First-Time Homebuyers: Toward a New Measure

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Abstract

Existing data sources show divergent estimates of the number of homes purchased by first-time homebuyers as a share of all home purchases. In this article, we use a new dataset to construct a time series of the share of first-time homebuyers. This series, based on the Federal Reserve Bank of New York Equifax Consumer Credit Panel, shows a significant decline in the share of first-time homebuyers, particularly among young households, consistent with the decline in homeownership in this age cohort since the early 2000s.

Introduction

The rate of homeownership in the United States has declined since the financial crisis and recession of 2007 through 2009. As of the third quarter of 2017, the U.S. homeownership rate was 63.9 percent, substantially below its peak of 69 percent in 2004 and near a 50-year low. The decline in homeownership is particularly pronounced among young and minority households (Acolin, Goodman and Wachter, 2016). No disagreement exists on the measurement of this decline, which is based on census data reported quarterly (U.S. Census Bureau, 2017).[1] Disagreement does exist, however, on an important component of aggregate homeownership: first-time homebuyers as a share of all purchasers.

The estimated number of first-time homebuyers is an important statistic because it provides data on initial access to homeownership for those who may be renters or living with their parents. It also has implications for future economic activity in the housing sector because households typically move from rentals to starter homes and then to larger homes over the life cycle. Nonetheless, no comprehensive data source is currently available on the number or share of first-time homebuyers in the United States. These statistics are not measured in the decennial census, the annual American Community Survey (ACS), or the monthly Current Population Survey (CPS). A measure of first-time homebuyers exists in the biennial American Housing Survey (AHS) but is limited by the AHS sampling frame and thus cannot be used to identify changes over time for the U.S. market in aggregate.[2] In the absence of census data, two alternative data sources have been developed and used to provide updates on first-time homeownership trends. These data sources report divergent trends in the share of first-time buyers.

The first source is a measure developed by the American Enterprise Institute (AEI) and the Urban Institute (UI) based on mortgage origination data, which shows no decrease since the subprime mortgage crisis. The second source, a survey developed by the National Association of Realtors® (NAR), finds a substantial decrease in the share of first-time homebuyers over time. The AEI/UI measure provides data on the share of first-time homebuyers among users of agency debt, and the NAR measure uses the share among all purchasers, including cash purchasers. In this article, we develop a new measure of first-time homebuyers, using all sources of mortgage funding. Using this measure, we compare, over time, the use of mortgage debt for first-time purchases of homes by age group and by credit score characteristics of borrowers.

We make use of the Federal Reserve Bank of New York Equifax Consumer Credit Panel (CCP), which has been developed with the goal of tracking credit usage, including the use of mortgages in the aftermath of the 2007 subprime crisis (Lee and Van der Klaauw, 2010). This dataset consists of a nationally representative 5-percent sample of credit records.

Using the CCP, we measure the number of first-time homebuyers during the 2002-through-2015 period by identifying borrowers who previously did not have a mortgage and combine this

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[1] Available at http://www.census.gov/housing/hvs/data/histtabs.html.

[2] Including a question about first-time homebuyers in the ACS, the CPS/Housing Vacancy Survey, or both would provide a source of reliable estimates. In its absence, the challenges in estimating the number of first-time homebuyers are similar to those faced in obtaining a reliable measure of household formation (Masnick, Giordmaina, and Belsky, 2010; McCue, Masnick, and Herbert, 2015).

measure with U.S. Department of Housing and Urban Development (HUD) data on all home purchases to derive a measure of the trend in first-time homebuyers as a share of overall purchases over time.

The rest of the article is organized as follows. In the following section, we review homeownership shares and first-time homebuyer shares among all home purchasers, based on measures developed in previous studies. The subsequent section applies the new measure of first-time homebuyers using the CCP, to reconcile the different measures of first-time homebuyers, and relates the findings to changes in the funding sources for access to homeownership. The conclusion follows.

First-Time Homeownership Trends: Measurement Over Time

Exhibit 1 provides time series data on the share of first-time homebuyers from the two widely used existing measures, (1) the NAR survey-based data and (2) the composite data from the government-sponsored enterprises (GSEs) Fannie Mae and Freddie Mac and from the Federal Housing Administration (FHA), which AEI and UI have used to report on first-time homeownership trends (American Enterprise Institute, 2015; 2017; Bai, Zhu, and Goodman 2015).

The two series provide broadly similar measures from 2001 to 2005, with first-time homebuyers relatively constant at about 40 percent of overall homebuyers. The NAR measure shows a decrease in first-time homebuyer share in 2006. Both measures exhibit increases after 2006, which continue until 2009 (AEI/UI) or 2010 (NAR), although the NAR trend line increases less. After that, major

Exhibit 1

Comparison of the Measures of the Share of First-Time Homebuyers
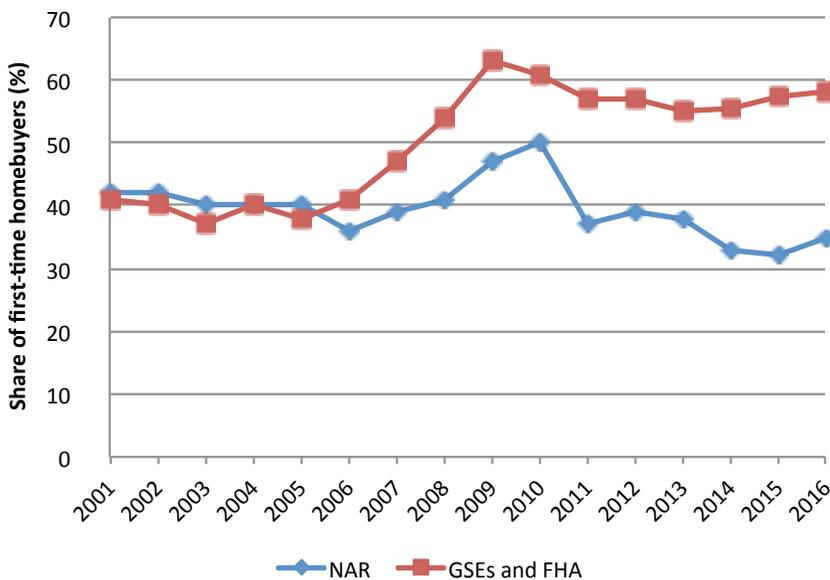
FHA = Federal Housing Administration. GSE = government-sponsored enterprise. NAR = National Association of Realtors®.
Sources: NAR; Federal Housing Finance Agency; FHA

differences emerge in the reported trends of first-time homebuyer share. The AEI/UI estimate shows the share of first-time homebuyers currently far above the 40-percent rate that prevailed before the housing market downturn, to rates of about 60 percent, with peaks of 63 percent in 2009 and 58 percent in 2016. The NAR measure shows the share of first-time homebuyers peak at 50 percent in 2010, but then decrease to a near 30-year low of 32 percent in 2015, increasing to 35 percent in 2016. As of 2016, the difference between the NAR and the AEI/UI measures is 23 percentage points.

These measures diverge due to differences in data sources and methodology used to identify first-time homebuyers. As noted, the NAR measure relies on survey results of all buyers. NAR sends a questionnaire to a random sample of primary resident homebuyers within the previous year (for example, home purchases between June 2014 and June 2015 for the 2015 results). The survey based on all purchase transactions includes both cash transactions and mortgage transactions.[3]

The measure AEI and UI use relies on historical monthly data from Fannie Mae, Freddie Mac, and FHA. The data include mortgages sold to the GSEs and mortgages covered by FHA mortgage insurance. Purchases made with mortgages held in lenders' portfolios, cash purchases, and noninstitutional privately transacted mortgages are not included.[4]

With the disappearance of subprime lending and withdrawal of private securitization from the mortgage market after 2006, first-time homebuyers became concentrated in the FHA, Fannie Mae, and Freddie Mac segments of the mortgage market (with jumbo loans concentrated in the bank portfolio segment). Thus, the FHA, Fannie Mae, and Freddie Mac segments became less representative of the market as a whole and would be apt to overstate the share of first-time homebuyers. In addition, as Urban Institute (2016) pointed out, the exclusion of cash transactions in the AEI/UI measure increases the reported share of first-time buyers relative to the NAR estimate because first-time homebuyers are less likely to be cash buyers.

The CCP Data on First-Time Homeownership

Almost all first-time homebuyers use debt. A comprehensive measure of the share of first-time homebuyers using mortgage debt can be constructed using the Federal Reserve Bank of New York Equifax CCP. The CCP provides a broad measure of first-time homebuyers who use mortgage debt. The CCP dataset also includes individual characteristics such as age, credit score, and information about household-level credit and debt—including second-lien mortgages, credit cards, automobile loans, and student loans—and thus can be used to analyze the relationship among different uses of debt and access to homeownership using a mortgage.

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[3] The survey is restricted to principal residence purchases only; it does not include investor or vacation homes. For the 2016 "Profile of Home Buyers and Sellers," NAR mailed a survey to a random sample of 93,171 recent homebuyers who had purchased a home between July 2015 and June 2016. Of the responses received, 5,465 responses were from primary residence buyers, resulting in an adjusted response rate of 5.9 percent after accounting for undeliverable addresses (National Association of Realtors®, 2016).

[4] The Federal Housing Finance Agency first made these historical databases available to the public in 2013. In the data, first-time homebuyers are defined as those individuals who did not own a property with a mortgage within the past 3 years (FHFA, 2013).

The CCP provides quarterly detailed credit report data dating back to 1999[5] for a 5-percent representative random sample of individuals with at least one credit record. The random selection of the database is based on consumers with a Social Security number (randomizing the last two digits of the Social Security number). The database follows the characteristics and credit performance for these 5 percent of randomly selected consumers (so-called Primary consumers) for the entire data period (until their death or bankruptcy filing, resulting in no credit record for at least 6 months). In addition to data on the Primary consumers, the CCP also reports characteristics and credit performance of all the consumers who live in the same household (same address) as the Primary consumers (although their characteristics would stop being reported once they moved out of the Primary consumer's household). The dataset of the consumer-quarter panel is not a balanced panel—exits occur due to factors such as young adults acquiring a credit record and death.

This longitudinal panel of individuals and households makes it possible to identify households that have taken out a mortgage and did not have one previously. We focus on the household level because the Primary consumers in the CCP may not be the head of the household (and thus would not have mortgage debt), but others in the household who may not be the Primary consumer would have mortgage debt. In addition, when the head of the household passes homeownership on to another household member, we also capture that it is not a new homebuyer. Using the CCP dataset, we identify first-time homeownership with a household that obtains a mortgage in a given quarter and shows no mortgages reported in its credit file during the previous 3 years.[6] The 3-year prior observation window is similar to the one used in the AEI/UI measure. Note that some households identified as first-time homeowners by this criterion may have owned a home but did not have a mortgage (originally having purchased the home with cash or having already paid it off), but such cases should be relatively infrequent.

The CCP provides information about the number of new homebuyers using a mortgage but not about the total number of home purchase transactions regardless of whether they involved a mortgage. Therefore, we use HUD estimates about new and existing homes sold (HUD, 2017), which aim to capture all transactions as the denominator.[7] Exhibit 2 shows the total number of home sales from HUD and the number of households that take out a first-lien purchase mortgage in a given year and did not have one in the previous 3 years, the CCP-based measure of first-time homebuyers.[8]

Given that the CCP data series starts in 1999, the measure of first-time homebuyers, with a 3-year lag, begins in 2002 and goes until 2015. The number of first-time homeowners is estimated to be more than 3 million each year during the period 2002 to 2005, peaking at almost 3.5 million in

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[5] Equifax has provided this dataset to the Federal Reserve System since 2010 (Lee and Van der Klaauw, 2010). A drawback of this dataset is that it is not available to the public.

[6] Gyourko, Lee, and Tracy (2015) also used this method.

[7] We use HUD data for the denominator due to the difficulty of identifying owner-occupied home purchase mortgages in Equifax. This approach is limited due to the potential biases and noise introduced by relying on two different sources for numerator and denominator. However, it should capture the universe of home purchases in a given year.

[8] The total number of first-time homebuyers is very sensitive to various sample construction methods in the CCP; however, the trend of declining first-time homebuyers is robust across multiple possible definitions. Appendix A provides details and assumptions of the steps followed to identify household members in the CCP and limits associated with the CCP household definition.

Exhibit 2

Total Number of Home Sales Versus First-Time Homebuyers (2002–2015)
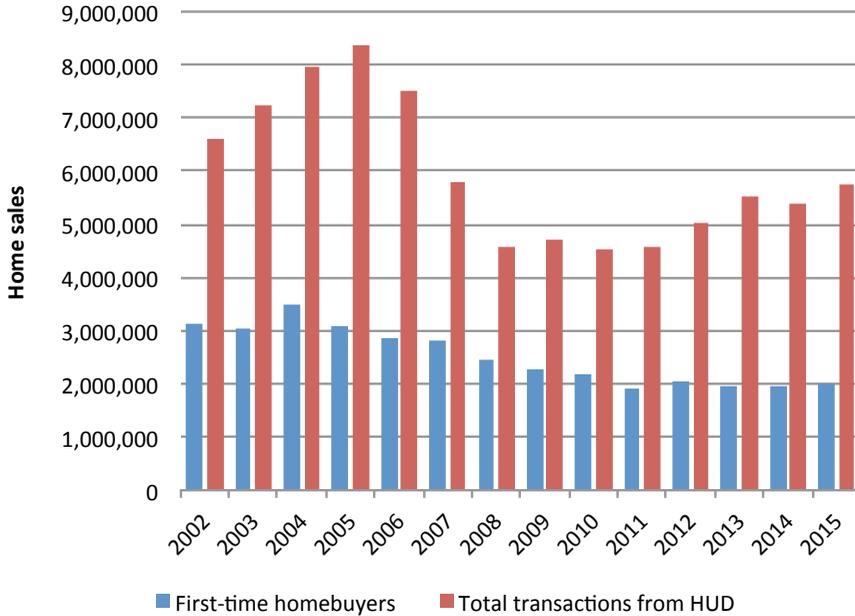
HUD = U.S. Department of Housing and Urban Development.
Sources: Federal Reserve Bank of New York Equifax Consumer Credit Panel; HUD database

2004. It then declines to 1.9 million in 2011 and remains very stable around 2 million through 2015, which is well below the historical levels. As of 2015, the number of first-time homebuyers is estimated to be roughly one-third below the level experienced during the housing boom.[9]

Using the HUD data to measure total home purchases, first-time homebuyers comprised about 40 percent of homebuyers between 2002 and 2004 (exhibit 3), a share consistent with the two existing measures.[10] The share decreases to 37 and 38 percent of all homebuyers in 2005 and 2006, respectively, directionally similar to the NAR series. That decline may reflect that, during the peak of the housing boom, many households were trading up and investors represented an increasing share of purchases (Haughwout et al., 2011). Subsequently, through the 2007-through-2010 downturn period, the first-time homebuyer share is elevated, likely reflecting the reduced mobility of existing homeowners (due to the drop in home prices) and a drop in first-time, all-cash buyers with a greater investment motive. Between 2010 and 2013, the share of first-time buyers declines sharply in this series and has remained low since then. The share of first-time homebuyers represents about 35 percent of all transactions in 2015.

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[9] Given the natural exit from homeownership of households transitioning from owning to renting or passing away, and added exit due to foreclosures, the decline in the number of first-time homeowners resulted in no net change in the number of homeowners in the 2006-to-2016 period. As of 2016, the number of homeowner households was 75.0 million compared with 75.4 million in 2006 (U.S. Census Bureau, 2017).

[10] This share would be lower if we used never having had a mortgage instead of not having had one within the last 3 years.

Exhibit 3

Share of First-Time Homebuyers (2002–2015)
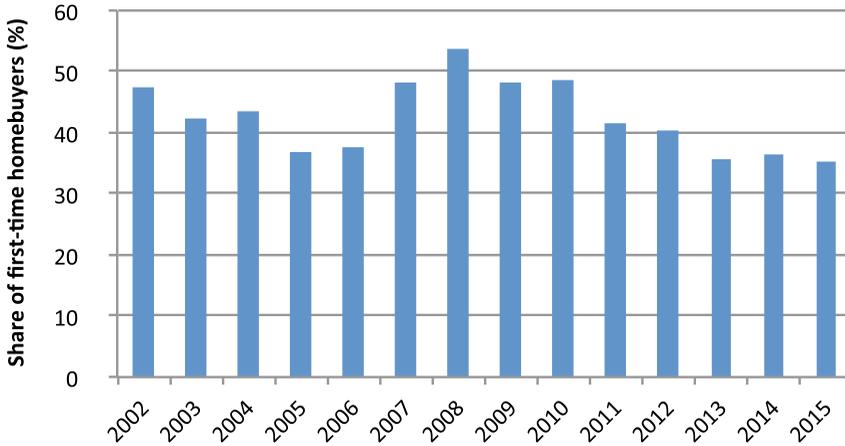
Sources: Federal Reserve Bank of New York Equifax Consumer Credit Panel for first-time homebuyers; U.S. Department of Housing and Urban Development for home sales

Further, we break down the total number of first-time homebuyers by age group. Across all age groups, we see significant declines in the number of first-time homebuyers from 2004 to 2011 (exhibit 4). After 2011, the number of first-time homebuyers stabilizes, for each of the age groups, at lower levels than the precrisis highs. Overall, from 2004 to 2015, the number of first-time homebuyers has declined roughly 40 percent for all three age groups. This suggests that the decline in first-time homebuyers is not simply due to younger people delaying home purchases by a few years; rather, purchase behavior seems to have shifted across all age groups.

Exhibit 4

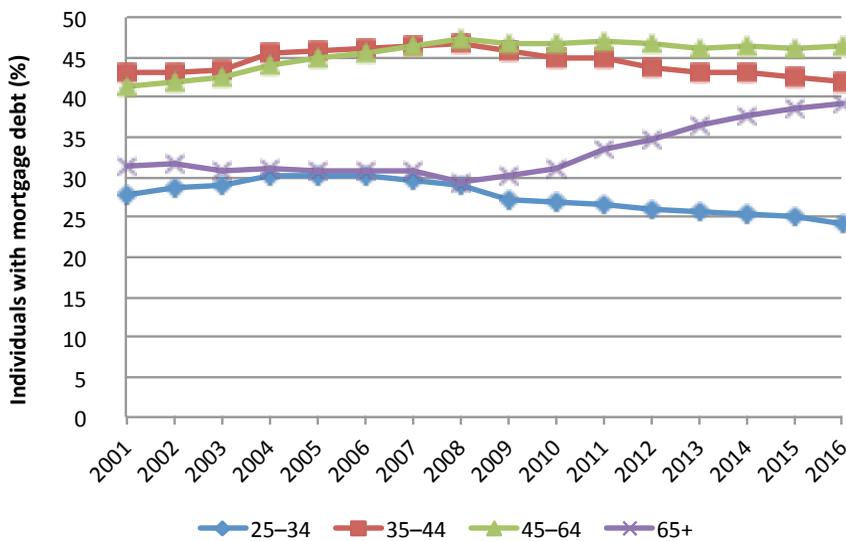Number of First-Time Homebuyers by Age Group (2002–2015)
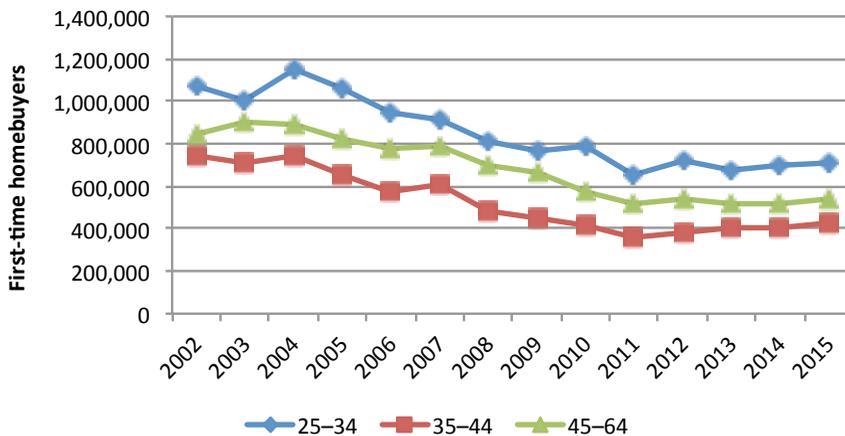
Source: Federal Reserve Bank of New York Equifax Consumer Credit Panel

We also estimate the share of individuals with a mortgage (as a ratio to all individuals with a credit record) by age groups. The CCP data show that it is younger people, under the age of 35, who have experienced the largest drop in the share of individuals with a mortgage (exhibit 5).[11]

The CCP allows us to examine the credit characteristics of mortgage debt holders. Exhibit 6 shows the share of first-time homebuyers by credit score level and the share of all households with a mortgage. It shows that the decline in the share of individuals with mortgage debt is most pronounced among lower-credit-score borrowers and that they represent a smaller share of first-time homebuyers in the postcrisis period. This finding is consistent with access to credit playing a role in the decrease in first-time homebuyers, as reported in Bhutta (2015). Another factor that might contribute to delayed access to homeownership is student debt (Elliott, Grinstein-Weiss, and Nam, 2013; Mezza et al., 2016).[12]

Exhibit 5

Share of Individuals With Mortgage Debt, First Liens Only, by Age Group (2001–2016)
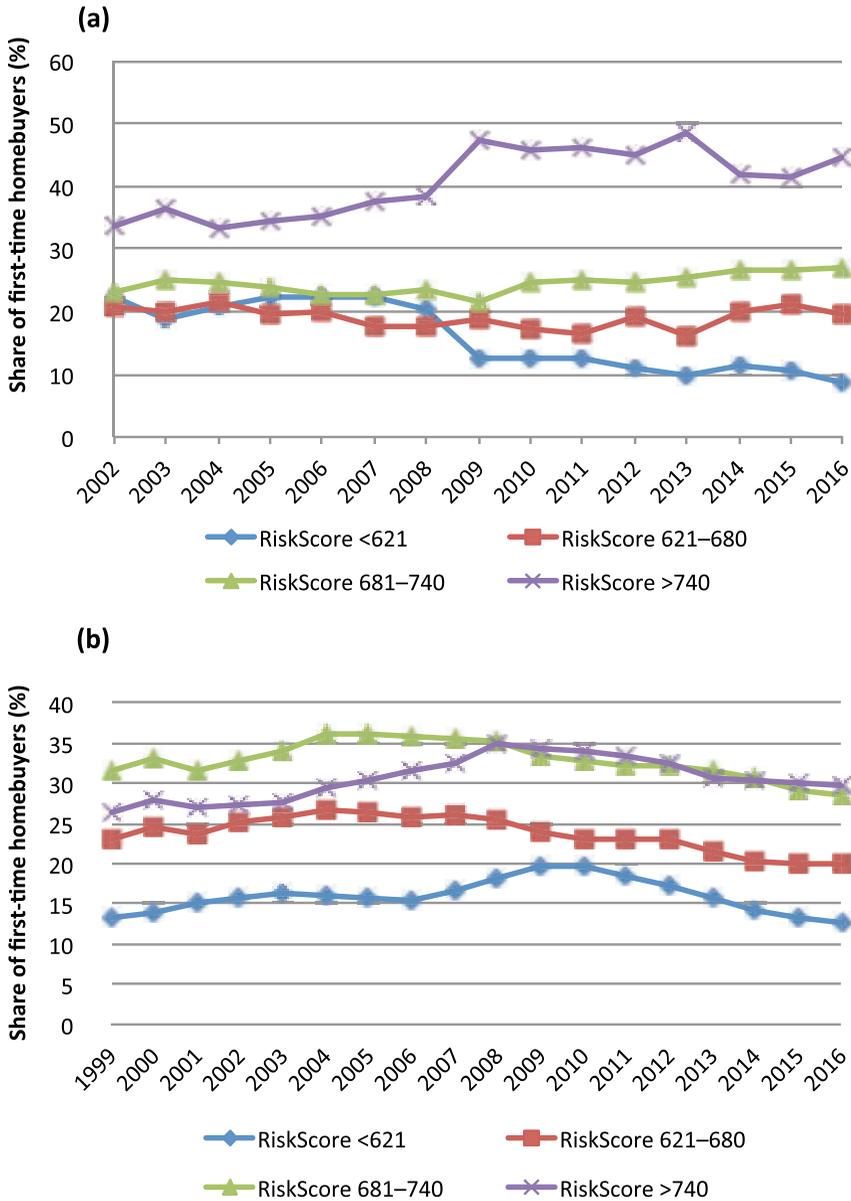

Source: Federal Reserve Bank of New York Equifax Consumer Credit Panel

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[11] These results on the decline in first-time homebuyers by age group imply that the drop in aggregate homeownership is not only the result of the forced transition from owning to renting by households experiencing foreclosure or short sales but also the result of fewer households, particularly younger households, gaining access to homeownership. These results are supported by findings reported in Bhutta (2015), who decomposed the entry and exit of mortgage debtors and found that the decrease in the volume of new entrants far outpaced the volume of exits.

[12] The role of student debt in postponing access to mortgages is consistent with findings that attribute the changes in the homeownership rate to the increased impact of credit constraints (Acolin et al., 2016a; 2016b).

Exhibit 6

Share of First-Time Homebuyers by Credit Score Level (a) and Share of Individuals
With a Mortgage by Credit Score Level (b)

(a)

(b)

Source: Federal Reserve Bank of New York Equifax Consumer Credit Panel

Conclusion

In this article, we present a new measure of first-time homebuyers as a share of all purchasers. Existing measures yield divergent assessments of this ratio. NAR provides a measure based on a survey, whereas AEI and UI provide measures based on administrative data and include only purchases with a mortgage that involved the GSEs or FHA. In this article, we use a new dataset to construct a time series of the share of first-time homebuyers. This series, based on the Federal Reserve Bank of New York Equifax CCP, shows a significant decline in the share. We also find a decline in the number of first-time homebuyers across all age groups relative to the early 2000s.

Appendix A: Data Steps

The Federal Reserve Bank of New York Equifax Consumer Credit Panel is a 5-percent sample of all individuals with at least one credit record. These individuals form the principal sample and are given an identification number (ID) that remains constant over time. In addition, in any quarter, a household ID is attributed to all credit records sharing the same address as individuals in the principal sample. Credit records for the members of that household are also available over time (until they move out of the Primary consumer's household).

We use the following steps to identify the number of first-time homebuyers defined as not having had a first lien mortgage in the previous 3 years and having one in that quarter—

- Extract all individuals in a given quarter and their household IDs.

- Drop duplicate household IDs so that each household has only 1 record.

- Draw a 1-percent sample of households.

- Match the household IDs from the household sample back to the individual IDs.

- Drop households with more than 10 records (likely to be multiunit addresses rather than real households). This sample is of individuals in the households used to determine the number of first-time homebuyers.

- Use the individual IDs to extract mortgage history for all individuals in the sample of households.

- Identify whether each individual had a mortgage in any of the previous 12 quarters. If an individual had no mortgage in any of these quarters and has one now, identify the individual as a first-time homebuyer, even if missing data during one or more quarters.

- If any member of the household is a new homebuyer and none of the household members had mortgages in the previous 3 years, identify the household as first-time homebuyer.

- Sum the number of first-time homebuyer households.

- Extrapolate the number of first-time homebuyer households identified from the sample to the entire population.

Acknowledgments

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Do It Yourself: Obtaining Updated Transit Stop and Route Shapefiles in Urban and Nonurban Areas

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Abstract

Research that combines housing and transportation aims to jointly understand the elements of neighborhood accessibility, affordability, and sustainability. Access to high-quality public transit and nonmotorized transportation helps reduce emissions and transportation costs for all households, including those with lower incomes. Transit access also expands the range of community destinations and shopping opportunities for those without cars. However, researchers often struggle to obtain accurate, geo-coded data—especially in suburban and nonurban areas—on transit station locations, routes, and schedules. This article highlights a newer tool, the General Transit Feed Specification (GTFS) from Google, which provides an open source database of updated transit data. This free data source combines static and dynamic transit data and can be incorporated into analysis using geographic information system, or GIS, software. It also significantly eases cross-sectional, rural, and metropolitan-areawide analyses of housing using transportation as a key input. This article summarizes the GTFS data type, gives an overview of methods for using the data, explores current uses of the data, and suggests future applications.

Introduction

Accessibility to employment and amenities is a primary input to a household's choice of residential location. In the monocentric city model, households commute to jobs in the central business district and select housing locations by trading off the cost of commuting longer distances versus the higher cost of housing closer to the city center (Alonso, 1964; Brueckner, 1987). Although many U.S. metropolitan areas are less monocentric today than they were in the middle of the 20th century, many households still commute to downtowns or to local employment centers and must