The Impact of Cultural Norms on Homeownership*

Caitlin S. Gorback, McCombs School of Business, UT-Austin†
and
Gregor Schubert, UCLA Anderson School of Management‡

October 14, 2024

Abstract

Homeownership has long been a core tenet of the American Dream, but this is not universal across countries. In this paper, we study homeownership decisions among a large and growing segment of the U.S. population: foreign born U.S. residents. We identify a new channel driving immigrants' selection into homeownership, cultural norms supporting homeownership. We show that having high homeownership in their country of origin ("HOCO") has an effect on tenure choices for foreign-born U.S. residents: moving across the interquartile range of *HOCO* increases homeownership by 3ppt, significantly closing the native-foreign born homeownership gap. We show in a simple tenure choice model how higher cultural affinity can increase homeownership responses to credit supply shocks and test this prediction empirically. Using an exogenous credit shock based on county exposure to lenders that are increasing their mortgage lending nationally, we show that, in response to a 1 SD mortgage credit shock, above-median HOCO residents see an annual increase in their homeownership rate that is 0.2 ppt larger than below-median-HOCO groups (relative to a baseline transition rate of 0.34). These changes in portfolio choices also affect retirement portfolios: we show, using microdata, that a greater affinity for homeownership increases the likelihood of owning one's home in retirement, and the share of retirement wealth held in real estate. These findings imply that cultural norms around homeownership can change the impact of credit cycles and household wealth formation, as well as household portfolio choices.

*We thank discussants and participants at 2023 ASSA-AREUEA, UCLA Anderson Finance Seminar, the Tel Aviv University Conference on Low Income Housing Supply and Housing Affordability, the AREUEA Meetings in Dublin and Tokyo, the Southern Economic Association Meeting, the Harvard Development and Urban Workshop, the Federal Housing Finance Agency, the UT Austin Economics and UT Austin McCombs faculty seminars, the Pre-WFA Real Estate Symposium and NBER Real Estate Summer Institute, the University of Houston Empirical Microeconomics Seminar, the BFI Women in Empirical Microeconomics Conference, and the Utah Eccles Innovations in Housing Affordability Summit for valuable comments and suggestions. We also thank the UCLA Ziman Center for Real Estate's Rosalinde and Arthur Gilbert Program in Real Estate, Finance and Urban Economics for generous funding.

†Email: caitlin.gorback@mccombs.utexas.edu

‡Email: gregor.schubert@anderson.ucla.edu.

I. Introduction

In the United States, homeownership has long been viewed by policymakers as a bellwether for quality of life and a core tenet of the American Dream (Layton, 2021; Goodman and Mayer, 2018). As such, many policies have striven to support high homeownership rates, including, among others, the mortgage interest rate deduction, securitization of mortgage products, and low-down payment programs for first-time homebuyers, though none have pushed homeownership sustainably above 65% (Layton, 2022). During the global Covid-19 pandemic, President Biden declared a foreclosure moratorium in an effort to prevent a decline in homeowership, and the Harris campaign is prosmising $25k to first time homebuyers. These policies are touted as supporting household wealth formation. While many have been shown to increase homeownership, they often expose households to downturns and have been suggested to substitute for other forms of savings Mian and Sufi (2009); Bhutta (2015); Cocco (2005). It is therefore important to understand the impact of homeownership on housing returns and eventual portfolio choice.

Many models imply that homeownership and housing wealth should be negatively correlated with risky asset share (Cocco, 2005; Yao and Zhang, 2005); however, unexpected gains to housing equity can loosen budget constraints enabling investment in the risky asset (Chetty, Sándor, and Szeidl, 2017). In this paper, we utilize variation in immigrant's cultural norms around homeownership as a laboratory to study how homeownership impacts household wealth and risky asset allocations at retirement. Cultural norms in an immigrant's country of origin provide plausibly exogenous variation in the decision of whether or not to own a home, conditional on a set of socioeconomic and demographic characteristics. We explore whether those endowed with a cultural affinity for housing end up with more or less housing over the lifecycle, and how this impacts their participation in other forms of saving, such as stock market participation. In order study the impact of cultural norms on the eventual portfolio decision of households, we first augment a simple tenure choice model with endowed affinities for housing to study how these affinities impact households' decision to own vs. rent and their sensitivity to credit markets. We next document that these affinities are correlated with homeownership in the cross section, and differential credit take-up in the time series. High affinity groups experience more volatile housing returns, and higher housing and non-housing wealth on average by retirement, but do not display differential risky asset shares.

In our conceptual framework, based on Brueckner (1986), we embed cultural norms in a simple tenure choice model. In a model of housing consumption in which cultural norms lower the cost of housing, these consumption benefits lead households to switch from renting to owning at higher rates. Specifically, the model's first implication is that the propensity to own increases with a household's country-of-origin homeowership rate, at all tax rates above a given threshold at which the highest affinity household switches from renting to owning. Next, we add borrowing constraints to the model and expand the setting to two time periods, requiring households to save for downpayments should they wish to purchase in the second period. We construct an owner-renter utility differential over the two periods, which is decreasing in downpayment stringency (i.e. higher downpayments erode the benefits of owning relative to renting). The model's second implication is that

the cross-partial of this utility differential with respect to first downpayments, and second cultural norms is positive, meaning that those with high cultural norms around homeownership are more sensitive to credit constraints.

Taking the model's implications to the data requires us to develop a measure of homeownership affinity. Building on the labor literature that leverages cultural norms in the country of origin to provide variation in U.S. labor force participation (Blau, Kahn, and Papps, 2011), we study the cultural norms around homeownership for the set of immigrants to the U.S. The U.S. foreign-born population is large and has been growing, representing about 10% of residents in 2000, and rising to 14% by 2019. Enabling us to study the impact of cultural norms on homeownership, these immigrants hail from over 150 countries, with large differences in their expectations around homeownership. Building on this observation, we collect new data on cultural norms around homeownership among foreign-born U.S. residents, with variation driven by households' differential birthplaces. Specifically, we define "homeownership norms" as the rate of homeownership in a household head's country of origin. Using international census microdata data we compute recent homeownership rates by marital status across 85 origin countries; these cover the majority of countries from which migrants to the U.S. originate and nearly 80% of the immigrant population.

Next, we document the passthrough of cultural norms of homeownership among immigrants in the U.S. Consistent with the model, we show that these country-of-origin-related norms significantly affect household tenure choice in the U.S., with immigrants from countries with strong cultural norms around housing more likely to own homes in the U.S., while those with weaker preferences opt instead to rent. We also show that the probability of owning a home is higher for all federal marginal tax rates above 10% among immigrant households with above-median homeownership in their country of origin, relative to those below-median households, suggesting these differences are indeed driven by user costs and not an unobserved confounder. This effect survives rigorous controls for households' financial standings, demographics, household size and composition. We also control for a variety or origin-country characteristics, such as inflation experience, credit supply, property rights, and measures of cultural affinity with the U.S. To address concerns that immigrants are an assortatively selected group, meaning they may come from wealthier backgrounds in their origin country, we control for mean characteristics among immigrants from each country. We address sample selection concerns by replicating the results in the American Housing Survey (AHS), using alternative measures of origin preferences, and removing particularly large immigrant population groups.

Finally, we test whether immigrants from countries with higher norms around homeownership are also more financially savvy when it comes to housing markets by comparing the tenure choice effects of cultural norms to those of measures of housing market expectations and outside options; this horse race moderates our findings by about 25%, but we cannot statistically distinguish the point estimates from each other. That our results survive these robustness checks suggests two concclusions. First, that cultural norms evolve uniquely in each country according to its own unique history of institutions, and cannot be explained by any particular set of controls. Second,

that the surviving variation reflects cultural preferences transferred from one's origin country to the U.S., consistent with the growing literature on the effects of cultural and social influences on tenure choice.

The model's second implication posits that higher affinity households—in our context those with high cultural norms around owning—should be more responsive to mortgage credit supply shocks. In order to test this second finding, we move from cross-sectional household-level analysis to group-level analysis over time to study the impact of mortgage credit supply shocks on groups with different homeownership norms. Intuitively, this allows us to test whether the sensitivity to windfalls in credit supply varies with homeownership norms - a novel factor that might be influencing the transmission of credit policy. We aggregate households into panels of groups by homeownership norms within each CBSA for 2006-2018 and compare how their homeownership changes in response to exogenous shocks to mortgage credit supply.

We construct these local credit shocks as "shift-share" instruments based on a county's exposure to lenders that are expanding their mortgage portfolio for reasons unrelated to local credit demand. This approach follows a long existing literature that uses non-local lender-level shocks to construct exogenous shocks to the availability of credit to borrowers.[1] We follow Garcia (2020) and estimate the non-local component of the national change in mortgage lending by each lender as time-varying lender fixed effects when controlling for county-level mortgage lending activity. This isolates the degree to which a lender increases its activity in a way that is unrelated to the changes in overall credit demand in each county that it has a presence in. Counties that have higher exposure to lenders that are expanding their lending activity nationally (e.g. due to relative changes in their ability to fund mortgages) should see higher *relative* mortgage lending activity - but by construction this shock is uncorrelated with national trends and regional differences in average credit demand changes.

We estimate the effect of these exogenous credit shocks on changes in homeownership over time in a panel of groups with different homeownership propensity. Our design includes CBSA-by-year fixed effects and demographic controls, which allows us to compare the relative homeownership effects between groups that differ in their affinity for homeownership but otherwise are exposed to the same local economic trends and have similar observable characteristics. Our results show that a 1 SD higher shock to loan originations (a shock value of $\sim 14\%$ higher loan originations) leads to about a 0.2 p greater increase in homeownership among high HOCO foreign-born groups relative to the below-median HOCO foreign-born. This effect is robust to controlling for lagged shocks, changes in group demographic characteristics, and allowing for different coefficients in different time periods. As a result, foreign-born residents from high-HOCO countries are more likely to experience cyclical homeownership rates.

Consistent with their greater sensitivity to mortgage credit, we show that high affinity households saw much more growth in homeownership during the 2000-2006 credit boom than low affinity groups; however, this result is not symmetric as mortgages are not renewed annually, and so houses that have transitioned are insulated from further credit shocks (especially among those with fixed

rates). As such, those with high affinities seem to hold on to their homes more strongly during downturns, with less of a decline in homeownership between 2006-2012. As a mechanism, we document that these households are less likely to miss mortgage payments, conditional on their financial circumstances, as proxied by debt-to-income and cost-to-income ratios. Nevertheless, those high affinity households that differentially opted into homeownership during the boom have realized lower housing return per annum relative to low-affinity groups, who were less sensitive to the credit expansion.

What does a greater tendency to own a home mean for long-run household financial portfolios and wealth formation? While this is an important question for policy purposes, it is usually difficult to identify causal variation in tenure choice. Having established that cultural affinity for homeownership robustly induces differences in tenure choice that are plausibly exogenous with other financial windfalls experienced by a household. Under the assumption that cultural norms around homeownership impact a houshehold's portfolio allocation at retirement only through the household's decision to purchase a home or not, we can we use HOCO differences to study the causal effects of tenure choice on houshehold retirement portfolios. For this analysis, we use restricted-access data from the Health and Retirement Study (HRS), which to our awareness, is unique in combining information on households' financial positions, housing consumption, and detailed country of origin information.[2] We construct a sample of foreign-born survey respondents' household balance sheets at (or near) age 60, matched to their HOCO information, and estimate the effect of the latter on wealth, portfolio composition, and real estate holdings, while controlling for a rich set of other household characteristics.

We find that a greater affinity for homeownership leads to a higher likelihood of owning one's home at retirement, even conditional on total non-housing wealth. As a result, for respondents with 1 pp higher HOCO, the net value of their primary residence on average represents a 0.9 pp greater share of their retirement portfolio. Moreover, we estimate that a higher affinity for homeownership causes households to retire with higher total wealth, consisting of \$3.5K higher wealth coming from their primary residence, and a \$4.6K increase in other assets. This wealth effect also exists at the intensive margin: even within homeowners, those with greater HOCO end up with higher wealth at retirement. What can explain this overall increase in wealth as a result of homeownership? We find no evidence that households with greater affinity to are more likely to own stocks or invest a greater share of their portfolio in stocks, making it unlikely that shifts in preferences for risky assets other than real estate explain this effect. Instead, we find evidence that the wealth effect of homeownership may be the consequence of being in the right place (and home) at the right time: HOCO has a greater effect on the real estate component of household wealth in states that experienced large run-ups in house prices. Combined with the overall increase in house prices across the country in recent decades, this suggests that homeownership effects on wealth may not be automatic but may rather depend on an exceptional ability or luck in timing housing market cycles.

Related literature & contributions. We build on the literature on cultural norms and lived

experience by documenting passthrough of immigrants' origin homeownership norms to their US outcomes. In settings as varied as women's labor force participation, parking tickets, and levels of trust in developing market economies, researchers have documented meaningful passthrough of cultural norms across time and space (Fisman and Miguel, 2007; Algan and Cahuc, 2010; Blau et al., 2011). This cultural passthrough need not even be concurrent to impact today's behavior. For example, firms invest more FDI in locations that share their immigrant background Burchardi, Chaney, and Hassan (2019) and countries that adopted the plow over the hoe see lower fertility rates today (Alesina, Giuliano, and Nunn, 2011). In the recent homeownership literature, Vuillemey (2023) finds that immigrants homeownership today is higher among migrants from countries with a history of valuing land (immovable assets) over cattle. These papers show that culture is portable and moves with the people it has shaped, enabling immigrants to bring with them their own expectations of institutions such as homeownership. In addition to cultural norms, there is a growing literature showing that people's lived experiences impact tenure choice. In our context, we assume immigrants' experience of their origin country norms impact their homeownership outcomes in the US. Other researchers have documented that housing preferences tend to be passed down in families. For example, Blaauboer (2011) finds that childrens' residential environments strongly correlate with their chosen residential environment as adults, and Boehm and Schlottmann (1999) find that parental tenure choice strongly predicts childrens' tenure choice, controlling for a variety of observable characteristics. There is also a growing literature showing how financial experience impacts homeownership: Botsch and Malmendier (2020) and Malmendier and Steiny (2019) show consumers that experienced high inflation are averse to adjustable rate mortgages, and also opt into higher rates of homeownership. Finally, recent work points to a strong correlation between where people grow up and their tenure choice as adults. Ringo (2020) finds that homeownership rates in one's county of birth in the U.S. predicts adult homeownership, and Marcén and Morales (2020) document that the U.S. homeownership rate among immigrants is correlated with homeownership rates in their country of origin in a 2016 cross-section of U.S. households. Happel, Karabulut, Schäfer, and Tuzel (2022) show that differences in attitudes to homeownership in Germany as a result of exposure to residential housing destruction during World War II persist even in the long run.

We also contribute to the literature examining immigrants' participation in housing markets. Many papers have examined the impact of immigrants on house prices directly, such as Saiz (2003, 2007), Saiz and Wachter (2011), Akbari and Aydede (2012), Sá (2014), Pavlov and Somerville (2020), and Badarinza and Ramadorai (2018). The impact of immigrants on local markets varies widely, from increasing both prices and rents (Saiz, 2007), increasing rents and decreasing prices (Saiz, 2003), increasing prices (Akbari and Aydede, 2012; Badarinza and Ramadorai, 2018; Pavlov and Somerville, 2020), to decreasing prices (Saiz and Wachter, 2011; Sá, 2014). Importantly, the origin of immigrants and their characteristics seem to contribute to the wide variety of results. Immigrant wealth and immigrant integration (or segregration) are posited as key mechanisms driving the different findings, with immigration from wealthy countries driving up prices, and lower

socioeconomic status immigrants contributing to lower property values as natives sort elsewhere. Our paper contributes to this rich literature by offering another mechanism by which immigrants impact local housing markets differentially; through their taste for homeownership. Fewer papers have studied the housing choices of immigrants themselves. There is a rich literature on wage and income integration of immigrants in the US (see Card (2009) for a review), and recent work shows successful integration varies over time based on labor market opportunities (Collins and Zimran, 2023). Recent work on second generation immigrants shows high rates of upward mobility among most U.S. immigrants (Duncan and Trejo, 2018; Abramitzky, Boustan, Jacome, and Perez, 2021) both recently and historically. We contribute to the literature on integration and upward mobility by documenting that many immigrants do not achieve homeownership integration in the first generation, or even the second. Indeed, even immigrants who arrived in the U.S. as young children never achieve native rates of homeownership. Studying homeownership outcomes directly, Borjas (2002) documented that immigrants own homes at much lower rates the natives in the US, and that controlling for location choice only closes part of the gap. He notes that the gap exhibits wide variation by origin country, but remains agnostic as to the driver of this origin-country-specific gap. More recently, Marcén and Morales (2020) identified a potential source of this cross-country variation, showing that immigrant's homeownership rates in the US in 2015 are correlated with those in their country of origin. We confirm this work by showing that immigrants' transition to homeownership depends on the cultural norms around homeownership abroad.

We contribute to the growing literature studying take up of credit among marginal homebuyers. This literature began with the acknowledgment that many of the policies expanding access to credit in the mid-2000's, such as private label securitization and exotic mortgage structures, lead to increased homeownership transitions among marginal homebuyers. These subprime homebuyers defaulted on their mortgages at historic rates, driving much of the housing bust during the Great Recession Mian and Sufi (2009); Bhutta (2015). Bayer, Ferreira, and Ross (2016) found that many of these marginal homebuyers tended to be racial minorities, with large populations of black and Hispanic borrowers newly taking up credit and subsequently defaulting. We document that a subset of immigrants look to be similarly marginal in their responses to mortgage credit expansion, potentially exposing them to default risk, or on the upside, large increases in housing wealth, depending on their market timing.

Finally, we add to the growing understanding of how homeownership interacts with households' broader wealth formation and portfolio choice. This is an old literature, yet notably difficult to improve on, as very few datasets offer comprehensive surveys of households financial *and* housing portfolios. Cocco (2005) solves and optimal portfolio allocation problem for consumers, conditional on owning a home, and finds using simulated data and a model calibrated using data from the Panel Study of Income Dynamics (PSID) that house price risk crowds out stock market participation, though this is attenuated among those with higher net worth. In related work, Yao and Zhang (2005) take one step back, endognizing the tenure choice decision, and find that owners have lower equity shares relative to renters, again using a model of optimal portfolio decisions parameterized

with PSID data. Moving to a more empirical literature intent on identifying cuasality, Chetty et al. (2017) exploit plausibly exogenous variation in households' debt and equity positions in their homes arising from differential house price growth and supply elasticities. They reconcile the prior literature by showing that changes in house *prices* reduce stockholdings, the correlated risky asset effect, while lowering a household's debt (increasing its equity position) results in higher stockholdings, a wealth effect. Most recently, Sodini, Van Nieuwerburgh, Vestman, and von Lilienfeld-Toal (2023) use rich datasets on demographics, housing, finances and debt in conjunction with a natural experiment in Sweden in which municipalities decided whether or not to privatize public housing. After endowing a household with homeownership, the authors find overwhelming benefits to homeownership in their setting: homeowners accumulate more wealth and allocate a higher share to risky assets. Complementing this literature, we exploit plausibly exogenous variation in the ownership decision, one's endowed cultural norms, to study households sensitivities to credit cycles. We find that exogenously increasing one's homeownership preference exposes households to more house price volatility, yet households do not seem to compensate for that by lowering their risky asset portfolio shares. In contrast to the Swedish setting, this may be explained by the differential direct stock market participation: according to the Survey of Health, Ageing and Reitrement in Europe, 44% married couples in Sweden directly participate in the stock market, while according to the Survey of Consumer Finances, only 26% of couples in the U.S do so. Overall, owning a home in the U.S. context does not seem to impact households' stock market participation, perhaps reflecting that for most households in the U.S. the costs of participation outside of a retirement or pension plan seem to be quite high.

We proceed with Section **??**, which grounds affinity for homeownership in a simple model of tenure choice under borrowing constraints. Section III follows, which describes how we collect and build our data. Section IV outlines our estimation strategy establishing immigrant norms' impacts on household-level homeownership, and reviews our results. Section V outlines how we measure immigrants' homeownership responses to credit supply shocks and discusses our findings. Section VI examines how an affinity for homeownership impacts portfolio allocations at retirement. Section VII concludes.

II. Theoretical Framework

We first develop a stylized model of tenure choice incorporating an affinity for housing into a user cost model, and later add borrowing constraints. We consider housing consumption to be exogenous in order to keep the model tractable and extend the model in Brueckner (1986).

To provide the basic intuition, first consider a static tenure choice problem: a household decides whether to rent, in which case its consumption x^R, net of rent payments Q and taxes t is

$$x^R = (1-t)y - Q,$$

where y is the household income. If the household decides to become a homeowner instead, it has

to make a down-payment αP, where P is the house price, at the beginning of the period, which has an opportunity cost r.[3] The household finances the remainder $(1-\alpha)P$ of the house price with mortgage payments at interest rate r, which are tax-deductible, sells the house again at the end of the period for price P and receives back its equity αP. Moreover, the household experiences a cultural cost of being a homeowner ϕ, which represents the degree to which cultural benefits of homeownership (e.g. pride, sense of security, control premium) offset the additional costs of homeownership (e.g. mental burden, lower mobility, time cost of maintenance). Households from groups with a relatively high cultural affinity for homeownership will experience a lower cost of homeownership. Consumption for homeowners is therefore

$$\begin{aligned} x^H =& (1-t)(y - \alpha r P - r(1-\alpha)P) - \alpha P + \alpha P - \phi \\ =& (1-t)y - (1-t)rP - \phi \end{aligned}$$

Note that the initial equity payment and later return of principal net out and that the need to finance the equity payment means that the household effectively pays interest on the full purchase price. For now, we are implicitly assuming that the household has no wealth or financing constraint in coming up with the downpayment - and we will modify this assumption later. Imposing a zero profit condition for landlords, such that $Q = rP$, this means that households are indifferent between owning or renting if

$$trP = \phi,$$

and households with relatively high tax advantages (high t) or high affinity for homeownership (low ϕ) will choose to own rather than rent. A common way of visualizing this "user cost" approach to tenure choice is to plot user costs for owners and renters over tax rates. Figure 3 illustrates the trade-off in this static version of the model: the owner-occupied user cost declines with the household's marginal tax rate, while the rental cost does not vary with tax rates. Therefore, there is some tax rate t^* above which households choose to own and below which they rent. However, the location of this indifference point is shifted by the cultural affinity for homeownership. A household with a lower mental cost (higher cultural norm or affinity) of homeownership will have an owner-occupied user cost curve that is shifted down for all tax rates, leading to a lower indifference point t^{**} above which a household chooses to own rather than rent. That is, *higher affinity for homeownership results in higher homeownership rates.*

The model built thus far has two testable implications we take to the data in Section IV. First, those households with a high affinity for homeownership should have lower user costs than those with lower affinities; however, since ϕ is unobserved to the researcher, along with many other standard inputs to user costs not outlined above (such as the opportunity cost of downpayments, or the household's risk premia) , we cannot credibly construct household level user costs without significant noise. Instead, we study how homeownership rates vary with affinities. Intuitively, households with lower user costs of owning will more often select into homeownership. The model's second implication is that between t^{**} and t^* the probability that a household owns its home is

increasing in ϕ; below t^{**} everyone rents, and above t^{*} everyone owns. These thresholds are of course simplifications for two representative households, such that empirically we should observe, for a given tax rate, immigrant households with stronger cultural norms favoring homeownership will own at higher rates all along the tax schedule.

Saving for downpayments. In order to evaluate the role of changes in credit supply and how they interact with this cultural norms for homeownership, we need to make the model dynamic and introduce a role for the downpayment constraints α which did not matter in the static version. We do so by adding a period in which households need to save for the downpayment in the subsequent period, following Brueckner (1986). Now, households first live through a period 0 in which all households are renters, earn their income and can save for period 1. In period 1, they have the choice to become homeowners as before, but now have to finance the downpayment αP from their (weakly positive) savings s in the previous period. Moreover, any excess savings are invested with taxable returns r during period 1 and are available to be consumed at the end of the period.

Thus, in period 0, consumption of all households - whether future renters (R) or homeowners (H) - is given by

$$x_0 = (1-t)y_0 - s - Q$$

where households may choose different savings rates s^R or s^H depending on their optimal tenure choice in the following period. The period 1 consumption amounts then become

$$\begin{aligned} x_1^R &= (1-t)y_1 + (1+(1-t)r)s^R - Q \\ x_1^H &= (1-t)y_1 + (1+(1-t)r)s^H - (1-t)rP - \phi, \end{aligned}$$

where x_1^R and x_1^H denote the consumption of households that choose to rent and own, respectively, and $s^H \geq \alpha P$ needs to hold for the homeowner.[4] Each household maximises the objective function

$$u(x_0) + \theta u(x_1)$$

where $u(\cdot)$ is a strictly concave utility function and θ is the discount factor. We assume that owning always dominates renting for households for whom the downpayment constraint is not binding (i.e. for which $s^R \geq \alpha P$), and focus on the households for which the constraint is binding ($s^H = \alpha P$). The owner-renter utility differential for these constrained households is given by

$$\Omega = u(x_0^H) + \theta u(x_1^H) - u(x_0^R) - \theta u(x_1^R).$$

If we think of a mortgage credit supply change as a change in the downpayment requirement α, we can derive the resulting change in the homeowner utility for constrained households (substituting $s^H = \alpha P$):

$$\frac{\partial \Omega}{\partial \alpha} = P\left(-u'(x_0^H) + \theta(1+(1-t)r)u'(x_1^H)\right) < 0,$$

where the inequality follows from the fact that when the downpayment constraint is binding, s^H is

higher than optimal and moves further away from its optimal level if the downpayment requirement increases. That is, higher downpayment requirements - a tightening of mortgage credit - reduce the utility from homeownership holding other parameters constant.

How does this effect of a tightening of mortgage credit supply vary with household affinity for homeownership? Differentiating with regard to the cultural cost of homeownership ϕ, we find

$$\frac{\partial \Omega}{\partial \alpha \partial \phi} = -P(1 + (1-t)r)u''(x_1^H) > 0,$$

so for households where the cost ϕ is larger, i.e. they have a *lower* affinity for homeownership, the negative impact of an increase in downpayments is mitigated, while higher affinity households experience a larger utility decline after mortgage credit tightens. Intuitively, households with a higher consumption benefit from being homeowners in the later period would benefit more from smoothing their consumption by shifting some consumption towards the earlier period when they are renters. However, a downpayment constraint requires them to lower consumption in the earlier period in order to save so they can afford to become homeowners. A higher downpayment constraint – and therefore higher required savings – lowers relative consumption in the earlier renter period even more for future homeowners. This leads some households to stay renters and forgo the painful period of low consumption and high savings that becoming a homeowner entails. This decline in the relative attractiveness of becoming a homeowner is stronger for high homeownership propensity households because they will already, on average, have chosen homeownership even at lower consumption levels in the first period, and pushing that level of early period consumption lower is therefore more painful for them.

This simple model shows how *households with high affinity for homeownership can see a bigger increase in their homeownership in response to an increase in mortgage credit supply than lower affinity households* - which is what we will test empirically in section V.

III. Data

A. Measuring Endowed Affinities for Homeownership

The concept of "cultural norms" is not ex-ante well defined, but can be thought of as the mass lived experience or expectations around a given institution in a specific culture (or in this case, country). For example, Blau et al. (2011) use the relative female-to-male labor force participation rates in origin countries as a measure of cultural norms around women's labor supply. The assumption here being that women from countries with high relative labor force participation expect or are used to working at higher rates, even as they move to the US. On the other hand, since high-quality data on corruption by country is hard to come by, Fisman and Miguel (2007) proxy for cultural norms with a corruption index built from country-specific variation in unpaid parking tickets in NYC among diplomats shielded from repercussions by diplomatic immunity. This revealed preference (or tolerance) for corruption approach assumes that corrupt behavior in the US

among foreign diplomats is related to the country-of-origin's norms around corrption.

Since we can confidently observe *both* homeownership rates in origin countries and in the US, we hew closer to Blau et al. (2011) and define homeownership norms to be the rate of homeownership in one's country of origin. We use a number of different approaches to try to measure the reference homeownership rate in the country of origin that is relevant for understanding tenure choices by U.S. residents of different ancestry.

Homeownership rates in country of origin: One of the key concerns in measuring homeownership across countries is whether statistics provided by different national and international organizations measure the same concept and whether the sampled populations are representative of the underlying population. Moreover, to the degree that residents in different life stages will have different peers and reference groups in their home country, we need to take into account heterogeneity in homeownership within countries as well. To address these concerns, our main approach for constructing homeownership rates in the country of origin follows Marcén and Morales (2020) in using harmonized international census microdata from IPUMS (Center, 2020) to construct our own homeownership rates for comparable subgroups within each country. In particular, for each country we retain households where the head is 18-69 years old, and categorize each household further by the marital status of the household head.[5] We compute separate homeownership rates for each marital status in the expectation that homeownership reference points related to these major life events most cleanly transfer to the cultural expectations of U.S. residents. Where countries have multiple census years available in IPUMS, we retain the sample that is closest to the year 2015. After dropping 5 censuses that had implausibly low average homeownership rates,[6] we are left with homeownership data by marital status for 70 countries of origin in the US census data. This baseline sample contains origin country data covering 72% of the birth places of all the foreign-born in the U.S. in the year 2000. Table I shows example data for the largest country of origin groups in the U.S. covered by this data. Note that variation in the mapping between households in the U.S. and origin-country homeownership rates can come either from variation in the homeownership for different marital statuses in their country of origin, or from variation in the marital status distribution among household heads from that country residing in the U.S.

Alternative homeownership statistics: As a robustness check, we also hand-collected data on average national homeownership rates (not disaggregated by marital status or age) from various international organizations and government statistics agencies. We were able to find data for 62 countries through this method (see Appendix Table AI for an overview of the sources for the most important origin countries).[7] In the 50 countries where these two samples overlap, the correlation between the national average homeownership rates obtained through both methods is 87%.

B. Other Origin-Country Characteristics

Country economic characteristics: In order to analyze the drivers of homeownership in origin countries, we also collect a cross-sectional data set of country characteristics from official data sources. In particular, we collect data on GDP per capital, inflation rates, urbanization rate,

and domestic credit for 2000-2020 from the World Bank's World Development Indicators. In addition, we also use indices of property rights protection and investment freedom from the Heritage Foundation for the years 2000-2008.

Country relative risk premia: In analyzing portfolio allocation among immigrant groups, we want to control for the confounding factor that countries with high homeownership rates may also have correlated risk premia. We collect relative risk premia, as well as ambiguity aversion data on 59 countries from Rieger, Wang, and Hens (2015).

Country investment participation rates: A second concern in analyzing eventual portfolio allocation is that different countries not only have homeownership norms, but also stock market participation norms. To the extent that these norms are correlated, our portfolio hypotheses may suffer from omitted variable bias. We use data from the Survey of Health, Aging and Retirement in Europe (SHARE) to construct rates of participation in various investment vehicles for 29 European countries. We construct variables measuring the share of survey participants owning bonds, holding individual retirement accounts, owning mutal funds, owning stocks directly, as well as holding stocks directly or indirectly (for example through their mutual funds or retirement accounts at least 50% allocated to stocks). Countries' participation in the survey varies by year, so to gather the longest coverage, we use survey waves 1, 2, 4, 5, 6, 7, and 8. Wave 3 did not include the portfolio allocation module.

Major religion by country: To assess the role of particular determinants of culture, we also collect a data set of the major religion of each country in our sample. We start with data from the United Nations Statistics Division on a country's population by religion. We combine different religious denominations into the categories Christianity, Islam, Buddhism, Hinduism, and other (which includes Atheists and Agnostics), and assign to each country the category with the largest population share. However, this data set only covers about half of the countries in our sample. For the remaining countries, we manually collect data on their major religion by accessing Wikipedia (and the CIA World Factbook where Wikipedia is not sufficient) and assigning the religion category that describes the largest population share reported there. While this is straightforward for most countries, for some (e.g. China) official sources are not clear on which of the major religions best describes the majority practice in the country. When in doubt, we assigned "Other" to those cases.

C. Tenure Choice and Household Finances

American Community Survey (ACS). In order to measure household-level tenure choices for foreign-born U.S. residents, we use microdata from the American Community Survey for the years 2005-2019.[8] This is a repeated cross-section of a representative sample of U.S. households, which contains ∼3.4 M households with foreign-born heads who are 18-69 years old whom we are able to match to homeownership rates in their countries of origin. The key variable in this data set for our analysis is the measure of whether the household owns the home that it lives in. In addition, this data allows us to measure the characteristics of the head's spouse, including their country of origin, which enables analyses that measure the effect of within-family differences in origin countries on

household tenure choices. Moreover, we construct the following control variables at the household and individual level from this data: household income, education of the household head and their spouse, years since immigrating of the head and their spouse, age and gender of the head and their spouse, number of children living in the household, race of the household head and marriage status.

American Housing Survey (AHS). We augment the ACS data with data from the American Housing Survey. The AHS is also a repeated cross-section, but instead of surveying a representative sample of households, its focus is on a sample of housing units. We use data from 2001-2019, covering ten waves of the biannual survey, which yields 175k households over 585k observations. We have foreign homeownership preferences for about 30k of the households with foreign-born heads. Like in the ACS, we observe many socioeconomic and demographic characteristics of the households, including household income, education of the household head, years since immigrating of the head, age and gender of the head, number of children living in the household, and marriage status. While the ACS microdata provides us with a public use microdata area (PUMA) which we can map to a commuting zone, the AHS data only provides 15 core-based statistical areas (CBSA), or a catch-all non-CBSA code. The AHS also provides detailed data on mortgage origination and other financial characteristics of the household.

Survey of Consumer Expectations (SCE). In order to measure user costs and housing market expectations, we gather data from the SCE's 2013-2019 waves. This data allows us to construct one-year house price and rent expectations by year, state, age, household income, household head age, and household head education level cells.

D. Inputs to Liquidity Shocks

Mortgage market. In order to measure local mortgage market outcomes, mortgage lending by lender, and to construct mortgage market liquidity shocks we use data collected under the Home Mortgage Disclosure Act (HMDA). We obtain the loan-level data for 2007-2017 from the Consumer Financial Protection Bureau's website, which provides information on the lender and location of the property as well as property and loan characteristics, and supplement it with loan-level data for 2004-2006 available from the National Archives. We match lenders to their parent company using the crosswalk maintained by Robert Avery[9] and aggregate the data at the level of total loans and loan volume by lender-county-year. We retain only first-lien purchase loans that were originated for single-family (1-4 units) site-built properties that are owner-occupied, in order to focus our analysis on the type of lending that is most likely associated with a household's transition into homeownership. This data is available from HMDA for 2004 onwards and we are therefore able to construct a panel of lender-county-year data for 2004-2017.

E. Portfolio Allocations

In order to study the long-run household portfolio consequences of an affinity for homeownership, we use data from the Health and Retirement Study (HRS), which is provided by the University of Michigan (2024). This data set is uniquely useful for our question of how tenure choice preferences

affect household portfolios in the long run, as it (1) is a nationally representative survey with detailed information about household finances, (2) captures household portfolios at the age of retirement, and (3) contains information about the country of origin of foreign-born participants. We obtain access to the restricted version of the HRS data that allows us to link current participant location and national origins to their financial information. This data allows us to provide some of the first information about differences in the end-of-working-life portfolios of immigrants from different origin countries.

Within the HRS, we use the RAND HRS Longitudinal data (which combines and standardizes information from different waves) and, in order to make the included households comparable, focus on married / partnered households, for which we retain one person (the financial respondent where applicable). Among persons representing a household, we keep only respondents that are 55-65 years old at the time of at least one survey wave and we find the survey wave that comes closest to them being 60 years old. We construct a number of different variables characterizing their retirement portfolio size and composition and real estate ownership, and merge this information with their country of origin information, including the HOCO data that we have collected. See Appendix B for further detail on variable construction and data transformation in the HRS.

The key outcome variables that we focus on are whether households own real estate in their retirement portfolio, the value of that real estate, the value of different components of their household wealth and the share allocated to risky assets in the form of stocks.

IV. Endowed Affinities' Impact on Tenure Choice

In order to establish the baseline effect of homeownership in the country of origin on tenure choice in the U.S., we use household-level data to estimate specifications of the following form:

$$HO_{ht} = \gamma HOCO_{ht}^{head} + \beta' X_{ht} + \zeta_{CZ,t} + \varepsilon_{ht} \tag{1}$$

Here, $HOCO_{ht}^{head}$ is the homeownership for householders of the same marital status in the country of origin of the household head if the head is foreign-born; X_{ht} is a vector of control variables consisting of household and individual characteristics; $\zeta_{CZ,t}$ represents fixed effects controlling for common variation at the commuting zone or year level. In fact, the full specification for most of our analyses flexibly includes commuting-zone-by-year level fixed effects, which control for the fact that immigrants might sort into cities with trends in housing markets or local labor markets that also affect homeownership rates.

To highlight the geographic variation underlying our analyses, Figure **??** shows the geographic distributions of homeownership rates and foreign-born shares. Each map is divided into four, population weighted, quartiles.

Panel (A) shows the distribution of foreign born population shares across U.S. counties. The darkest shaded quartile of counties have foreign born populations comprising at least 21% of their population; the lightest have foreign born populations lower than 4% of their totals. California,

Texas, and Florida all have significant foreign born population shares; however, we observe foreign-born pockets in most states. Atlanta, GA, Raleigh-Durham, NC, central Washington state, and Colorado show that immigrants do not just locate in highly agricultural, or very urbanized areas.

Panel (B) shows that homeownership rates are highest in the midwest and mid-Atlantic states, with homeownership rates dropping along the West Coast, and around expensive metropolitan areas such as Miami, Boston and New York City. The bottom quartile covers counties with homeownership rates of up to 63%, and the top quartile has counties ranging from 77–91%. The maps display how a focus on the goal of a 65% national homeownership rate masks wide variation in county level data, with zip code level data showing even more heterogeneity.

In this section, we establish that there is indeed an effect of homeownership in the country of origin (HOCO) on immigrants' tenure choice in the U.S., and that this effect is robust to plausible confounding effects.

A. Results: Baseline household level effects of HOCO on homeownership

To determine the size of the effect of country-of-origin homeownership on tenure choices among foreign-born U.S. residents, we estimate equation 1 in the household level ACS data. The results are shown in Table II. Each column shows the estimated effect of homeownership in the country of origin of the household head, matched by marital status, on whether the household owns their home in the U.S. The first column shows the raw association between the two variables, while the second column flexibly controls for a large number of characteristics of the household, such as income, household size, children, years since immigration, and age and education of the household head. These control variables capture other factors that we already know drive tenure choices. Additionally, they address the concern that immigrants from countries with high homeownership rates may be incidentally selected with regard to characteristics that drive higher homeownership rates in the U.S, such as being high-income. That the relationship survives these controls and remains statistically significant, shown in column 2, suggests a direct link between the homeownership experiences in immigrants' origin country and their choices in the U.S.

The following columns of Table II additionally control for the possibility that immigrants from higher homeownership countries might be sorting into labor markets or housing markets (here captured by commuting zone boundaries) that are more or less conducive to homeownership on average or which experience rising homeownership rates during the years in the sample. Column 3 adds commuting zone fixed effects and column 4 allows for commuting zone-by-year interacted effects. That is, the estimate in column 4 identifies only off within-labor-market variation in tenure choices within each year between immigrant households that are identical with regard to their observable characteristics noted above, except in the household head's country-of-origin. In our most conservative specification, we estimate the elasticity of homeownership with regard to *HOCO* to be 16% and this estimate is significant at the 1% level.

To put this number in perspective, note that it means the interquartile range of *HOCO* across households in our sample, which is between 58 ppt and 76 ppt, is associated with a 2.9 ppt difference

in homeownership rates. For comparison, this represents $\sim$ 13% of the interquartile variation in homeownership across U.S. zip codes, or 18% of the gap in homeownership rates between native and foreign born households (or 40% of the gap conditioning on all the controls in Table II).

To visualize how this effect is driven by different countries, we can aggregate the residualized household homeownership rates and marriage status *HOCOs* to the origin country group level. We plot the relationship between the two variables in Figure 2. The top graph shows the raw averages of homeownership in the U.S. among foreign-born residents, plotted over the averages of the marital status matched *HOCOs*. The lower graph residualizes these variables with regard to the full set of control variables in column 4 of Table II before aggregating. While the marker sizes are not weighted by number of households in the U.S., both graphs use a weighted-linear fit overlaid in the dashed red line, which accounts for differential numbers of immigrants from origin countries. These graphs make it clear that homeownership rates vary widely between countries, with average rates conditional on marital status of more than 90% in Romania, Hungary, and Cambodia at the upper end, and rates below 50% in Turkey, Ghana, and Switzerland at the lower end.

It is reassuring that no obvious grouping of countries by geography or wealth emerges from these graphs. For instance, several low-income countries can be found both among the highest and lowest *HOCO* and U.S. homeownership countries. Moreover, the most visible outliers from the fitted linear relationship in the residualized graph are Switzerland and South Sudan, which only constitute 0.14% and 0.0009% of the U.S. foreign-born population.

B. Robustness to other country-of-origin characteristics

An important concern with regard to the mechanism for our findings in Table II is that they may reflect omitted variable bias arising from immigrant households bringing other aspects of the lifestyle or economic situation of their country of origin with them, which then incidentally affect their homeownership in the U.S., without a particular preference over the latter. We consider a number of plausible home country characteristics that might be driving homeownership both in the U.S. and the origin country – the unconditional correlations of which with origin country average homeownership rates are shown in Figure BI: On the one hand, we consider economic characteristics, such as GDP per capita, urbanization rate, annual inflation rate, and domestic credit to private borrowers as a share of GDP. These capture the idea that low wealth, exposure to economic risk, urban lifestyles, or a lack of access to credit may all keep homeownership in the country of origin artificially low, and this lack of resources and lifestyle choices may be replicated in the immigrants' experiences in the U.S. Note, for example, that homeownership is unconditionally negatively correlated with urbanization at a country level as shown in Figure BI.

On the other hand, the legal system and property rights may make homeownership a more or less attractive investment relative to the security of, and access to, other assets. The persistence of the resulting attitudes towards homes as part of a household portfolio may be part of the cultural differences that explain immigrants' homeownership in the U.S. To capture these dimensions, we consider indices of property rights and investment freedom created by the Heritage Foundation.

As can be seen in Figure BI, these indices are highly positively correlated with GDP per capita and urbanization, and associated with lower inflation. Moreover, some studies suggest that religion may play a role in tenure choices (e.g. Das, Coulson, and Ziobrowski (2019)), so we also test how including fixed effects for which of the major religions predominates in the country of origin affects the results.

We test the importance of these confounding country-of-origin characteristics by sequentially including each of them as control variables in the full specification of column 4 of Table II. The results are shown in Table AII. The results are intuitive: while accounting for religion lowers the effect size a bit (as it correlates strongly with broader regions of origin), the effect is still large and significant (column 1); GDP per capita, urbanization share and country-of-origin inflation do not significantly affect homeownership (column 2-4), in line with the findings in Malmendier and Steiny (2019), and private credit availability has a positive effect (column 4). When all of the country characteristics are included jointly, only urbanization has a significant (and positive) effect on U.S. homeownership. Importantly, the *HOCO* effect on U.S. homeownership is consistently positive and significant in all specifications, and the magnitude of the coefficient is slightly bigger and more precisely estimated even when all country characteristics are controlled for (column 7). This is not too surprising, as our baseline specification already includes a rich set of household characteristic controls and any other country-of-origin effects would have to operate through a channel that is orthogonal to those observables.

C. Household-level effect heterogeneity and additional robustness checks

Heterogeneity by household characteristics. It is possible that the strength of the influence of the country of origin on U.S. tenure choices depends on the characteristics of the household head. To explore this possibility, we estimate additional specifications that interact the *HOCO* variable with indicators of the householder's gender, education, and length of residence in the U.S. The results are shown in the first two columns of Table AIII. We find that the effects of *HOCO* on households headed by men are smaller by about a quarter of the original effect size. (column 1). Similarly, the effect is reduced by about a third for college-educated householders (column 2).

Robustness checks. One concern with our *HOCO* effect estimation may be that there is reverse causality: immigrants move to the U.S. *because* they acquire a home, for instance as an investment, and that home purchase may be driven by recent real estate dynamics in their country of origin that are correlated with, but not driven by, the homeownership rate in that country. However, in that case we would expect the *HOCO* effect to be highest among recent movers. In contrast, if the *HOCO* effects represent something more like the expression of a cultural reference point at different life stages, immigrants would be expected to take a couple of years to establish themselves in the U.S. before taking the decision to settle somewhere and buy a home in line with their *HOCO*. We test these ideas in column 3 of Table AIII by comparing the *HOCO* effect among immigrants who arrived in the U.S. less than 10 years before the survey, and long-term residents who have been in the U.S. for a period of more than 10 years. The results show that the

HOCO effect is significantly larger among long-term foreign-born residents, and smaller and not statistically significant among recent immigrants.

Another potential concern is that immigrants from particular countries are *selected* with regard to their tendency to buy a house when in the U.S. relative to their country of origin. For example, if migrants from high homeownership origin countries tend to be selected to be particularly wealthy or more educated than average, e.g. because only the elites of low-income countries are able to pay the costs associated with migrating, then these selected characteristics might drive homeownership in the U.S. rather than the homeownership rates in the origin country. This concern should be mitigated by the fact that our baseline regressions already directly control for foreign-born households' income, education, and household size, such that any such selection would have to be orthogonal to these observables. However, to additionally ensure that our results are robust to the *average* characteristics of migrants from that origin, column 4 shows a version of our regression where we also control for the average share of college-educated household heads, mean household income, mean number of children and mean household size among migrants from that origin country. In addition, we control for the GDP per capita of the origin country, in case immigrant selection is driven by the economic opportunities in the country of origin. Given that some of these migrant characteristics may actually be affected by homeownership, they may represent "bad controls" (Angrist and Pischke, 2008) that shut down the causal channel of interest – and the estimates including these controls should therefore be interpreted with caution. As the results in column 4 show, while the estimated effect size is reduced when including these additional controls, it is nonetheless statistically significant and implies an elasticity of 11% of U.S. tenure choice with regard to the household *HOCO*.

As Table I shows, the share of U.S. migrants from different origin countries is highly concentrated. As a result, it is important to establish whether our *HOCO* effect estimates are driven by idiosyncrasies of the biggest origin countries or also hold for the smaller foreign-born origin groups in the U.S. In column 5 of Table AIII, we therefore exclude any households with heads from one of the top 5 countries included in our data (Mexico, Puerto Rico, Philippines, Canada, Vietnam)[10]. The results show the estimated *HOCO* elasticity for this smaller sample is still 10% and significant at a 1% level, which suggests that the large origin countries are not driving the baseline results.

Our measure of homeownership preferences assigns *HOCO* measured in international census microdata by household head marital status. We explore two variations: on the one hand, many origin-country specific selection effects that might be driving our results, e.g. the wealth of migrants, are likely less correlated in their effect to the marital status-specific homeownership rates in the country of origin, even if they are correlated with overall homeownership rates in the origin country. In column 6, we show that if we replace our *HOCO* measure with the average origin country homeownership rate estimated from census data - without accounting for marital status - that makes the effect estimate smaller, noisier, and no longer statistically significant. This means that any concern over *HOCO* being a proxy for a different driver of U.S. tenure choices would require that omitted variable to be not just driving overall homeownership for migrants from that origin

country but instead to operate in a way that differs across marital status groups.

In column 7, we show that our results are not due to mismeasurement of *HOCO* in the international census microdata. We hand-collect average national homeownership rates from official government sources or international organizations like the OECD. While this sample covers a smaller number of countries (62, compared to 74 in our microdata sample), it *does* include China and India, which are the origin countries for a large share of U.S. foreign-born residents, and which are not included in our baseline sample. The *HOCO* constructed from the national average homeownership rates in this alternative data set still has an effect on U.S. tenure choice that is significant at the 10% level, and the estimated effect size of 16% is again very similar to our baseline estimate using the microdata *HOCO* by marital status.

The other concern around sample selection may be that the American Community Survey household data has a sampling methodology or differential response rates that correlate both with *HOCO* and U.S. tenure choices. In column 8, we instead use data from the American Housing Survey, which collects a much smaller sample using a different methodology focused on being representative of housing units in the U.S. and tracking them over time. When we estimate our baseline effect in this separate data set of only $\sim$ 46K foreign-born householders, we obtain an estimated *HOCO* elasticity of 15% that is significant at the 5% level, so our baseline effect does not seem to be driven by methodological idiosyncrasies of the ACS sample.

Second-generation immigrants. In addition to the robustness checks above, we can also focus our analysis on a subgroup of foreign-born immigrants that are unlikely to be selected to immigrate based on their own unobservable characteristics, but may nonetheless be culturally influenced by the attitude towards homeownership in their country of origin: second-generation immigrants. While the ACS data does not allow us to identify countries of origin for the parents of residents born in the U.S.,[11] we can identify immigrants who came to the U.S. as children (18 years old or younger), and consider whether our results hold for this subgroup. Appendix Table AIV shows that even though the sample size is substantially reduced for this analysis, the pass-through of HOCO to the children's decision to own a home as adults later in life is only modestly attenuated. We estimate that immigrants who arrived as children have a 12% passthrough of homeownership attitudes from their country of origin.

D. Running the Cultural vs. Financial Horserace

As a final concern, it may be that those immigrants arriving in the US from countries' with high HOCOs may have more experience in housing markets, and be better able to evaluate when homeownership, vs. renting, is a good financial opportunity. In the event this is true, we would be attributing homeownership in the US to HOCO incorrectly, when it is actually due to financial sophistication among this immigrant group.

To test whether immigrants' understanding of the housing market landscape or their HOCO drive homeownership in the US, we constuct measures of housing market expectations and outside options. First, we obtain the 1-year house price and rent growth expectations fro the Survey of

Consumer Expectations (SCE). In order to merge these expectations with the AHS data, which we use to measure homeownership, we average price and rent expectations within demographic, socioeconomic, year and location cells. Specifically, we average expectations within the following data cuts: income $\in <\$50k, \$50k-100k, >\$100k$, education $\in HighSchool, SomeCollege, College$, age $\in <40, 40-60, 60+$, year and state. For example, we observe that among college-educated households earning \$50k-100k, aged 40-60, living in California in 2015, the average expected house price growth is 5.6%. We also construct the 2-year lag in price and rent expectations in accordance with the odd-year survey wave structure in the AHS. This allows us to accomodate momentum in price and rent expectations within a given cell.

Next, we construct a measure of owners' outside option in the rental market. When considering whether to buy a home, the competing option to stay a renter. At first glance, this may suggest controlling for some measure of the distribution of rents within a given market and year; however, the composition of properties in the rental market differ from those in the owner-occupant market. Owner-occupied homes tend to be larger, with an average of 3.2 bedrooms, 2 bathrooms, and 1,499-1,999 ft^2 vs. 2.1 bedrooms, 1.3 bathrooms, and 999-1,499 ft^2. To construct counterfactual rents for a given owner-occupied home, we proceed in two steps: first, we estimate a hedonic model of rents to decompose each property characteristic's contribution to total rent. Second, we predict counterfactual rents for each owner-occupied unit using the hedonic pricing function estimated in the rental stock. This is still limited in providing counterfactual rents for owner-occupied homes that are particularly large or special, as these are the ones for which the rental market has no characteristic space support.

We run the following hedonic rent regression among rental households, h, in year t:

$$\begin{aligned} Rent_{ht} = \beta_1 Beds_{ht} + \beta_2 Baths_{ht} + \beta_3 LotSize_{ht} + \beta_4 UnitSize_{ht} \\ + \beta_5 Decade_{ht} + \beta_6 Garage_{ht} + Type_{ht} + \xi_{CBSA,t} + \varepsilon_{ht} \end{aligned} \tag{2}$$

$Rent_{ht}$ is the monthly rent household h pays in year t. All of the property characteristics are categorical variables, as none of these are available continuously. $Beds_{ht} \in \{1, 2, 3, 4, +\}$; $Baths_{ht} \in \{1-1.5, 2-2.5, 3+\}$; $LotSize_{ht}(acres) \in \{N/A, <1/4, 1/4-1, 1+\}$ where an "N/A" lot size applies to mulitfamily units; $UnitSize_{ht}(ft^2) \in \{<1,000, 1,000-1,999, 2,000-2,999, 3,000+\}$; $Decade_{ht} \in \{<1990, 1990-1999, 2000-2010, 2010-2019\}$ and refers to the decade the unit was built; $Garage_{ht}$ is an indicator for whether the unit has a garage, carport, or designated parking; and finally $Type_{ht} \in \{SingleFamily, 2-9Units, 10+Units\}$. Additionally, we add CBSA-by-year fixed effects to control for local market rent cycles that may move rents beyond the units' characteristics.

Once we've estimated the hedonic rent regressions on the subsample of renters for 2001-2019, we can predict counterfactual rents for the owner-occupied units by combining the rent contributions of each housing characteristic. This allows us to estimate a different rent distribution for the owner-occupied units, as they tend to have different characteristics than rental units. We interpret these rents as what owner-occupants would have expected to pay had they chosen to continue to rent a

house of the same quality and type, but admit these rents may not have been available to many households seeking specific product types. Nevertheless, we find that the average owner-occupied unit in our sample would expect a rent of $1,157 per month, 32% higher than the realized rents paid by for renter-occupied units, at $871 per month. This divergence highlights the limitations of using market rents without taking into consideration the differences across tenure in local composition of the housing stock.

With house price expectations, rent expectations, and counterfactual rents in hand, we can formally test whether HOCO is just a proxy for financial sophistication or preferences for housing units that only exist in the owner-occupied housing stock. In short, we want to run a horse race between the financial (available choice set as proxied by counterfctual rents; housing market expectations) and the cultural (HOCO) in determining whether immigrants choose to own homes. In order to do so, we implement Equation 1 in the AHS-SCF merged sample (which contains expectations and characteristics the ACS sample does not), adding our financial horse race variables one by one. We present the results in Table III. Column (1) presents the baseline equation, only regressing homeownership rate in the US on HOCO, and yields the familiar 12.4pp passthrough, similar in magnitude to the main ACS results in Table II. Columns (2) - (5) add in rent and price expectations, as well as a 2 year lag of each (to match the AHS survey structure of only surveying in odd years). High expected price and rent growth are associated with lower homeownership rates, likely reflecting the fact that these are inelastically supplied housing markets where homeownership rates tend to be lower. Column (6) includes our measure of the rental market outside option for each owner-occupied home; for renters it remains the actual rent paid. Price expectations do not seem to contribute to homeownership rates, likely as these are capitalized into prices and returns. Rent expectations do survive the horse race, and show that areas with high rent growth tend to see lower homeownership.

Importantly, across all specifications, HOCO remains statistically significant and of similar magnitude; we cannot statistically differentiate the point estimates on HOCO in columns (1) vs. (6). These results suggest that HOCO remains an important determinant of immigrant's homeownership preferences in the US, and cannot be explained away by considering the rental outside option or housing market expectations used to estimate potential financial returns. In sum, high-HOCO households do not seem to making purely financial decisions, allowing an element of their lived experience or culture to inform purchase behavior.

E. Heterogeneity in Ownership Along the Tax Schedule

Finally, the static user cost model implies that between t^{**} and t^{*} the probability that a household owns its home is increasing in ϕ; below t^{**} everyone rents, and above t^{*} everyone owns. These thresholds are of course simplifications for two representative households, such that empirically we should observe, for a given tax rate, immigrant households with stronger cultural norms favoring homeownership will own at higher rates all along the tax schedule.

To test this implication of the model, we use the NBER's TAXSIM model (v35) to compute

federal marginal tax rates for all immigrant households in our sample. Figure 4 plots a binned scatterplot of homeownership rates by federal marginal income tax rate, splitting our immigrant sample population into those with above-median HOCO's and below-median HOCO's. Importantly, the tenure choice model outlined above has a household deciding whether to own or rent the *same* unit, therefore we include CBSA-by-year fixed effects to proxy for location and labor market, as well as a suite of property characteristics including bedrooms, bathrooms, acreage, square footage, the home's age, type (i.e. single- or multi-family), and the presence of garage or car port. These controls adjust for the fact that the researcher cannot observe the counterfactual rental (purchase) price a homeowner (renter) considered before buying (renting). The figure shows that immigrants with stronger cultural norms for housing do select into homeownership at higher rates along the entire tax schedule. This gap between above- and below-median HOCO attenuates at the top marginal income tax rates as predicted by the model, since the benefits of owning are highest here for all groups. These findings suggest that high-HOCO households may end up being observationally similar to marginal homebuyers, as they are selecting into homeownership at lower marginal tax rates, and thus lower incomes due to tax rate progressivity.

V. Credit cycles and Endowed Affinities for Homeownership

Review the hypothesis: high HOCO homebuyers more likely to take advantage of liquidity shocks. Outline the strategy.

One of the key goals of this paper is to assess the degree to which an affinity for homeownership as a result of foreign-born residents' country of origin changes the impact of credit shocks on housing market outcomes for different groups. How different demographic groups respond to credit expansions can have important impacts on their financial situation: other researchers have shown that racial minority households in the U.S. saw large increases in homeownership during the peak of the housing boom of the mid-2000s, which then resulted in an increased risk of mortgage delinquency and foreclosure during the subsequent bust (Bayer et al., 2016). Moreover, homeownership is associated with differences in child outcomes, mobility, and many other aspects of household behavior (Dietz and Haurin, 2003). As a result, differential responsiveness to mortgage credit supply shocks can lead to differences in a number of group outcomes, which has important implications for the effectiveness and welfare consequences of policies that try to promote homeownership.

In this section, we show that an affinity for homeownership resulting from foreign-born residents' country of origin can substantially affect the impact of mortgage credit supply shocks on housing markets.

A. Identification of mortgage credit supply shocks

In order to estimate the impact of mortgage credit on homeownership, we need to address the fact that a household's access to credit is likely to be endogenous with regard to its income and wealth, which are affected by a group's homeownership rates, and may also be affected by racial

discrimination (Ambrose, Conklin, and Lopez, 2021). To estimate the effect of increased access to mortgage credit on homeownership rates among groups with different countries of origin, we therefore need to identify changes in credit supply that are plausibly exogenous with regard to group characteristics.

Our baseline analysis uses mortgage credit supply shocks based on county exposure to heterogeneous shocks to aggregate mortgage lending by different banks, following Gilchrist, Siemer, and Zakrajsek (2018) and Garcia (2020). The intuition for the approach is that local mortgage lending may change either due to local changes in credit demand or due to a change in lenders' willingness to originate new mortgages for idiosyncratic or common reasons - shifts in "credit supply" - that are unrelated to local market dynamics. To the degree that the idiosyncratic shifts in bank mortgage credit supply have a greater impact on counties where the affected banks have a higher market share, they can generate variation in local lending that avoids concerns over reverse causality from local housing market dynamics affecting lending.

To estimate lender fixed effects that are orthogonal to local mortgage demand shocks we run regressions of the following form: for any county c and lender j, we proceed in two steps, adapting the method in Gilchrist et al. (2018). First, we estimate

$$\Delta \ln L_{c,j,t} = \alpha_{c,t} + \eta_{j,t} + \varepsilon_{c,j,t}, \tag{3}$$

where $L_{c,j,t}$ is the number of loans originated by lender j in county c in year t; $\alpha_{c,t}$ are locality-by-year fixed effects, and $\eta_{j,t}$ are lender-by-year fixed effects. We keep only lenders in the sample in each year that have lending activity in at least 3 counties and estimate this regression separately for the years 2005-2017. We follow Gilchrist et al. (2018) and weight the data points by the geometric mean of the lender's market share in the county and the county's share in the lender's activity in each year. Moreover, as we are interested in exposure to *relative* differences in lender activity, we re-center the estimated $\hat{\eta}_{j,t}$ terms for each year such that the loan-origination-weighted mean of lender shocks is zero.

Note that if a county's lending declined because of local economic shocks, this will be captured by the county-by-year fixed effects, while a change in lending due to a lender's change in ability to fund mortgages, independent of the dynamics of the markets in which the lender is present, will be captured by the lender-by-year fixed effects.

The shock to local mortgage lending in a county that is driven by exposure to lenders that are experiencing aggregate changes in their ability to fund mortgages is then constructed as the market-share weighted average in each county of the lender fixed effects:

$$S_{c,t} = \sum_{j \in C} \underbrace{\frac{L_{c,j,t}}{\sum_{j \in C} L_{c,j,t}}}_{\substack{\% \text{ of local lending} \\ \text{by lender } j}} \times \underbrace{\hat{\eta}_{j,t}}_{\text{Re-centered lender FE}}$$

Counties will experience below-average access to mortgage lending if they have greater exposure

to lenders that are curtailing lending more on average nationally. To further purge this raw credit supply shock of county demand characteristics, e.g. the concern that over the period of study banks with credit supply shocks in a particular direction were associated with counties that are systematically different - beyond the level of credit demand in each period that is controlled for in equation 3. We estimate

$$S_{c,t} = \gamma_1 \underbrace{\hat{\alpha}^{\text{Loan}}_{j,t}}_{\substack{\text{Re-centered County} \\ \text{Loan count FE}}} + \gamma_2 \underbrace{\hat{\alpha}^{\text{Lend}}_{j,t}}_{\substack{\text{Re-centered County} \\ \text{Lending vol. FE}}} + \lambda_c + \lambda_t + \chi_{ct}, \tag{4}$$

weighting each county-year by its IRS population count. Here, $\hat{\alpha}^{\text{Loan}}_{j,t}$ and $\hat{\alpha}^{\text{Loan}}_{j,t}$ are estimates of the county-year fixed effect from equation 3 when the dependent variable is either the log change in loans or the log change in dollar lending volume, so they capture the extensive and intensive margin of changes in local credit demand. Moreover, we also control for county fixed effects and year fixed effects. We use the residual from this regression as our estimate of the credit supply shock in each county that originates from exposure to particular banks that is unrelated to local credit demand shocks, i.e. our main credit supply shock is $\tilde{S}_{ct} = \hat{\chi}_{ct}$.

The identifying assumption for using this shock to study the effects of exogenous shifts in credit supply on homeownership is that exposure to lender fixed effects is not systematically correlated with differential within-county shocks to the demand for homeownership by low- and high-HOCO residents. That is, this assumption could be violated, for example, if banks that lend relatively more in some geographic areas experience mortgage funding constraints at the same time as the demand for homeownership shifts in relative terms between low- and high-HOCO groups in the same areas in a way that is not correlated with general shifts in extensive and intensive margin lending in the county. Given the construction of the instrument above, we believe that this particular violation of the identifying assumption through correlated local exposure to particular banks and demand shifts is both unlikely and, if it occurs, correlated with shifts in county demographics, such as income or family structure. To address that possibility, we therefore also control for time-varying HOCO-group-by-county demographics in our estimations below.

A.1. Credit shock effects on lending

To verify that the credit supply shock constructed above is not just exogenous but also relevant, we estimate the effect of the shock on county- and commuting zone-level lending. While we will later estimate the differential effect by homeownership affinity in a reduced form estimation, one can think of this estimation as the "pseudo-first stage" of our household level estimation approach. Moreover, these estimates will also allow us to properly scale our reduced form coefficients for calculating counterfactuals.

The effect of this credit supply shock on county- and commuting zone-level loan growth is shown

in Appendix Table AV, which shows estimates from regressions of the form

$$\Delta \ln \text{Loans}_{it} = \alpha_i + \alpha_t + \beta \hat{S}_{it} + \gamma' X_{it} + \epsilon_{it}.$$

As the table shows, a county-level shock that corresponds to an exogenous increase in loan supply by the local lenders of 10 log points is associated with about a 4 log point increase in local loan growth (Panel A, column 4). Effects of a similar magnitude can be found when we aggregate to the commuting zone level, where the corresponding effect would be a 5 log point increase in loan growth. The fact that the magnitude does not vary much at different levels of aggregation suggests that the effect is likely not explained by crowding out or spillovers between neighboring geographies.

What is the geographic variation in credit supply shocks underlying these results? Figure 5 shows the pattern of these credit supply shocks for the years 2006 and 2016, which are near the beginning and end of our credit shock panel respectively. Note that there is both substantial variation in the shock size across counties, even within the same region or state, and also over time, as the regions with the largest credit supply shocks vary substantially across these two years.

B. Estimation approach

One limitation of the household-level ACS data is that it represents a repeated cross-section of a representative sample of U.S. households, but households cannot be tracked over time. However, cross-sectional analysis of credit shock effects on homeownership is not suitable for our purposes: as we showed earlier there are large cross-sectional differences in *levels* of homeownership across different areas, which could be correlated with static geographic differences in exposure to lenders. Therefore, we would like to control for these time-invariant levels and exploit variation in credit shocks over time *within* counties. Moreover, mortgage credit supply shocks allow additional households to enter homeownership at the margin, adding to and existing stock, and should therefore mainly be associated with *changes* in homeownership. Thus, the dependent variable should be in differences, which also requires variation over time.

Under the assumption that any sampling bias of different HOCO groups does not vary over time, we can aggregate the household-level ACS data used in earlier analyses into group level data for HOCO-county-year cells that are comparable over time. We define 5 different groups g in the household data – US-born, high-HOCO foreign-born, low-HOCO foreign-born, Mexican-born, and no-HOCO data foreign-born – so that we can compare relative effects for foreign-born residents with different affinities for homeownership. High and low HOCO are defined as above and below the population-weighted median HOCO among non-Mexican foreign-born. The reason to treat the Mexican-born foreign-born differently is that they constitute the largest group of foreign-born residents and have HOCO values close to the median, such that minor differences in weighting can shift large foreign-born population shares between the low and high-HOCO categories and can make the results highly sensitive to the idiosyncratic characteristics of the Mexican origin group. For each county-year-group, cell we compute average homeownership rates and demographics, weighting

each household by its ACS population weight.

Then, at the group-county-year level, we estimate regressions of the form

$$\Delta HO_{c,g,t} = \phi \tilde{S}_{c,t} + \beta_g \tilde{S}_{c,t-1} \times \mathbb{1}[HOCO_g] + \gamma' X_{c,g,t} + \zeta_{c,g} + \psi_{CBSA,t} + \varepsilon_{it}, \tag{5}$$

where $\Delta HO_{c,g,t}$ is the change in the local homeownership rate of group g over time; $\mathbb{1}[HOCO_g]$ is a dummy indicating the different groups; and $X_{c,g,t}$ represents time-varying demographic controls similar to those used in the household level regressions as well as one lag of the level of homeownership.[12] The baseline specification also contains county-group level fixed effects $\zeta_{c,g}$ which control for the fact that some areas may generally make it easier or harder for groups with different affinities to move towards homeownership, which could lead them to have generally higher or lower growth in homeownership in our sample. Moreover, we include CBSA-by-year fixed effects $\psi_{CBSA,t}$ to account for regional trends in homeownership over time.

C. *Results: Affinity for homeownership, responses to credit supply shocks, and return heterogeneity*

How does an affinity for homeownership affect the average response of households to mortgage credit shocks? The results of estimating equation 5 for the years 2006-2018 is shown in Table IV. The first two columns show the baseline effect of the mortgage credit supply shocks on the change in new mortgage loans observed in HMDA. We see a positive increase in loan volume in response to credit shocks, assuring that these induced more potential homebuyers to submit loan applications. The next two columns show the impact of credit supply shocks on homeownership changes overall, without distinguishing by HOCO group. The point estimates suggest that after a 1% increase in credit supply, homeownership grows by 1-1.7%.

Finally, columns (5) and (6) show the results where we allow the credit shock effects to vary across HOCO groups. Th low HOCO foreign-born category is the reference group - such that its coefficient represents the baseline level of the credit shock effect - and all other coefficients are defined relative to it.[13] Column (5) includes only period and CBSA-group fixed effects, in addition to the demographic controls and lagged homeownership levels, while column (6) also adds Commuting Zone-by-period trends. The results are similar across the two specifications: foreign-born residents with higher affinity for homeownership have a significantly higher responsiveness to credit shocks. We see in comparing columns (5) and (6) to columns (3) and (4) that most of the impact of the lending shocks on homeownership is driven by the high-HOCO groups, suggesting that native-born residents and low-affinity residents were not very responsive to these credit supply shocks. The units of the shock correspond to relative log point differences in national loan growth (controlling for local credit demand) among the banks that the average county in the CBSA is exposed to. That is, the coefficient in row 3 of column (6) indicates that a 1% increase in national loan growth leads to a nearly 4% increase in homeownership among the high HOCO cohort. In the context of homeownership gaps, per 5-year period, the ΔHO gap between high and low HOCO

households was 0.86pp. A 1-standard deviation credit shock of 0.28 implies that the ΔHO gap increases by 1.06 pp per five year period.

Table IV shows that high-affinity household took up mortgage credit disproportionately over 2006-2018. Over this period, the national housing market experienced severe boom-bust cycles in house prices from the mid-2000s to the early 2010s that caused substantial dislocation in housing markets. In figure 6 we break up the sample by boom (2000-2006), bust (2006-2012) and rebound (2012-2019) to observe how different groups responded to credit contracts and expansions. During the housing boom, a time of expanding credit, we see that homeownership changes the most among high-HOCO groups, increasing by over 7%. Again during the rebound, as credit markets recovered from the financial crisis, we again see that high-affinity households increase their homeownership position the most of all groups, but that these increases are only about one-third the change observed in the prior boom at 2.7%.

In the middle, we see responses to credit contractions during the housing bust. While we would expect homeownership to increase during periods of easing credit supply, we do not necessarily expect homeownership to fall when credit dries up. Households have already taken out their mortgages, and for those with fixed rates, there is no experience of credit tightening. Only those with adjustable or floating rate mortgages will experience a contraction in credit through rising interest rates. In this period, we observe that high-affinity households experience a lower decline in their homeownership position, seemingly in contrast with the theoretical prediction that they would be more sensitive to credit cycles. In Table V, we explore whether households default on their mortgages differently by time and affinity, using data from the American Housing Survey. We regress an indicator for having at least one missed mortgage payment in the past three months on HOCO, whether the household bought at the peak of the credit cycle, and the interaction of the two. We also include CBSA-by-year fixed effects, all of the avialable socioeconomic and demographic controls we've used previously, controls for years in the US, as well as controls for debt-to-income and house cost-to-income ratios, since ther were significant concurrent labor income shocks over the cycle. In column (1), we find that a 1pp higher HOCO is associated with 8% fewer missed payments, suggesting that overall, higher affinity households seem to be more committed to paying their mortgage. In column (2), we split the sample by those who purchased at the peak of the cycle and explore heterogeneity by purchase date and HOCO. We find that most of the variation in missed payments is driven by those households who purchased during the peak of the housing boom; these households bought home at their most expensive and suffered large declines in their equity positions often ending up underwater. We also find that in non-boom times, there is no differential in missed payment across HOCO types; likely as these tend to be occasional events. Interestingly, having a high HOCO undoes the effect of buying at the peak. These results, in combination with Figure 6, suggest that high-affinity households hold on tighter to their homes than do other households, even when suffering similar debt and cost shocks during market cycles.

While holding on more tightly to one's home may stabilize or improve the consumption flows that residents recieve from owning their homes, they do not necessarily improve their financial

returns. In Figure 7, we plot the annual housing return differentials by year of purchase. Per 1pp increase in HOCO, the figure shows that households buying in 2006 and 2007 realized 6 basis point (bp) lower annual returns. Given a 1 standard deviation increase in HOCO, this would mean, on average, an 80bp lower return for homes purchased in 2007, versus a 55bp higher annual return for those homes purchased in 2012. In sum, high affinity households' being more sensitive to credit shocks exposes them to more housing return volatilty.

VI. How Variation in Homeownership Affinities Impacts Portfolio Allocations

One potential issue with our analysis showing that an endowed affinity for homeownership for foreign migrants causes them to be more likely to own their home is that it may take time for a desire for homeownership to translate into realized portfolio choices (for instance, see Figure 1 for evidence that immigrant homeownership changes over time). However, by the time that a household reaches retirement age, we can perhaps expect their preferences to have been translated into portfolio choices. Thus, the Health and Retirement Study data allows us to see both what effect a higher HOCO has on tenure and portfolio choices after households have had their working lives to attain their desired portfolio composition, and also to study the effect of affinities for homeownership on a broader range of household portfolio choices and financial outcomes.

Using the HRS data, we estimate regressions of the form

$$Y_h^{age60} = \gamma HOCO_h + \beta' X_h^{age60} + \alpha_t + \varepsilon_h, \tag{6}$$

where Y_h^{age60} represents a household level financial characteristic measured in the survey wave where the financial respondent was closest to 60 years old; $HOCO_h$ represents the foreign financial respondent's country of origin homeownership rate matched to their marriage status; X_h^{age60} are demographic controls that capture non-HOCO differences between respondents at age 60 and consist of categorical variable dummies for respondent marriage status, age, total household income, a dummy for gender, a dummy for whether they are at least a high school graduate, and a dummy for whether the respondent was born in Mexico; α_t is a dummy indicating the survey wave that the respondent data at age 60 is from. The baseline specification also controls for total non-housing wealth of the household.

A. HOCO and homeownership in the retirement portfolio

In order to quantify how much an affinity for homeownership affects realized tenure choices *at the end of the working life* of a household, we first estimate the effect of HOCO on whether or not a retiring household owns their primary residence. Column 1 of Table VI shows this effect estimate: the estimated elasticity of realized retirement-age homeownership with regard to HOCO is 0.77 and statistically significant in spite of the relatively small sample size of the HRS. This

is larger than our preferred effect estimates from the ACS microdata, which might be due to retirement age immigrant households having had more time to establish themselves in the U.S. and realize their preferences for owning a home. This result confirms our finding that an affinity for homeownership results in actual differences in tenure choices. Column 2 shows that this result is robust in magnitude when we exclude Mexican-born migrants who make up the majority of the sample. Moreover, note that one benefit of the HRS is that we are able to control not just for income but also for non-housing wealth of the households, which supports our claim that this passthrough of country-of-origin characteristics is *not* due to different wealth endowments of the migrants. Columns 3 and 4 confirm that this tenure choice ends up biasing retirement portfolios: a 1% increase in a respondent's HOCO is associated with a 0.9 pp higher share of their wealth portfolio consisting of the real estate value of their home.

To visualize this effect of HOCO on retirement age tenure choices, and check for non-linearities, consider Figure 8: If we split the respondents with HOCO data into terciles of affinity, differences higher likelihood of homeownership aligns monotonically with being in a tercile with greater affinity for it.[14]

B. HOCO effects on retirement wealth and portfolio composition

The next question we consider is whether high affinity households end up with higher household wealth. In Table VII, shows that households with higher HOCO indeed have significantly higher absolute wealth not just in the form of the net value of their primary residence (column 1) but also in the rest of their retirement portfolio (column 2). A 1 pp higher HOCO is associated with about a \$3.5K more valuable primary residence, and \$4.6K more valuable other assets. Moreover, this effect does not just stem from the extensive margin effects of being more likely to choose homeownership – in columnd 5 and 6 we show that differential affinity for homeownership also affects retirement portfolio wealth conditional on being a homeowner.

One potential explanation for this association between HOCO and retirement wealth could be differential preferences for risky assets that have higher returns – either associated with country of origin preferences, or as a result of real estate ownership affecting risk preferences – but in columns 3-4 and 7-8 we find that higher HOCO is neither associated with being more likely to own stocks nor with a higher share of the retirement portfolio (excl. real estate) being allocated to equities.

C. The effect of HOCO and regional house price dynamics on the retirement portfolio

In section V, we showed that the effect of HOCO on housing returns varies with the housing cycle: a higher affinity for homeownership is beneficial if it leads to buying a house at times when returns to buying a house are high, but can also affect household finances negatively if it results in buying a home when expected returns are low. We can test this mechanism as well in the context of retirement portfolios using the HRS data. While we do not have information on the exact timing and location of the purchase of the real estate that households own at the time of retirement, we can use the fact that most households have low geographic mobility to proxy for the likely housing

capital gains that a household experienced with the past house price growth in the state where the household resides at age 60.

In Table VIII, we explore whether the effect of HOCO on the value of retirement portfolios varies with the favorability of price growth in regional housing markets in the previous 20 years. As the table shows, there is weak evidence that the effect of HOCO on the value of the primary residence is higher in states where housing markets experienced higher price growth, and more significant evidence that this affects the impact of higher HOCO on the value of households' overall real estate portfolios. Moreover, there is no significant evidence that housing market dynamics matter for the HOCO effect on other components of retirement wealth, suggesting that tenure choice is indeed the mechanism through which HOCO interacts with regional housing market dynamics.

VII. Conclusion

Homeownership has long been a core tenet of the American Dream, often touted as the best way to build wealth over the lifecycle. By utilizing cultural norms in homeownership to vary tenure choice in the U.S., we provide a new understanding on the impact of tenure choice on household welath formation. We find that higher affinity households select into homeownership at higher rates, are especially sensitive to credit supply shocks, and thus exposed to increased house price volatility. At retirement, these households do end up realizing higher housing wealth, but this does not seem to substitute for other risky asset shares, nor does the wealth effect of unexpected housing returns yield differential stock market participation. In sum, the intial decision of whether to own or rent does not impact households' non-housing wealth by retirement. This contrasts with models that suggest housing wealth should substitute for other risky assets, such as stock market participation, or complement it as households realize the wealth effect of improved home equity as they pay down their mortgages. These results may be driven by the relatively low direct stock market participation rates in the U.S., an avenue we leave for further research.

Outside of using variation in origin-country preferences as a laboratory to study household portfolio choice, our work has direct implications for immigrants' wealth positions in the U.S. We find that stronger homeownership norms positively predict immigrants' tenure choices in the U.S. Given that one's ancestry often intersects with more visible identifiers, such as race or ethnicity, policymakers should consider country-of-origin differences when designing policies as origin-based preferences can amplify or dampen the impact of policies which hope to encourage homeownership. In this paper, we highlight a particularly salient dimension of housing policy and the transmission of economic shocks to the housing market by studying the impact of changes in credit supply. Our results suggest that where someone was born before they moved to the U.S. can have long-lasting effects on how they interact with financial markets, as credit supply variations are more likely to lead to an investment in homeownership for groups that come from countries where homeownership is more common. However, there are many other dimensions of housing policy and housing market shocks that may show similar differences across foreign-born groups, but which we do not cover in

this paper - and we hope that future research can fill that gap.

REFERENCES

Abramitzky, Ran, Leah Boustan, Elisa Jacome, and Santiago Perez, 2021, Intergenerational mobility of immigrants in the united states over two centuries, *American Economic Review* 111, 580–608.

Akbari, Ather H., and Yigit Aydede, 2012, Effects of immigration on house prices in canada, *Applied Economics* 44, 1645–1658.

Alesina, Alberto, Paola Giuliano, and Nathan Nunn, 2011, Fertility and the plough, *American Economic Review* 101, 499–503.

Algan, Yann, and Pierre Cahuc, 2010, Inherited trust and growth, *American Economic Review* 100, 2060–92.

Ambrose, Brent W, James N Conklin, and Luis A Lopez, 2021, Does borrower and broker race affect the cost of mortgage credit?, *The Review of Financial Studies* 34, 790–826.

Angrist, Joshua D, and Jörn-Steffen Pischke, 2008, *Mostly harmless econometrics* (Princeton university press).

Badarinza, Cristian, and Tarun Ramadorai, 2018, Home away from home? foreign demand and london house prices, *Journal of Financial Economics* 130, 532–555.

Bayer, Patrick, Fernando Ferreira, and Stephen L Ross, 2016, The vulnerability of minority homeowners in the housing boom and bust, *American Economic Journal: Economic Policy* 8, 1–27.

Bhutta, Neil, 2015, The ins and outs of mortgage debt during the housing boom and bust, *Journal of Monetary Economics* 76, 284–298.

Blaauboer, Marjolein, 2011, The impact of childhood experiences and family members outside the household on residential environment choices, *Urban Studies* 48, 1635–1650.

Blau, Francine D, Lawrence M Kahn, and Kerry L Papps, 2011, Gender, source country characteristics, and labor market assimilation among immigrants, *The Review of Economics and Statistics* 93, 43–58.

Boehm, Thomas P., and Alan M. Schlottmann, 1999, Does home ownership by parents have an economic impact on their children?, *Journal of Housing Economics* 8, 217–232.

Borjas, George J., 2002, Homeownership in the immigrant population, *Journal of Urban Economics* 52, 448–476.

Botsch, Matthew J., and Ulrike Malmendier, 2020, The long shadows of the great inflation: Evidence from residential mortgages, *Working Paper* .

Brueckner, Jan K, 1986, The downpayment constraint and housing tenure choice: A simplified exposition, *Regional Science and Urban Economics* 16, 519–525.

Burchardi, Konrad B, Thomas Chaney, and Tarek A Hassan, 2019, Migrants, ancestors, and foreign investments, *The Review of Economic Studies* 86, 1448–1486.

Card, David, 2009, Immigration and inequality, *American Economic Review* 99, 1–21.

Center, Minnesota Population, 2020, Integrated public use microdata series, international: Version 7.3 .

Chetty, Raj, Lázló Sándor, and Adam Szeidl, 2017, The effect of housing on portfolio choice, *The Journal of Finance* 72, 1171–1211.

Cocco, Joao F, 2005, Portfolio choice in the presence of housing, *The Review of Financial Studies* 18, 535–567.

Collins, William J., and Ariell Zimran, 2023, Working their way up? us immigrants' changing labor market assimilation in the age of mass migration, *American Economic Journal: Applied Economics* 15, 238–69.

Das, Prashant, N Edward Coulson, and Alan Ziobrowski, 2019, Caste, faith, gender: Determinants of homeownership in urban india, *The Journal of Real Estate Finance and Economics* 59, 27–55.

Dietz, Robert D, and Donald R Haurin, 2003, The social and private micro-level consequences of homeownership, *Journal of urban Economics* 54, 401–450.

Duncan, Brian, and Stephen J. Trejo, 2018, Socioeconomic integration of u.s. immigrant groups over the long term: The second generation and beyond, Technical report, National Bureau of Economic Research.

Fisman, Raymond, and Edward Miguel, 2007, Corruption, norms, and legal enforcement: Evidence from diplomatic parking tickets, *Journal of Political Economy* 115, 1020–1048.

Garcia, Daniel, 2020, Employment in the great recession: How important were household credit supply shocks?, *Real Estate Economics* .

Gilchrist, Simon, Michael Siemer, and Egon Zakrajsek, 2018, The real effects of credit booms and busts, Technical report.

Goodman, Laurie S, and Christopher Mayer, 2018, Homeownership and the american dream, *Journal of Economic Perspectives* 32, 31–58.

Greenstone, Michael, Alexandre Mas, and Hoai-Luu Nguyen, 2020, Do credit market shocks affect the real economy? quasi-experimental evidence from the great recession and" normal" economic times, *American Economic Journal: Economic Policy* 12, 200–225.

Happel, Jonas, Yigitcan Karabulut, Larissa Schäfer, and Selale Tuzel, 2022, Shattered housing, *Available at SSRN 4029064* .

Khwaja, Asim Ijaz, and Atif Mian, 2008, Tracing the impact of bank liquidity shocks: Evidence from an emerging market, *American Economic Review* 98, 1413–42.

Layton, Don, 2021, The homeownership rate and housing finance policy– part 1: Learning from the rate's history, Technical report, Joint Center For Housing Studies, Harvard University.

Layton, Don, 2022, Homeownership rate and housing finance policy– part 2: Heavy lift to break the 65 percent barrier, Technical report, Joint Center For Housing Studies, Harvard University.

Malmendier, Ulrike, and Alexandra Steiny, 2019, Rent or buy? the role of lifetime experiences of macroeconomic shocks within and across countries, *Working Paper* .

Marcén, Miriam, and Marina Morales, 2020, The effect of culture on home-ownership, *Journal of Regional Science* 60, 56–87.

Mian, Atif, and Amir Sufi, 2009, The consequences of mortgage credit expansion: Evidence from the us mortgage default crisis, *The Quarterly journal of economics* 124, 1449–1496.

Pavlov, Andrey, and Tsur Somerville, 2020, Immigration and real estate returns, Technical report.

Pfeffer, Fabian, Bob Schoeni, Arthur Kennickell, and Patricia Andreski, 2016, Measuring wealth and wealth inequality: Comparing two u.s. surveys, *Journal of Economic and Social Measurement* 41, 103–120.

Rieger, Marc Oliver, Mei Wang, and Thorsten Hens, 2015, Risk preferences around the world, *Management Science* 61, 637–648.

Ringo, Daniel R., 2020, Home ownership as a labor market friction, *Real Estate Economics* 49, 111–133.

Ruggles, Steven, Sarah Flood, Ronald Goeken, Josiah Grover, Erin Meyer, Jose Pacas, and Matthew Sobek, 2020, Ipums usa: Version 10.0 .

Sá, Filipa, 2014, Immigration and house prices in the uk, *The Economic Journal* 125, 1393–1424.

Saiz, Albert, 2003, Room in the kitchen for the melting pot: Immigration and rental prices, *Review of Economics and Statistics* 85, 502–521.

Saiz, Albert, 2007, Immigration and housing rents in american cities, *Journal of Urban Economics* 61, 345–371.

Saiz, Albert, and Susan Wachter, 2011, Immigration and the neighborhood, *American Economic Journal: Economic Policy* 3, 169–88.

Sodini, Paolo, Stijn Van Nieuwerburgh, Roine Vestman, and Ulf. von Lilienfeld-Toal, 2023, Identifying the benefits from homeownership: A swedish experiment, *American Economic Review* 113, 3173–3212.

University of Michigan, 2024, Health and retirement study.

Vuillemey, Guillaume, 2023, Household finance at the origin: Home ownership as a cultural heritage from agriculture, Technical report.

Yao, Rui, and Harold H. Zhang, 2005, Optimal consumption and portfolio choices with risky housing and borrowing constraints, *The Review of Financial Studies* 18, 197–29.

Notes

[1]See, e.g. Khwaja and Mian (2008); Garcia (2020); Greenstone, Mas, and Nguyen (2020)

[2]While the PSID does include an immigrant survey sample, the survey provides highly aggregated country-of-origin groups that significantly limit the variation in cultural norms relative to the confidential HRS data, which provides specific origin country information.

[3]For simplicity, we will assume that the household can borrow and invest at the same rate, but the conclusions do not qualitatively depend on this.

[4]Note that the homeowners here implicitly receive returns on their entire savings - even though αP is invested in the downpayment - because any downpayment reduces the mortgage cost at a rate r.

[5]We distinguish between 4 marital status categories: single or never-married, married, separated or divorced, and widowed.

[6]We dropped any sample with an average homeownership rate of less than 33% that could not be independently verified by an online search, which led us to drop: Argentina 1991, Benin 2002, Ethiopia 1994, Togo 2010, and Papua New Guinea 1990.

[7]This hand-collected comparison sample covers origin countries comprising 87% of all the foreign-born in the U.S. and 9.2% of the total U.S. population.

[8]This data was accessed through IPUMS(Ruggles, Flood, Goeken, Grover, Meyer, Pacas, and Sobek, 2020).

[9]We downloaded this crosswalk from Neil Bhutta's website. The mapping to lender parent companies is only available through 2017 at which point the lender identification codes in HMDA change. Therefore, we limit the analysis to the years before for which we can consistently aggregate to parent companies over time.

[10]Note that the international census data for China and India does not allow for computing homeownership rates by marital status, such that Chinese-headed households are not included in our baseline regressions.

[11]There is an "ancestry" variable, but it does not allow us to distinguish between the children of recent immigrants and those of families with a long history in the country.

[12]We include average income, marriage rates, college shares, male headship share, age (linear and squared) of the head, hispanic share, children in the household, household size, and the population share of different race for each group in the county.

[13]While separate coefficients for the Mexican-born and no-HOCO data foreign-born groups are estimated, they are not shown in the table to make the presentation more concise.

[14]This figure corresponds to the same sample and control variables as used in column 2 of Table VI. For the same analysis but without including any control variables, i.e. a raw comparison of group averages, see Appendix Figure BVI, which shows very similar patterns.

Tables

Table I: Homeownership rates for selected countries of origin computed from international census data

Rank	Origin	$\%\text{Pop}^{00}_{USA}$	% Married	% $HOCO^{All}$	% $HOCO^{Married}$
		ACS 2000 Birthplace			
1	Mexico	3.24	67	66	69
3	Philippines	0.51	64	77	77
4	India	0.47	75	79	79
2	China	0.38	71	74	86
4	Canada	0.38	55	68	81
⋮	⋮	⋮	⋮	⋮	⋮
	United States	86.5	54	67	83

Notes: This table summarizes our homeownership rates, by country of origin (*HOCO*) for the largest country-of-origin groups among foreign-born immigrants residing in the U.S. These homeownership rates are computed from harmonized country census microdata (obtained through IPUMS) by marriage status for household heads. Only countries for which this data was available are shown. The table is ranked by the population share of each immigrant group among U.S. household heads who are 18-69 years old in 2000 (according to Decennial Census data), and also shows the share of household heads from that origin who are married. It shows the average homeownership rate in the country of origin, as well as the rate among married household heads. We also provide the US native-born population data for the year 2000. Data for homeownership by marriage status in China is from the 2016 China Family Panel Studies Survey. Due to a lack of population weights by marriage status in the origin country, we approximate China "All" population marriage rates by taking a weighted average of married and single marriage rates, using prevalence of these statuses among Chinese-born US residents. Indian data is obtained from the 2015-2016 wave of the Demographic and Health Survey. Full table of 70 countries with homeownership data available upon request. Population shares of the 5 largest country-of-origin groups for which we could not compute homeownership data by marriage status: Germany, 0.47%; Cuba, 0.36%; South Korea, 0.29%, Japan, 0.21%, Taiwan, 0.15%.

Table II: Baseline effects of Homeownership in Country of Origin on Tenure Choice

Dependent var.:	Household Homeownership$_{it}$ (in %)			
	(1)	(2)	(3)	(4)
HOCO (%)	0.897***	0.168***	0.166***	0.153***
	(0.09)	(0.06)	(0.05)	(0.05)
Observations	3,448,546	3,436,300	3,436,300	3,436,252
R-Squared	0.06	0.27	0.30	0.31
Household Characteristics	No	Yes	Yes	Yes
Commuting Zone FE	No	No	Yes	No
Commuting Zone × Year FE	No	No	No	Yes

Notes: This table shows the results of estimating Equation 1 in a pooled household level sample of households with foreign-born heads who are 18-69 years old, for the years 2000 and 2005-2019. The dependent variable is an indicator of homeownership in percent (so 100 indicates that the household owns their home). The independent variable is the homeownership rate in the country of origin (*HOCO*) of the household head for people with the same marriage status (single, married, separated/divorced, widowed). Household characteristic control variables consist of: HH Income, (linear and ventile indicators), predicted non-housing household net worth, Quadratic function of Age of HH head and 5-year age group indicators, indicators for educational achievement of HH head, Indicators for # of children and # of relatives in the HH, Indicators for discretized years since immigration of head, marital status of HH head, and the interaction between marital status and years-since-immigration categories. Heteroskedasticity-robust standard errors clustered at the origin country level shown in parentheses. *,**, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Table III: Effects of Homeownership in Country of Origin on Tenure Choice: Horserace with Financial Outside Option

	(1)	(2)	(3)	(4)	(5)	(6)
HOCO	0.124***	0.123***	0.122***	0.105**	0.108**	0.0942*
	(0.0406)	(0.0404)	(0.0405)	(0.0478)	(0.0480)	(0.0488)
E($\Delta Price_t$)		-0.437***	-0.220	-0.559**	-0.0943	-0.0359
		(0.154)	(0.214)	(0.243)	(0.313)	(0.308)
E($\Delta Rent_t$)			-0.519***		-0.579***	-0.661***
			(0.115)		(0.168)	(0.187)
E($\Delta Price_{t-1}$)				-0.498***	-0.288	-0.189
				(0.130)	(0.183)	(0.192)
E($\Delta Rent_{t-1}$)					-0.290**	-0.256**
					(0.133)	(0.119)
$\widehat{Rent}$						0.00547***
						(0.00120)
R^2	0.287	0.287	0.286	0.292	0.290	0.327
Observations	23772	23754	23376	16591	16157	14948
			Fixed Effects & Controls			
CBSA X Year	X	X	X	X	X	X
Demographics	X	X	X	X	X	X
Years in US	X	X	X	X	X	X

Notes: This table shows the estimation results from additional specifications that control for the state of the local housing market. All specifications control for CBSA X Year fixed effects, as well as the suite of demographic and socioeconomic controls used in Table II. Sample uses AHS data from 2013, 2015, 2017, and 2019 waves. Colums (1) and (2) control for expecations for house price and rent growth over the next year. Columns (3) and (4) add 2 year lagged expectations to allow for expectations of price momentum. Column (5) includes current market rent, where $\widehat{Rent}$ for homeowners is constructed using a hedonic rent model which predicts rents for currently owned units based on their observable characterisitcs. Data on house price and rent expectations from the Survey of Consumer Expectations 2013-2019, averaged within household income $\in <\$50k, \$50k-100k, >\$100k$, education $\in HighSchool, SomeCollege, College$, age $\in <40, 40-60, 60+$, and state cells. Heteroskedasticity-robust standard errors clustered at the origin country level shown in parentheses. *,**, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Table IV: Credit Supply Shocks and Homeownership by HOCO

Dependent var.:	Δ Log Loans$_{c,g,t}$ (in ppt)		Δ Homeownership$_{c,g,t}$ (in ppt)			
	(1)	(2)	(3)	(4)	(5)	(6)
Nonlocal Lending Shock$_{cty,t}$	0.451***	0.404***	1.691***	0.918**	1.481	0.468
	(0.04)	(0.04)	(0.26)	(0.38)	(2.00)	(1.98)
Native $\times$ Nonlocal Lending Shock$_{cty,t}$					0.193	0.458
					(2.04)	(2.02)
High HOCO $\times$ Nonlocal Lending Shock$_{cty,t}$					3.914**	3.860**
					(1.87)	(1.87)
Observations	7,908	7,617	34,044	34,043	34,044	34,043
R-Squared	0.88	0.96	0.24	0.31	0.24	0.31
Fixed Effects & Controls						
Period FE	X	X	X	X	X	X
County FE	X	X				
County $\times$ Group FE			X	X	X	X
CZ $\times$ Period FE		X		X		X

Notes: Estimation results using a sample of county-period-group cells where the periods are 2000-2005, 2005-2010, and 2010-2014. Groups include: US natives, foreign-born w/out HOCO, above-median HOCO, below-median HOCO (reference group), and Mexican-born. Coefficients for Mexican and no-HOCO foreign born groups omitted for legibility. The dependent variable is the county (columns 1-2) or group-level (columns 3-6) change in lending or homeownership rates in percentage points. *Nonlocal lending shock* is the credit shock for number of loans. Heteroskedasticity-robust standard errors clustered at the commuting zone level shown in parentheses. *,**, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Table V: Delinquencies and HOCO, by Purchase Period

	(1)	(2)
	$\geq$ 1 Missed Pmt.	$\geq$ 1 Missed Pmt.
HOCO	-0.0802**	-0.0490
	(0.0396)	(0.0385)
Bought 2006-2007		0.317***
		(0.117)
Bought 2006-2007 X HOCO		-0.366**
		(0.150)
R^2	0.032	0.039
Observations	4043	4043
	FEs & Controls	
CBSA X Year	X	X
Demographics	X	X
Years in US	X	X
CTI & DTI	X	X

Notes: Data from the 2013 and 2017 waves of the AHS. Sample covers homeowners with foreign born heads. Left hand side variable for columns (1) and (2) is whether household has missed at least 1 mortgage payment in the past three months. Missed payments are rare events among these populations, with a missed payment rate of 6.13%. Controls include household head education, race, ethnicity, marital status,, number of family members and children in the home, and quadratics in household income, years in the US of household head, and age of household head, as in prior specifications and add debt-to-income and cost-to-income ratios. We include year-by-CBSA fixed effects. Heteroskedasticity-robust standard errors clustered at the commuting zone level shown in parentheses. *,**, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Table VI: Effect of HOCO on Real Estate Portfolio Holdings Among Foreign-Born at Age 60

	Homeownership		Home Value % of Wealth	
Dep. Var.:	(2)	(3)	(5)	(6)
HOCO	0.774**	0.747*	0.931**	0.913**
	(2.036)	(1.909)	(2.694)	(2.692)
R-squared	0.11	0.17	0.17	0.19
Observations	466	223	372	181
Demographic controls	X	X	X	X
Non-housing wealth control	X	X	X	X
School outside US	X	X	X	X
Excl. Mexican		X		X

Notes: This table shows the results of estimating Equation 6 in a sample of households with foreign-born financial respondents, who are (as close as possible to) 60 years old and did not live in the US while they were in school, in the Health and Retirement Study. The independent variable is the household's financial respondents homeownership in their country of origin (HOCO) matched to the respondent's marital status. The dependent variable in columns 1 and 2 indicates whether the respondent owns a primary residence worth at least $5K. The dependent variable in columnd 3 and 4 represents the percent of the respondent's total wealth that the value of the primary residence represents. Demographic controls include: categorical variable dummies for respondent marriage status, age, total household income, a dummy for gender, a dummy for whether they are at least a high school graduate, and a dummy for whether the respondent was born in Mexico. All regressions also include a dummy indicating the survey wave that the respondent data is from. Where indicated, specifications also control for total non-housing wealth of the household, exclude Mexican-born respondents, and exclude respondents who lived in the U.S. during their school time. Note: Standard errors are clustered at the country-of-origin level. T-statistics shown in parentheses.

Table VII: Effect of HOCO on Wealth and Risky Asset Portfolio Holdings Among Foreign-Born at Age 60

Sample:	All				Only Homeowners			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dep. Var.	Net Value of Primary Res.	Total Wealth excl. Primary Res.	𝟙[Owns Stocks]	Stock Share of Wealth (excl. RE)	Net Value of Primary Res.	Total Wealth excl. Primary Res.	𝟙[Owns Stocks]	Stock Share of Wealth (excl. RE)
HOCO	3475.2***	4585.4**	0.185	0.095	3280.8**	6044.3**	0.300	0.084
	(2.909)	(2.310)	(1.588)	(1.005)	(2.191)	(2.295)	(1.551)	(0.630)
R-squared	0.22	0.29	0.35	0.18	0.23	0.29	0.35	0.18
Observations	466	466	466	296	304	304	304	215
Demographic controls	X	X	X	X	X	X	X	X
Non-housing wealth control			X	X			X	X
School outside US	X	X	X	X	X	X	X	X

Notes: This table shows the results of estimating Equation 6 in a sample of households with foreign-born financial respondents, who are (as close as possible to) 60 years old and did not live in the US while they were in school, in the Health and Retirement Study. The independent variable is the household's financial respondents homeownership in their country of origin (HOCO) matched to the respondent's marital status. Columns 5-8 further restrict the sample to only include homeowners. The dependent variables are as follows: in columns 1 and 5 they are the net value in dollars of the respondent's primary residence; in columns 2 and 6 they are the total respondent wealth excluding the primary residence; in columns 3 and 7 they are an indicator that is 100 if the respondent owns stocks in their portfolio, and 0 otherwise; in columns 4 and 8 they are the share of the respondent's wealth (excl. primary and secondary residence, and other real estate investments) that is invested in stocks. Demographic controls include: categorical variable dummies for respondent marriage status, age, total household income, a dummy for gender, a dummy for whether they are at least a high school graduate, and a dummy for whether the respondent was born in Mexico. All regressions also include a dummy indicating the survey wave that the respondent data is from. Where indicated, specifications also control for total non-housing wealth of the household, and exclude respondents who lived in the U.S. during their school time. Note: Standard errors are clustered at the country-of-origin level. T-statistics shown in parentheses.

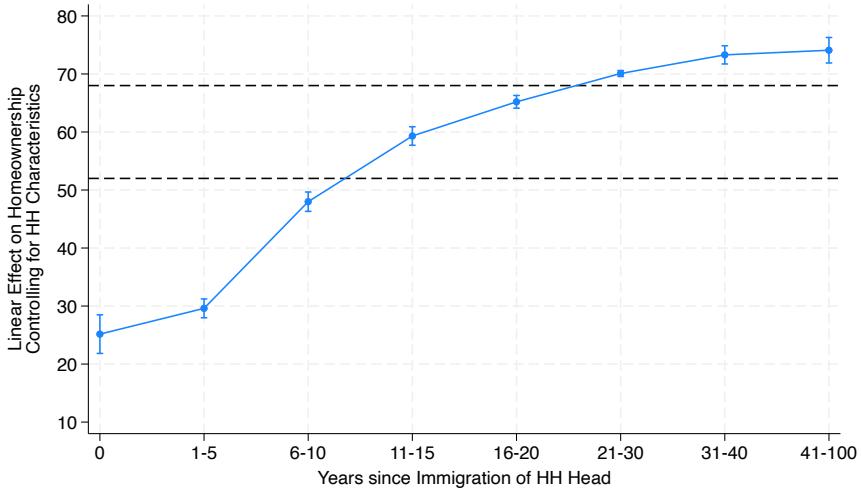
Table VIII: Effect of HOCO on Retirement Wealth By Regional House Price Growth

Dep. Var:	Net Value of Primary Res. (1)	Net Value of Real Estate (3)	Total Wealth excl. All RE (4)
HOCO	-2973.0	-12001.9*	-4686.5
	(-0.764)	(-1.767)	(-0.798)
HOCO × 20-Yr State House Price Growth	66.9*	178.4**	80.4
	(1.783)	(2.498)	(1.269)
R-squared	0.27	0.28	0.27
Observations	457	457	457
Demographic controls	X	X	X
School outside US	X	X	X
20-Yr State House Price Growth	X	X	X

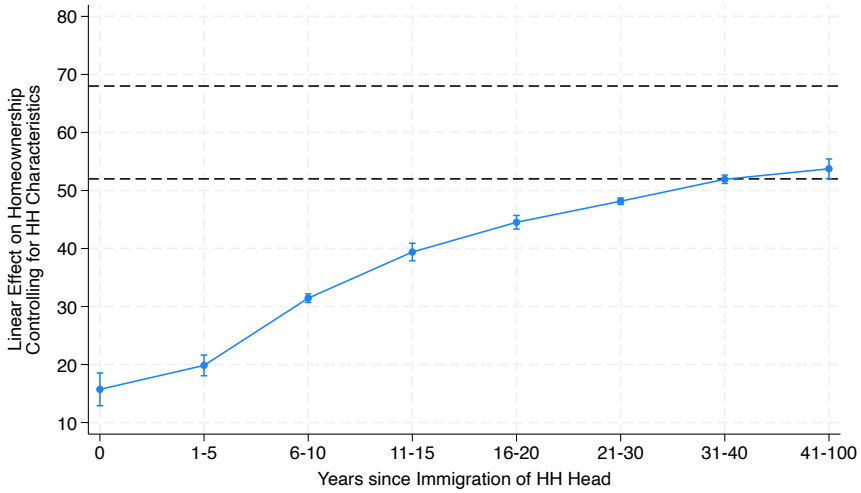
Notes: This table shows the results of estimating Equation 6 in a sample of households with foreign-born financial respondents, who are (as close as possible to) 60 years old and did not live in the US while they were in school, in the Health and Retirement Study. The independent variable is the household's financial respondents homeownership in their country of origin (HOCO) matched to the respondent's marital status. The independent variable is interacted with *20-Year State House Price Growth*, which is the growth rate in percent of the FHFA HPI measure of house prices between the year of the survey wave and 20 years earlier. It is computed at the state level and assigned to each respondent based on the survey year and their state of residence at the time. The dependent variables are as follows: in column 1 it is the net value in dollars of the respondent's primary residence; in column 2 it is the total value of the respondent's primary residence, secondary residence, and other real estate investments; in column 3 it is the total respondent wealth excluding the value of the primary residence, secondary residence, and other real estate investments. Demographic controls include: categorical variable dummies for respondent marriage status, age, total household income, a dummy for gender, a dummy for whether they are at least a high school graduate, and a dummy for whether the respondent was born in Mexico. All regressions also include a dummy indicating the survey wave that the respondent data is from. Where indicated, specifications also control for total non-housing wealth of the household, and exclude respondents who lived in the U.S. during their school time. Note: Standard errors are clustered at the country-of-origin level. T-statistics shown in parentheses.

Figures

Figure 1: Foreign Born Homeownership in the US, by Years in US (foreign-born only))



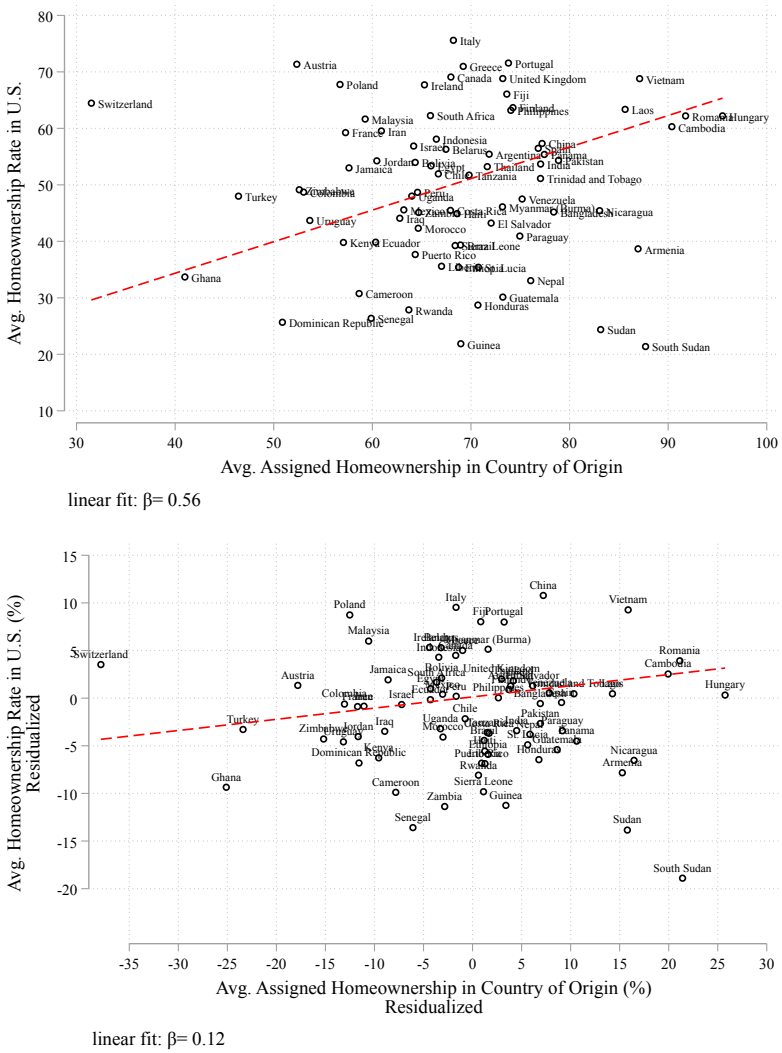
(A) Above-Median HOCO



(B) Below-Median HOCO

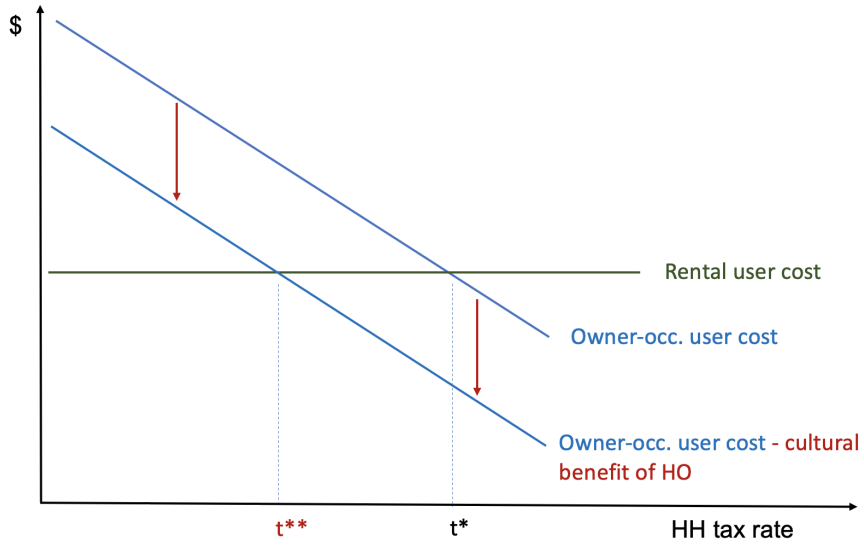
Notes: These graphs show the estimated homeownership rate among foreign-born households by years elapsed since arriving in the US, split by having above- median (top panel) or below-median (bottom panel) HOCO. We control for commuting zone-by-year fixed effects as well as household income, household head's age and age squared, educational attainment, and marital status, and cluster standard errors by commuting zone and year. Data from the ACS microdata 2005-2019. Horizontal dashed lines represent the mean homeownership rates among households with foreign-born heads (lower) and homeownership rates of households with US-born heads (upper).

Figure 2: Relationship between Homeownership in the U.S. and *HOCO* among Immigrants at the Origin Country Level



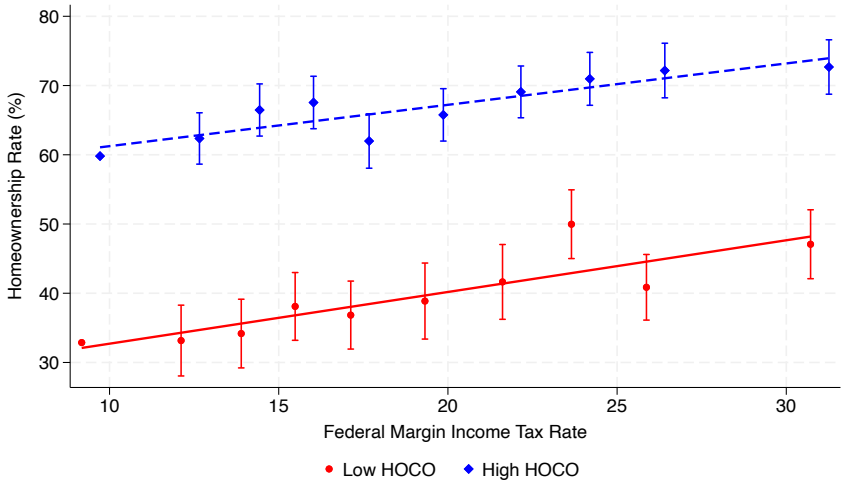
Notes: These graphs shows origin country averages of homeownership among U.S. households with foreign-born heads on the vertical axis, and the average of these households' associated homeownership in the country of origin by marital status on the horizontal axis. The left graph shows these averages for the raw ACS data from the years 2000 and 2005-2019, while the right graph residualizes both homeownership and *HOCO* at the household level before aggregating. The control variables for the residualization consist of: HH Income, (linear and ventile indicators), Quadratic function of Age of HH head and 5-year age group indicators, indicators for educational achievement of HH head, Indicators for # of children and # of relatives in the HH, Indicators for discretized years since immigration of head, marital status of HH head, and the interaction between marital status and years-since-immigration categories. The linear fits and slopes in each graph weight each country by the number of foreign-born residents with that origin in the sample. Note that the aggregation means that the regression slopes at the origin country level are merely illustrative here,/ They are not directly comparable to the household level effect estimates, which should be relied on for the quantitative magnitude of the effect.

Figure 3: Static tenure choice with cultural affinity for homeownership



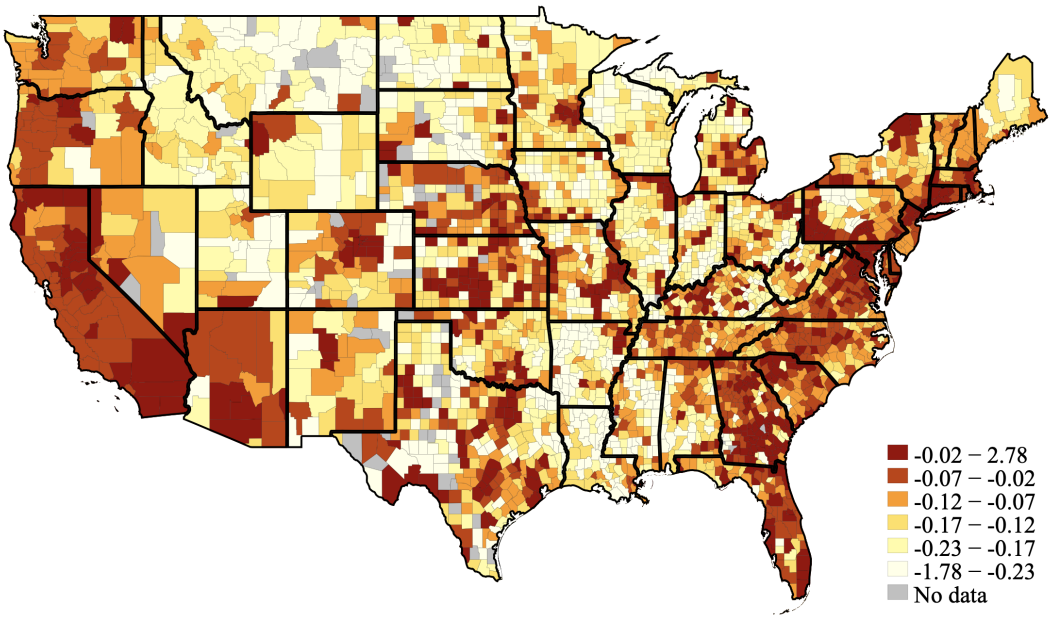
Notes: This figure shows the user-cost vs. tax rate profile for households that rent or own, as outlined in Section **??**. Here "cultural benefit of homeownership" is analogous to ϕ.

Figure 4: Homeownership Rate by Federal Marginal Income Tax Rate

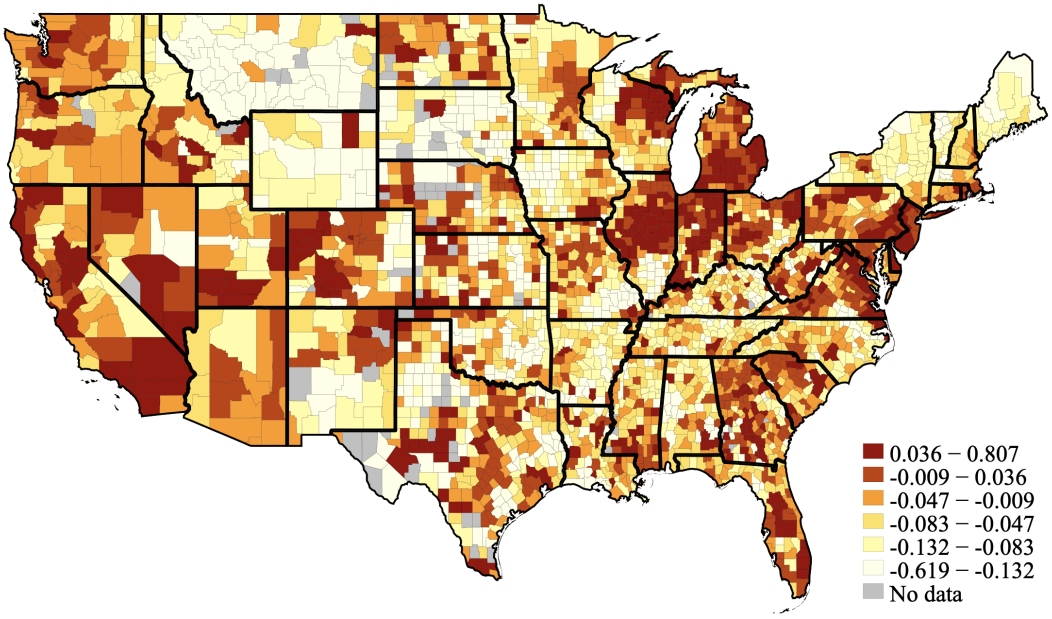


Notes: This table shows a binned scatter of homeownership rates by federal marginal income tax rate, split by immigrants with above- or below-median HOCO. Socioeconomic characteristics incorporated into the TAXSIM model used to produce marginal federal income tax rates. We control for CBSA-by-year fixed effects, as well as housing unit characteristics: number of bedrooms, bathrooms, lotsize in acres, unit size in ft^2, decade built, structure type (i.e. single family or multifamily), and presence of a garage or carport. Data from the AHS 2001-2019.

Figure 5: Spatial Distribution of credit supply shocks



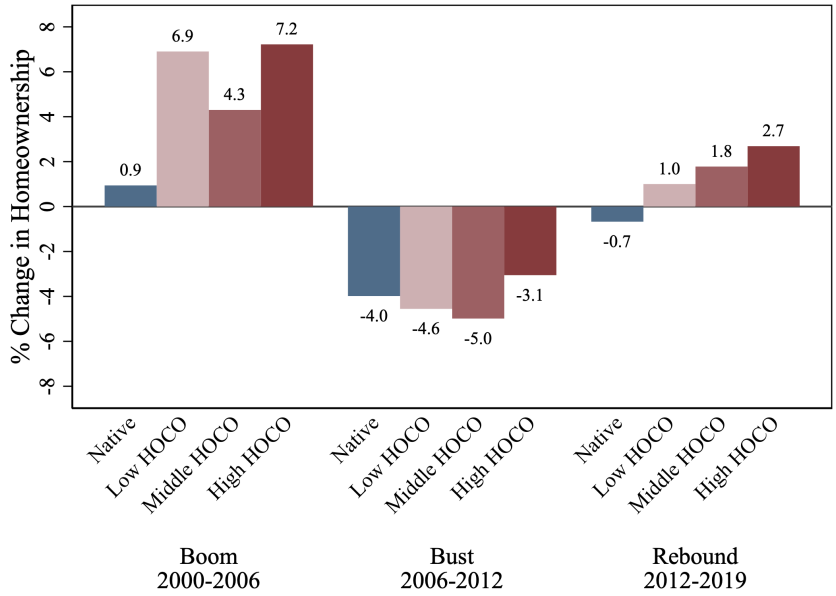
(A) Credit supply shocks: 2006



(B) Credit supply shocks: 2016

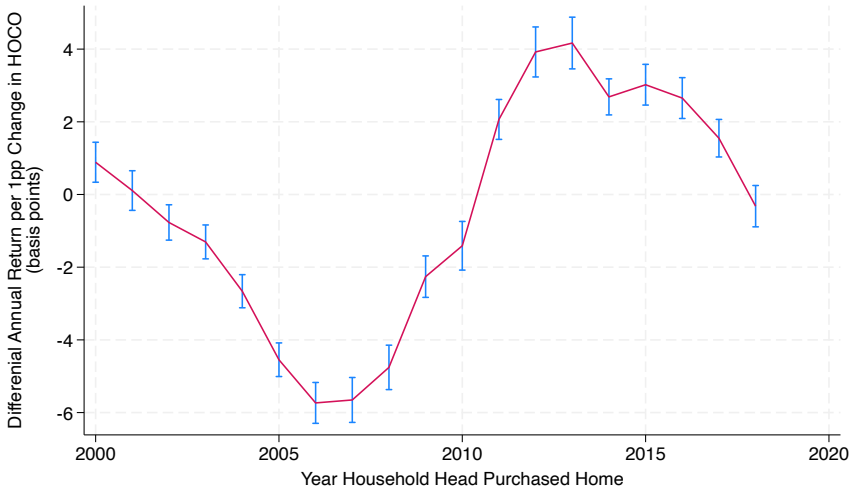
Notes: These maps plot the distribution of credit supply shocks at the county level. Darker colors have higher values of implied loan growth, and lighter colors denote lower values.

Figure 6: Homeownership Change by HOCO and Period



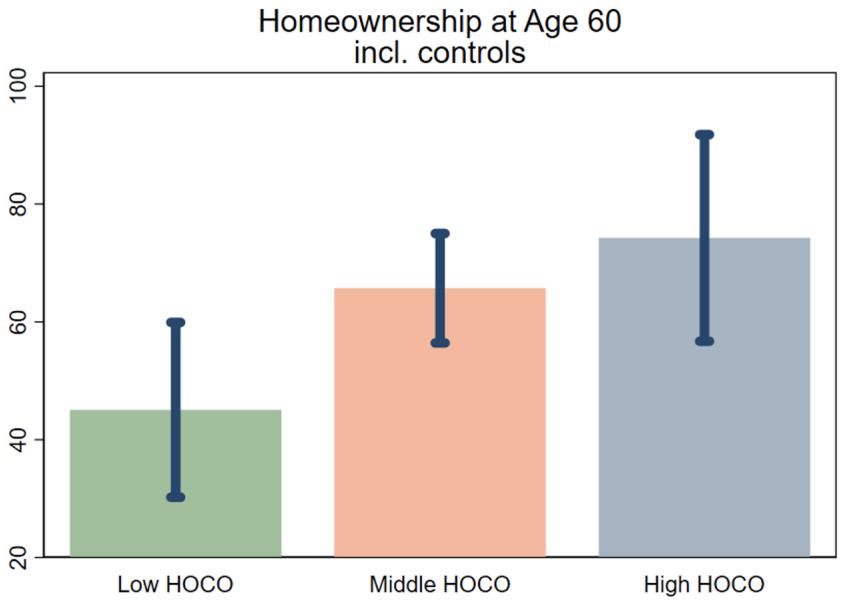
Notes: This figure shows the average change in the homeownership in percentage points among U.S.-born American residents, and foreign-born residents with a homeownership in their country of origin that is in the lowest, middle, or highest tercile of homeownership in the country of origin. (*HOCO*). The graph and the assignment into terciles exclude Mexican origin foreign-born and residents where we were unable to assign a *HOCO* score.

Figure 7: Differential Annual Returns, by Year of Home Purchase



Notes: This figure shows the additional annual returns to homeownership per 1 percentage point increase in HOCO, by year of home purchase.

Figure 8: Homeownership by HOCO Tercile at Retirement Age



Notes: This figure shows the average homeownership in percentage points among foreign-born respondents in the Health and Retirement Study with a homeownership in their country of origin that is in the lowest, middle, or highest tercile of homeownership in the country of origin (*HOCO*). The graph and the assignment into terciles exclude Mexican origin foreign-born and residents where we were unable to assign a *HOCO* score. The homeownership rates are adjusted for the effect of the same control variables as included in column 2 of Table VI.

ONLINE APPENDIX

Appendix A. Wealth Imputation

In this section, we discuss the imputation of household non-housing networth using the PSID and ACS data. The PSID structure follows an initial set of households recruited in 1968, adding new households as the children of the original households form their own households, or as households otherwise split. This structure does not accomodate population representativeness as immigration evolves over time. As such, we limit the PSID sample to the 1997 and 2017 waves. These refresh the sample of households being surveyed by adding new households that had migrated to the United States between between 1968 and 1997 and between 1997 and 2017, respectively. We end up with 1,046 immigrant households whose heads are between the ages of 18 and 69, in keeping with our other sample restrictions.

We construct non-housing networth following Pfeffer, Schoeni, Kennickell, and Andreski (2016) and predict networth using a suite of socioeconomic and demographic variables. We add up checking and savings accounts, the value of business assets, stocks, IRA's, private annuities, vehicle networth (value less remaining auto loans) and any other real estate that is not the primary residence. We then compute the household's liabilities, adding credit card debt, loans from relatives, medical debt, legal debt, student debt and other non-specified debt, excluding primary and secondary mortgages on the primary residence. Non-housing networth is just non-housing assets less non-housing liabilities.

The predictive variables include fourth order polinomial in household income, race and hispanic status of household head and spouse (if applicable), household heads's level of education,age and gender, household head's age interacted with education to control for differential income profiles, whether there are children present in the home, whether the householder is married, as well as the interaction between marriage and children. Finally, we include census division fixed effects to control for differential non-housing wealth accumulation patterns across U.S. geographies, as well as continent fixed effects for immigrants' country of origin reflecting the fact that those immigrating from Europe may have differential wealth profiles to those from South America, for example. We are limited in the amount of geographic variation we can control for as our sample of $\sim 1,000$ immigrant households hail from only 38 states. Additionally, only 22 states have more than 10 households, limiting the residual variation should we control for state directly. For similar reasons, we cannot control for country of origin; the PSID only provides 16 broad regions which we map to continents as many of these regions have very few households. Observations are weighted by the cross-sectional family weight provided by the PSID.

Figure BII plots the predictive ability of our model. The regression's R^2 is 0.22, suggesting that many wealth determinants have not been directly accounted for. Nonetheless, the model fits the data quite well up to networths of \$800,000, suggesting that most of the remaining wealth determinants are most predictive of the right tail (we have only 17/1,1049 households with non-

housing networths above $800,000), not the main sample.

Next, we store the point estimates associated with each of our socioeconomic and demographic predictors of wealth and apply them to our sample of migrants in the ACS data. This allows us to impute non-housing networth as the sum of the model inputs times their respective parameters. Figure BIII compares the actual distribution of non-housing networths observed in the PSID to the imputed non-housing networths we build using the ACS data and PSID-derived coefficients. The ACS immigrant sample, composed of nearly 4 million households, yields a distribution with more networth variation than that in the PSID, which is based on only about 1,000 households. Nonetheless, visual inspection of the two distributions shows many similar characteristics: mean networth near 0, with a significant right tail after about $500,000, and smalll mass of households with negative networth between $0 and -$500,000.

Appendix B. Health and Retirement Study Data

The overall goal of our analysis using Health and Retirement Study data is to estimate the effect of the homeownership in foreign-born respondents' countries of origin on their portfolio holdings at the end of their working life (around age 60). The two data sources used in this analysis are:

1. RAND HRS Longitudinal File (provided by HRS)
2. Homeownership by marriage status and country of origin ("HOCO"), collected from public data sources.

We transform and restrict the RAND HRS data in the following way to obtain our analysis subsample:

- Merge RAND HRS and HOCO data based on country of birth information (only available in the restricted access files) and also by marriage status
- Identify which survey waves occur closest to age 60 for each respondent and keep only respondents that are 55-65 years old at the time of at least one wave
- Retrieve all variables of interest from the survey wave when the respondent is (closest to) 60 years old (see variable definitions below)
- All final analyses also subset the sample to only include the foreign-born (for whom we have HOCO data), to only include one respondent per household (in couples, the financial data respondent) and only include respondents that are married or partnered at the time of the wave (in order to make households comparable)
- Some analyses additionally subset the sample to exclude respondents born in Mexico to show that the results are robust to excluding this largest country of origin; some analyses also subset only to respondents who did not live in the US when they were going to school.
- Analyses that concern wealth shares additionally condition on the numerator and denominator of portfolio share measures being non-negative and positive, respectively.

The analyses shown in the corresponding results tables consist of cross-sectional regressions that regress the portfolio holdings of the respondent's household at age 60 on their HOCO and additional household-level control variables – and the tables only report the coefficient on the HOCO variable. The sample sizes of the regression samples are indicated in the row "Observations" in the tables. The smallest regression sample represents 41 different countries of origin. The independent variable is continuous, so it represents an average effect for the full group indicated by that sample size.

Country HOCO terciles. For some analyses, we tabulate average homeownership rates by tercile of HOCO (low, medium, high), with or without controlling for the effect of demographic control variables. The HOCO tercile groups (Low, Middle, High) shown in the homeownership figures consist of the following numbers of respondents from the HRS:

The first group represents respondents from 9 different countries, the second and third group represent 16 different countries each. For reasons of data privacy, we are not allowed to provide further details on the countries included in each group.

Hoco Tercile	Respondents	Percent
1	49	21.97
2	97	43.50
3	77	34.53
Total	223	100.00

Definitions of key outcome and independent variables in HRS analyses

We use or construct the following variables for the HRS analysis, with variable names in the HRS RAND Longitudinal data noted in parentheses where applicable:

HOCO: Homeownership in country of origin, manually collected from government statistics agencies or computed from public IPUMS data and imported into the VDI at the country-by-marriage-status level. Continuous variable

Homeownership at Age 60: Binary indicator for whether the gross value of the respondent's primary residence (*HwAHOUS*) at the time of the survey wave closest to their 60^{th} birthday is greater than \$5K.

Home Value Share of Total Wealth: Percentage measure that indicates the ratio of the net value of the respondent's primary residence (*HwATOTH*) to total wealth (*HwTOTB*) at the time of the survey wave closest to their 60th birthday. Set to missing if the numerator is negative, or the denominator is non-positive.

Total Wealth: Total wealth (*HwTOTB*) in dollars at the time of the survey wave closest to their 60th birthday.

Net Value of Primary Residence: Net value of the respondent's primary residence (*HwATOTH*) in dollars at the time of the survey wave closest to their 60th birthday.

Total Wealth excl. Primary Residence: Total wealth (*HwTOTB*) in dollars minus net value of the respondent's primary residence (*HwATOTH*) in dollars at the time of the survey wave closest to their 60th birthday.

1[Owns Stock]: Binary indicator for whether the gross value of the respondent's assets in stocks (*HwASTCK*) at the time of the survey wave closest to their 60th birthday is greater than \$5K.

Stock share of Wealth excl. Real Estate: Percentage measure that indicates the ratio of respondent's assets in stocks (*HwASTCK*) to total non-housing wealth (*HwTOTN*) at the time of the survey wave closest to their 60th birthday. Set to missing if the numerator is negative, or the denominator is non-positive.

Definitions of additional control variables used in HRS analyses:

Demographic controls: These control variables (included where indicated in the tables and figures) are all for the respondent characteristics at age 60 and consist of categorical variable dummies for respondent marriage status (*RwMSTAT*), a continuous variable for age (*RwAGEY*), a dummy for gender (*RwAGENDER*) and dummies for the survey wave that the Age 60 data for

the respondent is from. It also includes a dummy for whether the respondent was born in Mexico. Additionally, it controls for continuous total household income ($HwITOT$) and an indicator for respondent education, which is a binary for whether they are a high school graduate ($RwAEDUC$ is 3, 4, 5).

Non-housing wealth controls: These control variables (included where indicated in the tables and figures) are all for the respondent characteristics at age 60 and consist of the total non-housing wealth ($HwTOTN$) in dollars.

School outside US: This is a binary indicator for whether the foreign-born respondent lived in a US state when they went to school. It is constructed from the restricted access geographic variable WHRLIV10 and is a binary indicator. Where indicated, the analyses exclude anyone who lived in the U.S. when they went to school from the sample.

Appendix C. Additional Tables

Table AI: Homeownership rates for selected countries of origin, using hand-collected data

Rank	Origin	$\%\text{Pop}^{00}_{USA}$	*HOCO*	Year	Source
1	Mexico	3.26	68	2018	OECD report: HM1.3-Housing-tenures
2	China	0.54	90	2015	Chen, Li and Wu (2021)
3	Philippines	0.49	64	2019	Philippine Statistics Authority
4	India	0.36	87	2011	Census of India (2011)
5	Vietnam	0.35	88	2019	Vietnam General Statistics Office
⋮					
71	Belarus	0.01	77	2009	UN Statistics Division
74	Sierra Leone	0.01	79	2004	Statistics Sierra Leone
	United States	86.45	63	2018	American Community Survey

Notes: The summarizes our hand-collected homeownership rates, by country of origin (*HOCO*) for the largest country-of-origin groups among immigrants residing in the U.S. The table moves downward by the population share of each immigrant group. It also displays their share of the total U.S. population in 2000 (according to Decennial Census data), the data source for homeownership, and data reporting year for homeownership. At the bottom, we provide the US population share, and the homeownership rate in 2018. Full table of 60 countries with homeownership data available upon reuqest. Population shares of 14 countries we could not find reliable homeownership data: Cuba, 0.31%; El Salvador, 0.29%; Iran, 0.1%; Ukraine, 0.1%; Guyana, 0.08%; the former Yugoslavia, 0.04%; Lebanon, 0.04%; Bosnia and Herzegovina, 0.04%; Syria, 0.02%; Barbados, 0.02%; Afghanistan, 0.02%; Polynesia, 0.01%; Melanesia, 0.01%; Micronesia, 0.006%

Table AII: Effects of HOCO on Tenure Choice: Country Characteristic Controls

Dependent var.:	Household Homeownership$_{it}$ (in %)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
HOCO (%)	0.092***	0.165***	0.157***	0.163***	0.108**	0.179***	0.168***	0.167***
	(0.03)	(0.05)	(0.05)	(0.05)	(0.05)	(0.04)	(0.04)	(0.03)
GDP per capita (2021 USD)		0.082						-0.098
		(0.05)						(0.13)
Urban population (% of total)			0.008					0.118**
			(0.04)					(0.05)
Consumer price inflation (annual %)				-0.147				0.012
				(0.12)				(0.24)
Domest. credit by fin. sector (% GDP)					0.030***			0.022
					(0.01)			(0.02)
Property rights index						0.032		0.106
						(0.05)		(0.10)
Investment freedom index							-0.001	-0.074
							(0.06)	(0.07)
Observations	3,436,252	3,436,252	3,385,624	3,223,662	2,100,486	3,175,701	3,175,701	2,060,006
R-Squared	0.32	0.31	0.31	0.31	0.30	0.31	0.31	0.30
Household Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Commuting Zone × Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Major religion FE	Yes	No	No	No	No	No	No	Yes

Notes: This table shows the results of estimating the same specification as column 4 of Table II, and additionally controlling for country-of-origin characteristics. Each column adds in one characteristic as a control variable. On the one hand, we add Major religion fixed effects (column 1) and 2000-2020 averages of economic characteristics from the World Bank's World Development Indicators: GDP per capita (column 2), urbanization rate (column 3), annual inflation rate (column 4), and domestic credit to private borrowers as a share of GDP (column 5). On the other hand, we include indicators of property rights (column 6) and investment freedom (column 7) from the Heritage Foundation, which are averaged over 2000-2008, and for which higher numbers indicate more rights. Column 8 jointly includes all of these characteristics and fixed effects. Heteroskedasticity-robust standard errors clustered at the origin country level shown in parentheses. *,**, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Table AIII: Effects of Homeownership in Country of Origin on Tenure Choice: Additional Specifications and Robustness Checks

Dependent var.:	Household Homeownership$_{it}$ (in %)							
	(1) By Gender	(2) By Educ.	(3) By Years since Immig.	(4) Mig. Char. Controls	(5) Excl. 5 largest Orig. Ctries	(6) Nat. avg. HOCO Data	(7) Gov. source HOCO Data	(8) AHS Data
HOCO: by marriage status	0.171***	0.178***	0.004	0.144***	0.189***			0.170***
	(0.05)	(0.05)	(0.08)	(0.05)	(0.05)			(0.06)
HOCO × Male	-0.037***							
	(0.01)							
HOCO × College Educ.		-0.075**						
		(0.03)						
HOCO × LT Resident (> 10 Yrs)			0.196**					
			(0.08)					
HOCO: microdata national avg.						0.083		
						(0.09)		
HOCO: gov. sources national avg.							0.148*	
							(0.08)	
Observations	3,436,252	3,436,252	3,436,252	3,436,252	1,636,834	3,093,899	3,485,350	49,094
R-Squared	0.31	0.31	0.31	0.32	0.33	0.31	0.31	0.32
Household Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Commuting Zone × Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
CBSA × Year FE	No	No	No	No	No	No	No	Yes

Notes: This table shows the estimation results from additional specifications that vary particular aspects of the baseline regression in column 4 of Table II. The first three columns check for differential impacts by characteristics of household head: whether the head is male, his or her education level, and how long the head has been in the U.S. Column 4 controls for average migrant characteristics by origin country. Column 5 excludes the five largest immigrant groups in the U.S. from the sample. Column 6 substitutes our preferred marital status - by - origin *HOCO* measure with average homeownership rate in country of origin. Column 7 uses hand collected data from governmental reports for *HOCO*, rather than estimating it from microdata. Column 8 utilizes the AHS sample instead of the baseline ACS sample. Heteroskedasticity-robust standard errors clustered at the origin country level shown in parentheses. *,**, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Table AIV: Effects of HOCO on Tenure Choice: Immigrated as Children

Dependent var.:	Household Homeownership$_{it}$ (in %)			
	(1)	(2)	(3)	(4)
HOCO (%)	0.995***	0.147***	0.138***	0.122***
	(0.09)	(0.05)	(0.04)	(0.04)
Observations	1,224,869	1,221,160	1,221,160	1,220,817
R-Squared	0.08	0.26	0.29	0.31
Household Characteristics	No	Yes	Yes	Yes
Commuting Zone FE	No	No	Yes	No
Commuting Zone × Year FE	No	No	No	Yes

Notes: This table shows the results of estimating Equation 1 in a pooled household level sample of households with foreign-born heads who are 18-69 years old, for the years 2000 and 2005-2019, and *who immigrated to the US when they were 18 years old or younger* as inferred from their age and immigration year. The dependent variable is an indicator of homeownership in percent (so 100 indicates that the household owns their home). The independent variable is the homeownership rate in the country of origin (*HOCO*) of the household head for people with the same marriage status (single, married, separated/divorced, widowed). Household characteristic control variables consist of: HH Income, (linear and ventile indicators), predicted non-housing household net worth, Quadratic function of Age of HH head and 5-year age group indicators, indicators for educational achievement of HH head, Indicators for # of children and # of relatives in the HH, Indicators for discretized years since immigration of head, marital status of HH head, and the interaction between marital status and years-since-immigration categories. Heteroskedasticity-robust standard errors clustered at the origin country level shown in parentheses. *,**, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Table AV: Credit supply shock effects on geography-level loan growth.

Dependent var.:	$\Delta \ln \text{Loans}_{it}$			
	(1)	(2)	(3)	(4)
Panel A: County-year panel				
Credit Supply Shock$_{it}$	0.397***	0.416***	0.405***	0.387***
	(0.07)	(0.04)	(0.05)	(0.05)
Observations	34,756	34,756	34,744	34,696
Adj. R-Squared	0.04	0.65	0.64	0.65
Within R-Squared	0.04	0.12	0.12	0.14
Panel B: Czone-year panel				
Credit Supply Shock$_{it}$	0.512***	0.526***	0.510***	0.481***
	(0.09)	(0.06)	(0.06)	(0.06)
Observations	8,551	8,551	8,550	8,550
Adj. R-Squared	0.06	0.76	0.75	0.76
Within R-Squared	0.06	0.21	0.20	0.23
Year FE		X	X	X
Geography FE			X	X
Demographics				X

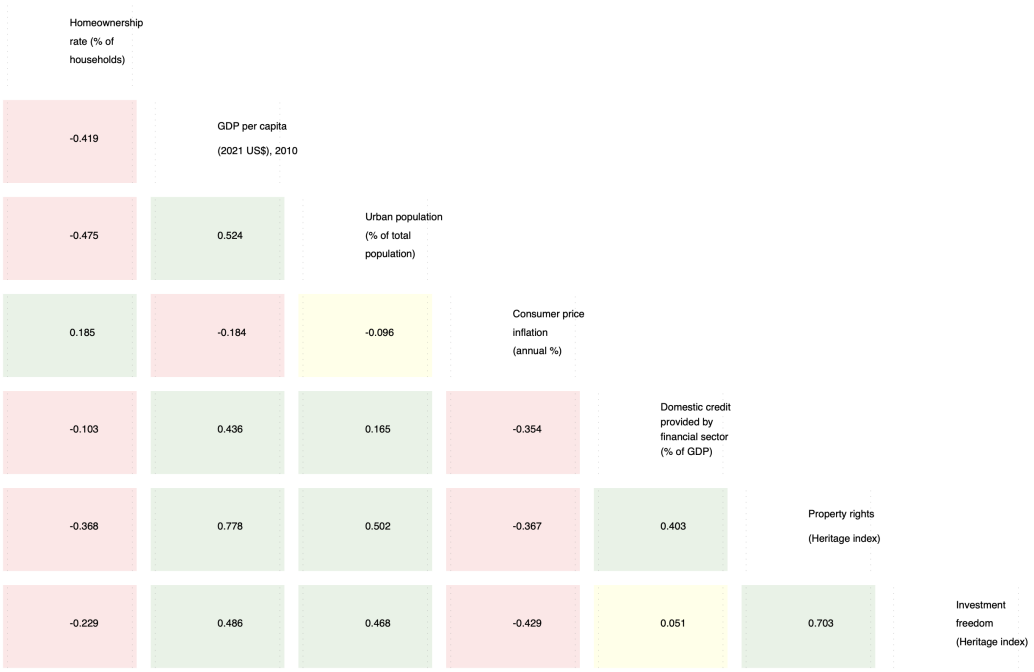
Notes: This table shows the results of estimating equations of the form

$$\Delta \ln \text{Loans}_{it} = \alpha_i + \alpha_t + \beta \hat{S}_{it} + \gamma' X_{it} + \epsilon_{it},$$

where i is the geography in a panel of U.S. counties or commuting zones for the years 2006-2017. The dependent variable is the change in the log of total loans in HMDA data. The local mortgage credit supply shock $\hat{S}_{it}$ is constructed as the geography market share-weighted average of lender-level credit supply shocks. Lender-level shocks are estimated in a panel regression of lender-by-county-level loan growth on county-year fixed effects and lender-year fixed effects. The latter are aggregated into geography-level lending shocks by weighting them using the lagged loan share of the lender in that geography. Last, the raw lending shocks are residualized in a regression on loan and total lending demand shocks (the re-centered county-year fixed effects from the lender-by-county-level regressions), geography fixed effects, and year fixed effects, with geography population weights based on IRS data. For the construction of these lending shocks, only lenders with loans in at least 3 counties in a given year are included, while the dependent variable contains all mortgage loans in the geography. The last column incudes time-varying average demographic characteristics of the geography, which are aggregated from ACS household level data. These demographic controls comprise household income, predicted non-housing household net worth, age of household head (simple and squared), share Hispanic, share college-educated, numbr of children in the household, share of relatives in the household, share of male household heads, share of married household heads. All regressions are weighted by the total number of loans in each geography-year cell. Heteroskedasticity-robust standard errors clustered at the commuting zone level shown in parentheses. *,**, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Appendix D. Additional Figures

Figure BI: Correlations between *HOCO* and Country Characteristics



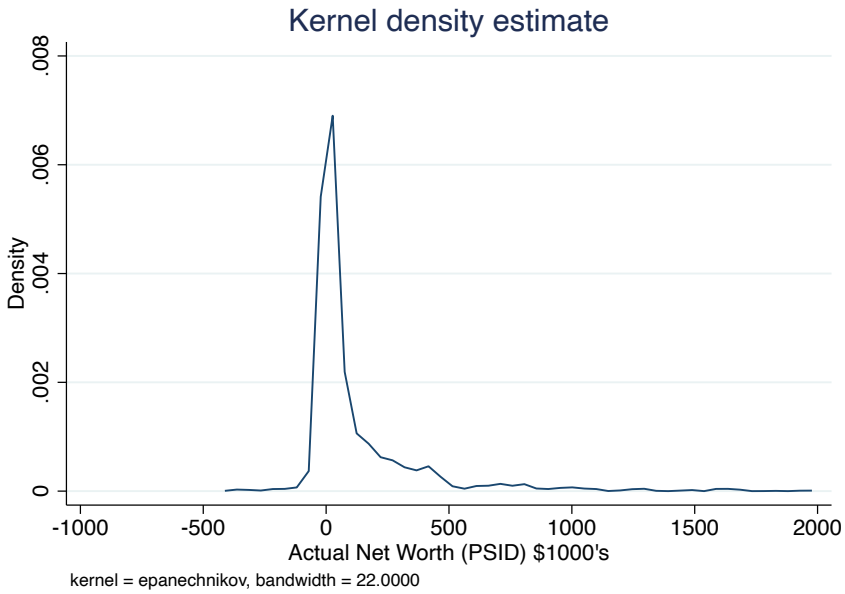
Notes: This matrix shows the correlations between the average (not marital-status-specific) homeownership rate in different countries and other country characteristics. On the one hand, the characteristics consist of economic characteristics like GDP per capita (in constant 2021 USD), urbanization rate, annual inflation rate, and domestic credit to private borrowers as a share of GDP - all of which are computed as averages of all available data for 2000-2020 from the World Bank's World Development Indicators. On the other hand, we include indicators of property rights and and investment freedom from the Heritage Foundation, which are averaged over 2000-2008, and for which higher numbers indicate more secure rights and greater freedom.

Figure BII: Actual vs. Predicted Networth in the PSID

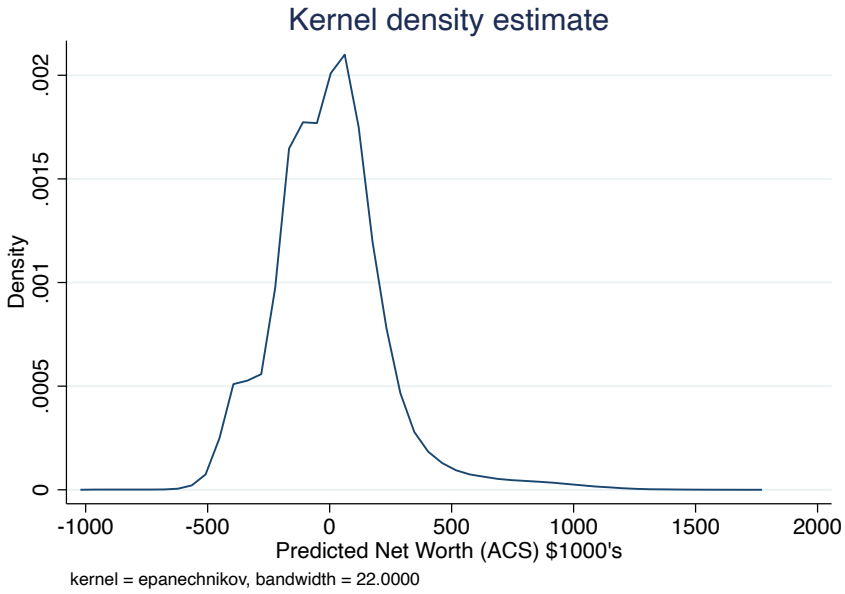


Notes: These figure plots a scatterplot of actual non-housing network vs. predicted housing networth as in section A. Weoverlay the scatterplot with the 45 degree line which would reflect perfect prediction. Data comes from the 1997 and 2017 PSID waves, restricted to immigrant households. Networth constructed according to Pfeffer et al. (2016), excuding assets and liabilities associted with the primary residence. Distribution of actual non-housing networth trimmed at $2 million for ease of inspection due to the long right tail in wealth, which drops 8/1,049 households from the figure.

Figure BIII: Distributions of Networths, by Dataset



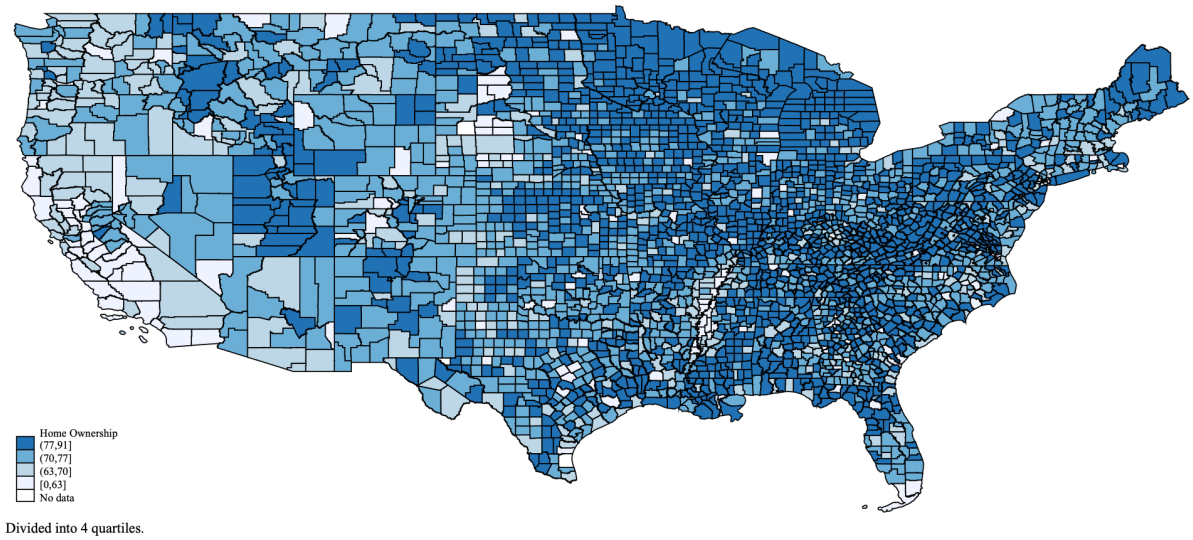
(A) PSID



(B) ACS

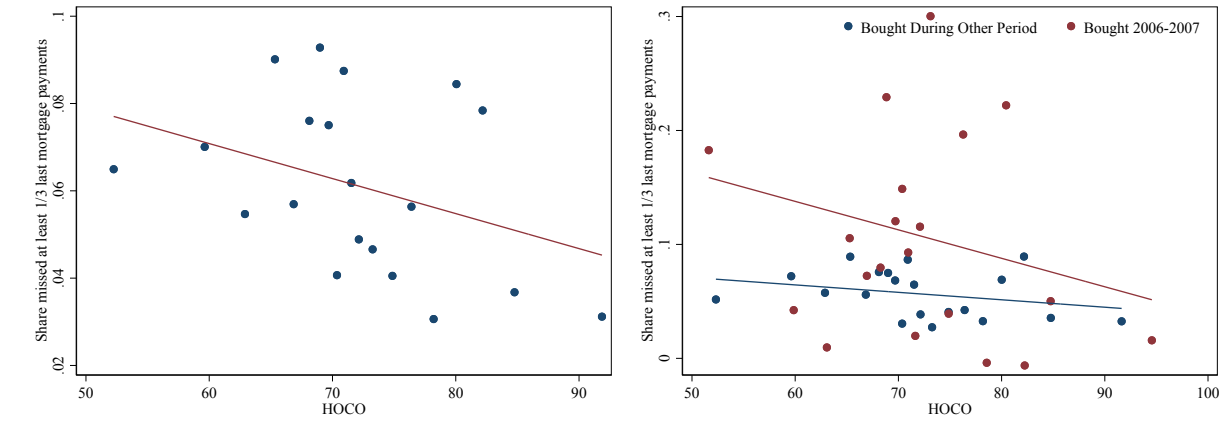
Notes: These figures plot the kernel density distributions of non-housing networths from the PSID and ACS immigrant samples. We show actual non-housing networth for the PSID, and imputed networth according to Appendix A for the ACS sample. Distribution of actual non-housing networth in the PSID trimmed at $2 million for ease of inspection due to the long right tail in wealth, which drops 8/1,049 households from the figure.

Figure BIV: Spatial Distribution of $HO_{d,2000}$



Notes: This map plots the spatial distribution of homeownership in 2000, at the county level. The map is divided into equal, population-weighted quartiles. Darker colors have higher values, and lighter colors denote lower values.

Figure BV: Delinquencies by HOCO, and period of Home Purchase

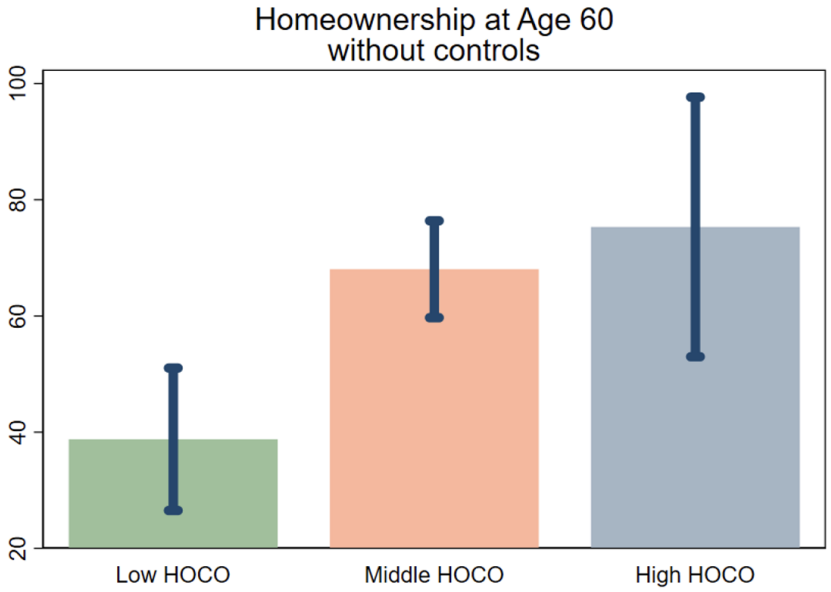


,

(A) Delinquencies by HOCO **(B)** Delinquencies by HOCO, period Bought

Notes: Binscatter using data from the 2013 and 2017 waves of the AHS. Sample covers homeowners with foreign born heads. Controls include household head education, race, ethnicity, marital status, number of family members and children in the home, and quadratics in household income, years in the US of household head, and age of household head, as in prior specifications and add debt-to-income and cost-to-income ratios. We include year-by-CBSA fixed effects. Heteroskedasticity-robust standard errors clustered at the commuting zone level shown in parentheses. *,**, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Figure BVI: Homeownership by HOCO Tercile at Retirement Age



Notes: This figure shows the average homeownership in percentage points among foreign-born respondents in the Health and Retirement Study with a homeownership in their country of origin that is in the lowest, middle, or highest tercile of homeownership in the country of origin (*HOCO*). The graph and the assignment into terciles exclude Mexican origin foreign-born and residents where we were unable to assign a *HOCO* score. The homeownership rates are adjusted for the effect of the same control variables as included in column 2 of Table VI.