time frame. Differences in the changes in homeownership across younger versus older adults are even more stark when considering individual records. Applying the individual measure, homeownership fell nearly 13

percentage points for adults under 40 and 5 percentage points for those over 40. As seen in Panel C, using the pooled sample of all adults, as is done to construct typical aggregate measures, masks the extreme decline in young adults' homeownership.

Re-weighting the sample to match 1980 ages causes large shifts especially in the 21st century. The household rate drops by 6 percentage points from 1980 to 2020, while the individual rate drops by 11 percentage points. Thus, one could argue that measurement shortcomings from using the household rate, together with demographic changes has masked an overall erosion of the homeownership rate by roughly one-fifth.[7]

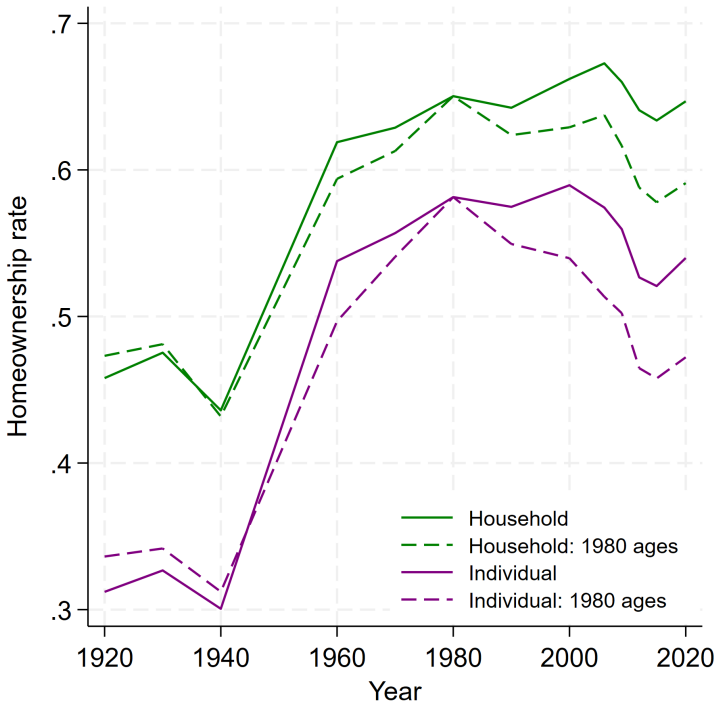
Table 2: Aggregate Homeownership Measures

	(1) 1940	(2) 1980	(3) 2020
PANEL A: Adults Under 40			
Traditional	0.251	0.504	0.421
Benchmark Individual	0.155	0.405	0.276
PANEL B: Adults Over 40			
Traditional	0.536	0.756	0.733
Benchmark Individual	0.461	0.746	0.696
PANEL C: All Adults			
Traditional	0.433	0.650	0.641
Benchmark Individual	0.300	0.571	0.528

Notes: Data from IPUMS and includes all adults (except institutional inmates) ages 18 to 80 in the 1940, 1980, and 2020 (2018-2022 5-Year ACS) cross-sections. Table presents the traditional and benchmark individual measures of homeownership. More information on these measures can be found in Section 3.2.

[7]The drop would be even more pronounced at over 8 percent if we did not include potential partners, seen in the strict individual measure, as the partnership became a more popular household arrangement over time.

Figure 4: Aggregate Homeownership Over Time, Household and Individual Rates



Notes: Data from IPUMS. Graph considers adults (excluding institutional inmates) ages 18 to 80, weighted using IPUMS person-level weights. Traditional homeownership measure considers only household heads, while individual measures include all adults in the age range. More information on these measures can be found in Section 3.2.

3 Age Profiles for Generations

A confusing property of the age profiles shown so far is that they do not correspond to the life trajectories of actual adults. Large changes in homeownership occur over the life-cycle, which we may call "age effects." If those are to be held constant across generations, we may then try to estimate the influence of birth year, commonly referred to as "cohort effects." In addition, homeownership may be influenced by "time" or "year" effects, common fluctuations that affect everyone, such as those due to macroeconomic swings and changes in credit markets. While these effects certainly interact, we begin by trying to consider each in isolation.

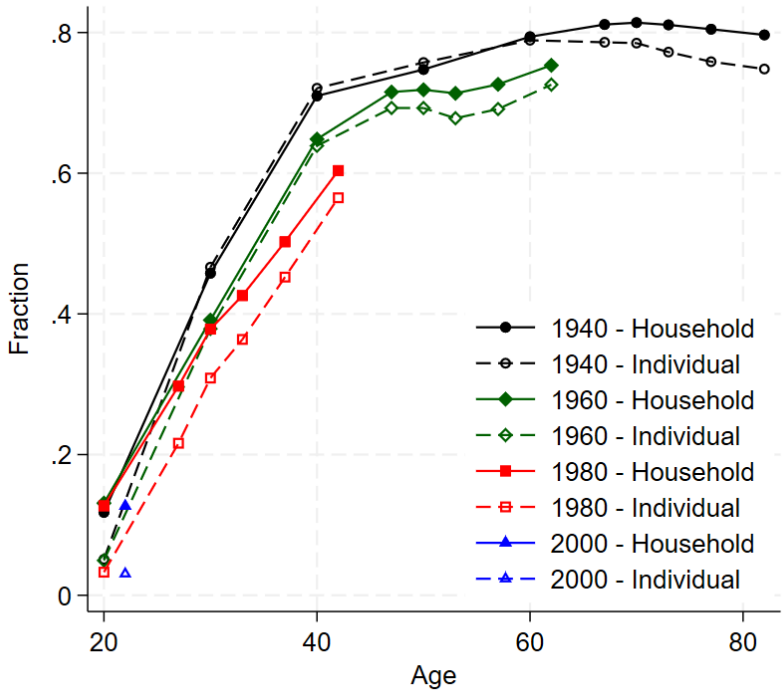
3.1 Comparing cohorts born twenty years apart

In this section, we compare the lifecycle trajectories in homeownership for two different cohorts. In particular, Figure 5 shows the trajectory of those born within 2 years of 1940, i.e., 1938 to 1942; 1960; 1980, and 2000. Note that a 40 year-old in 1980, born in 1940, is 80 years old in 2020, while someone born in 1980 is 40. Here, the traditional measure shows the younger cohort has a 10 percentage-point lower rate of homeownership at age 25. This gap widens to 15 points at age 35 and then narrows slightly to 13 points at age 45.

For the 1940 cohort there is almost no difference between the traditional and individual rates until after age 60. Thus, there was perhaps little reason for earlier researchers decades ago to consider an alternate measure. On the other hand, the individual rate for the 1980 cohort is substantially lower, at about an 8 point gap for 25 year-olds, narrowing to 4 points for 45 year-olds. Thus, the individual homeownership rate for 25 year-olds in the 1980 cohort is scarcely half that of the 1940 cohort; by age 45, this ratio catches up partially to about four-fifths.

While only a single cross-section covers the cohort born in 2000, we see the individual rate is the lowest on the graph. This stands in contrast to the household rate, which is slightly higher than that for the 1980 cohort. Taking the traditional household rate too seriously could lead to the conclusion that the youngest generation is seeing gains in homeownership.

Figure 5: Homeownership Over Lifetime, by Birth Cohort: 1940 to 2000



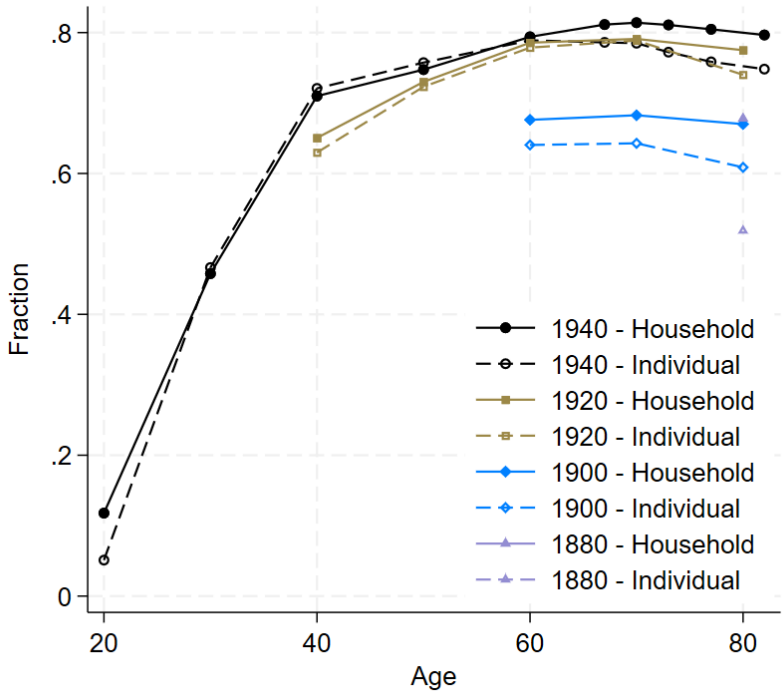
Notes: Data from IPUMS. Graph depicts traditional and benchmark individual homeownership measures outlined in Section 3.2 over the lifetime for individuals born 1935-1944 ("1940 Cohort") and 1975-1984 ("1980 Cohort"). Ages are rounded to the nearest multiple of five (ex: age 20 contains ages 18-22, age 25 contains ages 23-27, and so on). Age profiles constructed in the style of Aguiar and Hurst (2013).

A shortcoming of the graphical analysis thus far is that it cannot account for common year effects, which would affect the 1940 cohort at 70 and the 1980 cohort at 30.

Our data also permit us to examine the age profiles of earlier generations, albeit only at later ages. in Table 6 we see that homeownership for those born in 1920, which included many World War II veterans, were not much different than those born in 1940, at least past the age of 40. However, we do see that earlier birth cohorts – those born between 1880 and 1900 – were less likely to own, even at advanced ages.

These graphical results are reinforced by the those from a more analytical decompositon given below.

Figure 6: Homeownership Over Lifetime, by Birth Cohort: 1940 to 1880



Notes: See previous graph.

3.2 Disentangling Age and Birth-Year Effects

Here we try to disentangle year effects and get at more general estimates of birth-year effects using a standard additive model. This model decomposes homeownership rates by effects due to age, birth-year, and observed year:

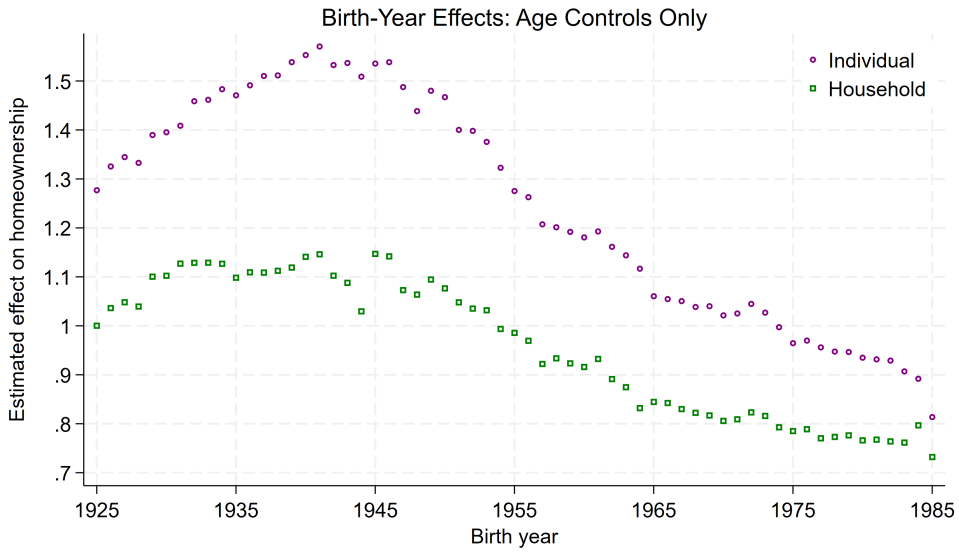
$$\ln(h_{at}/(1-h_{at})) = \alpha_a + \beta_t + \gamma_g + \epsilon_{at} \tag{3}$$

where $g = t - a$, is the birth year, cohort, or "generation". Age effects are given by the coefficients α_a, and year effects by β_t, and birth-year by γ_g. Because we have many repeated cross sections, we can identify age and cohort effects separately, provided we can put some structure on the year effects separately, save for one coefficient. However, it is unclear that we necessarily want to control for year effects since we are interested in how macroeconomic fluctuations may have affected generations' propensity to own.

In Figure 7 we see that strong birth-year effects remain even after controlling flexibly for age effects. While estimates at the extreme of the distribution rely on too limited a time frame to be taken too seriously, the roughly bell shaped curve shown (cutting off years on the end) still provides a meaningful pattern away from the edges. Here we see that in the individual measure those born in the 1990s have odds of owning that are roughly two thirds of those born in 1940s.

At the same time we must acknowledge that the model has limits. A year effect could easily interact with an age effect, e.g. the Great Recession of 2007 to 2009 may have had a far greater effect on the homeownership rates of those born in 1980 than those born in 1940. One might even argue that birth-year/cohort effects are a construct that captures omitted variables, most especially these types of age and time interactions. There is little reason to believe that younger generations are inherently from previous ones, and arguing that, say preferences of younger generations are different, is a largely unverifiable or falsifiable statement. A superior explanatory model should seek to minimize the value of these cohort effects in favor of more directly relevant phenomena.

Figure 7: Estimated Birth-Year Effects on Homeownership Rates, 1900 to 1985



Notes: Data from IPUMS cross-sections 1960-2021. Estimates based on all adults (excluding institutional inmates), ages 18 to 60 at time of record. Estimates of additive model shown in text controlling for flexible age and year effects.

3.3 Re-weighting for Other Demographics

The birth-year effects might be explained by observable characteristics, such as having children or being married. This introduces potential included variable, or "collider," effects, and thus we save this analysis for a later draft.

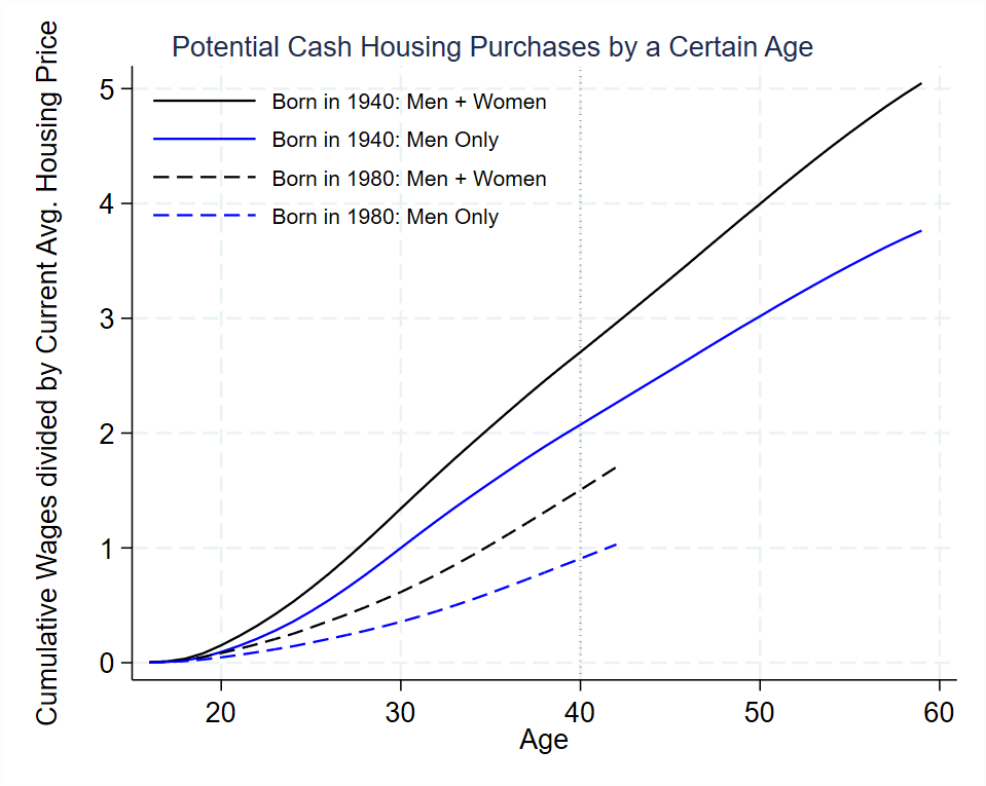
4 Home Purchasing Power and Homeownership

A major hypothesis given as to why younger generations do not own homes as often as older generations is that they find it harder to afford a home. To examine this claim, we construct a measure of home purchasing power for different birth years, up to a given age.

$$N_{gA} = 0.3 * \sum_{t=g+16}^{g+A} \frac{\bar{w}_{at}}{\bar{p}_t} \tag{4}$$

where $\bar{w}_{at}$ denotes the average annual wage at time t of all individuals at age a, including zeros from those not in the labor market. $\bar{p}_t$ denotes the average home price at time t as reported in the

Figure 8: Home Purchasing Power by Age for Cohorts born in 1940 and in 1980



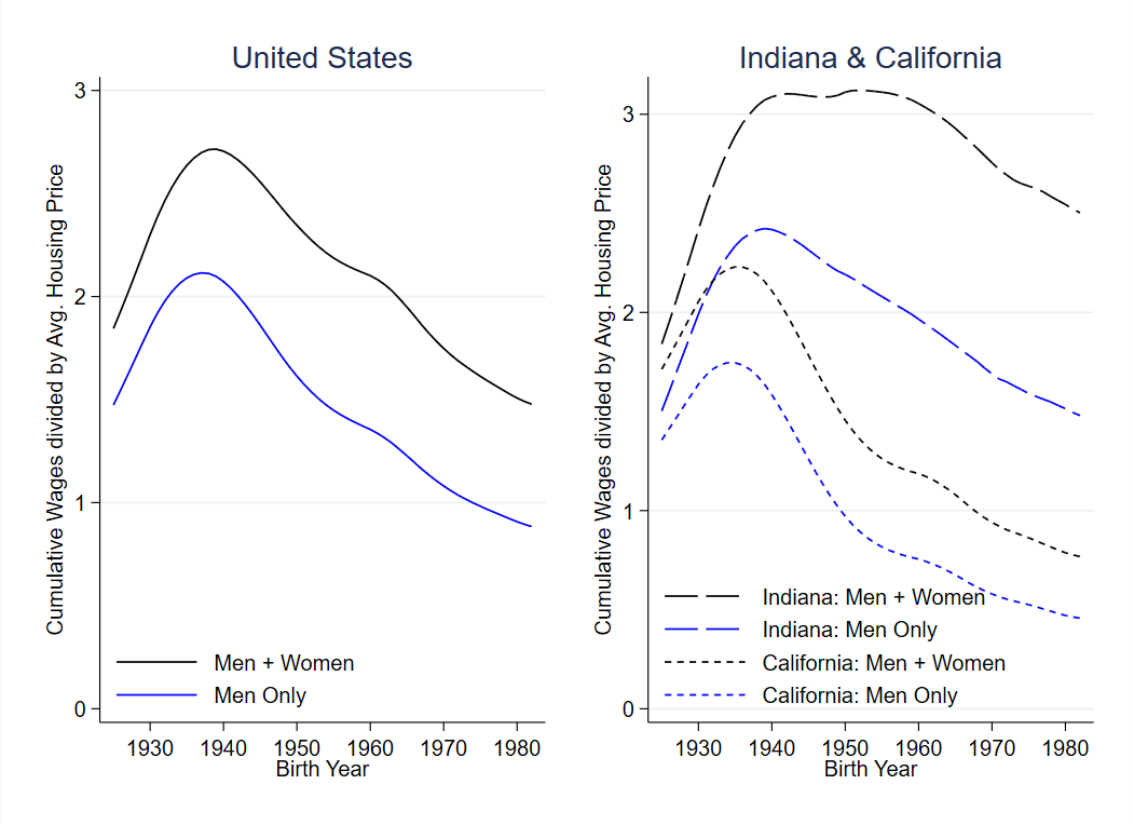
Notes: Data from IPUMS. Represents the number of houses a person could purchase by each age using 30% of their wage income from age 16 onward and no credit. Compares average wage income to average national price for owned homes.

Census, and thus for owner-occupied homes. The ratio of the annual wage to the housing price gives a measure of how many "average homes" a worker could potentially buy in a given year with 30% of their wage income and without credit.[8] Added up over the years from age 16 up until age A provides a measure of how many homes could be potentially purchased up until that age. We create separate measures for men and for women, given their different trajectories and household formation patterns.

Figure 8 plots how home purchasing power grows with age for cohorts born in 1940 versus those in 1980. In blue we see purchasing power for men rising with age. For those born in 1940, the average man could purchase one home by age 30, while for a 1980-born man, their first home

[8]It is standard for total housing expenses no more than 30% of pre-tax income to be considered "affordable" (Belsky et al., 2005).

Figure 9: Housing Purchasing Power by Age 40 by Birth Year



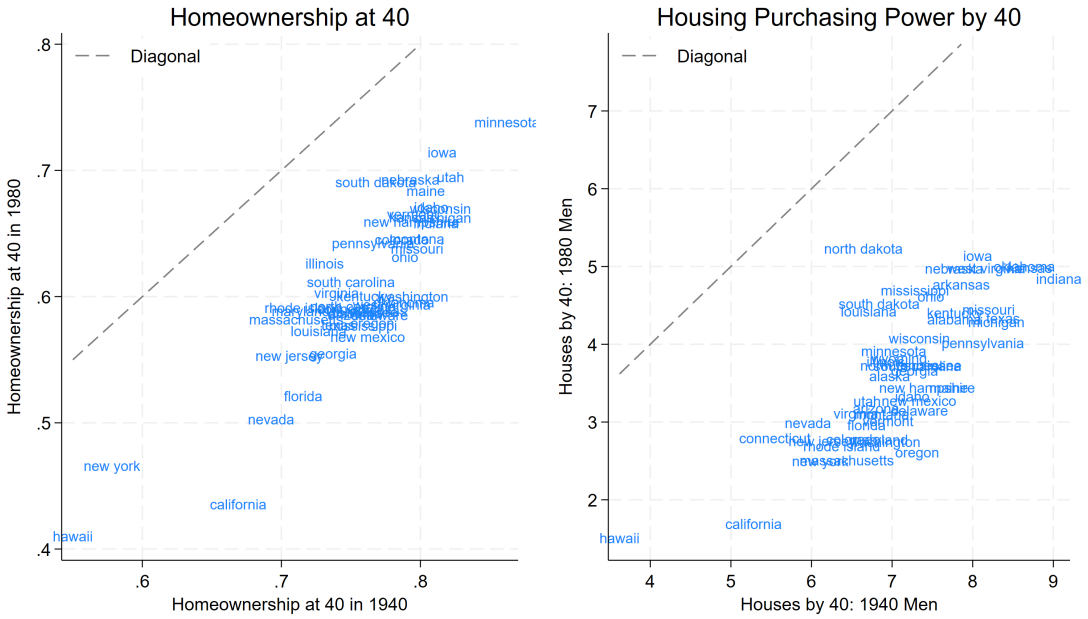
Data from IPUMS. Represents the number of houses a person born in each year could purchase by age 40 using 30% of their wage income from age 16 onward and no credit, based on comparison of average wage income to average national price for owned homes.

could not be purchased until after age 40. Adding the income of an average woman increases the number of houses by roughly one for both generations.

Figure 9 shows how housing purchasing power by age 40 has differed for Americans born in different years, corresponding to the vertical line in Figure 8. In the first panel, for the entire United States we see how purchasing power reached its zenith for an average man born just before 1940 at roughly seven houses. It drops monotonically after that point, plummeting to only three for those born in 1980. Adding an average woman raises the purchasing power by roughly two almost uniformly since 1940, as women's average annual earnings have risen at roughly the same rate as housing prices.

The second panel, shows measures at the state level for Indiana and California, using incomes

Figure 10: Individual Homeownership and Housing Purchasing Power by State



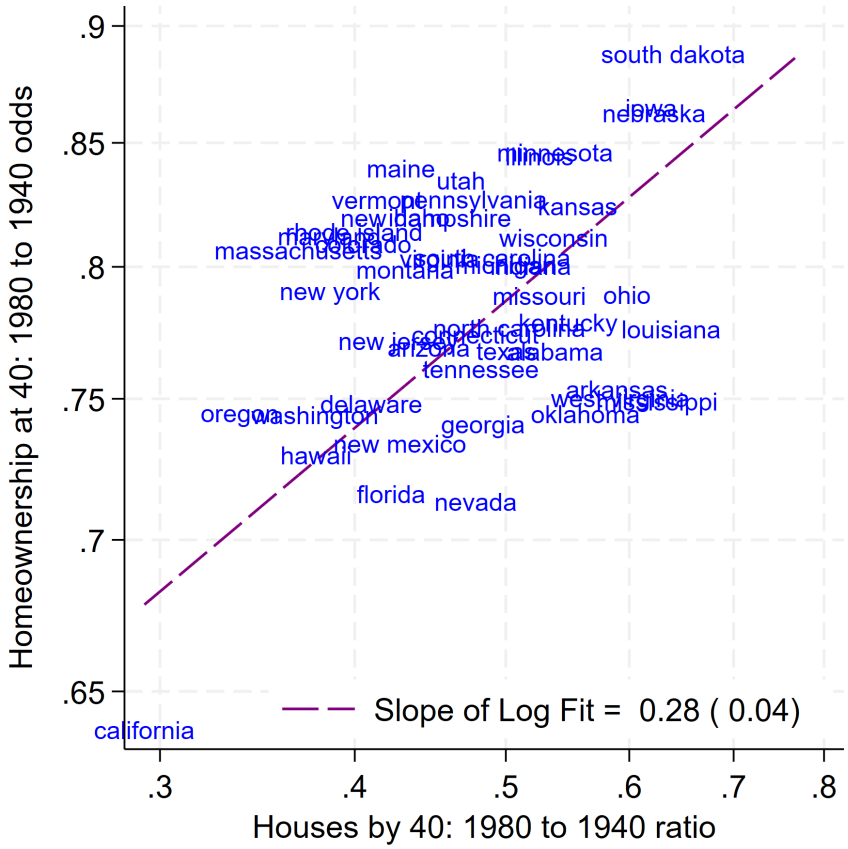
Data from IPUMS. Left panel compares the individual homeownership rates at age 40. Right panel compares the number of houses a person born in each year could purchase by age 40 using all of their wage income starting from age 16 and no credit. Both panels are separated by state of current residence, for 1940 and 1980 male cohorts.

and housing prices from those states respectively. In Indiana, we see that 40 year-old men had slightly better home purchasing power than in the country as a whole. Adding a woman's income raised this purchasing power by slightly more and for longer. In California, home purchasing power was weaker for earlier generations, but only slightly. The ability of the young to purchase homes fell much more relatively: male cohorts from 1980 had less than a third the buying power of male cohorts just 45 years prior.

Figure 10 shows how homeownership and purchasing power for those at 40 evolved for cohorts born in 1940 and in 1980 by state. Two similar patterns show up in both graphs. First, both measures are positively correlated between 1940 and 1980; e.g, states with high homeownership in 1940 tended to have higher homeownership in 1980. Second, in no state is either homeownership nor home purchasing power higher in 1980 than it was in 1940.

To better discern whether changes in home purchasing power has influenced homeownership,

Figure 11: Changes in Individual Homeownership and Housing Purchasing Power by State



Notes: Data from IPUMS. X-axis depicts the number of houses a person could purchase by age 40 using all of their wage income since age 16 and no credit for 1980 male cohort relative to that of 1940. Y-axis represents the ratio of log odds at age 40 for the 1980 relative to 1940 male cohorts. Calculations are separated by state of current residence. The regression line is weighted by adult state population in 1940.

we consider this change in variation by state. This is illustrated in Figure 11, which plots, at the state level, changes in individual homeownership at age 40, expressed in log odds, against changes in home purchasing power by age 40 for men, expressed in logs.

The positive correlation in the state changes is quite striking. While homeownership eroded in all states, it eroded far less in states where home purchasing power fell by less. The regression coefficient suggests that a 10 percent improvement in home purchasing power seems to increase homeownership by 2.8 percent. This simple regression explains over half of the variation at the state level, with a correlation coefficient of 0.77.

If we were to take the regression coefficient as causal, it would imply that at the national level, decreases in home affordability would lower the odds of homeownership by nearly a quarter. Thus, even this imperfect measure would explain a large majority of the decline in homeownership for those under 40.

5 Model

In this section we present a model with several features. First, we allow for utility to depend on non-housing consumption, x, and housing consumption y, and their status S of being either a homeowner O, renter R, or lives with a parent as an adult, P, i.e. $S \in \{O, R, P\}$. Some constraints, e.g. from the death of a parent, may make the latter option impossible, and so it is only available with a certain probability. Thus, we can model the choice to live independently from parents separate from the decision to rent or own once one is independent.

Second, we introduce a down-payment constraint, which makes it difficult for individuals to buy homes when house prices are high relative to income, even when they have a strong preference for owning a home. When rents are high relative to incomes, households will also find it less advantageous to be renters, both relative to living with parents, as well as owning a home.[9]

Third, through transition costs, it will typically be expensive to move between states, and the effect on living independently and on homeownership will have cumulative effects over the life-cycle.

Finally, we introduce general equilibrium housing constraints in supply, as well as the supply of rentable versus purchasable homes. The size of available homes will likely be taken as a possible parameter of interest.

In later iterations we will account for across-state mobility, along with idiosyncratic preferences for each state.

[9]Parts of this model draw inspiration from recent work by (Coven, Golder, Gupta, & Ndiaye", 2024).

5.1 Preferences and the Disutility of Renting or Living with Parents

Individuals can live for A periods, $a \in 0, 1, ..., A-1$, all corresponding to adulthood. We allow for the utility function to vary by age, making time-discounting irrelevant for modeling. These age-dependent preference can include housing demands associated with children and relationship status. Furthermore, we date everyone according to their birth-year, or "generation", g. Thus the current year, $t = g + a$ The flow utility from each period is $U_a(x^a_{g+a}, y^a_{g+a}; O^a_{g+a}, R^a_{g+a})$ Each individual seeks to maximize the sum of utility over their life time.

$$\sum_{a=0}^{A-1} U_a(x^a_{g+a}, y^a_{g+a}; S^a_{g+a}) + B(W_T) \tag{5}$$

For now, there is no need to model uncertainty either. If households prefer owning over renting, and renting over living with their parents, then the following inequality should hold for each age

$$U_a(x^a_{g+a}, y^a_{g+a}; O) > U_a(x^a_{g+a}, y^a_{g+a}; R) > U_a(x^a_{g+a}, y^a_{g+a}; P) \tag{6}$$

for given amounts of housing x, y. This too may change by age, as young adults may prefer renting, while utility of living with parents may fall with age.

5.2 Life-time budgeting, down-payment, and savings constraints

At each, individuals earn incomes $\{m^a_{g+a}\}_a = 0^{T-1}$, where we remind the reader that $g+a = t$ so $m^a_{g+a} = m^a_t$. To own a house at age 0, $S^0_g = O$, they need sufficient income to satisfy the down-payment constraint $\theta p_t y^0_t \leq m^a_g$. They must also pay property taxes as soon as they start consuming housing of $\tau p_t y^0_t$ If they rent, $S^0_g = R$ they pay rent $r_t y^0_t$. Thus, for the same amount of housing, the difference in up-front costs per unit of housing is $(\theta + \tau)p_t - r_t$.

With probability ϕ^a, an individual has the option to live with their parents. This probability is assumed to be decreasing with age $\phi_a \geq \phi_{a+1}$. If they live with their parents, they pay zero, for

some amount of housing $\tilde{y}_t^a$.[10] Compared with renting, households must decide between paying $r_t y_t^a$ versus getting some amount worth $r_t y_t^a$ for free.

Income may also be spent on non-housing consumption, x_g^0, while savings is given by b_g^0, which we constrain to be positive, i.e., $b_g^0 \geq 0$. The first-period budget constraint for generation g at age 0 is then,

$$m_g^0 = x_g^0 + b_g^0 + I\{S_g^0 = O\}(\theta + \tau)p_g y_g^0 + I\{S_g^0 = R\}r_g y_g^0 \tag{7}$$

which together with borrowing constraint implies $m_g^0 \geq x_g^0 + I\{S_g^0 = O\}(\theta + \tau)p_g y_g^0 + I\{S_g^0 = R\}r_g y_g^0$. Thus, if housing prices are high, it may be more advantageous to forgoing owning or even renting, as it would seriously constrain current consumption. Furthermore, an inability to borrow, may make it wise for individuals to live with their parents to save up to buy a house. It may be also useful to save just to rent at a later age, when it is more important to them.

In later periods, $a > 0$, the individual earns income, $m_{g+a}^a = m_t^a$, recalling that $t = g + a$. This income stream may involve uncertainty for future periods. Savings from age a produce an income of $(1+i)b_{t-1}^{a-1}$. For former homeowners, we add , and the net gains from housing $p_t(1-\delta)y_{t-1}^{a-1}O_{t-1}^{a-1}$, where δ represents depreciation and maintenance costs. Because of leverage of $1/\theta$, the returns to housing may be quite substantial, although they only materialize if the individual downsizes their home, i.e., if $y_t^a < y_{t-1}^{a-1}$. In our model, such leverage is not available with conventional savings, b. We assume lenders do not support a loan-to-value ratio below $1 - \theta$ on existing homes, as well as continue to enforce the down-payment constraint on new homes.

Thus, the down-payment constraint stays essentially the same, as is the expenditures side of the budget constraint, again recalling that $t = g + a$,

$$\begin{aligned} m_t^a + (1+i)b_{t-1}^{a-1} + [p_t(1-\delta) + (1-\theta)p_{t-1}]y_{t-1}^{a-1}I\{S_{t-1}^{a-1} = O\} \\ = x_t^a + I\{S_t^a = O\}(\theta + \tau)p_t y_t^a + I\{S_t^a = R\}r_t y_t^a + b_t^a \end{aligned} \tag{8}$$

[10] Hopefully this is without any major loss of generality, since we could not observe this, as intra-family transfers of all kinds are hard to observe. One can think of $p_t\tilde{y}_g^a$ as the below-market housing that an individual receives, net of what they give their parents.

Together with the borrowing constraint this implies: $m_t^a + (1+i)b_{t-1}^{a-1} + [p_t(1-\delta) + (1-\theta)p_{t-1}]y_{t-1}^{a-1} I\{S_{t-1}^{a-1} = O\} \geq x_t^a + I\{S_t^a = O\}(\theta+\tau)p_t y_t^a + I\{S_t^a = R\}r_t y_t^a$ Towards the end of life, individuals value their savings and housing left over from some kind of bequest motive, with value $B[(1+i)b_{t-1}^{T-1} + p_{t+T}[(1-\delta) - (1-\theta)p_{T-1}y_{t-1}^{T-1}]$ to take into account the equity.

5.3 Value Functions and transition costs

There are naturally three different value functions for each status, S. In each period, the individual inherits state variables reflecting their savings b_t^a, housing consumption, y_t^a, and status $S^a)t$. We model a cost function that accounts for changing status, as well as changing the amount of housing one consumes, say from downsizing one's home. We represent this with a general cost funciton $C(S, S_{t-1}^{a-1}; y, y_{t-1}^{a-1})$. Within period, individuals can adjust all housing and non-housing consumption, as well as their status.

$$V_a[b_{t-1}^{a-1}, y_{t-1}^{a-1}, S_{t-1}^{a-1}, m_t^a] = max_{x,y,S}\{U_a(x,y,S) - C(S, S_{t-1}^{a-1}; y, y_{t-1}^{a-1}) + V_{a+1}[b_t^a, y_t^a; S]\} \quad (9)$$

However, given the transition costs, most individuals will only adjust their non-housing consumption, x, and through that their liquid, non-housing saving, b.

5.4 Optimization conditions

Six important cases exist, combining cases where there is or is not positive non-housing savings, with the three tenure possibilities.

For the adult living with their parents, the larger the parents' home, the greater $\tilde{y}$, making that option more attractive. Further, for those and saving nothing we have, $U_a(m_t^a, \tilde{y}_t^0; P$, while in another case, children may be living with their parents to "save-up for their own place". Thus a young person saving for middle age will receive, $U_0(m_t^0 - b_t^0, \tilde{y}_t^0; P)$. Since non-housing consumption is available in each period, the marginal utility of non-housing consumption satisfies an intertemporal

substitution

$$\frac{\partial U_{a+1}(x_{t+1}^{a+1}, y_{t+1}^{a+1}, S_{t+1}^{a+1})/\partial x}{\partial U_a(m_t^0 - b_t^0, \tilde{y}_t^0; P)/\partial x} = 1 + i \tag{10}$$

for whatever state – owning, renting, or living with parents – they find themselves in later.

For the individual renting at any age, they must decide how to allocate consumption inter-temporally, similar to above. They also face the intra-temporal allocation between housing and non-housing, since they can freely choose their housing consumption

$$MRS_{t,yx}^a \equiv \frac{\partial U_a(x_t^a, y_t^a; R)/\partial y}{\partial U_a(x_t^a, y_t^a; R)\partial x} = r_t \tag{11}$$

At this level of utility, the renter must then find it to be superior to living with their parents.

Those who buy housing must pay θp_t of the price up front for each unit. That in turn provides a contemporary benefit from housing consumption, as well as the future benefit from capital gains.

$$\frac{p_{t+1}(1-\delta)}{p_t(1+\tau) - MRS_{t,yx}^a} \geq 1 + i \tag{12}$$

In cases where this constraint is not binding, the individual finds it more advantageous to save on the margin through housing purchases than through any positive non-housing assets.

5.5 Aggregate Housing Supply

Label the number of individuals at each The total amount Housing is subject to a standard adding

$$\sum_{a=0}^{T-1} N_t^a y_t^a = Y_t \tag{13}$$

Ideally, we determine housing prices endogenously through an aggregation process. In a frictionless model, aggregate supply can be determined by the price p_t. However, housing does take time to build. Furthermore, with sticky homeownership, existing housing is made available, but only gradually gradually as older generations die off, separate exogenously from their house, or are paid a premium to bear the cost of moving and downsizing to a smaller home. At this point, analytical

insights are no longer possible and numerical calibraitons and calculations are needed.

6 Directions for Future Research

In our descriptive analysis of homeownership, we would like to further investigate possible interactions with education. Namely, we would like to consider how the age profiles of ownership have changed for those with a high-school as opposed to a college degree. We expect these to show a more extreme discrepancy.

For our age and and birth-year model of homeownership, we plan to consider the role of several different factors during what appear to be critical ages in the life-cycle of different generations. Ideally, cohort effects may be explained primarily by age-year interactions, focusing on young adulthood, especially ages 20 to 40, when many owners obtain their first home.

In explaining changes in homeownership among the young at the state level, we would like to examine the role of two competing factors. First are trends in consumption, namely discretionary spending, by different age groups over time. Second are the credit conditions affecting access to mortgages, including sub-prime lending and conforming loans. In some sense, we will be looking for signs of hysteresis, researched fairly heavily in labor markets.

7 Conclusion

This paper suggests the traditional measure for homeownership may not capture nuances of modern household composition. While traditional homeownership rates, measured at the household level, have remained relatively stable across the last several decades, changing lifestyle patterns have affected homeownership at an individual level. Adults have become less likely to legally marry and more likely to live with their parents. In fact, this decline in headship appears to more than offset the previously expected aggregate homeownership gains related to the aging U.S. population. In consequence, we re-examine how homeownership rates are measured and present an alternative "benchmark" measure that captures these lifestyle changes, extending the notion of

ownership to those beyond the Census-designated "household head."

Using the benchmark measure, we compare rates of individual homeownership over time and across cohorts. We find that more recent cohorts have uniformly lower homeownership than earlier cohorts at all ages, with those who came of age during the Great Recession, namely those born from 1988 to 1992, having the lowest propensity to own homes given their ages. We examine the cause of this decline in homeownership among the young, primarily through the channel of housing affordability. In order to get at the causal effect of housing affordability on generational homeownership, we build a measure of house purchasing power, based on how many houses a young person could purchase by a certain age using 30% of their wage income and no credit. While an average man born in 1940 could hypothetically buy two homes by age 40, one born in 1980 could not yet purchase one on average. Further, women's purchasing power has stayed roughly constant, despite large gains in women's income on average. Leveraging variation by state, differences in homeownership rates among the young are explained quite well by changes in youth home affordability. Ultimately, these findings support taking a more nuanced and inclusive view of homeownership when drawing comparisons across generations.

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Appendix

A Additional Statistics

A.1 Descriptive Statistics

To better understand changes in household characteristics, Table 3 compares the samples from the 1980 Census and the 2018-2022 (2020) ACS cross-sections. The overall rates of homeownership, the ratio of households living in owned homes to the total number of households, barely changed. At the same time marriage rates dropped, while co-habitation with parents rose, along with educational attainment, both at the high school and college levels.

For households headed by someone under 40, we do observe an 8 percentage-point decline in homeownership. For all adults under 40, we also see larger drop in marriage rates, and a greater proportion living with parents, naturally.[11] Figure 12 depicts the share of adults living with parents or grandparents at each age and clearly reflects this increase in co-residence from 1980 to 2020. Additionally, a comparison of adults in California and Indiana suggests large discrepancies in the likelihood of co-residence across states, potentially driven by affordability differences. Interestingly, while the fraction of adults living with their parents or grandparents has increased at each age since 1980, 2020 shares very closely follow those observed in 1940.

Table 4 provides some basic statisitcs on incomes and housing costs, from 1980 to 2020, the median real house price increased by 60 percent, whiledian gross rent exhibited a similar increase over the same time period (by approximately 52%), while median individual wage income increased by just 45%. Overall, the price of housing has grown more rapidly than income, which is clearly visible from the increases in rent-to-income and house-price-to-income ratios.

A.2 Census Snapshots in Other Years

Figure 13 shows the evolution of the traditional and individual homeownership measures for every two decades between 1920 and 2021. The 1920 rate profile is slightly higher than the 1940 one, in the aftermath of the Great Depression. The 1960 profiles are a bit lower than in 1980. For the years 2000 and 2020, the traditional rate profiles are slightly lower than in 1980 prior to 55, and somewhat higher afterwards. The individual rate profiles show more of a downward trend, which is considerably larger between 2000 and 2020.

In 1970, the age profiles begin to slope down around ages 50 and up, just as they do in the 1980 profiles at age 60, and in the 1990 profiles at age 70. By 2000, the rate of homeownership increases almost monotonically with age up to age 70. By 2020, the slope of the age profile is quite pronounced, especially for the individual measure.

[11] We categorize an individual as co-residing with a parent or grandparent only if that individual is *not* the Census-designated head of household or "reference person." This serves to draw a distinction between adults who live with their parents versus adults whose parents live with them. Of all household heads under age 40 in the 2018-2022 ACS, less than 2% lived with parents (or grandparents) earning a higher combined wage income than their own.

Table 3: Demographic Characteristics

	(1) 1980	(2) 1980 - Under 40	(3) 2020	(4) 2020 - Under 40
Traditional Homeownership	0.650	0.504	0.641	0.421
	(0.477)	(0.500)	(0.480)	(0.494)
Rate of Current Marriage	0.638	0.552	0.512	0.334
	(0.481)	(0.497)	(0.500)	(0.472)
Live with Parents	0.111	0.203	0.140	0.300
	(0.314)	(0.402)	(0.347)	(0.458)
High School Attainment	0.696	0.806	0.915	0.927
	(0.460)	(0.395)	(0.279)	(0.260)
College Attainment	0.147	0.168	0.323	0.306
	(0.354)	(0.374)	(0.468)	(0.461)
Observations	7,823,227	4,006,229	11,669,293	4,051,975

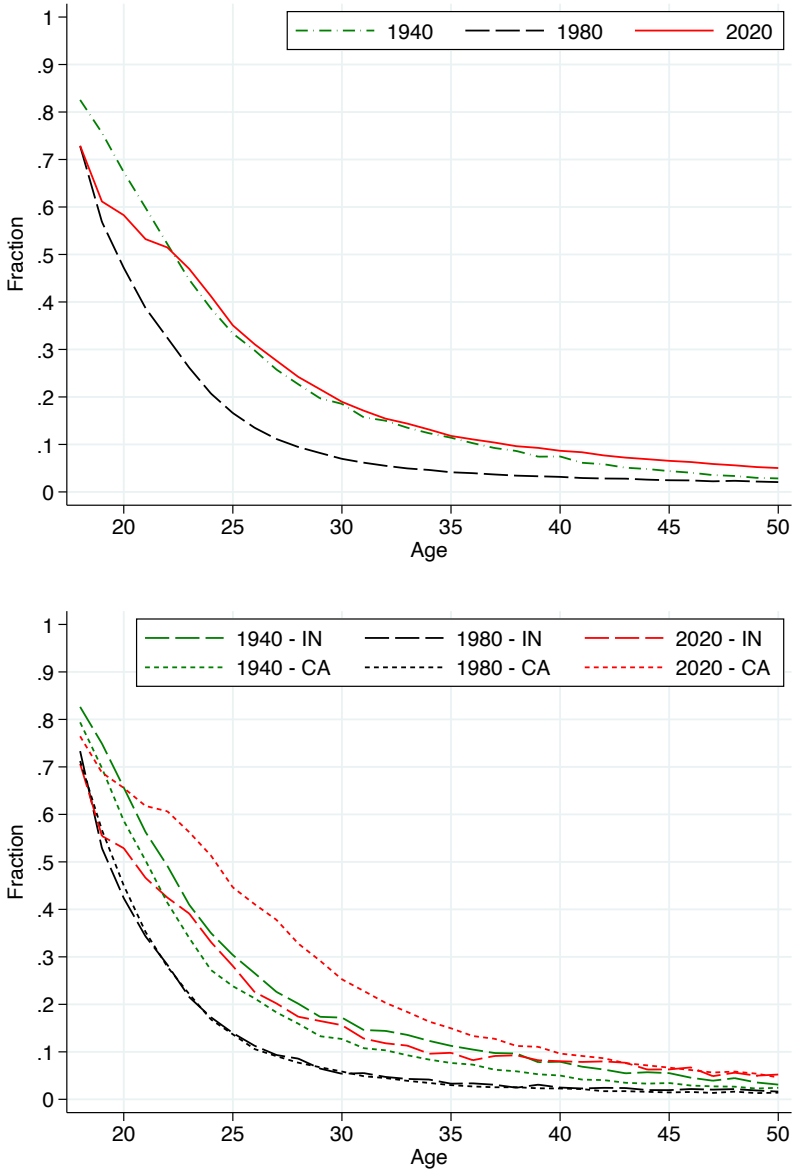
Notes: Data from IPUMS. Means are shown, followed by standard deviations in parentheses. 1980 and 2020 (2018-2022 5-Year ACS) values are based on all adults (except institutional inmates) 18 to 80, weighted using IPUMS person-level weights. Columns 2 and 4 include only adults ages 18 to 39.

Table 4: Prices and Incomes

	(1) 1980	(2) 2020
House Price (2023 Dollars, Thousands)	175.6	281.1
	(140.8)	(505.7)
Gross Rent (2023 Dollars)	942.9	1,434.7
	(438.3)	(898.9)
Indiv. Wage Income (2023 Dollars, Thousands)	15.5	22.5
	(37.5)	(69.5)
Rent to Monthly Income Ratio	0.37	0.48
	(12.7)	(30.6)
House Price to Annual Income Ratio	4.3	5.2
	(235.8)	(1,070.0)
Observations	7,823,227	11,669,293

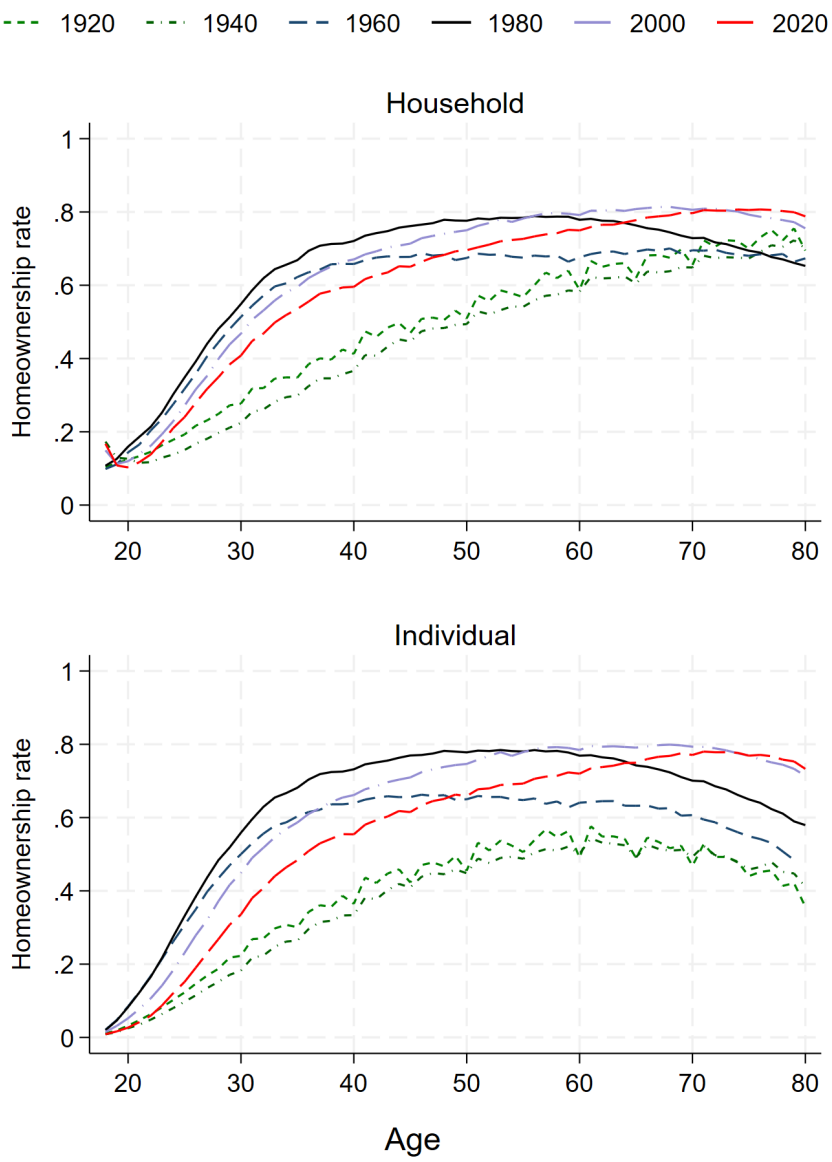
Notes: Data from IPUMS. Medians are shown, followed by standard deviations in parentheses. Values are based on all adults (except institutional inmates) 18 to 80 in the 1980 and 2020 (2018-2022 5-Year ACS) cross-sections, weighted using IPUMS person-level weights. Prices are converted to 2023 real dollars using the Consumer Price Index for All Urban Consumers (Series CUUR0000SA0) published by the Bureau of Labor Statistics.

Figure 12: Adults Living with Parent or Grandparent



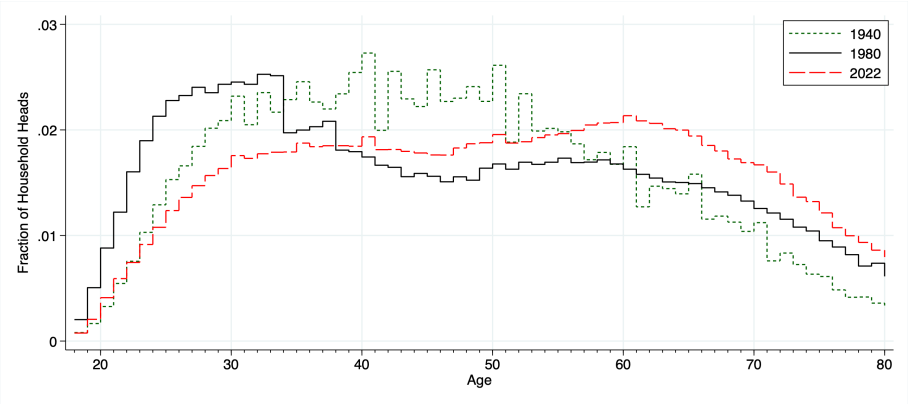
Notes: Data from IPUMS and includes adults (except institutional inmates) ages 18 to 50 in the 1940, 1980, and 2020 (2018-2022) cross-sections. The top panel depicts the fraction of adults listed in the Census or ACS as a child, child-in-law, or grandchild of the householder, by age. The bottom panel includes adults residing only in California and Indiana at the time of each survey.

Figure 13: Traditional and Benchmark Individual Homeownership, by Age: 1920-2020



Notes: Data from IPUMS and includes all adults (except institutional inmates) ages 18 to 80 in the 1920-2020 cross-sections. Graph depicts the traditional and benchmark individual measures of homeownership, by age. More information on these measures can be found in Section 3.2.

Figure 14: Distribution of Ages, Household Heads 18-80



Notes: Data from IPUMS. Graph considers all heads of household ages 18 to 80 in the 1940, 1980, and 2020 cross-sections, weighted using IPUMS household-level weights.

A.3 Age Distribution of Household Heads

A.4 Adult Children, by Birth State

A.5 Additional Time Series

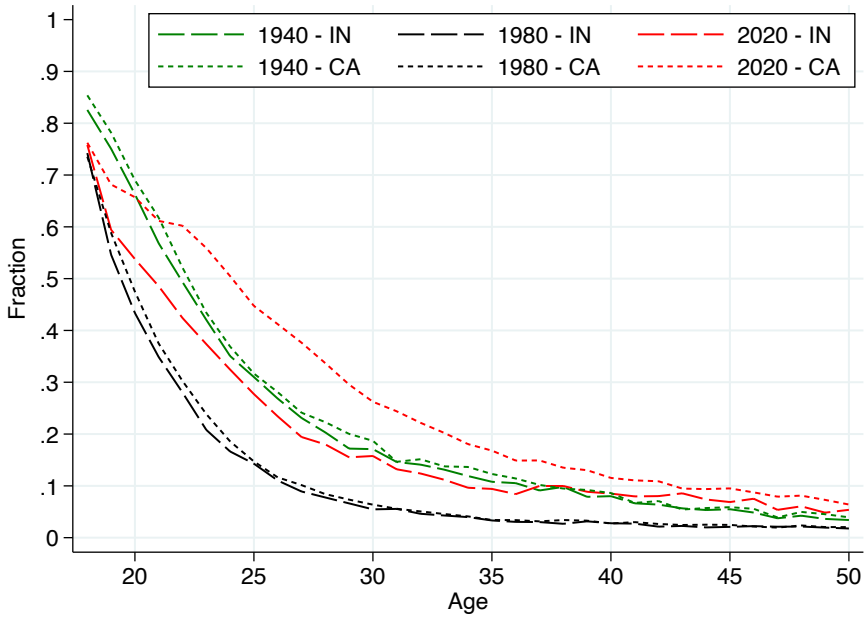
A.6 House Size Over Time

A.7 Marriage Rates

B Selecting Model of Being a Household Head

This section will consider the methodology of Haurin and Rosenthal (2007).

Figure 15: Adults Living with Parent or Grandparent, by Birth State: California & Indiana



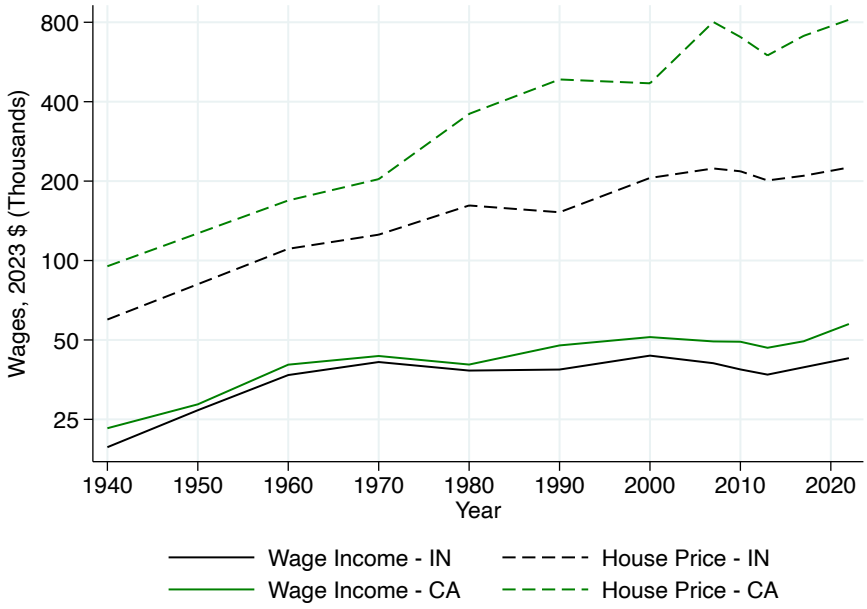
Notes: Data from IPUMS and includes adults (except institutional inmates) born in California and Indiana, ages 18 to 50 in the 1940, 1980, and 2020 (2018-2022) cross-sections. Graph depicts the fraction of adults listed in the Census or ACS as a child, child-in-law, or grandchild of the householder, by age and birth state.

Figure 16: Growth in Young Adult Wages Versus House Prices

PANEL A: U.S.

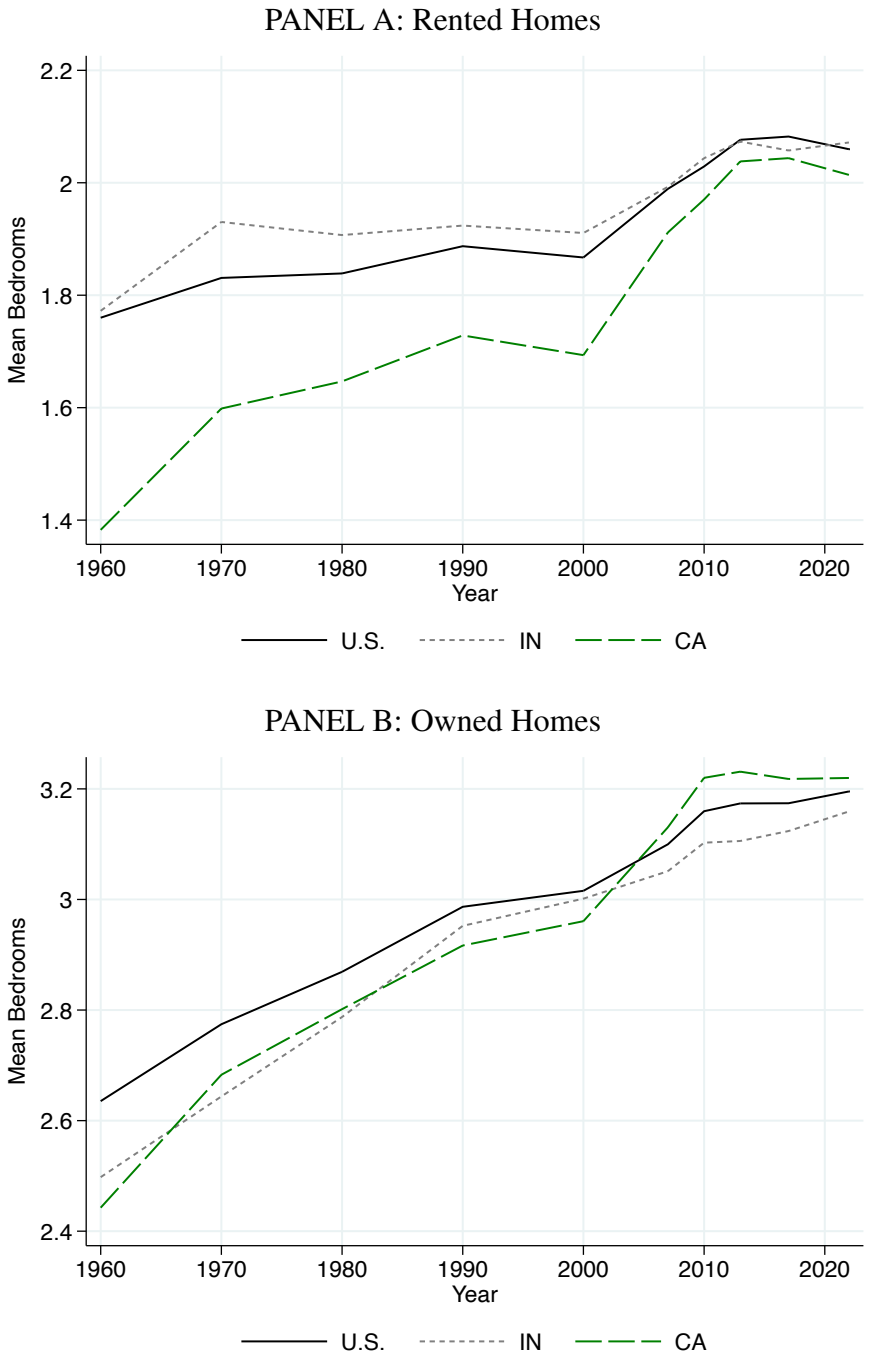


PANEL B: California & Indiana



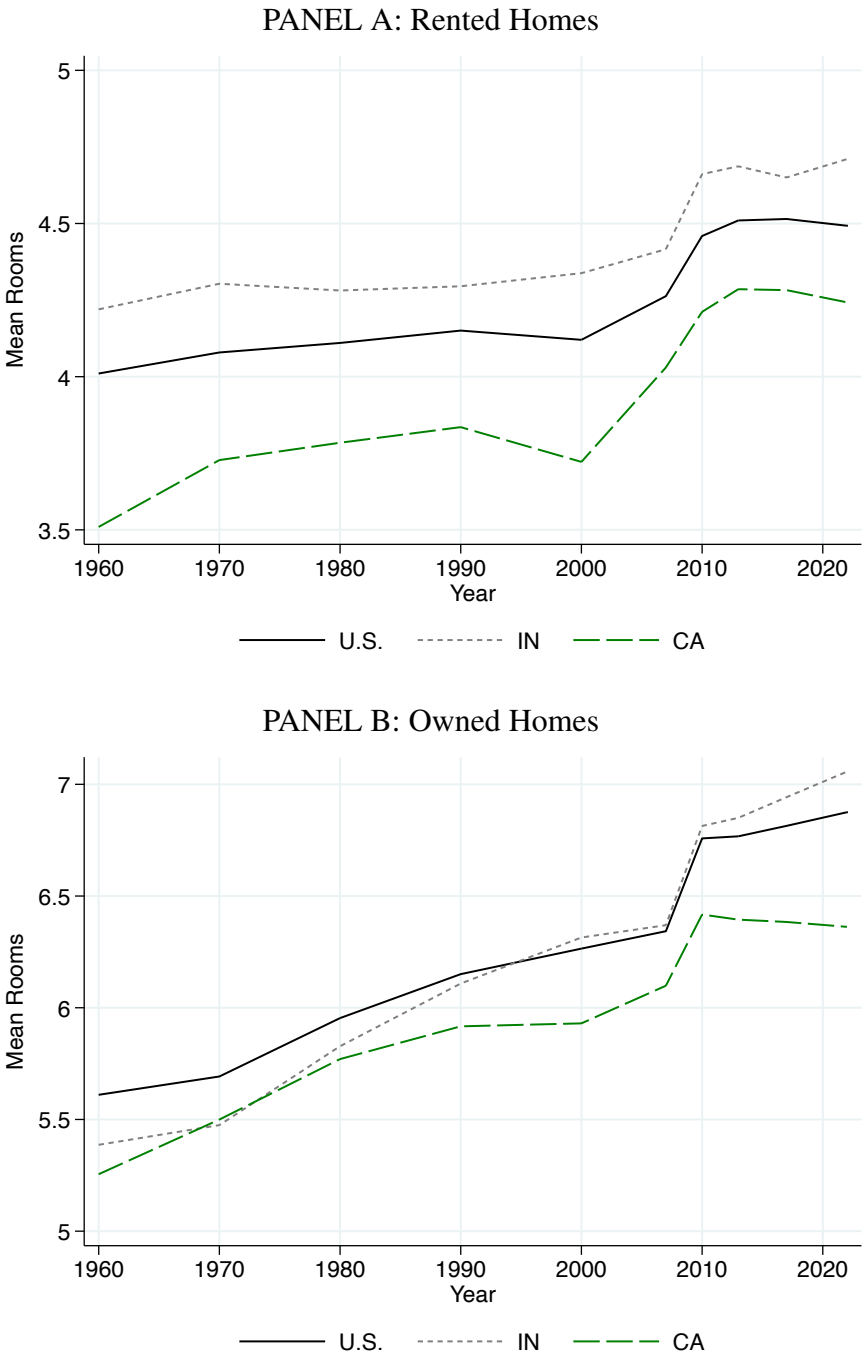
Notes: Data from IPUMS. House prices for all adults, while wage incomes for only adults ages 18 to 39. Excludes institutional inmates. Uses a log scale. Averages calculated using Census person weights. Panel B is restricted to only young adults residing in California or Indiana.

Figure 17: Bedrooms in Average Home, Household Heads Age 40-80



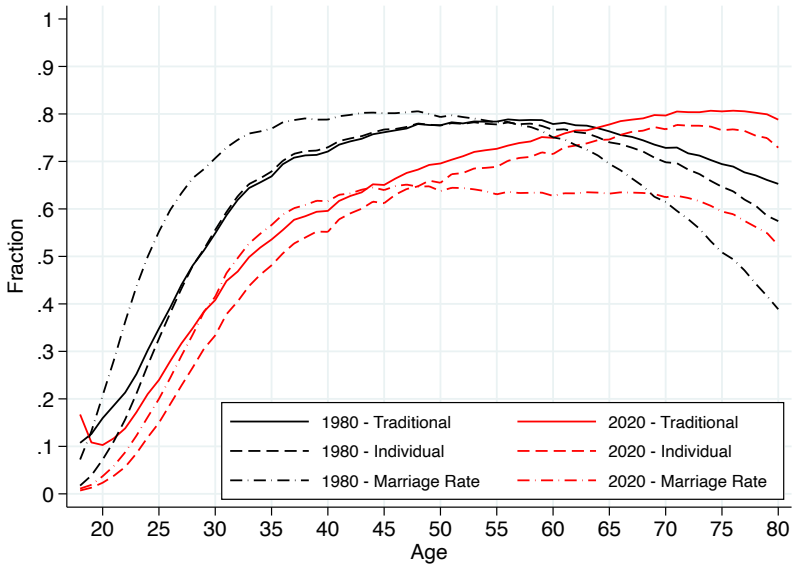
Data from IPUMS. Excludes institutional inmates. Averages calculated using Census household weights. Panel A includes only rented homes with household head age 40 to 80. Panel B includes only owned homes with head in age range.

Figure 18: Rooms in Average Home, Household Heads Age 40-80



Data from IPUMS. Excludes institutional inmates. Averages calculated using Census household weights. Panel A includes only rented homes with household head age 40 to 80. Panel B includes only owned homes with head in age range.

Figure 19: Homeownership & Marriage Rates



Notes: Data from IPUMS and includes all adults (except institutional inmates) ages 18 to 80 in the 1980 and 2020 (2018-2022) cross-sections. Graph depicts the traditional and benchmark individual measures of homeownership, as well as marriage rates, by age. More information on homeownership measures can be found in Section 3.2.