



# HOUSE OF CARDS

The Misunderstood Consumer Finance  
of Homeownership

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## The Misunderstood Consumer Finance of Homeownership

Homeownership is the most commonly used vehicle for building savings in the U.S., yet some believe that renting and investing may help families build more wealth and that this approach may be more accessible for wealth-building compared to homeownership. Homeownership proponents argue that the induced savings created by recurring mortgage payments, the added returns that can be created through debt leverage, and the external benefits generated by the pride of homeownership are reasons to buy instead of renting and investing in other assets. Rent and invest proponents argue that the superior performance of equity markets relative to housing markets are the reason to rent and invest instead of buying. To address this debate, HelloWallet constructed investment models to assess under what conditions it would be better for families to buy rather than rent and invest. We found:

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**Over half of current homeowners, or over 40 million households, purchased their homes during time periods when average homebuyers would have been better off renting and investing.**

During these time periods, the average homeowner could have built more wealth by renting and investing rather than buying. This finding is supported by historical data on housing appreciation, rent-to-price ratios, and the historical performance of investing in stocks and bonds.

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**Popular, free, online “buy-or-rent” calculators inflate the benefits of home buying, providing inaccurate guidance to more than 90 percent of renters considering whether to buy a home.**

Common mistakes made by these free calculators include: assuming that homebuyers will itemize their federal taxes, excluding highly-variable state and local tax information, and assuming that a low-return investment account is the only alternative to homeownership, despite the broad access Americans have to IRA accounts and 401(k) savings accounts.

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**Homebuyers with median incomes (\$50,000) realize no federal tax benefit in 75 percent of major cities.**

In addition, using our sample of 20 major cities, we found that median-income homeowners in another 15 percent of cities would receive total tax benefits of less than \$1,000. In contrast, higher-income homeowners would see their total costs of owning reduced by about 5.5 percent on average over 10 years from federal tax benefits in these cities.

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The typical, median-income prospective homeowner today could generate over 50 percent more net wealth over the next 10 years by renting and investing instead of buying a home.

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Based on research that indicates rent-to-price ratios are at about 5 percent nationally, we find that median-income families would accrue more wealth in every city we studied by renting and investing rather than buying if they indeed faced this rent-to-price ratio.

The cost of renting relative to buying a comparable home (called the “rent-to-price ratio”) is almost as important as expected home price appreciation for determining whether a person should rent or buy.

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The effects of small changes in the rent-to-price ratio are similar to the effects of small changes in appreciation.

We conclude with recommendations for helping more U.S. workers make better decisions about whether to buy homes, or rent and invest. In particular, we recommend specific changes for free, online calculators and a repurposing of the federal tax benefits for homeownership to serve a broader wealth-building agenda. We also recommend that employers help their employees make better decisions about whether to buy a home or more fully use an alternative tax efficient vehicle for savings, such as 401(k)s, IRAs or HSAs while renting.

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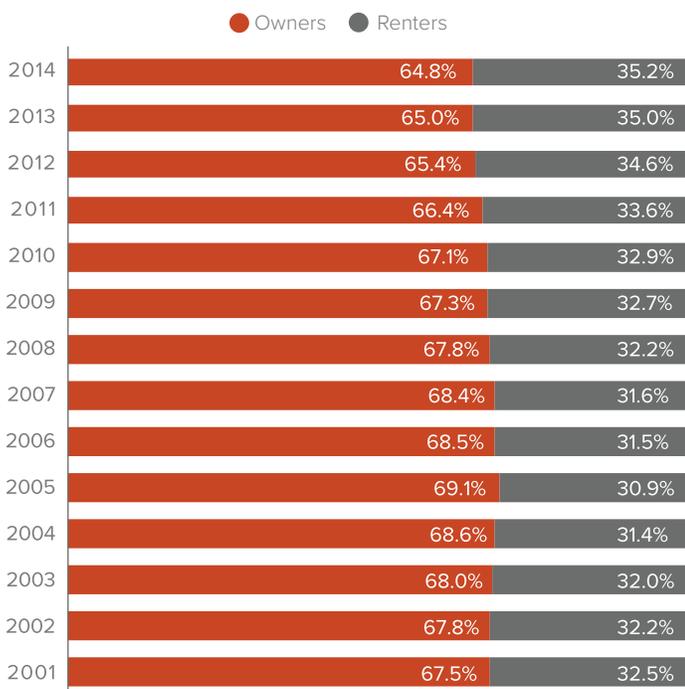
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# Introduction

From 2005 to 2012 home prices collapsed by 42 percent, yet 85 percent of American renters recently told a *New York Times*-CBS poll they would like to own, and 92 percent of mortgage-holders said they thought homes were a good investment in the long run according to the Fannie Mae National Housing Survey.<sup>1</sup> But does the “American dream” of ownership make financial sense? Could a disciplined renter build more net wealth than a homebuyer, while taking on much less risk, by eschewing homeownership and investing her yearly savings from renting in a tax-deferred retirement plan? This is an important question as homeownership rates have dipped over the last decade, particularly among 25 to 44 year olds.<sup>2</sup> Are these renters missing out, or might they be better off choosing to rent for longer or even for their whole lives as long as they make other investments?

Figure 1. Share of Homeowners and Renters Since 2001



Source: Current Population Survey/Housing Vacancy Survey, Series H-111, U.S. Census Bureau, Washington, DC 20233

Researchers are divided on whether homeownership makes financial sense. Those who believe that homeownership leads to financial gains tend to point to survey data on the differences in net wealth between buyers and non-buyers.<sup>3</sup> For instance, in the past few

years, several studies using survey data have found that homeownership is linked to wealth creation. Di, Belsky, and Liu use Panel Survey and Income Dynamics (PSID) data to show that homeowners build more wealth than renters, even while accounting for household characteristics.<sup>4</sup> In particular, they include a variable for the “propensity to save” prior to buying a home, which is designed to help control for the degree to which a household would save anyway. Boehm and Schlottman also use PSID data to conclude that owning a home leads to wealth accumulation.<sup>5</sup> Turner and Luea also find a strong impact from homeownership, and speculate that the incentive to save for a down-payment and negative consequences of skipping mortgage payments help explain why homeownership encourages people to save.<sup>6</sup>

However, the value of studies based on survey data is uncertain because homeowners may be systematically different from renters. For example, 80 percent of married couples age 35 to 45 own a home, so it may be the case that for those who can afford it, buying is simply something people do when they reach a certain stage in life.<sup>7</sup> Or, as Beracha and Johnson surmise: “homebuyers mostly ignore renting in favor of buying and do not consider the true cost of ownership.”<sup>8</sup> Further, even though these studies attempt to control for income and other characteristics, there may simply not be enough people who decide not to buy as a financial strategy to assess whether it works from survey data. Simulations, in contrast, solve this problem by simply mapping what would happen to different prototypical families in a head-to-head horse race. However, these simulations also assume that renters will invest their extra money, which may well also be a flawed assumption. Of course, even if these renters do not save the extra money, they still get the benefits of having extra money every month.

In contrast to studies that rely on survey data, simulations tend to find that homeownership is not an unambiguously good investment. Beracha and Johnson find that homeownership has generally been inferior to renting over the 25-year period ending in 2009.<sup>9</sup> Nonetheless, they found current rents as a percentage of home prices had fallen to levels that made buying

a better deal once again in 2009. Rappaport similarly finds that over the last 30 years, it has generally been much better to rent and invest extra cash rather than to buy a home.<sup>10</sup> In 2002, Belsky and Duda examined whether homeowners sold their homes for a gain or loss in 4 metropolitan regions between 1982 and 1999, and found that real losses were quite common regardless of the income of the homeowner.<sup>11</sup> In subsequent work in 2005, Belsky, Retsinas, and Duda simulated low-income homeownership compared to renting and found that homeownership was often not the better choice in Boston, Chicago, Denver, and Washington, D.C.<sup>12</sup> Interestingly, they also found that holding property for more time generally did not result in a greater chance of making the home a good investment. Nonetheless, they conclude that low-income families should still be encouraged to own a home because it is their only option for using leverage to maximize returns and because these people may default rather than covering losses if their home depreciates.

Others have also been critical of encouraging wealth accumulation through homeownership and critical of the federal policies that encourage homeownership. For example, Davis notes that home prices are highly volatile, making homes a risky investment.<sup>13</sup> He points out that since June 2006, housing prices have collapsed in San Francisco, Tampa Bay, Miami, and Las Vegas. He further notes that this volatility is not new by citing home price declines in Los Angeles of 23 percent from 1990 to 1995 and home price declines of 25 percent from 1984 to 1990 in San Antonio. Dickerson argues that encouraging people to invest in education would yield better societal returns than encouraging investment in housing, and, at a minimum, housing subsidies should be linked to programs that encourage potential homeowners to focus on the risks of an investment in a home.<sup>14</sup> Goetzman and Spiegel find that from 1980 to 1999, stocks and bonds outperformed returns of housing; and investments in housing exceeded inflation just slightly in most parts of the U.S.—a return far too low to justify the risk of owning housing as part of a financial portfolio.<sup>15</sup> And Shiller has repeatedly pointed out that buying a home has not been a good investment compared to alternative investments.<sup>16</sup>

To address this debate, we construct a model to explore the key variables that determine whether homeownership is a good investment relative to renting and investing. We expand on the existing literature by building in state and local tax structures into our model. This addition enhances the model's accuracy because it highlights how different cities' home prices and tax structures affect the investment potential of a home. Further, by modeling specific state and local tax rules, we find that the rent-to-price ratio that favors buying differs between the cities. We find that these differences are due to variation in the federal tax savings buyers can expect to enjoy, and because of differences in the tax burden a resident takes on by buying.

We also show that deciding whether to buy or rent and invest largely depends on how much a prospective homebuyer could rent a similar home for in her area rather than on assumptions about home appreciation. Given that conclusion, we then evaluate how well the most commonly used online home buying advice calculators inform prospective homebuyers. We find that based on existing work, many homeowners took bad advice and purchased when renting and investing would have been a better strategy. And, we examine how much additional wealth prospective homebuyers could expect to gain or lose from renting and investing, given different assumptions. We conclude with recommendations for improving the quality of advice that is offered to potential buyers.

## Methodology

In order to evaluate whether buying or renting is a better strategy for building wealth, we simulate the net worth of two hypothetical families: one that purchases a home and another that rents a similar home over a simulation period, and we determine which achieves the highest net wealth level.<sup>17</sup> We look to see what rent a family should seek in the 20 largest cities (with no more than one city per state) in order to break even on buying rather than renting. This rent is always expressed as a “rent-to-price ratio”, which is the annual rent expressed as a percentage of home

price. For example, a family that could rent for \$2,200 and purchased a home for \$400,000 faces a rent-to-price ratio of 6.6 percent ( $\$2,200 \times 12 / \$400,000$ ). We picked cities, rather than Metropolitan Statistical Areas, because it is essential to capture the specific tax structure of a given jurisdiction, which can vary enormously between areas in a Metropolitan Statistical Area. Incorporating the specific tax structure into the model for each city we analyze is unique to our model.

Our model draws from the existing literature with two key differences. First, as noted, we incorporate the specific tax structure (state and local income, property, and sales tax) into the model, to better capture the cost ownership and the federal tax benefits a buyer could achieve over time. Second, we enhance the savings component to mirror the options available to all Americans: we assume that money that is saved in a given year by renting (or by owning if owning is cheaper) is invested in a tax-deferred account such as a Roth 401(k), a 529 College Savings Plan, or a Roth IRA. Even if a renter doesn't have access to a 401(k), he or she could still put aside up to \$19,500 in a combination of a 529 and Roth IRA, and a couple could contribute \$11,000 total to two Roth IRAs. We choose to make this assumption for the model because comparing the tax-privileged benefit of ownership to a non-tax-privileged investment makes little sense. Consistent with the literature, we assume that the appropriate comparable investment is in risky assets, such as a typical portfolio of stocks and bonds, discussed in more depth later in this section. While some will argue that renters do not in fact take these savings, from the perspective of modeling financial strategies, it does not make sense to assume that savings from renting will simply be consumed.

We constructed a model that projects the following annual costs and benefits for owning: home value; unamortized debt; maintenance costs; property tax; tax savings from deducting property taxes; state and local income or sales taxes (whichever is greater); and mortgage interest *above the standard deduction*; and the standard deduction itself. For renters, we project the value of investing savings from renting in a tax-

deferred account, investing the down payment in a taxable brokerage account, and the increases in the cost of rent. In short, the value derived from a house is the tax savings from ownership plus accrued equity after transfer costs minus property taxes, maintenance costs, and the value of investing savings from renting in an alternative investment.

For each month, the model makes the following calculation to assess whether it is better to buy or rent and invest:

$$\text{Net}_{\text{Buyer}} = \text{Home} + \text{MID} - \text{Debt} - \text{PropTax} - \text{Mtnce} - \text{Transfer} + \text{Invest}_{\text{Buyer}}$$

$$\text{Net}_{\text{Renter}} = \text{Down} + \text{Invest}_{\text{Renter}}$$

**Net<sub>Buyer</sub>** is the net worth of a buyer.

**Home** is the value of the home, which is increased monthly based on an annual appreciation amount.

**MID** is the tax advantage from owning, which is in turn calculated as local income (or sales) tax plus local property tax plus interest paid, minus the standard deduction. That is to say, we only credit tax savings in excess of the standard deduction.

**Debt** is the remaining debt on the amortization schedule. Since interest rates are quite low right now, we do not include refinancing as an option.

**PropTax** is the property tax, increased annually with the increase in the home value.

**Mtnce** is the cost to maintain the house, specified as a percentage of the cost of the home.

**Transfer** is the cost of the selling a home, including seller's closing costs and federal taxes if applicable.

**Invest<sub>Buyer</sub>** is the current value of a contributions to an investment account made because buying—with all costs included—was cheaper than renting. Contributions are made monthly.

**Net<sub>Renter</sub>** is the net worth of the renter.

**Down** is the current value of the down payment and purchasing closing costs net of capital gains taxes

**Invest<sub>Renter</sub>** is the current value of a contributions to an investment account made because renting was cheaper than buying. Contributions are made monthly.

The strengths of our model relative to the ones in the literature are twofold: we allow renters (or homeowners) to invest savings from their choice in housing in a tax-deferred account as an alternative investment,

and we track taxes based on the local tax structure of each city we examine. This approach is superior to assuming that potential buyers will use extra funds for immediate consumption or save them indefinitely in a bank account—at least for the purposes of modeling the better long-term choice between owning and renting for someone trying to maximize his or her wealth.

We perform the analysis for a prototypical family of three earning a median income (\$50,000 annually), and a high-income family of three making \$100,000 annually. We hold the family's income constant in order to evaluate the effects of different income and property tax structures and different median home prices in different U.S. cities. Although it is true that the purchasing power of \$100,000 or \$50,000 varies by city, our aim is to compare similar families across the country to estimate the value of their investment given state and local tax burdens.

To evaluate whether buying or renting is better in a given city, for a given income-level, at a given rent-to-price ratio, we use the following baseline assumptions: assumed home values from the District of Columbia Office of Revenue Analysis, 20 percent down payment, closing costs of 6 percent to sell and 2 percent to buy, annual maintenance costs of 1.5 percent of the home's value, and a stay of 10 years to determine whether to buy or rent.<sup>18</sup> We also assume a 4.25 percent interest rate, which has been the norm during the writing of this paper. We assume a 30-year mortgage despite 10-year home tenure because 89 percent of borrowers use such loans.<sup>19</sup>

With regard to home maintenance, some have suggested that home maintenance costs are 2 or even 3 percent of the purchase price annually.<sup>20</sup> However, using such a high estimate across all locations is problematic because maintenance costs are not linked to the value of a home to the extent that the value comes from location. For example, a small apartment in Manhattan, New York might cost as much as a large house in Manhattan, Kansas. However, the cost to maintain a large home would likely be much higher. Furthermore, even if homeowners spend more than 2 percent per year fixing their home, this is not pure

depreciation. Some of these investments will add value to the home, which expands the scope of the model from the central question we seek to address. Nonetheless, it is clear that if home maintenance costs exceed appreciation, then the only value of homeownership comes from taxes and rents being high or low relative to borrowing interest rates.

With regard to home tenure, there is a range of estimates for home tenure. For example, Beracha and Johnson use 8 years, while Belsky, Retsinas, and Duda use durations of 3, 5, and 7 years, and Rappaport uses 10 years. Emrath finds that buyers have varying durations for remaining in their homes depending on whether they are trading up or buying their first house.<sup>21</sup> In any case, we wanted to use a conservative assumption for our minimum-required rent-to-price ratio so as not to overstate the case for renting.

With regard to the down payment, it is certainly true that different families use different levels of leverage to purchase their homes. If families did use lower down payments to purchase homes, they would have the potential for greater financial gains or greater financial losses. To model these lower down payments, we would want to show a distribution of outcomes, since there is a much higher probability of losing money. We would also want to value the potential for mortgage default, since it is much more likely. However, to draw consistent distinctions across cities, we instead focus on conventional mortgages with 20 percent down payment requirements.

We assume that inflation (for tax constants, including the standard deduction, rent increases, and home appreciation) is 2 percent per year, but we test these assumptions in different parts of the analysis. For property and state local taxes we use data from the District of Columbia Office of Revenue Analysis, which conducted a nationwide review of large cities' taxes for prototypical families in 2012; 25 or 15 percent marginal taxes (which align to a prototypical family earning \$100,000 or \$50,000 per year respectively); and a standard deduction of \$12,400, to align with 2014 numbers. We assume homes will appreciate at the rate of inflation because research has

demonstrated that there have only been two sustained periods of real home price increases in the U.S. over the last 120 years.<sup>22</sup> We do not model the tax savings from ownership on state and local taxes themselves, only the value of those taxes deductible from federal taxes. We also tested the home values provided by the District of Columbia Office of Revenue Analysis by running similar analysis with the National Association of Realtors' data, and found very similar results.

Finally, we assume that the family will invest money saved by renting in a tax-deferred retirement account and earn 6 percent nominal returns. We arrived at this return by considering the volatility of housing prices across the country using Case-Shiller data over the last 20 years for a levered homebuyer.<sup>23</sup> We found that the volatility was similar to the volatility of a portfolio consisting of a 50 percent investment in the S&P 500 index, and 50 percent in government bonds. Assuming these investments grow at Morningstar projections, we find that a 6 percent nominal return is a reasonable expectation for an alternative investment in a balanced portfolio.<sup>24</sup> Of course, buying a home does act as a hedge against increases in rental prices, but assessing the value of this hedge is outside of the scope of this paper. And, on the other hand, renting is a hedge against high transaction costs to move as family situations such as size, or income, change.

This approach to accruing money in alternative investments is consistent with the one employed by Rappaport. Further, it is consistent with the findings of Goetzman and Spiegel that a home is a risky asset; therefore, it is appropriate to assume that an alternative investment would also be risky. Of course, if buying is cheaper than renting, then we assume that the savings from buying are similarly invested. We assume the down payment and closing costs for the purchase will similarly earn 6 percent, but we assume they will be taxed at the capital gains tax rate of 15 percent, applied after being sold in 10 years.

## Findings

We find that 1) a large share of current homeowners

bought homes during periods when the average homebuyer would have been better off renting and investing; 2) the free online tools needed to make decisions about home buying are heavily biased toward buying; 3) many homebuyers can expect little or no tax benefits from buying; 4) prospective buyers could build 50 percent more wealth by renting and investing rather than buying, given national rent-to-price ratios; and 5) most homebuyers in major cities are considering the wrong variables when assessing the benefits of home buying over renting.

**Over half of current homeowners, or over 40 million households, purchased their home during time periods when average homebuyers would have been better off renting and investing.**

Approximately 80 million families (about 65 percent of the population) own homes, which makes homeownership the most widely used voluntary savings vehicle by U.S. households.<sup>25</sup> As of 2013, many of these homes (40 percent) were purchased in the 10 years ending in 2013, although over 60 percent were purchased prior to 2004, including 31 percent that were purchased more than 20 years ago.

The timing of a home purchase is critical for determining whether an individual would be better-off buying or renting and investing. One reason timing is so important is that the cost of renting a home compared to buying it (what economists refer to as a rent-to-price ratio) varies over time, which affects whether homebuyers would be better off renting and investing. For instance, median homebuyers that faced a 7 percent rent-to-price ratio would only need to stay in their home 4 years before they would have built more net wealth buying instead of renting and investing. In contrast, potential homebuyer that faced a 5 percent rent-to-price ratio would be better off financially from renting even after 30 years of owning.<sup>26</sup> This is because the accumulated savings from renting at a rent-to-price ratio of 5 percent will be greater than the increase in wealth the homeowner could experience from home appreciation, using our default assumptions.

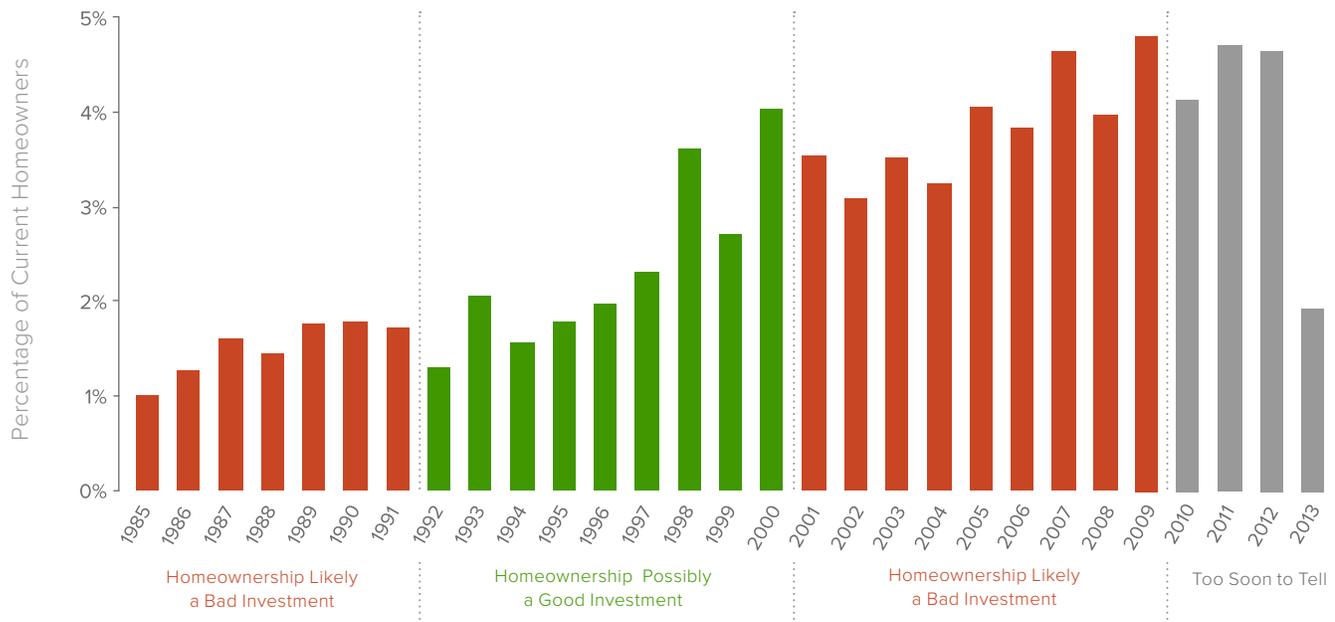
Another way to think about the importance of the rent-to-price ratio is to think about a house as a bond that pays coupon payments roughly the amount of rent (after adjustments for tax savings and increases for property taxes and maintenance costs, of course). As the coupon payment declines, the amount someone should be willing to pay for a bond falls too, since the bond now yields less than it once did. In a similar way, a house's value should be lower when the rent-to-price ratio falls, unless, of course, a buyer expects he can sell it for a lot more money to compensate for the low immediate value it has. Perhaps just as importantly, when home values rise higher than their fundamental value as rentable assets, as they have in much of the last two decades, home values can rapidly decline. This was evident during the housing value crash in 2008, which left many new homeowners with mortgages that were much greater than their home values.<sup>27</sup>

Past work has assessed home buying relative to renting and investing using historical data on home appreciation, investment returns and rent-to-price ratios, and this research shows that during most of

the years over the past few decades the average homebuyer would have been better off renting and investing. For example, Beracha and Johnson find that homeowners would have been better off renting and investing in 65 percent of the years they analyzed over the last 30 years.<sup>28</sup> In fact, they find that the mid-1990s through the early 2000s was the only sustained period of time when homeownership would have been superior to renting, although they speculate that as of 2010, rent-to-price ratios might have gone up high enough to make buying a good investment. In their analysis, they draw on historical rent-to-price ratios in a variety of metropolitan areas as well as actual returns on alternative investments, and determine the level of appreciation that would be required to break even on owning in each location. They compared this "required-appreciation" to the appreciation homes actually experienced and thus determine the cases where homeownership was inferior to renting and investing.

Similarly, Rappaport finds that homeownership was an unambiguously bad investment for most homeowners before 1991, and he also finds that homeownership

Figure 2. Distribution of Year Current Homeowners Purchased and Likelihood of the Investment in Homeownership Paying Off Relative to Renting and Investing



Source: Likelihoods of homeownership paying off are based on a synthesis of the following: Rappaport, Jordan. "The effectiveness of homeownership in building household wealth." *Federal Reserve Bank of Kansas City, Economic Review* 95, no. 4 (2010): 35-65; and Beracha, Eli, and Ken H. Johnson. "Lessons from Over 30 Years of Buy versus Rent Decisions: Is the American Dream Always Wise?" *Real Estate Economics* 40, no. 2 (2012): 217-247. The distribution of when households purchased their homes comes from Federal Reserve System survey data.

was likely a bad investment after 2000.<sup>29</sup> He does so by looking at 10-year occupancies over these years, and simulates whether homeowners could plausibly have purchased at the required rent-to-price ratio needed to break even on their investment. This break-even point is based on known appreciation, investment returns to stocks and bonds, and mortgage interest rates, contrasted against upper and lower bounds for plausible rent-to-price ratios.

To assess the share of current homeowners that bought during periods when homeownership was generally less attractive than renting and investing, we considered the random sample of U.S. families, generated every three years by the Board of Governors of the Federal Reserve System. We found that about half of current homeowners bought their homes during periods when the average homebuyer would have been better off renting a comparable home and investing the savings from doing so. In particular, about 40 percent of homes were purchased during the period from 2001 to 2010. Additionally, about 11 percent of current homeowners purchased between 1984 and 1991, another period during which homeownership would have been a bad investment. Although these longer-term homeowners may have broken even on their investment 30 years later, they still would have likely been better off renting instead of buying in the 1980s, and then buying in the 1990s. Figure 2 shows how many current homeowners purchased their home during periods when both researchers find homeownership to be a bad investment relative to renting and investing, and periods where homeownership might have been a superior choice over the last 30 years.

Again, drawing on Federal Reserve data, we find

that homeowners that purchased during the most-recent period when home buying was unlikely to be a good investment (2001-2010) are currently 49 years old on average (median 47). This means that as these younger members of the Baby Boom and older members of Generation X approach retirement age, they will likely do so with less wealth than they could have built by renting and investing. Homeowners who bought from 1984-1991 have an average age of 63 (61 median), which means that a current crop of soon-to-be retirees will have forgone wealth by buying during a period when they could have built more wealth renting and investing. Had these homeowners waited and purchased their home in the 1990s, they would likely be much better prepared for retirement. In contrast, Baby Boomers who purchased their homes in the mid-1990s are likely to enjoy better financial security in retirement because of the timing of their home purchase. Not surprisingly, younger homeowners were the most likely to have short tenures in their current home, and were the most likely to want to move in 2 years. These homeowners may be the most at risk because they have to accrue—through appreciation—the transfer costs associated with buying and selling over a shorter period of time than people who plan to live in their homes for longer tenures.

**Popular online calculators inflate the benefits of home buying, providing incorrect guidance to over 90 percent of renters considering whether to buy a home.**

Prospective homebuyers can get information from a number of sources: friends, family, real estate agents, and lenders. The most easily accessible sources of information (that appear objective) are online so-called

Table 1: Top “Buy-or-Rent” Calculators

Organization	URL	Total Links	Google Rank
Trulia	<a href="http://www.trulia.com/rent_vs_buy/">http://www.trulia.com/rent_vs_buy/</a>	21100	2
New York Times	<a href="http://www.nytimes.com/interactive/2014/upshot/buy-rent-calculator.html">http://www.nytimes.com/interactive/2014/upshot/buy-rent-calculator.html</a>	7036	1
BankRate	<a href="http://www.bankrate.com/calculators/mortgages/rent-or-buy-home.aspx">http://www.bankrate.com/calculators/mortgages/rent-or-buy-home.aspx</a>	275	3
MSN	<a href="http://money.msn.com/home-loans/rent-or-buy-calculator.aspx">http://money.msn.com/home-loans/rent-or-buy-calculator.aspx</a>	193	4

Source: HelloWallet analysis using Google analytics. Google rank is the order calculators show up in Google searches.

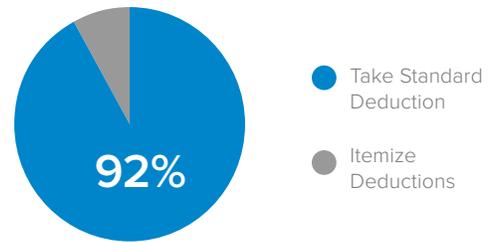
“buy-or-rent” calculators. These calculators take user inputs on home values, taxes, and rental costs to advise a prospective buyer whether or not buying will be a better investment than renting. The most popular buy-or-rent calculators are hosted by the *The New York Times*, Trulia.com, Bankrate.com, and Money.msn.com. These four calculators have 3 times as many links as any other calculator, as shown in Table 1. These websites are highly sought-after, with thousands of people searching for them per month.

After reviewing these buy-or-rent calculators, we found that although all of them are quite sophisticated, they inflate the value of buying, at least for most prospective buyers. Further, this bias is more severe the lower the income of a prospective buyer. These calculators’ major failings include: 1) incorrectly calculating the federal tax benefits of homeownership compared to renting, 2) not accounting for state and local tax structures, which are highly variable around the country, and 3) inaccurately assuming that there are no alternative investments to home buying other than putting the money in a savings account earning low (and risk-free) returns when renters could invest in a wide-variety of alternative investments, including a tax-advantaged IRA, 529, or employer-sponsored defined contribution plan (e.g., 401(k)).<sup>30</sup>

The most important source of homeownership bias in the most-popular buy-or-rent calculators is that they assume prospective homebuyers already itemize their taxes. By way of background, the federal tax code allows homeowners to deduct all of the interest they pay on their mortgage, for loans up to \$1 million. In addition, homeowners can deduct their property taxes along with other common deductions such as income taxes and charitable contributions. But, taxpayers have to choose whether to itemize their deductions or take the standard deduction. The standard deduction, which is available to almost everyone, is worth at least \$6,200 for a single filer and \$12,400 for a couple that files jointly. For many homeowners, the standard deduction may be worth more than the itemizations.

In fact, we find that the vast majority of homeowners, renters, and prospective homebuyers do not itemize

Figure 3: Percentage of Renters Saving to Buy that Itemize their Federal Taxes



Source: Author's analysis of Survey of Consumer Finance

their taxes to take advantage of federal tax benefits for homeownership, which greatly reduces the advantages of homeownership relative to renting and investing. In particular, only 25 percent of homeowners are able to take advantage of the federal mortgage credit.<sup>31</sup> Furthermore, only 8 percent of renters who indicate they are evaluating whether to buy a home actually are able to currently itemize.<sup>32</sup> This stands in stark contrast to the assumption made by these online buy-or-rent calculators that all potential homebuyers will be able to take full advantage of the mortgage interest deduction, as shown in Figure 3 above.<sup>33</sup>

Once we correct this error, we find that median-income families can expect no federal tax benefit for buying in 75 percent of large cities.<sup>34</sup> This also stands in sharp contrast to the 10 percent or more reduction in the cost of ownership that all of the online buy-or-rent calculators assume. In fact, there is no reduction in costs for most of these homebuyers because many will find it is better to continue to take the standard deduction instead of itemized deductions for homeownership costs. For example, if a couple paid \$2,000 in property taxes, \$6,000 in interest, \$4,000 in local income taxes, and donated \$400 to charity, the couple could take \$12,400 in itemized tax deductions. Since this is the same amount as the standard deduction, this couple’s federal taxes would be the same regardless of whether they owned or rented. As discussed later in this paper, higher-income families see larger tax benefits, depending on the city in which they buy. This indicates the bias in these calculators is generally more severe for median and lower-income families, which comprise the majority of homebuyers.

A second major flaw with these calculators is that they do not account for state and local income, sales, and property taxes, which are essential for determining whether renting and investing will be better than buying. After buying, new homeowners will get to deduct mortgage interest as well as property taxes, and income taxes or sales taxes, depending on which is higher. But, without accurate inputs for state and local income or sales taxes, it is impossible to find the new reduction in federal taxes from buying, since these additional taxes help make itemized deductions higher than the standard deduction. Further, without an accurate property tax rate, it is impossible to assess the actual increase in housing costs incurred from buying.

The magnitude of this flaw is quite large because financial benefits of buying vary enormously depending on the tax structure of the city, and whether the city relies heavily on property taxes, income taxes, or sales taxes. For example, a median-income family buying in Philadelphia will pay about \$5,900 in property taxes during the first year of ownership, and state income tax of about \$1,550. By deducting these taxes and their mortgage interest, this family will be able to save about \$250 on their federal income taxes. In contrast, a family buying in Washington, D.C. would only pay about \$1,200 in property taxes. This property tax combined with local income taxes and mortgage interest would not be enough to make itemizing worthwhile. Nonetheless, the cost of ownership in Philadelphia would be \$4,450 higher than in D.C. (Philadelphia property tax of \$5,900 minus \$1,200 D.C. property tax plus a federal benefit of \$250 in Philadelphia.)

This additional property tax—and the effect of other local taxes on how much a family will be able to deduct on their federal tax return—are hugely important considerations. Economists would expect that the rent in Philadelphia would be higher to account for the property tax the landlord must pay, but nonetheless any analysis on a buy or rent decision without accurate property tax data is completely flawed. Online calculators we examined that pre-populate property tax data provide estimates for large metropolitan areas. These estimates are inappropriate because property

tax rates vary dramatically between jurisdictions within these areas. For example, Takoma Park, D.C. is next to Takoma Park, Maryland, but the effective property tax rate for homes in Takoma Park, Maryland is about double the rate in D.C.

Finally, these online calculators purport to show the benefits of buying or renting and investing, but none of them allow buyers to specify the investments they would use to build wealth if they rented instead. For example, all the calculators we looked at assume extra savings from renting will be invested in a regular, interest-bearing bank account earning a 3.5 percent to 5 percent nominal return (except Bankrate, which doesn't explicitly define this rate). Since homes are a risky asset, an alternative investment should also present some risk, such as an investment in a mix of stocks and bonds aimed at building long-term wealth for retirement. Furthermore, there are many alternative investments for building wealth that are tax-privileged such as defined contribution plans (such as 401(k)s), IRAs, and college savings plans (so-called 529s.) Families that wish to assess whether buying or renting and investing makes financial sense should be able to see the probable outcomes of investing in riskier assets as an alternative, shielded in one of the many tax-privileged accounts available.

According to our analysis of Federal Reserve data, over 71 percent of working homeowners currently have access to these types of tax-privileged investment opportunities. More specifically, 54 percent of working homeowners have access to a 401(k), 40 percent have an IRA, and 6 percent have access to another type of tax-privileged savings accounts such as a 529 or Health Savings Account. Even more importantly, 47 percent of working homeowners have access to a 401(k) with an employer match, which would further enhance the financial benefits of investing in a 401(k), if the prospective homebuyer was failing to get the match because of the costs of ownership.

Similarly, over 40 percent of working renters who are saving to buy currently have access to these types of tax-privileged investment opportunities. More specifically, 34 percent of these renters have access to

a 401(k), 13 percent have an IRA, and 1 percent have access to another type of tax-privileged savings account such as a 529 or Health Savings Account. Even more importantly, 26 percent of these renters have access to a 401(k) with an employer match, which would further enhance the financial benefits of investing in a 401(k), if the prospective homebuyer was failing to get the match because of the costs of ownership or in order to save up for a down payment. Of course, even people who do not currently have an IRA or 529 can open one at any time even if their employer does not sponsor a retirement plan. In sum, buy or rent analysis should include alternative investments in these types of tax-privileged accounts.

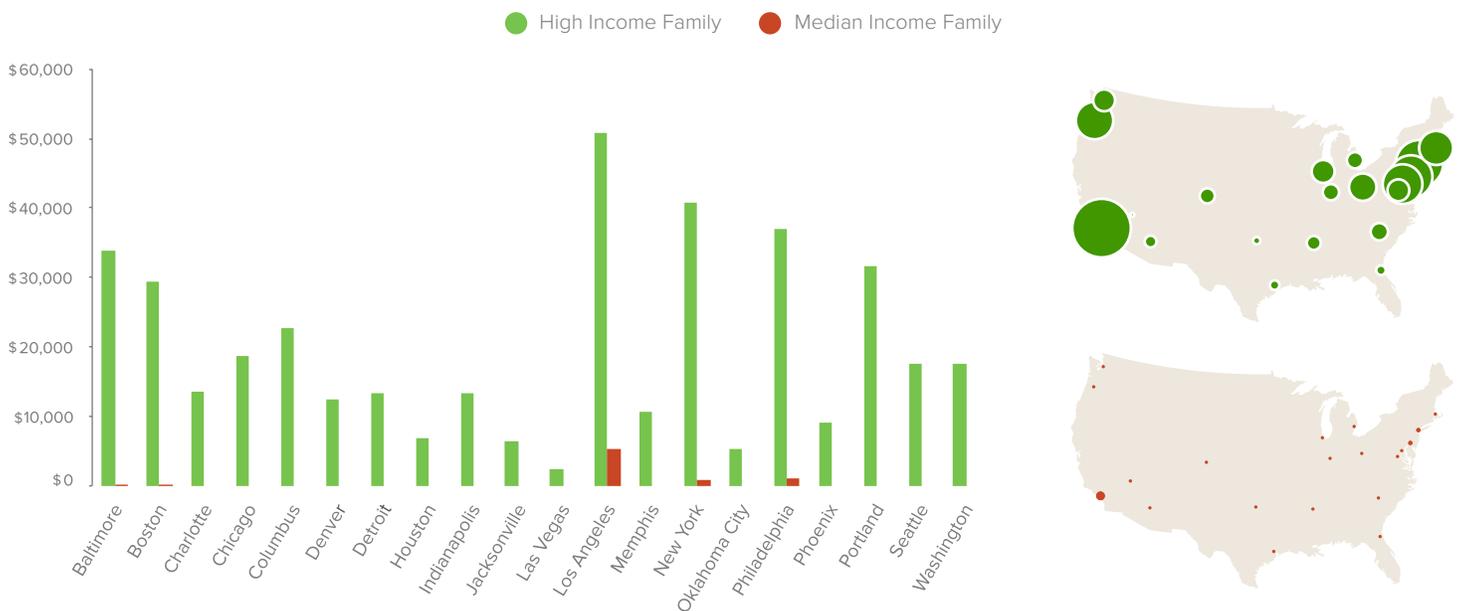
**Homebuyers with median incomes realize no federal tax benefit from owning in 75 percent of the major cities in our sample.**

In 2013, 80 percent of homebuyers listed the federal mortgage deduction and other tax benefits as a reason to buy a home rather than to rent. The federal mortgage interest deduction (which has been a part of the income tax since its creation in 1913) allows homeowners to deduct all of the interest they pay on their

mortgage, for loans up to \$1 million. In addition, homeowners can deduct their property taxes in addition to other common deductions such as income taxes and charitable contributions. Although the homeowner's deduction appears to return about \$70 billion to taxpayers per year, the true amount saved is much lower because this figure does not account for the fact that almost everyone can claim a standard deduction of \$6,200 for single people or \$12,400 for a married couples (or more in some cases).<sup>35</sup> We find that federal tax benefits for homeownership go largely to high-income families in high-cost areas, and even for these families, the benefit is fleeting.

As shown in Figure 4, we estimate that median homeowners should expect to get no federal tax benefit in 15 of 20 cities we studied. (See Table 2 in the appendix for detailed calculations.) This is because even immediately after their purchase, the standard deduction would be higher than the itemized return a median homeowner could file in these cities, even when we include property taxes and income taxes as items. Further, the tax benefits for homeownership are quite low because in total they are only slightly higher than the standard deduction for median-income families.

Figure 4. Variation in Tax Subsidies for First 10 Years of Homeownership for a Median-Income and High-Income Family in the Largest Cities in 20 States



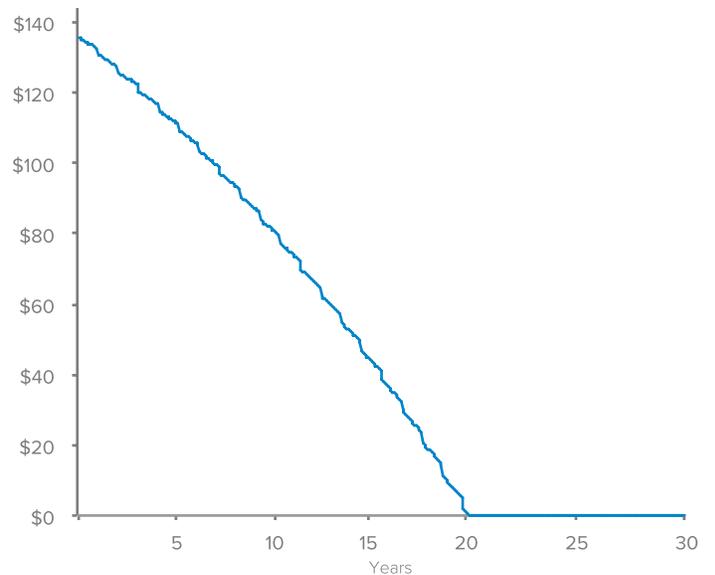
Source: Analysis based on District of Columbia Office of Revenue Analysis data. Median-income families are families of 3 with income of \$50,000. High-income families are families of 3 with income of \$100,000.

This finding is consistent with other studies on the benefits of the mortgage interest deduction, which find that about \$1.2 billion in benefits flow to families earning \$40,000 to \$50,000 per year, while more than \$50 billion flows to families earning more than \$100,000 per year.<sup>36</sup> Further, more than half of homeowners with mortgages do not itemize, meaning they receive no tax benefits from homeownership.<sup>37</sup>

Although the value of the tax subsidy is almost non-existent for median-income homeowners, it reduces costs of ownership for high-income homeowners significantly in expensive cities. For example, in New York, the cost of homeownership for high-income homeowners over the first 10 years is 9.98 percent lower than it would be without the existence of the tax benefits. In Philadelphia, the cost of homeownership is reduced by almost 10.85 percent over the first 10 years of ownership. Nonetheless, this benefit is mostly for high-income homeowners in expensive cities, as high-income homeowners in inexpensive cities with low local taxes (such as Oklahoma City or Las Vegas) receive a federal tax subsidy that reduces their cost of ownership by much less (2.62 and 1.06 percent per year respectively over the first 10 years of ownership). Extending the analysis for 20 or 30 years reduces the average tax benefit a homeowner can expect on a yearly basis because the federal tax benefits for homeownership are generally fleeting.

To see why the tax benefit is fleeting, consider that the standard deduction increases with inflation over time, whereas interest payments decline over the course of a loan. To see how this declining pattern of benefits works in practice, consider a family in a city with the median tax benefit over 10 years, which is shown below in Figure 5. As the standard deduction goes up with inflation (and the loan interest payments decline) the value of the tax benefit declines. This is true even though we assume that local property, income, and sales taxes (all potentially deductible) increase with the rate of inflation. At year 20, the standard deduction eclipses the value of the itemizations the homeowner could claim, and the tax benefits for homeownership fall to zero.

Figure 5: Tax Benefit (Expressed as Monthly Reduction in Cost of Ownership) for Homeowner in the Median Large City



Source: Analysis based on District of Columbia Office of Revenue Analysis Data.

The regional variation in the federal tax benefit for homeownership shown in Table 2 also depends on the particular structure of local taxes, as well as the total amount of all local taxes. For example, a jurisdiction that splits its revenue evenly between income, sales, and property tax (such as Oklahoma City) provides much less opportunity to take advantage of itemized federal deductions because taxpayers can deduct *either* sales or income tax from their taxes, in addition to their property taxes.

**The typical, median-income prospective homeowner today could generate over 50 percent more net wealth over the next 10 years by renting and investing instead of buying a home.**

Advice on whether to rent or buy must emphasize that prospective buyers need to research how much it would cost to rent a home similar to the one they are considering purchasing or risk making a poor investment. For example, across large cities, median-income families could see an average increase in wealth over 10 years of more than \$29,000 from renting and investing rather than buying at a 5 percent rent-to-price ratio (which is slightly above the current national average). Since middle-income families cur-

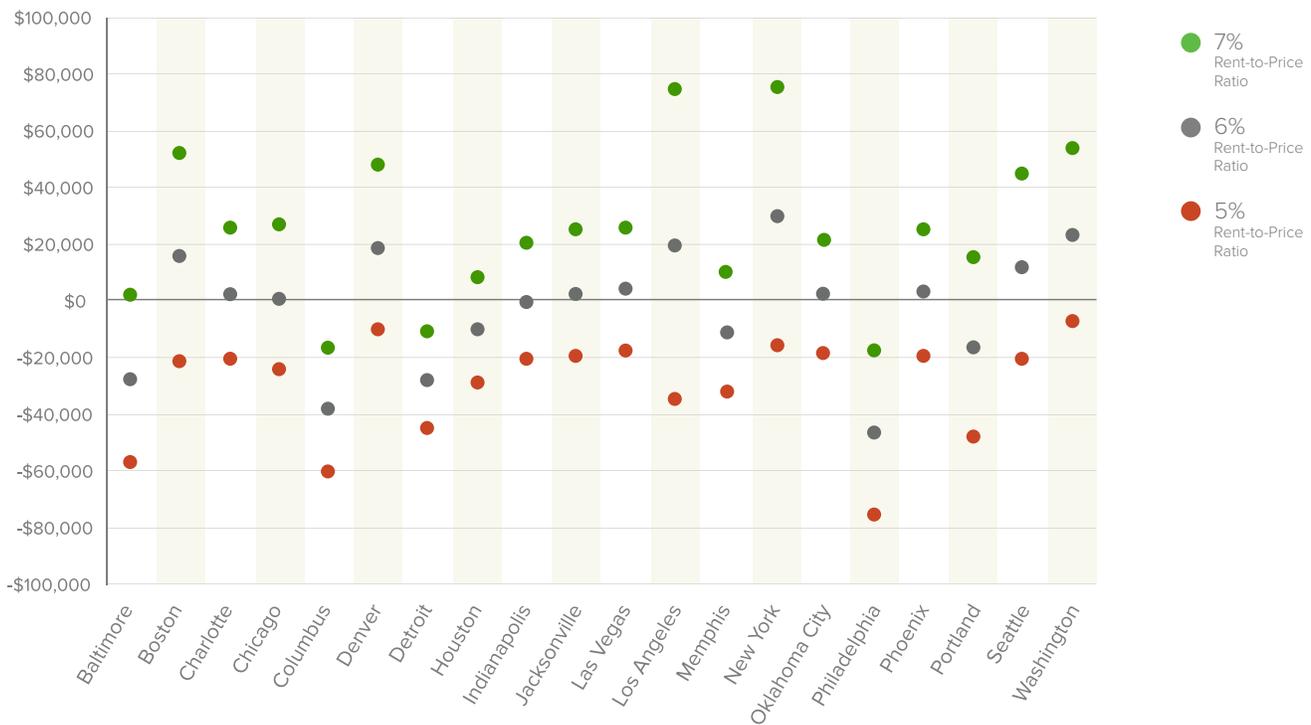
rently have a net wealth of just \$55,000, renting and investing instead of buying could materially improve many families' lives by increasing their net wealth by more than 50 percent. Similarly, higher-income families could see an average increase in wealth over 10 years of more than \$36,000 from renting and investing rather than buying at a 5 percent rent-to-price ratio.

However, these projections are very sensitive to rent-to-price ratios, as shown in Figure 6. For example, we find that median families that planned to own for 10 years would lose money compared to renting and investing in every single city we examined if they faced a rent-to-price-ratio of 5 percent, which is slightly above the national average right now (see Table 3 in the appendix).<sup>38</sup> But, if rent-to-price ratios rose to 6 percent, median-income families would benefit from buying in 12 of 20 cities. At rent-to-price ratios of 7 percent, we begin to see buying as a better choice in most of the cities we studied. Figure 6 illustrates these differences at different rent-to-price-ratios for median-income families.

Higher-income families would generally fare better in more cities at lower rent-to-price ratios, because they can get much larger tax subsidies. Still, these families would lose money buying compared to renting and investing in 18 of 20 cities if they faced a rent-to-price ratio of 5 percent. These families would be better off buying in 14 of 20 large cities if they faced a 6 percent rent-to-price ratio, and would lose small amounts of money in just 2 cities (while reaping large gains in the others) if they faced a rent-to-price of 7 percent. (See Table 3 in the appendix for details.)

In terms of the variation between cities, the economic losses median-income families would experience from buying at a 5 percent rent-to-price ratio instead of renting and investing ranged from \$7,000 to \$75,000 over 10 years. Higher-income families could lose up to \$103,000 over 10 years from buying instead of renting at this rent-to-price ratio, but in 2 cities they would come out slightly better off. And, contrary to popular belief, longer tenures actually exacerbate the problem; median-income families would lose increasingly large

Figure 6: Net Wealth Gain or Loss from Buying Over 10 Years if the Median-Income Family Could Rent At...



Source: Analysis based on District of Columbia Office of Revenue Analysis Data. Median-income families are families of 3 with income of \$50,000. High-income families are families of 3 with income of \$100,000.

sums of money at rent-to-price ratios of 5 percent in every city we examined, assuming they could earn at least 4 percent real (adjusted for inflation) returns in alternative investments as renters.

**The cost of renting relative to buying a comparable home (called the “rent-to-price ratio”) is almost as important as expected home price appreciation for determining whether a person should rent or buy.**

There are numerous factors prospective homebuyers need to assess before deciding whether they can build more wealth renting and investing, or buying a home. Expectations about home appreciation are often cited as the most important, but other variables include home maintenance costs, the rate of return on other investments, and the cost to rent a similar home, among others. Of these factors, we find that the rent-to-price ratio is almost as important as appreciation for prospective homebuyers to consider before buying, as illustrated in Table 4. In fact, small changes in the rent-to-price ratio are only slightly less important than small changes in appreciation for projecting future net wealth over 10 years. Furthermore, small changes in appreciation are actually less important than the rent-to-price ratio over longer holding periods.

In particular, given a 1-standard deviation decrease in the rent-to-price ratio, a homeowner with a median income is forecasted to realize an average increase of \$13,302 in net wealth over 10 years. In contrast, a 1-standard deviation increase in appreciation would increase the median homeowner’s net wealth by just a little more at \$16,404 over the same 10 years. For higher-income families, these differences are slightly

more pronounced at \$26,605 and \$32,411 respectively.<sup>39</sup> Although studies have estimated that average buyers remain in their homes for under 10 years, we also extended the analysis to 20 and 30 year horizons—which accounts for a very small percentage of the homeownership market—and found that in these cases, the rent-to-price ratio is actually more important than appreciation assumptions.

Renters in Detroit, Columbus, and Philadelphia would see the smallest differences in accumulated net wealth compared to homeowners due to small decreases in the rent-to-price ratio. In each case, renters would make between 10 to 11.3 percent less money than homeowners within 10 years if the rent-to-price ratio were a standard deviation lower and appreciation were a standard deviation higher. This decreased sensitivity is because these cities have very high property tax rates, which increases the costs of homeownership. Simply put, in these cities, the cost to rent relative to buying is lower than it appears because part of the rent goes to property taxes the renter would otherwise have to pay.

On other side of the distribution, renters in Washington, D.C., Denver, and New York would lose the most money from a decrease in the rent-to-price ratio compared to an increase in appreciation. In these cities, property taxes are low, so the implicit reduction in rent from the landlord paying taxes is smaller, which reduces the sensitivity of projections in wealth due to changes in the rent-to-price ratio and increases the sensitivity of wealth projections due to changes in appreciation. See Table 5 in the appendix for data on the sensitivity of rent-to-price ratios compared to

Table 4: The Importance of Changes in the Rent-to-Price Ratio Compared to Changes in Appreciation Across Large American Cities

	Over 10 Years	Over 20 Years	Over 30 Years
Median Homebuyer	Rent-to-Price 19 percent less important	Rent-to-Price 9 percent more important	Rent-to-Price 62 percent more important
High-Income Home Buyer	Rent-to-Price 18 percent less important	Rent-to-Price 11 percent more important	Rent-to-Price 56 percent more important

Source: Analysis based on District of Columbia Office of Revenue Analysis Data. Median-income families are families of 3 with income of \$50,000. High-income families are families of 3 with income of \$100,000.

appreciation assumptions in all 20 cities we examined.

We also considered other appreciation scenarios, such as when homes appreciate well above inflation. In these cases, the appreciation assumption matters considerably more than changes in the rent-to-price ratio. This is due to the fact that an increase in appreciation results in an exponential increase in net wealth because homes are bought with loans. This leverage (provided by using less money than the purchase price to buy) magnifies the returns to the homeowner from appreciation, as well as the losses from depreciation. However, since home prices have historically moved at about the rate of inflation, projecting such optimistic home appreciation may well be unwise.<sup>40</sup> Of course, the more levered a homeowner is—the more money she borrows to purchase—the more money she has to gain from small changes in appreciation, and the more she has to lose from falling home prices.

## Conclusion

**Americans should have access to advice that encourages them to consider investing in assets other than housing.**

We found that over 50 percent of U.S. homeowners purchased their homes during periods when average homebuyers would have been better off renting and investing. Unfortunately, popular online “buy-or-rent” calculators, such as the one hosted by *The New York Times*, inflate the benefits of buying a home, providing inaccurate guidance to over 90 percent of renters who are considering whether or not to buy a home. We find that these calculators should focus instead on the cost of renting relative to buying (the rent-to-price ratio), which is a critical variable for assessing whether buying a home is good investment. Further, we find the median-income families might be able to greatly increase their wealth by renting and investing instead of buying when rent-to-price ratios are low.

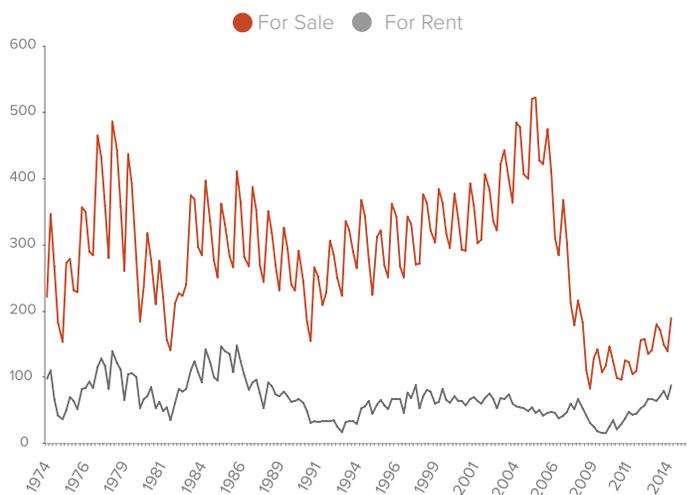
Despite the evidence to the contrary, why do many Americans view homeownership as a necessary and

essential part of their financial stability and the primary way to build wealth? We believe it is largely because there is very little critical thought about the whether homeownership is a good idea on a case-by-case basis; rather, buying a home is akin to a rite of passage, simply something people do when they can, regardless of their circumstances or market conditions. There also seem to be broad misperceptions of the relative value of homeownership since 85 percent of renters want to buy a home and 92 percent of mortgage holders think their investment was a good idea.<sup>41</sup>

Another possibility is that the rental market is not sufficiently large to meet many families’ needs; particularly families that would like to live in single-family homes in the suburbs. However, as shown in Figure 7, that gap may be closing. New rental construction is now at almost the same level as new construction intended for owner-occupiers. In contrast, a few years ago most new construction was intended for homeowners. This trend may help families that wish to rent find more diverse and better options than they once would have had.

To help encourage a more thoughtful, informed assessment about whether prospective homebuyers should buy or rent and invest, we give the following recommendations.

Figure 7: New Housing Unit Permits (in Thousands) Since 1974



Source: U.S. Census survey of housing permits. Each permit represents a new construction unit planned for rent or for sale.

**“Buy-or-rent” online calculators should be corrected.** There are three errors that buy-or-rent calculators need to correct.

First, they should not assume that potential buyers already itemize their tax returns. This flawed assumption overstates the federal tax break a homebuyer will receive after buying, which, in turn, inflates the value of homeownership. Instead, to give accurate advice, a buy-or-rent calculator should account for the overwhelming majority of potential buyers who do not currently itemize but *might* do so after buying. By doing so, these calculators will show the tax benefit as the difference between filing with a standard deduction and itemizing expenses from homeownership, such as mortgage interest and property taxes. Importantly, since the standard deduction grows with inflation and the interest homeowners pay on their mortgages declines over the years, the tax benefits shrink over time.

Second, these calculators should account for local tax structures, which are highly variable around the country. This accounting is necessary to correctly determine how much better off a homebuyer would be compared to renting and taking the standard deduction. This is because in addition to mortgage interest, homeowners can deduct local property taxes and local income taxes. In addition, property taxes are a large expense associated with homeownership that cannot be ignored.

Third, buy-or-rent calculators should account for alternative investments to home buying other than putting the money in a savings account earning low (and risk-free) returns. After all, renters can invest in a wide-variety of alternative investments, including a tax-advantaged IRA, 529, or a employer-sponsored defined contribution plan (e.g., 401(k)). The flawed assumption that limits homeowners to investing in an interest-bearing bank account as an alternative investment fails to show prospective buyers other pathways to building wealth, such as investing in a 401(k) or IRA.

**The mortgage interest deduction should be reformed.** As we (and others) have shown, the mortgage interest deduction should be reformed because most of its

benefit flows to high-income people in expensive cities. Additionally, its existence clearly sends a signal (bolstered by advice from online calculators and other sources) that people will get a tax break for buying—even though this tax break will be small and fleeting (or even nonexistent) for most buyers. Nonetheless, a signal that buying reduces taxes must add more froth to the housing market even when buying is not likely to be a financially sound decision. We support a comprehensive reform of the mortgage interest deduction to help American families build wealth through other investments. For example, a refundable tax credit for homeownership and an equal tax credit for retirement savings would send a signal that there are tax benefits to either approach to building wealth. In addition, such an approach would better distribute the current tax expenditure for homeownership.

**Employers and retirement benefits vendors should help employees understand the potential benefits of their defined contribution plans in the context of other financial goals, such as home buying.** Advice to employees to contribute to their defined contribution plans is often given in a vacuum, without any acknowledgment of the tradeoffs workers face. After all, every dollar contributed to a retirement plan is money that isn’t available for other goals. But, if employers offered advice that helped employees contextualize their retirement goals along with other options such as buying a home, they would be better able to determine the value of investing to build wealth over time compared to these alternatives. More than 34 percent of renters that wish to buy a home already have a 401(k), and 40 percent have access to some kind of tax-deferred savings account.

Additionally, employers should help their employees understand the incentives that are built into the tax code for them. After all, employers deliver the programs that provide many tax-privileged savings options such as defined contribution retirement plans (usually 401(k) plans), Health Savings Accounts, and Flexible Spending Accounts. These benefits are all “above the line,” meaning they are in addition to the standard deduction (and in some cases even reduce

payroll tax as well as income tax). It would be very helpful if employers contextualized these benefits by showing employees how the tax benefits they get from work programs function compared to the tax benefits they could get for buying a home.

## Appendix Tables

Table 2: Variation in Tax Subsidies for First 10 Years of Homeownership for a Median-Income and High-Income Family in the Largest Cities in 20 States

City	High-Income Family		Median-Income Family	
	Tax Savings Over 10 Years	Reduction in Ownership Cost	Tax Savings Over 10 Years	Reduction in Ownership Cost
Baltimore	\$33,954	10.47%	\$35	0.02%
Boston	\$29,439	8.69%	\$20	0.01%
Charlotte	\$13,561	5.93%	\$0	0.00%
Chicago	\$18,634	7.23%	\$0	0.00%
Columbus	\$22,793	8.65%	\$0	0.00%
Denver	\$12,497	4.56%	\$0	0.00%
Detroit	\$13,410	6.42%	\$0	0.00%
Houston	\$6,864	3.30%	\$0	0.00%
Indianapolis	\$13,298	6.13%	\$0	0.00%
Jacksonville	\$6,521	2.73%	\$0	0.00%
Las Vegas	\$2,334	1.06%	\$0	0.00%
Los Angeles	\$50,726	9.80%	\$5,247	1.88%
Memphis	\$10,765	4.67%	\$0	0.00%
New York	\$40,822	9.98%	\$854	0.38%
Oklahoma City	\$5,353	2.62%	\$0	0.00%
Philadelphia	\$37,009	10.85%	\$1,028	0.55%
Phoenix	\$9,102	4.05%	\$0	0.00%
Portland	\$31,523	9.46%	\$0	0.00%
Seattle	\$17,580	5.59%	\$0	0.00%
Washington	\$17,620	6.29%	\$0	0.00%

Source: Analysis based on District of Columbia Office of Revenue Analysis Data. Median-income families are families of 3 with income of \$50,000. High-income families are families of 3 with income of \$100,000.

Table 3: Net Wealth Gain or Loss from Buying Over 10 Years

City	High-Income Family			Median-Income Family		
	5 Percent of Purchase Price	6 Percent of Purchase Price	7 Percent of Purchase Price	5 Percent of Purchase Price	6 Percent of Purchase Price	7 Percent of Purchase Price
Baltimore	-\$68,196	-\$8,748	\$50,699	-\$57,241	-\$27,517	\$2,207
Boston	-\$1,965	\$71,402	\$144,770	-\$21,224	\$15,460	\$52,143
Charlotte	-\$22,201	\$23,895	\$69,992	-\$20,526	\$2,522	\$25,570
Chicago	-\$29,301	\$22,020	\$73,341	-\$24,718	\$942	\$26,603
Columbus	-\$88,171	-\$45,153	-\$2,136	-\$59,673	-\$38,164	-\$16,655
Denver	-\$3,586	\$55,416	\$114,417	-\$10,605	\$18,895	\$48,396
Detroit	-\$71,015	-\$37,097	-\$3,178	-\$44,745	-\$27,785	-\$10,826
Houston	-\$50,221	-\$13,081	\$24,060	-\$28,703	-\$10,133	\$8,437
Indianapolis	-\$36,283	\$5,016	\$46,316	-\$20,814	-\$164	\$20,486
Jacksonville	-\$43,050	\$1,935	\$46,921	-\$19,614	\$2,879	\$25,372
Las Vegas	-\$31,088	\$11,949	\$54,986	-\$17,361	\$4,157	\$25,676
Los Angeles	-\$16,530	\$93,345	\$203,220	-\$34,981	\$19,957	\$74,894
Memphis	-\$49,162	-\$7,022	\$35,118	-\$32,111	-\$11,041	\$10,029
New York	\$17,598	\$109,407	\$201,216	-\$16,100	\$29,805	\$75,710
Oklahoma City	-\$28,647	\$11,063	\$50,772	-\$18,104	\$1,751	\$21,606
Philadelphia	-\$103,359	-\$45,917	\$11,524	-\$75,320	-\$46,600	-\$17,879
Phoenix	-\$25,968	\$18,666	\$63,301	-\$19,409	\$2,908	\$25,225
Portland	-\$55,499	\$7,945	\$71,389	-\$47,928	-\$16,206	\$15,516
Seattle	-\$16,827	\$48,845	\$114,516	-\$20,675	\$12,161	\$44,996
Washington	\$1,754	\$62,937	\$124,119	-\$7,165	\$23,427	\$54,018

Source: Analysis based on District of Columbia Office of Revenue Analysis Data. Median-income families are families of 3 with income of \$50,000. High-income families are families of 3 with income of \$100,000.

Table 5: Effect of Changes in Rent-to-Price Ratio and Different Appreciation Assumptions on Net Wealth from Owning Over 10 Years in the Largest Cities

City	High-Income Family			Median-Income Family		
	Change in Wealth from 1 Standard Deviation Decrease in Rent-to-Price Ratio	Change in Wealth from 1 Standard Deviation Increase in Appreciation	Percentage Increase from Change in Rent-to-Price Compared to Appreciation Change	Change in Wealth from 1 Standard Deviation Decrease in Rent-to-Price Ratio	Change in Wealth from 1 Standard Deviation Increase in Appreciation	Percentage Increase from Change in Rent-to-Price Compared to Appreciation Change
Baltimore	\$28,535	\$33,736	-15.42%	\$14,267	\$16,802	-15.09%
Boston	\$35,216	\$44,422	-20.72%	\$17,608	\$22,416	-21.45%
Charlotte	\$22,126	\$27,199	-18.65%	\$11,063	\$13,841	-20.07%
Chicago	\$24,634	\$30,127	-18.23%	\$12,317	\$15,346	-19.74%
Columbus	\$20,648	\$23,095	-10.59%	\$10,324	\$11,542	-10.55%
Denver	\$28,321	\$35,656	-20.57%	\$14,160	\$18,247	-22.39%
Detroit	\$16,281	\$18,160	-10.35%	\$8,140	\$9,179	-11.31%
Houston	\$17,827	\$20,818	-14.37%	\$8,914	\$10,739	-17.00%
Indianapolis	\$19,824	\$23,813	-16.75%	\$9,912	\$12,318	-19.53%
Jacksonville	\$21,593	\$25,819	-16.37%	\$10,797	\$13,521	-20.15%
Las Vegas	\$20,658	\$25,545	-19.13%	\$10,329	\$12,983	-20.44%
Los Angeles	\$52,740	\$66,066	-20.17%	\$26,370	\$32,662	-19.26%
Memphis	\$20,227	\$23,886	-15.32%	\$10,114	\$12,200	-17.10%
New York	\$44,068	\$56,268	-21.68%	\$22,034	\$28,196	-21.85%
Oklahoma City	\$19,061	\$23,108	-17.51%	\$9,530	\$11,909	-19.97%
Philadelphia	\$27,572	\$31,327	-11.99%	\$13,786	\$15,322	-10.03%
Phoenix	\$21,425	\$26,185	-18.18%	\$10,712	\$13,417	-20.16%
Portland	\$30,453	\$36,589	-16.77%	\$15,227	\$18,382	-17.17%
Seattle	\$31,522	\$39,251	-19.69%	\$15,761	\$20,008	-21.23%
Washington	\$29,368	\$37,160	-20.97%	\$14,684	\$19,051	-22.92%

Source: Analysis based on District of Columbia Office of Revenue Analysis Data. Median-income families are families of 3 with income of \$50,000. High-income families are families of 3 with income of \$100,000.

## End Notes

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- <sup>1</sup> Housing price data is author's calculation based on Case-Shiller housing data, obtained from <http://www.econ.yale.edu/~shiller/> on 9/3/2014. Survey data from Belsky, Eric S. *The Dream Lives On: The Future of Homeownership in America*. Joint Center for Housing Studies, Harvard University, 2013.
- <sup>2</sup> *The State of the Nation's Housing* from Harvard's Joint Center for Housing Studies.
- <sup>3</sup> For a good distillation of the existing research, see Herbert, Christopher E., Daniel T. McCue, and Rocio Sanchez-Moyano. "Is Homeownership Still an Effective Means of Building Wealth for Low-income and Minority Households? (Was it Ever?)." (2013). This paper does not address other social benefits of homeownership. For a summary of the social benefits of homeownership, see Engelhardt, Gary V., Michael D. Eriksen, William G. Gale, and Gregory B. Mills. "What are the social benefits of homeownership? Experimental evidence for low-income households." *Journal of Urban Economics* 67, no. 3 (2010): 249-258. Or for an example of how homeownership may be linked to improving child development, see Harkness, Joseph, and Sandra J. Newman. "Homeownership for the poor in distressed neighborhoods: Does this make sense?" *Housing Policy Debate* 13, no. 3 (2002): 597-630.
- <sup>4</sup> Di, Zhu Xiao, Eric Belsky, and Xiaodong Liu. "Do homeowners achieve more household wealth in the long run?" *Journal of Housing Economics* 16, no. 3 (2007): 274-290.
- <sup>5</sup> Boehm, Thomas P., and Alan Schlottmann. "Wealth accumulation and homeownership: Evidence for low-income households." *Cityscape* (2008): 225-256.
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- <sup>7</sup> Belsky, *The Dream Lives On: The Future of Homeownership in America*. Joint Center for Housing Studies.
- <sup>8</sup> Beracha, Eli, and Ken H. Johnson. "Lessons from Over 30 Years of Buy versus Rent Decisions: Is the American Dream Always Wise?" *Real Estate Economics* 40, no. 2 (2012): 217-247.
- <sup>9</sup> *Ibid.*
- <sup>10</sup> Rappaport, Jordan. "The effectiveness of homeownership in building household wealth." *Federal Reserve Bank of Kansas City, Economic Review* 95, no. 4 (2010): 35-65.
- <sup>11</sup> Belsky, Eric S., and Mark Duda. "Asset appreciation, timing of purchases and sales, and returns to low-income homeownership." *Low-income homeownership: Examining the unexamined goal* (2002): 208-238.
- <sup>12</sup> Belsky, Eric S., Nicolas P. Retsinas, and Mark Duda. "The Financial Returns to Low-Income Homeownership." (2005).
- <sup>13</sup> Davis, Morris A. *Questioning homeownership as a public policy goal*. Cato Institute, 2012.
- <sup>14</sup> Dickerson, A. Mechele. "The Myth of Home Ownership and Why Home Ownership is Not Always a Good Thing." *Ind. LJ* 84 (2009): 189.
- <sup>15</sup> Goetzmann, William N., and Matthew Spiegel. "Policy implications of portfolio choice in underserved mortgage markets." *Low-income homeownership: Examining the unexamined goal* (2002): 257-274.
- <sup>16</sup> Shiller, Robert J. *Irrational Exuberance*. Random House LLC, 2005.
- <sup>17</sup> One could also run similar analysis for individuals, with appropriate tax adjustments.
- <sup>18</sup> Tax data is from *Tax Rates and Tax Burdens in the District of Columbia – A Nationwide Comparison*, Government of the District of Columbia, Office of Revenue Analysis. December 2013.
- <sup>19</sup> Data taken from Core Logic, TrueStandings.
- <sup>20</sup> Smith, Margaret Hwang, and Gary Smith. "Bubble, bubble, where's the housing bubble?" *Brookings Papers on Economic Activity* 2006, no. 1 (2006): 1-67.
- <sup>21</sup> Emrath, Paul. "How long buyers remain in their homes." *HousingEconomics.Com* (2009).
- <sup>22</sup> Shiller, Robert J. *Irrational Exuberance*.
- <sup>23</sup> Case-Shiller housing data, obtained from <http://www.econ.yale.edu/~shiller/> on 9/3/2014.
- <sup>24</sup> This includes accounting for the current low-interest rate environment for bonds. We also checked to see that stocks and bonds are not correlated with housing, which they are not.
- <sup>25</sup> Author's analysis of *Federal Board of Governor's Survey of Consumer Finance*.
- <sup>26</sup> For this example, we used the assumptions for the city with median sales prices. All the other assumptions are the same as those outlined in the methodology section.
- <sup>27</sup> Joint Center for Housing Studies of Harvard University. *The State of the Nation's Housing*. Harvard University, 2014.

<sup>28</sup> Beracha and Johnson, “Lessons from Over 30 Years of Buy versus Rent Decisions: Is the American Dream Always Wise?”

<sup>29</sup> Rappaport, “The effectiveness of homeownership in building household wealth.”

<sup>30</sup> Homes are a risky investment, so they should be compared to other investments with a comparable amount of risk. Money in a savings account is risk-free, and is not an appropriate alternative investment.

<sup>31</sup> Fischer, Will, and Chye-Ching Huang. “Mortgage interest deduction is ripe for reform.” *Center on Budget and Policy Priorities* (2013).

<sup>32</sup> The 92 percent figure is the percent of people that rent and say they are saving for a home and do not currently itemize their taxes, according to the Board of Governors of the Federal Reserve System Survey of Consumer Finance.

<sup>33</sup> One of these calculators—Trulia’s—allows prospective buyers to indicate they do not currently itemize. However, it then makes a different, egregious assumption that the buyer will continue never to itemize, even if after the purchase, she would pay enough interest along with other deductions, such as income and property taxes, to justify itemizing.

<sup>34</sup> See for example Poterba, James, and Todd Sinai. “Tax expenditures for owner-occupied Housing: Deductions for Property Taxes and mortgage interest and the exclusion of imputed rental income.” *The American Economic Review* (2008): 84-89. Also see Beracha, Eli, and Samuel L. Tibbs. “A Closer Look at the Value of Tax Benefits for Homeowners.” *Journal of Real Estate Practice and Education* 13, no. 2 (2010): 131-139.

<sup>35</sup> Fischer and Huang, “Mortgage interest deduction is ripe for reform.”

<sup>36</sup> *Ibid.*

<sup>37</sup> Author’s calculations based on Board of Governors of the Federal Reserve System Survey of Consumer Finance.

<sup>38</sup> The current national average is slightly below 5 percent, as presented by by Davis, Morris A., Lehnert, Andreas, and Robert F. Martin, 2008, “The Rent-Price Ratio for the Aggregate Stock of Owner-Occupied Housing,” *Review of Income and Wealth*, vol. 54 (2), p. 279-284; data located at Land and Property Values in the U.S., Lincoln Institute of Land Policy <http://www.lincolninst.edu/resources/>.

<sup>39</sup> For this analysis, we start from a point of equilibrium where rent-to-price ratios would mean the buyer would break even in 10 years in each city. Then, we adjust the rent-to-price ratio down by 1 standard deviation and the appreciation assumption up by 1 standard deviation. We compare the change in net wealth from each of these adjustments.

<sup>40</sup> Shiller, Robert J. *Irrational exuberance*.

<sup>41</sup> Survey data from Belsky, Eric S. *The Dream Lives On: The Future of Homeownership in America*. Joint Center for Housing Studies, Harvard University, 2013.

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