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HECM, Ed Szymanoski's Legacy, at 30

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Opinions expressed in this introduction are those of the author and do not necessarily reflect the views and policies of the U.S. Department of Housing and Urban Development or the U.S. government.

The Federal Housing Administration's (FHA's) Home Equity Conversion Mortgage (HECM) insurance program began as a "demonstration," authorized by Congress with Section 417 of the Housing and Community Development Act of 1987, adding Section 255 to the National Housing Act. It authorized the Secretary of the U.S. Department of Housing and Urban Development (HUD) to insure 2,500 reverse mortgages through September 30, 1991, on the homes of elderly homeowners. The intent was to enable the elderly to continue living in their homes while turning a portion of their equity into cash to reduce the effect of economic hardship caused by the increasing costs of health, housing, and subsistence needs at a time of reduced income.

The HECM program assists elderly homeowners to age in place by enabling them to turn home equity into cash through a mortgage in which proceeds can be accessed up front or over time and interest due is simply added to the outstanding loan balance. HECM borrowers make no payments on their loans as long as they live in their homes, maintain them, and keep current on property taxes and hazard insurance. The loans are paid off either by the homeowners' heirs, through the sale of the home, and/or through a claim on FHA's Mutual Mortgage Insurance Fund.

One cannot talk about the HECM program without also talking about a long-time member of HUD's Office of Policy Development and Research family. FHA's HECM program is fundamentally a reflection of the initial and continuing integral involvement of Edward J. Szymanoski, who was widely held in the highest regard for his HECM expertise and advocacy. During the late 1980s, throughout the 1990s, and until his recent death, Ed was a principal architect in the design, implementation, and evaluation of HUD's HECM reverse mortgage program, beginning with initial design research in 1988 and continuing with ongoing analytical support and leadership to FHA program staff in implementation, policy decisions, and review of legislative initiatives through congressional authorization of a full-fledged permanent program. Ed did the heavy analytical lifting

for the establishment of the HECM demonstration, became an internationally known expert on the program through writing and speaking engagements, and provided critical policy input to restore the program to health after the housing and mortgage crisis of the 2000s.

Ed encouraged academic research on the HECM program both within and outside HUD, with advice and support of research partnerships. Much of the current and ongoing research on the HECM program deals with the issues raised in the aftermath of the rapid rise of home prices followed by the Great Recession and falling home prices. Ed was involved in the early stages of commissioning this symposium volume, but sadly was unable to see it through to fruition, having passed away last year following a valiant battle with cancer. Ed leaves a legacy of fond friendships and more than 930,000 elderly homeowner households that have been helped to age in place through HECMs. Far more will come, because a well-functioning HECM program will only grow in importance to the nation as the baby boom generation ages into retirement.

This symposium of *Cityscape* includes articles motivated by a number of HECM issues and remedies considered in the wake of the mortgage crisis and Great Recession. One problem identified recently was that house prices upon loan termination were falling short of expectations. The possibility of poor maintenance was considered as a cause of this problem and periodic inspections were considered as a solution. Kevin A. Park, however, finds that the source of the problem was probably not poor maintenance leading to lower sale prices. A likelier cause was over-appraisals at origination that led to inflated house price expectations at termination, and the inspection proposal was not adopted (Park, 2017).

Tax defaults on HECM loans have been a problem recently. Silda Nikaj and Joshua J. Miller find that numerous tax abatement programs are available to elderly homeowners, but it is not known how many HECM borrowers take advantage of these opportunities. If improved counseling or some other technique could lead to higher usage of available tax breaks, HECM borrowers would find it easier to stay current on tax payments or could have more money left over for discretionary use (Nikaj and Miller, 2017).

Szymanoski, Alven Lam, and Christopher Feather discuss recent proposals considered to restore fiscal soundness to the HECM program. For example, they examine how higher losses associated with large first-year draws could be reduced with limitations in the size of first-year draws and the adoption of risk-based pricing. They also discuss how initial financial assessments might ensure that borrowers have the resources to cover property taxes, insurance, and maintenance. This discussion is followed by a clear and comprehensive discussion of how the secondary market for HECMs has evolved and how important sound servicing rules are to keep the secondary market functioning well so it can provide reliable low-cost funding for HECM loans (Szymanoski, Lam, and Feather, 2017).

Stephanie Moulton, Cäzilia Loibl, and Donald Haurin examine demographic and financial characteristics of HECM borrowers and look at demand for HECM loans. They find that, among other things, HECM borrowers have lower incomes and liquidity along with substantial home equity and that many have an existing first mortgage they want to pay off. Moreover, borrowers are generally satisfied with HECM counseling and have high satisfaction with their loans (Moulton, Loibl, and Haurin, 2017).

Masahiro Kobayashi, Shoichiro Konishi, and Toshihiko Takeishi examine the Japanese experience with HECMs in the context of a major housing price decline with prices stabilizing at a much lower level. Current conditions include an aging population of people with long life expectancies, a very high home vacancy rate, and a falling population. Although the United States and Japan both experienced a housing crash and have growing numbers of the elderly, the Japanese have a falling overall population and a high housing vacancy rate. The challenge for the Japanese is to design a HECM that can survive under these difficult circumstances (Kobayashi, Konishi, and Takeishi, 2017).

Finally, George R. Carter III and Joshua J. Miller examine the U.S. market. They examine the financial and demographic characteristics of those who own their homes free and clear, have forward mortgages, and have HECMs. With the elderly population growing steadily, a strong preference to age in place, a high elderly homeownership rate, and high equity for the elderly, they find a strong potential for growth in the number of HECM loans (Carter and Miller, 2017).

Acknowledgments

The guest editor thanks all the authors for their dedication and hard work in support of the HECM program.

Guest Editor

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Reverse Mortgage Collateral: Undermaintenance or Overappraisal?

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Abstract

Using information on mortgages insured by the Federal Housing Administration, this article examines the disproportionate decline in collateral values associated with reverse mortgages. Properties securing reverse mortgages sell at a sharp discount in foreclosure relative to similar properties securing forward purchase loans. This discount, however, does not increase over time as expected of depreciation related to property undermaintenance. Further, a similar discount is observed on forward refinance loans. An overestimate of the collateral value at origination, rather than subsequent level of property maintenance, may be responsible for greater-than-expected loss severities.

Introduction

Recent regulatory attention has been brought to the possibility of a moral hazard problem in the Federal Housing Administration's (FHA's) reverse mortgage insurance program. As the principal balance of a reverse mortgage approaches the value of the collateral (that is, the borrower's home equity is exhausted), the homeowner has less incentive to maintain the property. The dearth of regular home repairs and improvements may cause the value of the collateral to depreciate, magnifying losses for FHA. The U.S. Department of Housing and Urban Development (HUD) has proposed countering this misalignment of incentives with periodic property inspections. If the property is found to be in disrepair, the mortgage servicer could draw on any remaining reverse mortgage proceeds to cover property preservation expenses.

Higher-than-expected loss severities on reverse mortgage foreclosures, however, could also be the result of optimistic estimates of collateral value driven by exaggerated property appraisals when the loan was originated. Appraisers seeking future business have little incentive in

jeopardizing a loan closing by underestimating the collateral value, and borrowers are not constrained by the ability to repay a reverse mortgage, unlike a traditional forward loan. As a consequence, a moral hazard problem also exists at the outset of a reverse mortgage.

This article compares the prices of foreclosed properties with reverse mortgages against similar forward mortgages to examine differences in foreclosure discounts. The timing of these discounts may shed light on whether a collateral value issue exists and which moral hazard problem dominates. The results should help inform the best course of action to minimize losses in FHA's Home Equity Conversion Mortgage (HECM) insurance program.

Background

Assumptions about the future level of house prices drastically impact the projected losses on HECM books of business. For example, the update to Moody's forecast of the Federal Housing Finance Agency's (FHFA's) purchase-only repeat-sales house price index (HPI) used by the in-dependent actuarial review in 2015 showed faster appreciation in the next 3 years followed by higher house prices in all future years compared with the 2014 forecast. The revised economic scenario increased the economic value of the HECM program in fiscal year 2015 by nearly $4.8 billion. For comparison, the overall economic value of HECM program in fiscal year 2015 was estimated to be less than $6.8 billion (IFE, 2015). Trends in national house prices, however, may not be representative of the collateral in FHA's reverse mortgage portfolio. Demand for reverse mortgages may vary by household and market characteristics associated with house price declines (that is, adverse selection), and obtaining a reverse mortgage may be associated with behavioral changes that compound such declines (that is, moral hazard).

Evidence of variation in house price changes associated with homeowner age has been found across several data sets and different time periods. Using four cohorts of homeowners who were at least age 62 between 1968 and 1983 in the Panel Study of Income Dynamics, Quercia (1997) found the average annual house price appreciation rate of older homeowners through 1989 generally exceeded the 4-percent average assumed by Szymanoski (1994). The results among a more limited sample tailored to resemble the demographics of reverse mortgage borrowers (that is, housing rich and cash poor older homeowners) were more ambiguous, however, with at least one cohort experiencing significantly lower house price appreciation than expected. Davidoff (2004) used the American Housing Survey to compare house prices between 1985 and 2001 and found homeowners who were at least age 75 in 1985 experienced house price appreciation 2 to 3 percentage points less than younger households experienced. Rodda and Patrabansh (2005) used the Health and Retirement Study and Census Public Use Microdata Sample and similarly found that older homeowners saw house price appreciation rates in the 1990s that were 1 to 3 percentage points less than rates that younger households saw. Capone, Chang, and Cushman (2010), on the other hand, used internal FHA data to simulate potential discounts to the market rate of house price appreciation until the expected number of terminations with negative equity was equal to the actual number of loss events. On average, they found no discount was needed to account for the likelihood of negative equity among HECM borrowers. In fact, they found that older HECM borrowers had fewer loss events than predicted.

Rodda and Patrabansh (2005) discussed several possible reasons why market conditions that reverse mortgage borrowers experience may diverge from national trends. Older homeowners are disproportionately located in Sun Belt markets with a relatively elastic supply of housing, which tempers house price increases. At the same time, reverse mortgages can be used to insure against house price declines, because they are nonrecourse loans and the amount of credit available in reverse mortgages is based on the original property value instead of the mark-to-market value, which creates an adverse selection problem. Szymanoski (1994) argued, "The ability of potential borrowers to use the asymmetric information they possess on local property value trends to their advantage may be limited." Shan (2009), however, found that HECM origination volume is positively associated with past house price appreciation but negatively associated with future appreciation. Haurin et al. (forthcoming) similarly find greater HECM originations in states with a history of house price volatility *and* high current deviation in house prices from their long-term average. Both findings support the hypothesis of adverse selection in demand for reverse mortgages, in which borrowers seek to lock in credit lines before collateral values decline.

At the microeconomic level, owner age is correlated with the length of tenure and the building age. Estimates of house values of older homeowners, particularly self-reported estimates, may be both biased and heteroskedastic. Owners may overvalue their homes due to an endowment effect (Thaler, 1980), and the variance in those estimates may increase with tenure as owners become farther removed in time from their last market transaction. Moreover, older properties will tend to be less homogenous after years of renovations and home improvement projects, confounding the selection of appropriate comparable sales by even experienced real estate professionals (Rodda and Patrabansh, 2005).

The length of tenure may also be associated with behavioral differences. Overall, Quercia (1997) found that older homeowners, particularly elderly households that are housing rich and income poor, also have higher rates of early reverse mortgage termination than expected. Davidoff and Welke (2007) built a theoretical model in which household characteristics associated with demand for reverse mortgages may be also related to increased mobility but, all else equal, obtaining a reverse mortgage reduces the likelihood of moving. In particular, households that heavily discount future consumption may desire the ability to quickly tap home equity through a reverse mortgage but, unable to borrow the full value of their home, may also subsequently sell the property to cash out the remaining equity.[1] Capone, Chang, and Cushman (2010) find that assuming a market rate of house price appreciation over-predicts the number of HECM loss events among early terminations but underpredicts loss events among longer durations. Assuming a house price appreciation rate 1 percentage point lower than the market best predicts loss events after approximately 5 years.

Rodda and Patrabansh (2005) noted that the difference between "movers" and "stayers" has implications for maintenance. Approximately two-thirds of the value of residential real

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[1] Davidoff and Welke (2007: 24) noted that poor health may be responsible for both the higher rates of mobility and discounting future consumption. "[R]everse mortgage borrowers have a need for immediate cash due to health reasons, and then die or exit their homes due to death or severe illness."

estate is in the housing structure, with the remainder in the value of the underlying land.[2] Without regular maintenance, the value of the structure will depreciate over time. The U.S. Department of Commerce's Bureau of Economic Analysis assumes an 80-year service life for new one- to four-unit structures and an average depreciation rate of 1.14 percent, with home repairs and additions depreciating at a faster rate. The Lincoln Land Institute assumes a 1.5-percent depreciation rate for housing structures (Davis and Heathcote, 2007). These estimates, however, are net of maintenance and repair expenditures. Harding, Rosenthal, and Sirmans (2007) estimated the typical gross depreciation rate is approximately 2.5 to 2.9 percent. "At this rate, after fifty years the original housing capital would have fallen more than 75 percent in value" (Harding, Rosenthal, and Sirmans, 2007: 4).

Although older homeowners have an incentive to maintain the quality of their housing consumption, they may also disinvest from housing wealth by substituting other consumption for regular home repairs, allowing the property to depreciate. This informal extraction of home equity is consistent with the life cycle hypothesis of housing consumption discussed by Artle and Varaiya (1978). In fact, Davidoff (2004) found that homeowners older than age 75 undertake fewer projects and spend $500 per year less on home improvement and repairs, including $100 less on routine maintenance, after accounting for differences in length of tenure. In general, older homeowners may be less able or willing to either undertake or even oversee necessary actions to maintain property conditions.

On the other hand, explicitly extracting home equity through a reverse mortgage may enable older homeowners to improve the quality of their housing consumption. The proceeds of a reverse mortgage can be used to fund home improvements designed to let a homeowner "age in place." The Joint Center for Housing Studies of Harvard University (2014) found that only 57 percent of existing homes have more than one of five housing features designed to improve accessibility.[3] To the extent that the proceeds of a reverse mortgage allow homeowners to undertake necessary home repairs, their use will be associated with a relative increase in property values compared with homes owned by other older households. As noted, however, atypical home improvements can make finding comparable home sales necessary for valuation difficult and limit demand. Moreover, Miceli and Sirmans (1994) and Shiller and Weiss (2000) show how the limited liability of reverse mortgages creates a moral hazard problem. Once any remaining home equity has been exhausted, borrowers have little investment incentive to protect the value of the collateral. Undermaintenance, whether by accident or design, is a concern for the economic value of a reverse mortgage program.

Citing Capone, Chang, and Cushman (2010), the actuarial review also applies a house price discount factor that adjusts expected property values below that derived from the house value at origination with an HPI adjustment (IFE, 2015). The house price discount factor varies

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[2] The Federal Reserve's Flow of Funds (table B.101) estimates the value of real estate held by households in the first quarter of 2016 at $25.8 billion and the replacement-cost value of residential structures owned by households at $15.3 billion, or roughly 68 percent. Value estimates from the Lincoln Land Institute are slightly higher ($27.3 and $17.4 billion, respectively) but with a comparable ratio of 64 percent (Davis and Heathcote, 2007). Also see Albouy and Ehrlich (2015).

[3] The five features are (1) ramp entries, (2) single-floor living, (3) extra-wide hallways and doors, (4) accessible electrical controls, and (5) lever-style handles on doors and faucets.

by whether the property value at origination was above or below the local median value and by the age of the loan. The formula described corresponds to a premium (negative discount) on the HPI during roughly the first 3 years (that is, house values are assumed to experience above-market appreciation), after which house values are discounted over time up to 20 percent for properties originally valued above the local median and 25 percent for properties originally valued below the local median. This discount has substantial implications for the estimated financial health of the Mutual Mortgage Insurance Fund that finances the HECM program.

Contractual requirements for routine maintenance can address concerns about the collateral values. Shiller and Weiss (2000: 6) note, however, "[M]any risk-sharing contracts with home-owners specify that the maintenance should be kept up for the contract, and the homeowners are subject to penalties if it is not. In practice, it may be very difficult to enforce such contract provisions." Davidoff and Welke (2007: 7) similarly argue, "Practically, the maintenance requirement cannot be enforced after closing, because it would be unlikely for a court to force a senior citizen out of their home for failure to perform maintenance." Nevertheless, FHA is considering requiring periodic inspections of HECM properties and allowing the cost of inspection and any required repairs to be included "as a reasonable and customary charge that may be collected and added to the borrower's loan balance."[4] Exterior inspections are already required at least every 30 days if the borrower is in technical default for failing to pay property taxes and insurance.

A downside to frequent property inspections also exists, however. A class action filed in May 2016 alleges that two mortgage companies undertook "repeated, unreasonable, and unneces-sary inspections," sometimes including multiple inspections in a single day (Bahrampour, 2016). After the borrower's credit is exhausted, HUD ultimately pays for these property inspections, up to the maximum claim amount.[5] Whether periodic property inspections are needed and at what frequency should be determined by evidence of the presence and degree of excessive depreciation associated with undermaintenance in the reverse mortgage program.

An alternative hypothesis for lower collateral values associated with reverse mortgages is that the original value of the property was overestimated. Mortgage underwriting often restricts loan amounts to a given percentage[6] of the collateral value, typically defined as the lesser of the transaction price or appraised value. Cho and Megbolugbe (1996), however, noted that appraisals also suffer from a moral hazard problem that encourages an upward bias in property value estimates.

> [T]he buyer and seller have a vested interest in completing a transaction. Loan originators
> have a vested interest in completing sales. No sale means no income for the originators
> or real estate agent. The appraiser understands the financial implications of having no

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[4] "Strengthening the Home Equity Conversion Mortgage Program." 81 Federal Register 31770 (May 19, 2016) (amending 24 CFR 30 and 24 CFR 206).

[5] The maximum claim amount is the lesser of the appraised value at origination and the FHA loan limit for a given metropolitan area.

[6] The FHA HECM program has principal limit factors that vary by the borrower's age and mortgage interest rates.

transactions and, at the same time, wants repeat business via referrals. Accordingly, real estate agent, buyers, originators, and appraisers have aligned interests: to complete and close the transaction. The way to ensure the deal is to appraise slightly high. The appraiser asks for or receives the transaction price and then adds a bit to it. Since mortgage lenders employ the minimum of sales price or the appraisal, whichever is lower, in determining the loan value, no further information is added because of the appraisal. Therefore, it is only the carriers of the default risk who lose in the transaction. (Cho and Megbolugbe1996: 46)

In the case of the vast majority of reverse mortgages, the carrier of the default risk is FHA.

Empirical evidence of the upward bias in appraisals is found in the skewness toward overappraisals and also the remarkable share of appraisals precisely equal to the transaction price (Calem, Lambie-Hanson, and Nakamura, 2015; Cho and Megbolugbe 1996; Conklin et al., 2016). Although borrower characteristics should not influence property valuations, this phenomenon is particularly noticeable among credit-constrained borrowers. Conklin et al. (2016) found the likelihood of an at-price appraisal increases 8.1 percent if the combined loan-to-value ratio exceeds 100 percent, with similar but smaller effects at 90- and 80-percent thresholds.

Appraisal bias has been known to be a problem for refinance loans, given that no market transaction price is available against which to compare the valuation. For example, Agarwal, Ambrose, and Yao (2016) compared repeat sales (purchase-purchase loan originations) with similarly paired loan originations on the same property in which the first loan origination is a refinance. They found that house price returns are 8.4 percent less when the initial value is obtained from an appraisal for a refinance instead of a market sale. Lower returns are consistent with an inflated appraisal. Likewise, reverse mortgages rarely have a purchase price.[7] Moreover, large forward mortgages (including refinancings) buoyed by exorbitant appraisals create an excessive debt burden; the size of the loan amount consequently is limited by consideration of the borrower's ability to repay, commonly measured by a debt-to-income ratio. A reverse-mortgage borrower, however, faces no such hardship or consideration of ability to repay. The only limitation of the availability of credit is how much FHA is willing to insure.

New oversight regulations have been found to reduce appraisal bias. For example, Agarwal, Ambrose, and Yao (2016) found that the Home Valuation Code of Conduct, which the government-sponsored enterprises Fannie Mae and Freddie Mac adopted, reduced appraisal bias by 3.6 percentage points. The *FHA Single Family Housing Policy Handbook 4000.1* (HUD, 2015) requires lenders to select certified appraisers from a list maintained by FHA of qualified appraisers.[8] These appraisers "must avoid conflicts of interest and the appearance of conflicts

[7] A HECM for Purchase program that allows seniors to purchase a new principal residence and obtain a reverse mortgage in a single transaction was introduced in January 2009. These loans, however, account for a small share of reverse mortgage originations (IFE, 2015).

[8] Before December 1994, HUD field offices assigned appraisers on a rotational basis designed from a fee panel to ensure independence. The Cranston-Gonzalez National Affordable Housing Act of 1990, however, allowed lenders the opportunity to select appraisers, which quickly became the dominant procedure; in 1996, FHA discontinued the rotational assignment. FHA states that "although some former fee panel appraisers have alleged that some appraisers have performed poorly, either by design or due to a lack of skills and understanding of HUD's procedures, no statistical or other basis exists for concluding that the appraisal system is flawed" (GAO, 1997: 8).

of interest," (HUD, 2015: 64) including undue influence from anyone compensated based on the successful loan closing. Further safeguards include prohibition on "appraiser shopping" by ordering multiple appraisals, withholding or threatening to withhold timely payment or future business from an appraiser, requesting or conditioning business on a preliminary estimate, and "any other act or practice that impairs or attempts to impair an Appraiser's independence, objectivity, impartiality or violates law or regulation" (HUD, 2015: 66).

Whereas undermaintenance is expected to be associated with depreciation over time, an overappraisal at origination is expected to be associated with a decline in observed value regardless of loan age. As a consequence, the timing of foreclosure discounts may also indicate their source.

Data and Methodology

To evaluate differences in collateral risk, we compare the change in valuations of properties with reverse mortgages against change in comparable properties with forward loans, both home purchase and refinance. Data come from information on properties with FHA-insured mortgages that are sold through foreclosure. On one hand, properties that go through foreclosure may not be representative of the typical FHA-insured mortgage. On the other hand, the foreclosed property value most directly affects loss severity in FHA's portfolio. In addition, the real estate owned process should create similar measures of collateral values for both forward and reverse mortgages.

We use a propensity score-matching process to ensure greater comparability between properties secured by forward and reverse mortgages. A propensity score (the probability a loan is a reverse mortgage compared with a forward purchase or refinance mortgage) is estimated using a multinomial logistic regression stratified by census division with regressors, including property and borrower characteristics. The propensity score is then used to match with replacement each reverse mortgage with at least two forward purchase mortgages and two forward refinance mortgages in the same state (and select counties with at least 1,000 HECMs sold in foreclosure).[9] One sample is matched to all foreclosed HECMs. A second sample is matched only to those HECMs assigned to HUD,[10] which reduces the sample size but provides a richer set of variables to use in the propensity score-matching process and subsequent analysis.

By conditioning the analysis on household, property, and market characteristics, this article does not address the likelihood that reverse mortgage originations are disproportionately associated with risks to collateral values. Propensity score matching, particularly on origination date and location, is meant to control for possible adverse selection in order to focus on

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[9] Matching is accomplished using the *psmatch2* program created for Stata by Leuven and Sianesi (2003).

[10] In the HECM program, mortgagees have the option to assign loans to HUD when the principal balance, including accrued interest and mortgage insurance premiums, equals or exceeds 98 percent of the maximum claim amount. HUD is then responsible for the foreclosure process when the borrower defaults or occupancy is terminated. A reverse mortgage servicer more commonly acquires title to the property through foreclosure and files a claim if the proceeds of the foreclosure sale are not sufficient to extinguish the debt. Information about the foreclosure sales price for these loans, however, is available only for foreclosures completed after 2012.

the potential moral hazard problems after origination. Periodic property inspections would address only the latter problem. In addition, FHA historically has been opposed to regionally risk-based pricing and program requirements that would be needed to address the former.

Exhibit 1 shows how propensity score-matching and weighting improve the similarity of property characteristics, reducing the importance of covariates in subsequent modeling. The first sample contains 29,405 reverse mortgages matched with 24,841 forward purchase mortgages and 19,434 forward refinances. The second sample contains 2,878 reverse mortgages matched to 4,266 purchase loans and 3,346 refinances.

The first set of models simply estimates the change in house values between loan origination ($t = 1$) and foreclosure ($t = 2$), accounting for change in local house prices and the type of loan.

$$\Delta HouseValue = \alpha + \beta(\Delta HPI) + \delta(LoanType_1) + \varepsilon \tag{1}$$

Change in house value ($\Delta HouseValue$)[11] is evaluated using both the annualized log difference used by Davidoff (2004) and the compound annual growth rate, or CAGR, favored by Rodda and Patrabansh (2005). $LoanType$ indicates reverse mortgages compared with forward loans (purchase and refinance).

The change in the local HPI (ΔHPI) establishes a baseline expectation of market changes in house prices. We use a recently released developmental repeat-sales HPI created by the FHFA at the five-digit ZIP Code level (Bogin, Doerner, and Larson, 2016). Leventis (2007) noted that the repeat-sales index created by the Office of Federal Housing Enterprise Oversight (now the FHFA) is not a perfect constant quality index but instead measures the change in house prices net of depreciation, maintenance, and home improvement. He estimates that the net quality drift is most likely negative (that is, depreciation outweighs maintenance); as a consequence, change in the repeat-sales index is likely biased downward.

In an alternative specification, we directly model house values in foreclosure based on the value at origination adjusted by changes in local house prices, original loan type, and length of time between valuations.

$$Value_2 = \alpha + \beta \left(Value_1 \times {HPI_2}/{HPI_1}\right) + \gamma(LoanType_1) + \delta(LoanType_1 \times Time_{1,2}) + \varepsilon \tag{2}$$

Both the value in foreclosure and the estimated market value (adjusted original valuation) are logged.[12] The interaction between $LoanType$ and $Time$ provides the estimate of the difference in rates of depreciation relative to house price changes in the market. In addition, the coefficient of the uninteracted $LoanType$ captures any time invariant discounts associated with reverse mortgages.

Reverse mortgage servicers can force borrowers to draw from their credit balances for certain expenditures, including inspections and property preservation actions that might affect

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[11] Consistent with common underwriting practice, the house value is determined in every specification as the lesser of the appraised value and, if available, the sales price.

[12] Because the dependent variable is logged, effects are interpreted as exponentiated estimated coefficients (for example, $e^\gamma - 1$).

Exhibit 1

Propensity Score Matching (1 of 2)

	Unmatched			Sample 1			Sample 2		
	Forward		Reverse	Forward		Reverse	Forward		Reverse
	Purchase	Refinance		Purchase	Refinance		Purchase	Refinance	
A. Matching statistics									
Observations (unweighted)	597,023	142,505	29,405	24,841	19,434	29,405	4,266	3,346	2,878
Weight				1.18	1.51	1.00	3.13	3.92	1.00
				(3.45)	(4.36)	(0.00)	(10.65)	(12.95)	(0.00)
Propensity score				– 0.45	– 0.48	– 0.35	– 2.57	– 2.03	– 2.33
				(1.96)	(1.93)	(2.13)	(2.67)	(2.48)	(2.76)
B. Primary borrower									
Age	34.1	41.1	76.9	37.1	44.3	76.9	36.2	42.0	82.0
	(10.5)	(11.9)	(7.8)	(11.1)	(11.7)	(7.8)	(10.2)	(10.9)	(6.6)
Gender[a]									
Male	67.6%	67.2%	41.6%	41.0%	47.9%	41.6%	38.0%	43.5%	38.8%
Female	31.8%	31.0%	57.9%	58.7%	51.3%	57.9%	61.8%	56.3%	61.0%
Race/ethnicity[a]									
White	58.2%	67.4%	70.4%	67.5%	72.6%	70.4%	68.0%	69.6%	68.2%
Black	19.4%	13.9%	19.7%	21.5%	15.7%	19.7%	9.0%	9.3%	9.6%
Hispanic	16.5%	10.1%	4.4%	4.0%	4.8%	4.4%	2.6%	1.5%	2.5%
Asian	1.1%	0.9%	0.5%	0.4%	0.4%	0.5%	0.5%	0.3%	0.5%
Other/not available	4.8%	7.7%	5.0%	6.6%	6.6%	5.0%	19.9%	19.4%	19.2%
Co-Borrower share[a]	40.3%	43.5%	22.2%	21.8%	27.4%	22.2%	26.6%	29.9%	27.2%
C. Property characteristics									
Original value[a]	$101,654	$153,377	$196,820	$179,609	$216,773	$196,820	$139,396	$182,876	$155,635
	(51,468)	(69,872)	(113,356)	(120,687)	(111,484)	(113,356)	(77,675)	(99,596)	(95,077)
Closing date[a]									
Before 2005	72.2%	34.5%	15.4%	25.2%	13.1%	15.4%	85.3%	66.2%	77.0%
2005 to 2008	22.8%	52.5%	63.9%	51.7%	66.6%	63.9%	14.4%	32.7%	22.0%
After 2008	5.0%	13.0%	20.7%	23.1%	20.3%	20.7%	0.3%	1.0%	0.9%
Location[a]									
California	8.0%	2.8%	14.7%	14.7%	14.7%	14.7%	15.0%	15.0%	15.0%
Florida	6.0%	4.1%	15.4%	15.4%	15.4%	15.4%	5.6%	5.6%	5.6%
Other	86.0%	93.1%	69.9%	69.9%	69.9%	69.9%	79.4%	79.4%	79.4%
Square footage[b]	1,346	1,454	1,393	29,405	1,556	1,393	1,371	1,479	1,406
	(542)	(506)	(460)	(1,545)	(523)	(460)	(480)	(477)	(438)

Exhibit 1

Propensity Score Matching (2 of 2)

	Unmatched			Sample 1			Sample 2		
	Forward		Reverse	Forward		Reverse	Forward		Reverse
	Purchase	Refinance		Purchase	Refinance		Purchase	Refinance	
Bedrooms[b]									
One	1.1%	1.0%	1.6%	0.9%	0.9%	1.6%	1.5%	1.7%	1.5%
Two	21.0%	17.1%	30.9%	18.8%	16.2%	30.9%	33.8%	25.0%	30.9%
Three	62.0%	64.2%	56.5%	57.9%	60.2%	56.5%	55.3%	59.5%	56.5%
Four	13.0%	15.4%	9.2%	17.2%	19.4%	9.2%	7.7%	11.5%	9.2%
Five or more	3.0%	2.3%	1.9%	5.2%	3.3%	1.9%	1.8%	2.3%	1.8%
Bathrooms[b]									
One	42.4%	37.1%	45.1%	34.2%	32.0%	45.1%	47.3%	39.8%	45.1%
Two	48.7%	52.7%	50.4%	53.3%	57.2%	50.4%	49.1%	53.5%	50.3%
Three or more	8.9%	10.3%	4.6%	12.5%	10.8%	4.6%	3.6%	6.7%	4.6%
Building age[b]	54.1	46.9	57.8	46.8	45.0	57.8	58.5	54.2	57.8
	(28.5)	(28.6)	(23.0)	(28.0)	(26.6)	(23.0)	(23.2)	(22.8)	(22.9)
D. Foreclosure characteristics									
Time between valuations[a]	5.7	5.2	7.7	8.0	7.3	7.7	10.3	9.0	10.1
	(3.0)	(2.4)	(2.4)	(3.0)	(2.1)	(2.4)	(3.1)	(2.7)	(3.2)
Estimated market value	$105,234	$133,329	$169,715	$165,310	$181,487	$169,715	$143,572	$163,020	$153,210
	(50,023)	(58,047)	(107,176)	(120,056)	(98,925)	(107,176)	(76,163)	(79,447)	(82,180)
CAGR	1.2%	−2.7%	−2.0%	−1.4%	−2.6%	−2.0%	0.1%	−1.4%	−0.3%
	(4.9)	(5.4)	(3.1)	(3.2)	(3.3)	(3.1)	(3.3)	(3.8)	(3.5)
Appraised value "as is"[b,c]	$77,118	$88,559	$107,735	$129,730	$124,707	$107,735	$96,428	$105,080	$108,147
	(47,889)	(55,483)	(76,172)	(119,765)	(87,826)	(76,172)	(68,816)	(65,703)	(76,258)
Appraised repaired value[c]	$78,975	$89,881	$109,137	$131,401	$126,497	$109,137	$98,147	$106,734	$109,566
	(50,263)	(57,947)	(76,275)	(119,920)	(91,590)	(76,275)	(69,194)	(65,707)	(76,355)
Foreclosure price	$71,432	$79,484	$102,814	$122,850	$116,301	$102,814	$88,671	$96,323	$99,753
	(47,980)	(52,026)	(79,819)	(116,773)	(83,995)	(79,819)	(65,923)	(62,971)	(73,071)
CAGR	−8.3%	−15.4%	−10.8%	−7.1%	−10.5%	−10.8%	−6.4%	−8.7%	−6.4%
	(16.3)	(11.1)	(7.8)	(7.4)	(7.1)	(7.8)	(8.3)	(6.8)	(7.0)

CAGR = compound annual growth rate.
[a] Used in matching sample 1 and sample 2.
[b] Used in matching sample 2 only.
[c] Available only for all loans in sample 2.
Note: Standard deviations presented in parentheses.

the ultimate resale price of the property. The sum of these unscheduled disbursements and corporate advances, scaled by the estimated market value of the property, is also included as a covariate to control for maintenance expenditures that servicers imposed.

We further use repeat nonforeclosure sales to investigate the accuracy of the initial valuation for reverse mortgages. To be specific, we analyze forward and reverse originations in which FHA had also previously insured a mortgage on the same property ($t = 0$).

$$Value_1 = \alpha + \beta \left(Value_0 \times {HPI_1}/{HPI_0}\right) + \gamma(LoanType_1) + \delta(Time_{0,1}) + \varepsilon \tag{3}$$

We estimate this model using most transaction pairs in which both loan originations were endorsed on or after 1980. We also analyze a subpopulation of the first sample of foreclosed properties. We use a third propensity score-matching process to ensure that property characteristics are properly balanced across loan types. Transaction pairs are restricted to where the first origination was for a home purchase mortgage, which is assumed to most accurately reflect the true market value. This earlier valuation is then adjusted by the five-digit ZIP Code HPI constructed by FHFA to estimate the market value of the property at the time of the subsequent loan origination, which may be for purchase, refinance, or a reverse mortgage.

Finally, this earlier valuation can also be used to estimate the market value of the property in foreclosure in the third sample, without being confounded by possible appraisal inflation.

$$Value_2 = \alpha + \beta \left(Value_0 \times {HPI_2}/{HPI_0}\right) + \gamma(LoanType_1) + \delta(LoanType_1 \times Time_{1,2}) + \varepsilon \tag{4}$$

All coefficients are estimated with robust standard errors unless otherwise noted and weighted in accordance with the propensity score-matching process.

Findings

Panels A and B of exhibit 1 show how borrower and property characteristics vary among purchase, refinance, and reverse mortgages and how using propensity score matching helps narrow these differences. Reverse mortgage borrowers obviously are older than borrowers using forward mortgages, but they also are more likely to be non-Hispanic White, female, and single (no co-borrower). The original value of the collateral used in underwriting is higher for reverse mortgages, despite having comparable square footage and typically fewer bedrooms and bathrooms. In part, this higher value is because reverse mortgage originations are concentrated in high-cost markets, like California and Florida. Reverse mortgages also were disproportionately originated at the peak of the national housing market, although the distribution of origination dates is skewed by the fact that the first sample includes nonassigned HECM claims only after 2012 due to data limitations. The second sample using only assigned reverse mortgages shows a greater share of originations between 2005 and 2008 than FHA-insured purchase loans but a smaller share than refinance loans.

Panel C of exhibit 1 shows these loans in the foreclosure process. Whereas the average loan age of a forward mortgage in foreclosure was more than 5 years, the average loan age was nearly 8 years for reverse mortgages; however, assigned HECMs in foreclosure averaged

just 3 years. As expected, given their higher original property values, reverse mortgages in foreclosure also had higher estimated market values based on local HPI adjustments. Yet the average change in market house prices between origination and foreclosure was -2.0 percent compared with a positive 1.2 percent for forward purchase mortgages. This pattern again reflects the fact that reverse mortgages were disproportionately originated at the peak of the market in states that experienced substantial house price volatility, which is consistent with Shan (2009) and Haurin et al. (forthcoming). The appraised value in foreclosure and actual foreclosure price for reverse mortgage properties are also larger on average. Before matching, the average annual change between the original value and foreclosure price is -8.3 percent for purchase loans, -15.4 percent for refinance loans, and -10.8 percent for reverse mortgages. Among the first sampled of matched loans, the comparable changes are -7.1, -10.5, and -10.8 percent. These declines suggest that reverse mortgages depreciate at roughly equal rates to similar properties with forward refinance loans, but at a higher rate than properties with forward purchase loans.

Exhibit 2 shows the results of a simple regression based on the first sample of matched loans. The dependent variable is the annualized change in house values from closing to foreclosure, calculated either by the log difference divided by loan age (column 1) or the formula for compound annual growth (column 2). The explanatory variable is whether the loan is a forward or reverse mortgage. The results show that properties securing a reverse mortgage have an average change in house value that is roughly 2 percentage points less than comparable properties securing forward loans, which is statistically significant. This result persists even when the annualized change in local house prices is included as a covariate (columns 3 and 4).

Exhibit 3 replicates the previous analysis but disaggregates forward loans by purpose, either home purchase or refinance. In this specification, reverse mortgages have average annual changes in house prices 3.0 to 4.0 percentage points less than comparable forward loans for home purchase. Forward loans for refinance, however, also show a higher depreciation

Exhibit 2

Change in House Values: Forward and Reverse Mortgages

	(1) Annualized Log Difference	(2) Compound Annual Rate	(3) Annualized Log Difference	(4) Compound Annual Rate
Loan type				
Reverse	– 0.0225***	– 0.0197***	– 0.0224***	– 0.0195***
	(0.0011)	(0.0010)	(0.0010)	(0.0009)
HPI change			1.1626***	1.0605***
			(0.0197)	(0.0169)
Constant	– 0.0957***	– 0.0879***	– 0.0718***	– 0.0670***
	(0.0010)	(0.0009)	(0.0009)	(0.0008)
N	73,680	73,680	73,680	73,680
F	392.0819	399.8092	2,352.1941	2,476.7237
R^2	0.0131	0.0149	0.1881	0.2186

HPI = house price index.
*Statistically significant at the * .05 level; ** .01 level; *** .001 level.*
Notes: Forward mortgage loans are the reference category for loan type. Robust standard errors are presented in parentheses.

Exhibit 3

Change in House Values: Purchase, Refinance, and Reverse Mortgages

	(1) Annualized Log Difference	(2) Compound Annual Rate	(3) Annualized Log Difference	(4) Compound Annual Rate
Loan type				
Forward				
Refinance	– 0.0378***	– 0.0341***	– 0.0239***	– 0.0217***
	(0.0019)	(0.0017)	(0.0017)	(0.0015)
Reverse	– 0.0414***	– 0.0367***	– 0.0343***	– 0.0303***
	(0.0014)	(0.0012)	(0.0013)	(0.0011)
HPI change			1.1182***	1.0186***
			(0.0193)	(0.0165)
Constant	– 0.0768***	– 0.0709***	– 0.0608***	– 0.0570***
	(0.0012)	(0.0011)	(0.0011)	(0.0010)
N	73,680	73,680	73,680	73,680
F	458.2409	454.3332	1,784.5602	1,859.0306
R^2	0.0407	0.0484	0.1989	0.2319

HPI = house price index.
Statistically significant at the * .05 level; ** .01 level; *** .001 level.
Notes: Forward purchase loans are the reference category for loan type. Robust standard errors are presented in parentheses.

rate (or lower appreciation rate) of between 2.1 and 3.7 percentage points. Nevertheless, the difference between reverse mortgages and forward refinance mortgages is still statistically significant at least at the 5-percent level in every specification.

Instead of estimating the change in house prices, the next set of models estimates the foreclosure price or appraised value while controlling for the estimated market value based on house price changes in the local market between closing and foreclosure. Interacting loan type with time shows the average annual change in house value. As noted, the change in market house prices is net of average home improvements and repairs, meaning any estimated difference constitutes additional depreciation. Exhibit 4 shows that the foreclosure price has a statistically significant and substantial negative constant term but is highly sensitive to the estimated market value. The combination of these estimated coefficients is likely related to a foreclosure discount that varies with market conditions. The discount is small in strong housing markets with high house prices but increases when house prices decline. For example, the estimated coefficients from the model presented in column 1 indicate that an average property securing a home purchase loan (the default) will immediately sell for 6.2 percent less if in foreclosure, assuming no time has passed since closing and no change has occurred in house prices. If house prices increase 10 percent, then the foreclosure discount narrows to 3.1 percent, and, if house prices decline 10 percent, then the foreclosure discount increases to 9.6 percent. Overall, these models predict roughly 70 percent of the variation in foreclosure sales price in the first sample.

Column 1 of exhibit 4 shows that reverse mortgages depreciate relative to the estimated market value by roughly 0.4 percent per year. Forward purchase loans, however, depreciate at a rate of 2.6 percent more per year. Refinance loans show no evidence of change in house value associated with time. The difference between reverse mortgages and forward purchase loans is

Exhibit 4

Foreclosure Sale Price

	(1)	(2)	(3)	(4) **Second Sample**
Loan type				
Forward				
Refinance	– 0.3743***	– 0.3744***	– 0.3713***	– 0.1770***
	(0.0274)	(0.0274)	(0.0272)	(0.0454)
Reverse	– 0.4094***			
	(0.0201)			
Assigned		– 0.2507***	– 0.2503***	– 0.0083
		(0.0381)	(0.0380)	(0.0477)
Not assigned		– 0.3864***	– 0.3337***	
		(0.0205)	(0.0212)	
Loan age				
x Forward				
Purchase	– 0.0258***	– 0.0258***	– 0.0260***	– 0.0126***
	(0.0019)	(0.0019)	(0.0019)	(0.0035)
Refinance	– 0.0011	– 0.0011	– 0.0014	– 0.0009
	(0.0032)	(0.0032)	(0.0032)	(0.0036)
x Reverse	– 0.0042**			
	(0.0014)			
Assigned		– 0.0102**	– 0.0104**	– 0.0084*
		(0.0035)	(0.0035)	(0.0035)
Not assigned		– 0.0087***	– 0.0083***	
		(0.0016)	(0.0016)	
Estimated value	1.3453***	1.3459***	1.3269***	1.4628***
	(0.0135)	(0.0135)	(0.0138)	(0.0243)
HECM			– 0.0138***	– 0.0215
disbursements			(0.0010)	(0.0161)
Constant	– 4.3417***	– 4.3496***	– 4.1229***	– 5.9874***
	(0.1546)	(0.1547)	(0.1588)	(0.2962)
N	73,680	73,680	73,680	10,490
F	1,913.881	1,440.5071	1,684.8376	599.4402
R^2	0.7067	0.7072	0.7101	0.6005

HECM = Home Equity Conversion Mortgage.
*Statistically significant at the * .05 level; ** .01 level; *** .001 level.*
Notes: Forward purchase loans are the reference category for loan type. Robust standard errors are presented in parentheses.

statistically significant, but the difference between reverse mortgages and forward refinance loans is not. The categorical variable capturing loan type alone shows that forward refinance and reverse mortgages are associated with a substantial (more than 30 percent) discount in foreclosure price relative to purchase loans, but that this discount does not vary with the age of the loan.

Column 2 of exhibit 4 breaks reverse mortgages into those assigned to HUD and those in which the servicer independently executed the foreclosure sale and subsequently filed a claim. The results pertaining to forward mortgages are largely unchanged. The additional depreciation rate associated with reverse mortgages increases, such that house prices on assigned reverse mortgages fall an additional 1.0 percent below market value each year and nonassigned

reverse mortgages fall an additional 0.9 percent. Both estimates are significantly smaller than that estimated for forward purchase mortgages and are not significantly different from each other. A statistically significant difference exists, however, between assigned and nonassigned reverse mortgages in the time invariant discount. An assigned reverse mortgage is associated with an additional 22.2-percent foreclosure discount compared with a forward purchase loan, while a nonassigned reverse mortgage is associated with a 32.1-percent additional discount. Column 3 includes the amount of unscheduled disbursements and corporate advances that servicers may have drawn for property inspection and preservation actions on reverse mortgages. The coefficient on such disbursements is negative, indicating that an increase in disbursements equal to 1 percent of the estimated market value is associated with roughly a 1.4-percent decline in the foreclosure price. Including disbursements for reverse mortgages does not substantively affect the estimated coefficient on other variables.

The last column of exhibit 4 replicates the previous model, using the second sample of mortgage, which is smaller but more accurately matched by property characteristics and foreclosure process. Note that this sample has no nonassigned reverse mortgages, but all foreclosures are conducted directly by HUD. The model predicts roughly 60 percent of the variation in the foreclosure price and produces smaller rates of depreciation overall. Forward purchase mortgages are associated with statistically significant additional depreciation of roughly 1.2 percent per year. Reverse mortgages are associated with a somewhat smaller additional depreciation rate (0.9 percent per year), a difference that is not statistically significant. The coefficient on the interaction between forward refinance loans and time is negative but not significantly different from zero. On the other hand, forward refinance loans show a substantial time invariant foreclosure discount (16.2 percent) beyond that observed for forward purchase loans. Reverse mortgages that had also been associated with disproportionate time invariant discounts in the first sample of loans are not associated with a statistically significant discount in the second sample compared with purchase loans.[13] Again, the amount of HECM disbursements does not have a statistically significant effect, nor does its inclusion substantially affect the estimated coefficient on other variables.[14]

Exhibit 5 replaces the foreclosure sales price with appraisal estimates of the house value. Although appraised values only approximate market prices, these estimates typically occur 2 to 3 months before the sales price and, therefore, might more accurately reflect differences in maintenance related to borrower behavior rather than neglect suffered during the foreclosure process. In addition, appraisal estimates are provided both "as is" as well as "if the property were to be repaired to meet minimum property standards."

Nevertheless, the results are largely similar. The first column of exhibit 5 models the appraised value "as is." Forward purchase loans are associated with additional depreciation of roughly 1.3 percent. Forward refinance and reverse mortgages are not associated with statistically significant depreciation (and the difference with forward purchase loans is statistically

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[13] The general foreclosure discount associated with forward purchase loans is 27 percent, assuming no change in market house prices and no time between valuations, which is substantially higher than that found in the first sample.

[14] Regression model output without HECM disbursements is not shown.

Exhibit 5

Foreclosure Appraised Value

	(1) Appraised Value (As Is)	(2) Appraised Value (Repaired)	(3) Probability Repairs Needed
Loan type			
Forward			
Refinance	− 0.1573***	− 0.1397***	0.0188
	(0.0380)	(0.0371)	(0.1409)
Reverse			
Assigned	− 0.0695	− 0.0458	0.0544
	(0.0366)	(0.0347)	(0.1164)
Loan age			
x Forward			
Purchase	− 0.0129***	− 0.0099***	0.0523***
	(0.0026)	(0.0024)	(0.0083)
Refinance	− 0.0042	− 0.0022	0.0613***
	(0.0035)	(0.0035)	(0.0125)
x Reverse			
Assigned	− 0.0031	− 0.0021	0.0393***
	(0.0026)	(0.0024)	(0.0077)
Estimated value	1.3631***	1.3156***	− 0.0589
	(0.0213)	(0.0200)	(0.0413)
HECM disbursements	− 0.0199	− 0.0153	− 0.0314
	(0.0137)	(0.0106)	(0.0371)
Constant	− 4.6797***	− 4.1227***	− 0.4002
	(0.2607)	(0.2461)	(0.4906)
N	10,490	10,490	10,490
F	750.1686	791.8967	105.6237
R^2	0.7026	0.716	0.013

HECM = Home Equity Conversion Mortgage.
Statistically significant at the * .05 level; ** .01 level; *** .001 level.
Notes: Forward purchase loans are the reference category for loan type. Robust standard errors are presented in parentheses.

significant). Forward refinances, however, are associated with significant time invariant discounts relative to forward purchase mortgages. In contrast with the first sample, the time invariant discount among reverse mortgages is not statistically significant in the second sample.

Approximately 28 percent of observations required some amount of repairs, defined as a difference between the "as is" and repaired appraisal estimates. The share, however, was less than 26 percent among reverse mortgages compared with nearly 30 percent among forward loans (purchase and refinance). Among houses needing repairs, the average difference in appraisal estimates was roughly $5,900 for forward purchase loans but only $5,500 for reverse mortgages. Despite these differences, the results are surprisingly similar to the model of the "as is" appraisal estimate. The relative time invariant price discounts are smaller. The difference in estimates of additional depreciation among forward purchase and refinance loans is also smaller and significant at least at the 5-percent level; however, the difference in estimates of additional appreciation among reverse mortgages is not statistically significant.

The last column of exhibit 5 replaces the appraised foreclosure value with the likelihood of needing some amount of repairs, represented by a binary dependent variable and a probit model. The likelihood of needing repairs increases with time for all loan types; however, the increase in likelihood is smallest among reverse mortgages. The difference between reverse mortgages and forward purchase loans is statistically significant, but the difference between reverse mortgages and forward refinance loans is not significant. Estimated coefficients on the estimated market value, amount of HECM disbursements, and the categorical variables representing loan type are not statistically significant.

Instead of estimating the foreclosure price, exhibit 6 presents the results of estimating the original value on which the loan was underwritten. The true market value of the collateral is estimated by adjusting a previous FHA-insured purchase price on the same property by changes in local area market house prices. The first column of exhibit 6 presents the results of all such transaction pairs.[15] More than 3 million such pairs are analyzed on roughly 2.5 million properties. The data include nearly 34,000 pairs in which the subsequent origination is a reverse mortgage. The results show substantial bias among forward refinance and reverse mortgage appraisals. Refinances are associated with home appraisals that are 10.6 percent higher than the appraisals on home purchase loans after accounting for changes in local house prices. Reverse mortgages are associated with appraisals that are 15.9 percent higher. In contrast with the effect of time on the foreclosure sale price, the length of time between valuations is associated with an increase in subsequent house valuations.

Exhibit 6

House Value at Loan Origination

	(1) All Pairs[a]	(2) Subsample
Loan type		
Forward		
Refinance	0.1006***	0.0688***
	(0.0005)	(0.0193)
Reverse	0.1476***	0.0628*
	(0.0018)	(0.0260)
Loan age	0.0043***	0.0072***
	(0.00004)	(0.0020)
Estimated value	0.8301***	0.9492***
	(0.0028)	(0.0238)
Constant	1.9745***	0.6228*
	(0.0320)	(0.2834)
N	3,005,898	419
F	23,2312.3115	473.2407
R^2	0.7533	0.8654

[a] *Clustered by property for repeated transactions.*
*Statistically significant at the * .05 level; ** .01 level; *** .001 level.*
Notes: Forward purchase loans are the reference category for loan type. Robust standard errors are presented in parentheses.

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[15] Clustered standard errors are used to account for multiple transaction pairs based on the same property. Properties with more than four associated originations are excluded to avoid likely data problems.

The second column of exhibit 6 is based on a subgroup of the first matched sample similarly linked to previously FHA-insured home purchase loans on the same property. The sample size is substantially smaller: just 87 reverse mortgages are matched to 332 forward loans. The results confirm upward bias in refinance and reverse mortgage appraisals relative to home purchase originations; however, the magnitude of the bias is much smaller (roughly 7 percent for each).

Exhibit 7 shows the effect of reestimating the market value of the foreclosure sale. The first column estimates the market value by adjusting the value at origination. The second column estimates the market value by adjusting the price from a previous home purchase origination. The time invariant discount is substantially reduced when using the previous home purchase origination as the basis for estimating the market value; however, the small sample size prevents definitive statements on statistical significance. To illustrate the overall findings, exhibit 8 simply plots the change in average valuations between the previous purchase, subsequent loan origination, and ultimate foreclosure sale relative to the change predicted by the ZIP Code HPI. Forward refinance loans and reverse mortgages deviate substantially higher than forward purchase loans at the point of loan origination, but valuations converge in foreclosure. The foreclosure sale price is below market expectations.

Exhibit 7

Value Estimated by Repeat Sales

	(1) Estimated Market Value Based on …	(2)
	Value at Origination	**Previous Home Purchase**
Loan type		
Forward		
Refinance	– 0.1731	– 0.0574
	(0.2263)	(0.2162)
Reverse	– 0.3396	– 0.0624
	(0.3069)	(0.3017)
Loan age		
x Forward		
Purchase	– 0.0131	– 0.0155
	(0.0212)	(0.0206)
Refinance	– 0.0029	– 0.0138
	(0.0122)	(0.0122)
x Reverse	0.0293	0.0045
	(0.0267)	(0.0272)
Estimated value	1.4973***	1.5251***
	(0.0693)	(0.0743)
HECM disbursements	– 9.5318	– 8.4012
	(7.8660)	(7.4942)
Constant	– 6.2426***	– 6.4178***
	(0.8643)	(0.9362)
N	419	419
F	99.6729	95.942
R^2	0.6464	0.647

HECM = Home Equity Conversion Mortgage.
Statistically significant at the * .05 level; ** .01 level; *** .001 level.
Notes: Forward purchase loans are the reference category for loan type. Robust standard errors are presented in parentheses.

Exhibit 8

Change in Average Valuations Relative to Local HPI
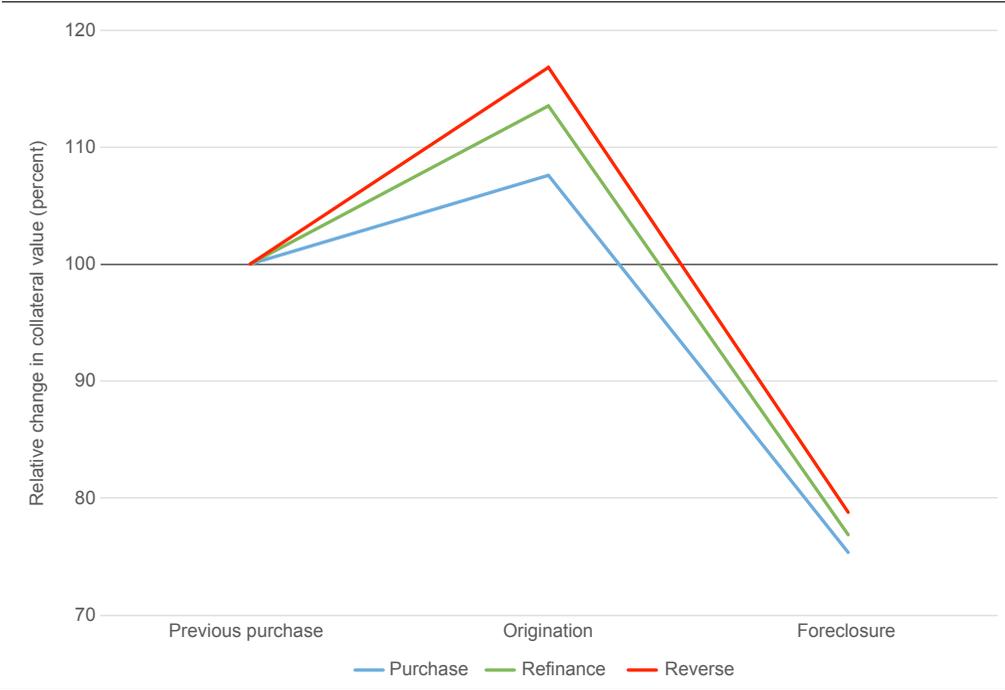
HPI = house price index.
Note: 100 percent equals the five-digit ZIP Code HPI.

Conclusion

Properties securing reverse mortgages sell disproportionately below expected prices in fore-closures relative to forward purchase loans. Consistent with previous studies on the difference in appreciation rates between older and younger households (Davidoff, 2004; Rodda and Patrabansh, 2005), reverse mortgages are associated with a 2 to 4 percentage point decline in the average annual rates of change in collateral values. This discount could be mistaken as excessive depreciation due to property undermaintenance. Such depreciation, however, is expected to cause the property value to diverge from market house price changes over time. This article finds that the discount is largely time invariant. The discount is also observed among refinance loans.

Unscheduled disbursements and corporate advances by the servicer do not ameliorate the discount associated with reverse mortgages. In fact, more disbursements are associated with a lower foreclosure price. The causal interpretation of this finding, however, is difficult: funding for property preservation should increase the value of the collateral but should be drawn only for properties with evidence of undermaintenance.

The primary culprit of the discount is likely an inflated estimate of the collateral value at loan origination. Using a repeat-sales methodology, we find that refinance loans are associated with valuations up to 11 percent higher than purchase mortgages, comparable to findings in

previous research (Agarwal, Ambrose, and Yao, 2016). Reverse mortgages, which do not need to consider the ability of the borrower to repay the loan, are associated with valuations that are up to 16 percent higher. The effect of overinflated appraisals would be an unexpected decline in the subsequent transaction price, regardless of the length of time between valuations.

A larger foreclosure discount among nonassigned reverse mortgages compared with foreclosures disposed of through HUD suggests yet another moral hazard problem, in which servicers in charge of the foreclosure process have little incentive to maximize the resale price when losses are insured by FHA. Selection bias, however, may be present in the process of which properties are assigned to HUD. More research is needed into when and why a servicer may exercise the option to assign loans after exceeding the 98-percent threshold.

In general, these findings do not support a policy of periodic property inspection of reverse mortgages. The collateral value associated with reverse mortgages does not deteriorate with time to any greater extent than does the value observed with forward purchase mortgages, for which no inspection requirement exists. Instead, more attention must be paid to the appraisal process at loan origination. All new applications for FHA insurance assigned after June 27, 2016, are required to submit appraisals through an Electronic Appraisal Delivery portal. Electronic appraisal data hopefully will provide FHA the information needed to monitor the accuracy of appraisals more closely and systematically. Further, the actuarial review of the reverse mortgage program should consider using automated valuation models to estimate current market values of HECM properties instead of relying on the initial value, scaled by an HPI and a "maintenance-risk adjustment factor." Although existing HECMs are still likely to suffer disproportionate loss severities, given inflated past appraisals, at least these losses can be expected and the issue can be addressed for future endorsements.

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HECM and Property Tax Relief for Seniors

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Abstract

In a recent paper examining default risk in the Home Equity Conversion Mortgage (HECM) program, Moulton, Haurin, and Shi (2015) found that property tax amount and tax burden (property taxes/income) are highly predictive of severe default on property taxes and insurance. Given the importance of the tax burden in predicting default, in this article we summarize state- and local-level property tax relief programs targeted toward seniors that could reduce property tax bills among HECM participants. We find the tax savings provided by these programs to be large enough to significantly reduce property tax liability. Our analysis highlights the importance of annual validation of tax accounts to ensure that individual HECM borrowers take full advantage of all tax relief programs. Validating tax accounts periodically, in turn, would reduce the tax burden and most likely reduce the probability of tax default among HECM participants.

Introduction

According to the 2014 actuarial review, an estimated 12 percent of active Home Equity Conversion Mortgage (HECM) loans were in technical default for the nonpayment of taxes and insurance (Integrated Financial Engineering, 2014). By contrast, CoreLogic, Inc., estimates the national tax delinquency rate to be 2.6 percent among properties with mortgages (Cannon, 2015). Recent research found the property tax amount and tax burden (property taxes/income) to be highly predictive of severe property tax and insurance default among HECM participants (Moulton, Haurin, and Shi, 2015).

The most common reasons that taxpayers cited for property tax delinquency were declining property value[1] or lack of money (Alm et al., 2016, 2014; Conrad and DeBoer, 1988; Lake and Fitzgerald, 1979). Because HECM borrowers extract equity up front, declining property values should not affect the decision to become delinquent. Instead, HECM borrowers may be unable to pay their tax bill on time due to liquidity constraints. Liquidity-constrained taxpayers generally would like to pay the delinquent balance at a later date. These taxpayers are, in effect, borrowing from the local government if the interest charged by the local government on delinquent tax bills is lower than the taxpayers' personal borrowing costs.[2]

Given the relatively high rate of property tax delinquency for HECM properties relative to properties with a mortgage, an important question to examine is whether HECM borrowers participate in property tax relief programs at the same rate as otherwise similar properties. These programs may be particularly important among HECM borrowers for several reasons. Under the HECM program, senior citizens extract the equity from their homes while maintaining ownership. The Federal Housing Administration (FHA) has an age requirement of 62 years of age or older to be eligible for a HECM loan. Eligible borrowers also must own the home outright or have a low mortgage balance that can be paid off at closing with proceeds from the reverse loan. Two important requirements for HECM participation directly affect property tax bills and property tax delinquency. To be more specific, the homeowner must continue making payments on property taxes, and she or he must live in the home. The occupancy and age requirements qualify HECM participants for many property tax relief programs offered by local governments, which can significantly reduce tax liabilities and the likelihood of tax default.

One concern is that some HECM participants who take reverse mortgages at age 62 never apply for property tax exemptions that they later qualify for at age 65. Under FHA rules, homeowners must receive counseling to learn about the program before they obtain a loan. An important step in the counseling process is that HECM participants understand they must continue making payments on property taxes. It is not clear, however, to what extent any followup occurs with borrowers to validate that all tax relief programs are applied to their tax bill.

Another concern is that, even when HECM participants become delinquent, state and local governments provide an array of programs to senior citizens that reduce the cost of property tax delinquency and keep seniors in their homes. Unless these programs are used, however, a foreclosed property with a tax lien can be very costly to taxpayers who cover the losses when the sale proceeds of a HECM property are less than the loan balance issued by lenders.

In this article, we examine property tax relief programs for the 50 U.S. states and summarize programs that are particularly targeted toward seniors. We find that such programs provide significant tax breaks for many elderly homeowners. One plausible approach to reducing the likelihood of tax default is to ensure that HECM homeowners are counseled on all tax relief programs, with annual reviews validating that they are receiving these benefits.

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[1] Evidence from the mortgage default literature suggests that households with negative home equity and those that are wealth and liquidity constrained are more likely to default on forward mortgages (Elul et al., 2010).

[2] In a simple illustrative example, a taxpayer may become delinquent and pay 7 percent interest on the delinquent tax bill rather than pay the bill on a credit card that charges 20 percent interest.

Summary of Property Tax Relief Programs

Property taxes represent the largest source of own revenue for local governments. The basic guidelines on how property is assessed and taxed are set at the state level. States also outline provisions about types of relief programs offered through the property tax system. Nearly every state surveyed in the current analysis provides some type of relief to taxpayers. In addition to the availability of state-mandated programs, a plethora of local-level relief programs are available to property owners. Exemptions, credits, circuit breakers, tax and assessment freezes, and tax deferral programs are an important part of the tax system and offer significant tax breaks or short-term relief for many property owners. Although many states offer varying tax benefits to taxpayers, the focus of this discussion are HECM participants, who would largely benefit from programs targeted at homeowners and seniors. This discussion focuses on programs that determine eligibility based on age and whether the homeowner occupies the property as his or her primary residence. State benefits are summarized in exhibit 1.

The most common property tax relief programs include exemptions, credits, circuit breakers, tax and assessment freezes, and tax deferral programs. Exemptions reduce the taxable value of the property on which the tax is applied. Exemptions can be offered as a dollar amount or as a percent of the property taxable value. For example, on a property with an assessed value of $200,000, an assessment ratio of 0.5, and a property tax rate of 1.5 percent, the property tax bill would be $1,500 ($200,000 X 0.5 X 0.015). If a property receives an exemption of $40,000 this would reduce the assessed value to $160,000 and the tax bill to $1,200 ([$200,000 - $40,000] X 0.5 X 0.015). A 20 percent exemption would produce an identical reduction in the tax bill in this case.

Twenty-one states and the District of Colombia currently provide tax benefits on a homeowner's primary residence through the homestead exemption (Nikaj, 2013). HECM participants would qualify for and likely already carry homestead exemptions, given that the occupancy requirement under HECM also satisfies the requirement for eligibility under nearly all homestead benefit programs. Additional or more generous exemptions are offered to those older than age 65. Today, 22 states provide homestead benefits that are directly targeted at seniors. With few exceptions, most programs designate the age of 65 as the age at which the homeowner becomes eligible for the additional benefits. For example, Hawaii extends the benefit to individuals as young as age 60, where the homestead exemption for seniors is two times the basic homestead exemption. In Alaska and Colorado, the senior homestead exemption reduces the assessed values by $150,000 and $100,000, respectively. Many local-level taxing jurisdictions extend additional benefits to homeowners age 65 and older in the form of local-level or school district exemptions. For example, the State of Texas provides an additional $10,000 exemption to those older than age 65 from school taxes. This benefit is in addition to the $25,000 exemption offered to all homeowners. Many exemptions are offered by or apply to different taxing districts. In Georgia, eligible taxpayers receive an exemption of $4,000 from all state and county property taxes and a $10,000 exemption from assessed value for school tax.

Other states provide the benefit in the form of a credit. Credits are applied to a homeowner's tax bill after the tax has been calculated and are offered as either a lump sum dollar amount off the

Exhibit 1

State and Local Government Programs Targeting Seniors (1 of 6)

State	Type of Benefit	Description of Benefit
Alabama	Exemption (with local option)	**Exemption:** Eligible individuals are 100 percent exempt from state ad valorem taxes. For senior homesteads at less than an income of $12,000, up to $5,000 in assessed value is exempt for county and school district taxes. For those above the income limit, the exemption is $2,000 for county taxes only. No exemption exists for school district taxes. At local option, an additional exemption of up to $2,000 in assessed value may be available at the higher income level. The exemption is limited to $5,000 and applies to school district taxes and county taxes.
Alaska	Exemption (with local option), tax deferral	**Exemption:** The first $150,000 is exempt from taxation. By local option, municipalities may provide for exemption in addition to the first $150,000. **Tax deferral:** A full or partial local option deferral of all property taxes (interest free).
Arizona	Credit, tax deferral, assessment freeze	**Credit:** The benefit is a refundable credit to income tax bill for property taxes accrued. The benefit is income based and ranges from $56 to $502. **Tax deferral:** Applicants must be at least 70 years of age, with incomes below $10,000 and property values below $150,000, with additional residency requirements of 6 to 10 years. **Assessment freeze:** Assessment freeze based on income limitations.
Arkansas	Assessment freeze	**Assessment freeze:** For this program, residential property shall be assessed based on the assessed value when the person becomes eligible or on a later value, whichever is less.
California	Circuit breaker, tax deferral (with local option)	**Circuit breaker:** Applicants must be at least age 62. For homeowners, the benefit is a payment of a percentage of tax on the first $34,000 of full value; the percentage is based on income. **Tax deferral:** Homeowners can postpone payment of property taxes on their residence until their property is sold or title is transferred.
Colorado	Exemption, tax deferral, circuit breaker, property tax work-off program	**Exemption:** This program exempts 50 percent of a property's actual value, up to a maximum of $200,000 from taxation. **Tax deferral:** Deferrals constitute a lien and interest accrues over time. The cumulative amount of the deferral plus interest must not exceed the market value of the property less the value of any liens. **Circuit breaker:** The benefit covers the property taxes owed and depends on household income. The maximum allowable benefit is $600, and it is reduced with income. **Property tax work-off program:** Allows the taxpayer to perform work for the taxing entity in lieu of the payment of any real property taxes due.
Connecticut	Exemption (with local option), circuit breaker, tax freeze (with local option), other	**Exemption:** Property tax exemption of $1,000. Municipalities may provide an additional $1,000 exemption. **Circuit breaker:** The amount of the credit is determined by income and marital status. The maximum benefit for married applicants is $1,000 and $1,250. **Tax freeze:** Elderly homeowners age 70 or older, who have lived in the state for at least 1 year and meet the income limits for the circuit breaker. Municipalities may permanently freeze property taxes of eligible homeowners. **Other:** Municipalities may provide additional relief as long as the total relief the municipality provides does not exceed 10 percent of the total value of the property.
District of Columbia	Tax deferral, credit, circuit breaker	**Tax deferral:** Three programs are offered in DC. The programs either remove tax liability for low-income seniors or slow the growth of tax liability year over year. **Credit:** This benefit reduces a qualified property owner's property tax by 50 percent. **Circuit breaker:** The benefit is a refundable income tax credit equal to the amount by which real property taxes paid on claimant's principal place of residence for the taxable year exceed a percentage and depends on income.

Exhibit 1

State and Local Government Programs Targeting Seniors (2 of 6)

State	Type of Benefit	Description of Benefit
Delaware	Exemption (with local option), credit	**Exemption:** The benefit is a $5,000 exemption. This exemption is not to include municipal property taxes. Municipalities may offer local-level exemptions. **Credit:** The local school board allows for a credit against school taxes imposed against principal residence that is the lesser of 50 percent of taxes remaining after homestead and other exemptions are taken, or $500.
Florida	Exemption (with local option), tax deferral	**Exemption:** Owner-occupiers age 65 years and older with a household income of less than $27,994 (in 2014) are entitled to an additional $50,000 exemption if approved by the municipal governing authority. **Tax deferral:** For a claimant age 65 or older with a household income of less than $27,994 (in 2014), all property taxes can be deferred. For those with incomes above this limit, taxes in excess of 3 percent of their income can be deferred.
Georgia	Exemption (with local option, school tax, state), tax deferral, assessment freeze	**Exemption:** Eligible taxpayers receive an exemption of $4,000 from all state and county property taxes, a $10,000 exemption from assessed value for school tax, and an additional exemption of property taxes levied by the State of Georgia. **Tax deferral:** Eligible applicants must be at least 62 years old and entitled to claim a homestead exemption and have a gross household income of less than $15,000. The total amount of deferred taxes, interest plus, and unsatisfied liens cannot exceed 85 percent of the fair market value. An interest rate of .75 percent per month accrues on all deferred property taxes. **Assessment freeze:** An exemption is provided for the value of the homestead that exceeds the value when the exemption is first granted.
Hawaii	Exemption (with local option)	**Exemption:** Taxpayers between ages 60 and 69 receive an exemption from assessed value equal to 2 times the basic home exemption. Taxpayers age 70 years and older receive an exemption equal to 2.5 times the basic home exemption. Counties have the option of increasing the value of this exemption through local option.
Idaho	Circuit breaker, tax deferral	**Circuit breaker:** The benefit is a reduction in property taxes and depends on income. The benefit ranges from a maximum benefit of $1,320 for incomes less than $11,550 to a benefit of $150. **Tax deferral:** The benefit is a deferral of property tax. During the period of deferral, interest accrues at 6 percent annually.
Illinois	Assessment freeze, tax deferral, exemption, credit (with local option)	**Assessment freeze:** This exemption allows senior citizens to maintain the equalized assessed value (EAV) of their homes at the base year EAV and prevent any increase in that value due to inflation. **Tax deferral:** The benefit permits eligible people to defer payment of all or part of their real estate taxes or special assessment on a principal residence up to 80 percent of equity. The state pays the taxes and files a lien on the property to ensure repayment. **Exemption:** This program exempts up to $5,000 of equalized assessed value from property taxes. **Credit:** A city, village, or incorporated town can refund any part of real property taxes it levies and collects in residential real property.
Indiana	Exemption, circuit breaker	**Exemption:** An individual may obtain a deduction from the assessed value equal to the lesser of 1/2 the assessed value of the real property or $12,480. Circuit breaker: The credit is the amount that the current year's tax liability exceeds a 2-percent increase of the previous year's liability after application of this credit.
Iowa	Circuit breaker	**Circuit breaker:** The benefit is based on income and ranges from 25 to 100 percent of property taxes paid.

Exhibit 1

State and Local Government Programs Targeting Seniors (3 of 6)

State	Type of Benefit	Description of Benefit
Kansas	Circuit breaker, credit	**Circuit breaker:** Benefit is a tax refund and depends on income. The maximum credit is $700. **Credit:** Applies to low-income seniors and refunds 75 percent of property and ad valorem taxes paid.
Kentucky	Exemption, assessment freeze	**Assessment freeze:** Assessed value remains fixed at the value of property the first year that the owner qualifies for and receives the homestead exemption. **Exemption:** A homestead exemption of $36,900 applies to the assessed value.
Louisiana	Assessment freeze	**Assessment freeze:** The assessed value remains fixed at the value of property the first year the owner qualifies for and receives the special assessment.
Maine	Credit, tax deferral (with local option), circuit breaker	**Credit:** Program provides property tax relief up to $750 for voluntary service provided by homeowners. **Tax deferral:** Local option deferral of all property taxes due. Deferrals constitute a lien on the property with interest accruing at a rate of 6 percent. **Circuit breaker:** The benefit is a refundable credit based on property tax. The benefit is 40 percent for that portion of property tax owed that exceeds 10 percent of income. The maximum payment is $300 or $400 for people older than age 70.
Maryland	Tax deferral (with local option), credit (with local option)	**Tax deferral:** Local governments determine the eligibility requirements and the provisions of the deferral. **Credit:** Baltimore City and each county and municipal corporation may grant a property tax credit. Income limitations apply.
Massachusetts	Exemption, circuit breaker	**Exemption:** The benefit is the greater of a $2,000 exemption of taxable property value or a $175 credit on the property tax bill for elderly age 70 or older with wealth less than $20,000. **Circuit breaker:** The benefit is a refundable credit to the income tax bill equal to the amount by which real estate tax payments exceed 10 percent of income. The maximum credit for 2014 was $1,050.
Michigan	Tax deferral, circuit breaker	**Tax deferral:** The benefit defers special assessments. The minimum deferral, exclusive of interest, is $300. Taxpayer's income in 2013 could not exceed $22,682. **Circuit breaker:** The tax credit for eligible applicants with incomes of less than $21,000 is 100 percent. The credit is phased out by 4 percent for each $1,000 above $21,000. Maximum income for eligibility is $50,000.
Minnesota	Tax deferral	**Tax deferral:** Taxpayers receive a property tax deferral equal to 3 percent of their total household income for the preceding year. The maximum allowable deferral is equal to 75 percent of the assessor's estimated market value.
Mississippi	Exemption	**Exemption:** Eligible applicants qualify for an exemption of $7,500 from the assessed value of their homestead.
Missouri	Circuit breaker	**Circuit breaker:** The amount of the benefit varies with both income and property tax paid. The maximum benefit is $1,100 disbursed through the income tax system.
Montana	Circuit breaker	**Circuit breaker:** The program provides a refundable credit on paid property taxes. The maximum benefit is $1,000.
Nebraska	Circuit breaker	**Circuit breaker:** The eligible value of the homestead considered for relief will be reduced by 10 percent for every $2,500 in excess of either $95,000 or 200 percent of the average assessed value of single-family residential property in the particular county, whichever is greater. Homesteads that are $20,000 over the assessed value limit are not eligible for this program. Benefit varies with income and property value.
Nevada	No programs administered on the basis of age.	

Exhibit 1

State and Local Government Programs Targeting Seniors (4 of 6)

State	Type of Benefit	Description of Benefit
New Hampshire	Exemption (with local option), tax deferral (with local option)	**Exemption:** Local option exemption for elderly, the amount of which is established by adopting cities and towns, but which is to be no less than $5,000. **Tax deferral:** Local option deferral of all or part of taxes due in cases in which assessing officials think the tax burden imposes undue hardship or a possible loss of property. The interest rate on deferred taxes is 5 percent per year.
New Jersey	Circuit breaker, credit, tax freeze	**Circuit breaker:** Benefits are based on property taxes paid in 2006 up to a maximum of $10,000. Benefits for homeowners age 65 and older with gross incomes of less than $100,000, tax relief is 10 percent of property taxes and 5 percent for those with incomes between $100,001 and $150,000. **Credit:** A reduction on their property tax bill in the amount of $250. **Tax freeze:** The state reimburses to the taxpayer the difference between the amount of property tax paid in the first year of meeting all eligibility requirements and the amount paid in the current year.
New Mexico	Assessment freeze, circuit breaker	**Assessment freeze:** This exemption allows senior citizens to maintain the equalized assessed value (EAV) of their homes at the base year EAV and prevent any increase in that value due to inflation. **Circuit breaker:** The benefit is a refundable credit to the income tax bill. The benefit is the amount of property tax paid each taxable year that exceeds the maximum property tax liability. The maximum property tax liability ranges from $20 for income below $1,000 to $180 for incomes from $15,000 to $16,000. The tax rebate will not exceed $250 per return.
New York	Exemption (with local option, school taxes)	**Exemption:** Local governments and school districts have the option of providing an exemption of taxable value of residential property to senior citizens. For the 50-percent exemption, the law allows each county, city, town, village, or school district to set the maximum income limit at any figure between $3,000 and $29,000. Localities have the further option of giving exemptions of less than 50 percent to seniors whose incomes are more than $29,000 but less than $37,400. Real property is exempt from taxation for school purposes with two variations known as the Basic STAR exemption and an Enhanced STAR exemption for eligible senior citizens. The amount of the basic exemption is $30,000 and the amount of the enhanced exemption in 2013 is $63,300.
North Carolina	Exemption, circuit breaker	**Exemption:** Exemption from assessed value equal to the greater of $25,000 or 50 percent of the appraised value of the residence. **Circuit breaker:** The program allows for deferment based on income eligibility requirements.
North Dakota	Circuit breaker	**Circuit breaker:** Residents are eligible for an exemption of taxable value that varies by income. The exemption varies by income and cannot exceed a maximum reduction of $450.
Ohio	Exemption	**Exemption:** The benefit is a flat exemption of $25,000 of the market value of an eligible homestead.
Oklahoma	Circuit breaker, assessment freeze	**Circuit breaker:** The refundable credit relieves property taxes exceeding a threshold of 1 percent of income if income is $12,000 or less. The maximum benefit is $200. The benefit is disbursed as an income tax credit or as a direct rebate if the claimant is not required to file an income tax return. **Assessment freeze:** For eligible applicants, the benefit is a freeze of the taxable value of the homestead.

Exhibit 1

State and Local Government Programs Targeting Seniors (5 of 6)

State	Type of Benefit	Description of Benefit
Oregon	Tax deferral	**Tax deferral:** This program is available to people age 62 and older. The benefit is a deferral of property taxes with a 6-percent interest rate per annum. The state pays the county the property taxes, and the property owner owes the money to the state.
Pennsylvania	Circuit breaker	**Circuit breaker:** The benefit, determined by income, ranges from $250 to $650. In Philadelphia, Pittsburgh, and Scranton, the maximum benefit can reach $975.
Rhode Island	Circuit breaker, assessment freeze, credit, tax deferral	**Circuit breaker:** This program provides a refundable tax credit based on property taxes in excess of income. The maximum credit is $305. **Assessment freeze:** The state has authorized assessment freezes for eight towns. **Credit:** The state has authorized credits for six towns. The credit is $500 in Bristol, Cumberland, and Newport. **Tax deferral:** The state has authorized deferrals in seven towns. Eligibility requirements for assessment freeze, credit, and tax deferral vary by town.
South Carolina	Exemption	**Exemption:** Eligible applicants receive an exemption of $50,000 from the assessed value of county, municipal, school, and special assessment property taxes.
South Dakota	Circuit breaker, assessment freeze	**Circuit breaker:** The benefit is a refund for sales or property taxes and depends on income and family structure. No limit on benefits exists, but refunds vary between 11 and 55 percent of taxes paid. The municipal tax circuit breaker program is a percent reduction in property taxes between 16 and 55 percent based on income and family structure. **Assessment freeze:** The assessment is held constant at the value recorded in the year the property owner becomes eligible for the program.
Tennessee	Credit (with local option), tax freeze	**Credit:** The state program provides a credit for taxes on the first $25,000 of market value. Local option may provide for an additional credit, not to exceed total taxes. **Tax freeze:** The benefit is a property tax freeze. Property taxes are held at the lesser of the value recorded in the year the property owner becomes eligible for the program, or the current level. The taxpayer must apply annually.
Texas	Exemption (with local option), school taxes), tax freeze	**Exemption:** Exemption is $10,000 for school taxation. At local option, a governing body may adopt for all homesteads a percentage exemption up to 20 percent of the appraised value. If the percentage produces an exemption of less than $5,000 for a particular property, a minimum exemption of $5,000 is applied. **Tax freeze:** The tax ceiling provides that school taxes on residential homesteads will not increase above the amount of the taxes imposed when the homeowner qualified.
Utah	Tax deferral (with local option), credit (with local option), circuit breaker, credit	**Tax deferral:** Local option, the county may defer up to all taxes. **Credit:** At local option, county may provide relief of either the maximum low-income credit for that year, which in 2014 is $924, or 50 percent of taxes due, whichever is less. **Circuit breaker:** Benefit depends on income. The benefit is disbursed as a property tax credit for homeowners, with maximum relief in 2014 at $924. **Credit:** For eligible homeowners, a credit equal to the tax on 20 percent of the market value. Eligibility depends on income.
Vermont		No programs administered on the basis of age.
Virginia	Exemption or tax deferral (with local option)	**Exemption or tax deferral:** Exemption, deferral, or a combination of the two, on property tax to eligible claimants. The amount exempted or deferred on the tax is the portion of tax liability from when the claimant becomes age 65 or from the year they apply.

Exhibit 1

State and Local Government Programs Targeting Seniors (6 of 6)

State	Type of Benefit	Description of Benefit
Washington	Circuit breaker, assessment freeze / exemption, tax deferral	**Circuit breaker:** The benefit is an exemption of valuation from regular property tax based on income. The benefit varies between 35 and 60 percent of the value of the home, with some benefit limitations. **Assessment freeze/exemption:** Those with incomes of $35,000 or less are exempt from all excess levies and the assessment for regular levies is frozen at the lesser, current value or the value when the homeowner became eligible. **Tax deferral:** Eligible homeowners may defer payment of property tax or special assessments. The deferred amounts may not exceed 80 percent of the claimant's equity in the residence.
West Virginia	Exemption, credit, circuit breaker	**Exemption:** The program exempts the first $20,000 from ad valorem property taxes for senior citizens. **Credit:** Senior citizens eligible for the homestead exemption receive a refundable credit equal to the taxes on $20,000 of assessed value in excess of the homestead exemption. **Circuit breaker:** This program grants relief that ranges from 75 percent of property tax liability for gross household incomes of $500 or less to 30 percent of the taxes that exceed 4.5 percent of income for gross household incomes ranging from $4,001 to $5,000. The maximum taxes considered are $125.
Wisconsin	Tax deferral	**Tax deferral:** Participants apply for a loan equal to the amount of property taxes and special assessments levied.
Wyoming	Circuit breaker, tax deferral	**Circuit breaker:** The benefit ranges from $100 to $900, depending on income. **Tax deferral:** The benefit is a deferral of the up to one-half of any real estate ad valorem taxes owed by the property owner on his principal residence. Interest accrues at 4 percent a year. Income eligibility rules apply.

Sources: Lincoln Institute of Land Policy and George Washington Institute of Public Policy (2015); local governments

tax bill or as a percent reduction of the homeowner's tax liability. For example, the District of Columbia offers a 50 percent credit to senior homeowners. On the other hand, New Jersey offers a $250 credit toward a senior citizen's tax liability. In Illinois, a local option allows municipalities to refund any part of the levy (Lincoln Institute of Land Policy and George Washington Institute of Public Policy, 2015).

Elderly homeowners are also protected through other programs such as tax freezes or assessment freezes. Fifteen states have property tax or assessment freeze programs. Tax freezes bar property tax increases for senior taxpayers beyond the tax liability in the year the homeowners turned 65 or when she or he submits an application with the assessor's office. In Texas, the tax freeze (ceiling) is set at the amount paid in the year the applicant qualifies for the benefit, but the tax may go up if the homeowner undertakes improvements on the property. Assessment freeze programs cap the value of the property to the one recorded in the year the property owner becomes eligible for the program (NCSL, 2012). Although the age of the homeowner is the primary determinant of assessment or tax freezes, in some states, eligibility also depends on income (that is, in South Dakota and Washington).

An alternative to the programs already discussed is a circuit breaker. Circuit breakers provide benefits based on family income and reduce the burden of taxation for low- and moderate-income

households. Although many circuit breaker programs are available for those under age 65,[3,4] most programs are targeted at seniors (Bowman et al., 2009). Under circuit breaker programs, if the tax bill exceeds a given percent of a family's income, then the taxpayer receives a rebate of all or part of the bill above a threshold. The rebate is usually issued after the tax bill has been paid (Lyons, Farkas, and Johnson, 2007). For example, Massachusetts provides a credit equal to the amount by which the property tax bill exceeds 10 percent of income. Missouri on the other hand, uses a multitiered benefit program, in which the credit depends both on income and property tax. Rebates are usually administered either as separate programs, through the income tax system, or through the property tax system. Whereas most circuit breakers use most sources of income, some states remove Social Security benefits from the calculations of income eligibility. One benefit of circuit breakers is that they provide relief when it is most needed—during times of economic hardship. Another benefit in states that extend circuit breakers to all homeowners is that HECM participants under age 65 would also qualify.

Tax deferrals allow senior property owners to postpone but not cancel their property taxes. Twenty-one states offer a tax deferral program for seniors. Deferred taxes do not become payable until the property is transferred. Most states' deferral programs usually will charge interest that accrues until the deferred taxes become payable. The interest charged on deferred taxes in all cases is lower than the interest and penalties of property tax delinquency (Anderson and Miller, 2015; Miller, 2013). Alaska is an exception to the rule; municipalities in Alaska may not charge interest on deferred taxes.

In many states, the amount of deferred taxes and interest and any liens on the property cannot exceed a percentage of home equity. In Illinois, eligible people may defer payment of all or part of their real estate taxes or special assessment on a principal residence up to 80 percent of equity. The state pays the taxes and files a lien on the property to ensure repayment. In Oregon, the state pays the county the property taxes, and the property owner owes the money to the state. A lien is placed against the property, and deferred tax bills are assessed an interest rate of 6 percent per year. The Oregon program is unique because it does not allow seniors with a reverse mortgage to partake in the tax deferral program.

The preceding discussion provides an indepth but not exhaustive overview of property tax relief programs available to elderly homeowners. Given the complexity and dynamic nature of the local property tax system, we recognize that property tax payers may be eligible for other programs not discussed in our analysis. Although a wide range of information regarding property tax relief programs is available, little is known about how local governments administer property payments and property tax delinquency among those people age 65 and older.[5] For example, the State of Texas can collect taxes from certain groups of homesteaders (that is, seniors and disabled veterans)

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[3] Limiting our study to those age 65 or older removes from our analysis the State of Vermont, which offers one of the most generous circuit breaker programs among the 50 states.

[4] Many states offer the same benefit to renters in addition to homeowners. Renters implicitly pay property taxes through their monthly rent payment. Oregon offers the benefit only to renters.

[5] For a summary of property tax delinquency policies among the 50 U.S. states, see Anderson and Miller (2015).

under installment payments. Property tax is payable in one installment for most homeowners.[6,7] Senior homeowners are allowed to pay their tax bill in four equal installments to be received before January 31, March 31, May 31, and July 31.[8] This smoothing of tax expenditures may reduce the burden of payment shock, when homeowners switch from a forward to a reverse mortgage and taxes are no longer included in the monthly mortgage payment through an escrow account.[9] Previous research found that increasing the number of payments reduces property tax delinquency by a significant and nontrivial amount (Waldhart and Reschovsky, 2012). Furthermore, if delinquency does happen in intermediate steps, only the smaller amount of the tax bill is charged the statutory interest and penalty. Thus the penalties that senior homeowners face are smaller than those that other taxpayers face. Provided that state and local governments administer property taxes differently for seniors, additional benefits may be available that our analysis does not summarize.

Property Tax Relief Programs and Tax Liability

Senior tax relief programs can provide eligible homeowners a sizeable reduction in their property tax bill. In this section, we perform two illustrative calculations. First we estimate expected tax bills for HECM participants for all U.S. states using state-level mean and median property values for HECM participants. To demonstrate the magnitude of the tax reductions that senior tax relief programs generate, we provide examples of different tax relief regimes for five cities across the United States.

An important predictor of property tax default is the tax burden that homeowners face. In exhibit 2, we summarize the tax bill that HECM participants across the 50 U.S. states could face. We use the mean and median property value of properties endorsed for a HECM loan in 2015. Mean and median home prices are summarized in columns three and four of exhibit 2 and reflect the housing market conditions of the places where HECM participants are located. To be more specific, Washington, D.C., and states like California, Hawaii, and New York have high mean and median property values. The lowest median home values are in Kansas and West Virginia.

Property tax systems vary significantly across states and often within states. Assessment rates and practices and what comprises taxable value differ between states. Local jurisdictions in Illinois, for example, assess real property at 33.3 percent of fair cash value outside of Cook County (Chicago), whereas, in Idaho, the standard assessment is 100 percent of market value. These local-level rules also affect how benefits from property tax relief programs are calculated. To facilitate comparisons across states we use tax data from the most recent *50-State Property Tax Comparison Study* of the

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[6] Homeowners who become delinquent on their taxes may partake in an installment plan administered by counties to pay their delinquent taxes. A split payment method is available to taxpayers who can pay the tax liability in two installments.

[7] Most bills go out in October of a given year, and they are payable by January 30 of the subsequent year. By February 1 all accounts that have not received payment are considered delinquent. Taxpayers are assessed 6-percent interest and 1-percent interest for each month they are delinquent. If the tax bill is delinquent after June 30, the taxpayer incurs an additional 20-percent processing fee—in Dallas County—which turns the bill over to a legal team that pursues collection. The maximum amount of interest on a tax bill at 1 year of delinquency is 44 percent.

[8] See Texas Property Tax Code at https://comptroller.texas.gov/taxes/property-tax/.

[9] Related work by Anderson and Dokko (2011) found that delays in receiving a tax bill, if the bill is not paid through an escrow account, reduces the probability of default.

Exhibit 2

HECM Average Property Tax Bills by State for Mean and Median Home Values

State	City	Mean Value ($)	Median Value ($)	Mean Bill ($)	Median Bill ($)
Alabama	Birmingham	150,067	129,000	1,035	890
Alaska	Anchorage	297,197	276,000	3,754	3,486
Arizona	Phoenix	253,193	214,750	3,109	2,637
Arkansas	Little Rock	153,753	119,000	1,736	1,344
California	Los Angeles	497,422	445,000	5,845	5,229
Colorado	Denver	320,524	290,000	2,122	1,920
Connecticut	Bridgeport	315,879	250,000	8,575	6,787
District of Columbia	Washington	501,389	511,500	3,510	3,581
Delaware	Wilmington	267,162	240,000	3,497	3,142
Florida	Jacksonville	255,143	213,000	3,876	3,235
Georgia	Atlanta	196,429	156,000	2,679	2,128
Hawaii	Honolulu	621,112	595,000	1,870	1,791
Idaho	Boise	222,858	185,000	1,847	1,534
Illinois	Aurora	217,841	177,000	8,093	6,576
Illinois	Chicago	217,841	177,000	3,453	2,805
Indiana	Indianapolis	153,252	128,500	1,646	1,380
Iowa	Des Moines	150,680	131,000	3,639	3,164
Kansas	Wichita	141,767	126,000	1,830	1,627
Kentucky	Louisville	160,296	135,350	2,058	1,738
Louisiana	New Orleans	188,419	158,000	1,796	1,506
Maine	Portland	223,174	184,000	4,417	3,641
Maryland	Baltimore	292,006	250,000	6,094	5,218
Massachusetts	Boston	364,143	321,500	1,821	1,608
Michigan	Detroit	168,918	136,000	6,434	5,180
Minnesota	Minneapolis	226,411	190,000	3,601	3,022
Mississippi	Jackson	138,654	122,000	2,482	2,184
Missouri	Kansas City	163,151	135,500	2,594	2,154
Montana	Billings	257,059	230,000	2,224	1,990
Nebraska	Omaha	151,535	132,000	3,043	2,651
Nevada	Las Vegas	269,017	229,000	3,043	2,590
New Hampshire	Manchester	273,361	226,500	6,470	5,361
New Jersey	Newark	322,924	275,000	9,836	8,377
New Mexico	Albuquerque	236,647	182,500	3,013	2,323
New York	Buffalo	436,001	390,000	8,454	7,562
New York	New York City	436,001	390,000	4,905	4,388
North Carolina	Charlotte	204,888	160,000	2,381	1,859
North Dakota	Fargo	183,331	177,500	2,259	2,187
Ohio	Columbus	157,927	130,000	2,969	2,444
Oklahoma	Oklahoma City	146,579	130,000	1,741	1,544
Oregon	Portland	284,435	255,000	6,516	5,842
Pennsylvania	Philadelphia	197,981	165,000	2,097	1,747
Rhode Island	Providence	267,888	216,000	4,672	3,767
South Carolina	Columbia	220,578	176,000	1,685	1,345
South Dakota	Sioux Falls	178,587	158,000	2,197	1,943
Tennessee	Memphis	173,056	141,750	3,179	2,604
Texas	Houston	201,905	163,000	3,560	2,874
Utah	Salt Lake City	293,849	275,000	2,507	2,346
Vermont	Burlington	251,208	201,000	5,843	4,675
Virginia	Virginia Beach	261,678	207,000	2,407	1,904
Washington	Seattle	333,920	287,750	2,898	2,498
West Virginia	Charleston	148,742	134,000	1,136	1,024
Wisconsin	Milwaukee	191,769	155,000	5,130	4,146
Wyoming	Cheyenne	257,752	195,500	1,681	1,275

HECM = Home Equity Conversion Mortgage.
Notes: Tax bills were calculated using effective tax rates from the 50-State Property Tax Comparison Study (Lincoln Institute of Land Policy and Minnesota Center for Fiscal Excellence, 2016). Effective tax rates account for homestead exemptions and credits but exclude special property tax provisions that arise because of a taxpayer's circumstances and attributes, such as a taxpayer's age.

Lincoln Institute of Land Policy and Minnesota Center for Excellence (2016). The data facilitate comparisons in tax rates among homestead properties for the most populous city in each state for all U.S. states.[10] Most taxpayers are subject to several taxing jurisdictions at once, leading to many tax rates within a city. Such analysis can be both prohibitively costly and confusing. One benefit of using Lincoln Institute of Land Policy tax data is that the report uses the most prevalent total local tax rate to generate the representative tax bills. In addition, the report accounts for general credits or benefits that apply to most taxpayers and, therefore, is able to provide an effective tax rate of the true tax burden borne by homesteaders in these jurisdictions.[11] The tax rates used account for homestead exemptions and credits but exclude special property tax provisions that arise because of a taxpayer's circumstances and attributes, such as a taxpayer's age. These estimates provide an upper bound of property tax bills that HECM participants faced.

Property tax bills are highest in areas like Aurora, Illinois; Baltimore, Maryland; Bridgeport, Connecticut; Burlington, Vermont; Manchester, New Hampshire; Newark, New Jersey; and Portland, Oregon. High property values could explain, to some degree, the difference in tax bills. These cities, however, also tend to have high effective tax rates relative to the rest of the comparison cities. For example, Bridgeport, Connecticut, has the highest effective tax rate, at 3.88 percent (Lincoln Institute of Land Policy and Minnesota Center for Fiscal Evidence, 2016). The lowest property tax bills are in places like Birmingham, Alabama; Cheyenne, Wyoming; Columbia, South Carolina; and Little Rock, Arkansas.

Exhibit 3 summarizes property tax relief programs for seniors in five cities. Our demonstration compares a typical property tax bill with full application of senior tax exemptions and credits applied with other tax bills without these exemptions. We selected the cities based on the straightforward nature in which the taxes are calculated and the ease of comparison across tax relief regimes.

Exhibit 3

Five-City Comparison in Benefits

City	State	Home Value ($)	No Relief ($)	Home-owner Relief ($)	Home-owner and Senior Relief ($)	Home-owner and Senior Relief Savings ($)	Home-owner and Senior Relief Savings (%)	Senior Relief Savings ($)	Senior Relief Savings (%)
Anchorage	Alaska	297,197	4,119	3,842	1,763	2,356	57.2	2,079	54.1
Charleston	South Carolina	220,578	3,262	1,194	946	2,316	71.0	248	20.8
Dallas	Texas	201,905	10,886	8,647	4,477	6,410	58.9	4,171	48.2
Fort Collins	Colorado	320,524	2,327	NA	1,601	NA	NA	726	31.2
Indianapolis	Indiana	153,252	3,375	1,675	1,650	1,725	51.1	25	1.5

NA = Not applicable.

[10] The report includes two cities from Illinois and New York. Assessment ratios in Chicago and New York City are sufficiently different from the rest of Illinois and New York. The next two largest cities within the states are also included.

[11] We used the effective tax rate for the median property in the jurisdiction for most cities. The 50-state comparisons also provided effective tax rates for properties valued at $150,000 and $300,000. When the HECM home values were closer to $150,000 and $300,000, we used those effective tax rates.

As a starting point for our comparison, we assume the state median home value for HECMs originated in 2015 as provided in exhibit 2. Then we assume a representative property tax from the selected city. Finally, we apply the maximum senior tax relief available and assume all age and income requirements are met.

The first city we compare across tax relief regimes is Dallas, Texas. A property with a value of $201,905 located in the city of Dallas with no exemptions would incur an annual property tax bill of $10,886, applying representative tax rates for all applicable taxing units. In Texas, a general homestead exemption of $25,000 is available to all owner occupants regardless of age or income with an option to increase the exemption up to 20 percent of the appraised value. Applying the general homestead exemption with the maximum local option would reduce the annual property tax bill to $8,647. Additional tax exemptions are available to homeowners age 65 and older as described in exhibit 1. Applying the general homestead exemption along with all available senior tax relief exemptions would further reduce the annual property tax bill to $4,477. Therefore, an annual tax bill with all senior tax relief programs applied represents a reduction of $6,410, or nearly 60 percent, from the tax bill with no exemptions and a reduction of $4,171, or nearly 50 percent, from the tax bill with only the general exemption applied.

The second city we examine across tax relief regimes is Indianapolis, Indiana. A property with a value of $153,252 located in the city of Indianapolis with no exemptions would incur an annual property tax bill of $3,375, applying representative 2016 tax rates. Applying the homestead deduction would reduce the assessed value by $45,000 and supplemental homestead deduction would reduce the assessed value by a further $37,888. The subsequent annual property tax bill with the general homestead exemptions applied would be $1,675. Applying the general homestead exemption along with the deduction for homeowners age 65 or older as described in exhibit 1 would further reduce the annual property tax bill to $1,650. Therefore, an annual tax bill with senior tax relief programs applied represents a reduction of $1,725, or slightly more than 50 percent, from the tax bill with no exemptions, and a further reduction of only $25 when compared with the tax bill with only the general exemptions applied.

The third city we compare tax bills across tax relief regimes is Anchorage, Alaska. A property with a value of $297,197 located in the city of Anchorage with no exemptions would incur an annual property tax bill of $4,119, with representative 2016 tax rates. Applying the residential exemption available to all primary residences regardless of age would reduce the assessed value by 10 percent, up to a maximum of $20,000. The annual property tax bill with the residential exemption applied would be $3,842. The senior exemption available to primary residents age 65 or older would reduce the assessed value by a further $150,000. Applying the residential exemption along with the senior exemption as described would result in reducing the annual property tax bill to $1,763. Therefore, an annual tax bill with senior and residential exemptions applied represents a reduction of $2,356, or 57 percent, from the tax bill with no exemptions, and a reduction of $2,079, or nearly 54 percent, from the tax bill with only the resident exemption applied.

The fourth city we compare tax bills across exemption regimes is Fort Collins, Colorado. A property with a value of $320,524 in the city of Fort Collins with no exemptions would incur an annual property tax bill of $2,327. The state offers a homestead exemption only to homeowners

who are 65 years or older. The benefit exempts 50 percent of the first $200,000 of actual value for a maximum exemption of $100,000. Applying the senior tax exemption would result in an annual property tax bill of $1,601. Therefore, an annual tax bill with the senior tax exemption results in a reduction of $726, or 31 percent, from the tax bill with no exemptions.

The final city in which we compare tax bills across tax relief regimes is Charleston, South Carolina. A property with a value of $220,578 located in the city of Charleston with no exemptions would incur an annual property tax bill of $3,262. Applying the legal residence assessment ratio would reduce the annual tax bill to $1,194. The senior homestead tax exemption available to primary residents age 65 and older and surviving spouses age 50 and older reduces the first $50,000 from the fair market value of the property. Applying the legal residence assessment ratio and the senior homestead tax exemption would result in an annual property tax bill of $946. Therefore, an annual tax bill with the full set of benefits represents a reduction of $2,316, or 71 percent, from the tax bill with no exemptions and a reduction of $248, or nearly 21 percent, from the tax bill with only the residence assessment ratio applied.

Discussion

In a 2012 report to Congress, the Consumer Financial Protection Bureau described tax and insurance default as a risk to consumers with reverse mortgages (CFPB, 2012). Furthermore, the risk was substantiated in a 2014 actuarial review that found 12 percent of active HECM loans were in technical default for the nonpayment of taxes and insurance (Integrated Financial Engineering, 2014). Although no direct comparison exists, the rate of property tax delinquency for HECM borrowers appears to be much higher than that of the general population.

Two factors were found to be highly predictive of severe property tax and insurance default among HECM participants (Moulton, Haurin, and Shi, 2015): (1) property tax amount and (2) tax burden (property taxes/income). State and local tax relief programs that reduce tax burdens include exemptions, credits, circuit breakers, tax and assessment freezes, and tax deferral programs. In this article, we provide an overview of the types of programs available in each state. We then compare tax bills that HECM borrowers could face in all 50 states using the median appraised value for endorsements in 2015 and effective tax rate as provided by the Lincoln Institute of Land Policy. To demonstrate the magnitude of savings from the identified senior tax relief programs, we then select a handful of cities and compare annual property tax bills across tax relief regimes. We find substantial savings for homeowners taking advantage of these programs. For example, a HECM borrower in Dallas, Texas, could reduce his or her representative tax bill by more than $2,000, or more than 50 percent.

HECM borrowers ideally would receive information on senior tax relief programs through counselors. A potential disconnect may occur as HECM age eligibility is 62 years or older while most senior tax relief programs use an age threshold of 65 years and older.

By periodically verifying that HECM borrowers take advantage of all senior tax relief programs, FHA would reduce the tax burden and potentially reduce the instances of property tax default. One potential policy change that would increase the uptake of senior tax relief programs is to

require that borrowers verify participation in these programs along with the annual occupancy verification already in place. Another potential policy change would be to require followup counseling for younger borrowers at age 65 years. This followup would provide an opportunity to remind HECM borrowers of senior tax relief programs available and verify participation.

Acknowledgments

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Financial Sustainability and the Home Equity Conversion Mortgage: Advancing Fiscal Soundness and Affordable Financing for Senior Homeowners

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Abstract

The Home Equity Conversion Mortgage (HECM) has undergone significant changes in its 25-year history since its modest start as a 2,500-loan pilot in 1987 to its nearly one million endorsements at the end of 2015. The Great Recession more recently underscored the need for measures to secure the financial sustainability of these reverse mortgages. Such measures have sought to mitigate risk and improve the financial health of the HECM program while promoting affordable financing through the HECM mortgage-backed securities, or HMBS, program. Improved fiscal soundness for HECM ensures the program is viable and continues to provide affordable financing in the conversion of home equity for senior homeowners. This article examines changes made toward increasing the financial sustainability of HECM through fiscal soundness and the facilitation of affordable financing. These changes are especially relevant as American households continue to age and seek the option to affordably access their housing wealth while remaining in their home.

Introduction

The U.S. Congress enacted the Home Equity Conversion Mortgage (HECM) "to meet the special needs of elderly homeowners by reducing the effect of […] economic hardship" and "to encourage" increased involvement of mortgage market actors in the production and servicing of such reverse mortgages.[1,2] The two resulting HECM programs within the U.S. Department of Housing and Urban Development (HUD)—the Federal Housing Administration (FHA) HECM program and the Ginnie Mae HECM mortgage-backed securities (HMBS) program—facilitate access to affordable financing for eligible senior homeowners seeking to borrow against their home equity and stay in their home while not making monthly mortgage repayments.[3] Although the reverse mortgage is a relatively specialized component of the mortgage market,[4] the provision of government insurance has resulted in a reverse mortgage market in which FHA-insured HECMs constitute 90 to 95 percent of the total number of reverse mortgages[5] (Moulton, Haurin, and Shi, 2014). As a consequence, HECM has become an important tool for the federal government in providing a social safety net for seniors. Nonetheless, this program has been tempered by financial constraints accentuated by the most recent economic downturn.

In the past decade, HECM governance underwent significant changes and refinements. The purpose of many of these changes was to enhance financial sustainability both in terms of fiscal soundness for FHA's HECM insurance program and of affordable financing facilitated through Ginnie Mae's HMBS program. These changes have been challenging, given financial realities constraining the extent of HECM's social benefits. The following article examines recent modifications to the HECM program that focus on changes made to promote greater financial sustainability. This analysis provides insights to further inform policy design and innovation in securing the viability of HECM and continuing to enable aging in place[6,7] for many senior homeowners.

Fiscal Soundness and the HECM Insurance Program

In the HECM insurance program, FHA insures participating reverse mortgage lenders against realized losses on HECM loans. The provision of insurance on HECMs is essential to the program's functioning and the borrower's access, but it also presents risks that must be mitigated to promote

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[1] *Reverse mortgage* is defined as a loan in which the homeowner borrows against the value of the home. Under this arrangement, no principal and interest repayment is required for the borrower until the borrower dies or sells the home.

[2] Housing and Community Development Act of 1987, Pub. L. 100-242, 101 Stat. 1015.

[3] From fiscal year (FY) 1990 to FY 2015, HUD reported 949,858 HECM endorsements originated. FHA-insured reverse mortgages represent much of the nonjumbo reverse mortgage market.

[4] HECMs are estimated to represent 0.50 to 0.60 percent of the total mortgage market. HECMs exceeded 1.00 percent of the market in 2008, with 112,154 endorsements, despite more endorsements, at 114,692, in 2009. The estimates are the authors' calculations using sources from HUD and the Mortgage Bankers Association.

[5] Fewer private-label reverse mortgages exist.

[6] *Aging in place* can be defined as "the ability to live in one's own home and community safely, independently, and comfortably, regardless of age, income or ability level" (CDC, 2013: 1).

[7] Aging in place is an important component of the HECM program, because lower-income seniors who have lived in a modestly priced home that they have fully or nearly paid off may be especially reluctant to sell the home and buy or rent new housing. HECM provides a unique financing mechanism to ensure seniors remain in their home and age in place (HUD, 2015a).

financial sustainability in the program. The open-ended nature inherent to reverse mortgages, especially compared with forward mortgages, presents a fundamental risk to the fiscal soundness of the program that must be addressed. Under their respective terms, reverse mortgages typically become due and payable in the event of morbidity, mobility, or prepayment. Repayment occurs in instances of the borrower's death, moving out, sale of the home, loan repayment on his or her own volition, or failure to meet the obligations of the mortgage—such as property tax, insurance payments, or maintenance costs. By comparison, reverse mortgages differ greatly from the regular and periodic payments of principal and interest toward termination on forward mortgages.

Without guaranteed insurance, existential and scalability challenges exist for reverse mortgage products, which are attributable to distinct long-term capital constraints that HECM loans impose that require lenders to allow senior borrowers to remain in their homes for an undetermined amount of time without loan repayments. The open-ended maturity of HECM is unique. A fixed-rate, 30-year forward mortgage has a set maturity timeline for the borrower to fulfill the terms of the housing loan.[8] On the other hand, HECM loan termination is unscheduled. In large part, HECM maturities can be approximated to a fair degree through actuarial factors related to the borrower's longevity and morbidity. No fixed termination date exists, however, because the loan will become due and payable only when the borrower passes on, moves, sells his or her home, or voluntarily prepays.

In practice, should a 72-year-old woman[9] take out a HECM loan, the lender could approximate[10] the life expectancy of the borrower to mirror the national average age for American women at 81.2 years. In the event the borrower lives to the age of 90 years, however, the lender is constrained by the open-ended nature of its obligated capital. In this instance, the lender is constrained with the set allocation of capital for an additional 8 years or more from the original estimates. The longer time horizon presents added risk for the lender, including variability related to home price appreciation and interest rates. Should economic tumult occur when HECM matures and home prices decline, the scenario could incentivize borrowers and their heirs to walk away from repayment. In the resulting default, the lender would resort to liquidating collateral to attempt to recapture some form of its investment. Yet, repayment would likely be less than the original value compared with when HECM was issued and insured to the borrower some 18 years or more before. This example illustrates the dilemma between the HECM insurance program's innovation and challenges in managing the financial health of the program.

HECM innovatively provides a significant social benefit in terms of aging in place. The innovation concurrently requires fiscal scrutiny in the provision of government insurance. FHA-insured reverse mortgages provide lenders with certainty in recapturing potential losses incurred through their lending of capital to senior borrowers. Nevertheless, through the provision of insurance, government resources are at risk. Although the government provides insurance on these reverse mortgages, due in the event the borrowers default because of inability to meet HECM loan obligations, the fiscal resources to support are intended to ultimately come from the insurance premiums paid from the borrowers into the insurance fund. Such program design makes the HECM program self-sustaining, with premiums supporting any prospective losses. Premiums are supposed to be designed to cover losses.

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[8] In fact, without prepayment penalties, it can be argued that forward mortgages incentivize earlier repayment of loan obligations.

[9] The average age of a HECM borrower was reported as 71.8 years in 2014 (HUD, 2015b).

[10] In reality, lenders use much more specific and targeted analytics to assess borrower mortality.

Growth in lender-filed insurance claims can jeopardize the funding mechanism supporting HECM loans. Through the Mutual Mortgage Insurance (MMI) Fund, lenders file insurance claims that are evaluated and adjudicated to determine payouts, as appropriate, by the MMI Fund. Insurance enables lenders to recapture losses incurred by defaults. As a consequence, HECM insurance claim payouts have the potential to undermine the fiscal soundness of the HECM insurance program, especially in cases of unexpected surges in HECM defaults. Such risks accordingly were underscored in the economic stress of the Great Recession (December 2007 to June 2009), exacerbated by a trend of lending higher risk HECM loans (HUD, 2015a).

Demand for HECM loans grew in the immediate aftermath of the Great Recession. Because many households had limited access to financial resources, senior homeowners sought to liquidate their housing wealth to meet their short-term living needs. Senior liquidation led to increased HECM risk and contributed to diminishing fiscal soundness for the HECM insurance program. Borrowers, markedly younger and with higher amounts of property indebtedness, were unable to meet their financial obligations under HECM and, subsequently, defaulted on loans. Government insurance on these riskier loans placed increased financial stress on the MMI Fund, and its fiscal resources experienced an accelerated rate of payouts funding HECM insurance compensation to lenders.

In due time, the MMI Fund's HECM financing account required FHA to request a mandatory appropriation of $1.7 billion at the end of 2013, marking the first time FHA used such an authority in its 79-year history (CBO, 2013; HUD, 2013). Although the requested mandatory appropriation was unprecedented, it was not the first time a fund transfer had occurred. In fact, a transfer from the forward mortgage portfolio of $4.26 billion accompanied this $1.7 billion infusion into the HECM financing account in 2013. As illustrated by exhibit 1, the MMI Fund has transferred funds between the HECM and forward mortgage financing accounts numerous times since 2009. The transfers demonstrate the precarious financial health of the HECM insurance program and the extent of pressures placed on the MMI Fund.

In response to the Great Recession, FHA used its authority—through the design and administration of guidelines for reverse mortgages to be considered for government insurance—to make programmatic changes. The modifications largely had the intention of managing FHA's portfolio risk to improve the HECM insurance program's financial sustainability. Such changes followed Congress's initial postrecession reforms focused on incorporating strengthened consumer protections into the HECM insurance program. Protections included independent counseling for prospective HECM borrowers, prohibitions on HECM lenders' selling other financial or insurance products, and limits on origination fees.[11]

Following the MMI Fund's projected 2012 losses, Congress legislated additional safety and soundness requirements for the program by empowering the Secretary of HUD to determine necessary actions "to improve the fiscal safety and soundness of the program..."[12] The legislation resulted in multiple changes by FHA to improve the fiscal soundness of the HECM insurance program. The purpose of the programmatic changes and refinements centered on the principle that, without fiscal solvency, the financial health of HECM loans would be threatened as would be the option for senior homeowners to age in place while accessing affordable financing in the liquidation of their housing wealth.

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[11] Housing and Economic Recovery Act of 2008, Pub. L. 110-289, Section 2122.

[12] Reverse Mortgage Stabilization Act of 2013, Pub. L. 113-29.

Exhibit 1

MMI Fund Portfolio, HECM and Forward Mortgage Accounts, Economic Value, and Fund Transfers: 2009–2015

Fiscal Year	HECM Economic Value[a] ($)		Forward Mortgage Economic Value[a] ($)	Fund Transfers[b]
2009	909,000,000		2,732,000,000	None
2010	– 503,000,000	←	5,160,000,000	$1.748 billion transfer in May 2010 to *HECM financing account* from *forward mortgages financing account* to cover expected net cost of HECM FY 2009 book of business[c]
2011	1,358,000,000	←	1,193,000,000	$535 million transfer in May 2011 to *HECM financing account* from *forward mortgages financing account* to cover the increase in expected HECM losses[c]
2012	– 2,799,000,000		– 13,478,000,000	None
2013	6,540,000,000	←	– 7,871,000,000	$4.26 billion transfer to *HECM financing account* from *forward mortgages financing account*[c]
2014	– 1,166,000,000	→	5,930,000,000	$770 million transfer to f*orward mortgages financing account* from the *HECM financing account*. Without the transfer, *forward mortgages account* economic value would have been $2.68 billion lower than the FY 2013 estimate[d]
2015	6,778,000,000		17,044,000,000	None
2016	– 7,721,000,000		35,270,000,000	None

FY = fiscal year. HECM = Home Equity Conversion Mortgage. MMI = Mutual Mortgage Insurance.
[a] Economic value is an estimate, derived from econometric modeling, defined as the "cash available to the Fund, plus the net present value of all future cash inflows and outflows expected to result from the outstanding mortgages in the Fund" (National Affordable Housing Act of 1990, Pub. L. 101-625, 101st Congress, November 28, 1990).
[b] Through these interaccount fund transfers, the amount becomes explicitly reserved for the gaining financing account and is no longer available to cover unexpected losses of the losing financing account.
[c] These transfers lower the forward mortgages portfolio's economic value.
[d] This transfer lowers the HECM portfolio's economic value.
Note: HECM financing account and forward mortgage financing account are italicized for ease of reference.
Sources: FHA (2016, 2015a, 2014a, 2013a, 2012, 2011, 2010, 2009)

Advancing the Financial Health of the HECM Insurance Program

Significant deterioration in the financial health of the HECM insurance program underscored the need to strengthen the capital position of the MMI Fund's HECM portfolio. Whether risk inherent in the HECM model, economic pressures, housing price depreciation, or borrower negligence in meeting the obligations on these loans, the need for reforms became clear. FHA needed to make changes to advance the program's fiscal soundness. Through the Reverse Mortgage Stabilization Act of 2013, Congress empowered the Secretary of HUD to improve the financial health of the HECM insurance program. Since the passage of the act, FHA has instituted multiple programmatic changes to improve the program's financial health, which reflects the desire to ensure long-term sustainability of HECM. The following section examines five of the programmatic changes, outlined in exhibit 2, to advance the financial sustainability of the HECM insurance program.

Exhibit 2

Programmatic Changes and Refinements to the HECM Insurance Program

Year Initiated	HECM Insurance Program Modification	Purpose	Sources
2011	Adjustable-Rate Mortgage Interest Rate Adjustment Cap	Consumer protection for the borrower of an annual adjustable-rate HECM	HECM Protocol, Section 5.D.4.f
2013	First-Year Initial Loan Disbursement Limits	Mitigates increased risks of default for borrowers who took the maximum initial draw in meeting their property tax, insurance, and maintenance costs	ML 13-27 (FHA, 2013b)
2013	Restructuring of the HECM Premium Structure	Risk-based pricing to reflect the amount of the initial year loan disbursement	ML 10-34 (FHA, 2010b), ML 13-27 (FHA, 2013b), ML 14-21 (FHA, 2014e)
2013	Mandated Financial Assessment for Borrowers	Assurance that borrowers are financially capable of meeting their HECM loan obligations	ML 13-27 (FHA, 2013b), ML 13-28 (FHA, 2013c), ML 13-45 (FHA, 2013d), ML 14-21 (FHA, 2014d), ML 14-22 (FHA, 2014e), ML 15-09 (FHA, 2015c), ML 15-05 (FHA, 2015b])
2014	Single Lump-Sum Payment for Fixed-Rate HECMs	Conformance with lender preference to eliminate single lump-sum payment option for adjustable-rate HECMs	ML 14-10 (FHA, 2014b), ML 14-11 (FHA, 2014c)
2015	Deferral of Due and Payable Status for Certain Eligible Nonborrowing Spouses	Provision to eligible nonborrowing spouses of option to retain the property with payment for HECM's unpaid principal balance or 95% of appraised value	ML 15-03 (FHA, 2015a), ML 15-05 (FHA, 2015b)

HECM = Home Equity Conversion Mortgage. ML = Mortgagee Letter.
Note: "Sources" refer to the documents with HECM insurance program modifications, such as Mortgagee Letters and HECM Protocols.

Adjustable-Rate Mortgage Interest Rate Adjustment Cap

Lenders have long established the precedent of establishing interest rate limits on adjustable-rate mortgages. Reverse mortgages are no exception. Proprietary reverse mortgages often have interest rate caps that vary from product to product (HUD, 2011). These caps have the purpose of protecting borrowers from large interest rate swings. For HECMs, FHA imposed annual and lifetime interest rate caps on its annual adjustable loans to limit interest rate increases in rapidly rising interest rate environments. The caps help protect remaining borrower equity in the home to the benefit of the borrower and also limit the growth of the loan balance that helps protect the insurance fund.

No mandated cap previously existed, other than the industry convention of a voluntary 10 percent lifetime limit on interest rate increases. FHA decided to go further with the development of a 2-percent annual cap and a 5-percent lifetime cap, commonly referred to as the 2/5 cap structure. The 2/5 cap structure on annual adjustable HECMs places a ceiling on the maximum amount lenders

may add to the initial interest rate on adjustable-rate HECM loans (HUD, 2011). Each HECM with an interest rate that adjusts monthly is subject to a lifetime cap determined by the lender at loan origination (Ginnie Mae, 2015a). The cap structure affects how much borrowers pay on their loan balance. It also affects the growth of the principal limit. A higher rate means a lower principal limit, which thereby reduces the amount the borrower can draw in accessing his or her housing wealth (HUD, 2011). The 2/5 cap on annual adjustable HECM loans protects borrowers from a certain magnitude of interest rate increases. Caps also conversely limit potential net interest margins for lenders and investors in HECM loans, threatening the participation of these actors in the program.

Mandated Financial Assessment for Borrowers

Rises in tax and hazard insurance defaults led FHA to establish a requirement for lenders to conduct a financial assessment for borrowers beginning in early 2014. The purpose of the financial assessment is to require lenders to assess potential borrowers in terms of financial capacity and future compliance with HECM provisions (FHA, 2013b). In particular, the financial assessment mandates certain components in evaluating a borrower's ability and willingness to meet financial obligations and comply with HECM requirements (FHA, 2013c).

The financial assessment provides underwriting guidance and documentation requirements for lenders in the evaluation of prospective borrowers seeking purchase and refinance HECM loans. The financial assessment also stipulates the performance of credit reviews with cashflow and asset analysis, the evaluation of extenuating circumstances and compensating factors, and the assurance that the prospective borrower has made proper payment of property tax and insurance in determining eligibility for the HECM program (FHA, 2013c). Together, the components of the financial assessment seek to advance fiscal soundness in the HECM insurance program by ensuring borrowers are financially capable of meeting their HECM loan obligations that protect the value of the lien.

Policies To Restrict First-Year Draws and Fixed-Rate HECMs to Single Draw

The aftermath of the Great Recession underscored the risks of borrowers' behavior in HECM defaults. In particular, a key lesson from experience was the nature of borrowers' HECM draws. In 2010, 75 percent of borrowers opted for the full draw at closing versus 43 percent in 2008 (CFPB, 2012). Higher default rates became evident for those who opted to take the maximum initial draw at the time of closing their HECM loan. Borrowers' decisions to take higher draws raised the risk of default, especially in terms of delinquency on future property tax, hazard insurance, and other maintenance costs.

Borrowers increasingly had immediate financial needs in paying off high levels of existing debt. Often borrowers used HECM principal payments as a crisis management tool to draw the full amount of their loan to meet short-term financial needs. With no cash set-asides, future tax, insurance, and property maintenance payments often went unanswered. Constrained finances ultimately impaired the ability of the borrowers to age in place as their homes entered into tax delinquency or became uninhabitable.

Lender preferences also reinforced the trend toward large initial draws on fixed-rate HECMs, as illustrated in exhibit 3. Conventional lending practices favored these loans, causing the share of

Exhibit 3

HECM Loan Endorsements by Rate Type, 1990–2015
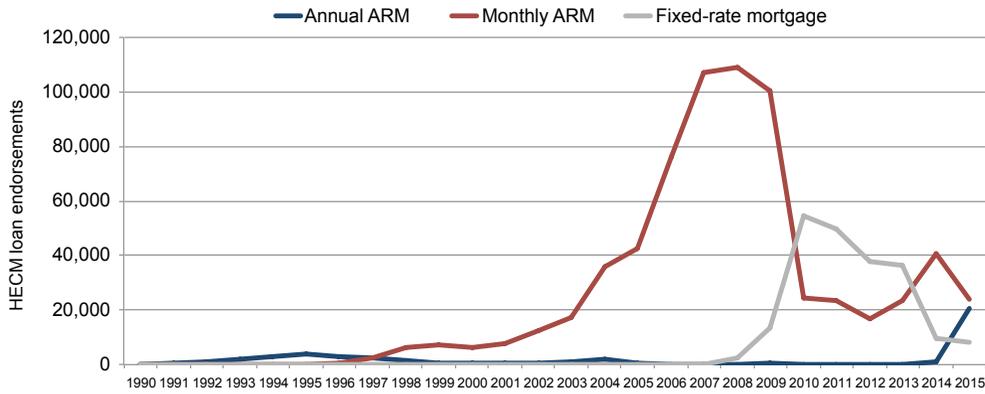
ARM = adjustable-rate mortgage. HECM = Home Equity Conversion Mortgage.
Sources: HUD (2015a, 2015b)

fixed-rate HECMs to grow as lenders promoted large initial disbursements to increase their interest rate margin and ease sale for securitization. Furthermore, this practice presented a systemic risk, because lenders were required to effectively manage interest rate risk by providing borrowers with the ability to draw fixed-rate funds at unknown amounts on future dates (Ginnie Mae, 2014b).

In late 2013, FHA instituted restrictions on lump-sum draws in the borrower's first year of the HECM loan. These restrictions capped the amount drawn, at either the lesser of 60 percent of the principal limit or the sum of mandatory obligations plus 10 percent of the principal limit, during the first 12 months subsequent to loan closing (FHA, 2013b). This policy modification has facilitated changes toward financial sustainability for the HECM insurance program. It has contributed to a predominant shift to adjustable-rate mortgages, with borrowers electing to receive payments over time using the line of credit or modified tenure or term payment options compared with fixed-rate HECMs in which borrowers draw down all available funds at the time of loan closing. Although causing a reduction in HECM demand, the change was made to ensure the financial future of borrowers could better sustain HECM obligations and reduce payouts of insurance claims from the MMI Fund. As a result, HECM insurance program data indicate reduced first-year draws in fiscal year (FY) 2014 and FY 2015 loan disbursement patterns (HUD, 2015a).

Lenders offered options encouraging borrowers to take the 60 percent of the principal limit during the first 12 months of the initial disbursement and then shortly thereafter to draw the remaining 40 percent from the HECM loan regardless of borrowers' needs. This practice, delaying 40 percent of the draw by only 12 months, ran counter to FHA's objective of reducing large, upfront draws (FHA, 2014b). FHA has sought to address this issue through restrictions on lump-sum draws for adjustable-rate HECM loans and restructured mortgage insurance premium (MIP) risk pricing (FHA, 2014c).

Following the 2013 restrictions on lump-sum draws and the shift toward managed initial loan disbursements, lending options permitting the borrower to take future draws at fixed interest rates became a concern affecting the financial sustainability of both the FHA HECM insurance program

and Ginnie Mae HMBS program. Given the difficulties that lenders, issuers, and investors may encounter in managing interest rate risk with future draws for fixed-rate HECMs, Ginnie Mae initiated the restriction by prohibiting the securitization of these loans in its HMBS pools (Ginnie Mae, 2014a, 2014b). Following Ginnie Mae's decision, FHA restricted provision of insurance on fixed-rate HECMs to single disbursement, lump-sum cash draws as the sole draw mechanism for these borrowers to choose at the closing of the loan. FHA's insurance restriction on fixed-rate HECMs with future payments also eliminated the single-disbursement, lump-sum-payment option for adjustable-rate HECM loans (FHA, 2014c). As a consequence, such changes have attracted borrowers with higher mandatory obligations to use the fixed-rate HECM loan option in seeking a single, full draw in meeting their larger financial needs.

Modified Mortgage Insurance Premium Structure

MIP is an essential component of the financial sustainability of the HECM insurance program. Borrowers' MIP payments fund the program and constitute the immediate fiscal resources that the MMI Fund uses in paying out insurance claims to lenders. The MIP structure for HECM loans originally provided an initial MIP at 2 percent of the maximum claim amount (MCA) and 0.5 percent of MCA for the monthly MIP. Such payments are accrued and paid by the borrower when HECM matures (FHA, 2010a). Following the restructuring of the HECM Saver and HECM Standard products, FHA sought risk-based pricing, depending on the borrower's initial disbursement as illustrated in exhibit 4.

The new premium structure has given the borrower a financial incentive to draw less than 60 percent of the principal limit on his or her HECM loan (HUD, 2015a). As such, borrowers with high mandatory obligations compensate FHA for the added risk that they impose on the MMI Fund for their high first-year draw through a higher upfront MIP. Thus, the MIP restructuring has further minimized default risk by incentivizing borrowers to make lesser draws while compensating the MMI Fund for the risk should borrowers withdraw more than 60 percent of the principal limit.

Exhibit 4

HECM MIP Structure

Initial Disbursement at Closing and During the First 12-Month Disbursement Period	Initial MIP (%)	Annual MIP (%)
Amounts of 60% or less of the principal limit	0.50	1.25
Amounts greater than 60% of the principal limit	2.50	1.25

HECM = Home Equity Conversion Mortgage. MIP = mortgage insurance premium.
Note: MIP cost is calculated from the maximum claim amount.
Source: FHA (2014e)

Affordable Financing and the HMBS Program

For senior homeowners to effectively access their housing wealth, affordable financing is a necessity. Without affordable financing, HECM is constrained in meeting the needs of the elderly as an alternative way to access the financial assets in their homes. The financial sustainability of the HECM program depends on cost-effective access to financing for senior borrowers. The

corresponding HMBS program facilitates access to affordable housing finance for these homeowners. Through the HMBS program, Ginnie Mae furthers the financial sustainability of HECM as senior homeowners seek the option to continue living in their home while affordably accessing their equity without making repayments.

When Ginnie Mae created the HMBS program in 2007, a limited secondary market for reverse mortgages existed. (Ginnie Mae, 2007) Only a handful of private-label securitizations of reverse mortgage cashflows had occurred and would soon be bludgeoned by the Great Recession.[13] Furthermore liquidity for FHA-insured reverse mortgages was not met through securitization. Instead, whole-loan purchases by investors in HECM loans attempted to sustain lenders with access to investment from capital markets. Yet, since the inception of the HECM insurance program, Fannie Mae has made most purchases through on-book holdings of FHA-insured reverse mortgages.[14] With the GSEs not securitizing reverse mortgages, Ginnie Mae met a unique challenge by advancing financial sustainability for HECM loans through the pioneering creation of HMBS and the resulting development of a broad secondary mortgage market for HECM loans.

HMBS was the first nonprivate HECM securitization, which furthered the development of a robust secondary market for HECM loans (Agbamu, 2010). The benefits of this developed secondary market were clear because it served two key purposes in facilitating growth for HECM loans through increased investment and expanded access to affordable financing for borrowers and lenders through additional capital inflows into securitized pools. With Ginnie Mae and its explicit full-faith and credit guarantee from the U.S. government on the timely payment of principal and interest, HMBS stimulated development of a strong secondary reverse mortgage market. HECM securitization expanded investment from global capital markets into securitized HECM loans.

The resulting liquidity helped diminish the costs of HECM loans for lenders accessing capital and helped provide affordable financing to senior homeowners. Significant obstacles and risks had to be overcome in the design and servicing of the HMBS program. These obstacles were resolved through several innovations in reverse mortgage securitization that would help the program achieve its primary objective in facilitating aging in place with enabled access to affordable financing for many senior homeowners.

The Unconventional in Reverse Mortgage Securitization

Creating a new and atypical financial product with broad investor appeal was viewed as a daunting, if not an impossible, task to achieve. HMBS needed to incorporate several innovations to

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[13] In August 1999, Lehman Brothers Holdings Inc. created the first securitized reverse mortgage transaction SASCO 1999-RM1 (Zhai, 2000). Proprietary reverse mortgages had no federal insurance and required structuring in classes to mitigate nonrepayment risks (Szymanoski, Enriquez, and DiVenti, 2007). Until its demise, Lehman Brothers would securitize five total proprietary reverse mortgages in the Structured Asset Securities Corporation (SASCO) series. Bank of America's Mortgage Equity Conversion Asset Trust Corporation securitized the first HECM loans through three securitizations in 2006 and three subsequent securitizations in 2007 (Herzog, 2007). In addition, Deutsche Bank USA and RBS Greenwich Capital Markets Inc. also issued a series of HECM securitizations from 2006 to 2007 (CFPB, 2012).

[14] According to quarterly financial disclosures, Fannie Mae's purchase share of HECM issuance dropped from 90 percent from 2008 to the first quarter of 2009 to less than 1 percent in the third quarter of 2010 (SEC, 2008–2010).

overcome challenges, build confidence, and meet—if not exceed—investors' expectations. Such dispiriting challenges would present significant obstacles. The obstacles would form tangible barriers that had the potential to limit HMBS implementation.

For HMBS to be effective, the program needed to assure investors of the quality and safety of the new and distinct security. Investor assurance presented a challenge because HECM loans and reverse mortgage securitization had the opposite collateral and credit issues compared with the standard forward mortgages and counterpart securities (Zhai, 2000). Thus, simple adaptation to the forward mortgage-backed securities (MBS) design with the underlying HECM loan collateral posed several challenges. Navigating through such difficulties proved essential to achieving success for the HMBS program in advancing HECM's financial sustainability.

The different nature of the underlying HECM collateral for HMBS presented issues in terms of time horizon, cashflow, and servicing. To resolve the issues, the HMBS structure and protocol had to conform to the underlying collateral's cashflow and navigate around the challenges the underlying HECM loans presented. The challenges—albeit significant—presented opportunities to innovate in the design of HMBS and the optimization of program protocol for ease of investment and servicing.

The open-ended maturity of the HECM loan posed the "most critical cashflow risk factor […] arising from interest rate and property value uncertainties" (Szymanoski, Enriquez, and DiVenti, 2007: 14). HECM's negative amortization structure meant a growing loan balance would become due and payable at the unscheduled event of the borrower's death, move, default, or prepayment. Should the borrower live longer than the actuarial tables, then the growing principal with accruing interest payments presented risks to issuer solvency, especially in terms of pushing against the ceiling imposed by the MCA. In these instances, issuers and their subservicers lost incentive in continuing to administer HMBS pools. Such *crossover risk*[15] posed a substantial barrier to growing issuer involvement in the program.

The cashflow of the HECM structure presented another challenge to HMBS securitization. Although the traditional forward MBS had a single cashflow from borrower to investors, HMBS had two cashflows (Szymanoski, Enriquez, and DiVenti, 2007): (1) borrowers received a cashflow each time they withdrew on their home equity, and (2) investors received a cashflow each time they received interest. The HMBS dual cashflow required funding each time the borrower drew cash from his or her housing wealth. The requirement for additional draws posed a significant barrier because investors were making a funding commitment far greater than their initial investment compared with investing in forward MBS. Further reliance on secondary market actors, whether investors or issuers, would add additional pressures in having the needed capital reserves to sustain longstanding servicing of securitized HECM loan pools (Ginnie Mae, 2011c). Such a commitment required significant foresight if not clairvoyance on these actors' parts. As a result, cashflow was a significant constraint in terms of attracting investment and servicing and also in terms of the fundamental design of HMBS (Ginnie Mae, 2011d).

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[15] Crossover risk occurs when the outstanding balance exceeds the home's value before the loan settles. For HECM loans, this crossover risk stems from a confluence of factors related to interest rates, house prices, and mortality (Wang, Huang, and Miao, n.d.).

The pooling and administration of the untested HMBS had to achieve operational excellence and encourage issuers and subservicers to work with this distinct and fledgling security. Servicing HMBS required long-term accounting from issuers and subservicers. The aforementioned negative amortization meant issuers had to manage growing HMBS pools in terms of repayment of princi- pal, accrued interest payments, and fees. As a consequence, HMBS issuers and their subservicers would not administer the diminishing principal balances and monthly interest rate payments to investors as had been done traditionally with forward MBS. Rather, HMBS issuers would have to adapt to growing principal balances, accruing interest, and the payout of FHA MIPs and Ginnie Mae guaranty fees. In addition, issuers had to develop new mechanisms in determining when HMBS became due and payable, a novelty given the unscheduled maturity inherent to HECM loans.[16]

Strategic management of the nature of the HECM loan in terms of time horizon, cashflow, and servicing helped position the HMBS program for success. The rationale for the HMBS loan was compelling, especially in terms of the much-needed liquidity the product would provide in a new secondary market, bolstered by the full-faith and credit guarantee of Ginnie Mae and FHA insurance. The HMBS program would provide wide-scale securitization of HECM loans, serving a unique purpose in the provision of much-needed liquidity to the secondary reverse mortgage market. The outlined areas of difficulty, however, had the potential to avert the program's success. The resulting HMBS would certainly have a new and different cashflow structure if securitized at scale. It would also further diversify the fixed-income, MBS investment space. Innovations in the design and administration of HMBS, however, would largely determine the program's success in promoting financial sustainability in terms of affordable financing for HECM.

Innovations in the HMBS Program

HMBS required several innovations to overcome the aforementioned challenges inherent to the nature of the HECM loan. Programmatic innovations in securitization invigorated efforts to deepen liquidity and promote the development of a secondary reverse mortgage market. Such breakthroughs, outlined in exhibit 5, stimulated both issuer and investor participation in securitiz- ing, servicing, and investing in HMBS. These changes consequently helped ensure that the HMBS program achieved success in facilitating affordable financing for senior homeowners deciding to liquidate their housing wealth and age in place.

The full-faith and credit guarantee that the U.S. government provided through Ginnie Mae was a promising start in developing the HMBS program. The guarantee, combined with FHA's insurance on the underlying HECM collateral, helped leverage HMBS in terms of investor protection related to issuer and credit risks. In the event of borrower and issuer default, the Ginnie Mae guarantee ensured investors would still receive their principal investment and also their accrued interest-rate revenues. The guarantee, combined with securitization, would deepen investment of global capital into HECM loans. Amplified capital inflows into HMBS provided increased liquidity into the HECM program, enabling lenders to access lower-cost financing and pass affordability along to the borrower in the form of lower interest rates. From the outset, the guarantee and insurance would

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[16] Maturity is triggered by the borrower's death, move-out by the borrower from the collateralized principal residence, or prepayment in the instances of a borrower's opting voluntarily to repay his or her outstanding HECM loan.

Exhibit 5

HMBS Innovations in Promoting Sustainable Financing for HECM

Innovation	Purpose	Effect
Securitization of HECM loans through HMBS	Channels investment into purchase of securitized HECM loan pools with unique cashflow structures	Reduces borrowing costs for lenders and promotes affordable financing for borrowers
Full-faith and credit guarantee by U.S. government on HMBS by Ginnie Mae and insurance for underlying HECM collateral by FHA	Ensures investors receive timely principal and interest payments from underlying HECM collateral	• Protects investors on issuer (Ginnie Mae) and creditor (FHA) risk • Encourages investment of global capital into HMBS products
Securitization of HMBS participations[a] over HECM whole loans	Securitizes borrowers' draws instead of MCA on underlying HECM collateral	Provides increased liquidity and reduces future draw risk for external funding with components of HECM loans pooled into multiple securities
Mandatory repurchase event at 98% of MCA	As a definitive timeline event, triggers payout to investors through assignment of active loan to FHA	Results in issuers repurchasing participations related to HECM loan after it has reached 98% of MCA
Multiclass HREMIC structures	Customizes HECM collateral in classes based on principal balances, interest rates	Expands liquidity through customizable structures catered to investor preferences

FHA = Federal Housing Administration. HECM = Home Equity Conversion Mortgage. HMBS = HECM mortgage-backed securities. HREMIC = HMBS real estate mortgage investment conduit. MCA = maximum claim amount.
[a] Participations *generally consist of advances made to borrowers, monthly insurance premiums paid to FHA, guaranty fees paid to Ginnie Mae, servicing fees, and accrued interest (Ginnie Mae, 2015a).*

strengthen investors' confidence in the event their capital diminished from reduced principal and interest rate payments due to borrowers' inability to meet loan obligations or issuers' mishap. Such preconditions for the HMBS program would provide a needed foundation for a well-designed HMBS with proper securitization techniques to succeed.

Through the HMBS program, Ginnie Mae pioneered a new approach to reverse mortgage securitization, which differed from the conventional approach in which investment banks purchased private-label whole loan reverse mortgages from lenders for pooling and securitization. In the Ginnie Mae HMBS securitization model, investors were responsible for funding future draws in the resulting securities (CFPB, 2012). As such, proprietary reverse mortgage securities had a funding account embedded in their structures specifically drawn on when borrowers obtained advances on their home equity. With the Ginnie Mae approach, investors would purchase securitized components of HECM loans and issuers advanced funds to future draws for borrowers. Future draws would be securitized and pooled by issuers for future sale and additional investment. The use of HECM loan components for securitization would be a substantive design breakthrough that streamlined HMBS in terms of administration for issuer servicing and specificity in investor decisionmaking.

The HMBS structure fundamentally needed to incorporate flexibility and ensure greater certainty amidst a HECM loan with several daunting, if not unwelcoming, challenges. As opposed to securitizing whole HECM loans, the Ginnie Mae approach targeted HECM loan components. Issuers

securitized individual borrower draws, termed *participations* in the HMBS program.[17] Through participations, only part of the HECM loan was securitized. Because of this technique, issuers were able to pool components of whole HECM loans. As a result, HMBS pools had a "one-to-many relationship" with one HECM loan having many participations in various HECM-backed securities (Ginnie Mae, 2015a). Participations included accrued interest, servicing fees, FHA's MIPs, and Ginnie Mae's guaranty fee as securitized participations (Ginnie Mae, 2015a). Issuers pooled participations among those with similar characteristics, such as interest rates (fixed versus monthly and annual adjustable, and so on). Such pooling with units beneath the scale of HECM whole loans gave issuers and investors the advantage of additional specificity in the securitization process and investment decisionmaking.

The participations model had numerous benefits, including targeted investment and pooling specificity. Should the borrower make additional draws on the same HECM loan, termed "tails" in the industry, then the resulting draw would be eligible for securitization as a new participation to be placed into a new pool of cohorts (Katz and Birdsell, 2014). The securitization of tails as separate participation components was critical to the success of the HMBS program. In this respect, it gave HMBS issuers flexibility and adjustability in optimizing pool structures with added granularity in servicing. For example, in FY 2015, Ginnie Mae securitized 2,847,842 participations with an outstanding principal balance of $8.714 billion. Assuming all participations are the same,[18] the average size of participations accordingly was small, calculated in this case at $3,367.96.[19] Securitizing smaller components of HECM loans with greater differentiation enhanced liquidity[20] to the secondary mortgage market, which helped further the financial sustainability of the HECM. It also supported issuers in funding cash advances made to HECM borrowers.

The use of participations in the HMBS program was innovative because it provided a more specific HMBS subcomponent unit for ease in pooling, servicing, and investing. Participations also helped prevent investors from funding future draws when borrowers made more than an initial draw on their loan. Instead, issuers funded additional cash draws executed by borrowers in the HMBS program. Through the participations model, issuers were better supported in meeting the HMBS funding requirement. The creation of new and subsequent participations enabled issuers to securitize cashflows separately. Given that subsequent participations were often smaller payments, it helped reduce issuers' financial burden by advancing funds for subsequent draws. The participations model gave issuers and investors additional investment certainty and control in the HMBS securitization process. As a result, participations helped further the financial sustainability of HECM through increased liquidity and the resulting lower-cost financing for senior homeowners.

In advancing the financial sustainability of FHA-insured reverse mortgages, the actors involved in the securitization process of participations were essential. The issuers and subservicers

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[17] *Participations* generally consist of advances made to borrowers, monthly insurance premiums paid to FHA, guaranty fees paid to Ginnie Mae, servicing fees, and accrued interest (Ginnie Mae, 2015a).

[18] This calculation is used to gauge average participation size. It should be rightly noted, however, that all participations are not equal.

[19] In FY 2014, Ginnie Mae securitized 2,587,323 participations, with an outstanding principal balance of $7.121 billion. The average participation amount would be an even smaller $2,500.49.

[20] The customization of securitized HECM loans through participations enhances liquidity to this secondary mortgage market because these smaller units are pooled compared with entire loans.

administratively were critical to the success of the HMBS program beginning from the pooling of participations into HMBS to paying out interest payments and fees to investors, FHA, and Ginnie Mae. From the time the HECM loan was dispersed through the execution of additional draws until the time when the HECM loan became due and payable, the success of issuers and subservicers not only affected the effectiveness of the HMBS program but also determined the sustainability of FHA's HECM insurance program and influenced Ginnie Mae's financial health.[21]

As such, issuers and subservicers had a range of duties required to successfully service HMBS, some distinct, if not different, from those of MBS. Of course, in a way that was similar to how they monitored MBS, they monitored borrower compliance and managed default, but they also monitored the atypical events that triggered maturity for HMBS, the so-called morbidity, mobility, and prepayment events when payments became due for borrowers and investors received their principal and interest payments. The burden on issuers and subservicers is especially important as the unscheduled payment timeline of HECM loans determines when issuers and investors receive payments and reimbursement on their advances and investments, respectively.

Because borrowers did not make monthly payments on principal and interest, issuers and subservicers were required to calculate and account for the state of their HMBS pools monthly. Although the calculations were long term, given the negatively amortizing nature of HMBS, issuers have to closely monitor and manage accruals and be ready should HECM loans become due and payable. Issuers also were required to simultaneously fund out-of-pocket draws to ensure borrowers received their liquidated housing wealth payments while passing through monthly MIPs and guaranty fees to FHA and Ginnie Mae, respectively (Ginnie Mae, 2015a). As a consequence, each of these payments required effective accounting. Errors in tabulations risked issuer default through portfolio mismanagement, which, consequently, threatened the fiscal soundness of the HMBS program and also Ginnie Mae. Thus, issuers were required to be diligent in their accounting for their outstanding HMBS pools and related participations. For oversight, accounting developments were reported to Ginnie Mae for monitoring and risk assessment (Ginnie Mae, 2011e).

As evidenced, issuers and subservicers were crucial to the success of the HMBS program. Their role did not stop here, however; it extended beyond pooling and the accounting for HMBS pools. Perhaps most important in the life of a HECM-backed security, when a HECM loan became due and payable, the issuer was to repurchase all participations related to that loan. Buyouts of participations from the HMBS pools ensured investors received their principal and interest payments; however, it involved financial uncertainty from the issuer's perspective. As issuers advanced funds to buy out the participations, they were unsure if they would be adequately reimbursed in a timely fashion. Such requirements for issuers to fund borrower advances and buy out participations explained why Ginnie Mae mandated higher net worth requirements for HMBS issuers compared with single-family (SF) counterparts[22] (Ginnie Mae, 2011a). Being an HMBS issuer is cash intensive. Because of servicing requirements, for issuers to be financially sustainable they must have had enough

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[21] Should Ginnie Mae determine an issuer default has occurred, it must take over the portfolio from the defaulted issuer unless another issuer acquires the defaulted pools. This takeover can result in significant expenditure of financial resources.

[22] For the HMBS program, an issuer must have a minimum net worth of $5,000,000 compared with $2,500,000 for SF MBS issuers (Ginnie Mae, 2011a, 2010, 2008).

capital to fund borrower advances and execute buyouts. They also must be reimbursed in the event of borrower default or crossover risk. The assignment option adapted from the HECM insurance program to the HMBS program provides issuers and investors added assurance.

The assignment option feature was not found in conventional reverse mortgages (Szymanoski, Enriquez, and DiVenti, 2007). With accruals on HECM loans stopping only when maturity and prepayment occurred, lenders typically suffered losses, without insurance, in the event of borrower nonrepayment. Should the HECM loan's debt grow to a point at which it exceeded the value of the property, crossover risk—inherent to these loans—necessitated the option for lenders to assign the loan to FHA when the total loan balance was equal to or greater than 98 percent of the MCA. When this occurred, lenders assigned the loan to FHA, whereby HUD assumed all responsibilities in servicing the loan going forward. After the loan was assigned to FHA, lenders received an insurance claim equal to the loan balance up to the MCA (Szymanoski, Enriquez, and DiVenti, 2007). Such assignment was important as the HECM loan actually became terminated—due to the borrower's death, move out, default, or refinancing—after assignment to FHA.

The MCA assignment, at or greater than 98 percent of the HECM MCA, was vitally important to the HMBS program.[23] Enabled by the sale of loans by primary market lenders, Ginnie Mae mandated HMBS issuers to assign these loans to FHA. After the assignment was triggered, the "Mandatory Purchase Event" required issuers to purchase all participations from the nearly full MCA HECM loan (Ginnie Mae, 2011b). If loans became successfully assigned to FHA, the issuers received mortgage insurance claim payments, providing reimbursement on their advancement of funds to liquidate the participations from HMBS pools (Ginnie Mae, 2011b). In addition, the Mandatory Purchase Event also provided HMBS investors with enhanced payment predictability because, from their perspective, the loan had terminated, given its payout funded by the issuer (Ginnie Mae, 2015a). The MCA assignment rule also ensured issuers only pool participations from insured FHA loans (Ginnie Mae, 2015a).

Assignment was not a cure-all for issuer concerns about cost recovery for funds advanced to purchase participations from the HMBS pools. If the HECM loan was ineligible for assignment to FHA, then the issuer did not receive compensation from FHA. Being unassignable due to borrower default, issuers had to either hold onto the loan until maturity or sell the loan to another FHA lender-servicer (CFPB, 2012). In such instances, the issuer was able to recover some of its investment through the foreclosure process and then would file an insurance claim with the HECM insurance program for up to the MCA of the remaining debt. With crossover risk growing as the issuer held the loan, issuers were in a difficult situation in continuing to service loans, especially because the time spent servicing participations only increased their costs. As a result, the issuers bore these risks to encourage continued investment in the HMBS program and continued liquidity in this secondary market.

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[23] The payment scenarios for HECM were publicly reported in late 2007 to have a 90-percent frequency of borrowers paying the balance of their mortgage balance through home sale, refinancing, or other sources of funds: 9 percent of HECM loans being successfully assigned to FHA and 100 percent of outstanding accrued balance being paid off and 1 percent of HECM loans having FHA issuing insurance claims when proceeds from home sales are less than the funded balance (Burch, 2007).

Another innovative source of liquidity into the secondary HECM market came from HMBS eligibility to be resecuritized into real estate mortgage investment conduits (REMICs). Since 2008, Ginnie Mae allowed HMBS to serve as collateral in REMICs. HMBS REMICs (HREMICs) were HMBS repackaged into multiclass structures with similar groupings, whether principal balances, interest rates, average lives, prepayment characteristics, or final maturities. HREMICs were important because they provided further liquidity to the secondary reverse mortgage market by allowing various investors with different investment horizons, risk-reward preferences, and asset-liability requirements to invest in financial products uniquely suited for their portfolio needs.

As illustrated in exhibit 6, the HREMIC issuance contributed significantly in channeling capital into HECM, even exceeding in some months regular HMBS issuance. The HREMICs components were largely grouped into passthrough and interest-only structures with sequential[24] structures being historically employed to a lesser extent. Classes included both fixed-interest rate and adjustable-interest rate floater structures. Through strategic groupings of these classes, HREMICs gave investors the ability to target their investments into substituent[25] structures. Investors leveraged their investments with the purpose of exceeding returns in components rather than in broader and less-specified HMBS pools of participations. The customization of HMBS into HREMIC structures underscored Ginnie Mae's innovative contribution to the HMBS program in furthering investor specificity with increased capital flow into HECM. The resulting increased liquidity from HREMICs allowed senior homeowners to access lower-cost financing when accessing equity in their homes through HECM.

Exhibit 6

HMBS and HREMIC Monthly Issuance, March 2014–December 2016
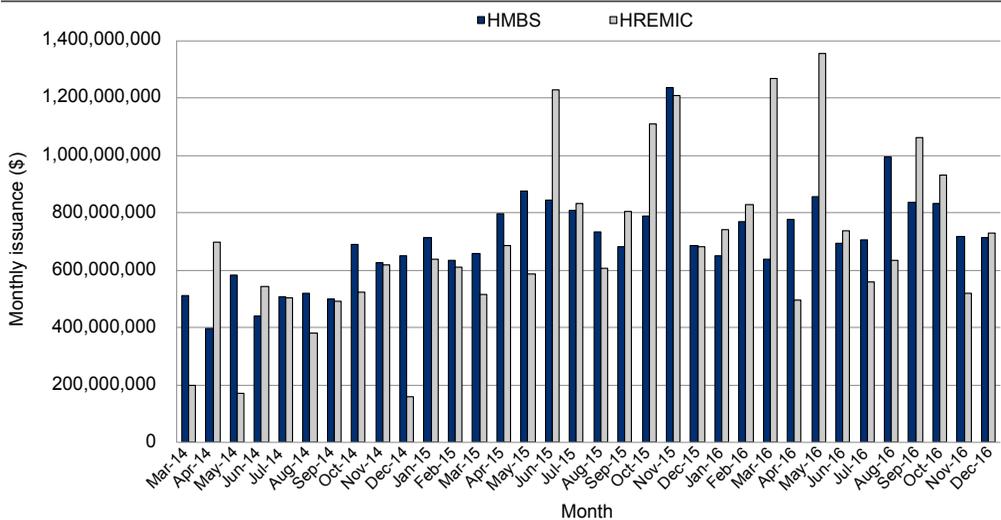
HMBS = HECM (Home Equity Conversion Mortgage) mortgage-backed securities. HREMIC = HMBS real estate mortgage investment conduits.
Source: Ginnie Mae (2017)

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[24] The HSEQ breaks up different payment streams into levels of seniority and subordination, which enables investors to tailor their HREMIC investment to assorted time horizons and repayment levels.

[25] The substituent groupings are classes of specified, alike collateral pooled into HREMIC products.

Assessing Future Challenges for the HMBS Program

The HMBS program achieved much success in securitizing HECM loans and providing liquidity to the market of reverse mortgage products. Exhibit 7 shows that hundreds of millions of dollars of HECM loans were securitized in HMBS every month. The success was a testament to Ginnie Mae's ability to resolve numerous issues through several programmatic innovations to HMBS. The result was the development of a new secondary reverse mortgage market worth close to $64 billion that did not exist less than a decade ago. Despite accomplishments in facilitating access to affordable financing for many senior homeowners seeking to access their housing wealth, challenges persisted in ensuring that continued liquidity provided through HMBS to HECM existed.

The HMBS program posed disproportionate risk despite its small share of Ginnie Mae's overall MBS-guaranteed portfolio. Although the HMBS portfolio had experienced steady growth since its inception to comprise more than 333,000 loans, recent month-to-month growth and issuance has started to slow (Ginnie Mae, 2015b; Oliva, 2016). This concerning trend of slowing portfolio growth could be attributed to impending maturities for the HECM loan bulge, coming from the demand surge following the Great Recession, approaching the Mandatory Purchase Event threshold for assignment of loans to FHA. In FY 2015, HMBS buyouts approached close to $2.75 billion, significantly higher than the voluntary, partial, and other payments in previous years (Ginnie Mae, 2015b; Oliva, 2016). HMBS participation liquidation rate concurrently reached its highest point in the program's history, registering close to 15.2 percent in August 2015 (Ginnie Mae, 2015b; Oliva, 2016). The figures may indicate possible headwinds, with forthcoming projections estimating a

Exhibit 7

HMBS Monthly Issuance, September 2011–January 2016
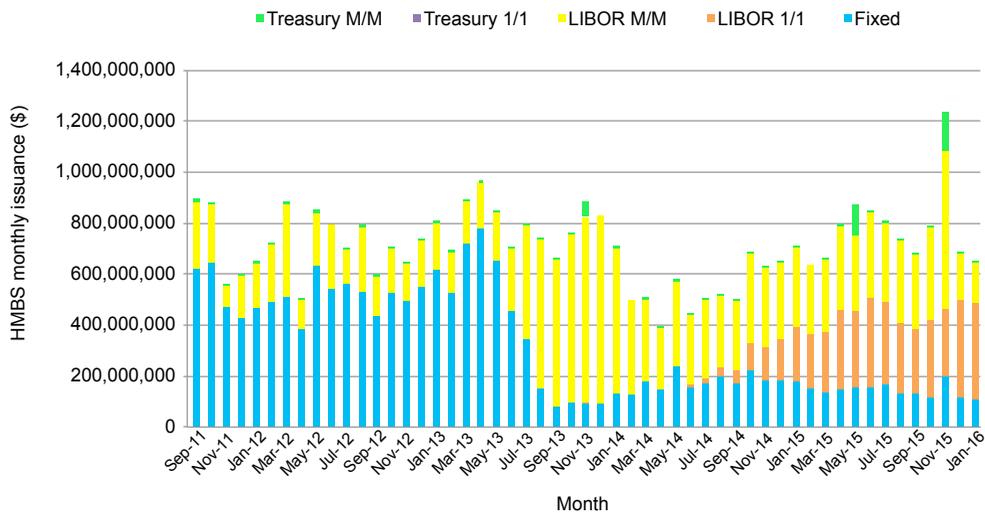
1/1 = Annual Index. HMBS = HECM (Home Equity Conversion Mortgage) mortgage-backed securities. LIBOR = London Interbank Offered Rate. M/M = Monthly Index.
Source: Ginnie Mae (2016)

growth in Mandatory Purchase Events from 2016 to 2018. Such projections indicated the potential for $32.6 billion in unpaid principal balance to be bought out by issuers from calendar years 2016 to 2020 (Ginnie Mae, 2015b; Oliva, 2016).

The slowdown in HMBS portfolio growth also reflected FHA's recent changes to the HECM insurance program to advance its financial soundness. In the institution of programmatic changes to promote HECM's long-term fiscal solvency in the MMI Fund, the trend toward increased modifications and refinements resulted in reduced borrower demand. For example, reverse mortgage industry analysts recently assessed the financial assessment requirement for prospective HECM borrowers to "certainly reduce loan volume for the foreseeable future" (New View Advisors, 2015: 1). As such, the transition to foster increased fiscal viability for the HECM insurance program may have reduced borrower demand. Such changes ultimately had the potential to hurt production. It is likely that the resulting reduced borrower demand places increased strain on issuers in incentivizing servicing for HMBS. Such stress on HMBS servicing risked fewer issuers in the secondary market and could have impeded investment in these securities. In the event the analysts' assessments come to fruition, liquidity to the securitized HECM market could be significantly reduced.

Regulatory uncertainty in the primary market has been a key risk to the stability of the HMBS program. As a consequence, policy uncertainty has contributed to HMBS issuers leaving the market. Multiple HMBS issuers specifically have exited due to declining incentives.[26] Many exiting issuers were market leaders who significantly invested in becoming successful at the unique terms of HMBS servicing and embraced their cash-intensive role in advancing funds for borrower draws and participation buyouts. Yet, issuers have been overburdened in executing their HMBS duties in an environment of uncertainty. Despite the surge in availability of HECM portfolios from exited issuers, however, they have been transferred successfully to other issuers. Such transfers highlighted the resilience of HMBS issuers in confronting such risks and continuing their essential role in contributing to the success of the HMBS program. Nonetheless, these trends also risked further concentration of the HMBS issuer base.

The concentration of HMBS issuers has long stemmed from the product's being niche, notably so compared with forward MBS. Capital requirements to fund the Mandatory Purchase Event buyouts, however, have contributed to limiting increased issuer participation. The issuer concentration, combined with reduced demand, explains why the HMBS issuer market had few new entrants. Exhibit 8 shows that only 5 of the 17 total HMBS issuers made up close to 80 percent of the total monthly issuance in 2015 compared with 28 of the 328 total SF MBS issuers with the same 80 percent of similar market share. In addition, only 9 HMBS issuers were active in securitizing new originations. These numbers show a marked improvement since 2012, when only 5 issuers were actively securitizing new participations (CFPB, 2012); however, such high concentration was cause for concern.

Should the two aforementioned trends of increasing loans reaching the Mandatory Purchase Event and regulatory uncertainty continue, the overall financial sustainability of HECM could be

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[26] The number of HMBS issuers buying loans and bundling securities shrank considerably with the departure of Wells Fargo & Company, Bank of America Corporation, and Financial Freedom in 2011 and MetLife, Inc., in 2012 (CFPB, 2012).

Exhibit 8

Ginnie Mae Single-Family MBS and HMBS Issuer Outstanding Issuance Market Share, December 2014–January 2016

Ginnie Mae Single-Family MBS Issuer	Market Share (%)	Ginnie Mae HMBS Issuer	Market Share (%)
Wells Fargo Bank, N.A.	26.59	Nationstar Mortgage, LLC	25.54
J.P. Morgan Chase Bank, N.A.	8.68	Reverse Mortgage Solutions, Inc.	15.29
Pennymac Loan Services, LLC	5.00	Urban Financial of America, LLC	12.93
Bank of America, N.A.	4.74	Wells Fargo Bank, N.A.	12.00
Nationstar Mortgage, LLC	3.97	American Advisors Group, Inc.	7.40
U.S. Bank, N.A.	3.91	Reverse Mortgage Funding, LLC	6.95
Freedom Mortgage Corporation	2.80	Live Well Financial, Inc.	4.12
Lakeview Loan Servicing, LLC	2.72	Bank of America, N.A.	3.47
Quicken Loans Inc.	2.61	Liberty Home Equity Solutions	3.45
Ocwen Loan Servicing, LLC	1.58	Generation Mortgage Company	2.97
USAA Federal Savings Bank	1.56	Finance of America Reverse, LLC	2.86
Carrington Mortgage Services	1.52	Onewest Bank, N.A.	1.07
PHH Mortgage Corporation	1.32	Sunwest Mortgage Company, Inc.	0.98
Branch Banking and Trust Company	1.27	Plaza Home Mortgage, Inc.	0.74
Pingora Loan Servicing, LLC	1.14	CIT Bank, N.A.	0.19
Ditech Financial, LLC	1.13	Silvergate Bank	0.04
Suntrust Mortgage, Inc.	1.12	Cherry Creek Mortgage Co., Inc.	0.02
Outstanding Issuance Average	$1,470,657,789,781	Outstanding Issuance Average	$63,279,623,283

HMBS = HECM (Home Equity Conversion Mortgage) mortgage-backed securities. MBS = mortgage-backed securities.

endangered.[27] The unsustainability could occur through additional HMBS issuer exits or—worse—through homeowners' defaults.[28] The risk is especially relevant in the current post-recession paradigm in which "too big to fail" is an often-invoked concern.

New entrants of successful HMBS issuers could help reduce the high concentration. Yet, obstacles exist for both current and potential issuers that discourage entities from becoming HMBS issuers, aside from those already discussed. Exhibit 9 shows that, among the six issuers that operated in both the SF and HECM MBS space, only one is more specialized in the reverse portfolio compared with the SF portfolio. The concentration not only underscores the specialized nature of the HMBS environment, but it also illustrates the magnitude of incentives involved in participating in the SF versus HMBS issuer market.

[27] An additional overall trend is the increase in nonbank institutions as issuers. Issuer concentration in the HMBS program has also been accompanied by a similar trend mirrored in the overall MBS market. The increase in the share of nonbank institutions as Ginnie Mae issuers is relevant to HMBS as well. As a consequence, Ginnie Mae has instituted capital requirements for nondepository institutions, such as nonbanks and credit unions, requiring a total assets ratio of 6 percent or greater compared with 10 percent or greater of total assets for depository institutions, such as banks and thrifts (Ginnie Mae, 2011e).

[28] In the case of major issuer default, very few issuers would take on subservicing. Ginnie Mae master subservicers potentially would conduct such servicing.

Exhibit 9

Ginnie Mae Issuance by Unpaid Principal Balance for Issuers of HMBS and SF MBS, December 2014–January 2016

Ginnie Mae Issuer	HMBS ($)	SF MBS ($)
Nationstar Mortgage LLC	16,162,974,289	58,385,989,654
Wells Fargo Bank, N.A.	4,396,764,866	391,118,634,380
Live Well Financial, Inc.	2,181,471,638	23,132,714
Bank of America, N.A.	1,880,234,859	69,731,451,402
Plaza Home Mortgage, Inc.	116,857,788	6,996,301,929
Cherry Creek Mortgage Co., Inc.	14,183,564	226,714,629

HMBS = HECM (Home Equity Conversion Mortgage) mortgage-backed securities. MBS = mortgage-backed securities. SF = single family.

Why participate as a specialized HMBS issuer, especially when the likelihood of managing a bigger portfolio rests within the SF MBS? This quintessential question is one a prospective issuer may ask when deciding whether to join either market. The question emphasizes the fundamental dilemma in expanding the HMBS issuer base. Certainly the portfolio ranges of each market could influence a prospective issuer when comparing the $1.47 trillion SF market with the $63.3 billion HMBS market. Further, perhaps issuers would prefer to participate in a more certain SF regulatory environment than in HECM, with uncertain regulatory changes potentially on the horizon. Yet, an issuer may view specialization in HMBS as potentially more profitable for business, given the limited number of competitors. Despite the above conjectures, these observations highlight the need for increased confidence in the HMBS program among investors, issuers, subservicers, lenders, and borrowers alike.

To adapt the program to mitigate such risks, HMBS may require additional programmatic innovations. In addition to promoting greater certainty in the secondary market to potential primary market policy changes, further adaptations may require mitigating strain in the HMBS issuer base and continuing to fortify and further diversify investment into HECM.[29] Potential ways to consider strengthening the HMBS program regarding these challenges could include expanding the HMBS issuer base by incentivizing current SF issuers to successfully expand into HMBS. On the other hand, it could also involve redesigning the HMBS structure to more equitably fund borrower advances from sources other than issuers. A funding redesign could also reexamine the conventional securitization approach with prefunded cash accounts embedded in proprietary reverse mortgage products. Moreover, further streamlining FHA insurance payments could also limit risks posed by systemic issuer failure in the event of possible increases of 98 percent MCA assignments to FHA.

Advancing Financial Sustainability for HECM

The Great Recession underscored the importance of HECM as a last resort to support the continued lifestyles of senior homeowners. It also demonstrated the significance of the HECM insurance program in balancing its mission with the need to advance fiscal soundness and ensure the health of the MMI Fund.

[29] In a recent interview, FHA's Principal Deputy Assistant Secretary Ed Golding echoed further diversifying HMBS investment: "One area I would like to explore is whether we can expand the number of investors that finance reverse mortgages. It's not always a natural product to go into Ginnie Mae securities. Ginnie Mae has done a great job of providing financing and it will continue to do so, but it would be beneficial to have a diversified investor base" (Hicks, 2015: 1).

The programmatic changes made by FHA sought to promote sound lending practices and ensure the viability of the program. As a result, the HECM insurance program sought to reduce borrower reliance on loans as a crisis management tool and implemented program changes to limit borrower defaults. FHA's program modifications occurred specifically through restructured HECM loan products, resulting in encouraging smaller initial borrower draws, minimizing defaults due to negligence in the payment of tax and insurance fees on the property, and ensuring borrowers have the ability to meet loan obligations through the financial assessment. Reforms to the HECM insurance program seek to secure the ability of borrowers to age in place while advancing fiscal soundness for the MMI Fund.

At the same time, Ginnie Mae's HMBS program innovatively expanded and modernized access to affordable HECM financing for senior homeowners. Through several breakthroughs in HECM loan securitization, including but not limited to the participations model and resecuritization through the HREMIC, Ginnie Mae provided much needed liquidity through the facilitation of global capital into HECM. The changes resulted in the ability of senior borrowers to more affordably access their housing wealth with lower-cost financing on their HECM loans. Despite such remarkable progress in less than a decade, however, challenges remain in further strengthening the HMBS program and expanding issuer, subservicer, and investor participation. Strengthening the development of the nascent secondary mortgage market remains unaddressed by regulatory changes in the primary market. Only when these challenges are addressed can the HMBS program achieve further success in promoting the financial sustainability for HECM.

As the United States experiences an increase in life expectancy and population aging persists as a profound demographic trend for the country, HECM will continue to be an important source of funding for senior homeowners seeking to access their housing wealth and age in place.[30] HECM will continue to serve its essential role as a supplement to income for people of advanced age seeking alternative ways to maintain their standard of living through advancing the financial sustainability of the HECM insurance and HMBS programs.

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[30] Many senior Americans have lived for decades in the same house. In a national survey in 2011, nearly one-half of Americans ages 65 to 79 had remained in their homes for 20 years or more. More than three in five Americans age 80 or older had aged in place with their existing housing arrangement for at least 20 years (JCHS, 2014).

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Reverse Mortgage Motivations and Outcomes: Insights From Survey Data

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Abstract

The primary goal of this article is to inform assumptions used by researchers and policy-makers to model the demand for and takeup of reverse mortgages. Our article describes the characteristics of more than 1,700 households that sought counseling for a reverse mortgage between 2006 and 2011; of those households, 74 percent obtained a reverse mortgage. Using data collected at the time of counseling and also followup survey data collected in 2014, we summarize self-reported motivations for seeking a reverse mort-gage, including reasons for not getting a reverse mortgage, if applicable. We also compare the characteristics of households that seek reverse mortgages with the general popula-tion of senior homeowners using the 2008, 2010, and 2014 waves of the Health and Retirement Study. A final goal of the article is to compare selected outcomes of reverse mortgage borrowers with outcomes in the general population of senior homeowners.

Introduction

Equity in a home can serve as an important source of supplemental income in retirement. Indeed, home equity makes up a substantial portion of wealth for senior households. Approximately 79 percent of households age 65 or older owned a home as of the beginning of 2016 (U.S. Census Bureau, 2016) and equity in owner-occupied homes comprises a major source of wealth for most seniors (CFPB, 2012; Sinai and Souleles, 2008). As of 2013, the average senior in the United States had about $200,000 in net equity (Rosnick and Baker, 2014). Homeowners may not be willing to sell their homes to access the equity, however, and may be unwilling or unable to make additional payments that are required to borrow equity from their home using traditional mortgage products.

Reverse mortgages are designed to address this tradeoff by allowing seniors to draw down equity without selling their home and without incurring a monthly mortgage payment. The reverse mortgage loan and the accumulated interest is repaid when the individual dies, moves out of the home, sells the home, or is foreclosed upon due to unpaid property taxes and homeowner's insurance, which remain the obligation of the borrower. The most widely used reverse mortgage product is offered by the Federal Housing Administration's Home Equity Conversion Mortgage (HECM) program, first initiated in the Housing and Community Development Act of 1987.[1]

Since program inception through 2015, nearly 1 million HECMs have been originated, more than 80 percent since fiscal year (FY) 2006, with peak volume in FY 2009 (Haurin et al., 2016; NRMLA, 2016). Although only about 2 percent of seniors currently hold reverse mortgages, the demand for reverse mortgages has been projected to grow as the baby boomer generation enters retirement with low levels of assets outside the equity in their homes (Munnell and Sass, 2014; Nakajima and Telyukova, 2014; Sacks and Sacks, 2012; Salter, Pfeiffer, and Evensky, 2012). Projections of demand rely on assumptions about seniors' perceptions of reverse mortgages and anticipated uses of extracted equity. For example, to the extent that seniors use reverse mortgages to pay off forward mortgage debt, an increase in the proportion of seniors entering retirement with mortgage debt could lead to increased demand for reverse mortgages.[2]

A primary goal of this article is to inform assumptions that researchers and policymakers can use to model demand for and takeup of HECMs. Given the small size of the market, previous research on the characteristics of reverse mortgage borrowers and their motivations for seeking reverse mortgages is limited. Studies estimating potential demand generally rely on survey data of the senior population (Mayer and Simons, 1994: Nakajima and Telyukova, 2014). A few early descriptive studies examined the differences between seniors obtaining reverse mortgages and seniors in the general population (for example, Redfoot, Scholen, and Brown, 2007; Rodda, Herbert, and Lam, 2000).

Since the time of these studies, substantial policy changes have occurred to the HECM product and also changes have occurred in the macroeconomic environment. Our article updates and expands previous literature by describing the characteristics of more than 1,700 households that sought counseling for a reverse mortgage between 2006 and 2011; of those households, 74 percent obtained a reverse mortgage. Using survey data collected as part of the Aging in Place (AIP) study, we summarize self-reported motivations for seeking a reverse mortgage, including reasons for not getting a reverse mortgage, if applicable. Respondents also indicate the extent to which particular individuals influenced their decision, including their experiences with reverse mortgage professionals (for example, counselors and lenders).

We also consider how households that seek reverse mortgages compare with the general population of senior homeowners. We supplement the AIP data with data collected during the reverse mortgage counseling session, including household financial and demographic characteristics.

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[1] Pub. L. 100-242, 101 Stat. 1015.

[2] In an analysis of U.S. census data, the Consumer Financial Protection Bureau noted that the percentage of homeowners ages 65 and older carrying mortgage debt increased from 22 to 30 percent (3.8 to 6.1 million) from 2001 to 2011. Additional data from the Federal Reserve show that consumers older than age 75 had the greatest increase during this period. The proportion of consumers ages 75 and older with mortgage debt more than doubled, from 8.4 to 21.2 percent (CFPB, 2014).

Data on seniors in the general population are drawn from the 2008, 2010, and 2014 waves of the Health and Retirement Study (HRS), administered by the University of Michigan, with funding from the National Institute on Aging and the Social Security Administration.

A secondary goal of this article is to explore outcomes of reverse mortgage borrowers, comparing indicators of financial and overall well-being for reverse mortgage borrowers relative to the general population of senior homeowners. The policy intent of the HECM program is to improve the financial stability of seniors by providing a way to "supplement Social Security, meet unexpected medical expenses and make home improvements" (HUD, 2016); however, limited data exist on longer-term outcomes of reverse mortgage borrowers. Thus far, the only long-term outcomes models have been prepayments and terminations (for example, Rodda, Herbert, and Lam, 2000; Szymanoski, Enriquez, and DiVenti, 2007) and tax and insurance default (Moulton, Haurin, and Shi, 2015). Through the AIP survey, ours is the first study to directly measure indicators of well-being for reverse mortgage borrowers for 4 to 7 years after obtaining the loans. When similar indicators are available in the HRS, we compare the outcomes of seniors who sought and obtained (and did not obtain) reverse mortgages with seniors in the general population.

Previous Literature on Reverse Mortgages

Several streams of previous literature inform this study. To inform assumptions about who takes up a reverse mortgage, we review studies estimating demand for reverse mortgages, including theoretical models based on assumptions about factors that may affect demand. More related to our current study, we also review descriptive summaries of reverse mortgage borrower demographics in comparison with the general population. Finally, we consider analyses of the takeup rate of reverse mortgages. With regard to reverse mortgage borrower outcomes, the previous literature is limited. Here, we summarize the findings from studies modeling loan outcomes of HECMs, including withdrawals, terminations, and defaults and also previous survey data documenting reverse mortgage borrower experiences.

A series of early studies estimated the potential demand for reverse mortgages (Mayer and Simons, 1994; Merrill, Finkel, and Kutty, 1994; Rasmussen, Megbolugbe, and Morgan, 1995; Venti and Wise, 1991). Using national survey data, these studies based their estimates on the proportion of senior homeowners in the population with sufficient home equity to originate a reverse mortgage. In an analysis of 1990 U.S. census data, Rasmussen, Megbolugbe, and Morgan (1995) estimated that as many as 6.7 million senior households—approximately 80 percent of senior homeowners—had sufficient equity to qualify for a reverse mortgage, creating a large potential market. Beyond sufficient equity, other estimates of the potential demand for reverse mortgages were based on assuming the demand for reverse mortgages would be greater among seniors for whom home equity release would translate into a larger share of their income, including lower-income homeowners, single female-headed households, and older homeowners who have drawn down other nonhousing assets (Mayer and Simons, 1994; Merrill, Finkel, and Kutty, 1994). Using 1990 Survey of Income and Program Participation (SIPP) data, Mayer and Simons (1994) estimated that nearly one in four seniors could increase their monthly income by 25 percent or more from a reverse mortgage. Merrill, Finkel, and Kutty (1994) estimated that demand for reverse mortgages would be greater in the Northeast United States and in California, where a higher share of seniors with low incomes and sufficient equity live.

Uncertainty exists, however, regarding the extent to which seniors are willing to liquidate home equity for consumption. Previous studies indicate that senior homeowners extract equity only in response to shocks, such as the death of a spouse, a medical event, or an unexpected retirement, rather than for supplementing current consumption (Venti and Wise, 2004, 1991, 1989). In a study using 1984 SIPP data, Venti and Wise (1991) found that households do not reduce liquid wealth as home equity increases. They thus suggested that demand for reverse mortgages would be low for most households, although demand would be higher for lower-income and single households and would be higher when the reverse mortgage is structured as a lump sum rather than an annuity.

Nakajima and Telyukova (2014) more recently developed a theoretical model of HECM demand, incorporating the decision to own or rent, the decision to sell the home or extract equity, and, finally, the decision to extract equity through a reverse mortgage. Their structural model incorporates assumptions about income, assets, and net worth and also individual preferences, including bequest and precautionary motives and idiosyncratic shocks to health, finances, and house prices, based on profiles of seniors in the HRS. In line with previous studies, their simulations indicated that takeup of reverse mortgages would be strongest among those seniors with low incomes and low levels of nonhousing wealth. They also predicted that those who use reverse mortgages would be more likely to have previous mortgages, have poorer health than the general population of seniors, and would use reverse mortgages to fund large medical expenditures and also general consumption.[3] They estimated that bequest motives dampen demand for reverse mortgages. Although the simulated takeup rates based on their theoretical model approximate the takeup rates for HECMs in the general population, their estimates do not use actual data on households with reverse mortgages.

A second group of studies examined reverse mortgage borrower demographics. A few unpublished reports compared reverse mortgage borrowers with the general population of seniors (Bishop and Shan, 2008; Redfoot, Scholen, and Brown, 2007; Rodda, Herbert, and Lam, 2000).[4] According to these reports, HECM borrowers tended to be older (although more recent reports indicate that the average age declined from 76 years of age in 2000 to 73.5 years of age in 2006), single female-headed households, and slightly more likely to be Black. In terms of finances, HECM borrowers tended to have higher-valued homes and higher amounts of home equity than did seniors in the general population.[5] As expected, they tended to have lower incomes than the general population, about 40 percent lower than the median income for other seniors. They also tended to be better educated than the general population, perhaps because those with education are more likely to

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[3] Their model predicts a takeup rate of 10.8 percent among seniors with a mortgage compared with 0.01 percent for those with no mortgage debt and a takeup rate of 2.2 percent for those in poor health compared with 1.2 percent for those who rate their health as excellent.

[4] An early evaluation of the HECM program for HUD (Rodda, Herbert, and Lam, 2000) compared the characteristics of HECM borrowers originating loans through 1999 with data on seniors in the general population using data from the American Housing Survey (AHS). In 2007, AARP conducted a study of seniors counseled for a reverse mortgage through 2006. As part of that study, they provided comparisons of particular demographic characteristics to seniors in the general population using U.S. census data (Redfoot, Scholen, and Brown, 2007).

[5] Household financial characteristics, such as income and debt, were not consistently reported in the HECM loan data at the time of their evaluation and thus were excluded from comparisons relying strictly on HUD HECM data (Bishop and Shan, 2008; Rodda, Herbert, and Lam, 2000).

be aware of reverse mortgages (Redfoot, Scholen, and Brown, 2007). Although informative, these descriptive analyses were conducted early in the HECM program's evolution, before many of the substantial policy changes to the program and the peak in HECM volume in 2009. One contribution of our study is to update these comparisons with more recent data on HECM borrowers.

A third group of studies empirically models the takeup of reverse mortgages and characteristics associated with takeup. Given the lack of demographic and financial attributes in the HECM data set, such studies regressed takeup rates at the ZIP Code level (Shan, 2011) or state level (Haurin et al., 2016) on a vector of geographic-specific attributes, such as house price dynamics, credit conditions, and demographic characteristics. Using ZIP Code-level data from 1989 to 2007, Shan (2011) found that takeup rates were higher in ZIP Codes with higher percentages of Black and Hispanic residents, educational attainment, and house values but were lower in areas with high credit scores and median income. All characteristics were measured for the general population, not just for seniors.

Haurin et al. (2016) used data aggregated to the state level and compared HECM borrowers with other seniors in the state who were age 62 or older. They found that intertemporal and spatial variations in takeup rates were higher in states with real house prices substantially more than their long-term average and a history of large variations in house prices. Their interpretation of this finding is that some seniors used HECMs as a means to insure against house price depreciation, especially following the house price boom in the early and mid-2000s. Other results included a higher takeup rate for states with a larger proportion of Hispanic residents, greater house values, and more seniors with a mortgage but a lower takeup rate for states with a higher percentage of seniors with a past-due mortgage. Although aggregate analysis of HECM borrowing is useful for identifying trends and the importance of macro-level dynamics such as house prices and interest rates, these studies lack information about individual-level preferences regarding the reverse mortgage product.

In 2007, AARP conducted a survey of households that were counseled for a reverse mortgage from 2001 to 2006 (Redfoot, Scholen, and Brown, 2007). When asked about their motives for seeking a reverse mortgage, most households reported a desire to be prepared for unexpected expenses and/or generally improve the quality of their lives. About one-half reported the need for funds to cover everyday expenses, with a similar proportion reporting a need to cover expenses related to home repairs or maintenance, and 40 percent reporting a desire to pay off an existing mortgage. About 25 percent of respondents mentioned health or disability, paying off nonmortgage debt, and property taxes and insurance as motives. Only 13 percent reported investments, annuities, or long-term care insurance as motives, and only 4 percent reported using reverse mortgage funds for these purposes. The emphasis on current consumption is noteworthy, given a recent stream of literature in financial planning that promotes the use of reverse mortgages as a standby line of credit or as a strategy to delay draws from other retirement assets (Pfeiffer, Schaal, and Salter, 2014; Sacks and Sacks, 2012; Salter, Pfeiffer, and Evensky, 2012).

Knowledge and perceptions of reverse mortgages in the general population also influence takeup of reverse mortgages. In a 2013 survey of a random sample of seniors in the United States, Davidoff, Gerhard, and Post (2015) found that accurate knowledge of reverse mortgage contract terms is significantly associated with the intent to take out a reverse mortgage in the future. Although

most seniors correctly understood that a reverse mortgage allowed borrowers to access the equity in their homes, fewer than one-half of respondents could correctly answer 6 out of 13 questions about reverse mortgage contract terms. For example, two-thirds of respondents did not know that HECMs are structured as nonrecourse loans and only about one-half understood that they would not have to move out of the home if the loan balance grew larger than the home's value. Further, most respondents were unable to accurately estimate the costs associated with the reverse mortgage; most either indicated they "don't know" or overestimated the costs.

High costs are often noted as a factor for low takeup of reverse mortgages (Redfoot, Scholen, and Brown, 2007). Simulations based on actual loan data suggest that HECMs may be favorably priced to the benefit of the borrower, particularly if borrowers behave strategically and take advantage of the "put option" by withdrawing all equity on the credit line immediately before loan termination (Davidoff, 2015). This sort of strategic behavior, however, requires a high level of financial sophistication and the motivation to use HECMs as part of a longer-term financial planning strategy. In an analysis of loans originated through 2011, Davidoff (2015) and Davidoff and Wetzel (2014) documented that most borrowers do not appear to exercise the put option embedded in the HECM contract.[6] Our survey helps inform the current understanding of reverse mortgage borrower behaviors by including questions about motivations for taking out or deciding against a HECM, in addition to asking questions about financial literacy, risk aversion, and planning preferences.

The fourth group of studies, which provide research findings on reverse mortgage outcomes, is sparse. Only the AARP study has examined how reverse mortgages affect longer-term outcomes, based on survey responses for 807 reverse mortgage borrowers who received reverse mortgage counseling between 2001 and 2006 (Redfoot, Scholen, and Brown, 2007). This descriptive study reported overwhelmingly positive outcomes. More than 90 percent of respondents thought that the reverse mortgage had mostly positive effects on their lives: it provided peace of mind, a more comfortable lifestyle, and improved quality of life, and it enabled them to stay in their homes. Although this study provides insights into the perceptions of reverse mortgage borrowers in the first few years after loan origination, the sample is based on households surveyed within 2 years (on average) of the receipt of the reverse mortgage.[7] Further, the study does not attempt to compare measures of well-being with seniors in the general population. By contrast, the AIP survey includes borrowers up to 7 years after loan origination and compares reverse mortgage borrowers' outcomes with the outcomes of seniors in the general population on an array of attributes.

Aside from drawing insights from survey data, insights on reverse mortgage borrower outcomes can be drawn from a small number of empirical studies of loan outcomes that examine reverse mortgage terminations, loan assignment to HUD, and default. Loan termination is a terminal outcome for a reverse mortgage that is most often initiated when all borrowers die or move out of the property. Reverse mortgage lenders can also initiate termination if a borrower fails to maintain the obligations of his or her loan, including paying property taxes and homeowner's insurance.

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[6] To exercise the put option, borrowers would originate a line of credit and extract remaining equity on the line of credit immediately before termination of the reverse mortgage, leaving no residual equity on the loan (and thus "putting" the property to HUD).

[7] For the AARP study, most respondents were surveyed within 1 year after receiving the reverse mortgage and 90 percent were surveyed within 3 years after obtaining the reverse mortgage.

In an early study, Rodda, Lam, and Youn (2004) modeled terminations using 1990-to-2000 data and found that significant explanatory variables included the borrower's age, income at the time of origin, gender, presence of a co-borrower, house price growth, and the spread between 30-year and 1-year Treasury bills. Not significant was the amount of the borrower's assets or home equity at the time of origination. Szymanoski, Enriquez, and DiVenti (2007), who also summarized the previous literature on terminations, reported the hazard rates of termination by the borrower's age (noting that the termination rate is greater than the mortality rate) and the type of borrower (couple or gender if single). A study by Moulton, Haurin, and Shi (2015) identified factors associated with reverse mortgage default, including large upfront withdrawals from the HECM, lower initial credit scores, high property taxes relative to income, low levels of available revolving credit, and a prior history of delinquency on the mortgage or property taxes.[8]

Some researchers have theorized that seniors who select into HECMs would be those who were more likely to stay in the home for a long period of time with possibly little incentive to maintain the home or move due to the insurance feature of the HECM that protects against negative equity—a type of moral hazard (Shiller and Weiss, 2000). Davidoff and Welke (2007), however, found that HECM borrowers did not appear to stay in the home longer than other seniors. The authors suggested that advantageous selection into HECMs may exist, because borrowers with high discount rates may be more likely to originate a HECM and may also be more likely to sell the home and move to extract additional equity when house prices rise.[9]

Another reason for potentially shorter durations of tenure among reverse mortgage borrowers is differing health conditions and expectations for future health. One hypothesis is that seniors who select into reverse mortgages are in poorer health than seniors in the general population and that they intend to use reverse mortgages to fund large medical expenditures (Nakajima and Telyukova, 2014). Thus, these seniors will be more likely to exit the home through death or by moving to a nursing home than will other seniors. Our study informs these hypotheses with information on HECM borrowers who have originated (and terminated) their reverse mortgage after the boom and bust in the U.S. housing cycle, including information about health and housing conditions.

Data

The primary data set for this analysis consists of 1,761 senior households that were counseled for a reverse mortgage between 2006 and 2011 and that subsequently responded to the AIP survey between July 1, 2014, and June 30, 2015. By law, all prospective borrowers are required to complete counseling with a HUD-certified, third-party nonprofit organization before completing a loan application for a reverse mortgage. The study sample consists of three groups of counselees:

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[8] The study also estimated that policy changes to institute withdrawal limits and credit-based underwriting requirements for HECMs could reduce default by as much as 50 percent, with modest impacts on loan volumes (Moulton, Haurin, and Shi, 2015).

[9] The implications for periods of declining house prices, like those experienced during the Great Recession (December 2007 to June 2009), are unclear. Further, Davidoff and Welke (2007) did not observe the condition of the home or maintenance requirements in their analysis. Our AIP study includes borrowers who have originated (and terminated) their reverse mortgage after the boom and bust in the U.S. housing cycle, and it includes questions about housing conditions that we compare with housing conditions for seniors in the general population.

(1) 1,192 (68 percent) active borrowers who took out a reverse mortgage and retained it as of the survey date, (2) 102 (6 percent) terminated borrowers who took out and then terminated their reverse mortgage as of the survey date, and (3) 467 (26 percent) nonborrowers who decided not to take out a reverse mortgage. In addition to having data from the AIP survey, for each respondent we have baseline data collected at the time of counseling, including household demographics, financial characteristics, and credit attribute data from consumer credit files. For households counseled after October 2010, we have baseline information about health and well-being collected as part of the Financial Interview Tool, an added required component to the counseling session.

The sample of survey respondents is drawn from a larger population of 29,702 households counseled for a reverse mortgage between 2006 and 2011 by Clearpoint Credit Counseling Solutions, a HUD-approved 501(c)(3) nonprofit counseling agency with national reach headquartered in Atlanta, Georgia, who partnered with the research team for this study. Viable contact information was available for 16,653 households at the time of survey administration.[10] These households were contacted by mail, phone and e-mail (when available) with an invitation to complete the survey. A total of 1,918 individuals responded to the request and were provided with information about the survey, for a response rate of 11.5 percent. Of the 1,918 responding, 1,779 (93 percent) consented to participate in the AIP survey, and 1,761 completed at least the first set of questions on reverse mortgage status and are the base sample for the analysis.[11]

We examined differences in the respondent and nonrespondent groups on specific demographic, financial, credit, and housing indicators available in our administrative data sets. The comparison indicates that survey respondents are not necessarily representative of the broader study population of households counseled by Clearpoint for a reverse mortgage during our study period. Survey respondents tend to be in a better financial position at the time of counseling, with higher incomes (about 5 percent higher), assets (33 percent higher), and stronger credit portfolios (for example, credit scores are 15 points higher) than are nonrespondents. Further, respondents tend to have obtained a higher level of education than nonrespondents. Detailed statistical information about these differences is available in the AIP survey report (Moulton et al., 2016). For the analysis, we apply sample weights so that our sample of respondents is spatially representative of the distribution of counseled households by U.S. region who seek counseling for a reverse mortgage.

Most households in the AIP survey sample were counseled in the year 2010 (38 percent) and 2011 (37 percent), followed by 2008 and 2009 (about 10 percent each year), and about 4 percent were counseled in 2006 or 2007. The typical AIP respondent would thus be 3 to 5 years post-counseling at the time of the survey, with a smaller proportion of respondents (14 percent) 6 to 9 years post-counseling.

We supplement our data set on households counseled for a reverse mortgage with data on senior households in the general population, using data from the HRS, a nationally representative biennial panel survey of more than 26,000 adults older than age 50.[12] Individuals in the HRS, which began

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[10] Not viable includes phone number disconnected/no longer in service, no forwarding information, no contact information, phone number blocked, death of both household members, no alternative contact person, and technical errors in the information.

[11] A more detailed discussion of the survey procedures is available in the full survey report (Moulton et al., 2016), available on line at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2749368.

[12] The HRS is administered by the University of Michigan, with funding from the National Institute on Aging and the Social Security Administration. See http://hrsonline.isr.umich.edu/.

in 1992, remain in the HRS until their death, with a new birth cohort of households in their 50s entering the panel every 6 years to refresh the panel. For our study, we use the "core" public data set, including detailed information at the individual level on household demographics, housing and financial characteristics, health status, and other indicators of well-being. We extract responses to survey items from the HRS that are comparable to survey items from the AIP study.

We limit the HRS sample to individuals residing in households where at least one member was age 62 or older as of the 2008 or 2010 survey wave and who was a homeowner at that time, and thus would have been eligible for a reverse mortgage.[13] Our analysis is at the household level. For questions asked of multiple household members, we use the responses of the primary respondent as coded in the HRS. If the primary respondent is under the age of 62, we use responses for the household member who is age 62 or older.

Results

Our analysis is descriptive and consists of three parts. First, we explore factors influencing the reverse mortgage decision, comparing AIP survey responses for counseled homeowners who obtained reverse mortgages (HECM borrowers) with those who were counseled and decided to not obtain a reverse mortgage (HECM nonborrowers). Second, we compare demographic and financial characteristics at baseline for AIP respondents (separating HECM borrowers and HECM nonborrowers) relative to homeowner households in the HRS as of the 2008 and 2010 survey waves. We limit the AIP survey sample to those counseled between 2008 and 2011, comprising 96 percent of the survey sample.[14] Third, we compare outcomes for the same sets of households using the 2014–2015 AIP survey and 2014 wave of the HRS. Sample sizes vary slightly, depending on the variables being compared, due to missing responses on particular items.

We report the weighted means and proportions for all items and test for statistical differences using *t*-tests (for means) or chi-2 tests (for proportions). It is important to caution that these comparisons do not control for other factors that may lead to the observed differences. Further, we do not model the decision to obtain a reverse mortgage. Observed differences could occur because the types of individuals who select into reverse mortgages differ from the general population (a selection effect) or because the reverse mortgage has an impact on borrowers' behavior and outcomes (a treatment effect).

Factors Influencing Reverse Mortgage Decisions

All the households responding to the AIP survey considered obtaining a reverse mortgage sometime within the 3- to 9-year period before the survey. Respondents were asked about their primary reasons for considering a reverse mortgage. Exhibit 1 summarizes the responses, comparing those

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[13] Approximately 75 percent of HRS households were homeowners as of the 2008 or 2010 survey wave. We construct an alternative sample that does not limit HRS respondents to be homeowners. Results of comparisons with the full sample of seniors are available from the authors.

[14] Sample sizes in the AIP survey are not representative of the number of households counseled each year during the sample period or the distribution of respondents among regions. Thus, the AIP data are weighted, yielding a sample representative of seniors who received counseling for a reverse mortgage. The HRS household weights are applied to respondents within the HRS, yielding a nationally representative sample of seniors.

Exhibit 1

Factors Influencing Reverse Mortgage Decisions

	HECM Borrowers			HECM Nonborrowers		
	N	Mean	SD	N	Mean	SD
Reasons for considering a reverse mortgage (%)						
Everyday expenses	1,272	0.42	0.56	448	0.41	0.38
Pay off mortgage	1,272	0.38*	0.55	448	0.44	0.39
Pay off nonmortgage debt	1,272	0.27	0.50	448	0.23	0.33
Home improvements	1,272	0.22*	0.47	448	0.28	0.35
Financial help to family	1,272	0.19	0.45	448	0.18	0.30
Health or disability expenses	1,272	0.15	0.41	448	0.13	0.27
Postpone other retirement income	1,272	0.15	0.40	448	0.18	0.30
Lock in home equity	1,272	0.09*	0.32	448	0.13	0.26
Big purchase (such as a car or vacation)	1,272	0.06	0.28	448	0.06	0.19
Purchase new property	1,272	0.03	0.20	448	0.05	0.16
Other	1,272	0.16	0.42	448	0.13	0.26
Reasons for desire to pay off mortgage debt (%)						
Get rid of mortgage payments	534	0.67	0.53	147	0.66	0.36
Unable to afford mortgage payments	534	0.39**	0.55	147	0.26	0.33
Pay off home equity loan	534	0.20	0.45	147	0.28	0.34
High interest rate	534	0.19*	0.44	147	0.27	0.34
Behind on mortgage payments	534	0.11*	0.36	147	0.19	0.30
Facing foreclosure	534	0.09	0.32	147	0.13	0.25
Adjustable interest rate	534	0.06*	0.27	147	0.13	0.25
Other	534	0.12*	0.37	147	0.20	0.30

HECM = Home Equity Conversion Mortgage. SD = standard deviation.
* $p < 0.05$. ** $p < 0.01$.
Notes: The mean column for HECM borrowers shows statistical significance of t-tests between borrowers and nonborrowers. HECM borrowers include active and terminated.

who subsequently originated a reverse mortgage (HECM borrowers) with the responses for those who were counseled for but did not obtain a reverse mortgage (HECM nonborrowers).

The most common motivation reported by both borrowers and nonborrowers was "to gain extra income for everyday expenses (other than health needs)," which is as expected from previous literature that suggests reverse mortgage borrowers are likely to be "house rich" but "cash poor." As found in previous surveys (for example, Redfoot, Scholen, and Brown, 2007), paying off mortgage debt is also a primary motivation for more than one-third of survey respondents. Per HUD regulations, reverse mortgages can be the only lien on the property; thus, homeowners with an existing mortgage must pay off their current mortgage before obtaining a reverse mortgage. Nonborrowers were significantly more likely to indicate a desire to pay off mortgage debt with a reverse mortgage than were borrowers. For some nonborrowers, the proceeds from the reverse mortgage may have been insufficient to pay off their existing mortgage debt, preventing them from taking out the reverse mortgage.

Paying off a mortgage that requires a regular monthly payment also enables people to free up income that can be used for other purposes. In a followup question (bottom panel of exhibit 1), most AIP survey respondents who indicated they wanted to pay off mortgage debt reported they wanted to eliminate their monthly mortgage payment. Nearly 2 in 5 of these respondents indicated they could no longer afford their mortgage payment. In fact, more than 1 in 10 borrowers seeking

a reverse mortgage to pay off their mortgage indicated they were behind on their mortgage payments when they sought a reverse mortgage. For nonborrowers, nearly twice as many respondents who desired to pay off their mortgage were behind on mortgage payments. Nonborrowers wishing to pay off their forward mortgages were also significantly more likely to report having high and adjustable interest rates than were borrowers.

About one in four respondents reported considering a reverse mortgage to pay for home improvements. Nearly one in five respondents reported a desire to provide financial help for family members. Despite theoretical models that predict health expenses will be a primary factor motivating use of reverse mortgages (Nakajima and Telyukova, 2014), only about 15 percent of respondents report seeking a reverse mortgage to help with such expenses. It is interesting that a similar proportion of respondents report seeking a reverse mortgage to postpone using other sources of retirement income, a strategy currently promoted in financial planning literature (for example, Pfeiffer, Schaal, and Salter, 2014; Sacks and Sacks, 2012; Salter, Pfeiffer, and Evensky, 2012).

A key feature of the HECM reverse mortgage is that, even if property values decline, the reverse mortgage line of credit retains and grows based on the initial home value. Savvy homeowners during the housing bubble could have used a reverse mortgage to hedge against house price risk. About 1 in 10 survey respondents reported considering a reverse mortgage as a means to "lock in home equity as insurance against declining housing prices." Few respondents planned to use a reverse mortgage for a big purchase (such as a car or vacation) or to purchase a new property. For recent cohorts of counseled households, the reverse mortgage is primarily viewed as a way to manage basic, ongoing finances.

In addition to considering motivations for seeking a reverse mortgage, it is illuminating to consider the reasons that counseled households provide for not obtaining a reverse mortgage. Exhibit 2 summarizes the proportion of nonborrowers identifying particular factors. Survey participants who decided against a reverse mortgage after the mandatory counseling session indicated three top reasons

Exhibit 2

Reasons for Not Obtaining a Reverse Mortgage

	HECM Nonborrowers		
	N	Mean	SD
Reasons for not obtaining a reverse mortgage—select all that apply (%)			
You liked knowing that you own your home completely free of any mortgages	430	0.30	0.43
The amount of money that you would have received was too small	430	0.29	0.43
You found another way to meet your financial needs	430	0.29	0.43
The costs of the reverse mortgage were too high	430	0.26	0.41
You wanted the home to remain in the family/leave it to children	430	0.26	0.41
Your property was not eligible	430	0.20	0.38
You were not eligible	430	0.16	0.35
The process of taking out a reverse mortgage was too complicated	430	0.13	0.32
Your children or family members did not want you to take out a reverse mortgage	430	0.08	0.26
You did not trust the loan officer offering you the loan	430	0.09	0.28
You wanted to sell your home and move	430	0.05	0.21
Your spouse was under age 62 and you did not want to take him/her off the deed	430	0.03	0.15
A financial planner/financial professional advised against a reverse mortgage	430	0.02	0.13
Other	430	0.20	0.38

HECM = Home Equity Conversion Mortgage. SD = standard deviation.

for this decision: (1) a desire to own their home completely free of any mortgages, (2) learning that the amount of money from a reverse mortgage was too small, and (3) finding another way to meet financial needs. Each of these three reasons was selected by nearly one-third of AIP study nonborrowers. Moreover, about one in five nonborrowers reported that they or their properties (or both) were ineligible for the reverse mortgage.

In line with bequest motivations, about one-fourth of nonborrowers reported not obtaining a reverse mortgage because of a desire to have the home remain in the family and/or leave the home as an inheritance to children. Close to 1 in 10 nonborrowers indicated that family members were opposed to their taking a reverse mortgage. Less than one-third of respondents (26 percent) indicated the high cost of a reverse mortgage as a reason for deciding against it. It is noteworthy that high cost is not the dominant reason, given that high costs are frequently cited as the primary barrier in the previous literature. In addition, perceptions of costs may be shifting over time. In the AARP survey, two-thirds of nonborrowers reported high costs as a reason for not applying for a reverse mortgage after counseling (Redfoot, Scholen, and Brown, 2007). About 1 in 10 nonborrowers mentioned lack of trust for the loan officer as a reason for not obtaining a reverse mortgage.

Individuals engaged in the reverse mortgage loan process may influence decisions. Borrowers and nonborrowers were asked about their experiences with the reverse mortgage counselor and loan officer and how well informed they felt about different items after receiving counseling for a reverse mortgage (exhibit 3). In general, those who obtained a reverse mortgage (HECM borrowers) were significantly more likely to report favorable experiences with lenders and counselors than were nonborrowers, and they were more likely to feel well informed about details regarding the reverse mortgage.

Most respondents indicated that they thought the reverse mortgage counselor and loan officer provided sufficient information about the reverse mortgage to inform their decision; however, borrowers were 13 percentage points more likely to feel informed by the lender than were nonborrowers. Perceived pressure from the loan officer or the counselor to take out a reverse mortgage was more often reported by nonborrowers than by borrowers, although the proportion that reported feeling pressured is quite small.

Respondents were asked whether, knowing what they know today, they felt like they were informed about four key items at the time of reverse mortgage counseling: (1) different ways to receive the proceeds from the reverse mortgage, (2) their responsibility to pay property taxes and homeowner's insurance, (3) the fact that mortgage balances increase over time, and (4) if they were married, the implications of not having their spouse on the deed to the home. Respondents felt best informed about the responsibility to pay property taxes and homeowner's insurance. Respondents also felt quite well informed about the different ways to receive the reverse mortgage money (for example a credit line, a lump sum, or a monthly payment). For both items, nonborrowers felt less well informed compared with borrowers. Knowledge levels differ regarding the fact that reverse mortgage loan balances increase due to accumulating interest and mortgage insurance premiums, with nonborrowers being significantly less informed. No difference regarding knowledge levels of married counselees and their understanding of the implications of removing or not having the spouse on the deed was indicated.

Exhibit 3

Reverse Mortgage Counseling Experience and Satisfaction With Decision

	HECM Borrowers			HECM Nonborrowers		
	N	**Mean**	**SD**	**N**	**Mean**	**SD**
Experience with reverse mortgage counselor, lender (% agree)						
Reverse mortgage counselor provided enough information	1,209	0.91***	0.32	439	0.84	0.29
Felt pressured by reverse mortgage counselor to take out reverse mortgage	1,209	0.04**	0.24	439	0.09	0.22
Reverse mortgage loan officer provided enough information	1,209	0.87***	0.38	439	0.74	0.34
Felt pressured by reverse mortgage loan officer to take out reverse mortgage	1,209	0.05***	0.24	439	0.11	0.24
Felt pressured by reverse mortgage loan officer to take out lump sum	1,209	0.07	0.29	439	0.07	0.20
Well informed after reverse mortgage counseling (% agree)						
Different ways to receive money from reverse mortgage	1,204	0.92**	0.31	428	0.86	0.27
Responsibility to pay property taxes and insurance	1,204	0.95***	0.25	428	0.87	0.26
Increasing loan balance from interest and mortgage insurance premium	1,204	0.68***	0.53	428	0.53	0.39
Implications of removing spouse from deed (if married)	563	0.50	0.56	179	0.45	0.38
Satisfaction with decision to obtain a reverse mortgage						
Decision satisfaction (1 to 5; 1 = very unsatisfied to 5 = very satisfied)	1,276	4.13***	1.40	448	3.55	1.20

HECM = Home Equity Conversion Mortgage. SD = standard deviation. y/n = yes or no response.
** p < 0.01. *** p < 0.001.
Notes: The mean column for HECM borrowers shows statistical significance of t-tests between borrowers and nonborrowers. HECM borrowers include active and terminated.

Finally, all respondents were asked about their satisfaction with their decision to obtain or not obtain a reverse mortgage. On a 5-point scale where 1 is "not at all satisfied" and 5 is "very satisfied," borrowers were significantly more likely to be satisfied than were nonborrowers, with an average score of 4.1 for borrowers and 3.6 for nonborrowers.

Comparison With Senior Homeowners in the General Population

In this section, we compare senior homeowners in the AIP survey who were counseled for a reverse mortgage between 2008 and 2011 with senior homeowners in the general population, using HRS waves for 2008 and 2010. We compare the average characteristics at the time of counseling for three groups: (1) counseled seniors who subsequently originated a HECM, (2) counseled seniors who did not obtain a HECM, and (3) senior homeowners in the HRS. We test for statistically significant differences between each counseled group and HRS respondents. We also compare these three groups of respondents on an array of survey indicators, measuring financial capability and financial planning, as of the 2014–2015 AIP survey and 2014 HRS survey wave.

Demographic and Financial Characteristics

First, regarding demographic characteristics, exhibit 4 shows that in the AIP survey a significantly higher proportion of reverse mortgage borrowers are Black than the proportion of senior home-owners who are Black in the general population. The difference is smaller for borrowers, however, than for counseled seniors who did not obtain a reverse mortgage: 14 percent of borrowers are Black compared with 27 percent of counseled nonborrowers and 10 percent of homeowners in the HRS.[15] These findings add nuance to previous findings that reverse mortgage borrowers are more likely to be located in high minority areas (for example, Davidoff and Wetzel, 2014; Shan, 2011).

Reverse mortgage borrowers in the AIP survey are also significantly less likely to be married than are homeowners in the general population. Previous studies noted that reverse mortgage borrowers are more likely to be single females (Bishop and Shan, 2008; Redfoot, Scholen, and Brown, 2007; Rodda, Herbert, and Lam, 2000). Our results indicate that this likelihood is true relative to the overall distribution of borrowers but not relative to the distribution of senior homeowners in the population. Although single females represent one-third of reverse mortgage borrowers in the AIP survey, the proportion is only slightly higher than in the general population of senior homeowners. By contrast, single males are significantly overrepresented in the AIP survey relative to the senior homeowners in the general population: nearly 1 in 5 reverse borrowers in the AIP survey is a single male contrasted with only 1 in 10 senior homeowners in the HRS.

It is interesting that homeowners who seek (or obtain) a reverse mortgage in the AIP survey tend to be better educated than senior homeowners in the general population. A significantly higher propor-tion of both AIP survey borrowers and nonborrowers obtained a 4-year degree than did homeowners in HRS.[16] No statistically significant differences exist in the age of the youngest household member comparing those in the AIP survey who were counseled for a reverse mortgages with seniors in the HRS. Our sample's mean age of 70 is younger than the average age of obtaining a reverse mortgage in previous studies (for example, Redfoot, Scholen, and Brown, 2007), but it is in line with the trend that a higher proportion of seniors are seeking HECMs at younger ages (CFPB, 2012).

Exhibit 4 also compares respondents on an array of financial variables. As a reminder, these indicators are measured here as of the baseline year, before obtaining a reverse mortgage for borrowers. We drop extreme outliers for each financial variable and report medians and means.[17] Overall, the results of the AIP survey confirm the assumption that reverse mortgage borrowers tend to be "house rich" but "cash poor" relative to the general population of senior homeowners. The median income for reverse mortgage borrowers is about 30 percent lower than the median income for respondents in the HRS. Further, households that seek (or obtain) reverse mortgages have substantially fewer assets (not including equity in the primary residence) than do households

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[15] In the full AIP survey population, 17 percent of respondents are Black.

[16] These differences are not simply due to survey response bias. In the full AIP survey population, the proportion of reverse mortgage borrowers with higher levels of education is also significantly higher than the proportion with higher educations in the HRS.

[17] For income, we drop observations above $500,000. For home value, nonhousing assets, home equity, and total mortgage debt, we drop observations with values greater than $1.5 million. These restrictions drop 3 percent or less of the top distribution for a given variable.

Exhibit 4

Baseline Demographic Characteristics

	HECM Borrowers				HECM Nonborrowers				HRS			
	N	Mean	Median	SD	N	Mean	Median	SD	N	Mean	Median	SD
Demographics												
Hispanic (%)	1,218	0.04	NA	0.20	428	0.06	NA	0.23	13,516	0.06	NA	0.23
White (%)	1,142	0.76***	NA	0.43	404	0.64***	NA	0.48	13,513	0.89	NA	0.32
Black (%)	1,142	0.14***	NA	0.35	404	0.27***	NA	0.44	13,513	0.08	NA	0.27
Other race (%)	1,142	0.10***	NA	0.30	404	0.09**	NA	0.28	13,513	0.04	NA	0.19
Education: less than high school (%)	1,039	0.15	NA	0.36	383	0.15	NA	0.36	13,516	0.16	NA	0.37
Education: high school graduate or equivalent (%)	1,039	0.46***	NA	0.50	383	0.44**	NA	0.50	13,516	0.54	NA	0.50
Education: 2-year college degree (%)	1,039	0.09***	NA	0.29	383	0.11**	NA	0.31	13,516	0.04	NA	0.21
Education: 4-year college degree (%)	1,039	0.21***	NA	0.41	383	0.21*	NA	0.41	13,516	0.13	NA	0.34
Education: postgraduate degree (%)	1,039	0.08**	NA	0.27	383	0.09	NA	0.28	13,516	0.11	NA	0.32
Age of youngest household member (years)	1,210	70.16	NA	6.95	427	69.62	NA	7.44	13,516	69.76	NA	9.42
Unmarried male (%)	1,218	0.19***	NA	0.39	428	0.22***	NA	0.42	13,507	0.11	NA	0.31
Unmarried female (%)	1,218	0.35*	NA	0.48	428	0.38*	NA	0.48	13,510	0.31	NA	0.46
Married (%)	1,218	0.45***	NA	0.50	428	0.40***	NA	0.49	13,501	0.58	NA	0.49
Financial variables ($)												
Total household income	1,154	2,981***	2,488	2,010	414	2,682***	2,308	1,728	13,444	5,310	3,649	5,403
Assets other than primary residence	1,214	38,788***	0	139,498	425	39,535***	0	118,628	12,945	252,051	102,858	343,014
Assets other than primary residence > 0	669	99,976***	24,781	209,915	257	79,105***	12,443	158,300	11,772	274,365	125,296	347,516
Home value of primary residence	1,218	312,615***	248,850	219,289	428	242,715	192,596	166,279	13,516	239,649	173,120	214,184
Mortgage debt	1,217	84,150***	52,107	115,850	428	81,458***	54,079	106,442	13,514	43,647	0	94,089
Mortgage debt with a mortgage; mortgage debt > 0	798	132,644**	103,329	121,344	304	118,015	94,956	110,008	4,701	115,457	78,986	122,997
Home equity of primary residence	1,217	230,919***	176,960	193,526	428	163,853**	113,345	151,032	13,514	197,491	143,906	192,624
Monthly mortgage payment	1,180	699***	476	916	407	652***	542	760	12,577	348	0	648
Monthly mortgage payment with a mortgage; monthly mortgage payment > 0	702	1,132	974	932	250	1,007	882	731	3,803	1,048	867	730

HECM = Home Equity Conversion Mortgage. HRS = Health and Retirement Study. NA = not applicable. SD = standard deviation.

* p < 0.05. ** p < 0.01. *** p < 0.001.

Notes: The mean column for HECM respondents shows statistical significance of t-tests between the appropriate group and HRS respondents. HECM borrowers include active and terminated. HRS sample includes both the 2008 and 2010 waves combined. All financial values are in 2014 inflation-adjusted dollars.

in the general population of seniors. Of note, the median reverse mortgage borrower reports zero value in financial assets outside of the equity in their home relative to a median of about $100,000 for homeowners in the HRS.

When it comes to the primary residence, however, reverse mortgage borrowers have significantly higher valued homes than do homeowners in the general population. It is interesting that reverse mortgage borrowers also tend to have significantly higher levels of mortgage debt than do senior homeowners in the general population. Despite higher levels of mortgage debt, home equity is significantly higher among reverse mortgage borrowers. Of note, higher home values, mortgage debt, and levels of equity are found only for counseled households that subsequently originate a reverse mortgage—no difference exists between counseled households that do not originate a reverse mortgage (nonborrowers) and the general population of seniors.

Financial Planning and Capability

We next consider differences in financial planning and capability (exhibit 5). These indicators are not available at baseline for the homeowners counseled for a reverse mortgage but, instead, are measured on the 2014–2015 AIP survey (compared with the 2014 wave of the HRS).

Regarding financial planning, the comparisons indicate that reverse mortgage borrowers (and counseled nonborrowers) in the AIP survey report being significantly less likely to leave any inheritance, in line with previous theoretical expectations regarding bequest motives (for example, Nakajima and

Exhibit 5

Financial Planning and Capability as of 2014

	HECM Borrowers			HECM Nonborrowers			HRS		
	N	Mean	SD	N	Mean	SD	N	Mean	SD
Willingness to take risks in financial matters (10 = most willing, 0 = least willing)	1,076	2.54***	2.28	370	2.68	2.45	2,542	2.93	2.59
Has a will (%)	1,104	0.74***	0.44	378	0.61	0.49	5,862	0.66	0.47
Has put assets in trust (%)	1,062	0.25***	0.43	370	0.19	0.39	5,767	0.17	0.38
Has living will or power of attorney (%)	1,095	0.68**	0.47	380	0.58*	0.49	5,763	0.63	0.48
Likelihood of leaving any inheritance (as a percent)	1,007	50.85***	42.99	347	54.81***	44.08	5,331	75.76	33.05
Gave a correct answer to lottery knowledge question (%)[a]	1,128	0.56***	0.50	388	0.48	0.50	5,642	0.43	0.50
Responded "don't know" to lottery knowledge question (%)	1,218	0.17	0.37	428	0.20***	0.40	5,926	0.00	0.00
Refused to answer lottery knowledge question (%)	1,218	0.02***	0.15	428	0.02	0.13	5,926	0.00	0.00
Rating of memory (scale of 1 to 5; 5 = "Excellent")	1,122	3.63***	1.01	386	3.68***	1.06	5,634	2.91	0.88

HECM = Home Equity Conversion Mortgage. HRS = Health and Retirement Study. SD = standard deviation.
* p < 0.05. ** p < 0.01. *** p < 0.001.
[a] Lottery question asked respondents to give an open-ended response to the following question: "If 5 people all have the winning numbers in the lottery and the prize is 2 million dollars, how much will each of them get?"
Notes: The mean column for HECM respondents shows statistical significance of t-tests between the appropriate group and HRS respondents. HECM borrowers include active and terminated.

Telyukova, 2014). Although 76 percent of homeowners in the HRS plan to leave an inheritance to their families, only about 50 percent of reverse mortgage borrowers express the same intent. Lack of an intention to leave an inheritance is not necessarily due to a failure to plan on the part of reverse mortgage borrowers. In fact, households that obtain reverse mortgages are significantly more likely to exhibit financial planning behaviors, such as having a written will, a living will, or power of attorney or putting assets into a trust. By contrast, counseled nonborrowers are not more likely to demonstrate these financial planning behaviors than are HRS respondents. Further, reverse mortgage borrowers are significantly less likely to indicate a willingness to take risks with their finances. On a scale of 1 to 10, with 10 being very willing to take risks, reverse mortgage borrowers' average score is 2.54 compared with 2.93 for senior homeowners in the general population.

Regarding financial capability, we compare indicators of financial literacy and self-rated memory—as proxies for cognitive functioning. Regarding financial literacy, both AIP and HRS surveys include a simple measure of division, validated through previous studies (for example, Lusardi and Mitchell, 2007: 37)—"If 5 people all have the winning numbers in the lottery and the prize is 2 million dollars, how much will each of them get?" Survey participants were asked to provide the amount in an open-ended question format. Households in the AIP survey who obtained reverse mortgages were significantly more likely to provide the correct answer: 56 percent compared with 43 percent of HRS respondents. The proportion of counseled nonborrowers responding correctly is not significantly different than the proportion responding correctly in HRS. This finding may seem surprising; however, it corresponds with the finding that reverse mortgage borrowers have higher levels of education than does the general population of seniors. A certain level of financial sophistication may be necessary to obtain a reverse mortgage, as has been shown for annuitization and for other financial decisions in older age (Banks, Crawford, and Tetlow, 2015). On a scale of 1 to 5, where 5 is "Excellent," reverse mortgage borrowers also rate their "memory at the present time" significantly higher than did respondents in the HRS.

Outcomes of Borrowers and Nonborrowers

This section uses data from the 2014–2015 AIP survey to track outcomes for households that were counseled for a reverse mortgage in the 3 to 7 years before the survey (between 2008 and 2011). We begin by describing outcomes specific to two groups of reverse mortgage borrowers: (1) survey respondents who originated a reverse mortgage and still had the loan or (2) survey respondents who originated a reverse mortgage but had terminated the loan as of the time of the AIP survey. We then compare the outcomes for seniors who were counseled for a reverse mortgage (HECM borrowers and nonborrowers) with the outcomes for senior homeowners in the general population using the 2014 wave of the HRS.

Reverse Mortgage Specific Outcomes for Active and Terminated Borrowers

Little is known about the experiences of reverse mortgage borrowers who terminate their loans. To learn more about this population, the AIP survey included a sample of 102 terminated borrowers.[18] Termination occurs when the last borrower dies or moves out of the property for a period of 1 year

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[18] Terminated borrowers comprise about 6 percent of the AIP survey sample. In the full population of 29,702 counseled households between 2006 and 2011, 5.1 percent had terminated their loans as of 2014. A large proportion of the counseled households that were terminated lacked viable contact information (75 percent), likely due to the death of the borrower.

or more. In addition, sale of the home or refinancing of the HECM with a forward mortgage results in loan termination. Finally, a HECM can be called due and payable (and subsequently terminated) if the borrower fails to maintain the property or fails to pay property taxes or homeowner's insurance.

Among AIP survey participants who had terminated their reverse mortgage at the time of the survey, about 45 percent reported they sold the home, 27 percent reported refinancing with another reverse mortgage, 19 percent reported refinancing with a forward mortgage, 7 percent lost their home to foreclosure, and 2 percent took other actions to terminate their reverse mortgage. Of AIP survey participants who sold their home to repay the reverse mortgage, 54 percent had not purchased a new home at the time of the survey.

Reverse mortgage borrowers have different reasons for why they might sell their home and terminate the loan. About 32 percent of terminated borrowers who sold their homes had done so because they desired to live in a smaller home. The desire to live closer to family or friends and to be released from maintenance duties associated with owning a home ranked second, each reason being reported by 27 percent. Death of a spouse or significant other and overly high property taxes were next, each being mentioned by 22 percent. The cost associated with home maintenance and the desire to live in a more accessible community were each mentioned by 19 percent. High cost of homeowner's insurance and the need for a more accessible home were mentioned by 16 percent of terminated borrowers as reasons for selling the home.

It is interesting to consider if terminated borrowers are still satisfied with their initial decision to obtain a reverse mortgage, and the extent to which they believe the reverse mortgage improved the quality of their life. Exhibit 6 compares select outcomes for terminated borrowers in our sample relative to counseled borrowers who were still active on their reverse mortgages as of 2014. The only significant difference is their agreement with whether the reverse mortgage improved the quality of their lives, with active borrowers more likely to agree. More than two-thirds of

Exhibit 6

Active and Terminated Borrower Outcomes

	HECM Active Borrowers			HECM Terminated Borrowers		
	N	**Mean**	**SD**	**N**	**Mean**	**SD**
Reverse mortgage to improve quality of life (scale of 1 to 5; 5 = "Strongly agree")	1,156	4.028	1.107	99	3.699	1.166
Satisfaction with reverse mortgage decision (scale of 1 to 5; 5 = "Very satisfied")[a]	1,176	4.145*	1.218	100	3.979	1.343
Reverse mortgage money lasted same or longer as expected (% agree)	970	0.735	0.442	47	0.657	0.475
Debt stress (scale of 1 to 5; 5 = "A great deal of stress")	1,118	2.395	1.217	87	2.288	1.280
Monthly cashflow deficit (% agree)[b]	1,094	0.255	0.436	86	0.311	0.464

HECM = Home Equity Conversion Mortgage. SD = standard deviation. y/n = yes or no response.
* p < 0.05.
[a] Ratings scales significance tests are p-values on a chi-squared test.
[b] Monthly cashflow deficit question asked: "In a typical month, do you find that your expenses are greater than your income, less than your income, or about the same as your income?" The variable in the table was coded as 1 if the person answered "Less than your income" and 0 otherwise.
Note: The mean column for HECM respondents shows statistical significance of t-tests between active and terminated borrowers.

terminated borrowers, however, still agreed that the reverse mortgage improved the quality of their lives. Further, terminated borrowers reported being about as satisfied with their decision to obtain a reverse mortgage, and they reported no significant differences regarding whether the money from the reverse mortgage lasted shorter, longer, or about as long as they expected. They also did not report having significantly higher levels of debt stress or being more likely to experience a monthly cashflow deficit.

Comparison of Outcomes With Senior Homeowner Population

The 2014–2015 AIP survey and 2014 wave of the HRS include several comparable outcome indicators, including measures of life satisfaction, financial security, and physical health. For each indicator, we compare counseled households that originated a reverse mortgage (HECM borrowers) with the general population of seniors, and we compare counseled households that did not originate a reverse mortgage (HECM nonborrowers) with the general population of seniors (HRS). Differences are noted but should not be considered causal, because they may be the result of both observed and unobserved factors that differ at baseline between the two populations and also any treatment effect of the reverse mortgage itself.

First, we compare respondents on satisfaction with six different areas of their lives as of today, on a scale from 1=very dissatisfied to 5=very satisfied. Exhibit 7 demonstrates that reverse mortgage borrowers in the AIP survey tend to be slightly less satisfied with various aspects of their lives than do homeowners in the general population; however, the differences are relatively small. Differences are greater for nonborrowers who were counseled but did not obtain a reverse mortgage relative to homeowners in the general population.

Next, we examine different indicators of physical health and financial security in more detail. With regard to physical health, results are mixed. Both AIP and HRS surveys ask respondents to rate their health on a scale of 1 to 5. Reverse mortgage borrowers in the AIP survey provide a slightly higher self-rating of their health than do homeowners in the HRS survey. When looking at specific activities of daily living (ADLs), however, reverse mortgage borrowers are slightly more likely to have spent a night in a nursing home or hospital in the past 2 years and are more likely to indicate difficulty climbing stairs and managing money. These differences are observed for both borrowers and nonborrowers. That seniors who select into reverse mortgages in the AIP survey perform slightly worse on ADLs is in line with the expectation that poor current (or expected) health may motivate seniors to seek reverse mortgages to help cover health expenditures (for example, Lusardi and Mitchell, 2007). It should be noted, however, that indicators of poor health are relatively rare in our sample of reverse mortgage borrowers.

Finally, we compare two indicators of food and health security. Most senior homeowners in the HRS report having health insurance, and all respondents in our reverse mortgage sample report having health insurance. A significantly higher proportion of reverse mortgage borrowers in the AIP survey report receiving Medicaid than do homeowners in HRS, although the proportion receiving Medicaid is even higher among counseled nonborrowers. It is important to keep in mind that reverse mortgage borrowers have significantly lower incomes at baseline than do senior homeowners in the HRS. It is perhaps not surprising that reverse mortgage borrowers are more likely to report lacking money for food or taking less medication than prescribed because of cost than are

Exhibit 7

Borrower and Nonborrower Outcomes as Compared With HRS, 2014

	HECM Borrowers			HECM Nonborrowers			HRS		
	N	Mean	SD	N	Mean	SD	N	Mean	SD
Satisfaction									
(scale of 1 to 5; 5 = "Completely satisfied")									
With life as a whole	1,145	3.72***	1.01	399	3.61***	1.08	5,586	3.90	0.83
With place you live	1,159	4.13***	0.84	399	3.88***	1.01	2,538	4.23	0.83
With city or town	1,159	4.10***	0.90	398	3.99*	1.03	2,538	4.18	0.86
With daily life	1,152	3.79***	0.99	400	3.64*	1.08	2,526	3.88	0.90
With family life	1,133	3.98**	0.98	392	3.81	1.09	2,527	4.02	0.93
With financial situation	1,152	3.20***	1.16	398	2.99***	1.20	2,529	3.59	1.06
With your health	1,153	3.44	1.15	397	3.42	1.16	2,523	3.49	1.09
Health									
Condition of health (scale of 1 to 5; 5 = "Excellent")	1,130	3.14	1.18	388	3.10	1.19	5,920	3.13	1.03
Health condition good or better (%)	1,130	0.71*	0.46	388	0.69	0.46	5,920	0.73	0.44
Nights spent in hospital or nursing home in past 2 years	1,123	1.29**	9.41	389	0.79*	2.30	5,905	0.56	1.46
Has spent at least 1 night in nursing home or hospital in past 2 years (%)	1,218	0.35***	0.48	428	0.30	0.46	5,926	0.28	0.45
Has difficulty with (%)—									
Climbing stairs	1,075	0.29***	0.46	374	0.31***	0.46	5,794	0.19	0.39
Bathing	1,104	0.11	0.31	384	0.13*	0.34	5,010	0.09	0.29
Shopping for groceries	1,103	0.18***	0.39	376	0.20***	0.40	5,676	0.08	0.27
Managing money	1,100	0.10***	0.31	378	0.11**	0.31	5,673	0.06	0.24
Food and medication security (%)									
Lacked money for food in past 12 months	1,115	0.08***	0.28	395	0.15***	0.36	5,843	0.05	0.22
Took less medication because of cost in past 12 months	1,114	0.14***	0.35	397	0.19***	0.39	5,898	0.06	0.24
Health insurance (%)									
Has health insurance	1,115	1.00***	0.00	381	1.00***	0.00	5,889	0.99	0.09
Covered by Medicaid	1,115	0.11***	0.31	381	0.16***	0.37	5,845	0.06	0.24

HECM = Home Equity Conversion Mortgage. HRS = Health and Retirement Study. SD = standard deviation.
*$p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.*
Note: Means columns for HECM respondents show statistical significance of t-tests between the appropriate group and HRS respondents.

homeowners in the HRS; however, the proportion is still small among borrowers (for example, less than 1 in 10 lacked money for food in the past 12 months). The proportion unable to afford food or prescriptions is greater for counseled nonborrowers relative to the HRS.

Discussion and Conclusion

Using insights from survey data on households counseled for a reverse mortgage, this study provides a number of insights that can inform research and policy. In line with previous assumptions about being "house rich" and "cash poor," reverse mortgage borrowers in our sample tend

to have lower incomes, have very low (or no) nonhousing assets, and have substantial equity in their homes. "House rich" does not mean that they own their homes outright, however; we find that reverse mortgage borrowers have significantly higher levels of forward mortgage debt when they initially seek counseling than do senior homeowners in the general population, and paying off forward mortgage debt (thereby freeing up monthly cashflow from payments) is one of the top motivations for seeking a reverse mortgage. Recent studies indicate that the proportion of seniors entering retirement with mortgage debt has almost doubled during the past two decades, from 20 percent in 1990 to 38 percent in 2013 (JCHS, 2015). Higher levels of mortgage debt could increase future demand for reverse mortgages as a method of eliminating monthly mortgage payments.

On the other hand, high levels of mortgage debt could reduce a borrower's ability to qualify for a reverse mortgage. About one-third of counseled seniors reported that they or their properties (or both) were ineligible for the reverse mortgage. We are unable to determine the reason for perceived ineligibility from this survey; however, it is not related to income or credit requirements because no risk-based underwriting criteria were in place as of the time that these households were counseled for reverse mortgages. Seniors lacking sufficient equity to pay off existing mortgage balances would need to bring cash to the table to get a reverse mortgage; if they did not have additional cash, they would be ineligible for the reverse mortgage. Given the relatively low levels of liquid assets held by households counseled for a reverse mortgage, those with high mortgage balances are likely unable to originate a reverse mortgage.

In line with previous theoretical expectations, we find that reverse mortgage borrowers are less likely to have bequest motives than are senior homeowners in the general population. Our study is not able to disentangle the reasons for this finding. It could be that the types of seniors who sort into reverse mortgages are less likely to have bequest motives. Given their lower incomes and nonhousing assets, reverse mortgage borrowers may not expect to have financial resources left to leave an inheritance. Future studies can help inform these mechanisms.

A frequent concern about reverse mortgages is that the product is complex and that seniors are a potentially vulnerable population that may not be able to fully understand their decision. Indeed, this is the policy motivation for requiring independent counseling for all reverse mortgage borrowers before signing a loan application (CFPB, 2012). We find that, compared with senior homeowners in the general population, reverse mortgage borrowers are more likely to exhibit financial planning behaviors (such as the creation of a will). They also tend to be more risk averse and score higher on indicators of financial literacy. These behaviors and aptitudes are important to keep in mind when designing counseling protocols for this population.

Regarding outcomes, our study finds that 4 to 7 years later, most counseled homeowners were generally satisfied with their reverse mortgage decision, and borrowers—including terminated borrowers—thought it improved their quality of life. This finding extends previous studies that found high levels of satisfaction among borrowers shortly after counseling (Redfoot, Scholen, and Brown, 2007). When compared with the general population of seniors, seniors counseled for reverse mortgages (borrowers and nonborrowers) report slightly lower levels of overall life satisfaction. Lower levels of satisfaction at the time of the survey may simply reflect differences in baseline levels

of satisfaction of homeowners who seek counseling for a reverse mortgage relative to the general population, rather than an attribute of reverse mortgages. Future research is needed that accounts for this type of selection.

Physical health is another outcome that is of research and policy interest when it comes to reverse mortgages. Some theoretical models assume that poor health will be one of the most influential factors that drive seniors to take out a reverse mortgage, with the intent of using home equity to help offset current and future medical expenses (Nakajima and Telyukova, 2014). On the other hand, seniors in poor health may be less able to remain in their homes during the longer term. Our findings on health are nuanced. In general, reverse mortgage borrowers do not rate their overall health to be any lower than senior homeowners in the general population; however, a slightly higher proportion of reverse mortgage borrowers report difficulty with particular ADLs. For example, 30 percent report having difficulty climbing stairs compared with 20 percent of homeowners in the HRS.

Taken together, the findings from this survey reaffirm some common assumptions about reverse mortgages, but they also offer new insights. The findings also raise interesting questions that can be the subject of future empirical research. How will increasing mortgage debt among seniors affect demand for (and takeup of) reverse mortgages? Why are households that seek reverse mortgages less likely to report an expectation that they will leave an inheritance and what is the role of housing and nonhousing wealth in shaping this expectation? What is the optimal design for providing information about reverse mortgages to prospective borrowers in light of differing levels of financial sophistication and planning? After accounting for differences in who selects to be counseled for a reverse mortgage, what is the treatment effect of reverse mortgages on borrowers' outcomes like health and financial well-being? Future analyses are needed to more precisely answer these types of questions. Nevertheless, the descriptive survey results provided in this study are useful to better understand the experiences of senior homeowners in this market.

Acknowledgments

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The Reverse Mortgage Market in Japan and Its Challenges

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Abstract

The reverse mortgage is popular in the United States for elderly homeowners to enjoy a fruitful life by receiving an annuity or other financial benefits through leveraging owned houses. The Home Equity Conversion Mortgage (HECM) insured by the Federal Housing Administration is securitized in HECM mortgage-backed securities, or HMBS, guaranteed by Ginnie Mae—both are government agencies in the United States. Reverse mortgage markets exist in other jurisdictions, including the United Kingdom, Australia, and Canada, among others, without direct intervention from the public sector; however, the size of the reverse mortgage markets in those jurisdictions is much smaller than in the United States.

Japan is the forerunner of an aging society, and the country has good reason to develop a reverse mortgage market to supplement the spending power of elderly homeowners. The persistent decline of property prices after the collapse of the asset bubble in the early 1990s hindered the development of the reverse mortgage market, because financial institutions were not willing to underwrite credit risk associated with such transactions. This article describes the current status of the reverse mortgage market in Japan and analyzes challenges for the development of the market by comparing foreign cases.

Introduction

An ordinary mortgage, or a forward mortgage, is a financial transaction in which a homebuyer incurs liability to purchase a home and pledges that property as collateral for the payment of interest and principal in a scheduled amortization. As the borrower pays monthly interest and principal, the outstanding balance of the mortgage declines and home equity increases.

A reverse mortgage, on the other hand, is exactly the opposite transaction. The borrower of a reverse mortgage typically receives an annuity, a credit line, or a lump-sum amount from the

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lender; accrued interest is added onto the outstanding balance; and the total obligation grows until the borrower vacates the home. At that time, the borrower or the borrower's heirs can satisfy the debt; otherwise, the property is eventually transferred to the lender who sells the property in the open market to try to satisfy as much of the debt as possible. The lender has no recourse against the borrower or the heirs if the sale proceeds are insufficient to satisfy the entire debt. The United States has the largest reverse mortgage market in the world, so far as we have monitored. Unique to the United States reverse mortgage market is the substantial involvement of the public sector in the form of mortgage insurance by the Federal Housing Administration (FHA) and a guarantee on timely payment on mortgage-backed securities (MBS) by Ginnie Mae—both organizations function within the U.S. Department of Housing and Urban Development (HUD).

The reverse mortgage market exists in other jurisdictions, including the United Kingdom, Australia, and Canada, among others, without direct intervention by the public sector. The size of the reverse mortgage markets in those jurisdictions, however, is much smaller than in the United States.

In some jurisdictions in Europe, the aging society is advancing as rapidly as in Japan and a negative demographic trend, coupled with the sustainability of a social security system, including pensions, prompted policymakers to pay attention to reverse mortgages to supplement the incomes of older homeowners (European Commission, 2010, 2014).

It may be natural to assume that if reverse mortgages become more available for elderly homeowners, it may enhance their social welfare, reduce the uncertainty for their futures, and reduce budgetary appropriations relating to social security expenditures for them. In addition, enhanced confidence in the sustainability of social security systems would stimulate personal consumption expenditures.

Housing assets are usually less liquid compared with financial assets. Reverse mortgages convert such illiquid assets into cashflow and benefit the "asset rich, cashflow poor"[1] segment of households (exhibit 1).

Some advanced economies with proelderly social security systems have fewer "asset rich, cashflow poor" households because of pension payments, and the demand for reverse mortgages may become less realized, not because of the design of the reverse mortgage products but because of less need.

A certain demand for reverse mortgages would exist. Making the reverse mortgage a viable and sustainable product, however, would require more justification if it were to be supported by the public sector. Even in the United States, a policy discussion on the actuarial value of the mortgage insurance for HECM is under way.[2]

Japan is the forerunner of an aging society, and the country has good reason to develop a reverse mortgage market to supplement the financial condition of elderly homeowners. The persistent decline of property prices after the collapse of the asset bubble in the early 1990s hindered the

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[1] In Japan, the cabinet resolution "Basic Policy on Economic and Fiscal Management and Reform 2006," released in July 2006, stated that "lending through reverse mortgage should be prioritized" in case that the elderly citizens requesting public protection under the social security system who own houses. Reverse mortgage was advocated in the context of the reformation of the social security system as a method of fiscal consolidation for the vulnerable ("integrated reform of revenues and expenditures").

[2] HUD (2015: 9) states, "Our projections indicate that, as of the end of FY [fiscal year] 2015, the HECM portion of the MMI fund has an economic value of positive $6,778 million."

Exhibit 1

Assets and Income by the Age Group of Household Heads in Japan

Net Worth (million JPY)

[Chart showing a scatter/line plot. Y-axis "Net Worth (million JPY)" from 0 to 60. X-axis "Annual Income (million JPY)" from 4 to 9. Data points labeled by age group: "Under 30", "30's", "40's", "50's", "60's", "70's and older". A shaded ellipse encompasses the "70's and older" and "60's" points with the label "Assets rich, cash poor".]
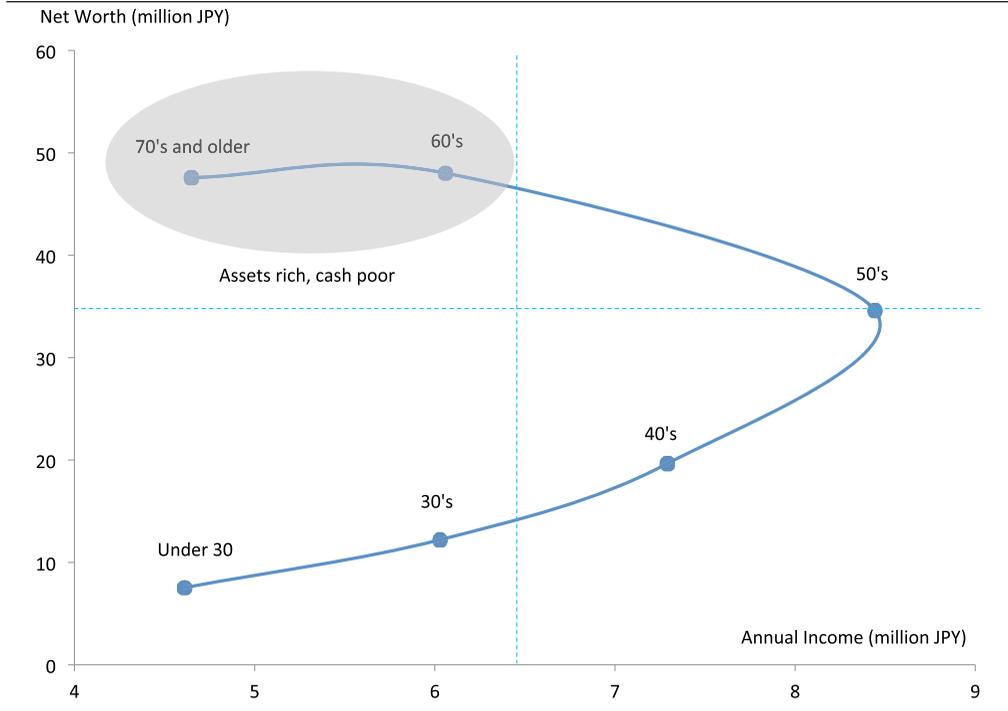
JPY = Japanese yen.
Source: MIAC (2014)

development of the reverse mortgage market, because financial institutions were not willing to underwrite credit risk associated with such transactions. This article describes the current status of the reverse mortgage market in Japan and analyzes challenges for the development of the market by comparing foreign cases.

History of the Reverse Mortgage in Japan

The first reverse mortgage product in Japan was introduced by a local government unit, not by a financial institution. Musashino City, in the western part of the Tokyo Metropolitan Government, introduced a reverse mortgage in 1981. An expert group hired by Musashino City, however, recommended abolishing the reverse mortgage program in 2014; the program actually terminated on March 31, 2015.

The Ministry of Health, Labour, and Welfare introduced a national government reverse mortgage program in 2002; the program is implemented through the Social Welfare Council of each prefectural government. In 2007, the reverse mortgage program was expanded to supplement social security assistance for households in need of social security assistance. Many local government units have been suspending proprietary programs to implement those national programs.

Several private financial institutions introduced reverse mortgages around the turn of the century, but reverse mortgage products became popular only after the Tokyo Star Bank introduced a "deposit collateralized reverse mortgage" in 2005. The target segment of Tokyo Star Bank is "tangible asset rich, financial asset rich, but cashflow poor" elderly homeowners. The interest rate charged to the reverse mortgage is zero until the amount drawn exceeds the amount of deposits of the borrower. As of November 2015, Tokyo Star Bank had received 4,700 applications for reverse mortgages, which is estimated by industry experts to account for nearly one-half of the outstanding reverse mortgages.

Elderly people in Japan are usually rich, not only in tangible assets but also in financial assets (exhibit 2). These people may use their deposits for their daily expenditures, but they would rather maintain the balance of their deposits to prepare for unexpected large expenditures, such as emergency medical treatment. The hybrid reverse mortgage product of Tokyo Star Bank addressed the needs of these elderly customers.

With the success of Tokyo Star Bank, all three mega banks[3] in Japan have introduced reverse mortgage products, two of which are using the Japan Housing Finance Agency's (JHF's) mortgage insurance program.

The interest rates charged to the reverse mortgages are higher than those charged to ordinary forward mortgages and stand almost the same as secured consumer loans in Japan, which is slightly below 3 percent per annum. The rates are much lower than those for unsecured consumer loans (exhibit 3).

Exhibit 2

Amount of Real Estate and Net Financial Assets Held by Age Group, as of 2014
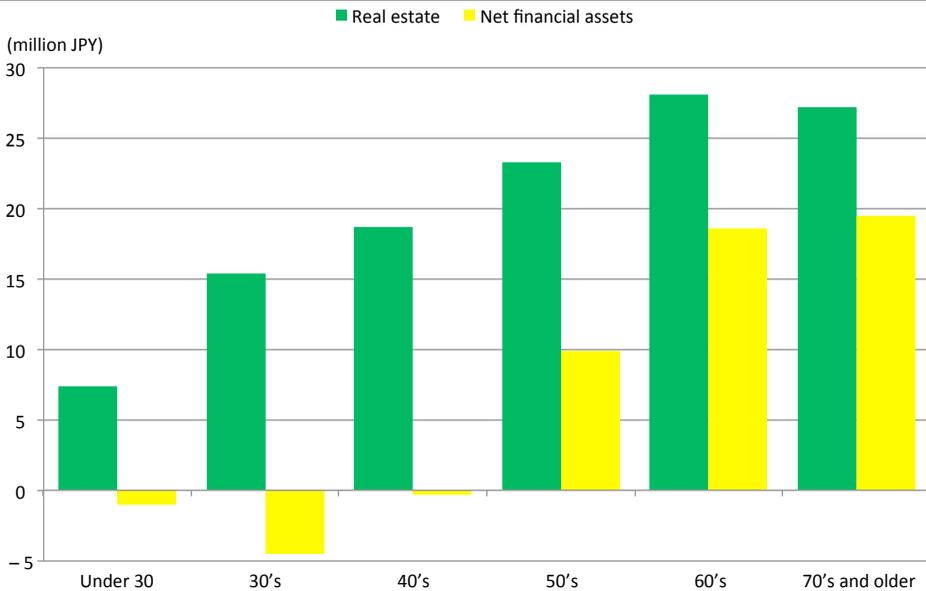
JPY = Japanese yen.
Source: MIAC (2014)

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[3] The three mega banks in Japan are the Bank of Tokyo-Mitsubishi UFJ, Sumitomo Mitsui Banking Corporation, and Mizuho Bank.

Exhibit 3

Interest Rates on Various Financial Products in Japan, as of June 2016
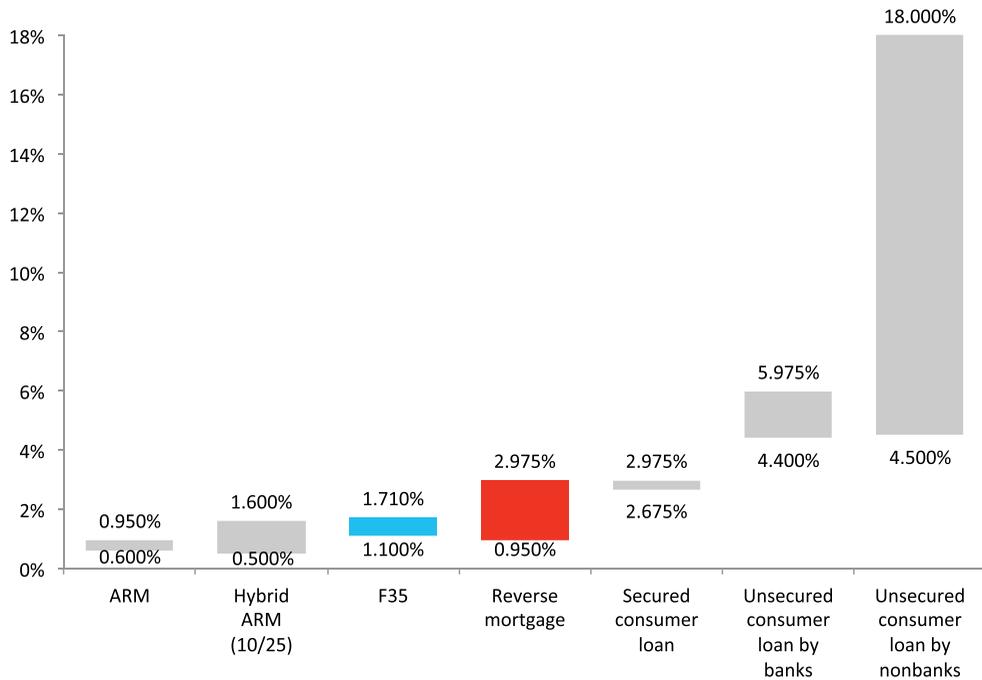
ARM = adjustable-rate mortgage. F35 = 35-year fixed-rate mortgage sponsored by the Japan Housing Finance Agency.
Source: Based on the websites of financial institutions listed and a hearing involving those institutions by the Japan Housing Finance Agency during June 2016

On May 28, 2012, the Financial System Council released a report on the medium- and long-term strategies for the Japanese financial industry, in which the reverse mortgage was referred to as a financial instrument to enhance liquidity to assets held by elderly households who are rich in assets but whose assets are illiquid on balance.

A survey conducted by JHF in February 2016 shows that 20.8 percent of the Japanese financial institutions responded that they are offering or planning to offer reverse mortgage products. Reverse mortgage products of JHF are explained separately in the section titled "Reverse Mortgage Products Sponsored by JHF."

Some of the products are nonrecourse to the personal assets of the borrowers, while others require the heir(s) to be responsible for the remaining balance if the value of the collateralized property does not satisfy the obligation. In some cases, to protect the borrowers and their heirs, special counseling is conducted before the conclusion of the contract. Otherwise, many lenders require prior consent by the reasonably presumed heirs to dispose of the property to avoid conflict at inheritance.

Several local government units have introduced reverse mortgage programs for victims of natural disasters as exceptional policy measures to mitigate damage and encourage restoring their daily lives (box 1).

Box 1

Review of the Reverse Mortgage Program of Musashino City in 2014

Two options were recommended by an expert group to reform the reverse mortgage program as follows.

1. Totally abolish the program.

2. Maintain the program while tightening the conditions for the loan, including increasing the age for eligible borrowers and reducing the amount of the loan.

Following discussions regarding the two options, the expert group summarized the recommendations as follows.

1. The reverse mortgage program by the Musashino City was pathbreaking, but many private financial institutions have launched similar programs and the need for the city to maintain the program independently has decreased.

2. Even if the conditions for the loan are tightened, risks associated with the program will not be alleviated; hence, it would be costly for the city to maintain the program.

3. Expenditures using taxpayers' money should have a broader beneficiary base and should not concentrate on a particular group.

The majority opinion was to abolish the program. A minority opinion noted that some elderly people would prefer to stay in their home, to which they are accustomed, and that the transfer from their home would increase additional physical and psychological burden on them; hence, the program should not be abolished.

Overview of the Reverse Mortgage Market in the Transpacific Region and Others

The United States

In the United States, the reverse mortgage market made significant steps with the introduction of the Home Equity Conversion Mortgage in 1989. Fannie Mae, a HUD agency, previously purchased HECM under the Home Keeper reverse mortgage loan program but terminated the program in 2008. Since then, the main funding source for HECM has been HECM mortgage-backed securities (HMBS) and HMBS real estate mortgage investment conduits (HREMICS) guaranteed by Ginnie Mae.

The reverse mortgage is basically a nonrecourse loan; that is, any deficiency after the disposition of the collateralized property cannot be claimed against the personal assets of the borrower. This feature of the loan is one reason why the reverse mortgage has not been very popular outside the United States, especially in Europe, where mortgages are usually recourse loans. Even in the United States, however, the number of applications/endorsements peaked in 2009 (exhibit 4).

The decline in the number of HECM endorsements since 2009 can be attributed to the following factors.

1. Increase in the amount of the insurance premium.

2. Decrease in the number of financial institutions that make HECM loans.

3. Decline in home prices.

This third factor suggests that the sustainable growth of home prices is an important factor for the reverse mortgage market.

Exhibit 4

Number of HECM Endorsements per Fiscal Year
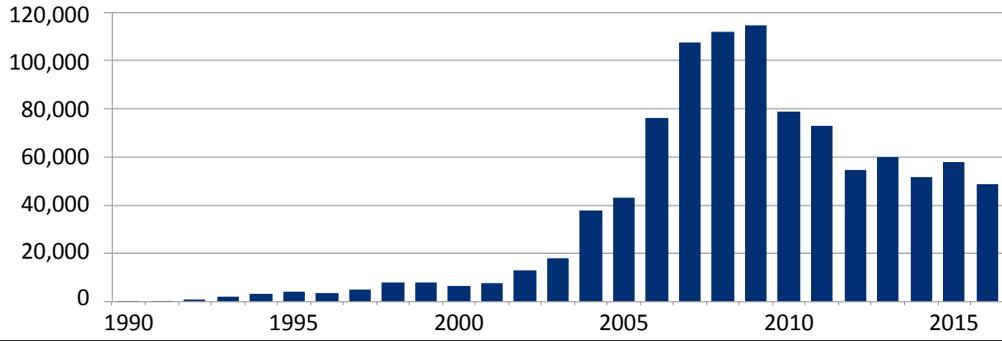
HECM = Home Equity Conversion Mortgage.
Sources: FHA (2012, 2016)

The United Kingdom

In the United Kingdom, a reverse mortgage is referred to as an "equity release." A boom of these mortgages occurred in the late 1980s, but equity releases got a negative reputation after the collapse of the housing bubble in the 1990s. An industry group named Safe Home Income Plans (SHIP), however, launched the "standard," a self-imposed regulation, in 1991 and, since then, more than 350,000 people have taken out an equity release plan from the members of SHIP, drawing on nearly 17 billion pounds sterling of housing wealth. SHIP evolved to become the Equity Release Council in 2012.

The United Kingdom is an English-speaking jurisdiction that has attracted many immigrants, similar to the United States, Australia, and Canada. In these four jurisdictions, housing prices have continued to rise, which may have contributed, to some extent, to the development of a reverse mortgage market without government intervention (exhibit 5).

Exhibit 5

BIS Property Price Index, 1990 (Q1 = 100)
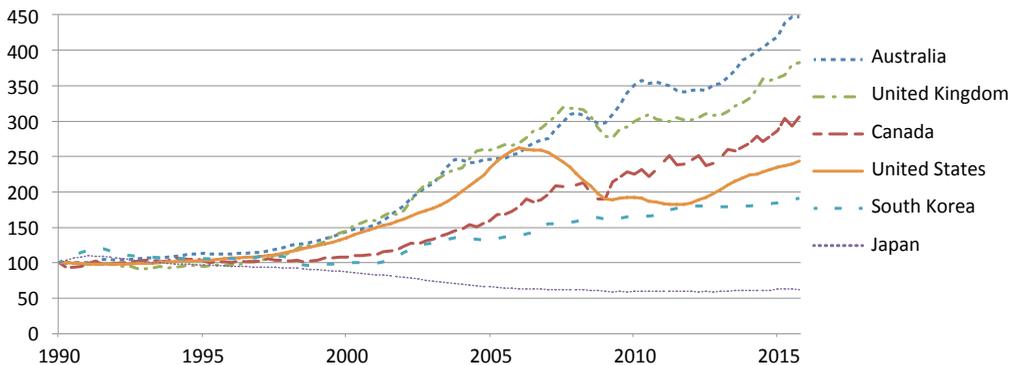
BIS = Bank for International Settlements. Q1 = first quarter.
Source: BIS (2016)

That said, the constraint of housing supply in the United Kingdom has a negative effect on the affordability of housing, especially for younger generations. What is good for elderly homeowners may work adversely for young renters. The United Kingdom government is planning to expand its Lifetime Investment Savings Account (LISA) in 2017 for first-time homebuyers, but the low elasticity of the housing supply in the United Kingdom may cause the benefit to translate into higher home prices (Hilber and Schöni, 2016).

Australia

Australia is also experiencing an aging population. The proportion of people who are older than age 60 has increased from 13.1 percent in 1971 to 17.7 percent in 2005.

The vast majority of assets held by the elderly population (those age 65 or older) are property assets, accounting for around 60 percent, and the proportion of financial assets is around 20 percent.

Because of these two factors, the "reverse mortgage market has gained considerable momentum in Australia since the 1980's" (AHURI, 2010: 1). According to the Senior Australian Equity Release Association of Lenders (SEQUAL) and Deloitte (2013), the outstanding number of cases of reverse mortgages in Australia was more than 40,000 as of December 2013 (exhibit 6). According to AHURI (2010), Australia had 10 reverse mortgage products in 2010; of those, 6 were from SEQUAL-accredited lenders, 3 were from non-SEQUAL-accredited lenders, and 1 was from the Australian government through Centrelink. The single largest reverse mortgage lender in Australia was Royal Bank of Scotland, which bought ABN AMRO Bank and accounts for 70 percent of the market.

According to ASIC (2016), the maximum loan amount starts at 15 to 20 percent of the value of the property for 60-year-old borrowers, and the ratio increases by 1 percent as the borrower ages, which translates to maximum loan amounts between 25 and 30 percent of the value of the property for 70-year-old borrowers.

Exhibit 6

Statistics on Reverse Mortgage Market in Australia, as of 2013

Items	Figures
Settlements	4,300 new borrowers, 302 million AUD
Outstanding loans	41,500 loans, 3.6 billion AUD
Share of adjustable rate	90%
Share of lump sum	94%
Share of capital cities[a]	88%
Use of proceeds	Income (50%), debt payment (33%), home improvement (14%)

AUD = Australian dollars.
[a] Capital cities are of six states and two territories.
Source: SEQUAL and Deloitte (2013)

Canada

The elderly population in Canada is also growing rapidly.

One major player in the Canadian reverse mortgage market is HomEquity Bank, whose forerunner was the Canadian Home Income Plan Corporation (CHIP), established in 1986. Effective in

October 2009, HomEquity Bank took over the issuance of CHIP Reverse Mortgages. HomEquity Bank is a subsidiary of the HOMEQ Corporation. The outstanding balance of reverse mortgages held by HomEquity Bank in 2009 was 650 million Canadian dollars (CAD), which increased to 1.58 billion CAD in 2015. The annualized growth rate was 16.04 percent.

The borrower of a CHIP Reverse Mortgage must be a Canadian national age 55 or older who owns a house. The maximum loan amount is 55 percent of the value of the property. The minimum mortgage amount is 25,000 CAD for a lump-sum initial advance and 10,000 CAD for each subsequent advance. The interest rate is 4.95 percent for a variable rate, as of July 2016.

South Korea

The reverse mortgage market in South Korea expanded when the government amended the Korea Housing Finance Corporation (KHFC) Law in 2007 to allow KHFC to guarantee reverse mortgage products provided by private financial institutions (exhibit 7). KHFC, which was established in 2004, is owned by the government and central bank of South Korea.

The main features of the reverse mortgage products sponsored by KHFC are as follows.

- Borrower age: 60 years or older.

- House price: less than 900 million South Korean won (800,000 U.S. dollars [USD] equivalent).

- Interest rate: 3-month certificate of deposit + 1.1 percent.

KHFC-sponsored reverse mortgage products include an incentive to reduce property tax by 25 percent. More than 20,000 people have applied for KHFC-sponsored reverse mortgages.

To summarize, the development of the reverse mortgage market is driven by government agencies in the United States and South Korea, but it is driven by the private sector alone in the United Kingdom, Australia, and Canada, where the size of those countries' markets is relatively small compared with the market in the United States. In English-speaking jurisdictions, the continuous growth of home prices has supported the development of the reverse mortgage market as well.

Exhibit 7

Number of KHFC-Guaranteed Reverse Mortgages
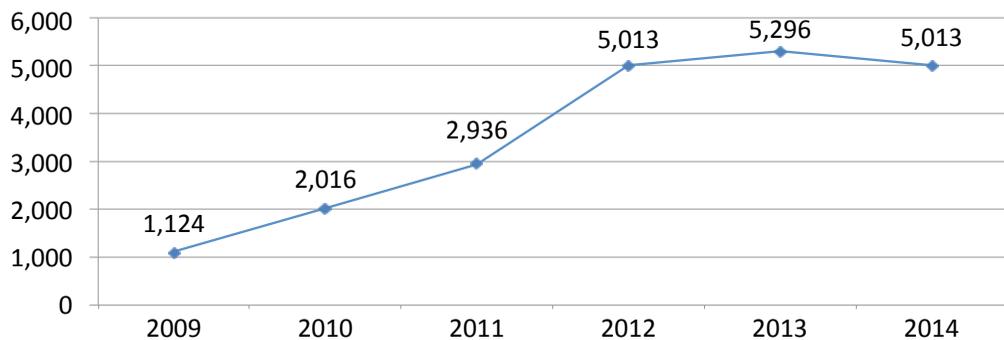
KHFC = Korea Housing Finance Corporation.
Source: KHFC (2014)

Reverse Mortgage Products Sponsored by JHF

The Japan Housing Finance Agency was established in 2007 to replace its forerunner, the Government Housing Loan Corporation (GHLC). GHLC introduced a program called the "exceptional repayment schedule for elderlies" into the fiscal year (FY) 2001 budget. The program is entirely different from ordinary forward mortgage programs, but it is also different from the United States' HECM program because it is not used to draw cash for daily expenditures. JHF introduced another program later, which is discussed in a later section.

Direct Origination of Loans With "Exceptional Repayment Schedule for Elderlies"

This program is offered to borrowers age 60 or older to renovate the housing unit in terms of accessibility or earthquake resilience. The borrower pays interest every month, and the loan is to be repaid at the time of the death of the borrower (or the co-borrower) in a lump sum by the disposition of the collateralized property (exhibit 8).

The maximum loan amount is 10 million Japanese yen (JPY). As of May 2016, the interest rate is 0.89 percent for improvement work to enhance earthquake resiliency and 1.09 percent for other work associated with elderly accessibility.

Exhibit 8

Exceptional Repayment Schedule for Elderlies
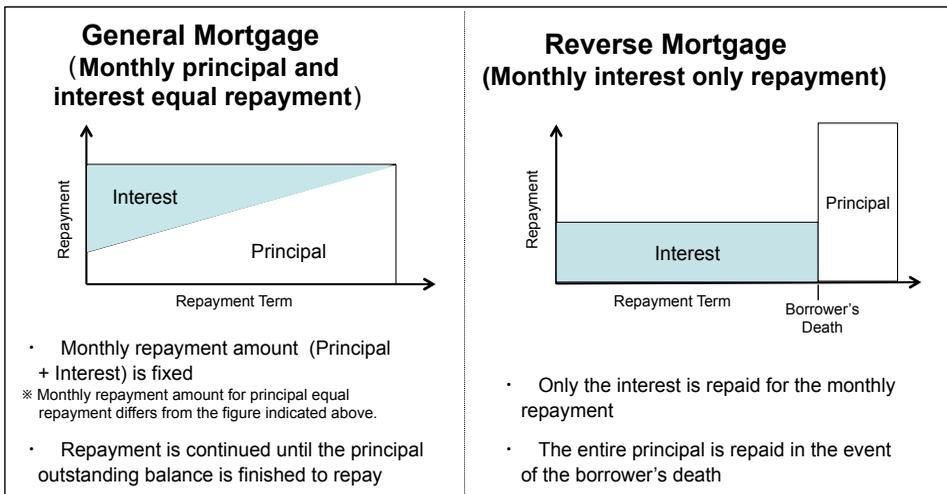
Insurance Program

JHF provides mortgage insurance to private financial institutions, just as FHA does in the United States. Under this program, the lender originates special payment term loans similar to the reverse mortgage, wherein the borrower repays the outstanding balance at his or her death. The eligible borrower is age 60 or older, constructs or purchases an owner-occupied house or borrows a one-time payment for the transfer to rental houses with nursing services for elderly residents, among others (exhibit 9).

The maximum loan-to-value ratio was raised from 50 to 60 percent in FY 2016.

Exhibit 9

Scheme of JHF Reverse Mortgage, With Mortgage Insurance
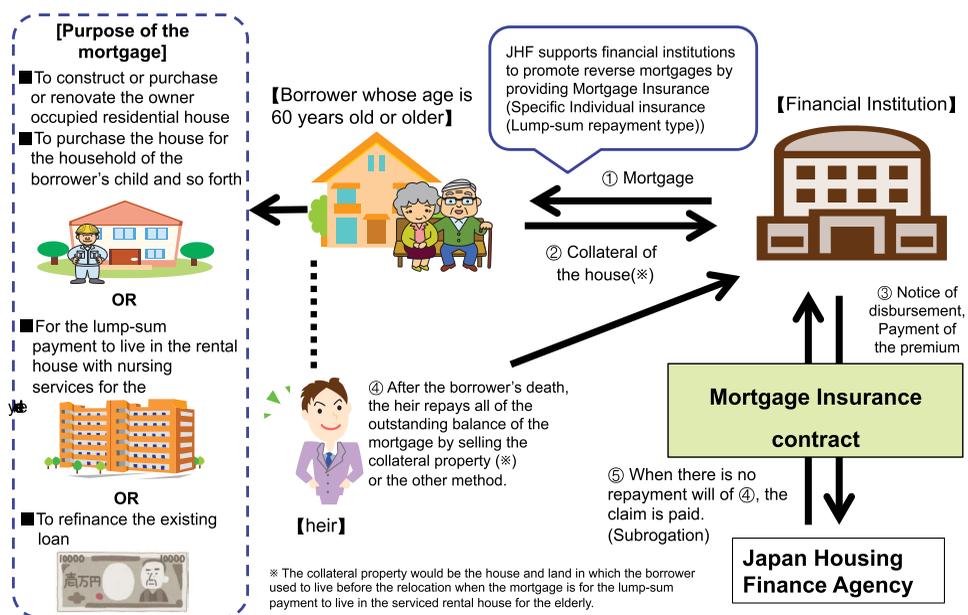
JHF = Japan Housing Finance Agency.

Use of Proceeds

From the perspective of enriching the lives of the elderly population, the use of proceeds of the reverse mortgage should be expanded to the daily expenditures as was advocated in the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) Roundtable to activate an existing house transaction. Reverse mortgage products sponsored by JHF are related to the purchase or improvement of houses and are not expanded to daily expenditures as of today, and they require monthly payment of interest, which is deferred until the death of the borrower as with the case of HECM. Expansion of the program to have more similarity with HECM is subject to policy discussion if such a program should be provided by the public sector.

Challenges To Expand the Reverse Mortgage Market in Japan

Expanding the reverse mortgage market in Japan pose several challenges, some of which are intrinsic to the product and others that are unique to Japan.

Intrinsic Factors

Intrinsic factors that adversely affect the development of the reverse mortgage market in general are longevity risk, property value risk, and interest rate risk. In this section, we analyze these factors, mainly focusing on the differences between Japan and the United States.

Longevity Risk

The average life expectancy of the elderly population in Japan is longer than that in the United States. Even after the husband dies, the wife will remain in the house until she dies, and the lender of the reverse mortgage will have to wait to possess the property meanwhile. At age 60, the difference of life expectancy between Japan and the United States is almost 4 years for females (exhibit 10).

If the average annual expenditure for elderly homeowners were 25,000 USD equivalent, the difference of the amount drawn for the annuity plan under the reverse mortgage would amount 100,000 (25,000 multiplied by 4) USD equivalent.

Exhibit 10

Difference of Life Expectancy Between Japan and United States at Selected Ages, as of 2014
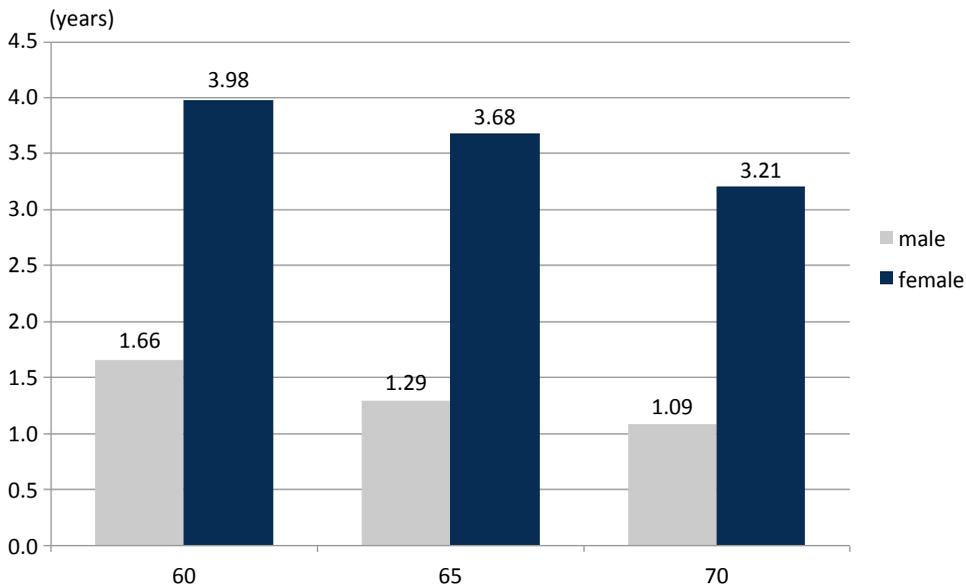
Sources: CDC (2016: 33); Government of Japan, Ministry of Health, Labour, and Welfare (2014)

Property Value Risk

Japan experienced a continuous decline of property prices since the collapse of the asset bubble in the early 1990s. Property prices temporarily recovered in the Tokyo Metropolitan Area during the "mini-bubble" in the middle of the 2000s, but they declined again after the "Lehman Shock" in 2008. Prices started to pick up after the extraordinary monetary accommodation by the Bank of Japan since April 2013, but pessimistic views still remain on the property prices in the future, based on the survey by the Bank of Japan (exhibit 11).

Reverse mortgage markets have developed in the United Kingdom, Australia, and Canada without public support; house prices in those countries have continued to rise. In the United States, where the reverse mortgage market developed with public support, the number of endorsements declined as house prices declined after the collapse of the U.S. housing bubble.

In Japan, as stated previously, elderly people have a longer life expectancy than do elderly U.S. citizens. Borrowers with longer life expectancies getting identical payouts either up front or over time will have larger balances due at death than would be the case for borrowers with a shorter life expectancy. Therefore, the Japanese lender will be exposed to a larger outstanding balance of a reverse mortgage than would the lender in a country where life expectancies are shorter. If house price performance is worse than anticipated, the additional time would allow the value of the collateral to fall short by even more. So, the longer life expectancy could add risk to reverse mortgages, not only because of a higher loan balance but also because of a longer period for the real estate market to underperform as well.

Exhibit 11

Property Prices in Japan and the United States
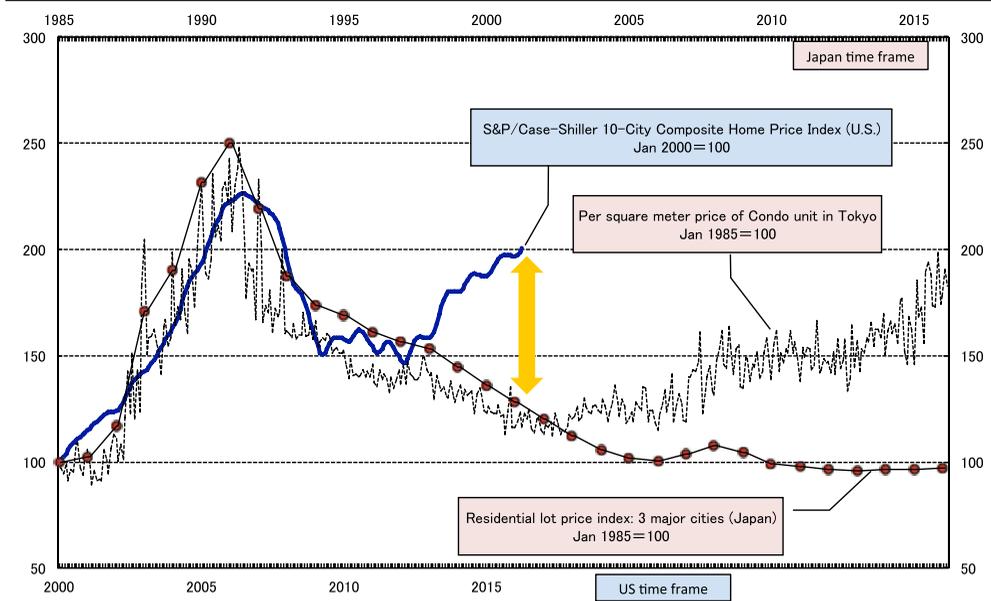
S&P = Standard and Poor's. US = United States.
Sources: Standard and Poor's (2016); Real Estate Economic Institute Co., Ltd. (2016); MLIT (2016)

Interest Rate Risk

If the lender extends a reverse mortgage with a fixed interest rate, the lender may be exposed to future interest rate risk by the fluctuation of market rates. Even in the United States, where the vast majority of forward mortgages are 30-year fixed, an adjustable rate is more popular for reverse mortgages. If the reverse mortgage is extended with an adjustable rate, the lender would be immune to future interest rate risk, but the risk is transferred to the borrower. The available amount of a reverse mortgage may be reduced due to the increase in accrued interest, depending on the design of the program.

In Japan, the interest rate is extremely low in all ports of the yield curve for the Japanese Government Bond (JGB). The yields of JGB with the remaining maturity up to 20 years were in negative territory as of July 2016 (exhibit 12).

In Japan, in July 2016, a 35-year fixed-rate mortgage was available for as low as 0.93 percent. Nonetheless, an adjustable-rate mortgage (ARM), including a hybrid ARM, is more popular in Japan because the extremely low interest-rate environment has persisted so long, so interest rate risk is not well perceived in Japan.

The ratio of outstanding public debt to gross domestic product in Japan, however, is 248 percent as of 2015, which is the worst among the Group of Seven member countries. At this moment, the

Exhibit 12

JGB Yield Curve
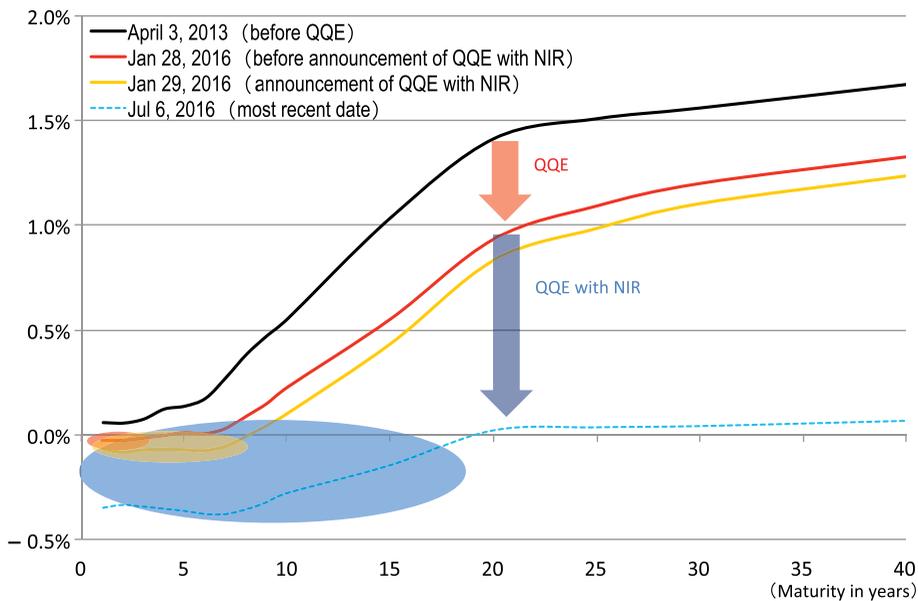
JGB = Japanese Government Bond. NIR = negative interest rate. QQE = quantitative and qualitative monetary easing.
Source: Government of Japan, Ministry of Finance (2016)

interest rate is very low because of the "Quantitative and Qualitative Monetary Easing with a Negative Interest Rate" implemented by the Bank of Japan, but after the normalization of the monetary policy, a risk may exist for the interest rate to rise abruptly.

For the reverse mortgage market in Japan, which is in the development stage, a sudden rise of the interest rate may negatively affect the borrower. If high interest rates give reverse mortgages a negative reputation among borrowers, they could create a strong headwind against the entry of new customers.

Factors Unique to Japan

In addition to the intrinsic factors that adversely affect the development of the reverse mortgage market in general, several factors unique to Japan must be considered: the existing home market, social securities, and others.

Existing Home Market

The number of sales of existing homes in Japan is much smaller compared with the number of new housing starts, which is different from other advanced economies, including those of the United States and the United Kingdom. The number of new housing starts in Japan is around 1 million per year, which is almost the same as in the United States. In the United States, however, figures for existing home sales is around 5 million while that in Japan is less than one-half million, even by the higher estimates.[4]

Japan has 8.2 million vacant houses, which is 13.5 percent of the total housing stock as of 2013. Because of such a high vacancy rate, some in Japan argue that existing home sales transactions should be more of a policy focus than new housing supply. The sales price of existing houses compared with new houses is much lower in Japan than in the United States, partly reflecting less renovation work by homeowners and lack of a method to value such renovation work with third party inspections. In addition to the overall property price movement, this difference in the value of the property with aging of the structure also negatively affects the development of the reverse mortgage market in Japan. MLIT has been launching policy tools to stimulate existing home sales transactions and has closely monitored the impact on the existing home market.

Having said that, Japan must maintain a certain level of new housing construction to replace housing stock that has less earthquake resilience. At the same time, constraints on new housing supply in the United Kingdom are one of the causes of affordability problem for first-time homebuyers. The lack of supply of new houses is good for the existing homeowners in terms of maintaining property value, but it is usually elderly generations that enjoy the benefit of such a low housing supply. The United Kingdom government is expanding LISA for first-time homebuyers in 2017 with taxpayers' money.

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[4] MLIT estimates the figure is much smaller (less than 200,000).

Social Security System

Because many employees in Japan receive lump-sum retirement benefits when they retire and also receive pensions periodically, retirees have had less incentive to borrow additional money for their daily expenditures.

As the demand for fiscal consolidation strengthens, some reform of the public pension system would be in the future, and the reverse mortgage may attract some attention to supplement pension payments; however, it may not be easy for the private sector alone to develop a reverse mortgage market in Japan, given the headwinds mentioned previously. If some public interventions were proposed, additional discussion would occur regarding the allocation of social benefit from the perspective of equity. Generally speaking, owners are better off than renters (exhibit 13).

Many elderly homeowners have already paid off their mortgage obligations and they have, on average, more than 20 million JPY in net financial assets and 25 million JPY in real estate value. They also receive pension annuity payments. Younger renters, on the other hand, have less of all assets listed in exhibit 13. Giving incentives to affluent elderly owners with public assistance may instigate political opposition.

Exhibit 13

Average Income and Assets by Owner and Renters
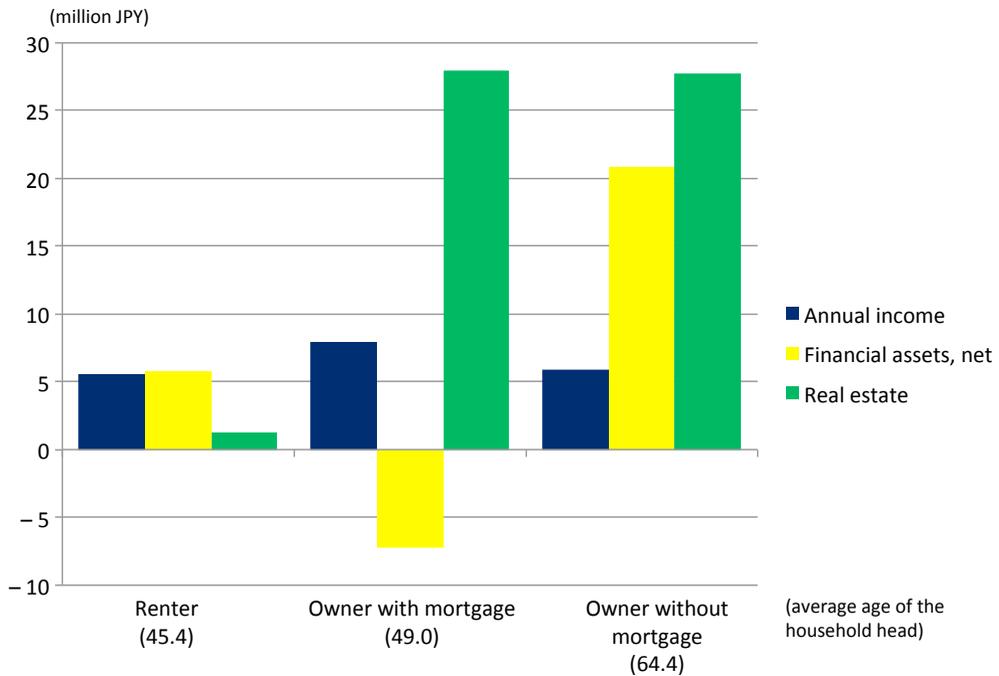
JPY = Japanese yen.
Source: MIAC (2014)

Exhibit 14

Challenges To Handling the Reverse Mortgage in Japan
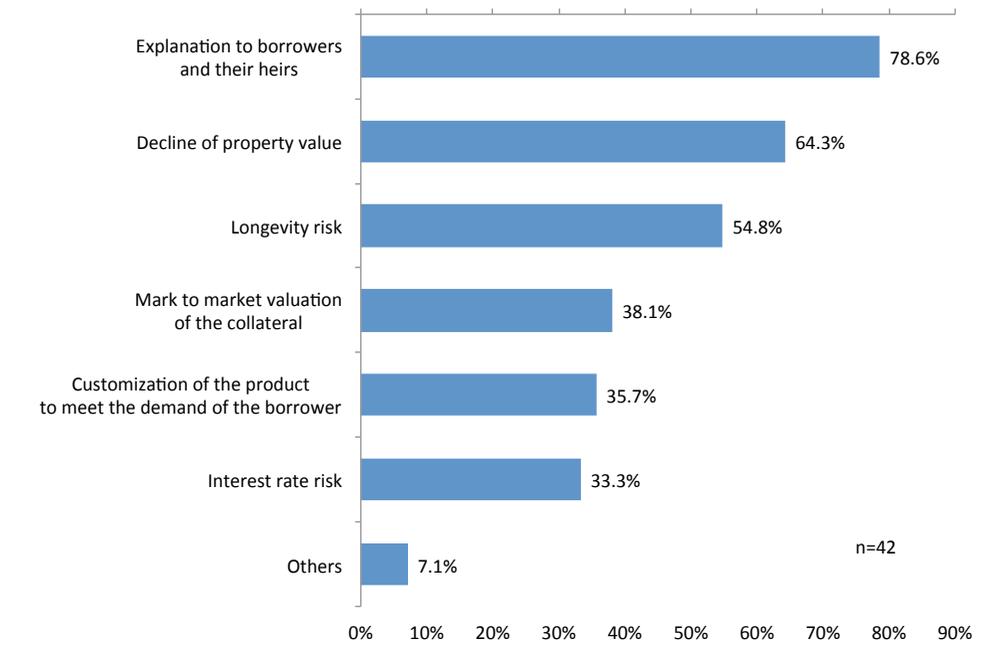
Challenges Identified by Lenders

Based on the survey conducted by JHF in February 2016, 42 financial institutions answered the question regarding the challenges of handling reverse mortgages.

As is shown in exhibit 14, the explanation to borrowers and their heirs is the most challenging factor for originating the reverse mortgage, followed by the decline of property value, longevity risk, mark-to-market valuation of the collateral, customization of the product to meet the demand of the borrower, interest rate risk, and others. These factors coincide with the challenges mentioned previously, but the fact that the explanation to borrowers and their heirs was the number one challenge demonstrates the difficulty of consumer protection in an aging society.

Securitization of Reverse Mortgages

In the United States, the outstanding balance of HMBS guaranteed by Ginnie Mae is 54 billion USD as of June 2016. In Japan, the outstanding balance of MBS guaranteed by JHF is 12 trillion JPY and that of private-label securities is 8 trillion JPY. The combined balance is 20 trillion JPY, but pools are all backed by forward mortgages in Japan and, as of today, a product similar to HMBS does not exist.

If the reverse mortgage market were to expand in Japan in the future, the market would need securitized products similar to HMBS as funding tools for the lender to hedge the interest rate risk; however, because HMBS would be an entirely new product, the strategy to place such products would need to be deliberated, especially regarding dialogue with the investor communities.

Conclusion

Reverse mortgage markets exist in several countries to supplement the daily expenditures of elderly homeowners, but, in most of those countries, the property value has continually increased and markets are more active for existing home sales transactions, which are important factors for the development of the reverse mortgage market. The United States and South Korea have strong intervention by the public sector.

The reverse mortgage program in Japan was first introduced in 1981 by a municipal government, Musashino City. The market for reverse mortgage products provided by private financial institutions is expanding as well. Reverse mortgage products provided by JHF have improved gradually, but the use of the proceeds is limited as of today.

It remains for policy discussion whether there will be more public intervention for the development of a reverse mortgage market in Japan, where social and economic conditions that are closely related to the market are so different from conditions in other countries.

Acknowledgments

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The HECM Program in a Snapshot

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Abstract

The first Home Equity Conversion Mortgage (HECM) loan was originated in 1989. As of early 2017, more than 1 million borrowers had taken advantage of the program, which enables participants to extract home equity while aging in place. The aging of the U.S. population and strong preference to age in place suggest potential for growth of the HECM program in the coming years. Any growth must be managed and strong consumer protections enforced, however, to ensure the viability of the HECM program. The purpose of this article is, first, to describe the reverse mortgage market using survey and administrative data and, second, to discuss the HECM program in light of certain demographic, economic, and housing market trends.

Introduction

The Home Equity Conversion Mortgage (HECM), a program insured by the Federal Housing Administration (FHA), enables eligible homeowners to withdraw equity from their home with no required repayment of principal or interest until the borrower(s) vacates the home. To be eligible for the program, a borrower must be 62 years of age or older, with no mortgage or with a mortgage balance that is easily paid off with proceeds from the HECM loan.[1] The HECM program was first envisioned as a way to enable borrowers to meet retirement expenses while aging in place. Although it is estimated that only about 2 to 3 percent (CFPB, 2012) of eligible homeowners participate in the program, the aging of the U.S. population, large share of wealth held in equity, and strong preference to age in place suggest potential for growth of the HECM program.

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[1] For a full list of the latest borrower requirements, visit http://portal.hud.gov/hudportal/HUD?src=/program_offices/housing/sfh/hecm/hecmabou.

The purpose of this study is to first describe what is known about the reverse mortgage market. Using survey data from the American Housing Survey (AHS), we track the reverse mortgage market over time. We then compare demographic, financial, and housing characteristics of the reverse mortgage borrower with otherwise similar homeowners. We find results consistent with previous research in terms of race, ethnicity, income, and age (CFPB, 2012; Haurin et al., 2014).

Using administrative data from the FHA, we then specifically focus our attention to the most common reverse mortgage product: the HECM loan. We examine HECM originations over time and construct a measure of market penetration that allows for comparison across states. We find that originations peaked in 2008, at about 115,000 loans, but subsequently have fallen to an annual average of around 58,000 loans from 2011 to 2015. Further, we find that significant variation exists across states in the market penetration of HECM loans.

Finally, we conclude the article with a discussion of opportunities for HECM. We specifically discuss certain demographic, financial, and housing trends that may affect the HECM program in the future.

American Housing Survey

Although the overwhelming majority of reverse mortgages are insured through the HECM program, a small segment of the market is not. The AHS allows for an unrestricted examination of the market that includes both HECM and non-HECM reverse mortgages. Since 2001, the AHS has asked homeowners who are age 62 or older whether they have a reverse annuity or home equity conversion mortgage.

According to our tabulations of the AHS,[2] the number of active reverse mortgages, not just originations, was 31,626 (or 0.16 percent of eligible homeowners) in 2001, and the number increased steadily to a high of 435,411 (or 1.74 percent of eligible homeowners) in 2011. The number of active reverse mortgages declined to 418,595 (or 1.58 percent of eligible homeowners) in 2013.[3] (See exhibit 1.)

Homeowners age 62 and older can be divided into three main categories: (1) those who own their homes free and clear, (2) those who have reverse mortgages, and (3) those who own their home with a regular mortgage and/or home equity mortgage. Splitting homeowners into these categories

Exhibit 1

Reverse Mortgage Trends

Year	N[a]	Percent of Owners Age 62 and Older
2001	31,626	0.16
2003	47,332	0.24
2005	66,442	0.32
2007	158,911	0.74
2009	252,333	1.15
2011	435,411	1.74
2013	418,595	1.58

[a] N is both weighted and rounded.
Note: For data accuracy, see http://www2.census.gov/programs-surveys/ahs/2013/2013%20AHS%20National%20Errors.pdf.
Source: 2001–2013 American Housing Surveys

[2] All differences reported in the text have been tested at the 10-percent significance level.

[3] The decline was not significant at the 10-percent significance level.

presents a picture of the ownership position of older homeowners. Exhibits 2, 3, and 4 present selected household and housing characteristics of the homeowners eligible for reverse mortgages in 2013. Exhibit 2 shows the distribution of positions by demographic and income characteristics of householders and households. White-alone homeowners are more likely to own their homes free and clear (62.51 percent) than Black-alone homeowners (50.65 percent). Black-alone homeowners are slightly more likely to have a reverse mortgage (2.50 percent) than White-alone homeowners (1.54 percent), but the differences between Hispanic and non-Hispanic homeowners were not statistically significant at the 10-percent level. Homeowner householders with forward mortgages (median age 67) are younger than those with reverse mortgages (median age 75) and those who own free and clear (median age 73). We find no differences in the median number of individuals (two) living in owned homes who are age 62 and older. Households with reverse mortgages have lower median incomes than households that own their homes free and clear or have forward mortgages. Median household incomes of those with reverse mortgages are a little more than one-half of the Area Median Income (AMI), but median household incomes of those with forward mortgages are nearly equal to AMIs.

Turning to the structures in which older homeowners live (exhibit 3), we see that those with reverse mortgages and those who own free and clear are living in older structures (median year built: 1960 and 1970, respectively) than those with forward mortgages (median year built: 1975). Those with reverse mortgages and those who own free and clear moved into their homes earlier (median year moved in: 1984 and 1986, respectively) compared with those with forward mortgages (median year moved in: 1996). Homes owned with forward mortgages have higher median values ($180,000) compared with those owned free and clear ($150,000) and those with reverse mortgages ($160,000). When value is examined in relation to current income (a measure of affordability), we see that those with reverse mortgages have higher ratios (5.98) compared with those who own free and clear (4.17) and those with forward mortgages (3.57).

Exhibit 2

Ownership Type by Demographic and Income Characteristics, Homeowners Age 62 and Older

	No Mortgage: Owned Free and Clear	Reverse Mortgage	Regular and/or Home-Equity Mortgage
Race and Hispanic origin (%)			
White alone	62.51	1.54	35.96
Non-Hispanic	62.93	1.51	35.57
Hispanic	56.13	1.99	41.88
Black alone	50.65	2.50	46.85
Non-Hispanic	50.45	2.54	47.00
Hispanic	62.19	—	37.81
Other	50.10	0.67	49.23
Hispanic or Latino (any race)	55.42	1.86	42.72
Non-Hispanic	61.45	1.57	36.98
Median age of householder	73	75	67
Median number of individuals living in the house (persons)	2	2	2
Median Household Income ($)	32,756	26,099	50,964
(Median household income/ Area median income) x 100	66.78	53.07	98.37

Note: For data accuracy, see http://www2.census.gov/programs-surveys/ahs/2013/2013%20AHS%20National%20Errors.pdf.
Source: 2013 American Housing Survey

Exhibit 3

Ownership Type by Structure, Occupancy, and Home Value, Homeowners Age 62 and Older

	No Mortgage: Owned Free and Clear	Reverse Mortgage	Regular and/or Home-Equity Mortgage
Year structure built (%)			
2010 to 2014	48.27	3.25	48.48
2005 to 2009	50.42	1.05	48.53
2000 to 2004	51.51	1.27	47.21
1995 to 1999	53.57	0.87	45.56
1990 to 1994	55.97	1.26	42.77
1985 to 1989	57.83	1.31	40.86
1980 to 1984	60.36	2.07	37.57
1975 to 1979	62.18	1.21	36.61
1970 to 1974	65.11	2.09	32.80
1960 to 1969	65.44	1.62	32.94
1950 to 1959	65.18	2.54	32.28
1940 to 1949	61.98	2.44	35.58
1930 to 1939	62.57	1.04	36.40
1920 to 1929	65.08	0.42	34.50
1919 or earlier	65.02	0.94	34.04
Median (year)	1970	1960	1975
Year householder moved into unit (%)			
2010 to 2014	52.59	1.26	46.15
2005 to 2009	49.95	0.85	49.20
2000 to 2004	49.26	1.44	49.30
1995 to 1999	53.64	1.28	45.08
1990 to 1994	56.85	1.54	41.61
1985 to 1989	58.07	1.23	40.70
1980 to 1984	64.66	1.47	33.87
1975 to 1979	66.89	2.51	30.60
1970 to 1974	73.10	2.18	24.72
1960 to 1969	79.06	1.90	19.04
1950 to 1959	87.77	1.82	10.40
1940 to 1949	86.38	3.68	9.94
1939 or earlier	92.10	3.97	3.94
Median (year)	1986	1984	1996
Median home value ($)	150,000	160,000	180,000
Ratio of value to current income	4.17	5.98	3.57

Note: For data accuracy, see http://www2.census.gov/programs-surveys/ahs/2013/2013%20AHS%20National%20Errors.pdf.
Source: 2013 American Housing Survey

With the absence of forward mortgage costs, median monthly housing costs are less for those who own their homes free and clear and for those with reverse mortgages compared with those with mortgages ($458 and $457 vs. $1,188). Because housing costs are higher for those with mortgages, so are housing burdens (28 percent). Because owners with reverse mortgages have lower incomes, however, they also have higher burdens (21 percent) than do those who own free and clear (16 percent). Costs for nonmortgage components of housing costs, including costs for taxes, electric, gas (piped and bottled), fuel oil, trash, and water, are relatively consistent across the ownership categories. It appears that owners with reverse mortgages pay less for other fuels, which include wood, coal, kerosene, or any other fuel, but a relatively small amount of homeowners use these types of fuel and this difference is not statistically significant at the 10-percent level.

Exhibit 4

Housing Costs by Ownership Type, Homeowners Age 62 and Older

	No Mortgage: Owned Free and Clear	Reverse Mortgage	Regular and/or Home-Equity Mortgage
Median monthly housing costs ($)	458	457	1,188
Median monthly housing costs as a percentage of current income (%)	16	21	28
Median annual taxes paid per $1,000 value ($)	10	9	10
Median monthly cost paid for electricity ($)	97	103	108
Median monthly cost paid for piped gas ($)	50	53	52
Median monthly cost paid for fuel oil ($)	167	167	167
Median monthly cost for selected utilities when paid separately ($)			
Water	38	42	44
Trash	21	21	24
Bottled gas	23	24	24
Other fuel	33	17	25

Note: For data accuracy, see http://www2.census.gov/programs-surveys/ahs/2013/2013%20AHS%20National%20Errors.pdf.
Source: 2013 American Housing Survey

FHA Administrative Data

In this section we use FHA administrative data to specifically examine HECM originations. The first HECM loan was originated in 1989 as a pilot program that was not made permanent until 1998 (Szymanoski, Enriquez, and DiVenti, 2007). The number of HECM loans originated during the 1990s was relatively low, with annual endorsements not exceeding 10,000 until 2002. Exhibit 5 shows the number of HECM originations from 2002 to 2015.

From 2002 to 2008, HECM originations increased from slightly less than 15,000 loans to the peak of about 115,000 loans. After the peak, the number of originations fell to an annual average of around 58,000 loans from 2011 to 2015. Although not included in exhibit 5, the number of loans originated during the first half of 2016 was 21,000, which is slightly less than the recent 5-year annual average.

At the end of 2015, there were more than 360,000 active HECM loans. The latest American Community Survey estimates that nearly 27 million homeowner households in which the household head was at least 62 years of age. Using these two statistics, we constructed a measure of market penetration of HECM loans that is comparable across time and geography. For example, in 2015, for every 1,000 age- and tenure-eligible households in the United States there were 13.4 HECM loans.[4]

An estimated measure of market penetration for each state and the District of Columbia (DC) is provided in exhibit 6. Utah is the state with the highest measure of HECM loans, at 21.2 loans per

[4] The figure is lower than the 2 to 3 percent estimate provided in the Consumer Financial Protection Bureau's 2012 report to Congress (CFPB, 2012), because not all age- and tenure-eligible households will have enough equity to qualify for the program, resulting in a lower denominator and higher estimate of market penetration from previous studies.

Exhibit 5

HECM Originations by Year
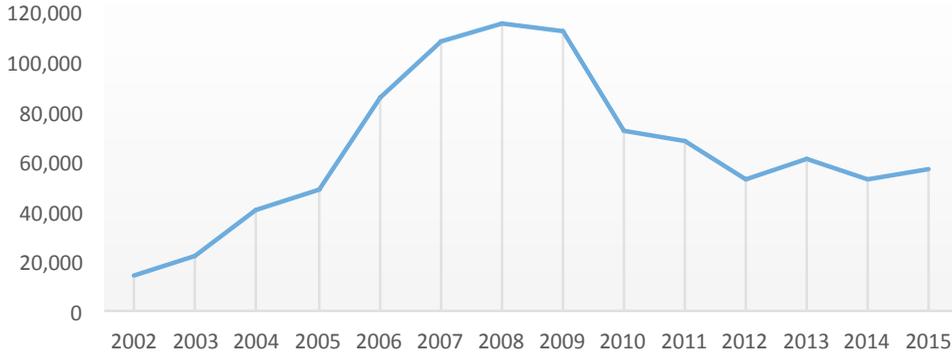
HECM = Home Equity Conversion Mortgage.
Source: Tabulations of Federal Housing Authority administrative data

Exhibit 6

HECM Loans Active in 2015 per 1,000 Eligible Households

District of Columbia	56.9	Oklahoma	12.1
Utah	21.2	Michigan	12.1
Maryland	18.6	Tennessee	12.1
Louisiana	18.6	Connecticut	12.1
California	18.1	Arkansas	11.7
Florida	17.4	Maine	11.0
Texas	16.7	Wyoming	10.8
New Mexico	16.7	Rhode Island	10.5
New Jersey	16.2	North Carolina	10.3
Delaware	15.9	Alaska	10.2
Alabama	15.6	Missouri	10.0
Oregon	15.5	New Hampshire	9.5
Nevada	15.0	Indiana	9.4
Virginia	14.4	Vermont	9.2
Georgia	14.3	Massachusetts	8.8
New York	14.0	Ohio	7.7
Idaho	13.9	Kansas	7.1
Mississippi	13.7	Minnesota	7.1
Colorado	13.5	Wisconsin	7.1
South Carolina	13.3	West Virginia	6.8
Arizona	13.1	Kentucky	6.6
Hawaii	13.1	Nebraska	6.0
Pennsylvania	12.9	North Dakota	5.3
Illinois	12.9	Iowa	5.0
Montana	12.4	South Dakota	4.9
Washington	12.1		

HECM = Home Equity Conversion Mortgage.
Note: An eligible household is defined as a homeowner with a household head who is at least age 62.
Source: 2014 American Community Survey

every 1,000 age- and tenure-eligible households. Maryland and Louisiana, both at 18.6, follow Utah. The state with the lowest penetration of HECM loans is South Dakota, at 4.9, followed by Iowa, at 5.0, and North Dakota, at 5.3.

The state variation in the penetration of HECM loans may be explained by differences in preferences, state-level regulations, market saturation, and local housing market conditions. In fact, empirical examination of state-level variation in the rate of origination of HECM loans finds evidence that seniors use the product to insure against house price declines (Haurin et al., 2016). This finding may be one plausible explanation for the high uptake of HECM mortgages in California and Florida before the housing bust.

Discussion

The potential for growth in HECM lending is mostly attributable to three factors. The first is that the U.S. population is aging and will continue to do so. As the baby boomers move into retirement, those with enough equity in their home will meet the age requirement for the HECM program. In 2015, it was estimated that the population older than 62 years was roughly 59 million, representing a sizeable share of the U.S. population, at 18.3 percent.

The absolute number and share of the population are projected to increase, as exhibit 7 illustrates. According the U.S. Census Bureau's latest National Population Projections, the population older than 62 years will nearly double to more than 112 million by 2060, representing an even larger share, at 26.9 percent of the population. In other words, by 2060, more than one in four people in the United States will meet the age requirement for the HECM program.

Although not all homeowners 62 years and older will have enough equity to qualify for a HECM loan, it is important to note that homeownership rates generally increase with age. For example, the Census Bureau estimated that, in the first quarter of 2016, the homeownership rate for those younger than age 35 was just 34.2 percent, whereas the homeownership rate for those older than 65 years was 79 percent. The share of homeowners that own their home free and clear also increases with age.

Exhibit 7

Population Projection: Age Requirement for HECM Program
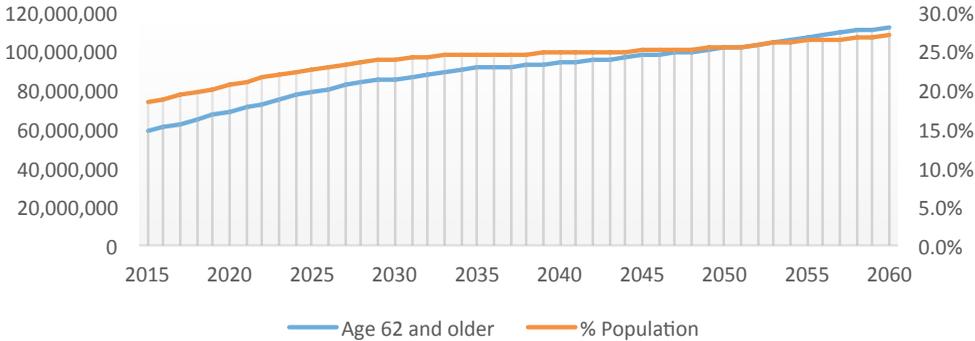
Source: U.S. Census Bureau

The second factor suggesting growth in HECM mortgages is that housing wealth continues to be an integral part of the U.S. financial portfolio. It is estimated that, for those age 62 and older, 55 percent of their wealth is held in housing (CFPB, 2012). The HECM mortgage enables eligible homeowners an opportunity to tap into the equity to supplement retirement income.

Finally, a strong preference exists among seniors to age in place, and this preference is expected to persist. In fact, a recent survey by AARP found that 71 percent of those ages 50 to 64 wanted to age in place (AARP, 2014). The HECM program provides an established option to supplement retirement income while remaining in the home. Proceeds from the HECM loan can also be used to make necessary home modifications that help seniors delay or avoid the need to enter assisted-living communities (HUD/PD&R, 2013).

Although at least three factors point to the potential for growth in the number of new HECM mortgages originated, challenges persist and many eligible homeowners remain reluctant. The reluctance is due to several factors, including the complexity of the program, the perception that a HECM loan is a last resort, and a desire to leave the home as an inheritance (CFPB, 2012). These factors must be considered as well. The potential growth must be managed and strong consumer protections enforced to ensure the viability of the HECM program in the future.

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Symposium

Transforming Communities
Guest Editors: William Lambe, Theresa Singleton, and
Susan Wachter

Guest Editors' Introduction

Transforming Communities for Inclusive Growth

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The analysis and conclusions set forth in this introduction are solely the responsibility of the authors and do not indicate concurrence by the Federal Reserve Bank of Atlanta, the Federal Reserve Bank of Philadelphia, or the Federal Reserve System.

Economic opportunities in the United States have become increasingly concentrated in communities that are inaccessible to many Americans. Authors in this symposium describe a troubling and challenging reality—that good jobs, schools, and housing are, in many places, out of reach, especially for low-income families. This reality is the consequence of several mutually reinforcing trends—high-wage, high-skill jobs are increasing in certain places, but not everywhere; those places are growing more expensive; and expensive places are becoming more rich with amenities, including good schools.

In this symposium, the authors synthesize and update recent research findings to describe the forces and factors behind these trends. Arthur Acolin and Susan Wachter frame the challenges facing local officials attempting to reinvent older communities (Acolin and Wachter, 2017). Economic segregation is growing in part as a result of localities that exclude through a lack of affordable housing, a phenomenon that is now occurring on a regional scale. Acolin and Wachter describe the growing economic importance of knowledge- and innovation-based industries and the clustering of such industries in places with a ready supply of highly educated workers. This clustering in turn drives up the productivity of the places in which they concentrate, resulting in more and better jobs for people with the education and skills to fill them. These productive places are further enriched, in a reinforcing cycle, with good schools, safe neighborhoods, and other markers of opportunity.

The clustering of high-wage, high-skill jobs thus creates places rich with opportunity, but access to these places can be limited by, among other things, transit connections, zoning restrictions,

increasing property taxes, and ultimately the supply of affordable housing. Housing supply in opportunity-rich places is increasingly constrained, as Acolin and Wachter discuss. This phenomenon is attributable in part to the difficulty of building in the already densely developed central cities that knowledge-based industries and workers favor but also is the result of land use regulatory regimes.

The scarcity of affordable housing is thus a key driver in making places more polarized in terms of the access they offer to jobs, education, training, and housing. The places with more job growth are also the ones with higher levels of economic mobility. Thus, not only does the polarization of access to opportunity affect the earning potential and the welfare of the current generation, but it also propagates patterns of income and welfare for future generations as well.

Strategies

The economic polarization playing out in communities across the United States offers a new opportunity for local leadership. Disrupting this cycle and spurring broad-based revitalization of older cities, while preserving affordable housing, start at the local level. It is local practitioners, planners, and policymakers who can innovate and implement solutions for transforming economies for better outcomes for all. The articles in this symposium provide evidence-based policy options that respond to the challenges of spatially based economic polarization. Together, they suggest a roadmap for local communities seeking to achieve inclusive economic growth.

Transforming Opportunity Through Local Action

Andrés Rodríguez-Pose and Callum Wilkie describe the growing power that local actors have to implement solutions as part of an ongoing, global trend toward devolution of power to local and regional governments (Rodríguez-Pose and Wilkie, 2017). Matthew P. Steinberg and Rand Quinn echo this point in their discussion of education policy in the United States. Reauthorization of the Every Student Succeeds Act in 2015 gave states and districts greater autonomy in implementing education policy, specifically to revise accountability, testing, and educator evaluation policies (Steinberg and Quinn, 2017). Harry J. Holzer also points to the importance of regional public-private collaboration to provide skills and training for the new economy (Holzer, 2017).

Regarding economic development policy, Rodríguez-Pose and Wilkie point out a number of things to like about the trend toward devolution. First, place-based approaches to economic development initiated by local governments result in strategies that are tailored to local needs and conditions, which makes them more effective. By identifying and building on their communities' specific strengths, localities can more effectively promote their own unique qualities rather than "building new activities from scratch" (Rodríguez-Pose and Wilkie, 2017: 154). In addition, place-based strategies can better incorporate local needs and policy, a fact that Rodríguez-Pose and Wilkie say usually leads to "the creation of more stable and high-quality jobs" (Rodríguez-Pose and Wilkie, 2017: 154).

Transforming Urban Work and Skills

Holzer (2017) identifies a number of successful initiatives that are strengthening the demand for and supply of workers in older urban communities. These include employer-led practices that create

"high-road" workplaces, which improve outcomes for workers and for the communities in which employers are based. Such practices include career-laddering or lattices to ensure upward mobility for employees and employee stock-ownership programs to help workers gain a stake in firms' successes.

Holzer also describes strategies that communities and industry are implementing together to provide training for new and existing high-quality jobs. These strategies include partnerships among industry, community colleges, and intermediaries to scale up sector-based training and to develop career pathways in those sectors with "stackable credentials" to train students for good-paying jobs.

Holzer also suggests that officials hold community colleges and other training institutions more accountable for the employment outcomes of low-income students by tying funding to these outcomes. For example, he suggests using the future earning potential of graduates of associate of arts and associate of science programs as a measure of these programs' success and tying that to subsequent funding. Further, he identifies high-quality career technical education, apprenticeships, and dual enrollment at community colleges and high schools as emergent bright spots in preparing low-income students for jobs.

Ultimately, Holzer encourages local officials to recognize the extent to which access (both physical and social) to schooling and to labor market opportunities matters. Transportation and childcare create physical access to jobs and skill-building opportunities, and high school counselors create social access by introducing students to a wider range of options and paths than they might find on their own. He ends by emphasizing that counseling and fundamental skill building can link students to the new-economy jobs that require a broad range of skills and workforce readiness competencies.

Transforming Urban Schools

In their comprehensive review of empirical work on education policy interventions, Steinberg and Quinn (2017) identify initiatives that improve educational outcomes, especially for children from low-income families. They emphasize in particular the body of evidence on the importance of qualified professionals in early childhood education programs, making the point that ongoing professional development for pre-kindergarten teachers is an important piece of the puzzle in expanding access to opportunity.

Steinberg and Quinn's review of the evidence also shows the importance of human capital policies in improving educational outcomes. Considering teacher recruitment, Steinberg and Quinn suggest that districts should consider incorporating nontraditional measures of teacher quality, such as cognitive and noncognitive skills, into hiring decisions. They report that teacher induction programs with rigorous supports can have a positive impact on student outcomes over time. Teacher evaluation systems with frequent classroom observations by the principal, followed by conferences during which detailed feedback is provided, were also shown to be effective.

Steinberg and Quinn report too on policies related to accountability, standards, and assessment. Although they find that high-stakes accountability may generate improvements in academic achievement, the authors caution practitioners to consider unintended consequences; for example, accountability and assessment structured around high-stakes testing can encourage districts to focus disproportionately on students near the threshold scores or on test-specific skills.

Regarding policies that lead to closure of low-performing schools, the authors conclude that a policy of closing schools to improve academic outcomes is unlikely to be effective. The evidence "suggests that producing higher levels of achievement would require moving students to schools that are dramatically higher achieving than the schools they left" (Engberg et al. 2012: 198).

Finally, Steinberg and Quinn examine evidence on the impact on student outcomes of various market-based reforms and school choice programs. For example, they report that small schools established in New York City in the early 2000s improved the probability of high school graduation, likely as a result of a variety of factors including the competitive nature of establishing these schools and their high per-pupil funding.

Steinberg and Quinn also find that No Excuses charter schools, like the Harlem Children's Zone Promise Academies, can be highly effective. Attending a Promise Academy school was enough to close the Black-White achievement gap in elementary and middle school math and elementary English language arts, for example. These schools are unique in that they have large per-pupil allocations, long school days and years, and achievement incentives for students and teachers.

Transforming the Availability of Affordable Housing

Opportunity is increasingly tied to place, as regions and localities with good jobs become less affordable. Lance Freeman and Jenny Schuetz target the problem of housing affordability in rising and revitalizing markets, identifying the most successful strategies for increasing the supply of affordable housing in high-quality neighborhoods and improving conditions in existing, more affordable neighborhoods (Freeman and Schuetz, 2017). They demonstrate that existing state and local efforts have produced relatively few affordable units, although some work better than others; mandatory inclusionary zoning programs seem to work better than voluntary ones, for example. They call on state and local governments, housing advocacy organizations, and research organizations to facilitate the gathering of data to better understand what is working, how existing programs can be improved, and, equally importantly, the political dynamics of both local and state programs.

Freeman and Schuetz's review of the evidence also leads them to two concrete policy suggestions for cities and counties—(1) to systematically reduce the regulatory burdens of development, thereby reducing the development and construction costs of new housing (or at least slowing future price growth), and (2) to increase the jurisdiction-wide densities allowed (*upzone*) to facilitate the production of smaller, lower-cost housing units.

Although reducing regulations and upzoning are intended to increase the supply of affordable housing, Freeman and Schuetz also note promising examples of policies aimed at expanding opportunity for affordable housing, and particularly workforce housing, by targeting low-income residents of gentrifying neighborhoods. By providing preferences in new affordable housing developments for such residents, this strategy can make it easier for those residents to remain in their neighborhoods and might make them less wary of gentrification. The authors caution, however, that this approach is controversial and the circumstances in which it is applicable are as yet unclear.

Although the focus of their article is on state and local programs, Freeman and Schuetz note two federal initiatives that may expand access to high-quality neighborhoods for low-income

households. First, a HUD program change shows promise in enabling more voucher recipients to rent apartments in low-poverty, high-opportunity neighborhoods. Second, a new HUD rule would require localities receiving funding to set goals for reducing racial segregation. Freeman and Schuetz also recognize that local, state, and federal policies need to attract and leverage private capital in the provision of affordable housing.

Conclusion

The evidence-based recommendations summarized in this introduction stem from initiatives that are transforming economies in localities across the United States. Transforming economies and reinventing communities are major challenges, marked by an increasing lack of affordable housing, which in turn prevents access to areas of high job growth. Nonetheless, inclusive growth can be achieved by implementing policies that increase access to places of opportunity while also increasing opportunity in places that are currently left behind. The locus of action is now even more firmly at the local and regional levels. What is important is to use this new structure of opportunity, as described in these articles, to design and implement inclusive economies.

Acknowledgments

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Opportunity and Housing Access

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Abstract

This article examines the relationship between employment opportunity and housing affordability. Access to locations with high-productivity jobs is increasingly limited by regional housing affordability barriers. Recent articles demonstrate a new regional divergence in access to high-productivity regions accompanied by declines in worker mobility associated with affordability barriers. We update these findings and discuss their long-term implications for economic opportunity and intergenerational welfare. We show that areas, from which lower-income households are increasingly priced out, are also more likely to have higher levels of intergenerational mobility. Access to opportunity also continues to be challenged within metropolitan areas as the gentrification of downtown neighborhoods is accompanied by an increase in concentrated poverty in outlying city neighborhoods and inner ring suburbs. These trends on regional and local scales derive from the increased importance of place in the knowledge-based economy and interact to reinforce growing spatial inequality. We conclude with a discussion of the importance of identifying place-based solutions to counter growing spatial inequality of opportunity.

Introduction

For more than 100 years, in the United States, population has flowed from low-income to high-income states. This movement of people drawn to regions with better employment opportunities has led to a long-term convergence of regional per capita incomes. Evidence suggests, however, that this period of convergence has stopped in recent decades. Divergent opportunity across regions has replaced convergence.[1] At the same time, regions with employment opportunities are

[1] This divergence is taking place in the context of an overall stagnation in income since 1999, with median income in 2015 still below 1999 levels (Porter et al., 2016). This wage stagnation has particularly affected lower-income and lower-skilled workers. The reasons for this stagnation and whether it might result in a secular stagnation are the object of debate, but investment in education, skill, and infrastructure have been identified as crucial to ensuring shared prosperity (Porter et al., 2016; Wachter and Ding, 2016).

also experiencing rapid house price and rent appreciation. Unlike in the past, when convergence was accompanied by an increase in the supply of housing in growing regions, house price increases now appear to be limiting the movement of workers to these areas of opportunity (Moretti, 2013) as overall mobility declined from an average of 19.7 percent between 1948 and 1980 to 11.6 percent in 2015 (U.S. Census Bureau, 2016).

New high-productivity jobs are concentrated in higher-housing-cost metropolitan areas with endogenous amenity growth that attracts higher-skilled workers, whereas lower-skilled workers are increasingly concentrated in lower-opportunity regions. This new trend of divergence *across* metropolitan areas has important implications for economic mobility and social inclusion for the United States going forward.

Similarly, divergence *within* metropolitan areas is also growing as a result of central city revitalization, which has taken place during the past two decades after widespread urban decline between the 1960s and 1980s. Cities with growing knowledge-based industries have experienced particularly strong residential demand growth, especially in central locations within these cities. Concurrently, central neighborhoods have experienced rapid relative population income growth and rapid gains in college-educated populations (Baum-Snow and Hartley, 2015).

The phenomenon of urban renewal is driven in part by younger, educated individuals' preferences for amenities that are associated with centrality (Couture and Handbury, 2015; Edlund, Machado, and Sviatschi, 2015). Revitalization and improved amenities attract young knowledge workers that then attract jobs. Thus, although economic growth in the central areas of cities has been accompanied by an improvement in amenities, the accompanying increase in housing cost has led to concerns about displacement of current residents. At the same time, outlying neighborhoods and inner-ring suburbs with less access to jobs and amenities, experience increases in poverty (Jargowsky, 2016; Kneebone, 2016).

Access to housing is not only about having a roof over one's head; it also affects one's access to opportunity, including education and networking, and to good jobs. Both diverging regional fortunes and urban revitalization are the result of the new importance of skill-based jobs and urban agglomerations that provide a base for the expanding knowledge-based economy. These trends raise the questions of whether lower-skilled, lower-wage households might lastingly be left out of access to opportunity as a result of increasing housing costs at the metropolitan level, as well as at the neighborhood level. At the beginning of the 21st century, the U.S. economy offers opportunities, but they are increasingly concentrated in cities and neighborhoods within cities that are not accessible to all. The dynamics we identify contribute to the rise in overall inequality that has been well identified in the literature (Keeley, 2015; Piketty, 2014).

The Divergence in Opportunity and Housing Costs section of this article reviews evidence on the growing spatial divergence of lower- and higher-skilled workers and employment growth and its relationship to housing affordability. The section Equality of Opportunity Across Regions discusses the consequences of these trends for social welfare by demonstrating that areas with high levels of intergenerational mobility have higher housing costs. The section What Can Be Done To Provide Access to High-Productivity, High-Growth Cities and Neighborhoods to All provides a policy framework to respond to these barriers to participation in an increasingly knowledge-based economy.

Divergence in Opportunity and Housing Costs

The historical income convergence across states and metropolitan areas that prevailed in the United States between 1880 and 1980 is no longer occurring. The net domestic migration of people from lower- to higher-income areas that drove this convergence has reversed.

Per-capita incomes among the states converged at an average rate of 1.8 percent per year between 1880 and 1980 (Ganong and Shoag, 2015). In the decades after World War II, the United States experienced a period of economic convergence, driven by internal migrations, during which populations flowed mostly from lower- to higher-income states. Before 1980, lower-income states experienced relatively slow population growth rates while the migration of skilled and unskilled workers resulted in faster population growth in higher-income regions. Greater population growth in these more-productive, higher-income regions eventually led to the slowing of wage growth in these regions, whereas lower-population-growth regions eventually experienced an increase in wage growth. As a result, income levels converged as regions became economically integrated.

In recent decades, the migration of less-skilled workers to high-productivity areas has declined. As a result, an increase in skill divergence has occurred. Berry and Glaeser (2005) found faster growth in skilled workers between 1970 and 2000 in metropolitan areas that already had a higher share of skilled workers.

The historical long-term convergence in regional income and skill levels that occurred through lower-skilled workers moving to more-productive states was enabled by relatively constant housing costs. Workers who moved could take advantage of higher-paying jobs without having to pay higher housing costs. Thus, the convergence was made possible because housing supply was elastic in the growing receiving regions. Individuals could move to more-productive regions and, in effect, expand their own opportunity.

In the housing market, long-term supply elasticity meant that moving was beneficial for both low- and high-wage workers. Shiller (2015) found that, for more than 100 years, real housing prices in the United States experienced cycles of growth and decline but remained largely constant in real terms overall. Housing as a share of overall household expenditure remained relatively constant between 1959 and 1980 at less than 20 percent (Albouy and Zabek, 2016).

Current labor market trends do not follow the historical patterns of convergence. Moretti (2012) showed how, in the current labor market, places that already have a high concentration of high-skilled workers have become even more productive in recent decades in a trend he calls the "great divergence." This divergence of the economic fortune of regions—with regions with more-skilled workers becoming increasingly productive relative to less-skilled areas—results from changes in the nature of innovation and skill-biased technology (Berry and Glaser, 2005; Moretti, 2004). Areas with a higher share of high-skilled worker experience greater increases in productivity as a result of "knowledge spillovers," or the physical proximity of educated workers results in the sharing of ideas, faster adoption of new technologies, and innovation (Diamond, 2016).

The importance of regional and local clusters of knowledge industries—of physical proximity and the value of knowledge spillover—has increased as technology has changed. For high-skilled

workers, the greater value of knowledge spillovers has increased the return to locating in areas with high concentrations of skilled workers. As a result, certain regions have grown and certain cities within these regions have revitalized, as new knowledge-based jobs are increasingly centrally located.

High-skilled workers are not alone, however, in benefiting from locating in areas with high concentrations of skilled workers; lower-skilled workers also benefit from locating in these areas in terms of wage increases (Diamond, 2016; Moretti, 2012). These benefits are particularly important in the context of stagnating wages for much of the income distribution during the past two decades and increasing income and wealth inequalities (Porter et al., 2016; Wachter and Ding, 2016) and concerns about the risk of an overall secular stagnation (Summers, 2014). However, lower-skilled workers are less able to take advantage of high-growth area job availability, because housing costs in these areas are also high; housing costs in these areas are bid up by higher-skilled workers who benefit more from productivity gains from agglomeration economies in the new knowledge-based centers (Diamond, 2016).

Why has housing supply elasticity decreased? Tightened land use regulations are implicated (Fischel, 1999). Ganong and Shoag (2015) estimated a tightening of land use regulations in high-skilled, high-productivity areas. Hsieh and Moretti (2015) examined metropolitan-area-level data between 1964 and 2009 and found that, although nearly one-half of national gross domestic product, or GDP, growth during that period could be attributed to the growth of cities in the South, highly productive cities grew less than expected; they hypothesized that this phenomenon could be attributed to a constrained housing supply.

Another factor may be the *location* of increased housing demand—specifically to the growing desirability of centrality. During the period of convergence, growth on the fringes and in new smaller urban centers elastically supplied housing. Now, job growth is occurring in the built-up centers of urban areas where housing supply is inherently less elastic (Cochrane et al., 2013).

To document the continuing importance of increasing housing costs to limiting access to regions with job growth, we examine the relationship between changes in employment, education, and housing costs using decennial census data from 2000 and American Community Survey data for 2006 and 2014 at the metropolitan-area level (exhibit 1). Using these data, we examine whether the trends found in the 1990s and up to 2010 in the studies reviewed previously continued after the Great Recession. The results indicate that metropolitan areas that experienced above-median employment growth also experienced faster nominal rent and house price growth. That relationship existed during the housing boom, with house values increasing at 11.1 percent annually between 2000 and 2006 in metropolitan areas with above-median employment growth compared with 7.3 percent in metropolitan areas with below-median employment growth; similarly, rents increased by 4.5 percent in the former areas compared with 3.9 percent in the latter. This difference persisted through the Great Recession, and the recovery with house values increasing by 0.5 percent annually between 2006 and 2014 in areas with above-median employment growth and declining by 1.6 percent in areas with below-median employment growth. For rent, the growth rate is 3.8 percent compared with 2.9 percent.

When examining changes in population by level of education, areas with above-median employment growth between 2000 and 2014 disproportionally experienced increases in residents with bachelor's degrees (2.2 percent annually) relative to residents without bachelor's degrees (0.9 percent annually). The same pattern exists for areas with rent and housing costs above the median as of 2000.

Perhaps surprisingly, in both low-growth and high-growth regions, rents are increasing faster than income, as are housing prices (exhibit 2). Housing affordability is becoming a widespread issue with median house value and rent growing faster than median income in all census regions between 2000 and 2014 (JCHS, 2016). The difference is particularly pronounced in fast-growth regions (the

Exhibit 1

Annual Nominal Rent and House Value Growth Rate by Employment Growth Rate, 2000–2006 and 2006–2014
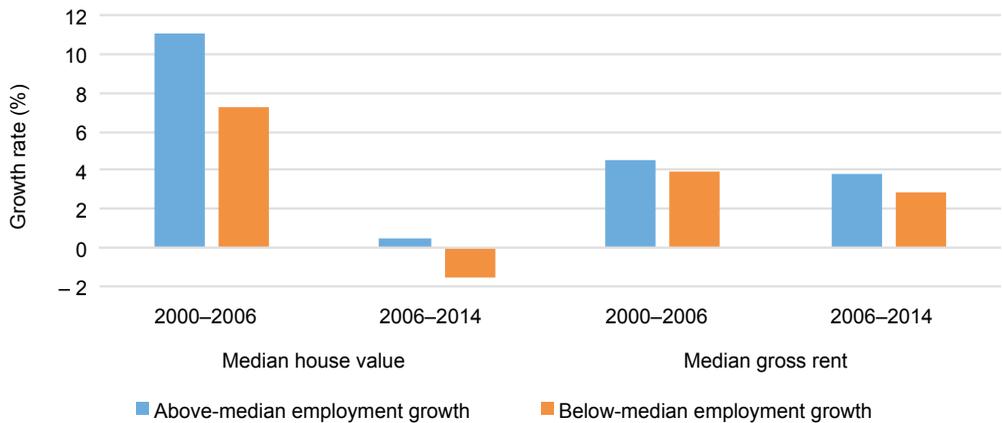
Sources: 2000 census; 2006 and 2014 American Community Survey

Exhibit 2

Annual Nominal Metropolitan Growth Rate, 2000–2014
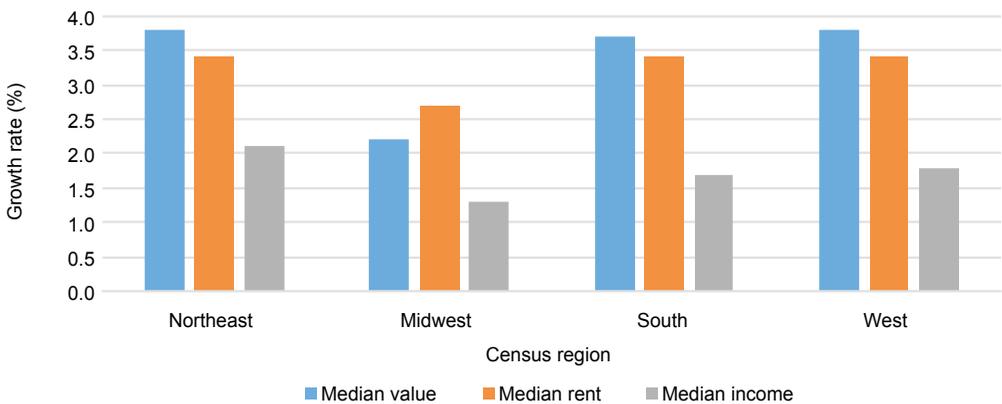
Sources: 2000 census; 2006 and 2014 American Community Survey

West and the South, as defined by the U.S. Census Bureau) but is also apparent in the Midwest, where housing values and, to a lesser extent, rent grew more slowly than in other regions but still substantially faster than income, the growth of which was also lower than in the other regions.

We also note the increasing rent and house price trends *within* metropolitan areas. Since the 1990s, many urban centers have become more attractive; this trend stands in contrast to the persistent declines in population and employment they experienced beginning in the 1950s, a period during which suburban areas were expending rapidly (Glaeser and Shapiro, 2003). Rents and particularly house prices in growing cities have accelerated (Voith and Wachter, 2009). Recent evidence shows that many urban centers have even been growing faster than their suburbs (Lee and Lin, 2015), with price and rent increases reflecting this growth.

Using decennial census data to study changes within five kilometers of central business districts for 118 large U.S. metropolitan areas since 1970, Baum-Snow and Hartley (2015) found that the population decline observed in the 1970s for these neighborhoods had largely slowed or reversed by the 2000s. They also found that these central neighborhoods have experienced an increase in both the number and share of White, college-educated residents, along with an increase in income. In addition, these demographic changes are more pronounced in metropolitan areas that have experienced more rapid growth, particularly in the 2000 to 2010 period, as discussed previously. Housing prices are driven up by the demand for housing in growing urban centers of growing metropolitan areas.[2] Edlund, Machado, and Sviatschi, (2015) also documented a revival in urban centers characterized by a substantial premium for locations within 5 miles of the center in 2010 relative to places farther from the center; neighborhoods more than 10 miles away from city centers actually fell in value since 1980. They attributed this shift in the value of central locations to an increased preference for shorter commutes by college-educated workers. As a result, the price premium commanded by central city residential real estate has increased substantially.

Both rising rents and housing prices in high-growth regions and neighborhoods are a factor in decreasing mobility,[3] in the growing share of young adults who remain in their parents' homes, and in the share of households who rent out of necessity rather than by choice (Acolin, Goodman, and Wachter, 2016).[4] Housing affordability depends on two factors: prices and mortgage lending

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[2] These findings are consistent with Couture and Handbury (2015), who found an increased demand for central neighborhoods that is largely limited to younger, higher-educated individuals due to increases in labor demand for skilled workers.

[3] Other explanations for the decline in mobility focus on changes in the labor market that would lead to a convergence toward a spatial equilibrium. Kaplan and Schulhofer-Wohl (2012) argued that a decline in the geographic specificity of the return to an occupation and an improvement in access to information can explain most of the decline in interstate mobility. Molloy, Smith, and Wozniak (2014) documented a decline in the benefits to changing employers. These explanations do not explain why areas with higher-skilled workers have experienced higher economic growth, however (Berry and Glaeser, 2005; Moretti, 2013).

[4] Overall mobility has been declining since the 1980s, from an average of 19.7 percent between 1948 and 1980 to 11.6 percent in 2015. When considering rates of interstate mobility, which is most likely to take place for reasons related to employment opportunity, one finds a secular decline that has accelerated in the second half of the 2000s. The average annual interstate migration rate was 2.8 percent for the 1981-to-2005 period; it was only 1.6 percent in the 2005-to-2015 period, a 42-percent decline. The decline has affected non-college graduates (from 2.6 to 1.5 percent on average), who historically already have a lower mobility rate, as much as college graduates (from 3.9 to 2.2 percent on average; U.S. Census Bureau, 2016). In parallel, the headship rate among individuals 15 to 34 years old has declined from 30.0 percent in 1990 to 24.7 percent in 2013 as many young individuals have delayed forming households or returned home during the recession (Lee and Painter, 2013).

conditions. In the post-World War II period of convergence in income, a nationwide rise in home-ownership was made possible because, first, the supply of housing responded to new demand without housing prices (or rents) increasing faster than income and, second, the credit market made mortgages available and affordable to young households. For decades after World War II, both price and lending conditions were favorable, enabling high levels of migration and access to housing (Acolin et al., 2016; Acolin, Goodman, and Wachter, 2016). In recent decades, however, higher housing prices and tighter credit have contributed to a decline in homeownership rates; this trend is happening at a time when the hedge against rising rents that homeownership provides is particularly valuable (Sinai and Souleles, 2005). The shift toward tighter credit supply (Acolin et al., 2016) further limits lower-skilled and lower-income individuals' access to areas that combine high productivity, high levels of amenities, and high employment growth. Because the areas that are experiencing the fastest income and housing cost growth are also those with higher levels of intergenerational mobility, these trends are enormously important in terms of inclusive growth, as we show in the following section.

Equality of Opportunity Across Regions

A large and growing literature examines changes in inequality, particularly intergenerational mobility, and how intergenerational mobility varies across areas. Recent research identifies the extent to which different levels of opportunity are increasingly place-based. Chetty et al. (2014) used administrative income data for children (family income from 2011 to 2012 for children born between 1980 and 1982) and their parents (average family income from 1996 to 2000) to analyze intergenerational income mobility by metropolitan area based on mobility measures and finds substantial differences across areas.

The absolute mobility measure is based on the correlation between a child's rank in the income distribution (in percentile) and the parents' position. For example, the probability that a child born to parents with earnings in the bottom income quintile reaches the highest income quintile would be 20 percent with perfect mobility.[5]

The findings from Chetty et al. (2014) indicate that in Boston, Massachusetts; New York, New York; Salt Lake City, Utah; San Diego, San Jose, and San Francisco, California; Seattle, Washington; or Washington, D.C. children born in the lowest quintiles of the income distribution have more than a 10-percent chance of reaching the highest quintile. Children born in the lowest income quintile in Atlanta, Georgia; Charlotte, North Carolina; or Milwaukee, Wisconsin, among others, have less than a 5-percent chance of reaching the top income quintile.

Chetty et al. (2014) identified a number of factors associated with these differences in opportunity. Higher levels of racial and economic segregation are among the main variables correlated with lower levels of upward mobility. In addition, areas with good school outcomes—as measured by test scores and dropout rates—experience higher levels of upward mobility, whereas input-based measures of school quality—mean public school expenditures by student and mean class sizes—have small or

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[5] Chetty et al. (2014) argued that studying absolute measures is useful from a policy standpoint if the goal is to focus on improving the economic mobility of children born to low-income parents.

insignificant effects on the rate of upward mobility. The importance of school quality in favoring intergenerational mobility makes it important for policymakers to focus on delivering good quality education in order to improve access to opportunity for lower-income children.[6]

These findings—that places have different outcomes in terms of intergenerational mobility—have implications for the increasing divergence of the location of lower- and higher-educated workers. Using the data on upward mobility made public by Chetty et al. (2014), we estimate the relationships between levels of upward mobility and employment and housing costs growth at the metropolitan level during the 2000–to-2014 period. These estimates measure whether places with higher levels of intergenerational mobility are also those that experience more employment growth—but to which lower-skilled, lower-income workers are increasingly less likely to be moving because of higher housing costs.[7] The correlation between an area's absolute level of upward mobility and employment change is 0.22; it is 0.48 for house price change and 0.39 for rent. These findings indicate that areas with a higher level of intergenerational mobility have experienced higher housing cost growth and moderately higher employment growth. Therefore, the divergence in the location choice of lower-skilled, lower-income workers has consequences not only on their earnings and welfare, but also on their children's social mobility. Improving the level of mobility by lower-income workers to higher-opportunity areas has the potential to substantially, positively affect not only these workers, but also their children.

As noted, the sorting of higher-skilled, higher-income workers into higher-productivity regions is accompanied by income sorting within metropolitan areas as well. Using census tract data, Jargowsky (2016) reported that the number of people living in neighborhoods with poverty rates of 40 percent or more increased by 72 percent between 2000 and 2010. The implications for intergenerational mobility of the work by Chetty et al. (2014) on regions are therefore mirrored by local poverty concentration within metropolitan areas.

The outcomes of Moving to Opportunity (MTO) for Fair Housing demonstration, a 1990s experiment funded by the U.S. Department of Housing and Urban Development (HUD), show the long-term consequences for children growing up in low-income neighborhoods. The MTO program offered housing vouchers to randomly selected volunteer families living in high-poverty public housing projects. The vouchers could be used to move to lower-poverty neighborhoods.[8] Chetty, Hendren, and Katz (2016) analyzed the outcomes of these families' children relative to a control group that did not receive a voucher and found that, for children younger than age 13, having moved to a lower-poverty neighborhood when young had positive and substantial effects on college attendance and earnings and a negative effect on single parenthood. At ages 18 to 20,

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[6] Chetty et al. (2014) studied a number of other local characteristics associated with upward mobility and found a positive relationship with social capital (as measured by an index based on voter turnout rates, return rates of census forms, and measures of participation in community organizations or by the share of religious individuals), whereas crime rates are negatively correlated with mobility.

[7] These simple correlations have no causal interpretation. They describe only whether areas that have been found to have higher level of economic mobility experienced higher employment and housing cost growth in the 2000-to-2014 period.

[8] Moreover, Pinto (2015) showed that the analysis of the effect of the treatment on the treated (TOT), those who actually used the vouchers, is likely to underestimate neighborhood effects, because it does not account for the selection bias in the characteristics of the voucher users. Accounting for this selection bias, Pinto found substantially larger effects of neighborhoods on labor market outcomes, with an estimated effect of relocation on earning 65 percent higher than the TOT effect.

children who moved before age 13 had a 16 percent increase in college attendance relative to the control group (2.5 percentage points higher). In their mid-20s, the estimated income of children who moved before age 13 was 31 percent higher than for the control group. In addition, girls who moved before they were 13 experienced a 26-percent decline in the likelihood of becoming single mothers. The magnitude of these effects declines with the age at which the child moved, showing the importance of the duration of exposure to the better environment. The long-term improved outcomes of this quasi-experiment are consistent with the regional intergenerational findings discussed previously. Both point to the long-term consequences of limited access to place-based opportunity due to new housing affordability barriers to mobility.

What Can Be Done To Provide Access to High-Productivity, High-Growth Cities and Neighborhoods to All?

During recent decades, the United States has experienced the slowdown and reversal of a secular trend toward income convergence across regions. This divergence is taking place as overall income stagnates, particularly for lower-skilled workers, with median income in 2015 still below 1999 levels. The research reviewed here points to the new importance of regions as drivers of economic growth. The research shows how economic opportunity is linked to place both on a regional and a neighborhood scale.

President Barack Obama, in a speech to The U.S. Conference of Mayors, said, "we can work together to break down rules that stand in the way of building new housing and that keep families from moving to growing, dynamic cities" (White House, 2016: 4). State and local governments have a critical role to play in creating economic opportunity and an environment of to access opportunity. To promote shared prosperity, regions and localities will need to affirmatively address housing affordability and education challenges and engage in transformational initiatives through coalitions of local actors. Freeman and Schuetz (2017), Holzer (2017), and Steinberg and Quinn (2017) show in this symposium the challenges of doing so, as well as potential solutions.

Within metropolitan areas, a number of housing programs have addressed the persistence of low-income families living in neighborhoods with concentrated poverty, particularly minority low-income families and those with children. These programs aim to enable these families to move to neighborhoods with better educational and employment opportunities. One of the most-important programs is the Section 8 Housing Choice Voucher program that provided rent subsidies for 2.2 million low-income families in 2015 (Collinson and Ganong, 2016). The program typically limits the share of income paid by a family for housing to 30 percent; the government pays the difference on rents up to the 40th percentile of a metropolitan area.

Studying the location choices of families with children who receive a housing voucher, Ellen, Horn, and Schwartz (2016) found that housing voucher holders are more likely to move to areas with better schools as their children enter kindergarten and that they are particularly more likely to do so if a high share of affordable rental units are available near high-performing schools in their region. These findings suggest that housing vouchers have the potential to improve low-income families' access to better schools for their children if the vouchers enable them to afford units close to quality schools.

Currently, voucher levels are set at the metropolitan level, which can limit households' access to the most-desirable neighborhoods within a region. Collinson and Ganong (2016) examined the results of an experiment conducted in Dallas, Texas, that varies the maximum rent affordable with a voucher by ZIP Code rather than by metropolis. They find that, with these new ZIP Code-based ceilings, voucher recipients move to higher-quality neighborhoods (as defined by an index based on violent crime rate, test scores, poverty rate, unemployment rate, and the share of children living with single mothers). This finding suggests that addressing the affordability barriers that constrain low-income households' location choices can potentially improve their ability to locate in neighborhoods with better opportunity.

Another initiative, the Moving to Work demonstration created in 1996, provides public housing agencies (PHAs) more flexibility to design and test new strategies to increase choices for recipients of housing subsidies, with a particular focus on connecting them to employment (Galvez, 2016). The 39 participating PHAs are exempted from many of the rules associated with the implementation of housing programs and the use of federal funds to test new policy proposals.[9] The experiments aim to identify and test the effectiveness of new ways to help voucher recipients access opportunities such as simplifying the information about the program, providing counseling, or prohibiting discrimination against voucher holders.

Other potential solutions include expanding the federal housing voucher programs to all eligible households (Desmond, 2016; Olsen, 2003), as well as changes to ensure that housing vouchers can be used to access housing in areas of opportunity such as the small area fair market rents (Collinson and Ganong, 2016). Other federal policies, such as the Low-Income Housing Tax Credit (LIHTC), continue to increase access to affordable housing in opportunity areas as well. Although the current level of funding for affordable housing at the federal level is insufficient to address existing needs, incentivizing local governments to find innovative ways to preserve and create new affordable housing units for various income segments in areas with employment opportunities and access to services is important.

Freeman and Schuetz (2017) present a number of initiatives that local governments have developed to provide housing in affordability-constrained areas to preserve and create affordable housing solutions. These programs include mandatory and incentivized inclusionary zoning, tax increment financing, and tax credit and abatement programs, as well as support for shared equity programs. Implemented at the local level, they aim to leverage and supplement federal housing programs (LIHTC, HOME Investment Partnerships Program, and Section 8 vouchers) that have seen their funding reduced over time. These strategies have the potential to preserve access to affordable housing at the metropolitan level, making it possible for lower-income households to move to regions experiencing both economic growth and higher housing costs.

The renewed effort by HUD to implement the Affirmatively Furthering Fair Housing mandate also has the potential to incentivize local communities to increase efforts to improve access to their housing market for a broader range of residents (Bostic and Acolin, forthcoming). In that context, The White House identified a number of barriers to the development of affordable housing and

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[9] Announced in 2016, expansion of the program to an additional 100 PHAs will provide new opportunities to test policy changes that can improve the mobility of voucher recipients.

actions that can contribute to increase access to opportunity by making housing supply more elastic. In a report (White House, 2016), The White House highlights initiatives taken by state and local governments such as increasing the predictability of approvals by establishing by-right development streamlining or shortening the permitting and approval process; eliminating or easing zoning requirements that increase development costs such as offstreet parking requirements, large minimum lot size, or limits on density and multifamily developments; providing incentives for developers with density bonuses, inclusionary zoning, or property tax abatement program; and mobilizing underused land by taxing vacant land or donating it to nonprofit developers. The administration has requested $300 million in its 2017 budget to fund grants to support local governments in updating their zoning rules, and the Department of Transportation takes into account local housing regulatory environments and their ability to respond to demand from new transit projects as part of the funding process (White House, 2016).

The pervasiveness of the affordability challenges described in this article suggests that a strategic framework for addressing the new challenges of barriers to place-based opportunity will need to be multipronged, given the limits to federal programmatic expansion—local- and state-level initiatives and public-private partnerships will need to be adopted, as will public and private financing initiatives. This strategic framework will require providing new funding not only for expanded housing assistance, but also for bringing opportunity, through economic and community development, to places left behind. This development should include initiatives to promote job formation by state and regional actors (Rodríguez-Pose and Wilkie, 2017) to improve access to education (Steinberg and Quinn, 2017), and to provide skill training (Holzer, 2017). These initiatives pursue more-inclusive growth by acting on the labor markets and by finding ways to increase educational attainments for a broader range of children. Skill-building programs and primary education reforms have the potential to increase access to opportunity for all households, enabling individuals born in low-income families to experience upward economic and social mobility. However, as community and economic development increasingly brings opportunity to places left behind, attention to preserving and increasing affordable housing will be necessary.

Although many localities resist affordable housing (Freeman and Schuetz, 2017), others recognize the importance of workforce housing to their economies (Voith and Wachter, 2012). Those localities include some of the most affordability-challenged places (such as Park City, Utah) and cities that are on the brink of widespread increases in housing costs (such as Philadelphia, Pennsylvania). The preservation of affordable housing and investment for shared prosperity is both more important and newly possible in revitalizing cities.

Conclusion

The new knowledge economy is driving regional divergence in income levels. It is also driving urban centrality as knowledge agglomerations and place-based interactions in local centers increase in importance. The need for access to good jobs in central locations and in growing regions is driving the affordability challenge because housing supply inelasticity is higher where the jobs are. The higher value of land in central locations and the cost of redeveloping existing built-up areas result in higher housing costs. Regulation adds to the new supply inelasticity. As a consequence, access

to jobs and amenities in growing cities is now limited by the cost of entry presented by higher housing prices. This scenario implies that housing affordability and access to opportunity are now inextricably intertwined.

These shifting trends, with housing affordability becoming an issue in places with job growth and public amenities, such as access to good education, has important consequences for intergenerational mobility. The areas with higher income and housing cost growth in which fewer lower-skilled workers live are also those with higher levels of upward economic mobility for children born in lower-income families. The affordability-driven increase in divergence in location by skill and income level has major implications for social welfare and equity, as well as for future economic growth. Thus, a policy framework that both increases opportunity where affordable housing is available and increases access to opportunity will be a critical challenge going forward.

Acknowledgments

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Revamping Local and Regional Development Through Place-Based Strategies

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Abstract

The past four decades have seen an international movement toward decentralization. As part of this process, subnational tiers of government (state and local) have been gaining power to design and implement contextually tailored economic development strategies that reflect local socioeconomic and institutional characteristics, conditions, and realities. This article examines the increased role of subnational governments in developing place-based development strategies and provides examples of successful and failed strategies to achieve more efficient, sustainable, and inclusive economic growth. The latter include actions to increase the capacity of local governments; the adoption of coordinated multilevel governance approaches to limit overlap among, and maximize the synergies between, the actions taken by various tiers of government; initiatives to increase the competitiveness of local firms; investments in the local human capital; and expenditure on new infrastructure.

Introduction

In a world in which subnational tiers of government are gaining power, local and regional governments are increasingly the makers or breakers of economic dynamism and welfare (Pike et al., 2006; Scott, 1998; Storper, 1995, 1997). This ascendancy of subnational tiers of government is a consequence, at least in part, of globalization (Barca et al., 2012; Pike et al., 2006; Rodríguez-Pose, 2011; Smoke, 2003). Because the subnational level is the territorial scale at which processes of growth, development, and change operate, the pressures imposed by an increasingly competitive, knowledge-intensive global economy are more and more frequently incurred at this subnational scale with the effect of "increasing the importance of regional processes and the role of local actors in shaping development trajectories" (Ascani, Crescenzi, and Iammarino, 2012: 4).

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Subnational governments the world over, as a result of this global trend toward devolution, have been awarded a mix of powers that vary considerably from place to place. Some have been granted little more than minimal decisionmaking authority. Others have been entrusted with as much as complete control over the design and implementation of full-fledged development strategies covering national economic policies, the attraction of foreign direct investment, education and health policies, infrastructure development, and a range of welfare issues. Although the capabilities and capacities of, and resources available to, local and regional governments may vary, little question exists that the responsibility for generating economic growth and dynamism, and for improving the well-being of local citizens, lies more than ever in the hands of subnational governments.

The empowerment of subnational governments represents an opportunity for localities to assume greater control over their development. More specifically, it affords them latitude to tailor expenditures, policies, and strategies to both the opportunities that arise from, and the challenges imposed by, local socioeconomic and institutional conditions and realities; local policies may differ substantially from the top-down policies that have dominated until recently. The global trend toward devolution has, in effect, opened the door for place-based territorial approaches to development.

Although this place-based approach to development represents an important opportunity to achieve more efficient, sustainable, and inclusive economic growth, questions about it remain: Do place-based development interventions really work? What steps and mechanisms are needed to ensure each territory fulfills its potential?

This article argues that place-based development strategies are off to a promising start and identifies further actions that could be taken to maximize their returns. Specifically, it recommends—

1. Capacity building to ensure that localities and communities are technically capable of shouldering the responsibilities associated with greater powers and developing territorially oriented approaches and interventions.

2. The promotion of multilevel governance to enhance vertical and horizontal coordination with a view to ensure, first, a sufficient degree of coherence between the resources allocated to and responsibilities assumed by local authorities and, second, minimal overlap between the actions taken by various tiers of government.

The remainder of the article is structured as follows. The Local Empowerment and Place-Based Approaches to Local Development section lays out the case for and contemplates the challenges to local place-based development before exploring the utility and effectiveness of such initiatives via a brief digression on an empirical examination of localized development approaches in Mexico. The Toward Equitable and Sustainable Development at the Local Level section considers the operationalization of localized development initiatives and proposes two fundamental steps that should be taken to ensure, or at the very least increase the likelihood of, the successful implementation place-based approaches to development. Concluding remarks appear in the Conclusion section.

Local Empowerment and Place-Based Approaches to Local Development

Until the latter part of the 20th century, "the world was dominated by strong national governments, and regional governments tended to be either weak or non-existent" (Rodríguez-Pose and Gill, 2003: 336). In 1970, the number of truly devolved countries could nearly be counted on the fingers of one hand. Since then, local empowerment has evolved swiftly all over the world, making subnational governments central to the process of development (Rodríguez-Pose and Gill, 2003; Smoke, 2001). As these governments have become entrusted with a greater mix of powers, centrally driven approaches to economic development are increasingly being replaced by place-based strategies that reflect the preferences and needs of local agents and that leverage local characteristics.

This new capacity of subnational authorities to devise and implement territorially oriented approaches to development represents an important opportunity for regions and localities to mobilize their full economic potential. That said, the realization of this opportunity is often fraught with challenges, with questions arising about the appropriate scale of implementation, about uneven capacity, and about coordination among different levels of government. A discussion follows of the advantages of and challenges to place-based economic development and some suggested approaches to overcoming barriers.

The Advantages of Place-Based Economic Development

In the most basic sense, place-based economic development entails the identification, mobilization, and exploitation of local potential (Vázquez-Barquero, 1999). A territory's local potential is shaped by, among other factors, the economic activities in which it specializes and excels; its stock of physical, human, or other types of capital; its institutional context; and the resources with which it is endowed. The objective of place-based economic development strategies then is to leverage this potential and cultivate economic activity that is reflective of and "dependent on [a locality's] specific economic conditions and comparative advantages" (Pike, Rodríguez-Pose, and Tomaney, 2006: 19).

Territories also face constraints that are products of their specific contextual conditions. Thus, in addition to capitalizing on local strengths, territorially specific economic development approaches must also mitigate a territory's weaknesses and overcome its limitations.

Because context is so important, a localized development approach designed for one community may be radically different from one designed for another environment. Although the approaches may share some similarities in terms of, for example, the broadly defined types of programs and policies they employ (as discussed in the Conclusion section), the ways in which particular initiatives and policies are prioritized and integrated into the localized development approach will vary from place to place.

According to the evidence (Pike, Rodríguez-Pose, and Tomaney, 2006), place-based approaches are associated with both economic and social advantages, including—

1. A greater capacity to compete in the global economy.

2. A closer connection between needs and policies, which may result in more inclusive growth.

3. Applicability across heterogeneous situations.

The first advantage—the ability of place-based development strategies to improve a territory's capacity to manage and compete in an increasingly dynamic global economy—results from prioritizing economic activities that leverage the specific characteristics and strengths of a territory rather than building new activities from scratch. These activities are likely to "[improve] the [local] productive context" (Vázquez-Barquero, 1999: 84).

The second advantage is socioeconomic. In place-based development strategies, the participation of local decisionmakers in the design, implementation, and monitoring of development strategies may lead to a closer connection between local needs, priorities, and the strategy itself. Local empowerment effectively grants these local decisionmakers the autonomy, powers, and resources not previously at their disposal to mobilize and act on local knowledge; the types of contextually tailored policies this flexibility affords would likely not materialize within a centralized system. This tailoring of public policies to local needs is the greatest advantage of local empowerment and is usually reflected in a greater embeddedness of the supported economic activities and in the creation of more stable and high-quality jobs.

One example is the Ghana Decent Work Programme. The Ghana Decent Work Programme, executed in partnership with the International Labour Organization, has two aims: "to contribute to the reduction of poverty in Ghana by addressing Decent Work deficits in micro and small enterprises in the informal economy and by enhancing the employability of low-income women and men, the young in particular; and to mainstream employment-focused strategies for decent work in national and district policies in Ghana" (ILO, 2012: 6).

The program was piloted in eight districts where it was specifically tailored to the needs of local industries and economic activities. Not only has the program improved employment and growth, but it has also given rise to a series of additional economic benefits including increases in national health insurance registration in employers' associations and informal economy organizations and participation in training programs (ILO, 2012).[1]

The third advantage of place-based approaches lies in their applicability across territories of all types, sizes, and levels of socioeconomic development. Place-based economic development approaches work within the limitations imposed and opportunities afforded by local conditions and characteristics. Localized approaches can, as a result, be implemented in territories of various levels of ex-ante favorability and with different economic structures and specializations, resource endowments, and capabilities. The cross-contextual utility of territorial development policies is critically important given the heterogeneous national contexts in which place-based approaches may be pursued.

An example of adapting place-based strategies to different national conditions is South Africa (Rogerson and Rogerson, 2010), where territorially specific strategies have been increasingly popular since the mid-1990s. South Africa's local authorities, from the largest—including, among others, Durban (Robbins, 2010) and Johannesburg (Rogerson, 2005)—to much smaller and more remote rural areas, have devised and executed a number of place-based strategies.

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[1] ILO (2012: vii) attributed the success of the overall program to focusing on capacity building, deliberately limiting direct funding of programs, empowering local stakeholders to shape the local economic development approaches in accordance with local norms and values, and embedding local economic development initiatives within local government structures.

Although levels of success have varied, success has not been confined to larger territorial units (Nel and Rogerson, 2007). Alicedale, for example, represents the "most dramatic case of small town transformation" that is attributable to a well-designed and executed place-based economic development approach according to Nel and Rogerson (2007: 7). Alicedale, a town with a population of about 4,000, put in place a territorially specific economic development strategy to address the town's pronounced economic challenges (Gibb and Nel, 2007). The initiative centered on the development of a resort and sought to generate employment, stimulate entrepreneurship, and foster local firm growth and development. The local economic development strategy "created more than 500 full- and part-time jobs for local people" in areas related to tourism and led to the formation of several additional small businesses that provide local employment and income generating opportunities (Gibb and Nel, 2007: 82).

The Challenges of Place-Based Development

Although a place-based approach to development has a number of advantages, it also comes with challenges. A discussion follows of three issues that commonly arise in the development of place-based development approaches: (1) the appropriate scale of implementation, (2) capacity constraints, and (3) coordination among different levels of government.

Scale of Implementation

What is the appropriate scale for the implementation of place-based policies? In large countries, the national level is too remote to effectively address local development problems. Although national interventions benefit from economies of scale, these actions do not have the strengths of local interventions, namely to tailor public intervention to local needs, to experiment and innovate with local policies, and to involve and empower local stakeholders (Rodríguez-Pose and Gill, 2005).

Below the national level, however, the best level of intervention is far from clear. States in the United States, like many regions in Germany or Spain or districts in Indonesia, have considerable powers at their disposal but are at times too large or heterogeneous, or both, to effectively address the diverse needs of different localities. While place-based intervention can possibly work for Delaware, Rhode Island, or even Connecticut and Maryland, larger states like California and Texas may be too complex and diverse for place-based interventions to really take hold. Chinese provinces, outside the city-regions, and most Indian states are possibly in a similar situation.

Metropolitan areas—as nearly perfect functional economic areas—are an obvious candidate, but often lack the degree of coordination among their constituent local authorities to carry out viable strategies. Finally, local authorities, such us counties or municipalities, may be too small and weak—both financially and in terms of capacity—to carry out the task.

Capacity Constraints

Whereas some subnational authorities are in an ideal position to design and implement sound development strategies, others—particularly smaller, more remote, and often poorer areas—face far greater capacity constraints (both financial and technical) that hinder their abilities to make the most of their newfound powers. Such constraints may be less ubiquitous or pronounced in more

developed countries, whose local authorities tend to be well capacitated and are actively engaged in political processes at all levels of governance.[2] Unfortunately, not all localities and regions possess the capabilities, resources, and influence to make the most of territorial strategies.

In many parts of the world, especially in the developing world, smaller, undercapacitated, and financially constrained local authorities may be unable to design and implement sound development strategies on their own. Moreover, they are often isolated—both geographically and otherwise—from centralized decisionmaking processes, rendering them incapable of influencing political processes that affect them (Rodríguez-Pose and Gill, 2005).

Just as different regions of the world are characterized by radically different capacities and capabilities, different levels of government—even within the same country—may display different facilities for the mobilization of devolved powers, resources, and responsibilities. Higher-order territorial units, such as regions or perhaps larger cities and metropolises, are often better positioned to capitalize on self-government and pursue place-based development policies. Lower-order territorial units, on the other hand—including municipalities, smaller cities, and towns—are frequently less well endowed with financial resources and technical capacities, which hinders their capacity to mobilize autonomy and power and, ultimately, to implement place-based strategies and initiatives.

As a consequence, development strategies conducted by lower tiers of government do not always work. In India, for example, the empowerment of local authorities has given rise to problems of transparency and jeopardized the clarity of the roles of various tiers of government (Steytler, 2005). The absence of a clear delineation of roles and responsibilities has led, at best, to an inefficient duplication of expenditure, goods, and services and, at worst, to a complete failure to provide basic goods and services. In the state of West Bengal, Véron et al. (2006) documented how the local implementation of an Employment Assurance Scheme in rural areas undermined political, bureaucratic, and community accountability and reduced overall transparency, which, in turn, led to an inefficient provision of services and, worst of all, the emergence of local networks of corruption in which irregularities, abuses to beneficiaries, and other creative ways to steal funds became the norm rather than the exception.

Moreover, imbalances in the powers of states and municipalities have contributed to increases in what are already dangerously high levels of socioeconomic polarization in India. Economically dynamic states such as Gujarat, Haryana, Karnataka, Maharashtra, or Punjab have managed to extract considerable resources from the Indian government, leading to a highly territorially regressive transfer system. Awarding the stronger and more economically resilient states more resources to implement their own policies has come at the expense of the capacity of poorer states and Panchayats—most of which are located in the eastern part of the country—to develop and implement effective development strategies.

Some examples, however, show that lower-order territorial units can, perhaps even in the face of various capacity constraints, execute successful strategies and achieve socioeconomic development

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[2] Canada's largest city, Toronto, has, for example, resorted to place-based approaches to development to promote more holistic socioeconomic development and, more specifically, to boost the city's competitiveness and position it as a "knowledge city" and a viable host for the high-technology services, science and technology, and cultural sectors. Similar development strategies also have been implemented in Glasgow, Scotland, as part of a concerted effort to cope with industrial decline and reposition the city in both the United Kingdom's economy and the global economy more broadly. Such areas are, despite notable exceptions, well positioned to capitalize on the advantages of place-based development approaches.

when they are entrusted with increased control. Faguet (2004) explored the extent to which subnational governments in Bolivia tailored their expenditure decisions to local preferences and needs when granted the resources and autonomy to do so. He found evidence to prove that local investment in education, water and sanitation, water management, agriculture, and urban development after devolution was done more in accordance with the socioeconomic characteristics of each municipality than previously. He concluded that "[changes in expenditure patterns] were driven by the actions of Bolivia's 250 smallest, poorest, municipalities investing newly devolved public funds in their highest priority projects" (Faguet, 2004: 887).

Coordination Among Different Levels of Government

Finally, a lack of interaction and cooperation among tiers of government and jurisdictions can lead to policy coordination problems. Failures in vertical coordination among tiers of government can result in an oversupply or undersupply of public goods and services, whereas horizontal coordination failures may end up in beggar-thy-neighbor policies (Bartik, 2016) or bidding wars (Rodríguez-Pose and Arbix, 2001).

Overcoming the Barriers to Place-Based Development

When place-based strategies do not deliver on their promise, their failure is most likely attributable to one or some combination of local-level barriers that are anticipated to prevent the realization of the benefits from these development approaches. There are, however, ways to overcome the aforementioned technical capacity constraints and vertical coordination failures.

Capacity Building as a Means To Overcome Local Technical Constraints

Local administrations are often plagued by technical capacity-related constraints. These constraints can be the product of absolute shortages in technical knowledge, skills, or experience. More often, they are attributable to mismatches between the capacities available and the capacities needed. That is, situations will arise in which policymakers and decisionmakers in a given territory may be capable in the general sense, but the experience, skills, technical knowledge, or institutional settings in which they operate may not be what is required to perform a given set of tasks (Akudugu and Laube, 2013).

The consequences of local capacity constraints are manifested in a number of ways. Technical capacity deficits at the local level may, for example, preclude the design and subsequent monitoring of efficient fiscal systems at the local level, interrupt the ability of localities and regions to raise tax revenue, impede policy innovations linked to place-based strategies, or inhibit the design and implementation of policies, disrupt the provision of public goods, services and expenditure, or obstruct effective decisionmaking more generally. In addition, capacity constraints may adversely affect a locality's ability to communicate its needs and demands to the central government.

Capacity-building exercises and initiatives are therefore essential to ensure that localities are able to translate greater empowerment into economic growth, development, and increases in the well-being of its residents.

The severity and nature of the capacity constraints faced by subnational authorities varies enormously depending on context. Capacity constraints may, for example, be less pronounced in larger

regions than in smaller or lower-order territorial units. In contexts in which considerable discrepancy exists between the capacities of subnational authorities, there may be scope to supplement explicit capacity-building activities with the promotion of structures of multilevel governance and efforts to foster vertical (and perhaps also horizontal) cooperation and collaboration to encourage and enable better-capacitated authorities to assist the lesser-capacitated, weaker ones.

These local capacity constraints are particularly pervasive in the African context. Dickovick and Riedl (2010: 7) observed that capacity deficits of various kinds serve as "fundamental constraints" to the effectiveness of public policies. Moreover, they find considerable within-country heterogeneity in terms of local technical capacities. Generally, it is the smaller, poorer, or more remote localities that typically face the greatest capacity challenges (Ames et al., 2010; Tidemand et al., 2010). Dickovick and Riedl (2010) did note, however—citing the cases of Nigeria and Tanzania—that capacity constraints are not insurmountable obstacles and that they can be mitigated via suitable capacity-building initiatives and exercises.

Efforts to upgrade local technical capacities can assume any number of forms. In the most basic sense, capacity development is simply "the process by which individuals, organizations, institutions and societies develop abilities to perform functions, solve problems, and set and achieve objectives" (UN, 2006: 7). Following the UNDP's (2009) conceptualization of capacity building as a multiscalar process, capacity building for localities should entail a mix of both individual- and institutional-level efforts. This mix includes upskilling, training, the dissemination of knowledge, and learning from other experiences. It should also include institutional, organizational, and managerial reforms aimed at enhancing the efficiency and effectiveness of local policymaking and governance structures more generally.

Multilevel Governance

Coordination and cooperation between regions and localities and national-level decisionmakers is also critical. Insufficient coordination between centralized decisionmakers and decisionmakers on the ground can create a mismatch between the resources and powers transferred downward and the responsibilities that lower-order territorial units assume. This mismatch may leave localities overburdened by responsibilities relative to the powers and resources with which they are entrusted. This overburden is only compounded by the capacity constraints examined in the previous section.

Addressing vertical coordination failures is therefore of paramount importance in ensuring that localities reap the benefits associated with greater decisionmaking capacity at the local level. The promotion of *multilevel governance*, understood as a "decision-making system to define and implement public policies produced by a collaborative relation either vertical (between different levels of government, including national, federal, regional, or local) or horizontal (within the same level, for example between ministries or between local governments) or both" (Stephenson, 2013), is one avenue for addressing vertical coordination failures. Multilevel governance structures and territorial networks in particular constitute means to promote the dialogue and interactions between parties that lie at the heart of the achievement of cross-territorial coordination and, ultimately, more efficient devolutionary processes (OECD, 2013).

Enhancing coordination and dialogue between the different actors involved in development can also change how local empowerment processes actually unfold to the benefit of all parties involved. Economic development processes in devolutionary settings are influenced and shaped in equal measure by subnational- and national-level actors, both of which have different preferences, aims, and priorities (Rodríguez-Pose and Gill, 2005). The economic outcomes are therefore likely to reflect the extent to which the interests of relevant actors can be balanced and reconciled. If one actor—that is, one level of government—is "dominant" (Rodríguez-Pose and Gill, 2005: 416) or the interests of other actors are not taken into account, development strategies are anticipated to yield suboptimal outcomes for *all* parties involved. The importance of reconciling such imbalances can therefore not be overstated.

Smaller and medium-sized localities are, in general, at a disadvantage in this respect. First, in large part due to their size, they are generally less able to exercise influence over the decisions of higher-order authorities and, second, they are often regarded as of secondary importance to higher-order government tiers. Larger regions and cities may be more actively engaged in political processes at all levels of governance and may be more able to effectively lobby central governments.

Vertical coordination is, as is illustrated by the intervention by higher tiers of government in the territorial development initiative in central Ghana, possible even in the face of serious local capacity constraints. In that case, local stakeholders aimed—with the involvement of employers' and workers' organizations—to design and implement a strategy that targeted economic sectors with high growth potential, link job quality to firms' competitiveness, and build up the capacity of local stakeholders. Serious technical constraints arose in abundance, however, due to lack of technical and financial capacity at the local level that could have derailed the achievement of these objectives. The capacity problem was, to a large extent, addressed by the implementation of a National Legal Framework—Local Government Act 462—by the central government. This act envisaged the support and supervision of local initiatives by a national steering committee comprising government, employers, organized labor, and territorial development consultants. Local stakeholders were thus granted access to considerable expertise and resources in a multilevel governance framework that provided the necessary support for the initiative to succeed without compromising the locally owned and managed nature of the strategy (Fosu, 2013).

Although vertical coordination failures pose the greatest risk and challenge to economic development, horizontal coordination failures—that is, those between subnational authorities—do exist and cannot be overlooked. These horizontal coordination failures have implications for the capacity of territories to design and implement sustainable development strategies; the most prominent horizontal coordination failures relate to interterritorial competition, which, in the worst case scenarios, can descend into beggar-thy-neighbor policies (Bartik, 2016). Again, the promotion of interconnectivity, dialogue, and territorial networks will help mitigate these coordination failures.

Improved dialogue and cooperation among subnational authorities can impel the cross-territorial alignment of both the objectives of individual subnational authorities and of the territorially oriented policies they pursue to achieve them. This, in turn, could reduce inefficient interterritorial competition, reveal and permit the realization of synergies that exist among subnational authorities, lead to the sharing of resources (including knowledge resources), and contribute to a greater

coherence between planning processes and the objectives of subnational territories. The overall effect would be to increase the influence of subnational authorities on decisions made by higher levels of government that could, in turn, aid in the mitigation of the various capacity and other constraints they so often face (McGranahan et al., 2009).

Do Place-Based Approaches Work?

Empirical examination is yet to provide a definitive and conclusive answer to questions relating to the effectiveness of these approaches. Much skepticism surrounds the utility and effectiveness of territorially oriented strategic interventions founded, for example, on the American experience (Holzer, 2016). The focus, so far, of many analyses on a limited number of successful case studies has raised doubts about the possibility of generalizing these results. The problem is that systematic analyses of the economic growth and development outcomes of place-based approaches are, unfortunately, few and far between.

One exception has been provided by Rodríguez-Pose and Palavicini-Corona (2013) for the case of Mexico. They considered the success or failure of development strategies implemented in 898 Mexican municipalities in 21 Mexican states, representing 40 percent of all Mexican local authorities. The sample included a majority of small local authorities in rural areas covering all geographical areas of the country—north, center, and south—between 1990 and 2005. The analysis focused on the effectiveness of seven dimensions of development "features and policy actions" (Rodríguez-Pose and Palavicini-Corona, 2013: 304) associated with place-based development.

The empirical analysis revealed that "municipalities engaging in local economic development during the past two decades have witnessed significant improvements in human development, relative to those which have overlooked local economic development strategies" (Rodríguez-Pose and Palavicini-Corona, 2013: 303), suggesting that, for a relatively large sample, place-based approaches can yield significant positive economic and social development results. The results revealed that simply contemplating implementing localized approaches might be linked with favorable economic development outcomes. This finding would imply that merely reflecting on local socioeconomic conditions and exploring how a territory's strengths can be mobilized to enhance the well-being and livelihoods of its residents can deliver returns.

Toward Equitable and Sustainable Development at the Local Level

Big cities in the developed and developing world alike have long been awarded privileged positions in national economic growth and development strategies. The perception that cities are the drivers of—and home to the greatest potential for—economic growth (Duranton, 2000; Fujita and Thisse, 2002; Glaeser, 2011) has often led policymakers to concoct and implement spatially blind policies that promote the concentration of people, economic actors, and economic activity in a limited number of large urban agglomerations (World Bank, 2009). The role of other localities and communities, by contrast, often has been overlooked.

Some signs, however, indicate that this policy paradigm is changing. As stated by Barca, McCann, and Rodríguez-Pose (2012: 140), "all [typologies of territories] have the potential to make substantial contributions to [national] economic growth." The potential for economic growth cannot, however, be conflated with the achievement of economic growth. It is often the case that opportunities for growth can, for any number of reasons, go unrealized. The role for policymakers in localities is therefore to find ways to harness this potential and translate it into meaningful economic growth and more holistic social development. Territorially oriented, place-based economic development approaches are a particularly viable avenue for doing so.

This section discusses two recommendations for successfully implementing place-based approaches to development—integrating and balancing development strategies and undertaking robust strategic planning.

Integrating and Balancing Development Strategies

As noted previously, place-based development strategies are highly context dependent and vary widely from one place to another. Nevertheless, they generally involve interventions in one or more of the following four basic development axes (Rodríguez-Pose, 2002).

1. Strategies aimed at boosting the competitiveness of local firms.

2. Strategies targeting the attraction of inward investment.

3. Strategies aimed at improving the local human capital and skill pool.

4. Strategies targeting infrastructural bottlenecks and the development of new infrastructure.

These factors represent the fundamental pillars determining the development potential of a territory. How much intervention takes place in each of these axes depends, in turn, on two factors.

1. The power and authority endowed to each regional and local authority.

2. The starting situation in each locality.

The close and, in some cases, codependent relationships between the four development axes mean that choices regarding the type of intervention—and, especially, preferences for a particular axis (or axes)—have serious implications for future development prospects, as intervention in any of the axes will have the expected result only if local capabilities in the other three are sufficiently developed.

The focus on a particular development axis has implications for the overall development of a territory. As can be seen in exhibit 1, traditional preferences for inward investment or infrastructure, in the absence of solid foundations in local skills and local firms, may backfire. Too much attention to inward investment may lead to greater risk of dependence on external or foreign stakeholders in the absence of adequately skilled labor or of firms that could simultaneously act as suppliers and as recipients of the knowledge spillovers generated by the incoming firms. Improvements in local infrastructure alone similarly may expose weak economies to external competition and cause migration and brain drain.

Exhibit 1

Foundations and Risks of Place-Based Approaches
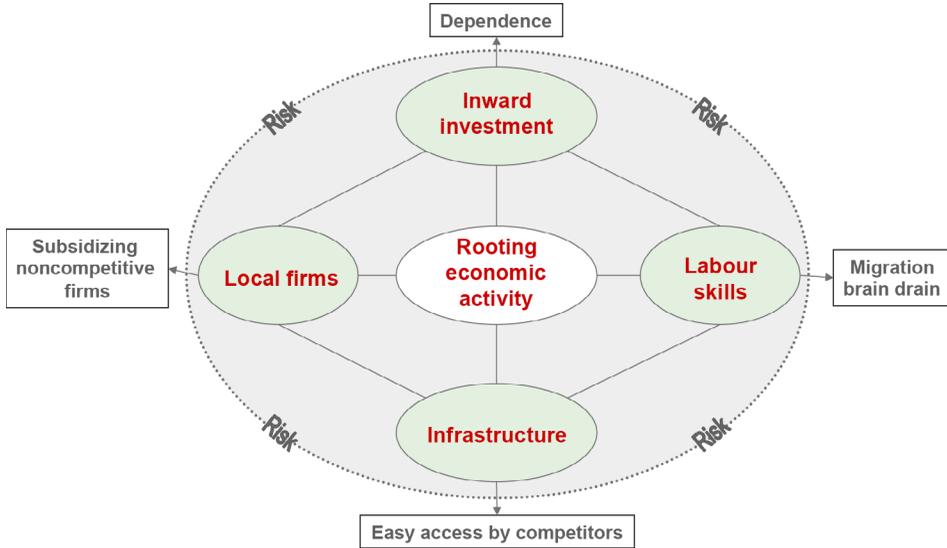
Source: Rodríguez-Pose (2002)

The failure of more traditional, top-down regional subnational development policies is, at least in part, attributable to what Pike, Rodríguez-Pose, and Tomaney (2006: 14) refer to as "internal imbalances" in the strategies. That is, dominant top-down policies tended to adopt a singular focus on one particular deficiency that was deemed to be the most prominent impediment to the achievement of economic dynamism. It was anticipated that the mitigation of that deficiency would be sufficient to impel economic growth. In practice, however, the neglect of other relevant factors and considerations compromised the effectiveness of approaches oriented around a singular focus. Place-based economic development approaches, because of their participatory nature and also the proximity between those tasked with designing the policy and the territory in which the policy is to be applied, are less prone to such "internal imbalances." They are not, however, immune to them.

Territorially specific economic development approaches should feature an appropriate balance of structurally, socioeconomically, and institutionally oriented policies and reforms. It is not sufficient to simply target local firms or industries and implement policies designed to increase their competitiveness. The viability and competitiveness of firms and industries is a product of the quality of local human capital, physical infrastructure, and a multitude of other contextual conditions. Deficiencies in the socioeconomic context compromise the viability of local firms and derail the effectiveness of any policy actions designed to target them. Returns from initiatives to upgrade the quality of local human capital similarly will go unrealized if efforts are not made to ensure that jobs for newly skilled individuals are made available.

Moreover, the institutional context is increasingly understood to be a prominent influence on and determinant of the effectiveness of economic growth and development strategies. Hence,

"development strategies need to understand and be specifically tailored to the potential of place-bound institutions in order to make the most of interventions in human capital, infrastructure, or innovation" (Rodríguez-Pose, 2013: 1042).

As a consequence, place-based policies are more likely to achieve intended outcomes when intervention targets areas of development where deficiencies exist, provided that the other factors shaping processes of growth and employment generation are at levels that facilitate the formation of integrated and balanced development strategies.

Strategic Planning

Place-based economic development is concerned with the implementation of policies that are uniquely tailored to the contexts within which they are to be pursed. The success of these policies and approaches is contingent, most immediately, on the employment of a robust strategic planning process. The planning process is composed of four elements.

1. An assessment of local conditions or "situation analysis" (UN-Habitat, 2005).

2. Local stakeholder engagement and participation.

3. Delineation of the strategy's aims and objectives.

4. The identification of suitable policies and initiatives.

The most appropriate point of departure for the design of a territorially specific economic development approach is an evaluation of local conditions. The development of a feasible, effective, and implementable localized approach requires above all else a robust understanding of the "characteristics of the local economy" (Swinburn, Goga, and Murphy, 2006) and of its "economic base and how [it] functions" (UN-Habitat, 2005: 9). A well-conducted "local economy assessment" (Swinburn, Goga, and Murphy, 2006: 18) will expose, inter alia, the financial, technical, and other resources that the strategy can draw on; local strengths, viable economic activities, and growth opportunities to leverage; weaknesses and threats—including those of an institutional or technical-capacity nature—that need to be mitigated; and challenges and pitfalls that may be encountered.

The local assessment suggests the type of strategies that need to be adopted, as in the case of the Chocó Department in Colombia. Chocó is one of the poorest departments in the country. In 2012, 68 percent of the population was living in poverty. The percentage of population with unsatisfied basic needs was the higher in the Chocó Department than in any other Colombian department, with this situation disproportionately affecting children in what is a very young demographic structure. Given this diagnosis, the departmental government, in its 2012-to-2015 development plan, focused on the urgent issue of short-term income generation. The plan included measures such as conditional cash transfers, food sovereignty initiatives, financial support for local subject matter experts, and the promotion of the most successful local agricultural sectors (Gobernación del Chocó, 2012).

The municipality of Krakow, with 750,000 inhabitants, in Poland started from a very different position to that of Chocó. Although poverty was not a major concern, declining firms in traditional sectors and the loss of talent to migration suggested a different target for its local development

strategy. The main aim of the strategy was the attraction of inward investment that would be linked to the city's existing industries. The objective was to encourage forward and backward linkages and facilitate offshoring, but the diagnosis led the city's decisionmakers to implement training and skilling strategies aimed at improving the pool of local human capital with medium and high skills. This implementation facilitated the rapid assimilation of knowledge and innovation and led to the attraction of inward investment (Oshri, 2011). Offshoring now provides about 30,000 jobs for mainly young people in the city and its rural hinterland.

The aforementioned assessment of local conditions can be usefully supplemented by consultations and dialogue with local actors and stakeholders. The engagement of local stakeholders serves three related purposes. First, and most broadly, it empowers local economic actors and individuals by actively involving them in the planning process and, in doing so, granting them increased influence over their socioeconomic fortunes. Second, it provides firsthand insights into both the local capabilities and resources on which a strategy may draw and the constraints the strategy will inevitably face. These insights are directly complimentary to the inferences drawn from and conclusions reached in the local assessment. Third, it encourages the articulation of the "views, concerns, and issues" (UN-Habitat, 2005: 8) that ultimately guide and lie at the heart of local approaches.

Together, the local assessment and the engagement of local stakeholders cultivate the base of knowledge that informs the design of territorially specific economic development approaches. In that respect, these two processes feed directly into the third, and perhaps most critical, element of the planning process—the establishment of a vision and, in turn, narrow, more concretely defined priorities and objectives.

The *vision* is the broadest articulation of what a territorially specific economic development approach seeks to achieve (UN-Habitat, 2005). A vision requires the consideration of both the present socioeconomic situation as revealed in the local assessment and the priorities highlighted by local stakeholders (Swinburn, Goga, and Murphy, 2006: 28). Its function is twofold. First, it provides a "continuous point of reference" (UN-Habitat, 2005: 11) that serves to unify and align the priorities and actions of the strategy's various actors. Second, it informs the establishment of more exact priorities and objectives.

Unlike the vision, *priorities and objectives* are specific and correspond directly to and target identified strengths, opportunities, constraints, and limitations, and also the priorities of local stakeholders (Swinburn, Goga, and Murphy, 2006). They are ultimately what inform the policies and initiatives to be implemented as part of the broader strategy.

The final element of the strategic planning process is the selection of policies, projects, and initiatives that compose the territorially specific economic development approach. The actions taken should reflect and respond to the aforementioned priorities and objectives and also "existing limitations of time, budgets, administrative capacity and political resources" (UN-Habitat, 2005: 18).

Well-executed strategic planning processes are a prerequisite for successful and efficient territorially specific economic development approaches. An effective planning process will yield a strategy that is an accurate reflection of local economic realities, opportunities, and strengths; institutionally imposed constraints; and the priorities of the stakeholders that will ultimately be affected.

Engaging in a robust, comprehensive strategic planning process helps to ensure not only that the strategy represents a truly efficient deployment of scarce resources, but also that it may actually be operationalized within the socioeconomic and institutional context for which it is designed.

Conversely, a poorly executed or insufficiently robust planning process could lead to the misidentification of opportunities and priorities, inappropriate policy actions or interventions, and ultimately the misallocation of resources. It could also yield an overambitious or simply and plainly inadequate strategy that is not actionable due to financial, technical, or any other type of constraint. Ensuring, first, that resources are allocated and deployed as efficiently as possible and, second, that any strategic actions taken match local capabilities is especially important for regions, small towns, and rural municipalities where constraints on financial or technical capacity, or both, may be more pronounced or debilitating.

One example of a particularly effective and successful balanced, integrated place-based development approach is the one that was implemented in the Austrian region of Styria. Styria is the second largest bundesland in Austria, with a population of 1.2 million inhabitants. Its economy was heavily dependent on industry and, more specifically, on traditional industries often linked to agriculture and raw materials. The fall of the Iron Curtain, however, represented a huge challenge for the region, as competition from former communist countries put Styria's traditional sectors in jeopardy. An industrial crisis ensued in which the region's large state-owned, highly vertically integrated firms were exposed, and Styria suffered as a result of its unbalanced labor market, insufficient firm creation, and low rate of innovation of local firms. A very solid institutional environment, however, characterized by multiple links between the public and private sectors and the heavy involvement of civic, social, and political leaders in development matters, led to a bottom-up strategy articulated by the regional government and structured along three key axes. The first one—increased cooperation—focused on the development of clusters, the vertical cooperation between different tiers of government (local, regional, national), and the strengthening of regional infrastructures. Another axis had the goal of increasing the innovative capacities of firms and overall innovativeness. Pursuit of this goal involved the provision of incentives for firms' networking and cooperation in research and development, the creation of universities, the adoption of a specific focus on niche products, and the establishment of coaching programs and funding for new entrepreneurs. Finally, the strategy also sought to internationalize the economy of the region via the provision of support to exports by the local government and the development of crossborder value chains, especially involving neighboring Slovenia and Hungary (Kaufmann and Tödtling, 2000). Today, Styria has overcome its structural problems and boasts a solid, mid- to high-tech internationally competitive industry, providing skilled and stable jobs that have been particularly resilient to the current economic crisis (Kaufmann and Tödtling, 2000). The Styrian case shows that a thorough diagnosis of local conditions in combination with sound local institutions can lead to sustainable and effective territorial development policies.

Conclusion

It is only recently that researchers and policymakers alike have started to develop an understanding of the importance of subnational territories to economic dynamism and social development.

However, it is at this territorial scale that the processes that drive growth and the factors that condition and shape them transpire (Ascani, Crescenzi, and Iammarino, 2012). The empowerment of regional and local authorities can increase their capacity to address and respond to local—albeit in a wildly heterogeneous way, depending on the competencies of different territories—conditions, characteristics, opportunities, and challenges. Simply stated, more localities the world over are better positioned to achieve meaningful economic growth and socioeconomic development. Place-based approaches to development are the mechanism through which they will actually be able to do so.

The question that needs to be asked is not *if* different localities have the potential to achieve sustainable and inclusive economic growth via territorial approaches to development, but rather, *what* must be done to ensure that they do, and relatedly, *how* do they do it. In this respect policymakers must carefully consider the necessary steps to ensure that those territorial strategies yield meaningful economic growth and social development.

The key lies in maximizing the efficiency of place-based strategies via both (1) capacity building at the local level to ensure that localities are technically capable of assuming the responsibilities associated with greater subnational empowerment; and (2) the promotion of multilevel governance to enhance vertical and horizontal coordination to ensure a sufficient degree of coherence between the resources allocated to, and responsibilities assumed by, regions and localities and also minimal overlap between the actions taken by various subnational authorities.

In the case of the latter, the efficacy of territorial approaches to generate economic and social development is contingent on the soundness of the approach in terms of both its coherence with local priorities and opportunities and also the extent to which it balances economic, social, and institutional factors and considerations. The employment, first, of a robust, participatory strategic planning process and, second, a concerted effort to develop a balanced and integrated approach are therefore essential for the realization of returns from territorial approaches to development.

Place-based strategies represent a new and interesting opportunity to revamp development strategies. They are pushing individuals in localities to think seriously about their futures, rather than wait for solutions to fall like manna from heaven. As such they have a lot to offer, but their efficiency may be put at risk by local capacity constraints, coordination problems, and inadequate local institutions. Hence, to make the most of the development potential of localized approaches, localities the world over must place as much emphasis on dealing with capacity and institutional bottlenecks as they do on designing sound development strategies.

Acknowledgments

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The Role of Skills and Jobs in Transforming Communities

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Abstract

This article outlines the obstacles to widely shared prosperity in the labor markets of older communities in the United States. It addresses the need for more and better jobs, for the education and training programs to give workers the skills to fill these jobs, and for improved access to good jobs and schooling for minority and low-income residents. Examples of successful or promising approaches in each area are provided. Policy implications include government efforts to encourage the creation of more high-wage, high-performance jobs; provide more resources and incentives to community colleges to improve the employment outcomes of disadvantaged students; expand sector-based training and high-quality career education and apprenticeships; and expand services that would link all residents in a metropolitan area to good schools and jobs.

Introduction

Virtually any proposal to transform communities in urban America lists widely shared prosperity among residents as a top goal. Indeed, this goal is usually the primary motivation for recommending or undertaking such efforts.

Achieving and sustaining widely shared prosperity can be very challenging, however, especially in light of the enormous changes that have occurred in the U.S. labor market during the past few decades. Specifically, the skills required by employers for good-paying jobs have increased dramatically and are frequently in flux. Residents of low-income communities in particular lack opportunities to build the necessary skills and obtain these good-paying jobs. In many regions, good-paying jobs are either scarce in general or out of reach for low-income residents who may lack not only the requisite skills, but also access to jobs due to weak information networks, geographic imbalances, and lack of transportation, as well as discrimination.

In this article, I outline obstacles and potential solutions to achieving widely shared prosperity in the labor markets of lower-income communities in the United States. I address the following.

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- On the demand side of the labor market, a need for more and better jobs.

- On the supply side of this market, opportunities for better education and skill development among urban workers.

- Access to good jobs and skill-building opportunities for disadvantaged students and workers.

Labor Demand: More and Better Jobs

Labor demand in any city or metropolitan area refers to the quantity and quality of jobs created there, along with the recruitment, hiring, and training efforts by employers in filling them.

Current State of Affairs and Challenges

Over the years, analysts of urban and metropolitan areas have described economic development policies to improve job availability and job quality. Recently, Liu (2016) outlined a series of necessary steps to remake regional development in ways that generate and sustain inclusive growth. The steps include setting appropriate goals, boosting trade (of locally produced goods and services) with other regions and countries, investing in worker skills, and connecting places to one another within the region. These steps strike me as appropriate goals, although challenging to achieve; other analysts agree (Bartik, 2016; Benner and Pastor, 2016; Nowak, 2016; Rubin, Blackwell, and Schildt, 2016). Liu's colleagues Katz and Bradley (2014) described cities and regions in the United States—including Denver, Colorado; Houston, Texas; Los Angeles, California; New York, New York; and the northeast Ohio region—that have successfully begun such transformations.

Optimistic newer voices in this area are Van Agtmael and Bakker (2016), who argued (starting with the title of their book) that Rust Belt cities and neighborhoods are becoming "…the smartest places on earth." Surveying changes they observed in Akron, Ohio, and Malmo, Sweden, and also in a range of other U.S. cities—like Minneapolis, Minnesota; Portland, Oregon; and Raleigh-Durham, North Carolina—the activities that allow for dramatic changes in the economic environment. They stress the importance of connections across major stakeholders, collaboration between universities and entrepreneurs, focus on a few key industries and innovations, access to capital markets, and creating an appealing local environment (both professional and social) that acts as a magnet for talent to the area. Other authors, such as Porter (2016), have argued for decades that distressed inner cities have competitive advantages that could be much better harnessed for inclusive economic development.

Despite their great optimism, Van Agtmael and Bakker (2016) and others have provided little evidence that the changes they describe are possible in *any* Rust Belt city. Indeed, even in the cases surveyed, they provided little evidence that the innovative industries generate employment with sufficient scale and breadth of skill demands to generate inclusive prosperity for most residents of lower-income neighborhoods.

Moreover, although low-income residents do benefit when their cities experience turnaround, the size of these benefits is in question. Glaeser (2011) and other economists have shown that a large concentration of college-educated workers in a city generates spillover effects in the economy that

raise the earnings of less-educated workers, and Moretti (2012) showed that cities that become centers of innovation also generate spillovers that raise wages of that group. In general, the overall unemployment rates and employment growth rates of cities have large effects on the employment of their low-income or minority groups (Hines, Hoynes, and Krueger, 2002). Still, no evidence is available of very widespread prosperity generated by these more general increases in high-skilled earnings and employment. Moreover, even though opportunity exists in these growing economies, housing prices reflect the economic growth and prevent lower-income households from accessing the better jobs that result (Acolin and Wachter, 2016). Thus, achieving these outcomes alone will not create broadly shared prosperity.

In addition, new research findings should further temper optimism regarding the arguments of Van Agtmael and Bakker, among others. Large gaps are evident in educational attainment and achievement, and in earnings—between White and minority children and between children from high- and low-income families—that may be barriers to positive spillovers. Although racial gaps in education have declined a bit over time in the United States, they remain very large, and gaps between high- and low-income children have grown (Reardon, 2011). Issues of access to good education are paramount (Steinberg and Quinn, 2016).

Within metropolitan areas, residential segregation by income is rising, even while it falls modestly by race (Bischoff and Reardon, 2013); such segregation likely contributes to growing gaps in educational achievement and other outcomes across children (Chetty, Hendren, and Katz, 2016). Also, across cities and regions, highly educated workers are sorting themselves in ways that cause them to be much more concentrated in some places than in others; where they concentrate, housing prices rise and drive out lower-income residents (Diamond, 2016), causing further imbalance (Acolin and Wachter, 2016). Also, Autor, Dorn, and Hanson (2016) recently created a very disturbing portrait of regions hurt by major shocks of imports (in this case, manufactured goods from China), documenting not only the degree of distress that results, but also how slowly the adjustment processes (such as new jobs developing and labor migrating to areas of greater job availability) occur.[1] Higher rents and housing cost barriers in regions with job growth may affect mobility (Acolin and Wachter, 2016).

Opportunities for Solutions

Despite these challenges, opportunities for solutions are also apparent. First, the U.S. labor market has been recovering from the terrible effects of the Great Recession; as of mid-2016, the unemployment rate is down to about 5 percent, wages are finally starting to rise faster than inflation across the country, and even labor force participation is beginning to recover. If the recovery can be maintained, local labor markets will be tighter, and the extent to which prosperity from any new economic development can spread will rise.

Second, some markets for middle-skill jobs—which pay reasonably well for workers with less than a college bachelor's degree—are already tight around the country. Although much has been written

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[1] Blanchard and Katz (1992) empirically documented the general process of adjustments of metropolitan areas to major employment shocks, although Bound and Holzer (2000) also showed slower migration responses among less-educated or minority workers than others.

about the "hollowing of the middle" in the job market (Autor, 2010), a closer look at the data generates a more complex picture—whereas good-paying production and clerical jobs for workers with only a high school education have been disappearing, others requiring more skill have been growing (Holzer, 2015a). The latter group includes jobs in health care, advanced manufacturing, information technology (IT), transportation and logistics, hospitality, and the higher ends of retail. Some of these jobs require technical training at the certificate or associate degree level, but others can be obtained with less technical training.

Indeed, some industry analysts claim that these industries suffer from serious shortages of middle-skilled workers, although the claim is controversial.[2] Nevertheless, signs point to labor market tightness in the particular occupations and industries noted previously, especially in regions where worker skills are low. Also, as baby boomers retire, the market will become tighter, creating demand that could be filled by newly trained workers in older and less affluent communities. Indeed, tighter markets are the best antidote for overcoming employer prejudices and reaching out to categories of job applicants that they have avoided in the past (Holzer, Raphael, and Stoll, 2006).

Third, job availability can sometimes rise in response to the creation of newly skilled workers—in other words, improvements in the supply of skills can help generate demand for them. Thus, I subsequently discuss the role of generating new skills in creating job opportunities. In fact, foreign companies—such as manufacturers from Germany—are flocking to states (like North Carolina and Tennessee) and regions where they perceive sufficient skills in the population, among other characteristics. Indeed, a few years ago, Siemens famously waited to build its fairly new gas turbine engine manufacturing plant in North Carolina until they had developed arrangements with local community colleges and universities to create a steady stream of trained technicians and engineers. (In a subsequent section, I specifically suggest policies to encourage firms to work with communities to implement such sector-based strategies.) German companies, among others from around the world, generally find the United States a positive business environment (due to low taxes, low regulation, low energy costs, and proximity to a great consumer market), although they are often reluctant to do more here until local skills problems can be solved (Schwartz, 2013). In this way, job creation and skill development in high-demand fields can reinforce each other.

Fourth, separately from the *quantity* of employment growth, it is possible to upgrade its quality. Labor economists have long been aware that employers can often choose between high-wage and low-wage (or high-road and low-road) strategies to making profits; whereas the former stresses investments in training, high productivity, and low turnover, the latter stresses low labor costs (Andersson, Holzer, and Lane, 2005).

Firms can create good job opportunities by upgrading their workers' skills. Cases of firms that upgrade the quality and skills of their workers—through significant on-the-job training and promotion ladders—to create and then fill good-paying jobs are well documented. For instance, Ton (2014) described some well-known American companies—such as Toyota Motor Corporation, United Parcel Service, Inc. (UPS), Costco Wholesale Corporation, and Four Seasons Hotels—that have undertaken

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[2] For instance, see the Manufacturing Institute (2013) for claims of shortages, as well as Cappelli (2014) or Osterman and Weaver (2014) for more skeptical accounts. A new report by the National Academy of Sciences (2016) strikes an appropriate balance between these competing claims, as does Holzer (2015a, 2015b).

a set of strategies designed to raise both earnings and productivity among its workers, while preserving or even raising company profits. These strategies change the operations of the companies quite dramatically to improve customer service and the quality of work performed.[3]

Although policies to encourage and support more "high-performance workplaces" have been advocated (Kochan, 2015), in recent years, it appears as though low-road (cost-minimizing) personnel policies in the United States are becoming quite frequently used (Weil, 2014). Again the data are not absolutely clear and the trends are not immutable.[4] Attempts to assist and incentivize more firms to take the high road and to learn what does and does not work in this regard are certainly in order (Holzer, 2015b).

Because the United States has very little experience to date with these types of policies, city officials do not know exactly what kinds and levels of incentives or assistance offered by federal and state governments would induce firms to adopt high-performance strategies. Governments could experiment, for example, with technical assistance organizations for a range of industries along the lines of the Manufacturing Extension Partnership, grants or tax credits to firms that build new promotion ladders or adopt profit sharing, or preferences in contracting for firms that engage in such practices.

Can local and metropolitan areawide economic development policies build on these more promising trends and strengthen the demand for workers in older communities? The body of evidence remains thin, but a few economists have provided sensible arguments about avoiding zero-sum battles of tax reductions across states and combining customized services for firms with appropriate assistance in areas such as regionwide appropriate skill development (Bartik, 2016). How well these approaches work and how broadly they build prosperity in combination with other development activities remains to be seen.

Labor Supply: Better-Educated and Better-Skilled Workers

Actually turning around declining cities and regions is impossible without improving the education and skills of its workers, which should be a focus of effort. Some major challenges plague efforts to improve education and skills, however, especially in areas of concentrated disadvantaged. The following section identifies solutions to the challenges of skill transfer.

Current State of Affairs and Challenges

Job training for good-paying, high-skill jobs requiring bachelor of arts degrees (BAs) or more takes place at 4-year colleges and universities; whereas, training for middle-skill jobs mostly occurs

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[3] Ton (2014) focuses on four key goals in business strategy to improve workers' wages and performance while delivering greater value to customers and investors: (1) Offer fewer products to customers, with fewer sales promotions and gimmicks, perhaps at fewer hours; (2) standardize many operations and empower employees to make key decisions on how to implement them; (3) cross-train workers to perform a range of duties and jobs; and (4) operate with slack to ensure that customer service is amply provided in all circumstances.

[4] One macro argument that suggests an aggregate shift by employers toward low-wage, cost-minimizing strategies is the current combination of high profits and low productivity growth in the United States in the past decade. See Baily and Bosworth (2015).

at community colleges—in associate degree programs in arts (AA) or sciences (AS) or in certificate programs, which can be for academic credit or not. Pell Grants now fund much of this training—at least when the programs of study are for academic credit.[5]

Huge numbers of students—including those from disadvantaged backgrounds, both young (coming out of high school) and older—enroll in community colleges; completion rates, however, are extremely low. Completion rates for youth in AA or AS programs nationally are about 20 to 30 percent and much lower among low-income students and especially among adults. Furthermore, in some states, large percentages of students complete AA programs in the humanities (especially in general studies or liberal arts programs), which have nearly no labor market value, while avoiding AS or certificate programs that are much better compensated (Backes, Holzer, and Velez, 2015).[6] Also, many students emerge from programs with substantial debt, especially if they attend for-profit colleges.[7]

Why are these outcomes so bleak? For one thing, many students enter college with a number of disadvantages. Most obvious are their weak academic skills, resulting from poor academic work in kindergarten through 12th grade (K-12).[8] Entry rates into "developmental education"—or remediation—at community colleges are as high as 60 percent (Bailey, Jenkins, and Jaggers, 2015). Students who cannot pass an Algebra I or English reading test are required to take and pass developmental education and entry exams before they can take classes for credit—even if Algebra I is not particularly necessary in their programs of study. Traditional remediation also has generally been very ineffective or even harmful at community colleges (Clotfelter et al., 2013).

In addition, disadvantaged students are hurt by a variety of other problems. First, high and rising tuition rates hurt families without substantial liquid assets and keep many students from institutions other than the local community colleges.[9] Second, even when students might be qualified for admission and financial aid at better schools, first-generation college-goers lack the needed information about potential college choices and generally lack the social capital needed to perform well.[10] Third, low-income students are often (single) parents who face pressure to work full time while they attend school, making it much harder to complete programs of study.

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[5] In previous decades, employment and training for the disadvantaged were funded primarily by the U.S. Department of Labor's programs, such as the Comprehensive Employment and Training Act and its successors (Holzer, 2013). Funding for these efforts has greatly diminished over time; however, Pell Grants have grown in generosity and community colleges have expanded their offering of certificates and other workforce development efforts.

[6] In Florida, for instance, about 45 percent of students who earn AA degrees do so in humanities, particularly general or liberal studies. These rates are a bit higher for disadvantaged students. Of all community college enrollees from Florida high schools, only about 22 percent transfer to 4-year colleges, and about one-half of them earn BAs within 6 years. Most transfer to the 4-year college nearest to their community college, although many such schools are third- or fourth-tier institutions as measured by test scores and high school grades.

[7] Holzer and Baum (2017) discuss all these issues at greater length.

[8] Of course, achievement gaps often begin shortly after birth in the home, well before students enter kindergarten (Magnuson and Duncan, 2016), which is why many researchers consider high-quality pre-kindergarten programs to close these gaps so critical to any future postsecondary and labor market success.

[9] State subsidies for higher education are actually declining over time on a per-capita real basis (Holzer and Baum, 2017).

[10] Such social capital can often mean how to study and where to get help, which might be particularly unknown among first-generation college-goers.

On top of the challenges that low-income students bring to college, the quality and behaviors of the institutions they attend often make things worse. Community (and lower-tier 4-year) colleges are often strapped for resources, contributing to worse student outcomes (Bound, Lovenheim, and Turner, 2010). For instance, supports and services for low-income students are limited, as are important services like career counseling for all students. Lacking information about the labor market, many students choose areas of study with weak job prospects.

In addition, the unstructured nature of most community colleges leads many students to wander aimlessly through the course curriculum without structure or guidance along the way (Bailey, Jenkins, and Jaggers, 2015). Students also tend to overestimate the likelihood that they will complete their associate programs or transfer to 4-year colleges and universities, which leads them to avoid technical-certificate or AS programs and concentrate too heavily in liberal arts AA programs. Indeed, most AA students expect to transfer to 4-year colleges and obtain BAs when they arrive, and yet only one-fourth or less successfully transfer, and only one-half of that group earn BAs (Bailey, Jenkins, and Jaggers, 2015).[11]

Even if students understand the labor market value of programs such as those in health care, teaching capacity in high-demand fields can be very constrained, with many students not able to enroll in all the needed classes. This scarce capacity occurs because of strained resources, and also because of weak performance incentives facing community colleges. Simply put, technical classes with labor market value are often more expensive than others, with the need for up-to-date equipment and instructors with high salaries.[12] Because colleges generally receive the same per-student tuition regardless of what students study or how well they perform (in either college or the job market), the institutions have little incentive—especially given their limited financial abilities—to invest in expanding teaching capacity in high-demand fields.

Opportunities for Solutions

In response to incentive problems, many states are starting to base higher education subsidies to institutions on student performance to strengthen these incentives. Indeed, the National Conference of State Legislatures tracks state policies of this kind, and more than 30 states have started moving in this direction.[13]

If the incentives are badly structured, however, unintended consequences can result—such as "creaming" students up front (in other words, admitting only those of higher ability) or reducing performance requirements to raise graduation rates at the back end (Dougherty et al., 2016). Too few states emphasize subsequent employment outcomes of students in their subsidy formulae,

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[11] Of course, many avoid technical classes or management, either because they do not have the necessary math and science backgrounds or they do not like these programs and jobs. Passing important "gateway" classes, like anatomy in health care, is problematic for many as well.

[12] Because most tenured faculty at community colleges are trained to teach liberal arts, and others with more technical background might have obsolete knowledge, community colleges rely heavily on adjunct instructors. Although adjuncts are generally paid poorly relative to regular faculty, those in healthcare or technical classes are often medical or engineering professionals requiring better compensation. Aside from financial issues, that makes it hard to scale successful workforce development programs.

[13] http://www.ncsl.org/research/education/performance-funding.aspx.

especially among minority or low-income students (Holzer, 2014).[14] Movement in the direction of measuring and incentivizing student performance in terms of improved employment outcomes will be important, so that colleges will have incentives to advise more students to major in high-demand programs (like AS rather than AA) and to provide the necessary teaching capacity to absorb them.

A second approach to solving the skills gap is using *sector-based training* strategies that involve partnerships between industry representatives, training providers (usually community colleges), and intermediaries who bring them together (Conway and Giloth, 2014). The training provided is therefore certain to meet employer skill needs, and employers come to trust the intermediaries to send them only well-trained students.

The sectors in which these strategies are applied are usually those that pay reasonably high wages to workers with educations less than the BA level, in which demand growth has been consistently strong, and in which employers claim to have some difficulty meeting their skill needs on their own. As noted previously, these sectors usually include health care, advanced manufacturing, IT, transportation and logistics, and parts of the service sector such as the higher end of retail or leisure and hospitality. Rigorous evaluation of such programs (Maguire et al., 2010) shows that such training can have significant effects on the earnings of low-income trainees.

A related approach involves building *career pathways* in these sectors, whereby students pursue careers through a series of steps that involve intermediate, or stackable, credential accumulation and work experience along the way. For example, students might begin by becoming certified nursing assistants at first, ultimately aiming for licensed practical nurse or even registered nurse degrees. Some students take multiple steps across the pathways, when the timing is appropriate, although others do not.

Because they have some employer support and also some promising evaluation outcomes, most states around the country have adopted some such strategies, and the reauthorized Workforce Innovation and Opportunity Act in 2014 required states to expand sector partnerships and career pathways. Scaling the best programs is challenging. The partnerships can take years to build and become operational; in a very dynamic and uncertain labor market, in which strong labor demand today can disappear tomorrow, such partnerships may not be nimble enough to be viable. The previously mentioned constraints on community colleges also often limit scaling, as does general employer wariness of participating in publicly funded programs.

In addition, questions remain about whom these programs serve and how long the positive effects last. Successful programs mostly serve low-income workers with quite strong basic skills, rather than the hard-to-employ; indeed, the latter would have difficulty mastering the training involved, and employers would quickly lose confidence in their intermediary partners if the latter did not screen out the most disadvantaged. Thus, these solutions depend on skill building in the pre-kindergarten (pre-K) through grade 12 years of education.

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[14] Another approach is to allow institutions to charge higher tuition for high-demand or more expensive classes, as was done in Texas (Kim and Stange, 2016). This approach could easily cause lower-income students to be priced out of these fields of study, however, unless they receive proportionately more financial aid in these fields.

Increasingly, the necessary remediation for weak skills is built into the career pathways for low-income students and workers. This skills-building augmented career pathways approach can help to compensate for prior skill development. Among the best-known and most successful remediation efforts are the Integrated Basic Education and Skills Training (I-BEST) program in Washington, where occupational classes are co-taught by substance and remedial instructors; and the LaGuardia Community College's Bridge to College and Careers Program, in which students taking general educational development (GED) classes received some labor market information and counseling.[15] Reforms in the delivery of remediation more generally—for instance, by making developmental classes co-requisite with rather than prerequisites for credit-bearing classes, thus enabling students to gain credit more quickly—are beginning to occur in many states (Long, 2014).

Furthermore, getting the right mix of general and specific skills and credentials for workers is important here. The sector-based programs work because they meet specific employer skill requirements. What happens, however, when workers leave these firms and sectors to gain employment elsewhere? Some portability of the skills that workers gain across firms and sectors is important for long-run effects, especially if the public sector subsidizes the training.[16]

Overall, the challenges of expanding high-quality education and job training options for disadvantaged workers anywhere are quite great, especially when the disadvantaged are also residents of very low-income and racially segregated communities. Despite these problems, some more encouraging efforts have been made along these lines.

For instance, the National Fund for Workforce Solutions, created and funded by a set of national foundations plus some federal funding, has built more than 30 such partnerships (between employers, community colleges, and intermediaries) on the local and regional levels around the country with considerable success. Evaluation evidence on their efforts has been relatively positive, and much has been learned along the way (Michaelides, Mueser, and Mbwana, 2015). Newer models of programs that support low-income students at community college, like Accelerated Study in Associate Programs (ASAP), also show that dramatically improving student completion rates is possible if sufficient resources are available (Scrivener et al., 2015).[17]

A third approach to skills training deserves mention here: high-quality career and technical education (CTE) that begins in high school and creates pathways into community colleges and the job market can play a much more positive role in many communities than it has to date. Historically,

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[15] The extent to which these kinds of programs can broadly generate access to skills training for the hardest to employ remains to be seen. Several states are now trying to replicate the results of I-BEST within various career pathways in "Accelerating Opportunity," although evaluation impacts are not yet available (Anderson et al., 2015). The U.S. Department of Health and Human Services is also testing the ability of career pathways programs to serve the least-educated workers in its Health Profession Opportunity Grants and Pathways for Advancing Careers and Education projects. Bridge programs like LaGuardia's (Martin and Broadus, 2013) are also being replicated in a variety of programs, although students' success rates in passing the GED examination under the LaGuardia program remained quite low (about 20 percent).

[16] Becker (1975), a seminal work on human capital formation, argued that general skills will be financed exclusively by workers, because they can leave their employers at any time and take their investments with them, whereas specific skills will be partly financed by employers, because the external market for such skills is more limited. Subsequent theoretical models of training (Acemoglu and Pischke, 1998) blur this distinction somewhat.

[17] The ability of other colleges to replicate ASAP is limited not only by its costs but also by the fact that it was limited to full-time students, which excludes many of the disadvantaged students who most need help.

vocational education in the United States tracked low-income and minority children away from college and thus became discredited. Newer models of CTE do not require students to avoid college; indeed, CTE can be a way of teaching strong academic skills by contextualizing them in applied projects or work. Students can take college preparatory (and even advanced placement) classes while they also take some classes and enter a "career cluster," which they can further pursue at 2- or 4-year colleges.[18] Nothing locks those students into the careers that they explore. At the same time, those not bound for 4-year colleges right away get stronger preparation for pathways into community college or direct entry into the job market.

Stern (2016) showed that, nationally, the quality of students taking CTE has risen over time, and more of them are taking high-level math and science, which will help reduce the stigma over time associated with CTE. Particular models are especially promising or proven in raising earnings for CTE students.

For example, rigorous evaluations of Career Academies show long-term impacts on the earnings of at-risk students, and especially of at-risk men (Kemple, 2008). The academies of the 1990s did not reduce college attendance of this population, thereby indicating that they were not tracking students away from college; perhaps newer models actually encourage more college enrollments. The High Schools That Work, popular in several southern states, have high graduation rates and high rates of student enrollment and completion of upper-level math, science, and English classes. Linked Learning Alliance is a districtwide and whole-school model of CTE that has been developed and implemented in California. Recently, the Pathways in Technology Early College High School (P-TECH) programs in New York are based on partnerships between IBM (International Business Machines Corporation), The City University of New York, and local high schools. P-TECH is a grades 9-through-14 model in which high school students move directly into associate degree studies and get work experience along the way. It is also spreading to service industries beyond the world of IT.[19]

One of the most important benefits of CTE is the work-based learning that students receive. Many low-income students prefer learning on the job to doing it in the classroom and are motivated by earning money while they learn. For single or low-income parents, payment or stipends for work are critical to their continuation in training programs. Employers also sometimes prefer training on the job, because they know the skills generated will be the ones they seek and value.

Perhaps the best form of work-based learning is the *apprenticeship model*, which is quite popular in most European Union countries (Hoffman, 2011; Newman and Winston, 2016) and is beginning to make a comeback in the United States. Students usually combine some classroom learning with on-the-job training; they can attain a postsecondary certificate or degree, which signals more general occupational training, while also getting the specific training the employer seeks. Workers are paid, but usually below-market wages, so employers do not bear the cost of the training. A number

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[18] The Carl D. Perkins Career and Technical Education Act (Pub. L. 109-270), the federal legislation that distributes modest funding to CTE programs, now requires states to use career clusters and pathways to organize CTE programs. To do so, states most frequently use a framework that includes 16 clusters, such as IT, health care, manufacturing, business, arts, and education; within these 16 clusters, 79 more specific pathways are presented. The pathways extend to 2- or 4-year colleges, with specific courses that should be taken in each.

[19] See chapter 7 in Holzer and Baum (2017) for details on these models.

of states, such as Georgia, South Carolina, and Wisconsin, seek to expand apprenticeships in their states using a variety of methods (such as tax credits to employers or grants to local schools), and the Obama Administration supported them through competitive grants like the American Apprenticeship Initiative Grants program (Lerman, 2014). Quasi-experimental evidence (Reed et al., 2012) has shown strong impacts of apprenticeships on the subsequent earnings of workers.

Whether disadvantaged students can benefit from apprenticeships, however, again depends on their ability to handle some of the more technical training provided in many cases, hence the importance of prior skill building. Preapprenticeship programs sometimes prepare disadvantaged students for apprenticeships in construction and other industries, although completion rates of the preparatory programs are modest (Conway, Gerber, and Helmer, 2010).

High-quality CTE and apprenticeships are important building blocks in the "pathways to prosperity" that some key states are trying to build.[20] Dual enrollment at community colleges for high school students is another. The extent to which these programs successfully expand educational attainment and subsequent earnings for disadvantaged students needs to be better understood.

Access to Good Schools and Jobs

Creating more and better jobs in a region, and creating education and training programs to give workers the skills to fill them, are critical steps to reinventing older communities. They alone are not sufficient, however, to ensure that disadvantaged workers in these communities share in any prosperity generated by them. They must also have relatively easy geographical and information *access* to those jobs and programs.

Current State of Affairs and Challenges

As discussed in Acolin and Wachter (2016), in metropolitan areas that are heavily segregated by race, family income, or both, access to good schooling and jobs is often limited for minority and low-income residents. Residence in highly segregated or low-income neighborhoods often means that children attend weak public schools and are also harmed by a lack of positive role models and social capital, as well as by exposure to neighborhood violence (Chetty, Hendren, and Katz, 2016; Cutler and Glaeser, 1997; Hanushek, Kain, Rivkin, 2009).

Another way that racial residential segregation can contribute to employment difficulties of neighborhood residents is through a "spatial mismatch" between residents and more decentralized employer locations (Holzer, 1991). The growth of minority and low-income populations in older suburbs around the country can ease such mismatch but not eliminate it, especially if much of the region's economic development is concentrated downtown or in more affluent suburbs (Holzer and Stoll, 2007).

Networks of employees within firms that affect subsequent hiring patterns vary by race, and these networks appear to be influenced by locational factors (Hellerstein, Kutzbach, and Neumark, 2013). Racial discrimination by employers can also vary systematically by location, with suburban

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[20] The Pathways to Prosperity Network includes a group of states organized by Robert Schwartz of Harvard University and Nancy Hoffman of Jobs for the Future in Boston.

employers in higher-income areas engaging in more such discrimination than those in central cities and older, inner-ring suburbs (Holzer and Reaser, 2000; Stoll, Holzer, and Ihlanfeldt, 2000; Stoll, Holzer, and Raphael, 2004).[21]

Opportunities for Solutions

Improving access of low-income residents of major metropolitan areas to good schools and jobs is clearly a critical additional step to ensure that economic development is inclusive and widely shared.

Turner (2016) noted a variety of ways to improve access of low-income neighborhood residents to better schools and jobs, which she broadly labeled "place-conscious strategies"; these strategies can include enhancing the mobility of residents to better neighborhoods, improving the quantity and quality of schools and jobs within low-income neighborhoods, or hybrid strategies to improve residents' access to good schools and jobs anywhere in the metropolitan region from any location.

As put forth by Steinberg and Quinn (2016) regarding good schools, such access must begin with high-quality pre-K programs and continue through the K-12 years to shrink the achievement gaps that typically develop in those years. Solutions include those put into place by the stronger models of urban charter schools, (like Knowledge Is Power Program, or KIPP, academies) associated with school management networks (Dynarski, 2015).

Having high-quality guidance counselors in place to discuss the full range of training opportunities after K-12 is also important and must go along with providing the options that deliver the full range of college opportunities.

The most important training for good jobs will occur in CTE programs in high schools and community colleges. Providing transportation, childcare, and other necessary benefits can enhance access to community colleges for low-income residents. A nationwide organization called Single Stop, now operating in community colleges around the country, seeks to make sure that community college students are aware of and can receive a range of available benefits and supports.

Links to the job market and employer partnerships are critical if these programs are to successfully offer opportunities for work-based learning and employment. Because employers might be deterred by negative perceptions (whether justified or not) of students' abilities in low-income schools, the active involvement of the intermediaries described previously is key. These intermediaries can help generate employer confidence in the quality of students referred to them for work and generate apprenticeships and other work-based learning opportunities for low-income students; work-based learning opportunities would be especially valuable in building employer confidence over time in the workers' developing skills and in overcoming workers' lack of recorded work experience.

In addition, students must have better access to labor market information and career counseling about available opportunities throughout their metropolitan regions. Many states are developing labor market information systems to better inform students about returns to different courses of

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[21] One reason that suburban employers may engage in more discrimination is that the managers in charge of hiring are more likely to be Black in the other locations (Stoll, Holzer, and Raphael, 2004).

study and about current job vacancies.[22] For those in community college, access to One-Stop Centers (or American Job Centers, as they are now called) can be very important. Indeed, the recent trend of One-Stop Centers co-locating on community college campuses is a helpful one.

Students might need more than access to information, however; they might also need counselors who can advise them about different career ladders and about where good employment options might be. Some students also would clearly benefit from active assistance from job developers in making connections with area employers to overcome the barriers of information, space, and race described previously.

Beyond information and transportation barriers, the reality of employer discrimination needs to be acknowledged and addressed. Although strict enforcement of equal employment opportunity laws is critical, statistical discrimination can result from employers having too little information about specific workers or job applicants; making such information more readily available, especially through intermediaries whom employers trust, is important too.

Conclusion

As the preceding discussion indicates, any attempts to generate inclusive economic development will face challenges. Three such challenges are paramount: (1) generating sufficient demand for labor in the form of good-paying jobs; (2) creating the supply of skills among workers to fill such jobs; and (3) assuring improved access to good jobs and schools. Needless to say, addressing all these challenges is a tall order. Reasons also exist for optimism on each of these issues, however, as more state and local policy options are developed to achieve these goals.

To achieve these goals, cities and states should move ahead with actionable takeaways to promote inclusive economic development efforts, such as—

- Using financial incentives and technical assistance to encourage firms to create more high-performance workplaces and jobs.

- Holding community colleges more accountable for the future employment outcomes of disadvantaged students by increasing funding and tying such increases to these outcomes.

- Helping employer groups, community colleges, and intermediaries scale up sector-based training strategies, and career pathways in sectors with stackable credentials to train students for good-paying jobs where labor demand is high.

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[22] Zinn and Van Kluenen (2014) provide for more information on the potential uses of these federal and state data. Most states are linking their administrative data on individual students at public higher education institutions with quarterly earnings data from Unemployment Insurance records, to measure the extent to which different programs of study and different institutions are successfully preparing students for the labor market afterwards. These data are used both to inform students about their potential choices and also in performance-based funding strategies for states imposing accountability on their colleges and universities.

- Using high-quality CTE, apprenticeships, and dual enrollment programs to pursue these goals as well.

- Providing transportation, childcare, and counseling on schooling and labor market opportunities (starting in high school or before) to residents of all neighborhoods so they can access good jobs and skill-building opportunities wherever they are found.

While cities and states implement these policies, researchers should rigorously evaluate the different models pursued in different areas, to determine what works most cost-effectively and for whom. The opportunity to learn from all such experiments is great and the research community should take full advantage of it.

Clearly, the challenges facing cities and states in their attempts to grow will be so great that they will need active support from the federal government. One way to provide this support is a federal Race-to-the-Top strategy for community colleges (Holzer, 2016)—along the lines of what the Obama Administration did in K-12 schooling—wherein the federal government would provide significant new resources to states that bring new accountability to their higher education budgets and systems.

States could also emphasize subsequent earnings of students, as well as their academic outcomes, when measuring performance. In addition, states could explicitly reward colleges that promote advancement for minority or disadvantaged students and could restrict the spending of these new resources to expanding teaching capacity in high-demand middle-skill fields and to raising important services and supports for low-income students. Expanding career pathways with work-based learning (especially apprenticeships) and sector-based training could also be an explicit goal.

Of course, even absent such a federal policy, states and cities can try to implement such an agenda on their own, as many are doing now through new accountability policies to distribute subsidies to public institutions of higher education. In any case, as noted previously, accountability should be based on the subsequent earnings of students, especially the subsequent earnings of disadvantaged students, to a greater extent than they are now. Making these changes will usually require greater infusion of resources to community colleges, which are already quite strapped for resources in most states.

Other federal and state funds that explicitly promote inclusive development should also be supported with grants and technical assistance from departments of education, labor (or workforce development), and commerce at each level. Federal and state governments should explicitly commit to supporting high-road workplace choices by employers in all their forms.

With these forms of federal and state support, cities and regions can undertake the critical work of generating inclusive development. Undoubtedly, success will not be achieved hmeverywhere, and outcomes likely will be mixed in nearly all such efforts. These efforts should be viewed as part of a long-term learning strategy, in which mid-course corrections would and should be encouraged. The upside to improving opportunities for disadvantaged and minority residents in older urban areas will be great.

Acknowledgments

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Education Reform in the Post-NCLB Era: Lessons Learned for Transforming Urban Public Education

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Abstract

During the past 15 years, new education policies have led to a host of reforms through-out the country, spanning everything from standardized accountability and class size reduction to school choice and merit pay. Which of these reforms have actually worked to improve the lives of students in the nation's urban schools—and which have failed to live up to expectations despite the best intentions? This article explores how education policy reforms in large urban districts can expand opportunity. In particular, we focus on what is known about the evidence-based outcomes of four major education reform initiatives: (1) investments in early childhood education; (2) human capital policies; (3) accountability, standards, and assessment; and (4) market-based reforms and school choice. We aim to inform policymakers, school leaders, and the public on critical issues in contemporary school reform, and the extent to which these efforts have improved the educational conditions in our major urban districts.

Introduction

In the previous 15 years, federal policy reforms have played an increasingly important role in shaping the landscape of local public education in the United States. Indeed, the 2001 federal No Child Left Behind Act[1] (NCLB) codified for the first time accountability standards for all U.S. public schools, requiring that all students perform at academic proficiency levels by 2014. NCLB mandated that all students in grades 3 through 8 (and once in high school) be tested in mathematics

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[1] No Child Left Behind Act of 2001, Pub. L. 107–110.

and reading, although states were responsible for writing both the learning standards and creating the accountability exams to assess student proficiency based on state-determined standards. For those schools that consistently failed to make adequate yearly progress (AYP) toward meeting these proficiency standards, NCLB included accountability provisions that sanctioned schools in a variety of ways. Among these sanctions were the provision of school choice—granting students in persistently failing schools the option to transfer to higher-performing schools—and the option to receive free after-school tutoring (funded by federal Title I aid) through NCLB's supplemental educational services (SES) provision. Schools that were chronically underperforming were threatened with turnaround or closure. More recently, the 2009 federal Race to the Top (RTTT) grant program incentivized a number of policy reforms at the state and district levels. Notable among these reforms was the implementation of common state education standards, referred to as the Common Core State Standards Initiative, and revisions to state and local human capital policies around educator (that is, teacher and principal) evaluation.

December 2015 marked a turning point in the federal role in education policy. The reauthorization of the Elementary and Secondary Education Act, now referred to as the Every Student Succeeds Act,[2] grants states (and districts) newfound autonomy to revise accountability, testing, and educator evaluation policies. Given states' new discretion over education reform, it is imperative that state and local school leaders be empowered with evidence-based policies and practices that have been shown to improve the educational lives of students. This additional discretion is particularly important for school leaders in the largest districts in urban metropolitan centers, which serve among the most economically disadvantaged students. To provide information to policymakers and practitioners serving students in urban school districts, we document examples of policy reforms in urban school settings that show promise as effective strategies for improving school, teacher, and student outcomes. We attend to four topics that have received much policy and research attention in the previous 15 years, including: (1) investments in early childhood education; (2) human capital policies; (3) accountability, standards, and assessment; and (4) market-based reforms and school choice.

We focus our discussion on empirical evidence produced through rigorous analysis that lends itself to causal conclusions about the impact of education practices and policy reforms. Such evidence is critical for guiding the decisions of policymakers and urban leaders. Although carefully conducted randomized control trials remain the gold standard for social policy analysis and inference about the efficacy of policy, we recognize that many education policies and practices of interest do not lend themselves to such experimental designs. Therefore, we also discuss evidence produced through rigorous quasi-experimental studies (such as regression discontinuity designs and studies relying on panel microdata). We omit evidence from the many studies that provide correlational evidence on the efficacy of policy reforms in education.

Can education policy reforms improve the lives of students in the nation's urban schools? In the following pages, we document evidence of policies and practices that have and have not worked to improve educational outcomes for teachers and students. Our aim is that this evidence will inform the ongoing work of policymakers and school leaders to enhance the quality of schooling for all urban school students.

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[2] Pub. L. 114–95.

Early Childhood Education

Racial and ethnic differences in academic performance have been identified as far back as the Coleman Report five decades ago (Coleman et al., 1966). More recent evidence on student achievement has revealed a persistent gap in the academic performance of minority students compared with that of their White counterparts, a gap that emerges early in the educational careers of students (Fryer and Levitt, 2004). Indeed, minority students enter kindergarten performing below their White peers, and the achievement gap grows as students progress through the early elementary years (Fryer and Levitt, 2006). Moreover, as income inequality in the United States has increased in recent years, so too has the achievement gap between students that come from high- and low-income families (Reardon, 2011).[3] The persistent race gap in student achievement coupled with a growing achievement gap based on family income poses a particular concern for minority families in urban communities. Indeed, residential and economic segregation exist in most urban communities, and, left unaddressed, will continue to disadvantage the educational prospects of students from very early ages.

Recent attention, however, in both academic and policy circles has been given to the role early childhood education can play in preparing economically disadvantaged students for school and narrowing the achievement gap. For example, economist James Heckman has written widely on the economic benefits of investments in early childhood education as a means for reducing educational inequality (Heckman, 2011). Federal policy efforts such as the Obama administration's RTTT-Early Learning Challenge has provided grants to states to improve the quality of early education programs provided to children who are among the most economically disadvantaged. At the local level, cities such as New York, New York, and Philadelphia, Pennsylvania, recently have made dramatic investments to provide greater access to high-quality pre-kindergarten (pre-K) programs.[4] Given these recent efforts to expand access to pre-K, what effect might the provision of universal pre-K have on students' academic success prior to entering elementary school? The experiences of urban districts in Tulsa, Oklahoma, and Boston, Massachusetts, provide insight to this question.

Evidence From Tulsa

In 1998, the state of Oklahoma established a universal pre-K program for 4-year-old children, under which each of the state's 543 districts could choose to participate. A key feature of the state's program is the requirement that all pre-K teachers have a college degree and a certificate in early childhood education. Moreover, these pre-K teachers received compensation equal to teachers in the state's public elementary schools. Class sizes are capped at 20 students with a student-to-staff

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[3] Reardon (2011) defined high- and low-income families as families at the 90th and 10th percentiles of the income distribution, respectively. Reardon found that the achievement gap between children from high- and low-income families is approximately 30 to 40 percent greater among children born in 2001 than among children born 25 years earlier.

[4] In New York City, nearly 70,000 children were enrolled in free full-day pre-K as of December 2015, an increase of approximately 50,000 enrollees in less than 2 years (New York City, 2015). In Philadelphia, a tax on sugar-sweetened beverages—the first such tax in any major U.S. city—was passed in June 2016, the proceeds from which will be used to expand access to early childhood education.

ratio of 10 to 1 (Gormley and Gayer, 2004). In a series of studies, Gormley (2008), Gormley and Gayer (2004), and Gormley et al. (2005) examined the impact of pre-K in the state's largest urban school district, Tulsa Public Schools, on students' cognitive development and school readiness, with a particular focus on the performance of racial and ethnic minority students.

In Gormley and Gayer (2004), the authors relied on a regression discontinuity design that leverages the strict age cutoff required to qualify for the pre-K program. The authors found that Tulsa's pre-K program provides substantive benefits to eligible 4-year-old children, including significant improvements in cognitive, language, and motor skill development.[5] The authors further found that the positive benefits of pre-K are greatest for Hispanic and Black children, with more limited benefits than White children. Economically disadvantaged children—those who qualify for free lunch—gained more from Tulsa's pre-K program than their more economically advantaged counterparts. In Gormley et al. (2005), the authors found that the program positively and significantly impacted children's performance on cognitive tests of prereading and reading skills, prewriting and spelling skills, and math reasoning and problem-solving abilities. In Gormley (2008), the author specifically examined the impact of Tulsa's pre-K program among Hispanic students and found that Hispanic children realized substantial improvements in prereading, prewriting, and premath skills and that children whose parents spoke Spanish at home, or whose parents were born in Mexico, realized the greatest benefit of Tulsa's program.

Evidence From Boston

In the 2008–2009 school year, Boston Public Schools (BPS) universal pre-K program provided services to approximately 2,000 children, about 34 percent of the city's 4-year-old children. Unlike many pre-K programs in other districts and states, access to Boston's program was not limited by family income (Weiland and Yoshikawa, 2013). Like Tulsa's program, all BPS pre-K teachers are subject to the same educational requirements and compensation scale as kindergarten-through-12th grade (K–12) teachers. All pre-K teachers must have at least a bachelor's degree and must obtain a master's degree within 5 years of teaching in the program.[6] Of particular note is the extent of support given to BPS pre-K teachers, including curriculum-specific training and weekly to biweekly onsite support from an experienced early childhood coach trained in the program's curricula.

To study the impact of BPS' pre-K program, Weiland and Yoshikawa (2013) employed a regression discontinuity approach that relied on the age cutoff for eligibility into Boston's pre-K program (a strategy used by Gormley and colleagues in their evaluation of Tulsa's program). The authors find large positive effects on children's language, literacy, numeracy, and math skills, with smaller impacts on children's executive functioning and emotional development. Like Tulsa, economically disadvantaged students benefited most from the BPS program.

The pre-K experiences in Tulsa and Boston offer important insights into critical success factors for early educational interventions. Both Tulsa and Boston set teacher qualification standards for pre-K teachers, requiring teachers to hold a bachelor's degree and, in the case of Boston, mandating

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[5] Gormley and Gayer (2004) did not find evidence that Tulsa's pre-K program impacted children's socioemotional development.

[6] According to Weiland and Yoshikawa (2013), in the 2008–2009 school year, 78 percent of pre-K program teachers held a master's degree, and 75 percent had at least 5 years of teaching experience.

that teachers actively seek additional education. In doing so, pre-K teachers in both locations are treated as education professionals, compensated at scales equivalent to their district's K–12 teaching counterparts. By comparison, for many pre-K alternatives for children—such as daycare and home care—the educational and training requirements of caregivers are far more limited. Although no direct evidence exists on the impact that professional supports may have in these settings, Boston provides ongoing professional development to its pre-K teachers; we subsequently discuss the efficacy of professional support and instructional feedback in K–12 education settings. Likewise, no evidence was found in the Tulsa case on the impact of limiting class sizes, although experimental evidence from early elementary school settings finds that maintaining modest student-teacher ratios can lead to large achievement gains for students (Krueger, 1999). Taken together, these features of the pre-K programs in Tulsa and Boston provide important guidance for policymakers who are considering offering high-quality pre-K experiences for their district's children.

Teacher Human Capital

Teachers play a critical role in the life of schools. Indeed, research has long identified that teachers are the most important within-school input to the production of education—that is, improving the educational lives of students. Under NCLB, the importance of placing qualified teachers in every public school in the United States was codified into law for the first time. NCLB's "highly effective teacher" provision represented the first national legislative effort to set teacher quality benchmarks. In doing so, NCLB required states to ensure that all teachers were "highly qualified," defining teacher quality by a teacher's credentials—receipt of a bachelor's degree, state certification or licensure, and proof of content-area expertise. Notably, NCLB characterized teacher quality based on inputs or preservice teacher qualifications. In the following sections, we examine aspects of the teacher labor supply—teacher qualifications, alternative pathways into the teaching profession, teacher induction, teacher performance evaluation, and performance pay schemes. We assess the extent to which policies and program initiatives generated improvements in both teacher performance and student achievement.

Teacher Qualifications

The urgency of identifying and placing highly qualified teachers in every classroom is no greater than in our urban public schools. The question is, do observable characteristics of teachers at the time of hire provide information to predict a teacher's subsequent effectiveness in urban classrooms? A recent study in Los Angeles Unified School District (LAUSD) examined whether teacher effectiveness—a teacher's contribution to student achievement growth—depends on either of two teacher inputs: a teacher's success on licensure exams or advanced degrees beyond a bachelor's degree (Buddin and Zamarro, 2009). Evidence from LAUSD indicates that a teacher's performance on licensure tests does not lead to success in the classroom; in particular, student achievement is not significantly affected by the basic skills, subject matter, or reading pedagogy skills of their teachers as measured on current California licensure tests. Moreover, student achievement is unaffected by whether classroom teachers have advanced degrees (Buddin and Zamarro, 2009).

If a teacher's performance on licensure exams and receipt of advanced degrees do little to improve student achievement, can other measures predict teacher effectiveness in urban schools? That is, to what extent might additional information about teachers, beyond traditional preservice qualifications, improve urban districts' capacity to identify effective teachers at time of hire? During the 2006–2007 school year, Rockoff et al. (2011) administered a survey to new math teachers in New York City teaching grades 4 through 8. The authors, along with district officials, collected information about these new teachers not typically included in teacher personnel records at the time of hire, including teaching-specific content knowledge, cognitive ability, personality traits, feelings of self-efficacy, and scores on a commercially available teacher selection instrument. Combining information on teachers typically found in district personnel records (for example, degree attainment, licensure scores, college major) with survey responses, Rockoff et al. constructed two aggregate measures—one capturing a teacher's cognitive skills and a second capturing a teacher's noncognitive skills[7]—and find that both are highly predictive of student math achievement. These results from New York City suggest that districts should consider incorporating additional information about teacher applicants when making hiring decisions. Of course, more work needs to be done to identify which teacher quality traits, beyond those traditionally captured in personnel records, may provide better quality signals about a teacher's effectiveness. Moreover, to more carefully estimate the economic benefits of collecting such nontraditional teacher quality information, a closer accounting of the costs associated with collecting new information about teacher candidates must be weighed against the potential benefits of hiring more qualified teachers who are better able to improve student outcomes. Doing so will provide insight into whether investments in information gathering are truly worthwhile.

Alternative Pathways Into Teaching

In addition to the inclusion of nontraditional measures of teacher quality into teacher hiring decisions, do nontraditional pathways into the teaching profession offer promise as an alternative approach to improving the teacher labor supply? Likely the most prominent among the many alternative pathways into the teaching profession is Teach For America (TFA), a national teacher recruitment program that places new college graduates into hard-to-staff schools (that is, those with teacher supply shortages) in among the most economically disadvantaged urban (and rural) communities in the United States. TFA offers preservice training to all corps members via a summer institute.[8] Once TFA teachers are placed in schools, they receive ongoing support from TFA staff and faculty in the form of classroom observations, connection to resources that meet their particular professional development needs, and connection to TFA colleagues as a support network.

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[7] The six variables contributing to the measure of cognitive skills include a teacher's Teach For America corps status, attending a more selective college, SAT (Scholastic Aptitude Test) math and verbal scores, cognitive ability as measured by the Raven's Standard Progressive Matrices test (an intelligence test that requires no linguistic or mathematics skills), and a measure of mathematics knowledge for teaching. The five variables contributing to their measure of noncognitive skills include extraversion, conscientiousness, personal efficacy, general efficacy, and the Haberman total score. Notably, majoring in education in college was negatively associated with the aggregate cognitive skills measure.

[8] The summer institute incorporates four activities: (1) six formal education courses; (2) full teaching responsibility for a class of summer school students; (3) weekly meetings of institute learning teams focused on teaching methods (organized according to subject and grade level and led by institute staff with a focus on content and grade-specific teaching methods); and (4) content- and grade-specific workshops. The total weekly workload in the summer institute is roughly 70 hours per week (Decker, Mayer, and Glazerman, 2004).

Decker, Mayer, and Glazerman (2004) conducted, to date, the most rigorous evaluation of the effectiveness of TFA teachers in urban schools. Between 2001 and 2003, the authors studied the impact of TFA teachers on student achievement in Baltimore, Maryland; Chicago, Illinois; Houston, Texas; Los Angeles, California; and New Orleans, Louisiana. To do so, the authors randomly assigned students to classrooms to ensure that the TFA and control teachers (any non-TFA teacher) taught classes with, on average, identical student composition. Control teachers included any non-TFA teacher, whether traditionally certified, alternatively certified, or uncertified. TFA teachers included any teacher who entered the profession through TFA, whether current corps members in their first 2 years or alumni still in the profession. Notably, although the TFA teachers had strong academic backgrounds (that is, selective colleges and high grade-point averages), on average they had less preservice teacher training than the control teachers in the same schools. Moreover, TFA teachers were less likely to have education degrees, to be fully certified, or to have substantial student teaching experience prior to entering the classroom.

Results from Decker, Mayer, and Glazerman (2004) indicate that the math achievement of students to whom TFA teachers were randomly assigned improved significantly more than students randomly assigned a control teacher (an effect size of 0.15). However, the study found no evidence that reading achievement improved differently for students of TFA teachers and those of control teachers.[9] Notably, these estimates do not disentangle the effect of TFA recruitment on the type of teacher who enters the profession from the effect of TFA training. Moreover, given that TFA teachers tend to exit the teaching profession at much higher rates than teachers entering through more traditional pathways, the benefits to student achievement of a TFA teacher must be considered in light of the costs of replacing a TFA teacher due to atypically high turnover.

Teacher Induction

Certain recruitment and hiring strategies appear to offer promise in terms of improving the teacher labor supply, but what approaches may exist to improve teacher human capital after teachers have entered the classroom? For example, does on-the-job training and support for novice teachers in the form of induction reduce teacher turnover and improve student performance? Glazerman et al. (2010) studied the impact of a comprehensive teacher induction program in 17 urban school districts. Schools within districts were randomly assigned to treatment or control conditions. The aim of this study was to examine whether additional induction services beyond the services districts usually provide to support beginning teachers (that is, status quo teacher induction) improves teacher and student outcomes. Districts selected one of two vendors—Educational Testing Service or the New Teacher Center—to provide comprehensive induction in schools assigned to the treatment group. The comprehensive induction included carefully selected and trained full-time mentors; a curriculum of intensive and structured support for beginning teachers, including orientation, professional development opportunities, and weekly meetings with mentors; a focus on instruction, with opportunities for novice teachers to observe experienced teachers; formative

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[9] The positive impact on math outcomes for students, but not for reading test scores, is a consistent finding among many education interventions. This result, in general, can be attributed to differences in teaching math versus reading skills, the latter of which are more closely correlated with factors outside of the classroom than the former.

assessment tools used to evaluate teacher practice on an ongoing basis and used to observe and provide feedback to teachers; and outreach to district- and school-based administrators to educate them about program goals and to garner systemic support for the program.

At the end of the first year of comprehensive induction, the additional support for treatment teachers did not translate into impacts on classroom practices.[10] For teachers who received 1 year of comprehensive induction, receipt of comprehensive induction did not impact student achievement. For teachers who received 2 consecutive years of comprehensive induction, the additional support had no impact on student achievement in the first 2 years; however, by the end of the third year, teachers receiving comprehensive induction had a positive and statistically significant impact on student achievement.[11] Finally, neither 1 nor 2 years of comprehensive induction improved teacher retention or other teacher workforce outcomes, including teacher satisfaction and preparedness.

Teacher Performance Evaluation

Given that comprehensive induction focuses attention on early career teachers, can policies designed to improve the human capital of all teachers across the experience distribution generate improvements in teacher practice, student achievement, and the teacher labor supply? Recent policy initiatives at the federal level have aimed to improve teacher human capital through more rigorous evaluation of teacher performance. Indeed, the 2009 federal RTTT grant competition was designed to incentivize states and districts to revise approaches to educator evaluation. Such federal efforts aimed to inject greater accountability into the evaluation of teachers and to improve teacher practice through more rigorous on-the-job (that is, in-service) evaluation, in light of the persistent concern that existing evaluation regimes at the state and local levels did little to differentiate teacher effectiveness. Little evidence currently exists on the impact of newly implemented teacher evaluation systems that were incentivized by RTTT grants. However, evidence from three urban districts offers promise that more rigorous evaluation of teachers can improve teacher effectiveness and the quality of the teacher labor supply.

In the 2000–2001 school year, Cincinnati Public Schools launched the Teacher Evaluation System (TES) in which teacher performance was evaluated via classroom observations. Whereas teachers in the United States traditionally have been evaluated through observations of classroom instruction (typically conducted by school principals), historically, little (if any) professional development has been provided to those responsible for conducting the classroom observation. Moreover, classroom observations occurred infrequently. Under Cincinnati's TES evaluation program, teachers were observed presenting a classroom lesson four times—three times by a peer evaluator (a high-performing, experienced teacher external to the school) and once by the principal or another school administrator. In addition to the classroom observation, teachers received written feedback about their performance and discussed the results of their classroom observation during

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[10] The researchers observed teachers giving a literacy lesson in the spring of their first year and found no impacts on teachers' implementation of the literacy lesson, content of the literacy lesson, or classroom culture, relative to teachers in the control schools (Glazerman et al., 2010).

[11] The third-year impacts are equivalent to effect sizes of 0.11 in reading and 0.20 in math.

a post-observation conference with the evaluator. Further, the district implemented and oversaw an intensive TES evaluator training course to prepare both peer evaluators and administrators for observing and rating teacher performance.

Evidence from Taylor and Tyler (2012) indicates that Cincinnati's TES evaluation initiative successfully improved student achievement in math. Although teacher productivity (that is, a teacher's contribution to student achievement growth) is positive during the year in which they are evaluated, teachers contribute even more to students' math achievement in the years after evaluation.[12] Evidence further suggests that more rigorous evaluation of teacher practice benefits the lowest-performing teachers, as teachers who generated relatively little value-added to student test scores prior to evaluation saw the largest productivity gains in the years following evaluation. Given that TES provided detailed information to teachers about their instructional practice, the authors attribute student achievement gains to the information teachers received about their own performance and to any development of skills informed by more detailed feedback about their practice.

Chicago Public Schools (CPS) initiated a teacher evaluation pilot program among nearly 100 elementary schools in the 2008–2009 school year. The pilot program—Excellence in Teaching Project (EITP)—was designed to address many of the shortcomings of the district's traditional teacher evaluation system, which was based on a checklist of observed teacher practices. According to high-performing CPS teachers, the traditional evaluation approach did not provide meaningful feedback to improve their instruction. Further, more than 60 percent of CPS principals believed that the checklist did not provide them with the tools necessary to adequately address teacher underperformance. Indeed, although 66 percent of CPS schools failed to meet state proficiency standards in Illinois in 2007, nearly all CPS teachers (93 percent) were deemed professionally proficient based on the district's traditional evaluation system (Steinberg and Sartain, 2015).

Similar to TES in Cincinnati, EITP in Chicago was based entirely on more rigorous observation of a teacher's classroom practice, coupled with the development of principal human capital to observe and rate teacher performance and provide detailed feedback to teachers on their practices during post-observation conferences. Indeed, principals in pilot schools randomly assigned to implement EITP in the 2008–2009 school year received nearly 50 hours of training and support during the school year, including 3 days of initial training during the summer before implementation and followup sessions throughout the school year.[13] Steinberg and Sartain (2015) found that treatment schools implementing EITP in 2008–2009 significantly improved student reading achievement (although positive, the math achievement effects were not statistically different from zero). The

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[12] Student math achievement improves by approximately 0.10 standard deviations (SD) for students taught by a teacher in the year after that teacher was evaluated under TES, relative to students taught by the same teacher in the years before the teacher was evaluated under TES.

[13] Principal training focused on using Charlotte Danielson's Framework for Teaching observation rubric to rate teaching practice, methods for collecting evidence, and best practices for conducting classroom observations. The training also included support for principals in coaching teachers. Principals also participated in seven monthly meetings to discuss a variety of implementation issues in the context of professional learning communities consisting of other EITP principals. During the professional learning community time, principals brought materials from classroom observations that they conducted and engaged in small group discussions with colleagues, providing a rich set of supports for principals as they implemented EITP for the first time. Principals also received four half-day trainings during the school year, which provided an opportunity for them to update their understanding and use of the rubric for evaluating teachers.

impact of EITP on school achievement persisted in the years after the pilot program, although the impact was concentrated among schools that served more advantaged student populations (that is, higher-achieving and lower-poverty schools). Given that EITP was designed to develop principal and teacher human capital through more rigorous professional development, Steinberg and Sartain (2015) noted that the observed impacts of the teacher evaluation pilot on student achievement and school performance likely operated through two mechanisms—increased principal capacity as instructional leaders and improvements in teacher instructional quality through more detailed observation and feedback.

To what extent might evaluation systems designed to improve teacher practice through more intensive observation of classroom instruction serve the accountability objective of personnel evaluation? This question is particularly salient given the limited role traditional evaluation systems have played in identifying and, if necessary, removing low-performing teachers from the classroom. In a followup study of the EITP initiative in Chicago, Sartain and Steinberg (2016) found that EITP increased the exit of low-rated and nontenured teachers from the district. Moreover, the teachers who exited the district were lower performing than both the teachers who remained and the teachers who replaced them. These findings suggest that evaluation systems that rigorously observe and rate teacher classroom practice can induce low-performing teachers to exit the district and may improve the overall quality of the teacher workforce.

The federal RTTT grant program incentivized states and districts to implement evaluation reforms that incorporated multiple measures of teacher performance, both those used in traditional evaluation systems (such as observations of classroom practice) and those tied to student achievement (so-called value-added measures). District of Columbia Public Schools (DCPS) was among the few district recipients of federal grant aid to support the development of and revisions to its existing teacher evaluation system. The resulting system, IMPACT, is among the first evaluation systems supported by RTTT aid to incorporate multiple measures of teacher performance and ties teacher ratings to explicit personnel decisions (that is, retention, tenure, and compensation). The IMPACT system linked financial incentives, as well as threat of dismissal to teacher performance on multiple measures, including observation of classroom practice and student test performance. Specifically, teachers designated as highly effective earned a substantial increase in one-time and base compensation. In contrast, teachers designated as minimally effective in 2 consecutive years are subject to removal from teaching in DCPS.

Dee and Wyckoff (2015) evaluated IMPACT's effect on teacher performance and teacher retention. Using regression discontinuity methods, the authors found that voluntary exit from DCPS increased by 11 percentage points (more than 50 percent) among low-performing teachers (that is, those at the threshold of the minimally effective rating); among low-performing teachers who remained in DCPS, teacher performance improved by 0.27 of a teacher-level standard deviation. For the highest-performing teachers (that is, those at the threshold of the highly effective rating), the financial incentives improved teacher performance by 0.24 teacher-level standard deviations. Taken together, these results point to the role that incentives—dismissal threat or financial bonuses—linked to multiple measures of teacher performance can play in improving teacher performance and removing the lowest-performing teachers in DCPS.

Teacher Merit Pay Programs

Can financial incentives alone—apart from a rigorously implemented teacher evaluation system—improve teacher human capital and student achievement? A recent pilot teacher incentive program in New York City provides insight into this question. In the 2007–2008 through the 2009–2010 school years, the United Federation of Teachers (UFT) and the New York City Department of Education (NYC DOE) implemented a teacher incentive program in more than 200 randomly selected schools, distributing approximately $75 million in teacher bonuses to more than 20,000 teachers (Fryer, 2011). Each treatment school could earn up to $3,000 for every staff member (who was a UFT union member) if the school met the annual performance target set by the NYC DOE, a target that was based on school report card scores.[14] Treatment schools were then each responsible for determining how to distribute any earned bonus money to individual teachers within their schools.[15]

Fryer (2011) estimated the causal effect of the teacher incentive program, comparing student and teacher outcomes in schools randomly selected for treatment to those schools randomly selected as controls (that is, nonparticipants in the incentive program). He found no evidence that teacher incentives increased student performance, student attendance, or graduation rates. Further, Fryer (2011) found no evidence that the incentives changed teacher behavior—absences and retention (in school and in district). Some evidence suggests that teacher incentives may have decreased student achievement in schools with greater student enrollment. Fryer (2011) posited four potential explanations for the null results, including (1) the dollar value of the incentives may have been too modest in size; (2) the incentive scheme may have been too complex, thereby limiting teachers' ability to know how much effort to exert; (3) group-based awards, rather than teacher-specific awards, may be less effective; or (4) teachers may not know how to improve student achievement. Fryer (2011) suggested that the most reasonable explanation for the observed effects is that the pilot was too complex and limited teacher agency.

During the 2007–2008 through 2010–2011 school years, Chicago implemented a teacher incentive program—the Teacher Advancement Program (TAP). The TAP model was designed to improve teacher retention and student achievement by providing teachers with incentive bonuses. The TAP model included weekly meetings of teachers and mentors and regular classroom observations by a school leadership team to help teachers meet performance goals. Teachers earned bonuses based on two performance measures: their value-added contribution to student achievement and their observed instructional performance in the classroom. In the first 3 years (2007–2008 through 2009–2010), teachers received an average bonus of approximately $1,100; this average increased to $1,400 for new Chicago TAP teachers in the fourth year (2010–2011).

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[14] Each participating school was given $1,500 per UFT staff member if it met at least 75 percent of the performance target but not the full target. New York City's school report card scores were based on a composite measure of school environment (15 percent based on student attendance and survey scores), student achievement (25 percent based on the percentage of students meeting grade-level performance standards and graduation rates), and student academic progress (60 percent based on the change in proficiency ratings and high school exit exams).

[15] The lump sum for meeting 100 percent of the annual performance target was awarded at the school level, and the school had the power to decide how to disburse the funds to individual teachers. The only restriction was that awards could not be distributed based on seniority, and to participate schools had to create a compensation committee (including the principal, a designee of the principal, and two UFT staff members) to decide on the distribution of incentives. The committee had to agree unanimously on the design of the distribution of bonuses to teachers.

Relying on the random assignment of schools to TAP, Glazerman and Seifullah (2012) estimated the impact of TAP on student achievement and teacher retention. First, as might be expected, TAP increased the amount of mentoring, promotion opportunity, and compensation provided to teachers in TAP schools relative to non-TAP schools. However, the authors did not find evidence that TAP improved student achievement, with no detectable impacts on math, reading, or science achievement. The authors did find evidence that TAP improved teacher retention, although the effect of TAP on teacher retention was not consistent across years or subgroups of students. Notably, even with the inclusion of teacher mentors in treatment schools as part of the TAP program, neither teacher attitudes about their school nor school climate improved.

Accountability, Standards, and Assessment

In this section, we review scholarship assessing the effects of the most prominent contemporary reform efforts based on high-stakes accountability, test-based assessments, and set standards for student performance. We begin by discussing efforts based on NCLB provisions designed to offer parents an expanded set of options. We then describe measures designed to create stronger results-based accountability in public schools.

Providing School Performance Data to Parents

NCLB required schools to make AYP, improving school-level and subgroup student proficiency in math and English language arts (ELA) every year until 100 percent proficiency was attained.[16] The law included provisions that allowed for students to transfer out of Title I schools that failed to make AYP 2 years in a row.[17] The implied goal of these provisions was to increase academic outcomes for disadvantaged students (1) indirectly by introducing market-based competition into the public education system, thereby prompting all schools to improve, and (2) directly by providing students an immediate path to a higher-performing school (Hastings and Weinstein, 2008). These mechanisms rely on the ability of parents to adequately acquire and assess information on school options.

Hastings and Weinstein (2008) examined the role of accessible and transparent information in the school choice decisions of parents of Charlotte-Mecklenburg Schools (CMS). Beginning in 2002, the district assigned students to schools through a choice system that required parents of students in rising grades (kindergarten, sixth, and ninth) to submit their top three choices every spring.[18] In the summer of 2004, when the first set of failing schools under NCLB was identified, parents were provided information on the academic achievement of alternate schools they had the option of transferring to in the fall. The authors compare the spring choice decisions (when school information was not readily available) with the summer decisions (after school information became available) and determine that information has a positive impact on choice. Namely, with access to information,

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[16] States established timelines for AYP such that all students in all recognized subgroups meet or exceed a state's proficiency level for academic achievement no later than 2014 (No Child Left Behind Act of 2001, §1111(b)(2)).

[17] No Child Left Behind Act of 2001, §1116(b).

[18] When the system was first implemented, ahead of the 2002–2003 academic year, all parents were required to submit a choice form. Under the CMS system, students were guaranteed a seat in a "home school," usually a nearby school. Admission to a nonguaranteed school was based on a lottery (Hastings and Weinstein, 2008).

parents choose higher-performing schools.[19] In 2006, the authors worked with CMS to provide two types of simplified school information sheets to parents, one with statistics on academic achievement and another with both achievement statistics and estimated odds of admission. Both sheets were in a more readable, user-friendly format than the 2004 materials. However, despite the improved design, the effect on school choice was similar to 2004, suggesting that "the degree of simplification is not as important as just providing information on school test scores to parents at the time of choice" (Hastings and Weinstein, 2008: 18). As one might expect, attending a stronger school (in this case, due to better information) was found to produce improved academic outcomes.[20]

Supplemental Educational Services

In addition to NCLB's transfer option, eligible students at Title I schools identified for improvement have the option of receiving SES, free of charge.[21] These services include remedial and enrichment programs in math and ELA that are aligned with state standards and are based on research. Several recent studies have examined SES (Muñoz, Potter, and Ross, 2008; Springer, Pepper, and Ghosh-Dastidar, 2009; Steinberg, 2011). For instance, a RAND Corporation study assessed the early implementation of SES in seven large urban districts (Zimmer et al., 2007).[22] By comparing the differences in achievement gains for SES participants and nonparticipants, the authors conclude that participation in SES has a positive, statistically significant effect on math and ELA scores for students in five of the districts.[23] In a subsequent meta-analysis that estimated average effects across nine districts, the authors determine that participating in SES results in achievement gains that accumulate over multiple years of program participation. African-American and Hispanic students realize gains in both math and ELA, and students with disabilities experience gains in ELA but not math.[24] A study by Heinrich, Meyer, and Whitten (2010) similarly estimated the effect of SES on student outcomes in Milwaukee. However, the authors are unable to conclude that participation results in a statistically significant effect on test scores.[25] Although these results generally suggest

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[19] Parents selected as their top choice schools with 0.62SD higher test scores (student level) than their current NCLB-sanctioned school and 0.49 SD higher than their spring choice (Hastings and Weinstein, 2008).

[20] The authors determined that increasing the score of the school attended by 1SD resulted in own test score gain of 0.40SD, on average (Hastings and Weinstein, 2008).

[21] "The term supplemental educational services means tutoring and other supplemental academic enrichment services that are in addition to instruction provided during the school day; and are of high quality, research-based, and specifically designed to increase the academic achievement of eligible children" (No Child Left Behind Act of 2001, P.L. 107–110, §1116(e)).

[22] The study included nine large urban districts: Baltimore; Chicago; Denver, Colorado; Long Beach, California; Los Angeles; Palm Beach, Florida; Philadelphia; San Diego, California; and Washington, D.C. Two (unidentified) districts were dropped from the SES impact analysis due to low student participation rates.

[23] The student level effects of participating in SES ranged from 0.03SD to 0.38SD (math) and 0.03SD to 0.58SD (ELA) achievement gains above the district mean (at the 5-percent level).

[24] The meta-analysis determined that participating in SES led to 0.09SD (math, overall), 0.8SD (ELA, overall), 0.17SD (math, 2+ years), 0.15SD (ELA, 2+ years), 0.10SD (math, African-American students), 0.12SD (ELA, African-American students), 0.10SD (math, Hispanic students), 0.09SD (ELA, Hispanic students), and 0.17SD (ELA, students with disabilities) achievement gains above the district mean (at the 5-percent level).

[25] The authors use propensity score matching and fixed effects models and find no statistically significant effects on test scores for students who participate in SES; when taking into account total hours of SES participation, the authors find only one statistically significant relationship: for the 2005–2006 year, each additional hour attended increased high school reading scores by only 0.09 of a test unit—approximately 0.10SD for 25 hours of participation (Heinrich, Meyer, and Whitten, 2010).

that SES participation can lead to a positive and significant effect on students in math and reading, for certain districts and for certain populations no discernable gains were identified. This lack of gains is likely due to the fact that features of SES—for instance, program quality, class size, and instructor experience—vary across providers. Research has yet to disentangle SES program features and their particular effects.

Test-Based Accountability

The accountability policies ushered in by NCLB have led to several test-based mechanisms that assist in the identification of underperforming students and schools and incentivize school communities to work harder. Test-based accountability is thought to improve outcomes by "raising motivation, increasing parent involvement and improving curriculum and pedagogy" (Jacob, 2005: 761). However, in recent years, parents and advocates have raised concerns about the prevalent use of high-stakes standardized tests in public education. Some worry that schools, particularly under-resourced schools in urban districts, focus too much on test preparation. Others point to recent cheating scandals in Atlanta and elsewhere as an unintended consequence, and others argue that formative assessments and performance-based evaluations are of greater immediate benefit to students and teachers. In a handful of urban school districts, these concerns have led parents to opt out by preventing their children from taking part in state tests. With this factor in mind, a baseline question might be whether annual student assessments have an effect on student achievement. Dee and Jacob (2011) examined the impact of NCLB and its accountability requirements on student outcomes by comparing state-level trends in achievement between states that were most affected by NCLB (treatment) and states that were less affected (control).[26] The authors find that NCLB's effect on achievement was "decidedly mixed"—the federal law led to gains in math, but not for reading.[27]

Jacob (2005) examined a precursor accountability policy governing CPS. Introduced in 1996, the policy ended the practice of *social promotion*—advancing students to the next grade regardless of achievement—thus holding students accountable for their learning. To advance from third, sixth, and eighth grades, students were required to meet minimum proficiency standards in reading and math. Students who fell below the cutoff were to enroll in a 6-week summer school program and retake the test. If they passed, they advanced; if they failed once again, they had to repeat the grade. In addition to social promotion, schools with a proficiency rate below 15 percent were placed on probation, from which they faced reconstitution if they failed to improve. By examining changes in student achievement over time and by comparing CPS with other large districts in the Midwest that did not implement accountability policies, Jacob (2005) found that the CPS accountability policy improved student achievement for older students but improved only test-specific (rather than general) skills for younger students.[28] Furthermore, teachers responded strategically by increasing special education placements, preemptively retaining students, and substituting away from low-stakes subjects like science and social studies.

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[26] Several states had accountability laws prior to the implementation of NCLB. For these states, NCLB's requirements were less consequential than for those states without prior accountability laws.

[27] The authors find that by 2007, NCLB generated a 0.23SD increase in fourth grade math. Estimated effects for fourth grade reading and eighth grade math were indistinguishable from zero (Dee and Jacob, 2011).

[28] Jacob (2005) estimated the effect of the policy on math and reading achievement as approximately 0.30SD and 0.20SD respectively.

Neal and Schanzenbach (2010) examined CPS under both the 1996 reform and the post-NCLB period in order to understand how test-based accountability affected students at different points on the achievement distribution. Because rewards and sanctions are tied to the numbers of students scoring above proficiency cutoff points, the allocation of resources may vary across different types of students. Teachers and administrators may conduct "educational triage" by making "conscious and deliberate decisions to shift resources away from low-performing students and toward students who had more realistic chances of exceeding key threshold scores" (Neal and Schanzenbach, 2010: 265). In other words, the most cost-effective strategy for increasing proficiency counts could reasonably be to focus on students near the proficiency cut points. Furthermore, low-performing schools with few students near the cut point may not be able to avoid sanctions only by focusing on those students. The authors indeed did not find that students with the lowest levels of prior achievement—likely those with little realistic change of meeting the proficiency standard—improved following the introduction of a test-based accountability system. However, students at higher levels of achievement showed improvement. The authors also found evidence to suggest that low achieving students would fare better if they attend schools that could not meet proficiency standards through educational triage.

Data-Driven Reform

The accountability requirements of NCLB, along with the increased technical capability districts have to accumulate and analyze data, have spurred data-driven reform efforts in recent years. One prominent example is the Data Driven Districts (3D) initiative developed by the Center for Data-Driven Reform in Education (CDDRE) at Johns Hopkins University. The initiative trained school and district leaders to understand and more effectively use student performance data.[29] Through a randomized trial, Carlson, Borman, and Robinson (2011) assessed whether the initiative brought about districtwide improvements in student performance. Over three cohort waves, participating districts were randomly assigned to receive CDDRE support beginning either in the first initiative year (treatment) or in the second (control). Treatment districts received a range of supports and technical assistance based on the 3D model. These included "quarterly benchmark assessments, data reviews, training in leadership and data interpretation, provision of reviews of research on effective programs and practices, and assistance in selecting and implementing proven programs" (Carlson, Borman, and Robinson, 2011: 383). The 3D districts exhibited modest gains in math achievement.[30] The authors speculated that the effects may be due to some combination of three mechanisms: (1) the practice that students had through multiple benchmark assessments may have served to better prepare them for the end-of-year state achievement test, (2) benchmark assessments may have helped familiarize teachers with the state assessments and consequently altered their instruction during the school year, or (3) benchmark assessments may have helped teachers identify areas of weakness for targeted instruction (Carlson, Borman, and Robinson, 2011).

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[29] "The goal of CDDRE is to solve the problem of scale in educational reform by working with entire school districts to help district and school leaders understand existing data on student performance, generate additional data to help guide school improvement efforts, identify root causes underlying important problems, and then select and effectively implement evidence-based programs directed toward solving those problems" (Carlson, Borman, and Robinson, 2011: 379).

[30] Math scores for treatment districts were 0.06SD higher than control districts, on average (at the 5-percent level). For reading, the difference between treatment and control districts was positive but not statistically significant at conventional levels. The authors argue that these student-level gains on average district-level achievement are substantively meaningful. However, they note an absence of a recognized benchmark against which the results can be compared.

School Closures

In recent years, to contend with declining enrollment, fiscal constraints, low student achievement, and increased competition with charters, dozens of urban districts have closed underutilized and underperforming schools (De la Torre and Gwynne, 2009; Sunderman and Payne, 2009). In one recent study, researchers examined an unnamed midsized urban district that explicitly sought to use school closures "in hopes of addressing the dual problems of low achievement and financial distress, consistent with the demands of [NCLB] and the Obama administration's *Race to the Top* initiative" (Engberg et al., 2012: 189). Using a metric of performance based on several value-added measures, the district closed or reconstituted schools in the bottom quartile.[31] High-performing schools were kept open unless they created resource inequities. The district's policy required that displaced students be reassigned to a school at least as high performing as the one they left. During the summer of 2006, 22 schools in the unnamed district were closed and 8 were reconstituted. The authors conclude that students moving from a closed school to a new school experience adverse effects on attendance and achievement.[32] Although the effect on attendance disappears within a year of closure, the effect on achievement persists for multiple years. However, the authors found that assigning students to higher-performing schools can minimize these effects.[33] The authors found negative effects on attendance and achievement for students from a closed school but did not find effects for students in receiving schools. The authors conclude that a policy of school closures as a means of generating increased academic outcomes is unlikely to be effective: "The evidence from this school district suggests that producing higher levels of achievement would require moving students to schools that are dramatically higher achieving than the schools they left" (Engberg et al., 2012: 198). Between the 2011–2012 and 2012–2013 school years, The School District of Philadelphia (SDP) closed approximately 10 percent of the district's public schools. Steinberg and MacDonald (2016) found that closures in SDP shifted displaced students to schools with higher-achieving peers but not to schools that were more effective in improving student achievement growth. The receipt of Philadelphia's displaced students imposed no additional costs to the educational settings of receiving-school students. Also, Steinberg and MacDonald (2016) showed that the achievement of displaced students did not suffer in the postclosure year, and closing schools did not impose any adverse spillover effects onto the achievement of their receiving-school peers.

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[31] Expanding the grade span of 13 elementary schools from kindergarten through fifth to through eighth grade replaced middle school closures.

[32] To estimate the effect of school closures on student test scores and attendance rates, researchers use the district's residentially based student assignment scheme as an instrument for the proportion of students arriving from closed schools.

[33] The authors find that absenteeism increases by 13 percent in the first year of closure; for students moving to an equivalently performing school, the standardized effect sizes (*z*-score transformation) for math and reading achievement are -0.19 and -0.20 respectively (at the 5-percent level). Students moving to a higher-performing school do better. For a student with an average change of 0.88 in school performance, the math and reading effect sizes are -0.11 and -0.13 respectively.

Market-Based Reforms and School Choice

Small Schools

During the early 2000s, large foundations (most notably, the Bill & Melinda Gates Foundation) and the U.S. Department of Education awarded grants to support the establishment of smaller learning communities, or small schools.[34] Proponents argued that by breaking up large public high schools into small schools, students would have a more personalized educational experience that would lead to improved academic outcomes. New York City was home to a systemwide effort that led to the establishment of small nonselective high schools of choice, primarily in underresourced communities. New York's program authorized small schools "through a demanding competitive proposal process designed to stimulate innovative ideas" (Bloom, Thompson, and Unterman, 2010: iii). Schwartz, Stiefel, and Wiswall (2013) found that students enrolled in small schools established during this period (but not small schools established in prior years) had a 17.5-percent gain in the probability of high school graduation compared with students attending a large high school (see also, Bloom, Thompson, and Unterman, 2010).[35]

Schwartz, Stiefel, and Wiswall (2013) identified several features of the "new" (that is, early 2000s) small schools program that distinguished it from prior small schools efforts and from traditional large schools. The competitive process required applicants to describe how they would implement rigorous curricula and partner with community-based organizations. The new program exempted small schools in their startup years from serving special needs students and from certain hiring rules. Although small schools under the new program tended to have more inexperienced teachers, they received a substantially larger per-pupil allocation. New small schools also had significantly fewer special needs and English learner students. Finally, the new program provided small schools specialized technical assistance and principal leadership training.

School Vouchers

In publicly funded school voucher systems, parents directly control taxpayer funds allocated for public education, most often for use toward private school tuition. Typically, vouchers worth several thousand dollars are issued to eligible families on behalf of their children. Families can then apply the voucher to a qualified school of their choosing. The school exchanges the voucher for payment directly from the government. Currently, publicly funded voucher plans are in operation in Cleveland, Ohio; Milwaukee, Wisconsin; and Washington, D.C. In addition, statewide programs operate in Arizona, Indiana, and Utah. In theory, vouchers can be either *universal* (available to all students within a jurisdiction) or *targeted* (available only to a particular subset of the student population). In practice, all publicly funded voucher programs currently operating are targeted to

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[34] The U.S. Department of Education described smaller learning communities as structures such as "freshman academies, multigrade academies organized around career interests or other themes, 'houses' in which small groups of students remain together throughout high school, and autonomous schools within a school, as well as personalization strategies such as student advisories, family advocate systems, and mentoring programs" (U.S. Department of Education, 2015).

[35] Because unobserved factors likely both lead a family to select into a small school and affect student outcomes (for example, student motivation, parent involvement), the authors instrument for enrollment in a small school with variables is based on distance.

low-income families, students in failing schools, and special needs students. Proponents claim that achievement gaps will narrow under targeted voucher systems, because disadvantaged students will be afforded an expanded set of educational options.

The D.C. Opportunity Scholarship Program (OSP) provides up to $7,500 to cover tuition, transportation, and other costs associated with private school attendance. If the program has more applicants than available vouchers in a given year, offers are provided through a random lottery in which students attending a public school in need of improvement under NCLB receive the highest priority. A recent impact study conducted by the National Center for Educational Evaluation and Regional Assistance was unable to conclude that OSP had an effect on student achievement. In other words, eligible students who won the lottery had statistically equivalent math and ELA scores as those who lost the lottery (Wolf et al., 2010).[36] Although vouchers provide an opportunity for families to access private schools, these schools may not necessarily be better at producing student outcomes. Furthermore, families may base their decision to apply for a voucher to a private school on reasons other than academic achievement. School climate, for instance, is a central concern for many. In fact, Wolf et al. found that the OSP increased the satisfaction and sense of school safety among parents.[37]

OSP was also found to improve high school graduation rates. The graduation rate for lottery winners was 82 percent versus 70 percent for lottery losers, a 12-percentage-point difference, and the impact on graduation of actually using a voucher was 21 percentage points (Wolf et al., 2010; see also, Rouse and Barrow, 2009). To explain these results, Wolf et al. pointed to research arguing that private schools provide students with school environments and motivated peers that support improvements in student graduation rates (Evans and Schwab, 1995; Grogger and Neal, 2000; Neal, 1997; Warren, 2010).

Charter Schools

Charter schools are publicly funded, privately managed schools of choice. They are formally established through a legal agreement, or charter, between school leaders and an oversight authority, typically the local school board. The charter will often describe school components including mission, curricula, pedagogical approach, and organizational structure. Charter schools are authorized to operate for a predetermined number of years and must petition for renewal at regular intervals. In exchange for this increased level of accountability, charter schools are granted autonomy from portions of state education law.

Laws authorizing charter schools have been adopted in 43 states and the District of Columbia. Charter schools now enroll more than 2.6 million students in 6,600 schools (National Alliance for Public Charter Schools, 2016). A handful of large urban districts enroll a high percentage of charter students. Today, the charter enrollment share exceeds 90 percent in New Orleans; 50 percent in Detroit, Michigan; 40 percent in Washington, D.C.; and 30 percent in Philadelphia (National

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[36] Evaluations of a privately funded voucher system in New York City that made use of a random selection design similarly were unable to report statistically significant effects on student outcomes (Krueger and Zhu, 2004; Mayer et al., 2002).

[37] Wolf et al. (2010) reported an effect of 0.14SD for lottery winners and 0.17SD for voucher users in parent perceptions of safety and an orderly school climate. Interestingly, the authors did not find statistically significant effects for student perceptions of climate and safety.

Alliance for Public Charter Schools, 2015). There are more than 151,000 charter students in Los Angeles, 84,000 students in New York City, and 57,000 students in Chicago (National Alliance for Public Charter Schools, 2015). Despite pockets of active opposition, further growth is likely—particularly through the scale up of charter management organizations—as this method of reform has garnered significant private philanthropic support, mobilized educational entrepreneurs, and attracted lawmakers from both sides of the aisle (Quinn, Oelberger, and Meyerson, 2016).

During the past 15 years, scholars have examined the effect of charter school attendance on academic achievement (Buddin and Zimmer, 2005; Center for Research on Education Outcomes, 2013; Hanushek et al., 2005; Hoxby, 2004). Among the recent scholarship addressing this issue is the Abdulkadiroğlu et al. (2011) study of charter schools in Boston. The authors exploit the random assignment of enrollment spots produced by the legal requirement that oversubscribed charter schools must select students through admissions lotteries. This process generates lottery winners who go on to enroll in the school (treatment) and lottery losers who enroll elsewhere (control).[38] In the absence of a lottery, attendance at a charter school would likely be biased due to factors like motivation or family background. The charter schools included in this study—as lottery-admission schools—are the most popular, and are likely perceived by parents to be the most effective. The authors find that each year spent in an oversubscribed charter school yields large and significant gains across tested subjects for middle and high school students (see also, Angrist et al., 2010).[39] What are the components of charter schools that make them effective? Abdulkadiroğlu et al. (2011) surmised that the No Excuses model adopted by most of the charter schools in their study strategy may play an important role in generating test score gains. We next turn to empirical scholarship examining this model in particular.

The No Excuses school has attracted attention in recent years as a model of school reform that can improve student academic outcomes and close the Black-White achievement gap. The model is built on the notion that "children of all races and income levels can meet high academic standards," and thus there should be no excuse for academic failure (Carter, 2000: 7). No Excuses schools are marked by an extensive use of measurable and "unyielding" goals, frequent testing, expectations of parental involvement (often through parent contracts), attention to discipline through a rigid system of escalating rewards and punishments, and principals who are empowered to make hiring, curricular, and budgeting decisions (Carr, 2013; Carter, 2000; Seider, 2012). Although No Excuses schools are most commonly associated with the charter school sector, district-operated schools throughout the nation have incorporated some features of the model.

One prominent adopter of several components of the No Excuses model is the Promise Academy Charter Schools of the Harlem Children's Zone (HCZ), a renowned multiservice nonprofit providing a coordinated suite of programs, from The Baby College for new parents to the College Success Office for first-generation students (HCZ, 2015). By virtue of being part of HCZ, Promise Academy

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[38] Some students win the lottery and enroll elsewhere, some students lose the lottery yet end up enrolling through waitlists and sibling preferences. Researchers typically identify two causal estimands—the intent-to-treat effect of being assigned to a treatment group (for example, being offered a spot through an admissions lottery) and the effect of treatment on the treated, in other words, of actually receiving the treatment (for example, enrolling in a charter school).

[39] The authors find effects of 0.40SD for middle school math, 0.20SD for middle school ELA, 0.36SD for high school math, 0.30SD for high school ELA, 0.35SD for writing topic, and 0.21SD for writing composition.

students and their families have access to a wide variety of activities and programs. The schools provide medical, dental, and mental health services free of charge and offer several other amenities like food baskets and bus fare for families, Model United Nations summits, and comprehensive nutrition education, to name a few. HCZ raises considerable revenue for their schools, beyond the per pupil allocation provided by NYC DOE.[40] Following the No Excuses model, Promise Academy schools have a longer day and year, offer extensive remediation opportunities for math and ELA, and incentivize both students and teachers for achievement. Unlike some other No Excuses schools, Promise Academy schools do not require signed behavioral contracts for students or parents (Dobbie and Fryer, 2011; HCZ, 2015).

A recent study by Dobbie and Fryer (2011) examined the effect of this "ambitious social experiment" on educational outcomes. Similar to the Abdulkadiroğlu et al. (2011), Dobbie and Fryer took advantage of the random assignment generated through Promise academy elementary and middle school admissions lotteries. In addition, the authors employed a complementary strategy that relies on the open enrollment nature of charter schools (that is, any parent in the district, regardless of home address, can enroll in a Promise Academy), the active recruitment of parents within a 24-block area covered by the HCZ, and the age requirements for enrollment at the time of the schools' openings.[41] The authors' strategy assumes that home address and cohort year are exogenous variables that affect academic achievement only through their effect on the likelihood of enrollment in a Promise Academy. Leveraging these factors in an instrumental variables framework allows for causal inferences to be drawn. Both strategies led to similar conclusions—the effect of attending a Promise Academy was enough to close the Black-White achievement gap in elementary and middle school math and elementary ELA.[42] The authors did not find a statistically significant effect on ELA in the middle grades, but they concluded that it is likely positive, albeit less dramatic. By comparing the effects of attendance for students who live inside and outside of the zone, and by comparing students with siblings who did not attend a Promise Academy, the authors determined that the observed effect is due to the quality of the schools rather than the dense network of nonschool community supports available through HCZ. The authors note that the elementary and middle school math effects and the elementary ELA effects of attending a Promise Academy are larger than the reported effects of such well-known reforms as class size reduction, early childhood programs, and teacher bonuses. Although no rigorous studies have estimated the effect of particular features of the No Excuses model, nor have studies examined the effect of the model outside of the charter school context, Dobbie and Fryer's results examining the impact of the Promise Academy program provide an encouraging path forward for urban district school improvement.

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[40] Dobbie and Fryer (2011) reported the per-pupil allocation from NYC DOE as $12,443 and the additional revenue from HCZ as $6,829 (2008–2009 academic year).

[41] HCZ has since expanded its coverage area to 97 blocks.

[42] The effect of attending a Promise Academy in elementary school is as much as 0.32SD in math and 0.42SD in ELA for every year a student is enrolled. If we consider a student enrolled in a Promise Academy for 6 years (kindergarten through fifth grade), we would expect a 1.94SD increase in math and a 2.52SD increase in ELA. The effect of attending a Promise Academy in middle school is an increase of as much as 0.23SD in math achievement. Accordingly, after 3 years, sixth to eighth grade, the effect is 0.69SD.

Conclusion

In this article, we described the new educational landscape in the United States by examining four domains of reform. We were particularly concerned with how these efforts played out in urban school systems and focused our discussion on empirical evidence that provided causal insights into the efficacy of policy reforms.[43]

We close by summarizing actionable takeaways suggested by existing research for policymakers and school district leaders.

- Early childhood education programs need qualified professionals. Programs, such as those in Tulsa and Oklahoma, that require a bachelor's degree and compensate pre-K teachers in line with their K–12 colleagues may generate positive results. In addition, providing ongoing professional development for pre-K teachers and limiting class sizes can be important program features.

- Teacher human capital policies must be comprehensive and multifaceted. Teacher induction programs that provide rigorous supports can have a positive impact over time. Effective evaluation systems in Cincinnati and Chicago entailed comparatively frequent classroom observations and provided teachers with detailed feedback during post-observation conferences. High-stakes evaluation systems such as DCPS's IMPACT may improve teacher performance and lead low-performing teachers to exit.

- High-stakes testing may generate improvements in academic achievement, although unintended consequences—focusing only on those students near threshold scores or only on test-specific skills—may occur. Furthermore, accountability hinges on the effective use of relevant data. Urban school districts can harness data to drive improvements in achievement, and data on the academic performance of schools can be a valuable resource for parents when making school choice decisions.

- Certain choice-based reforms have been effective in improving academic outcomes. Small schools in New York, where applicants seeking to establish a school underwent a rigorous selection process and schools received substantially larger per-pupil funding, enjoyed high graduation rates. Similarly, No Excuses charter schools, like the Promise Academy in Harlem, can produce impressive results for students. These schools are unique, however, in that they have large per-pupil allocations, require longer school days and a longer school year, and provide various achievement incentives for both students and teachers.

Our aim in this article was to inform policymakers, school leaders, and the public on critical issues in contemporary school reform, and the extent to which these efforts have improved the educational conditions in our major urban districts. Ultimately, we believe that future reform efforts should be informed by past experiences in order to create and expand opportunities for upward mobility in urban America.

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[43] This focus naturally limits the scholarship we cover and the outcomes assessed. Although much of the evidence we present is based on student performance on standardized exams in math and reading, we recognize that policymakers, school leaders, and parents care about a variety of additional student measures and outcomes.

Acknowledgments

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Producing Affordable Housing in Rising Markets: What Works?

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Abstract

As cities across the United States have rebounded from the Great Recession, an increasing number of households in urban areas are facing high rent burdens in order to remain in their current neighborhoods. Several policy options have been used to maintain or increase the supply of below-market-rate housing, including inclusionary zoning (IZ), tax increment financing, and household-based subsidies such as vouchers. In this article, we describe the problem of affordability in rising markets and review existing evidence on how well local policy approaches work. The most widely used policies, local IZ and statewide "fair share" laws, have produced relatively small numbers of affordable units and are therefore unlikely to substantially mitigate the effects of rising housing costs. More effective policies to develop and preserve affordable housing, particularly in high-opportunity neighborhoods, will require increased public and private funding and political support.

Introduction

Gentrification in its classic form entails an influx of higher socioeconomic status individuals and investment into relatively poor neighborhoods that have experienced disinvestment. During the early waves of gentrification that were first noticed in the United States in the 1960s and 1970s, gentrification typically entailed the rehabilitation of older housing units (Spain and Laska, 1980). In recent decades, however, gentrification has also taken the form of "new build" housing where private developers build market-rate housing for an upscale clientele in formerly poor

neighborhoods (Davidson and Lees, 2010). The state, too, sensing an opportunity, has gotten in on the act—at times subsidizing housing development in neighborhoods ripe for gentrification (Wyly and Hammel, 1999). After decades of disinvestment and white flight in the mid-20th century, gentrification is like a magic elixir returning old central cities to the vigor of their youth. The elixir of gentrification is not without side effects, however. As higher-socioeconomic-status individuals and investment capital flow into formerly depressed neighborhoods, these same spaces become more valuable. More and wealthier people want to live there and are willing to pay a premium to do so. This demand translates into higher values for owner-occupied homes and higher rents for rental units. A neighborhood that formerly had an abundance of affordable housing is transformed to one where market-rate housing is no longer affordable. This transformation of the housing stock in gentrifying neighborhoods from relatively affordable to beyond the reach of those with modest means can pose a number of problems (Newman and Wyly, 2006).

Although gentrification might appear to offer a windfall for homeowners, gentrification can also cause challenges for some homeowners. Because local property taxes are typically a function of the market value of a property, rising property values in gentrifying neighborhoods often translates into rising property tax bills. For those on fixed incomes, these rising tax bills can render their homes too expensive. Instead of a windfall, property owners may find themselves unable to afford homes they purchased.

The impact of gentrification is perhaps most serious for renters. As a neighborhood gentrifies, the demand for housing there increases, leading to concomitant increases in rents. Current residents may find themselves no longer able to afford their current units or, if they choose to move, unable to afford to remain in their gentrifying neighborhood. Moreover, poor residents who may have considered moving into the formerly affordable neighborhood may find that option no longer available to them (Newman and Wyly, 2006).

The evidence on poorer residents being directly displaced from gentrifying neighborhoods is mixed. Studies have not typically found residential turnover among poorer residents to be substantially higher in gentrifying neighborhoods than in other poor neighborhoods that do not gentrify, as one would expect to find if gentrification led to elevated rates of displacement (Ellen and O'Regan, 2011; Freeman, 2005; Freeman and Braconi, 2004; Freeman, Cai, and Cassola, 2015; Lee, 2014; McKinnish, Walsh, and White, 2010; Vigdor, 2002). This finding may be because residential instability is high among poor residents and in poorer neighborhoods in general. Adding gentrification to the mix may not appreciably change the already high rates of displacement and residential instability among poor residents. Prior research has also shown that poorer residents are less likely to move into gentrifying neighborhoods (Lee, 2014; Quillian, 1999, 2003). This pattern is consistent with exclusionary displacement—when poorer households can no longer move into formerly affordable neighborhoods that have gentrified.

If gentrification does not necessarily lead to increased rates of direct displacement, it poses for localities at least two other challenges related to housing affordability. First, if gentrification causes exclusionary displacement, which the available evidence suggests, the housing affordability problem boils down to the location of housing that is affordable. The gentry moving into a particular neighborhood or neighborhoods and causing gentrification in those places should result in less pressure on housing in other neighborhoods, which could result in a mismatch between where

affordable housing is needed and where housing is becoming or remaining relatively affordable. In a few select cities (for example, San Francisco, California), gentrification pressures may be so great that virtually the entire city becomes prohibitively expensive. Declining affordability in gentrifying neighborhoods could prove disruptive for poor residents and for the businesses and services that relied on those residents as clientele (Meltzer, 2016; Parker, 2016). The decline in affordability associated with gentrification can thus impact cities in several ways. The gentrifying neighborhood may become unaffordable, disrupting the lives of long-term residents—even if they are not directly displaced. The supply of affordable housing may be to some extent relocated to other neighborhoods that may or may not be accessible to those who need such housing.

Beyond housing affordability, gentrification can also engender feelings of being "pushed out" among long-term residents. As used here, pushed out refers to the disempowerment felt by long-term residents in reaction to their neighborhood changing in ways over which they had little control or say and are ultimately not intended for their benefit. The new amenities, lower crime, and other changes are viewed as being for the benefit of the newcomers to the neighborhood. Over time, long-term residents may no longer feel welcome in their own neighborhood and may leave even if they are not forcibly evicted (Freeman, 2006).

Such feelings can motivate a backlash against gentrification or nearly any type of investment in poorer communities as residents fear the end result will be their being pushed out. This backlash can make much-needed redevelopment more difficult to accomplish in many cities.

The first wave of gentrification in the United States in the 1970s and 1980s was limited to a few neighborhoods in a few cities and was characterized as "islands of renewal in seas of decay." The most recent wave of gentrification in the second decade of the 21st century appears to be more widespread and is affecting housing costs across wide swaths of cities. For example, a report by the Furman Center found that in most of the largest 11 metropolitan areas in the country, the number of rental units that were affordable to the typical renter fell between 2006 and 2014. Moreover, income growth lagged well behind the rise in rent levels in most of these 11 metropolitan areas (Ellen and Karfunkel, 2016).

Cognizant of the potential pitfalls of gentrification, a number of localities have adopted various policies to address the potential problems that arise with rising housing costs and loss of affordable stock. The increasing prevalence of gentrification in formerly poor neighborhoods together with the continued decline and disinvestment in other neighborhoods has created a mix of scenarios that call for different strategies to assist poor households in inner cities.

One approach in inner-city neighborhoods, where concentrations of poverty are high and prospects for upward mobility dim, is to increase residents' access to areas with plentiful employment options and high-quality schools. The Moving to Opportunity (MTO) demonstration program, which provided housing vouchers to public housing families to move to low-poverty neighborhoods, is perhaps the most well-known example of this approach. For people to be able to move out, affordable options are needed in high-opportunity neighborhoods. The recently released U.S. Department of Housing and Urban Development (HUD) guidelines that call for local governments to "Affirmatively Further Fair Housing" and take steps to encourage economic and racial integration are also motivated, in part, by the goal of increasing minorities' access to areas of high opportunity.

Another approach attempts to connect isolated pockets of concentrated poverty to the surrounding metropolis by developing mixed-income developments in these same neighborhoods and investing in support programs designed to foster upward mobility among poorer residents there. These efforts typically include investments in local schools, counseling and career coaching for adolescents, and support services for families. The Harlem Children's Zone and its imitator, the HUD sponsored Choice Neighborhoods Program, are both examples of this approach (HUD, 2016c).

Finally, many localities have adopted an approach that seeks to maintain affordability in places where housing prices are rapidly escalating or are at risk of doing so. Cities such as New York City, San Francisco, and Washington, D.C., are the epitome of "hot markets," where a desperate need exists for more affordable housing across the board. Other cities, which are perhaps not yet experiencing an across-the-board rise in housing prices, are still experiencing gentrification in some neighborhoods and the potential to experience broader rises in housing prices. This last approach of developing and maintaining affordable housing for cities confronting affordability challenges or foreseeing such challenges[1] is the focus of this article.

In the remainder of the article, we review existing evidence on the most widely used local and state policies that are intended to create affordable housing. The second section describes how these policies work and where they have been adopted. The third section summarizes evidence from prior studies on how much housing has been produced. The fourth section briefly reviews spillover effects of the policies on local housing markets. The final section concludes and offers policy recommendations.

Context of State and Local Affordable Housing Programs

Affordable housing providers have for decades accessed a variety of federal resources to assist with affordable housing development and neighborhood revitalization. Two such programs are the Low-Income Housing Tax Credit (LIHTC) and the Housing Choice Voucher (HCV) Programs, which are discussed further in the remainder of this article. The LIHTC Program, the largest source of funds for affordable housing development, uses federal income tax credits to finance below-market-rate housing in localities across the United States. Most large cities and counties administer federally subsidized HCVs that assist low-income families to rent private market apartments. More broadly, housing and neighborhood revitalization activities are supported by numerous federal programs, such as HUD's Community Development Block Grant (CDBG) program, HOME Investment Partnerships Program (HOME), and Choice Neighborhoods; Treasury Department initiatives such as Community Development Financial Institutions and New Market Tax Credits; and U.S. Department of Agriculture programs supporting rural housing and community development. Local governments and nonprofit organizations often layer resources from several of these programs in order to finance affordable development, acquisition, or rehabilitation. Although the focus of this article is on state and local programs, federal support remains an important although declining component of the affordable housing ecosystem. For example, the growth of HUD's budget has failed to keep up with the growing size of the poor population (Dolbeare and Crowley, 2007).

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[1] As Acolin and Wachter (2017) discuss, affordability challenges may become a widespread phenomenon in the new regime in which urban centrality is increasingly important.

Not-for-profits and foundations have also stepped into the gap left by the relative decline in federal funds for affordable housing. The Housing Partnership Equity Trust (HPET) is an example of such an effort. HPET is a social venture real estate investment trust owned by nonprofits and devoted to preserving affordable rental housing. The goal of the HPET is to raise a pool of capital that can be quickly deployed to acquire rental properties at risk of becoming unaffordable.

Several types of local and state policies are designed to produce or preserve affordable housing as the cost of market-rate housing increases. For purposes of this article, we define "affordable housing" broadly to mean any housing that (1) must be rented or sold at below-market prices, or (2) can be occupied only by households below a defined income threshold. We briefly describe several local and state policies designed to maintain or increase the supply of affordable housing and review existing evidence on the amount of affordable housing produced by these policies.

Most local affordable housing policies fall into one of two categories—those that require affordability through zoning or planning laws, and those that create a targeted local funding mechanism. As shown in exhibit 1, policies in both categories can take a variety of different forms.

The most widespread zoning-related policy is local inclusionary zoning (IZ), sometimes called inclusionary housing or incentive zoning. These policies require or give incentives for developers of market-rate housing to set aside some units at below-market rents or prices. The term "inclusionary" is intended as a countermand to traditional "exclusionary" zoning practices such as minimum lot sizes that restrict housing density, thus increasing average housing development costs (Glaeser, Schuetz, and Ward, 2006; Malpezzi, 1996). Although referred to collectively, local IZ policies vary considerably in design along multiple dimensions. A few key characteristics include (1) whether they are mandatory or voluntary, (2) what size or type of development projects are affected, (3) the required share of affordable units, (4) the income of eligible residents, (5) the length of affordability restrictions, and (6) the availability of cost offsets such as density bonuses (Schuetz, Meltzer, and Been, 2009). No comprehensive inventory of IZ policies exists, but researchers have estimated that more than 200 cities, counties and towns across the United States have adopted some form of local IZ (Mukhija et al., 2010; Schuetz, Meltzer, and Been, 2011). IZ is particularly popular among local governments in the San Francisco Bay Area, Southern California, Massachusetts, the New York City metropolitan area, and the Washington, D.C. metropolitan area—all regions with high housing costs, limited land supply, and restrictive land-use regulations.

Closely related policies are statewide fair share laws, which require all local jurisdictions to make some contribution to the state's overall affordable housing supply. California, Massachusetts, and New Jersey all have fair share laws, although the design varies across these states. New Jersey's Mount Laurel Doctrine is the oldest and best known; after a series of lawsuits, the state Supreme Court ruled that all municipalities have an "affirmative obligation" to allow housing development that would be affordable to low- and moderate-income families (Massey et al., 2013). In Massachusetts, Chapter 40B allows for the state to overrule local zoning and grant developers permission for housing projects that contain a minimum affordable share, if the community does not currently meet affordability criteria. California's law requires local governments to grant developers a density bonus for any project with a minimum share of affordable housing (Schuetz, Meltzer, and Been, 2009). Both the New Jersey and Massachusetts laws are frequently invoked by developers seeking

Exhibit 1

Summary of Local Affordable Housing Policies

Policy	Examples (adoption years)	Sources
Zoning/planning requirement		
Inclusionary zoning	Washington, D.C. metropolitan area: Four counties, three cities and the District of Columbia (1974–2006)	Destorel Brown (2001); Schuetz, Meltzer, and Been (2009)
	Massachusetts: 99 cities and towns (1972–2004)	Schuetz, Meltzer, and Been (2011, 2009)
	New York: New York City (1987)	Furman Center (2012)
	San Francisco Bay Area: 55 cities and counties (1973–2006)	Knaap, Bento, and Lowe (2008); Schuetz, Meltzer, and Been (2011, 2009)
	Southern California: 17 cities in Los Angeles and Orange Counties (1983–2003)	Mukhija et al. (2010)
Statewide fair share laws	California: Mandatory density bonus (1979)	Schuetz, Meltzer, and Been (2009)
	New Jersey: Mount Laurel Doctrine (1975)	Massey et al. (2013), State of New Jersey Department of Community Affairs (2011)
	Massachusetts: Chapter 40B (1969)	Koshgarian, Clayton-Matthews, and Bernstein (2010); Schuetz, Meltzer, and Been (2009)
International parallels	United Kingdom: Town and Country Planning Act (1990)	Austin, Gurran, and Whitehead (2013); Gurran and Whitehead (2011)
	Australia and New Zealand: Local inclusionary zoning (2000–2008)	Austin, Gurran, and Whitehead (2013); Gurran and Whitehead (2011)
Local financing mechanisms		
Property tax abatement	New York City 421a (1971)	Ellen and O'Flaherty (2013)
Tax increment financing	California Community Redevelopment Agencies (1952)	Blount et al. (2014)
Shared equity homeownership	Community land trusts, limited equity co-ops	Temkin, Theodos, and Price (2013)

to build higher-density housing in wealthy suburban areas, although these efforts often face fierce resistance from local governments and residents (Fisher, 2007; Fisher and Marantz, 2014; Massey et al., 2013). By contrast, it is unclear how often California's mandatory density bonus is used, apart from the local IZ programs.

Several zoning- or planning-based affordable housing programs are also in operation outside the United States (Austin, Gurran, and Whitehead, 2013; Gurran and Whitehead, 2011). In the United Kingdom, local planning authorities (similar to U.S. Zoning Boards) have widespread authority over nearly all new development proposals. Under Section 106 of the Town and Country Planning Act (1990), local authorities can choose to make development permission conditional on set-asides for affordable housing or other infrastructure contributions. The contributions are negotiated on a

case-by-case basis. Several local governments in Australia have adopted some version of IZ during the past decade, generally granting density bonuses in exchange for affordable housing. In 2006, South Australia adopted a broader IZ policy that takes effect with rezoning requests. New Zealand also has some local IZ programs. The Affordable Housing Enabling Territorial Authorities Act of 2008 grants local councils the right to require affordable housing from private developers with no subsidy.

One of the reasons why IZ and related policies have become popular is that they shift the cost burden for developing affordable housing onto private developers (and through them, to market-rate renters and homeowners or to land owners).[2] That is, local governments and existing community residents face no direct fiscal costs to produce affordable units. However, a few states and localities have adopted local financing mechanisms that are specifically earmarked to subsidize affordable housing development. Although these earmarks are fairly rare, the mechanisms offer some insights into possible program design.

Tax increment financing (TIF) is frequently used to generate local revenues that can be targeted to particular geographic areas and purposes. TIFs are widely used in commercial areas for economic development and for infrastructure financing (Immergluck, 2009; Smith, 2009). The most widespread application of TIFs for affordable housing was in California through the state-established local community redevelopment agencies (CRAs). Through the CRAs, cities and counties could designate "blighted" urban areas in need of redevelopment, which allowed for them to retain the growth in property tax revenue from those designated areas to finance projects with public benefits, including affordable housing. From 1952 until the dissolution of the CRAs in 2011, projects financed through the CRAs were a substantial contribution to affordable housing development in California (Blount et al., 2014).

New York City's 421a program offers property tax abatements to developers for newly constructed multifamily buildings in designated parts of the city (Ellen and O'Flaherty, 2013; Furman Center, 2016). The program is designed to encourage new development of rental apartments in lower-housing-cost areas (outside Manhattan and some high-priced outer borough neighborhoods, such as Brooklyn Heights and Park Slope). The standard property tax exemption lasts for 15 years, but developers can qualify for longer exemptions if they set aside 20 percent of the apartments for low- or moderate-income families.

Affordable housing created through local IZ programs, state "fair share" laws, TIFs or property tax abatements can in theory be either renter-occupied or owner-occupied, although in practice most programs focus on rental housing. A small number of localities have experimented with shared equity homeownership programs for lower-income households. These programs also take different forms, with the common element being some restrictions on resale prices, so that the units remain affordable to future homebuyers (Temkin, Theodos, and Price, 2013; Voith and Wachter, 2012).

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[2] Who ultimately bears the tax imposed by IZ (and similar policies such as impact fees) is a matter of theoretical and empirical debate. In general, tax incidence will depend on the relative elasticities of supply and demand for housing but can also be affected by program design features such as the presence and size of cost offsets (density bonuses). Moreover, whether affordable housing is considered an amenity or disamenity to the nearby property owners can affect land values. See Hughen and Read (2013) for a formal model of IZ, or Ihlanfeldt and Burge (2006) and Burge (2014) for discussions of impact fees.

Examples include Community Land Trusts, under which qualified buyers purchase the house but land ownership is retained by the trust, Limited Equity Cooperatives, and deed-restricted homes. All these programs require some upfront subsidy for the initial purchase or development of houses, but in theory the programs can then be self-sustaining as houses cycle through purchase by income-qualified buyers.

Equally important as producing new affordable housing is the challenge of preserving the existing affordable stock, both subsidized and unsubsidized. The inventory of low-cost housing can be eroded in several different ways, each of which has slightly different policy implications for preservation. An extensive literature has documented the problem of expiring affordability restrictions from subsidy programs such as LIHTC, HUD-subsidized loans, IZ programs and New York City's 421a tax abatement (Lens and Reina, 2016; Schwarz et al., 2016). Because all these programs are initially applied for a defined time period, once that period ends, landlords have an incentive to remove the affordability restrictions and raise rents to market levels—particularly if housing markets are strong and the property is in a desirable location. Research has shown that maintaining affordability after subsidies expire generally requires additional funds from public agencies, philanthropies, or specialized financial intermediaries (Schwartz et al., 2016).

Unsubsidized low-cost housing is also in danger of exiting the affordable inventory through both upward and downward filtering. During the past 20 years, housing prices in many markets have increased faster than incomes for low- and moderate-income households, so that many initially affordable units are no longer within reach for low-income households, absent vouchers or other household-based subsidies (Howell, 2013). Alternatively, landlords sometimes neglect maintenance on low-rent units, which can deteriorate physically until they are no longer safely habitable. Ironically, the inventory of low-cost unsubsidized units depends in part on weak enforcement of building code and health standards by local government agencies (Desmond, 2015). Whereas filtering is typically a gradual process by which relatively small shares of units exit the affordable housing inventory each year, negative shocks can remove large numbers of units simultaneously; for instance, a local government's decision to close a mobile home park or fire damage to a large apartment building. In some instances, then, local governments may choose to work with landlords to bring properties up to code or assist with resident relocation.

How Much Affordable Housing Have Local and State Policies Produced?

Both policymakers and housing researchers are interested in understanding how effective these state and local programs are at producing and preserving affordable housing. How many affordable units do the various programs create? How does production vary within jurisdictions over time, either because of housing market conditions or changes to the program's design and implementation? Can different programs in similar locations—or similar programs in different locations—be compared to learn what design features work best with certain housing market characteristics, or when combined with other public policies?

Unfortunately, empirical research on these questions has been very limited, because many state and local governments that oversee affordable housing programs do not maintain consistent records

on output. Mukhija et al. (2010) described the difficulties of collecting even basic information from multiple local governments and then trying to shape the raw numbers into data that can be consistently analyzed (for instance, some local IZ programs that allow for in-lieu contributions do not track whether those contributions have produced affordable units off site or at a later date). In an environment that increasingly stresses "evidence-based policymaking," the lack of timely, consistent, reliable data on even basic program elements and output is a serious barrier not only to academic research but to governments' own ability to assess the effectiveness of their policies.

To analyze the efficacy of local IZ programs and statewide policies in California, Massachusetts, and New Jersey, we assembled data on affordable housing production from several existing studies (exhibit 2). It is difficult to make apples-to-apples comparisons, because most studies report snapshots of production for a limited set of geographies at one point in time, but the underlying programs were adopted (and revised or rescinded) over several decades. Because both local IZ and statewide programs rely on strong demand for market-rate housing to finance affordable units, we would expect to see large variations in the annual output of these programs during housing market cycles. To provide some comparability, we have calculated average annual affordable housing production for more than 150 local IZ programs across five regions of the country. These regions were chosen for data availability, but they also represent some of the oldest, most widely studied programs. Not coincidentally, they have also historically had some of the highest housing costs—and most severe affordability problems—in the nation. To give some context for the scale of housing produced under local IZ programs, we also present the average annual number of LIHTC units built in the same jurisdictions during the same time periods, and the total housing stock.[3] More details on data sources and calculations are provided in the notes to exhibit 2.

Average annual production under local IZ programs varies systematically across regions, but in all areas has contributed only a modest amount of affordable housing. The highest production levels

Exhibit 2

Comparing Affordable Housing Production From Local IZ Programs

	IZ Programs	Average IZ per Year	Average LIHTC per Year	Total Housing
Northern California	55	14.9	46.8	23,186
Southern California	17	31.7	41.5	34,762
Boston suburbs	99	1.8	9.6	9,349
Washington, D.C. suburbs	4	220.4	269.2	264,645
New York City	1	178.5	4,499.7	3,200,912

IZ = Inclusionary Zoning. LIHTC = Low-Income Housing Tax Credit.
Notes: Data on northern California IZ, Boston suburbs, and Washington, D.C. suburbs come from Schuetz, Meltzer, and Been (2009). For those regions, IZ production totals were observed from 2004 through 2006. Data on IZ in southern California are taken from table 5 in Mukhija et al. (2010), which reported production totals through the summer of 2006. Estimated IZ production for New York City comes from Furman Center (2016) and reflects the maximum reported in the estimate range (4,999 units). Average IZ units per year are calculated for each jurisdiction, using the year IZ was adopted through the most recent date affordable housing production is reported. Average LIHTC units per year are calculated for the same jurisdictions, matching the time period of IZ production as much as possible. LIHTC units are taken from the U.S. Department of Housing and Urban Development public database. Total housing counts are taken from the 2000 decennial census.

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[3] Several other papers in the IZ literature use LIHTC production as a benchmark for assessing production levels; Mukhija et al. (2010) discussed strengths and weaknesses of this approach. LIHTC has been by far the largest affordable housing finance source in the United States during the past 30 years, and granular data on production are readily available.

are found in the four Washington, D.C.-area counties and New York City. Notably, these jurisdictions are also the largest (most populous). Most of the IZ programs in northern and southern California are in smaller suburban areas, and the Boston-area IZ jurisdictions are small towns. Jurisdiction size matters not only for housing demand, but for capacity of the local government. For instance, many of the Boston-area towns with IZ do not have full-time town managers or planning staff, whereas New York City and the D.C.-area counties have entire departments dedicated to housing, planning, and community development activities. Staff capacity may influence localities' ability to work effectively with developers and households in implementing the requirements of IZ, as well as to collect data on outcomes. In all the regions, IZ produces on average fewer affordable units than LIHTC, although this pattern is reversed within some individual jurisdictions. Expressed as a share of the existing housing stock, affordable housing produced under IZ is less than 0.1 percent of existing housing in all regions. For another point of comparison, New York City's 421a tax abatement program has produced on average more than 2,100 affordable units per year, more than 10 times the annual output of New York City's IZ program (Ellen and O'Flaherty, 2013).

Exhibit 3 shows equivalent statistics for affordable housing produced under the three largest statewide programs, which are in California, Massachusetts, and New Jersey. Once again the numbers are average annual production numbers, although two of the three reflect a limited period in the program's history rather than lifetime totals. As with local programs, output under the state programs is a tiny share of the existing housing stock, so is unlikely to substantially alleviate the need for affordable housing. In California and Massachusetts, the statewide programs have produced many fewer affordable units than LIHTC, although the statewide comparisons are less informative than at the local level.[4] The statewide averages may also obscure substantial variation in production levels across individual jurisdictions within each state; unfortunately neither California nor Massachusetts provide local data on program output.

Exhibit 3

Comparing Affordable Housing Production From Statewide Programs

	Affordable Units per Year	LIHTC Units per Year	Total Housing
California (CRAs)	9,000	16,329	13,680,081
Massachusetts (Chapter 40B)	810	1,902	2,808,254
New Jersey (Mount Laurel)	1,673	380	3,553,562

CRAs = Community Redevelopment Agencies. LIHTC = Low-Income Housing Tax Credit.
Notes: Data on affordable housing financed by California's CRAs from 2001 to 2008 come from Blount et al. (2014). The count of affordable units produced under Massachusetts Chapter 40B from 2000 to 2010 is taken from Koshgarian, Clayton-Matthews, and Bernstein (2010). Completed construction of affordable units under New Jersey's Mount Laurel program is reported by State of New Jersey Department of Community Affairs (2011). Average affordable units per year are calculated for each state. For California and Massachusetts, production is calculated for the period reported in the underlying source. For New Jersey, production reflects the entire life of the program (1975 to 2011). Average LIHTC production is calculated for the same period as the statewide program (for New Jersey, average LIHTC production is calculated since 1987). LIHTC data are taken from the U.S. Department of Housing and Urban Development public database. Total housing counts are taken from the 2010 decennial census. LIHTC funds may be used to finance qualifying projects under all three statewide programs, so the counts are not necessarily mutually exclusive.

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[4] For instance, all the statewide programs apply only in certain designated areas—"blighted" areas in California and localities with limited affordable housing in Massachusetts and New Jersey. Tax credits can also be used in conjunction with all three state programs, so the totals are not mutually exclusive.

Investigating why local IZ and statewide fair share programs has been more effective in some localities and states is a crucial area for future research. A few studies have noted that mandatory IZ programs tend to produce more affordable units than voluntary ones, and that early adopter programs have built more units, even adjusting for time (Mukhija et al., 2010; Schuetz, Meltzer, and Been, 2009). However, these studies did not account for possible endogeneity in program design; jurisdictions that strongly favor affordable housing are likely to adopt IZ sooner and make it mandatory, but these same localities might have encouraged more development even with other types of programs. Besides housing market conditions and program design features, understanding the political support of local governments and local residents is important, particularly given that these programs are often adopted by localities with traditionally "exclusionary" zoning where existing homeowners may have ambivalent sentiments about introducing low-cost housing nearby.

Spillover Impacts on Surrounding Housing Markets

The primary focus of this article is on the relative efficacy of state and local programs to produce affordable housing. However, it should be noted that all these programs have the potential to have broader spillover effects on state and local housing markets. Existing research has found mixed results of local IZ programs, with some evidence that IZ contributes to higher housing prices, reduced construction, and a shift toward smaller housing units, but these effects vary across regions and time periods (Knaap, Bento, and Lowe, 2008; Mukhija et al., 2010; Schuetz, Meltzer, and Been, 2011). Massey et al. (2013) documented the extended resistance by Mount Laurel and other wealthy townships to allowing for any affordable housing within their borders; 30 years of lawsuits, appeals, and countersuits have imposed high costs on both local governments and developers, not to mention generating political bitterness on both sides. Mitchell (2004) noted that, despite Mount Laurel, new housing developed in New Jersey is less likely to be in affordable structures. Some researchers have credited Chapter 40B with increasing the amount of higher-density, market-rate rental housing in many Massachusetts communities, because the law enables developers to bypass highly restrictive local zoning (Fisher and Marantz, 2014; Koshgarian, Clayton-Matthews, and Bernstein, 2010). Evidence on the broader effects of California's CRAs is also mixed; Fauria and Mathur (2012) found positive spillovers of redevelopment projects on housing prices in Oakland, but Swenson (2015) concluded that CRAs have had minimal economic development benefits on CRA areas throughout the state. In general, both local IZ programs and statewide fair share laws are likely to have fewer distortionary effects on housing markets than earlier local policies aimed at preserving affordability, such as rent regulation (for instance, Autor, Palmer, and Pathak, 2014).

Conclusion and Policy Recommendations

Rising housing costs strain the financial well-being of low- and moderate-income households in many U.S. cities. Building and preserving affordable housing is a challenging task. Increased demand for central cities by high-income households, together with limited land availability and complex development regulations, contribute to higher-market-rate housing costs. During the past quarter-century, wages for low- and moderate-income families have stagnated, while federal

subsidies for affordable housing and other social safety net programs have declined. Maintaining and increasing the supply of low-cost housing will require sustained effort from federal, state, and local governments, as well as nonprofit organizations. States and localities have pioneered a number of different policies to directly provide, or incentivize private developers to provide, affordable housing. The most common ones are statewide "fair share" laws and local IZ programs, although some localities also have designated funding streams through tax abatements or direct budget allocations. Unfortunately, most state and local programs have produced relatively small numbers of affordable units, and so are unlikely to substantially meet the demand for below-market-rate housing. Moreover, low-cost housing tends to be built where land is cheap and political opposition is muted, which in practice limits the ability of low-income families to move into neighborhoods with more employment opportunities, better schools, lower crime, and higher-quality public and private services. In this section, we outline several action items for policymakers, based on research findings.

A better understanding is needed of why existing state and local programs have produced only modest amounts of affordable housing and whether these programs could be redesigned to be more productive. Better data on output are therefore essential. State governments, affordable housing advocacy and research organizations could be useful allies in collecting and disseminating data. Not only do they have more resources than many local governments, they could play a valuable role in standardizing data reporting. Prior research has focused mostly on how program design impacts output. Equally important is an understanding of the political dynamics of both local and state programs. How can government officials build support among local residents who may be skeptical of allowing for low-cost housing in their neighborhoods? Although many localities in New Jersey and Massachusetts continue to oppose state mandates, some local governments actively encourage and invite affordable housing development as an essential part of well-functioning housing and labor markets (Pendall, 2008; Voith and Wachter, 2012).

Cities and counties should systematically reduce the regulatory burdens of development, thereby reducing the costs of new housing (or at least slowing future price growth). Restrictive and complex land-use regulations have been shown to decrease the amount of new housing, particularly multifamily apartments, and increase housing costs (Glaeser, Schuetz, and Ward, 2006; Malpezzi, 1996; Pollakowski and Wachter, 1990; Quigley and Raphael, 2004; Schuetz, 2009). A new survey from the National Association of Home Builders estimates that costs associated with complying with federal, state, and local development regulations amount to 24 percent of new house prices (Emrath, 2016). Modifying or removing unnecessary regulations, making the development process more transparent and less uncertain would over time translate into lower prices and rents across the entire housing distribution (Furman, 2015; Glaeser and Gyourko, 2008). This approach would also benefit moderate- and middle-income households that are increasingly squeezed by housing costs.

Local governments should increase the densities allowed under zoning across the jurisdiction (upzone), making it possible to produce smaller, lower-cost housing units. For instance, some cities are debating making it easier to create accessory housing units (such as in-law apartments) in single-family areas; such a change has the potential to create more affordable units that are generally consistent with the scale and appearance of existing neighborhoods (Badger, 2016; Rosan and Susskind, 2007). Under the past two mayors, New York City has engaged in selective upzoning

of some neighborhoods, such as East Midtown and Greenpoint/Williamsburg, while simultaneously downzoning residential areas in the outer boroughs (Laskow, 2014). Concurrent with development of the Washington, D.C. Metro public transportation system, Arlington County, Virginia, substantially increased allowable densities around Metro stations, encouraging high-density apartments and commercial activity, while preserving lower-density, exclusively residential uses elsewhere in the county (Arlington County, 2012). Although transit-oriented developments have increasingly been built, to date no city has systematically upzoned large shares of land as a mechanism to promote affordability.

Some cities have adopted policies that can target low-income residents of gentrifying neighborhoods. One approach for targeting residents of gentrifying neighborhoods is to provide preferences in new affordable housing developments for residents of gentrifying neighborhoods. For example, the city of Portland recently adopted a program that gives preferences for affordable housing units being built in the North/Northeast neighborhood to residents who were displaced as a result of past redevelopment efforts (HUD, 2016c). Similarly, affordable housing developments in New York City's Inclusionary Housing program give a preference for admission for residents of the surrounding neighborhood. Such preference programs have the advantage of making it easier for low-income residents of the neighborhoods undergoing gentrification to remain in these neighborhoods and would perhaps make long-term residents less wary of gentrification.

Preference policies are not, however, without controversy. New York City is currently being sued in Federal court (*Janell Winfield, Tracey Stewart, and Shauna Noel* v. *City of New York*) on the grounds that this preference policy perpetuates existing segregation patterns. HUD also rejected a preference plan by the City of San Francisco that would have given preferences to residents of the surrounding neighborhood on the grounds that the program would have reinforced existing segregation patterns (Dineen, 2016). Given the twin goals of fostering affordability and avoiding the exacerbation of segregation that many local housing agencies will have, preference policies may make sense only in communities that are not highly segregated, in conjunction with other efforts to combat existing segregation patterns, or both. As of this writing, the circumstances under which preference plans are allowable, if any exist, is unclear.

The main focus of this article is on local and state policies that do not require federal subsidies or assistance. However, two new federal initiatives are aimed at expanding accessible locations for low-income households under existing subsidy programs. First, HUD has recently proposed altering the rules of the HCV Program, in order to make it possible for voucher holders to access higher-quality neighborhoods. Traditionally, the maximum allowable Fair Market Rent (FMR) under vouchers—which is based on metropolitan area rents—has been too low for most voucher recipients to live in high-quality neighborhoods, particularly in more expensive metropolitan areas. The rule change, known as Small Area Fair Market Rents (SAFMR), would allow for the maximum FMR to vary across ZIP Codes within metropolitan areas. HUD estimates the new rule would enable more voucher recipients to rent apartments in low-poverty, high-opportunity neighborhoods (Henneberger, 2016; HUD, 2016a). Collinson and Ganong (2013) studied a similar experiment in Dallas and found that ZIP Code-based FMRs lead to substantial improvements in the neighborhood quality of voucher holders. Specifically, households moved to neighborhoods with lower crime, poverty, and unemployment rates and with better schools.

Second, in 2015 HUD adopted a new rule called Affirmatively Furthering Fair Housing (AFFH), which requires HUD grantees to set goals for reducing racial segregation within the jurisdiction (HUD, 2015).

AFFH will apply to cities, counties, and other localities that receive funds through CDBG, HOME, and similar federal programs. Neither SAFMRs or AFFH entail additional federal subsidies; both are essentially changes in the rules that apply to existing subsidy programs that HUD believes will accomplish similar goals as local IZ programs and statewide fair share laws—namely, enabling low-income households to access housing in higher-opportunity neighborhoods. As these rules are implemented during the next several years, policymakers and researchers should observe them and collect appropriate data that will allow for a rigorous evaluation of their effectiveness.

In an ideal world, "solving" the affordable housing puzzle would both increase the supply of low-cost housing in high-quality neighborhoods and improve underlying conditions in existing low-income neighborhoods. The first will require increased public support—both financial and political—for developing high-density housing in affluent communities. Alternatively, housing vouchers or other income supports could enable low-income families to access the housing that already exists in those communities. Improving conditions in lower-value neighborhoods will also require sustained support from public, private, and nonprofit actors. Public and philanthropic agencies cannot provide enough capital to revitalize areas, but can serve as seed money and can offer some protection for long-term residents in gentrifying (or about to gentrify) neighborhoods. To supplement these efforts, local governments and nonprofits need to attract and leverage private capital while creating mechanisms to retain increased land values. Ultimately, creating and maintaining an economically diverse housing stock across communities is essential for well-functioning regional labor markets, and for the well-being of many families.

Finally, we conclude by noting that, although the provision of affordable housing is a necessary component of any economic transformation that aims to be inclusive, affordable housing alone is unlikely to enable disadvantaged households to take advantage of new economic opportunities. The results of the MTO demonstration, which found poor adults to experience little in the way of economic mobility after moving into low-poverty neighborhoods, underscore this point. Although the MTO experiment found children who moved while young witnessing benefits in terms of increased earnings and higher graduation rates, benefits for adults were limited to health and sense of safety and security (Briggs, Popkin, and Goering, 2010; Chetty, Hendren, and Katz, 2015). These latter benefits are not unimportant, but they do not translate easily translate into increased economic mobility.

Efforts that attempt to marry the need for affordable housing with other aspects of human development stand the greatest chance of not only enhancing housing affordability, but putting housing assistance recipients in a position to improve their economic standing. HUD's Choice Neighborhoods Initiative is an example of an approach that attempts to combine affordable housing with other components of human development necessary for economic mobility. To this end, Choice Neighborhoods have three foci—housing, people, and neighborhoods. The housing focus entails replacing distressed public and assisted housing with higher-quality, mixed-income units. The people focus aims to improve educational outcomes for youths and provide social supports for their families. Finally, the neighborhood focus attempts to remove barriers that might inhibit investment (for example, crime) and improve amenities that enhance the quality of life in the neighborhood. Such efforts marry affordable housing initiative to human development where affordable housing can be an integral part of an inclusive economic transformation.

Acknowledgments

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Point of Contention: Middle-Class Subsidies

For this issue's Point of Contention, we asked scholars with substantial knowledge of the topic to argue for or against the following proposition—"Federal, state, and local governments should not subsidize the housing costs of families in the income bracket between 80 and 120 percent of the Area Median Income." Please contact alastair.w.mcfarlane@hud.gov *to suggest other thought-provoking areas of controversy.*

Opinions expressed in Point of Contention articles are those of the authors and do not necessarily reflect the views and policies of the U.S. Department of Housing and Urban Development or the U.S. government.

Waste of a Scarce Resource

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The public should not subsidize the rental costs of families with incomes between 80 and 120 percent of the Area Median Income (AMI), with a few limited exceptions. Instead, we should target scarce public funds to families who most need help affording a decent, stable home in a neighborhood that provides opportunities for them to thrive. That is not only fair but also smart public policy, because those are the investments that pay social dividends in the long run.

Current federal rental policies and programs rarely assist anyone with incomes between 80 and 120 percent of AMI, and federal homeownership tax breaks primarily go to households with incomes that are *more* than 120 percent of AMI (exhibit 1), although some policymakers propose to alter these rules. In 2014, 82 percent of the benefits from the mortgage interest deduction went to homeowners with annual incomes of more than $100,000 (Fischer and Huang, 2013).[1] Incomes at this level exceed 120 percent of AMI in most areas except some particularly high-cost coastal cities.

Exhibit 1

High-Income Households Get Four Times More Housing Benefits Than Low-Income Households

Annual federal housing spending per household
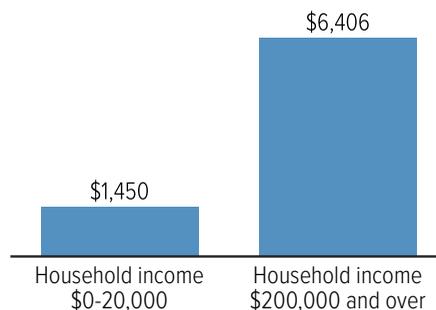
Notes: Reproduced from Center on Budget and Policy Priorities graphic. Data are for 2014. Data available for mortgage interest and property tax deductions and Housing Choice Voucher, Section 8 Project-Based, Public Housing, Housing for the Elderly (Section 202), and Housing for People with Disabilities (Section 811) programs. These represent about three-fourths of homeowner and rental spending.
Sources: Joint Committee on Taxation, Estimates of Federal Tax Expenditures for Fiscal Years 2015–2019, Table 3; CBPP analysis of HUD program data; census data on number of households and cost burdens in each income group; Office of Management and Budget public budget database

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[1] Joint Committee on Taxation estimates for 2014 show that homeowners with incomes of less than $50,000—the approximate national median income that year—received only 2 percent of the benefits from the mortgage interest deduction.

From an equity perspective, a case could be made for enabling *everyone* to receive assistance to meet housing costs, rather than providing such benefits primarily to those with the highest incomes (and the least need for help), as the government does now. Unless all families have access to such help—and subsidies are sufficient to enable even the lowest-income families to have stable housing—those who cannot meet their basic housing needs without a public subsidy should come first.

Moderate-Income Renters Rarely Pay More Than One-Half of Their Incomes for Housing

In 2014, less than 9 percent of renter households that paid more than 30 percent of their incomes for rent and utilities—the federal standard of affordable housing costs—had incomes of more than 80 percent of AMI. Just 1.5 percent of renter households that paid more than *50 percent* of their incomes for housing—about 157,000 households nationally—had incomes that high (exhibit 2). Moderate-income families have more disposable income than lower-income families to meet both basic needs and "extras." Unlike lower-income families, they are not forced to choose between keeping a roof over their heads and having enough to eat or paying for transportation to work.

In sharp contrast, more than 7 million extremely low-income households—those with incomes below the federal poverty line or 30 percent of AMI—paid more than 50 percent of their incomes for rent and utility costs in 2014. These families account for 70 percent of those facing severe cost burdens and 46 percent of those paying more than 30 percent of their incomes for housing. Also, nearly all families that are doubled up or homeless have extremely low incomes. Families with severe rent burdens are more likely to experience eviction, homelessness, and other serious housing-related hardship, which evidence has shown lead to long-term problems for children and adults (see, for example, Desmond, 2016).

Exhibit 2

Renters by Income and Housing Cost Burden

Income	Any Burden		Severe Burden		Moderate Burden		All Renters	
	Households	Share (%)	Households	Share (%)	Households	Share (%)	Households	Share (%)
ELI	8,911,931	44.7	7,231,326	70.1	1,680,605	17.4	10,575,511	25.1
> ELI < 60% AMI	7,071,730	35.4	2,631,002	25.5	4,440,728	46.1	9,639,172	22.9
60–80% AMI	2,205,150	11.1	292,632	2.8%	1,912,518	19.8	5,240,397	12.5
80–100% AMI	979,643	4.9	92,078	0.9	887,565	9.2	4,285,148	10.2
100–120% AMI	410,257	2.1	40,210	0.4	370,047	3.8	3,251,018	7.7
> 120% AMI	371,341	1.9	25,064	0.2	346,277	3.6	9,067,843	21.6
Total	19,578,711	100.0	10,287,248	100.0	9,291,463	100.0	32,991,246	100.0

AMI = Area Median Income. ELI = extremely low income.
Notes: Excludes renters who do not pay cash rent or have zero or negative incomes. ELI = at or below 30 percent of AMI or federal poverty level adjusted for household size, whichever is higher. Any Burden = paying more than 30 percent of income for rent and utilities. Severe Burden = paying more than 50 percent of income for rent and utilities. Moderate Burden = paying more than 30 percent and less than 50 percent of income for rent and utilities.
Sources: Center on Budget and Policy Priorities analysis of 2014 American Community Survey; U.S. Department of Housing and Urban Development 2014 AMI limits

Comparing the incomes of households at 100 percent of AMI to the U.S. Department of Housing and Urban Development's (HUD's) Fair Market Rents (FMRs) helps explain why housing cost burdens among moderate-income households are so rare. In every metropolitan area and nonmetropolitan county in the country in 2016, a three-person household with income at 100 percent of AMI could rent a two-bedroom home using 30 percent or less of its income.[2] This finding does not mean that moderate-income renters can necessarily afford newly constructed or luxury units. By design, in addition to excluding substandard housing, FMRs exclude new construction and luxury housing because of the typically higher rents these properties command and their small share of the overall rental market. Subsidizing moderate-income renters so that they can afford such units is not an appropriate public policy goal.

Without public subsidy, the private market can add new units to the housing supply, although developers typically charge higher-than-average rents to cover development costs and often aim at the luxury market, in which profits are greatest (White, Wilkins, and Pinto, 2016). In markets with a shortage of rental units, new private-market developments typically reduce competition for moderate-cost rentals and may reduce prevailing rents overall, benefiting moderate-income renters. The reductions are likely insufficient to bring rents within reach of the lowest-income families. To encourage private, unsubsidized development, ensure that such development is feasible, and increase the supply of newly constructed units that moderate-income renters can afford, policymakers should reduce regulatory barriers that unduly hinder or increase the cost of new development. If needed, they also could adopt no-cost policy incentives, such as allowing taller or larger properties to be built if the owners make a share of the units available at lower rents.[3]

When Would Subsidies for Moderate-Income Renters Be Justified?

Spending scarce public funds to subsidize the housing costs of moderate-income renters would be justified in two circumstances (in addition to the theoretical possibility of universal housing assistance noted previously)—(1) when households' incomes increase while they reside in a subsidized unit, or (2) as part of a political compromise that yields more assistance for low-income households than otherwise would have been available.

Allowing families to remain in subsidized units when their incomes increase promotes stability and avoids creating a disincentive for families to increase their incomes.[4] In assisted housing programs that have income-based tenant rents, as federal programs typically do, subsidies phase out as incomes increase and cease when 30 percent of the adjusted household income exceeds the allowable unit rent. As a result, only 0.3 percent of Housing Choice Voucher participants and 0.1 percent of households in the Section 8 Project-Based Rental Assistance and related programs had

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[2] In an unpublished analysis, the Center on Budget and Policy Priorities (CBPP) compared HUD's 2016 AMI limits for a household of three persons at 100 percent of AMI with HUD's 2016 FMRs for two-bedroom units.

[3] See White House (2016) for a brief summary of available strategies.

[4] Families typically must have incomes not exceeding 80 percent of AMI, and usually much less than that, to be admitted to the federal rental assistance programs.

incomes of more than 80 percent of AMI in 2015.[5] Subsidies do not always phase out in the same way in the public housing program, however, because rents are sometimes capped below market levels.[6] After HUD-IG (2015) found that a small number of public housing tenants had quite high incomes, Congress imposed a cap of 120 percent of AMI on continued occupancy in public housing, requiring housing agencies to evict families with sustained higher incomes unless they paid at least the FMR or the equivalent of the public subsidies provided for their units.[7] This resolution of the competing considerations is sensible, because these families are occupying a scarce public resource whether or not they are technically receiving a subsidy.

The second exception is pragmatic. In some circumstances, a set of policies that provides some assistance for moderate-income households may receive broader support from policymakers than one that assists only the lowest-income families. If a policy change or increased spending that will substantially benefit lower-income people who most need it can win the necessary support only by *also* covering moderate-income people with little or no need for assistance, it may be worth supporting.

Why Might Others Have a Different Point of View?

My view on this issue runs counter to the rising chorus of concern about the housing challenges facing moderate-income households, particularly in the highest-cost markets. Without question, the share of households with rent burdens has increased more among moderate-income households than lower-income households in recent years, but that is because such a large share of the latter have been rent-burdened for decades (JCHS, 2015).[8] Although the spread of housing affordability challenges to more moderate-income households may be newsworthy, however, it does not mean that their problems should be a higher public policy priority than the far deeper and greater challenges facing low-income families.

Complicating discussion of this issue is the lack of correspondence between the simple concept of "moderate income," based on a dollar range applied nationally, and federal housing programs' locally nuanced concept of a percentage of median income adjusted for household size. Some groups across the ideological spectrum have argued for public subsidies for moderate-income renters using data based on dollar income bands, without acknowledging that most of these renters who are cost-burdened are *already eligible* for federal programs (see, for example, Erickson, 2014; NMHC, 2016).

For example, the National Multifamily Housing Council used data about rent burdens among households with incomes between $35,000 and $50,000 as if this income band were equivalent to 60 to 100 percent of AMI (NMHC, 2016). That is not correct, however; of the 6.2 million renter households with incomes in this band in 2014, some 1.4 million lived in higher- income areas where

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[5] CBPP calculated these percentages using 2015 HUD administrative data (unpublished analysis).

[6] Families in public housing have the option each year to pay a flat rent (which in some cases can be set below the market rent) rather than an income-based rent.

[7] Section 103 of the Housing Opportunity Through Modernization Act, Pub. L. 114-210, enacted July 29, 2016. HUD must issue regulations before this provision becomes effective. Only about 3,000 public housing households—0.3 percent of the total—had incomes above 120 percent of the AMI in both 2013 and 2014 (Fischer, 2016).

[8] In very tight markets, moderate-income households may also be on the losing end of competition for available rental units, particularly in more desirable locations (JCHS, 2015).

their incomes equaled 60 percent or less of AMI (or had very large families). Another 2.5 million lived in areas where their incomes were 60 to 80 percent of AMI, meaning that they—in addition to the 1.4 million households at or below 60 percent of AMI—were eligible for most federal rental assistance. Only those living in lower-income areas, where rents typically are also lower, would be ineligible for most of these programs.[9] As exhibit 3 shows, the large majority—86.8 percent—of these "moderate-income" households that have severe rent burdens qualify as "low income," because their incomes equal 80 percent of AMI or less, and typically are eligible for federal rental assistance.

Exhibit 3

Rent Burdens for Households With Incomes Between $35,000 and $50,000

Income Category	All Renters	Any Burden	Severe Burden	% of Severe Burden
ELI	14,029	12,025	4,098	1.0
+30–60% of AMI	1,405,171	926,388	225,043	54.4
+60–80% AMI	2,497,937	1,013,254	130,037	31.4
+80–100% AMI	1,875,352	421,253	41,138	9.9
+100–120% AMI	607,983	74,380	11,751	2.8
+120% AMI	107,406	8,381	1,695	0.4
All incomes	6,507,878	2,455,681	413,762	100.0

AMI = Area Median Income. ELI = extremely low income.
Notes: ELI = at or below 30 percent of AMI or federal poverty level adjusted for household size, whichever is higher. Any Burden = paying more than 30 percent of income for rent and utilities. Severe Burden = paying more than 50 percent of income for rent and utilities.
Sources: Center on Budget and Policy Priorities analysis of 2014 American Community Survey; U.S. Department of Housing and Urban Development 2014 AMI limits

Conclusion

Policymakers' priority should be to substantially increase the availability of rental vouchers and subsidized rental units for households who are already eligible for federal rental assistance but do not receive it because Congress provides funding for only one in four eligible households. They should not spread existing resources even thinner or direct additional resources to moderate-income households that rarely have severe housing needs.

Acknowledgments

Author

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[9] For the federal Low-Income Housing Tax Credit, initial eligibility is capped at 60 percent of AMI, not 80 percent as in the major HUD rental assistance programs.

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The Goldilocks Dilemma of Moderate-Income Housing Subsidies: Finding the "Just Right" Amount for the Missing Middle

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Introduction

The question presented—whether federal, state, or local governments should subsidize housing costs for moderate-income[1] households—forces us to confront tradeoffs between competing policy priorities in the presence of limited funding. Although it might be useful to speculate about a world where housing was considered a basic human right for all, and the federal government made a robust commitment to affordable housing for all, such a world is unlikely in the near future. In a world where incomes were adequate or housing was inexpensive, very few households at all would need any housing subsidies, but such a world is also unlikely in the near future. For purposes of this argument, however, we shall deal with the practical world of policymaking, taking existing institutional arrangements as given. Given limited budgetary resources, because I argue that some moderate-income households should potentially receive some housing subsidies, I also have to argue about where those resources should come from and the likelihood of such a policy being implemented.

This article is organized as follows. First, I try to expand the definition of subsidies for housing costs to include tax expenditures and to argue that our current housing subsidy system is poorly targeted. Second, I provide more information on which households are included in the 80- to 120-percent-of-median group and how their incomes relate to housing costs. Finally, I recommend those types of policies and conditions under which moderate-income households should be eligible for housing subsidies, and how to pay for them.

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[1] The specific question refers to households that have incomes of between 80 and 120 percent of the U.S. Department of Housing and Urban Development (HUD) Area Median Family Income (HAMFI, or AMI). For ease of exposition, I refer to these households as "moderate-income" households throughout this article.

What Are Housing Cost Subsidies?

What do we mean by *subsidies* for housing costs? Citizens and policymakers will likely first think of direct expenditures such as tenant- or project-based rental assistance programs for owners or developers of affordable rental housing. Perhaps they might also think of the Low-Income Housing Tax Credit program as subsidizing the production of affordable housing.

Most would probably not consider housing tax expenditures—the mortgage interest deduction for owner-occupied housing, the exclusion of capital gains on the sale of principal residences, and the deductibility of local property taxes (JCT, 2015)—to be subsidies. Most would also not consider mortgages financed by the housing-related government-sponsored enterprises (GSEs) or insured by the Federal Housing Administration (FHA) to be a form of subsidy.

Therefore, in the common language of housing policy, we tend to think that *subsidized housing* consists of programs targeted toward lower-income households, while we do not call the extensive tax benefits to middle- and upper-income households "subsidies."

The crux of my argument that governments could subsidize moderate-income households depends on a more robust definition of subsidy than how that term is commonly understood. Whereas the budgetary or legal definition of a subsidy may be narrower (limited to direct payments), the economic effects of a direct payment and of a reduction in tax liability on behavior at the margin should be similar. If a direct payment or a tax deduction has the same impact on the net cost of capital, individuals and firms should be indifferent as to whether they receive a subsidy or a tax deduction.

International policy bodies recognize this broader definition of subsidy. A recent study on housing subsidies by the Council of Europe included tax expenditures as constituting housing subsidies (Council of Europe, 2008). Likewise, the World Trade Organization Subsidies and Countervailing Measures Agreement defines subsidies to include "foregone [government] revenues that are otherwise due" (WTO, 2006: Article 1.1(a)(1)).

Thus the debate over the targeting of housing subsidies by household income levels should include tax expenditures and the indirect effects on housing costs of the GSEs, FHA, and similar institutions at the state and local levels (such as state housing finance agencies [HFAs]).

When considered under this broader definition, the majority of housing subsidy dollars in the United States are poorly targeted toward middle- and upper-income households—those earning more than \$100,000 adjusted gross income (AGI)[2]—rather than toward lower-income households. In any given year, more housing subsidy dollars flow to those households with an AGI of more than \$100,000 than the entire proposed fiscal year (FY) 2016 budget of the U.S. Department of Housing and Urban Development (HUD), for example.[3]

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[2] Using data in JCT (2015), Table 3 (Distribution by Income Class of Selected Individual Tax Expenditure Items), I estimate that households with estimated AGI-Plus (details of income estimation are in the report) greater than \$100,000 in calendar year 2014 received \$24.5 billion in real estate tax deductions and \$59.2 billion in mortgage interest deductions. For comparison purposes, households with incomes of less than \$100,000 received only \$5.7 billion in real estate tax deductions and \$13.1 billion in mortgage interest deductions.

[3] See the previous footnote for calculations showing \$83.7 billion in tax expenditures to households with AGI exceeding \$100,000. The FY 2016 proposed HUD budget was \$49.3 billion. https://archives.hud.gov/news/2015/pr15-013.cfm.

Who Are Moderate-Income Households?

One way to think about moderate-income households is that their incomes are too high to qualify for low-income housing programs but too low to take full advantage of housing-related tax deductions.[4] These households may represent the "missing middle" in housing policy.

I have been using the term moderate-income households to refer to households with incomes between 80 and 120 percent of area median income (AMI). To make clear which households are in view, exhibit 1 presents the FY 2016 income limits for 80-percent and 120-percent reference households (four persons per family) for the 10 largest metropolitan areas in the United States.[5] For comparison purposes, exhibit 1 also presents the most recent (2015) census figures for median house price and median annual gross rent.[6]

In all of the 10 metropolitan areas detailed in exhibit 1, a four-person family at an income level of 80 percent of AMI could afford the median metropolitan gross rent under standard definitions of

Exhibit 1

FY 2016 80- and 120-Percent Area Median Income Limits (four-person households) and CY 15 Median House Price and Median Annual Gross Rent

Metropolitan Area	HUD Area Income Limits (HAMFI)		Median House Price ($)	Median Annual Rent ($)
	80-Percent Limit ($)	120-Percent Limit ($)		
New York	72,500	108,750	414,000	15,696
Los Angeles	69,450	104,175	540,600	16,176
Chicago	61,500	92,250	224,300	12,144
Dallas	57,350	86,025	172,500	11,904
Houston	55,350	83,025	168,300	11,736
Washington	70,150	105,225	401,500	18,636
Philadelphia	64,250	96,375	240,900	12,744
Miami	56,800	85,200	241,700	14,496
Atlanta	54,000	81,000	186,300	12,180
Boston	73,050	109,575	393,000	15,792

CY = calendar year. FY = fiscal year. HAMFI = HUD Area Median Family Income. HUD = U.S. Department of Housing and Urban Development.
Note: CY 2015 house price and rent data are from 2015 American Community Survey (ACS) 1-year estimates of median value of owner-occupied housing and median gross rent.
Sources: FY 2016 Income Limits Briefing Materials; 2015 ACS; author's calculations

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[4] This definition is a little imprecise, but generally true. Again, using JCT (2015), Table 2 indicates the percentage of returns by income category that itemized deductions. For households making between $75,000 and $100,000 (which roughly corresponds to moderate-income households), only 49 percent itemize deductions, whereas for households making more than $100,000, 75 percent of returns show itemized deductions. Slightly more than 7.2 million households making between $75,000 and $100,000 itemized deductions, and the value of the mortgage interest deduction for these households was $6.9 billion (JCT, 2015: Table 3). This total equates to an annual average mortgage interest deduction per moderate-income household of $953. By contrast, the annual average mortgage interest deduction per itemized return for households making more than $100,000 was $2,354.

[5] For consistency purposes, the 120-percent income limits are estimated as 150 percent of the value of the 80-percent limits.

[6] The correlations between income levels and house prices and rents varies between 0.78 and 0.86, conforming to basic urban economic realities that these variables, across metropolitan areas, are highly correlated. This high level of correlation is a reason why targeting housing programs based on AMI rather than federal poverty level is appropriate. These correlations, however, also indicate why federal tax expenditures for housing based on AGI rather than AMI are poorly targeted spatially, because higher levels of subsidy go to people who reside in areas with more expensive housing.

affordability (paying no more than 30 percent of income on gross rent). Affordability at the median rent does not mean no cost-burdened, moderate-income renter households live in these metropolitan regions. Although Comprehensive Housing Affordability Strategy (CHAS) data are not available at the metropolitan level, a quick survey of the central counties of these metropolitan areas shows thousands of moderate-income renter households that experience rental cost burdens. However, as a percentage of all cost-burdened renter households in these metropolitan areas, moderate-income households represent a small fraction.[7] Median statistics at the metropolitan level also obscure the spatial variation between incomes and housing costs within each region.

Likewise, under very strong assumptions,[8] a four-person family making 80 percent of AMI could "afford" the median-priced house in all the metropolitan regions in exhibit 1, with the exception of Los Angeles. These strong assumptions—particularly that households are able to accumulate substantial enough savings for a 20-percent downpayment, have an adequate credit history, and fall under Dodd-Frank's[9] aggregate debt-to-income ratio caps—illustrate the current challenge facing many moderate-income households in acquiring homeownership. Even though the median house may appear affordable, in practice it is not accessible to moderate-income households. I will return to this theme in the Policy Recommendations section.

From both a moral/ethical and a political point of view, providing housing subsidies to households making $90,000 annually in the Philadelphia suburbs or to households making $100,000 annually in the Boston suburbs seems problematic, especially when compared to providing housing assistance to police officers or teachers in urban areas who might make $45,000[10] a year, for example. Housing policy, like nearly all social policy in the United States, is complicated by deeply ambiguous ideas of who "deserves" various forms of assistance. When most housing assistance is delivered through the tax code, the deservedness of the recipients is obscured.

On the other hand, high housing costs and mortgage credit constraints significantly impact the ability of moderate-income households to acquire safe, affordable, and healthy housing in high-opportunity neighborhoods. Many senior citizen homeowners might have incomes that qualify them as moderate income, but their ability to access credit markets for rehabilitation of their homes (either for sustainability or accessibility) may be limited. Some first-time homebuyers

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[7] For example, using CHAS 2009–2013 data for Cook County, Illinois, fewer than 20 percent of 80- to 100-percent-of-median income renter households were cost burdened, whereas I estimate that 68 percent of all renter households with incomes of less than 80 percent of AMI in Cook County are cost burdened. Of all the cost-burdened renter households in Cook County, those making between 80 and 100 percent of AMI represent only 3.7 percent (huduser.gov/portal/datasets/cp/CHAS/data_querytool_chas.html).

[8] I estimate the maximum house value that would be affordable with a maximum allowable mortgage for the 80-percent-of-AMI household with an assumption that a household has a credit history and aggregate debt-to-income ratio to qualify for the best-available national average rate for a 30-year fixed mortgage of 3.5 percent (using Freddie Mac's Primary Mortgage Market Survey as of Sept. 15, 2016), with a 20-percent downpayment and no property taxes, insurance, or homeowners' association fees.

[9] The Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. 111–203.

[10] According to the 2015 Occupational Employment Survey from the U.S. Bureau of Labor Statistics, secondary school teachers (occupational code 25-2013) at the 10th percentile of annual wages make $43,630 in the Philadelphia metropolitan area and $47,290 in the Boston metropolitan area. Police and sheriff patrol officers (occupational code 33-3051) at the 10th percentile of annual wages make $46,510 in the Philadelphia metropolitan area and $45,140 in the Boston metropolitan area.

might have incomes that qualify as moderate, but they are credit constrained because of student loan debts. In many cases, we can demonstrate that moderate-income households could benefit substantially from housing assistance at the margin, even though some people may perceive their income levels as too high to be in need of welfare. The ambiguity of housing policy is that we talk of subsidized housing as part of the means-tested social welfare system, and we talk about home-ownership as the American Dream, but tax-expenditure subsidies meant to support homeowner-ship are mostly used by upper-income households.

Policy Recommendations

Should federal, state, and local governments subsidize moderate-income households' housing costs? Yes. However, any new policy or program or change to an existing policy or program to help moderate-income households with their housing costs must absolutely not do so at the expense of assistance to low-, very low-, and extremely low-income households, whose housing needs are poorly met with existing policies. In fact, I would much prefer that governments at all levels expand housing assistance to lower-income households before expanding assistance to moderate-income households. As part of a comprehensive housing reform and reinvestment pack-age, however, some assistance targeted toward moderate-income households would be warranted and may help build broader support for policy changes. In this section, I outline a few instances in which targeted assistance to moderate-income households would be appropriate.

To pay for policy changes that would help moderate-income households with their housing costs (and introduce more equity and efficiency in the housing finance system), I suggest slowly (maybe over 5 to 10 years) phasing out the mortgage interest deduction and the deductibility of local prop-erty taxes. Many tax deductions and credits already phase out at higher income levels. Although I have not studied the level at which the phase-out should begin, I imagine it could be somewhere over $200,000 AGI. More specifically, econometric research along the lines of Hilber and Turner (2014) could identify the income level at which the deductibility of mortgage interest does not marginally impact tenure decisions. Any additional revenue from better targeting of the mortgage and property tax deductions could go to increased vouchers for low-income households, deficit relief, and targeted assistance to moderate-income families.

I also suggest a renewed commitment at the federal level to assist moderate-income households, and first-time homebuyers in particular, with sustainable homeownership opportunities by taking lessons learned from previous policies and programs into consideration. For example, programs such as the American Dream Downpayment Initiative, which was available only to households making less than 80 percent of AMI, might be better targeted if it included moderate-income households. The government could also reintroduce a first-time homebuyer credit that targets moderate-income households.

In truth, a lot of innovation and activity is already under way in providing credit products for homeownership targeted toward moderate-income households. For example, Fannie Mae has a "Home Ready" mortgage product with up to a 97-percent loan-to-value ratio and income limits up

to 100 percent of AMI.[11] My own state's HFA, the Wisconsin Housing and Economic Development Authority, has a Fannie Mae Advantage product available for first-time homebuyers with income limits up to 115 percent of AMI.[12] Other products targeting a similar market are available through other state HFAs and many lenders in the Federal Home Loan Bank system. The federal government could provide targeted tax credits or downpayment assistance to increase uptake of the wide array of available products.[13]

The federal government could direct assistance through state and local governments and local housing authorities to provide flexibility in adjusting housing assistance to local conditions and as an incentive for state and local governments to provide some cost sharing. Local governments could use federal resources to expand downpayment assistance programs to include moderate-income households.

In addition to assistance targeted toward moderate-income first-time homebuyers, homeowners increasingly need financial assistance or credit products designed to incentivize energy-efficient, sustainability, or accessibility investments in their homes. I envision something akin to the Better Housing Program in the 1930s, the less-well-known program of FHA, which provided financing for existing homeowners to make improvements to their houses (Hutchinson, 2000). Many local governments already have low- or no-interest loan programs to help moderate-income households, seniors, or both make modest repairs to their houses, but a consistent and targeted federal financing program could unleash significant reinvestment and upgrades of the older housing stock in many areas of the country.

I write this article not only as an academic, but also as a member of my city's housing committee. Like many local governments around the country, the City of Middleton, Wisconsin has many partnerships with local housing providers and nonprofit agencies and provides a range of programs (such as downpayment assistance and modest home loans) to help seniors stay in their homes, to help modest-income workers afford housing in the city, and to encourage homeowners to rehabilitate older housing stock. Like many local governments, the city's funding is limited, so it targets financing to programs that leverage state and local dollars. Even a small federal investment in financing programs targeted toward moderate-income households to rehabilitate older housing stock—with flexibility for local innovation and partnerships—would encourage significant reinvestment in housing.

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[11] See https://www.fanniemae.com/content/fact_sheet/homeready-product-matrix.pdf for more information.

[12] See https://www.wheda.com/WorkArea/DownloadAsset.aspx?id=432 for more information.

[13] I am aware of the complexity of underwriting these products in the context of ability to repay and Qualified Mortgage regulations, but addressing these regulations is beyond the scope of this article.

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Fiscal Federalism and Middle-Income Housing Subsidies

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When only one in four low-income households receives a rent subsidy from the federal government, it seems patently unfair to spend scarce federal housing dollars to support households with higher incomes. Although moderate- and middle-income households increasingly struggle to pay their housing costs, their burdens are far less extreme. Consider that, across the country in 2013, 36 percent of low-income renter households (those earning less than 80 percent of the Area Median Income [AMI]) and 62 percent of extremely low-income renter households (those earning less than 30 percent of AMI) paid more than one-half of their incomes on rent. Meanwhile, only 2.4 percent of renters earning between 80 and 120 percent of AMI paid more than one-half of their incomes on rent (Steffen et al., 2015). Further, even when paying the same share of their incomes on rent, moderate- and middle-income households enjoy significantly higher residual incomes than their lower-income counterparts.

In addition to the differences in needs, moderate- and middle-income households are far more likely than low-income households to own their homes and receive federal homeownership tax benefits. Whereas the benefits of the mortgage interest deduction accrue disproportionately to high-income households, about one in five households earning between $50,000 and $75,000 claimed the mortgage interest deduction in 2014 and received about $4 billion in benefits. Households earning less than $30,000, by contrast, received less than $200 million from the mortgage interest deduction, despite filing nearly three times as many returns (JCT, 2014).

Thus, it is hard to argue for spending long-term federal housing subsidies on anyone but those most in need, although some tapering is prudent so households are not cut off of assistance as soon as their incomes rise. That said, we might arrive at a different answer when considering short-term, emergency assistance that enables moderate- and middle-income households to stay in their homes when they hit a bump in the road, such as a job loss or an unexpected medical bill. Such assistance would be necessarily short term and would not drain many resources away from other, more needy households. Plus, the marginal benefit of such assistance would be enormous, saving families from evictions and even potentially homelessness, which could destabilize their lives.

We might also arrive at a different answer when considering whether potential justifications exist for *local* governments to use *local* resources (for example, local subsidies, density bonuses, and property tax breaks) to support housing targeted to these higher-income households.

First, local governments have an interest in revitalizing distressed neighborhoods, and attracting moderate-income as well as low-income households will likely aid such revitalization. Research has documented that New York City's investments in neighborhoods marked by abandonment during the 1970s helped to breathe new life into these communities, through repopulating streets with stable residents, constructing attractive new buildings, and removing pockets of blight that can discourage other private investment (Schill et al., 2002). The housing supported by the city's programs explicitly targeted households earning a range of incomes, from extremely low-income households to those earning up to 165 percent of AMI.

Second, and more generally, supporting housing for moderate-income households may be crucial for the economic development and long-run growth of cities. Many cities around the country have seen a hollowing out of the middle of the income distribution (Capperis et al., 2014). In this environment, city leaders might want to retain the moderate-income workers who educate our children, keep our streets safe, take care of us in hospitals, and produce the art and cultural vitality that make cities so exciting. Moderate-income workers are also essential to a city's private businesses, which depend on a diversity of workers.[1]

Third, considerable research shows that firms in larger and denser cities with more diverse economic activity are more productive, and more housing, serving a range of incomes, is key to enabling that density and diversity (Glaeser, 2011; Kolko, 2010; Quigley, 1998). Because the agglomerations of businesses in cities help to fuel growth in metropolitan areas as well, states might also have an interest in supporting such subsidies.

Finally, subsidizing housing for low-income households is expensive and would likely require higher local taxes (in addition to any land use changes). Raising taxes to support redistributive programs can be a tricky business for local governments, as higher taxes may prompt higher-income households and businesses to relocate to lower-tax jurisdictions.

Thus, cities have good reasons to provide housing support to moderate-income households, to ensure economic diversity in individual neighborhoods and in the city as a whole. This incentive is all the more true given the growing affordability strains that these households face in high-cost, growing cities. Consider that between 2000 and 2012, the share of New York City renters with incomes between 80 and 120 percent of AMI who paid more than 30 percent of their income on rent rose from 14 to 30 percent (Capperis et al., 2014).

In short, given the enormous unmet needs, I would reframe the question to be whether *any* circumstances exist in which public dollars should be used to subsidize the housing costs of moderate-income households. The answer to that question is yes, in the case of time-limited subsidies, and yes, for local governments, to the extent that subsidies for middle-income households help to preserve economic diversity and advance local economic growth.

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[1] Although workers can potentially commute from more affordable areas beyond city limits, such long commutes may not be sustainable.

Acknowledgments

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Leveraging More-Precise Governmental Support To Ensure the Middle Doesn't Go Missing

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Housing stability is a key driver of economic stability and mobility. More than ever before, millions of middle-income Americans living in high-cost regions are struggling to access homes they can afford. Ineligible for the Housing Choice Voucher (HCV) or Low-Income Housing Tax Credit (LIHTC) Programs because they earn too much, and with market-rate rent and home prices increasingly out of reach, this population—consisting largely of firefighters, nurses, teachers, and other members of the workforce—is falling through the cracks.

In search of more affordable options, middle-income families are forced to move farther and farther outside of cities, disrupting their home stability, disconnecting them from the communities they serve, extending their commute times, and shrinking their connections to jobs and economic opportunity. Beyond having consequences for family well-being, the high cost of housing has serious implications for the environment, as longer commutes contribute to greenhouse gas emissions, and for the economy, as housing instability has been linked to lower economic productivity as measured by gross domestic product (Furman, 2015).

Until and unless the market can better serve these middle-income families, governmental intervention is absolutely necessary to secure the middle class, and I oppose the idea that those families making between 80 and 120 percent of Area Median Income (AMI) should be excluded from all public subsidies. The question becomes, however, "What form *should* government interventions take, and how can we ensure they have their intended effect?"

Existing Government Subsidy for Middle-Income Families

In reality, a number of forms of public subsidy for families in the middle-income bracket are already applied at the local, state, and national levels. Some programs are effectively reaching those cost-burdened families who need support to bridge the gap between their incomes and housing costs. Other programs are administered without sensitivity to local economic contexts and have resulted in disproportionate support for those who may not really need it.

At the local and state levels, public subsidy in the form of downpayment assistance programs and inclusionary zoning policies help to bridge the gap between what a middle-income household can

afford and the increasing cost of living in already high-cost regions. These programs often have resale restrictions, shared appreciation mortgages, or both to keep homes affordable for a defined period of time and can be calibrated to the true size of the gap between income and cost in a particular region.

Meanwhile, less-calibrated efforts to reach middle-income families are conducted through the tax code. State and federal governments provide support to homeowners in at least three ways—(1) the mortgage interest deduction, (2) property tax deductions, and (3) capital gains exclusions.

These combined tax expenditures are estimated to have diverted more than $140 billion of revenue back to homeowners in 2016 alone (Tax Policy Center, 2016). They benefit only those households that itemize deductions and skew heavily toward wealthy homeowners; approximately 85 percent of the mortgage interest deduction, for example, goes to families earning more than $100,000 annually (Tax Policy Center, 2016). Furthermore, the amounts are not adjusted for AMI, and many states have duplicate tax expenditures. In California, for example, tax expenditures mirror the federal expenditures, and the mortgage interest deduction costs nearly $5 billion annually.

The federal housing finance system also provides important channels of implicit and explicit support to middle-income earners, with a wide variation in who benefits from them depending on the economic context in which they are operating.

San Francisco, California, for example, is one of most expensive real estate markets in the country. The median list price of a house for sale in San Francisco is $1,146,800 (Zillow, 2017b), and the AMI for a family of four is $107,700 (HUD, 2016). A median-income family with no other debt and $20,000 available for a downpayment would be eligible to purchase a home worth approximately $516,500 (Zillow, n.d.). The lending limit for both Fannie Mae and Freddie Mac (conforming loans) and for the Federal Housing Administration (FHA) is $636,150 (Fannie Mae, 2017) because San Francisco is a high-cost area. However, nearly no homes are available for purchase for this price; a search on Zillow.com in October 2016 found exactly one two-or-more-bedroom single-family home for less than $500,000 in San Francisco (exhibit 1).[1]

Exhibit 1

Regional Income, Mortgage Eligibility, and Home Price Comparison

	Area Median Income ($)	Median Home List Price ($)	Conforming Lending Limits ($)	FHA Lending Limit ($)	Home Price the Average Family Can Afford ($)	Homes Available at or Below That Price
San Francisco County, CA	107,700	1,146,800	636,150	636,150	516,500	1
Marion County, IN	66,700	111,300	424,100	299,900	316,700	2,600+

FHA = Federal Housing Administration.

[1] If studio and one-bedroom units are included, the number goes up to three. If condominiums, townhomes, and foreclosures are included, the number goes up to seven, including a deed-restricted, income-restricted home.

On the other hand, Marion County, Indiana (which includes Indianapolis), is one of the most affordable counties in the country, with a median list price of $111,300 (Zillow, 2017a). The AMI for Marion County is $66,700 (HUD, 2016); both list prices and income are substantially less than in San Francisco. The maximum FHA loan limit, which enables lower downpayment requirements and easier qualifying, is $299,900, and the conforming loan limit is $424,100, the national limit for a non-high-cost area. The average family, with no debt and one-half the downpayment amount available ($10,000), can afford a home that costs $316,700 (Zillow, n.d.)—in excess of the FHA limit and well within the conforming limit. A search on Zillow.com in October 2016 found more than 2,600 two-or-more-bedroom single-family homes available for less than $300,000.

The family earning AMI in Marion County is well-positioned to take advantage of federally backed lending programs, whereas the family earning AMI in San Francisco is not. Adjustments for local economic context are clearly a much-needed improvement to the current administration of programs targeted toward this income group.

What Should Future Subsidy Look Like?

The basic theory behind public subsidies is that government has a role to play in ensuring that housing stability and homeownership—essential components of economic well-being—are viable options. In practice, some of the forms of support reach those who might have faced chronic instability or who would never otherwise have accessed homeownership, but some skew heavily to wealthier families well above the income bracket of those making 80 to 120 percent of AMI without being balanced out with similar levels of subsidy for those on the other end of the spectrum.

That current inequities in the structure and administration of government intervention should be rectified does not invalidate the need for appropriate public support for those earning middle incomes. Again the question becomes, "What is the ideal form of support, and how can we ensure it is administered to have its intended effect?"

At the local level, governments should certainly retain the ability to provide assistance through programs that are responsive to local market conditions and the real needs of those in the middle-income bracket. Ideally, local subsidy could also be paired with legislative action that reduces barriers to production to add much-needed supply, relieve price pressure, and bring down costs. State governments could incentivize local governments to take such actions by allocating funds for housing assistance and rewarding communities with larger allocations as they make progress in reducing production barriers (such as faster processing times, fewer conditions on developments, and so on). This approach aligns policy and subsidy in a way that allows for a more scaled solution.

Meanwhile, at the federal level, assisting households in the 80- to 120-percent-of-AMI range should be done in a manner that is explicit and targeted, rather than embedded and hidden or left to chance, as in the current system. Solutions could include a first-time homebuyer tax credit for households earning, for example, less than 120 percent of AMI. Governments could also support tax-advantaged savings accounts (like those that exist for educational expenses) for downpayment savings for targeted income groups.

These types of interventions could secure viable pathways to homeownership for millions of families who are currently excluded from an important source of economic opportunity.

Taking the position that public subsidy is sometimes merited for the income bracket between 80 and 120 of AMI does *not* mean it should happen at the expense of lower-income households; we cannot afford to play a zero-sum game. With only one in four eligible households able to obtain support from the HCV Program and other housing assistance programs (CBO, 2015), public subsidy for this segment of the population absolutely deserves attention and expansion, as well.

To that end, serious consideration should be given to using the tax code (at both the federal and state levels) to provide for a direct rental assistance credit to renters who earn up to 80 percent of AMI. In addition to meeting the needs of lower-income populations, this credit would also serve those making between 60 and 80 percent of AMI—a segment of the population that is often overlooked. For several years running, the Obama administration proposed that the LIHTC Program be revised to enable any given housing project to serve, on *average*, those making 60 percent of AMI, which would then include renters earning anywhere between 30 and 80 percent of AMI.

Ultimately, in a market environment like the one we have today, government assistance is crucial both for those lower-income families who have long been underserved by the market *and* the millions whose incomes may be considered "middle class" but who are increasingly being priced out of the current housing market in high-cost communities. We need to find federal, state, and local solutions that leverage the limited public dollars available in maximally efficient ways and that complement other policy initiatives to improve the efficacy of the market. Until then, state and local governments with high-cost housing markets should have the discretion with their own state and local funding mechanisms to serve this segment of the population. Federal programs should also be calibrated to be more sensitive to the diversity of localized markets and middle-income needs.

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Can Administrative Housing Data Replace Survey Data?

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Abstract

This article examines the feasibility of using local administrative data sources for enhancing and supplementing federally collected survey data to describe housing in Arlington County, Virginia. Using real estate assessment data and the American Community Survey (ACS) from 2009 to 2013, we compare housing estimates for six characteristics: number of housing units, type of housing unit, year built, number of bedrooms, housing value, and real estate taxes paid. The findings show that housing administrative data can be repurposed to enhance and supplement the ACS, but limitations exist. We then discuss the challenges of repurposing housing administrative data for research.

Introduction

Many federal statistical agencies provide national and regional survey data. Limited sample sizes driven by limited budgets, however, prevent these agencies from providing timely data at a small geographic granularity. The challenges behind collecting survey data in an era of declining public cooperation have led federal statistical agencies to explore the potential benefits and drawbacks of using data that are external to their organizations and the federal system for supplementing official statistical products. For this article, the term *external data* is defined as data from local governments collected for administrative purposes designed to meet the operational needs of the locality where they are collected.

This article addresses the following question: "Can non-federally collected local government administrative data enhance, supplement, or replace federally collected survey data?" The extensive existing literature on housing economics and housing policy regularly depends on using survey

data from sources such as the American Community Survey (ACS) and the American Housing Survey (AHS; Weinberg, 2015, 2014). When used for research, however, these surveys can be limiting due to their relatively small sample sizes in any particular geographic area and the timing of their administration (Bazuin and Fraser, 2013; Jarosz and Hofmockel, 2010; Weinberg, 2015). We address that question in this article through a detailed case study using housing data from one locality encompassing 5-year period. As such, although these results have limited generalizability, the article can serve as a guide to a better understanding of some alternatives to survey data when studying certain policy issues.

Recent studies have examined the use of administrative data by attempting to match these data to census records. Ruggles (2015) provides a review of administrative data sources that could be used to replace or improve specific questions in the ACS. The author considered potential data sources, including federal, state, and local administrative records for taxes and benefit programs, private sector records, and third party data aggregators. She found that several questions in the ACS could potentially be replaced with matched or imputed data, especially housing-related questions that collect information that overlaps with data found in local property tax records (for example, year built, number of acres, value of the unit, and property taxes paid). Moore (2015) investigated the feasibility of replacing or supplementing the year built question on the ACS with administrative records. The author found that the match between the year built category on the 2012 ACS and vendor data (2006–2010) is 78.3 percent when linked using Master Address File Identification Numbers, or MAFIDs, and 76.0 percent when linked using basic street addresses.

Building on this body of work, this article examines the feasibility of using local administrative data by comparing estimates based on local housing administrative data for six housing characteristics (number of housing units, housing unit type, year built, number of bedrooms, housing value, and real estate taxes paid) to the respective estimates from the ACS. The ACS is a large monthly survey carried out by the U.S. Census Bureau. It provides annual estimates on many topics for areas and population groups of 60,000 or more, and it provides estimates aggregated over a 5-year period for smaller jurisdictions, census tracts, census block groups, and population subgroups with populations less than 60,000.[1] The geographic region for this study is Arlington County, Virginia, an urban county that is part of the Washington, D.C. metropolitan area. The housing research reported in this article is part of a broader study sponsored by the Census Bureau focused on leveraging external non-federally collected data sources to enhance official statistics and products (Keller et al., 2016). Our results demonstrate that local housing administrative data can be repurposed to produce estimates similar to (or better than) ACS tabulations for three of the six comparisons of housing data: year built, housing value, and real estate taxes paid. Although the other three comparisons (number of housing units, housing type, and number of bedrooms) did not result in estimates that fully align with those of the ACS, the lack of alignment cannot be attributed to one source of data being better than the other. We will provide some explanations for the misalignment. These results show that local housing administrative data can replace or supplement the ACS estimates in one locality, but limitations and challenges exist that must be considered.

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[1] In contrast to the ACS, the AHS, the key data set for much housing research, provides only biennial estimates for national, regional, and key metropolitan areas. For more information of alternate sources of housing data, see Weinberg (2015, 2014). For more information on the ACS, see https://www.census.gov/programs-surveys/acs/.

The remainder of this article is organized as follows. The Data and Methods section describes the data used, the data preparation required for this study, and the metrics used to compare the estimates. The Comparisons of Housing Characteristics section provides comparisons between the estimates that were obtained using real estate assessment data and the ACS for six selected housing characteristics. The Limitations and Opportunities of Using Local Administrative Data section presents insights about the potential of using housing administrative data that we discovered during our research.

Data and Methods

Real estate assessment data for Arlington County, Virginia (hereafter, Arlington) from 2009 to 2013 were used in this study. These data were acquired directly from the Real Estate Department of the Arlington County government and from CoreLogic, Inc., a commercial vendor. These data will be referred to as *AC assessment data* and *CL assessment data*, respectively.

Arlington's Department of Real Estate collects AC assessment data for administrative and tax purposes. CoreLogic acquires real estate assessment data across the country directly from the jurisdictions. It then repackages the data into common formats, and sells them for a variety of uses, such as studying market trends, property valuation, or housing policy. Recent research has looked into the potential of CoreLogic data specifically. Brummet (2014) matched the Census Bureau Master Address File (MAF) to housing units in three different sources of data: (1) the 2009 AHS, (2) commercial data obtained from CoreLogic for 2009, and (3) administrative records from 2010 and the 2011 Tenant Rental Assistance Certification System (TRACS) obtained from the U.S. Department of Housing and Urban Development (HUD). The author found that the commercial data from CoreLogic matched the MAF at a much lower rate (64 percent) than the other data sets (2011 HUD TRACS matched at 90 percent, for example), with the survey data matching at the highest rate of 92 percent. Kingkade (2013) matched occupied housing unit records in the 2009 ACS to CoreLogic to examine the relationship between the self-reported value obtained from the ACS householder and measures of value derived from administrative records. The author found a match rate of 80 percent for single-family owned homes.

CoreLogic's coverage for Virginia ranges from 99 to 112 counties and independent cities (out of 133 counties and independent cities in the state) from 2009 and 2013. The counties missing from this range are in rural areas of Virginia. CoreLogic standardizes the data across jurisdictions, even though assessment regulations and processes vary across jurisdiction lines. For instance, whereas each jurisdiction has its own land use codes, CoreLogic creates a standardized land use code and applies it across all jurisdictions. Unfortunately, the standardization process can mean that some level of detail is lost, as the process involves assumptions that allow for the data to fit CoreLogic's rule set. For instance, reports of zero bedrooms are assumed to be missing data, which implies that efficiency units are not properly identified. Such loss of detail should be taken into account when the CoreLogic data are used.

Provenance associated with commercial administrative data is frequently missing. CoreLogic's postprocessing assumptions are unknown, as the details about the algorithms are proprietary. For instance, CL assessment data contain information about the number of units within the buildings

for individual condominiums and absent-owner properties, whereas the AC assessment data on which the CL assessment data are based do not. In another example, the CL assessment data for Arlington included condominiums with listed values as high as $1 billion. In these cases, we used information obtained from the AC assessment data to recategorize some CoreLogic parcels as multifamily parcels.

In this article, the authors will compare the estimates of housing characteristics based on the AC and CL assessment data sources to those in the 2009–2013 ACS, as obtained from American FactFinder (U.S. Census Bureau, 2014b).

Defining a Fitness-for-Use Metric

One main goal of this research is to understand the feasibility of repurposing administrative data to enhance and supplement the ACS for housing characteristics. Keller et al. (2016) provided more comprehensive information on the development of the data framework we used; it encapsulated a general approach for repurposing data, from data source discovery to analysis to inference. Within that framework, and more generally, *fitness for use* is a term that is used to define how well the data meet the needs of the user. Assessing fitness for use requires considering the modeling and analyses in which the data will be used. A fitness-for-use metric needs to be a function of the data coverage (representativeness) needs and the data quality needs of the model(s) used in the analyses (Dippo, 1997; Keller et al., 2016).

We used the following fitness-for-use metric to compare the tabulations created from the AC and CL real estate assessment data to the ACS tabulations—

$$fitness\ ratio = \frac{ACS\ estimate - external\ estimate}{90\%\ ACS\ margin\ of\ error}. \tag{1}$$

The fitness ratio quantifies the degree of alignment between the two estimates. A negative fitness ratio means that the external estimate is higher than the ACS estimate, and a positive fitness ratio means that the external estimate is lower. A fitness ratio $\leq |1|$ means that the two estimates align within the ACS estimate's 90-percent margin of error, defined as the 90-percent confidence interval for ACS estimates.

The challenge in interpreting the comparisons comes from a lack of knowledge about which estimate might be right, because no obvious gold standard exists. As will be discussed, it is likely that the real estate assessment data may be more accurate than the ACS in some cases, because local governments have financial incentives to have accurate information on characteristics such as the housing value for property tax assessments and real estate taxes paid. In the case of year built, the real estate assessment data may better reflect reality because the local data do not rely on self-reporting as a survey does. For example, renters are much less likely than owner-occupiers to know a unit's year of construction, and the county government knows the year a new or renovated home is updated in their database through its building permit system. Finally, the real estate assessment data may also generate more accurate estimates than a survey because it is essentially a census of housing units, whereas the latter has sampling and nonsampling errors.

In contrast, ACS data might be more accurate than assessment data in certain circumstances and are the only source of certain housing characteristics, such as the components of rent and monthly owner costs (for example, utility costs). Another way ACS data may be more accurate is in determining the number of housing units in a building. A large complex of independent buildings on one parcel is likely to have a much larger unit count in the assessment data (perhaps in the hundreds) than the count reported by the respondent living in a building on that parcel with (say) eight apartments. The latter is a more accurate description of the respondent's living conditions.

Data Preparation

The data preparation process began with identifying the potential differences in the data sources among the AC assessment data, the CL assessment data, and the ACS data. This step is important, as real estate assessment data are collected for the purpose of property tax assessments, which is a distinctly different purpose than for ACS data collection. Appendix A includes a detailed data qual-ity checklist for property data, which was developed through this research. The data preparation process lays the foundation for assessing if the real estate assessment data can be used in research analogous to how the ACS data are used.

The AC assessment data contain the collection of all parcels in the county. A *parcel* is a defined piece of real estate (for example, lot) that is identified for taxation purposes in the jurisdiction (State of Virginia, 1996). Parcels may or may not contain housing units. For example, some parcels may represent vacant lots or parking spaces. Some parcels contain multiple housing units, as in apart-ment complexes. The CL assessment data, as provided by CoreLogic, are a subset of all parcels in the jurisdiction and are supposed to be restricted to nonvacant, non-parking-lot residential parcels. In contrast, the ACS data for Arlington contain a sample selected from all residential housing units, not parcels, in the county. A *housing unit* is a house, apartment, mobile home, group of rooms, or a single room that is intended for occupation as separate living quarters (U.S. Census Bureau, 2014a).

To compare the data, nonresidential parcels and vacant parcels were identified in the AC assess-ment data and the CL assessment data.[2] These parcels were removed if found, as they are not within the scope of the ACS, leaving roughly 60,000 residential parcels (see exhibit 1). For the AC assessment data, we identified parking lots and vacant parcels by pinpointing parcels with either

Exhibit 1

Estimate of Housing Units by Data Source, Arlington County, 2009–2013

Data Source	2009	2010	2011	2012	2013	2009–2013
ACS	103,813	105,490	106,720	107,734	109,689	106,740
MOE	± 872	± 619	± 417	± 537	± 504	± 191
AC weighted	100,991	101,867	102,299	102,299	103,987	102,33
AC parcels	60,261	60,203	60,465	60,688	60,966	NA
CL weighted	97,589	98,690	83,640	79,521	79,804	87,849
CL parcels	59,593	59,959	60,077	60,220	60,343	NA

AC = Arlington County. ACS = American Community Survey. CL = CoreLogic, Inc. MOE = the 90-percent ACS margin of error. NA = not applicable.
Sources: 2009–2013 ACS 5-year estimates; AC real estate assessments, 2009–2013; CL real estate assessments, 2009–2013

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[2] All editing of the assessment data is by the authors.

no total value or no improvement (building) value but with a land value.[3] Common areas and additional vacant parcels are identified using a combination of land use codes. Land use codes are classification schemes created and managed by local jurisdictions that describe the class of property permitted on that parcel (State of Virginia, 1996). A small number of parcels that are partially in Arlington and partially in another jurisdiction were removed from the AC assessment data, because the assessed value pertains solely to the Arlington portion, and the ACS response will apply to the whole property. Hotels were removed from the CL assessment data using Arlington's land use code as reported in the CL assessment data. Moreover, we identified and removed a parking spot and a common area in the CL assessment data.

Another key difference between the real estate assessment data and ACS data is that whereas the real estate assessment data pertain to each *parcel* in the jurisdiction, the ACS collects information for each *housing unit* in its sample. For example, multifamily buildings are typically one parcel, but the ACS treats each apartment within the multifamily building as a separate unit. The real estate assessment data indicate the number of units on each parcel, allowing for the data to be reweighted to create comparable statistics to ACS tabulations. In the AC assessment data, some parcels had varying unit counts across the years. The most notable one was a building identified as having 842 units in 2012 and 266,412 units in 2013. As this high (and obviously incorrect) unit count would bias estimates after weighting, we replaced the 2013 counts for the AC assessment data with 2012 numbers in such cases because the 2012 number more closely matched the 2009-through-2011 data.

The AC assessment data also included data for multiple-dwelling parcels, which could have included, for example, a parcel with a primary housing unit and a registered additional housing unit, such as a basement. In these cases, the data have to be restructured so that they include one observation per dwelling. In contrast, the CL assessment data do not require unit count editing and the data provided are for the primary dwelling on the parcel. However, CoreLogic does not conduct longitudinal editing on its variables (including multifamily unit counts) and as a result errors go undiscovered.[4] Longitudinal editing would not be difficult to do, as multiple years of data are accessible. We chose not to do so, primarily to provide a contrast between what a local jurisdiction could do with its own data and what a federal agency would find difficult to do one by one for the thousands of jurisdictions in the country.

The AC assessment data do not have direct information on the number of units in condominium buildings. For tax purposes, Arlington creates a different parcel number (ID) for each condominium. It is assumed by the authors that missing unit counts are single-family housing units. This assumption results in condominiums being classified as single-family attached residences, and some adjustment is needed to correct this misclassification for condominiums. The parcel IDs associated with condominiums in the same structure have the same GIS code. The number of condominium units in a structure was imputed by aggregating the number of condominiums based on their GIS codes. Lastly, duplexes do not have unit counts; however, a specific duplex land use code allowed for the appropriate categorization of these properties.

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[3] Removing parcels with no land value does not eliminate condominiums, as Virginia law states that condominiums must have a land value.

[4] For example, the multifamily complex listed by Arlington County as having 266,412 units in 2013 had its unit count reset by CoreLogic through truncation to 6,412.

Within the AC assessment data are two variables in relation to the age of the building: property-year-built and dwelling-year-built. In the property-year-built data, all properties are included and the unit of observation is the unique parcel number. In the dwelling-year-built data, only single-family properties are included and the unit of observation is the dwelling. Thus, a parcel with two dwellings could have two different dwelling-year-built values if the second dwelling is built later than the original dwelling. To create a year built variable from the assessment data that has only one value for each dwelling and multifamily property, we added the property-year-built data for multifamily properties to the dwelling-year-built data. The CL assessment data have only one year-built value, as the unit of observation is the parcel and not the dwelling. The year built value pertains to the primary dwelling on the parcel.

To place the housing units into census geographic boundaries (tracts and block groups), we needed geographic coordinates (latitudes and longitudes). See appendix B for a description of how we accomplished this step.

A Micro-Level Comparison of Arlington County and CoreLogic Assessment Data

Once the preliminary data preparation steps were accomplished, we compared the individual elements of the AC assessment data and CL assessment data, as matched by parcel ID. As exhibit 1 indicates, the number of parcels in each database is different for each year from 2009 to 2013 (we will discuss the number of housing units in the next section), though the difference is no more than 1 percent (always higher in the AC assessment data).

We found a high match rate between the two data sources for 2013; 60,286 parcels appeared in both databases, 57 appeared solely in CL assessment data, and 680 appeared solely in AC assessment data. Of those that were in only the CL assessment data, 6 were condominiums, 46 were single-family attached properties, and 5 were single-family not elsewhere classified properties. For the 57 parcels in only the CL assessment data, the mean year built was 1946, and 17 parcels did not have a year built listed. Of those parcels that were in only the AC assessment data, 400 were condominiums, 204 were multifamily properties, 13 were single-family attached properties, and 63 were single-family detached properties. For the 680 parcels in only the AC assessment data, the mean year built was 1980, and 372 parcels did not have a year built listed. These data were matched by parcel. Thus, parcels with multiple dwellings were matched only to the primary dwelling.

For the 60,286 parcels that matched, we compared the number of units in both data sets, as these data were integral in this study to reweight the administrative data to the housing unit. When we compared the unit counts for each parcel individually and by property type, shown in exhibit 2, we observed that the difference in unit counts between the two data sources were primarily due to condominium and multifamily properties. For this comparison, we removed three observations that had more than 1,000 units in the AC assessment data. In the CL assessment data, these units are listed as having zero units.

Exhibit 2

Number-of-Unit Comparison for CoreLogic, Inc., and Arlington County Real Estate Assessment Data, 2013
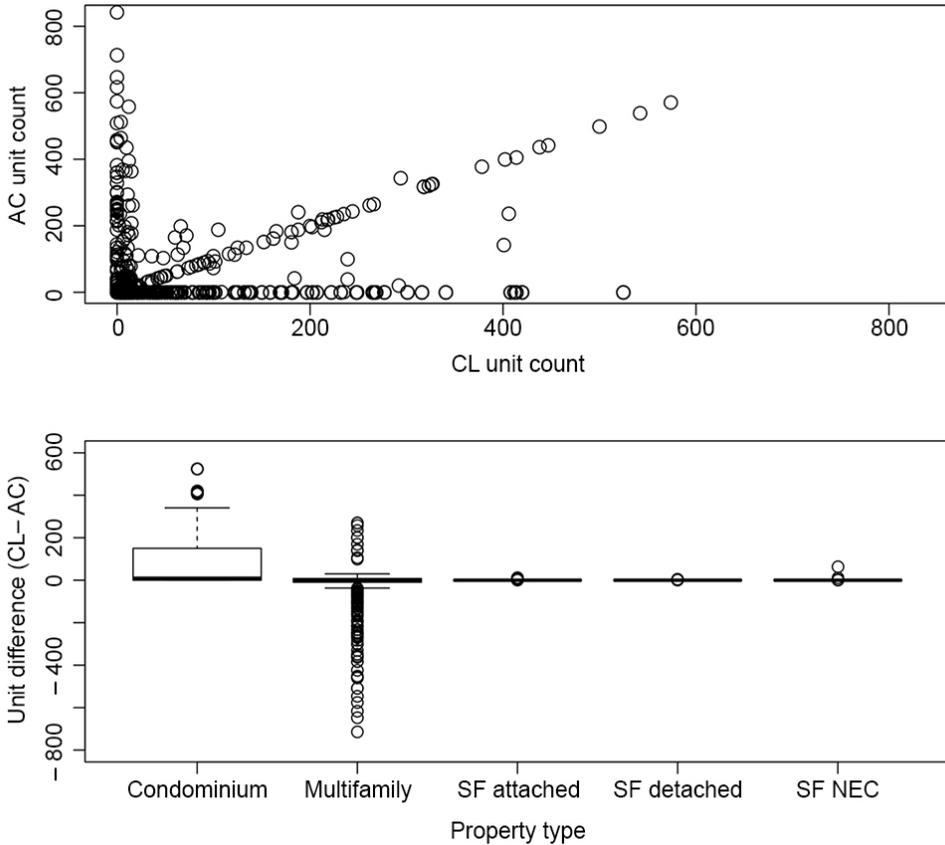
AC = Arlington County. CL = CoreLogic, Inc. NEC = not elsewhere classified. SF = single-family.
Notes: Unit is the parcel. Three outliers with differences of greater than 1,000 were removed.
Sources: AC real estate assessments, 2013; CL real estate assessments, 2013

Comparisons of Housing Characteristics

In this section, we provide the results of comparisons between the estimates based on the real estate assessment data and the on six housing characteristics: number of housing units, type of housing unit, year built, number of bedrooms, housing value, and real estate taxes paid.

Number of Housing Units

Exhibit 1, in the previous section, presents comparisons of the number of housing units in Arlington for the 2009-to-2013 period. Housing unit counts from the AC assessment data are below the 90-percent margin of error for the ACS estimates. Real estate assessment data theoretically contain

a census of housing units in the jurisdiction, yet reconciling differences of the unit of observation between the administrative data and ACS was not straightforward. As noted, the number of housing units for the assessment data is obtained by weighting the parcels by the number of units in each parcel. This process can be problematic due to missing and varying unit counts. The number of missing unit counts ranges from 206 parcels in 2009 to 463 in 2013 in the AC assessment data. Associating a large fraction of these missing data with multifamily dwellings could result in underestimation of the total number of housing units. In the CL assessment data, the number of units in a building for multifamily properties is complete for 2009–2013, yet the number of units varies across the years (with a range between 1 to 826 units per parcel from year to year) for about 30 percent of the properties. This variance is especially apparent when comparing the earlier years to the later years. Exhibit 1 shows that, from 2009 to 2013, the number of housing units was lower in the CL assessment data than in the ACS and AC assessment in every year, but it was substantially lower for 2011 and later. The latter is due to the unexplained difference among number of units data within the original data across the years.

Overall, the lower estimate of the number of housing units seems to be driven by discrepancies in unit counts of the multifamily structures, but the cause of the difference between housing unit counts in CoreLogic and in the real estate assessment data remains to be determined. Due to this significant difference, creating 5-year estimates using CL assessment data for housing characteristics that need to be weighted by number of units is problematic.

The differences in housing unit counts are also examined across census tracts and block groups. There are 59 census tracts containing 181 block groups in Arlington. Exhibit 3 provides boxplots and geographic distributions of the fitness ratios across census tracts and block groups, using the AC assessment data.[5] Although the estimates do not agree at the county level, the estimates obtained from the AC assessment data often align (|fitness ratio| ≤ 1) with ACS estimates at lower levels of geography.

We conjecture that estimates based on real estate assessment data that do not align with ACS estimates are aligned with housing unit density within Arlington. AC assessment data appear to generate lower estimates for multifamily buildings due to either different or missing unit counts for multifamily buildings. We addressed this discrepancy by exploring whether the unit counts that are significantly lower compared to the ACS estimate, (fitness ratios ≤ 1), are observed in areas with high multifamily property density at the census tract level as measured by ACS. Exhibit 4 visually compares ACS estimates of the number of housing units in multifamily properties to the geographic distributions of number of housing units' fitness ratios by census tract. The largest differences appear to be in geographic areas with high housing unit density; however, this finding does not explain all the divergence. The actual composition of the housing units by type is explored further and discussed next.

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[5] Boxplots are graphical displays of several descriptive statistics. The bottom of the box, middle line, and top of the box are the 25th, 50th (median), and 75th percentiles, respectively. The lines coming from the bottom and top of the box are called *whiskers* and stop at the smallest and largest data value within 1.5 times the interquartile range (IQR), wherein IQR is the distance between the 75th and 25th percentiles and is equivalent to the width of the box. Data values outside the box are called outliers and are plotted at their actual values.

Exhibit 3

Fitness Ratios for Number of Housing Units by Census Tract and Block Group, Arlington County, 2009–2013
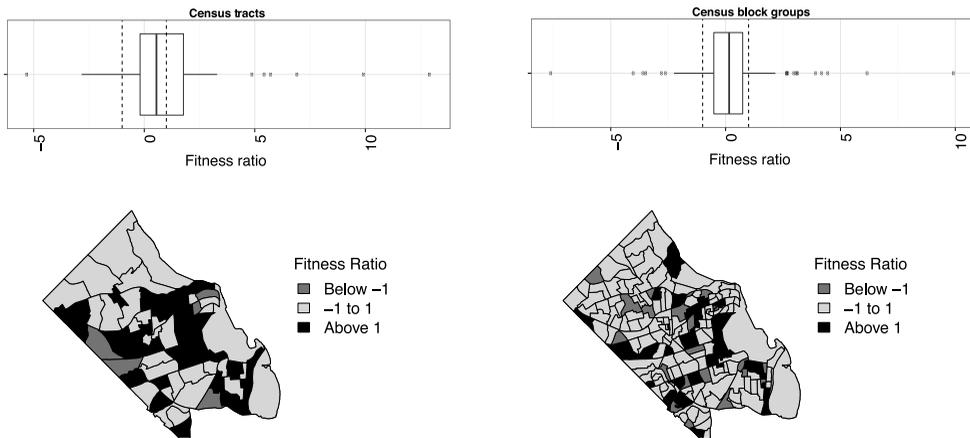
Notes: Boxplots compare the distribution of the fitness ratios at the census tract and block group levels, their relation to the 90-percent American Community Survey (ACS) margins of error, and geographic distributions. Estimates falling outside the dashed reference lines or lighter gray color of 1 were not within the ± 90-percent ACS margins of error.
Sources: Arlington County real estate assessments 2009–2013; 2009–2013 ACS 5-year estimates

Exhibit 4

Comparison of the Fitness Ratios for Housing Units to Density of Multifamily Properties by Census Tract, Arlington County, 2009–2013

(a)   (b)
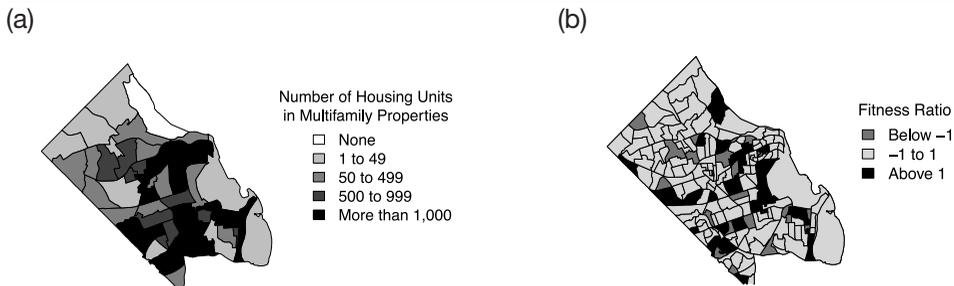
Note: Panel (a) is the geographic distribution of the number of multifamily properties and panel (b) is the geographic distribution of housing unit count fitness ratios.
Sources: panels (a) and (b)—2009–2013 ACS 5-year estimates; panel (b)—Arlington County real estate assessment data, 2009–2013

Type of Housing Unit

The second set of comparisons involves the distributions associated with the units in a structure. The ACS poses the following question to survey respondents: "Which best describes this building?" The list of possible responses corresponds with the categories given in exhibit 5. For the AC assessment data, we used the numbers of units in the building and county land use codes to place housing units into the appropriate category. Although the unit counts differ across the years for the AC assessment data, the ACS tabulates group number of units into bins, which absorbs some of the difference.

Exhibit 5

Distribution of the Number of Housing Units in Structures: Comparison of ACS Estimates With Arlington County Data, 2009–2013

Units in Structure	ACS		Direct Estimate From Arlington County		
	Estimate (%)	90% MOE (%)	Estimate (%)	Difference (%)	Within 90% MOE?
1—detached	26.91	5.47	26.73	0.17	Yes
1—attached	9.42	5.17	5.78	3.64	Yes
2	0.97	2.53	0.53	0.44	Yes
3 or 4	3.68	3.09	0.07	3.61	No
5 to 9	5.46	4.24	0.93	4.54	No
10 to 19	7.72	5.62	1.83	5.89	No
20 to 49	5.19	4.59	5.08	0.10	Yes
50 or more	40.27	7.31	58.78	– 18.51	No

ACS = American Community Survey. MOE = margin of error.
Sources: Arlington County real estate assessment data, 2009–2013; 2009–2013 ACS 5-year estimates, Table B25024

Exhibit 5 compares the distribution of units in structure from the 5-year estimates based on ACS to the AC assessment data. The estimates obtained from AC assessment data that fall outside the 90-percent ACS margins of error correspond to all multifamily buildings of three or more units, except for 20- to 49-unit buildings. The alignment of the estimates for single-family attached housing units is likely due to the restructuring of the AC assessment data that resulted in each single-family detached unit being on its own parcel and appearing an unweighted observation in the data. Neither source is unambiguously better for these estimates.

Year Built

In relation to the age of the property, the ACS asks respondents: "About when was this building first built?" Exhibit 6 reflects the categories of year-groupings among which respondents choose. However, many residents, especially those living in apartments, may not know the exact or even the approximate answer to this question. Information on year built within local housing administrative data is based on official assessments and permitting data, and refers to the first

Exhibit 6

Distribution by Year Built of Housing Units: Comparison of ACS Estimates With Arlington County Data, 2009–2013

Year Built	ACS		Direct Estimate From Arlington County		
	Estimate (%)	90% MOE (%)	Estimate (%)	Difference (%)	Within 90% MOE?
2000 to 2009	15.83	0.71	14.49	1.34	No
1990 to 1999	9.15	0.68	8.73	0.43	Yes
1980 to 1989	11.26	0.60	11.16	0.10	Yes
1970 to 1979	10.67	0.72	6.48	4.19	No
1960 to 1969	11.64	0.73	14.91	– 3.27	No
1950 to 1959	15.71	0.78	15.62	0.09	Yes
1940 to 1949	15.56	0.68	16.59	– 1.03	No
1939 or earlier	9.00	0.47	6.05	2.94	No

ACS = American Community Survey. MOE = margin of error.
Sources: Arlington County real estate assessment data, 2009–2013; 2009–2013 ACS 5-year estimates, Table B25034

year a property has an improvement (usually a building) in the assessment records. The evidence provided in this section suggests that "year built" may be more accurately captured using real estate assessment data sources than by the ACS.

Exhibit 6 compares the 5-year estimates of year built based on the ACS to the estimates obtained from AC assessment data. At the county level, AC assessment data-based estimates fall outside the 90-percent ACS margins of error for both old and new structures. Exhibit 7 presents the fitness

Exhibit 7

Fitness Ratios for Number of Housing Units by Year Built Across Census Tracts and Census Block Groups for Arlington County, 2009–2013
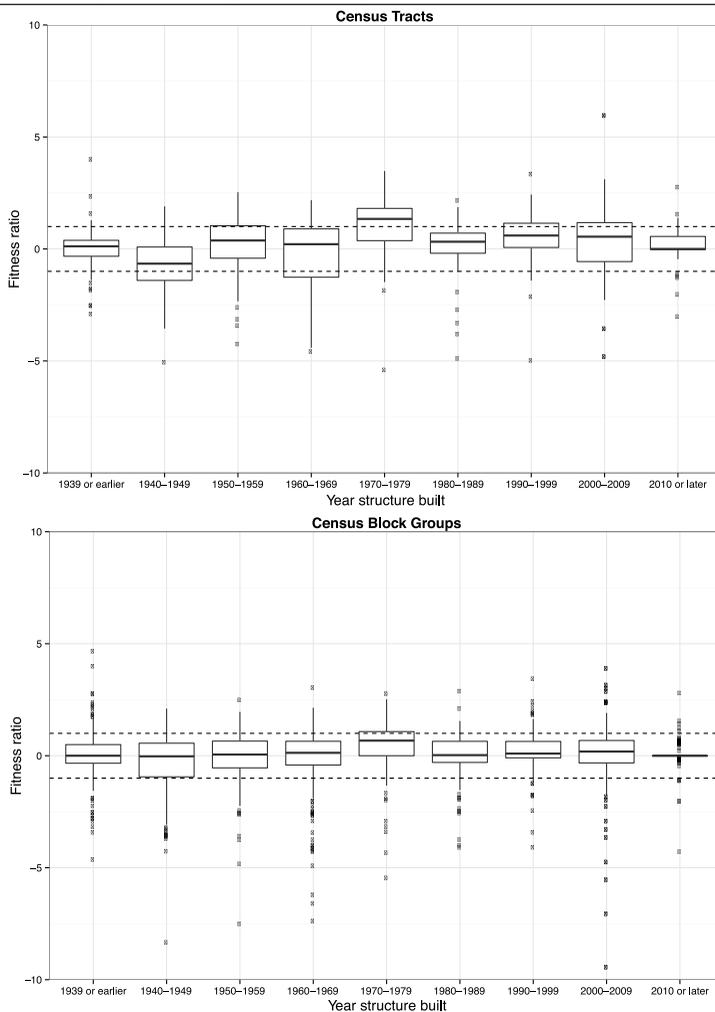
Notes: Boxplots compare the distribution of the fitness ratios at the census tract and block group level. Estimates falling outside the dashed reference lines of 1 were not within the ±90-percent American Community Survey (ACS) margins of error. For presentation purposes, one extreme lower outlier (18.67 for 2000–2009) was removed from the census tracts boxplots and three extreme lower outliers (-35.79 for 1990–1999, 18.67 for 2000–2009, and 17.21 for 2000–2009) were removed from the real estate taxes boxplot.
Sources: Arlington County real estate assessments, 2009–2013; 2009–2013 ACS 5-year estimates

ratio distributions across census tracts and block groups for the comparison of the AC assessment data to ACS's 5-year estimates of housing units by year built. Most of the fitness ratios fall within the ±1 range across the years in both cases. Estimates using CL assessment data are not presented due to problems associated with weighting across all 5 years.

Exhibit 8 illustrates the geographic distribution of the fitness ratios by census tract, comparing the oldest (pre-1939) and the youngest (post-2010) structures in Arlington. The ACS estimates a lower count of both younger and older housing units in the center of the county when compared to the AC assessment data. Central Arlington is an area with high growth of both residential and commercial properties, with many renter-occupied housing units, and that follows the Metro (subway line). ACS data show a lower volume of young structures in central and southern Arlington, a region of lower income as compared to the AC assessment data. Those census tracts have a high volume of renter-occupied housing units according to the ACS. This comparison may be another indication of respondent misreporting.

When we compare the median year built of housing units in Arlington across the data sources, we observe differences depending on the timeframe. The 5-year estimate for median year built was 1961 based on AC assessment data, whereas the median year built in the ACS was 1968 (±2). The AC assessment data estimate of the median year built remained consistent at 1961 for the years between 2010 and 2013 and 1960 for 2009. However, the ACS single-year estimates steadily increased from 1965 (±2) in 2009 to 1973 (±2) in 2013. This increase is too high to be credible in a county of this size and provides additional evidence that the year built data from the AC assessment data may be more accurate than those data from the ACS.

Exhibit 8

Fitness Ratios for Number of Oldest and Youngest Housing Units by Census Tract, Arlington County, 2009–2013
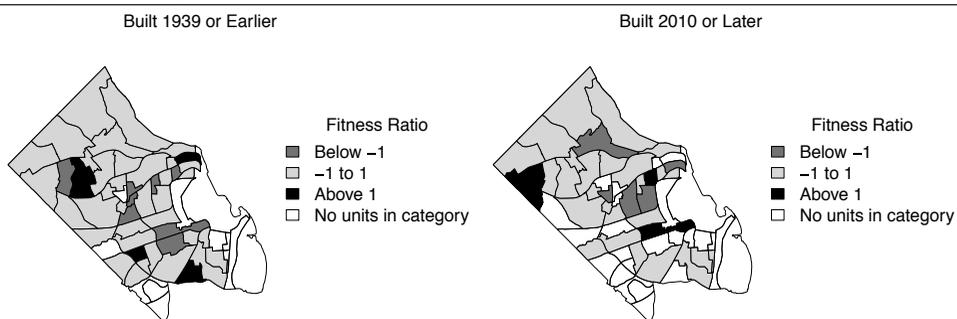
Sources: Arlington County real estate assessments 2009–2013; 2009–2013 American Community Survey 5-year estimates

Number of Bedrooms

In the ACS, the question regarding bedroom counts is posed as, "How many of these rooms are bedrooms? Count as bedrooms those rooms you would list if this house, apartment, or mobile home were for sale or rent. If this is an efficiency/studio apartment, print '0.'" A set of rules within the Virginia State Building Code determines whether a room is classified as a bedroom in the real estate assessment data (State of Virginia, 1996). An occupant responding to ACS may not be reporting a bedroom consistent with Virginia state codes. For example, in Virginia, a bedroom must

have at least one operable emergency escape and rescue opening, such as a window. However, a respondent may count a den that is being used as a bedroom as such even though it may not have an escape route. In the AC assessment data, this den would not appear as a bedroom and thus the datum would show one fewer bedroom. The distribution of the housing units by the number of bedrooms based on the ACS data compared to the AC assessment data is presented in exhibit 9.

The AC assessment data estimate for number of bedroom units did not align with the ACS estimate for housing units with lower numbers of bedrooms. This discrepancy could be due to the fact that the AC assessment data do not include information on the characteristics of individual apartments, which are often zero-, one-, and two-bedroom units. In addition, the definition of a bedroom based on the state code may exclude bedrooms that are counted in the ACS data. As noted previously, the CL assessment data have no zero-bedroom units by design of the standardization, but did have 6,938 units with missing bedroom data in 2013; Arlington had 7,955 units with zero bedrooms that same year. This incompleteness of data within real estate assessment data leads to misalignment with ACS estimates.

Exhibit 10 illustrates the fitness ratios for zero-bedroom housing units by census tract. This exhibit reveals that most of the discrepancies between the ACS and the real estate assessment data correspond to North Arlington, an area that consists primarily of high-valued single-family detached homes, and are also observed in some tracts in South Arlington, in a residential neighborhood near the Pentagon.

The boxplots in exhibit 10 illustrate the distribution of the values of housing units by the number of bedrooms they have from the AC assessment data. The distribution of values for zero-bedroom units compared to the other units is wider than expected, which explains the discrepancies in the estimates of one-bedroom housing units in exhibit 9. This distribution implies that some of the zero-bedroom units in the AC assessment data correspond to one- and two-bedroom units in the ACS. As expected, the estimates for one- and two-bedroom housing units in exhibit 9 using the AC assessment data are lower than the corresponding ACS estimates. This finding is not surprising because the number of housing units in multifamily buildings are underestimated due to missing units counts, as mentioned previously. The counts for housing units with four and with five or more bedrooms are not affected, as housing units of these sizes tend to be single-family units, which the AC assessment data capture well.

Exhibit 9

Distribution of Number of Bedrooms: Comparison of ACS Estimates With Arlington County Data, 2009–2013

| Number of Bedrooms | ACS | | Direct Estimate From Arlington County | | |
	Estimate (%)	90% MOE (%)	Estimate (%)	Difference (%)	Within 90% MOE?
0	4.29	0.49	13.17	– 8.88	No
1	33.79	0.91	18.14	15.64	No
2	29.64	1.00	28.52	1.12	No
3	18.14	0.73	26.03	– 7.89	No
4	9.54	0.51	9.62	– 0.08	Yes
5 or more	4.61	0.42	4.48	0.13	Yes

ACS = American Community Survey. MOE = margin of error.
Sources: Arlington County real estate assessment data, 2009–2013; 2009–2013 ACS 5-year estimates, Table B25041

Exhibit 10

Distributions of Housing Value by Number of Bedrooms, Arlington County, 2009–2013

(a)

0 Bedrooms by Census Tract

(b)
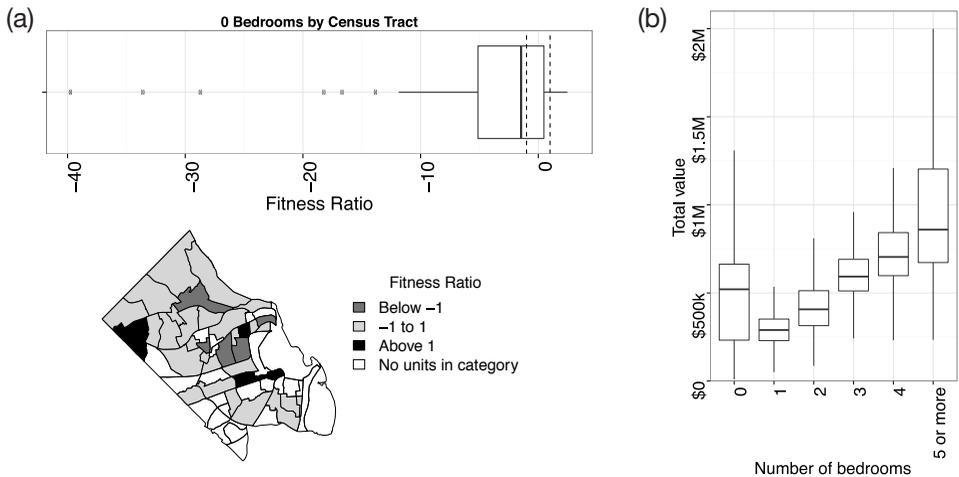
Notes: Panels provide the fitness ratio distributions of number of housing units by house values and number of bedrooms. Panel (a) is the boxplot and geographic distribution of the fitness ratios for "0-bedroom homes" by census tract from the Arlington County (AC) assessment data. Estimates falling outside the dashed reference lines of 1 were not within the ±90-percent American Community Survey (ACS) margins of error. Panel (b) is a collection of boxplots displaying the housing "total value" ($) distributions by number of bedrooms in the unit found within the AC assessment data.
Sources: panels (a) and (b)—AC real estate assessments 2009–2013; panel (a)—2009–2013 ACS 5-year estimates

Housing Value and Real Estate Taxes Paid

ACS respondents who own their housing unit are asked, "About how much do you think this house and lot, apartment, or mobile home (and lot, if owned) would sell for if it were for sale?" and "What are the annual real estate taxes on this property?" These questions could be difficult to answer, especially the former, if the owners are not recent homebuyers. There is a debate in the literature as to whether self-reported housing values are accurate. Early work did not show bias in self-reported value (Kain and Quigley, 1979), however subsequent research has found that homeowners overstate the values of their homes on the order of 5 to 16 percent (Benítez-Silva et al., 2010; DiPasquale and Somerville, 1995; Goodman and Ittner, 1992; Ihlanfeldt and Martinez-Vazquez, 1986; Kiel and Zabel, 1999). Housing value in real estate assessment data is based on annual assessments conducted by the jurisdiction, whether in person or through analytical valuation approaches.

One difficulty in this study is the potential difference in the populations between the ACS and AC assessment data. The ACS estimates housing value only for owner-occupied units. The AC assessment data estimates are based on single-family attached and detached housing units, including condominiums. AC assessment data do not have an indicator to determine if a housing unit is owner or renter occupied. Multifamily properties are excluded, as they are solely renter-occupied units. Given the lack of an indicator for owner-occupancy, the housing unit counts in the AC assessment data are expected to be larger than in the ACS data because the AC assessment data include both owner- and renter-occupied units. The magnitude of this difference is proportional to the number of single-family detached, single-family attached, and condominium units that are renter-occupied in that geographic area.

Exhibit 11 shows the comparison of the distribution of housing units by value of the AC assessment data with the ACS estimates. For all but a small fraction (2 percent) of units, the ACS and AC assessment estimates do not match; the mismatches are particularly for all units in categories of $90,000 or more in value, but not all the mismatches are in the same direction. For example, the ACS estimates that 33 percent of owner-occupied units in Arlington have a value between $500,000 and $749,999 compared with the AC assessment estimate of 35 percent. For housing valued at $750,000 to $999,999, the estimates are reversed; the ACS estimates 18 percent of owner-occupied units are in this category, and the AC assessment estimates only 9 percent.

Exhibit 12 shows the comparison of the distributions of real estate taxes paid. The match between the estimates of taxes from the ACS and the AC assessment data is much better than the match between estimates for housing value—a match for four out of six categories, including the one category with the most units (taxes paid of $3,000 or more).

Exhibit 11

Distribution of Housing Units by Value: Comparison of ACS Estimates With Arlington County Data, 2009–2013

Value of Housing Unit	ACS		Direct Estimate From Arlington County		
	Estimate (%)	90% MOE (%)	Estimate (%)	Difference (%)	Within 90% MOE?
Less than $10,000	0.25	0.12	0.00	0.25	No
$10,000 to $14,999	0.05	0.05	0.00	0.04	Yes
$15,000 to $19,999	0.00	0.07	0.00	0.00	Yes
$20,000 to $24,999	0.16	0.13	0.00	0.16	No
$25,000 to $29,999	0.11	0.11	0.00	0.11	Yes
$30,000 to $34,999	0.11	0.11	0.00	0.11	No
$35,000 to $39,999	0.07	0.08	0.00	0.07	Yes
$40,000 to $49,999	0.16	0.13	0.00	0.16	No
$50,000 to $59,999	0.14	0.08	0.01	0.13	No
$60,000 to $69,999	0.26	0.17	0.08	0.18	No
$70,000 to $79,999	0.19	0.15	0.11	0.08	Yes
$80,000 to $89,999	0.12	0.13	0.23	− 0.10	Yes
$90,000 to $99,999	0.07	0.06	0.28	− 0.21	No
$100,000 to $124,999	0.66	0.25	1.65	− 0.98	No
$125,000 to $149,999	0.65	0.28	1.52	− 0.88	No
$150,000 to $174,999	0.80	0.25	1.35	− 0.55	No
$175,000 to $199,999	1.11	0.33	1.51	− 0.40	No
$200,000 to $249,999	3.33	0.58	4.94	− 1.61	No
$250,000 to $299,999	5.54	0.91	6.97	− 1.43	No
$300,000 to $399,999	13.30	1.17	16.67	− 3.38	No
$400,000 to $499,999	11.88	1.04	14.05	− 2.17	No
$500,000 to $749,999	32.64	1.69	35.41	− 2.78	No
$750,000 to $999,999	18.45	1.25	8.74	9.70	No
$1,000,000 or more	9.96	0.92	5.20	4.76	No

ACS = American Community Survey. MOE = margin of error.
Sources: Arlington County real estate assessment data, 2009–2013; 2009–2013 ACS 5-year estimates, Table B25075

Exhibit 12

Distribution of Real Estate Taxes Paid: Comparison of ACS Estimates With Arlington County Data, 2009–2013

Real Estate Taxes Paid	ACS		Direct Estimate From Arlington County		
	Estimate (%)	90% MOE (%)	Estimate (%)	Difference (%)	Within 90% MOE?
No real estate taxes paid	381	363	655	– 274	Yes
Less than $800	1,076	775	53	1,023	No
$800 to $1,499	1,145	793	1,790	– 645	Yes
$1,500 to $1,999	1,912	1,113	1,777	135	Yes
$2,000 to $2,999	4,683	1,463	6,444	– 1,761	Yes
$3,000 or more	32,113	3,986	33,088	– 975	Yes

ACS = American Community Survey. MOE = margin of error.
Sources: Arlington County real estate assessment data, 2009–2013; 2009–2013 ACS 5-year estimates, Table B25102

The census tract fitness ratio distributions in exhibit 13 that use AC assessment data show larger counts of higher-priced housing units in the $200,000-to-$749,999 range and housing units that paid more than $2,000 in real estate taxes. Exhibit 14 presents the geographic detail for this pattern based on the fitness ratios for housing value between $500,000 and $749,999. The tracts where the AC assessment data estimates more units in this range (fitness ratios < -1) are mostly in North Arlington, an area with a high number of larger single-family homes. This misalignment could be the result of a high volume of renters in these homes, leading to ACS respondents who underestimate the value of their rental, though this result is unlikely. The two highest housing value categories did not follow these same trends and were also in price ranges where rentals may be less likely.

Similar to the AC assessment data, CL assessment data aligned with the ACS in areas where weighting does not affect final estimates: housing value and real estate taxes paid. Exhibit 15 shows the fitness ratios for these comparisons across census tracts. AC assessment data included an indicator on whether the property has an absent owner, which CoreLogic imputed using a proprietary algorithm. Such units were excluded in these calculations. The benefits of this absent-owner indicator are seen when comparing the housing value boxplots from exhibits 13 to 15. That is, a greater proportion of CL assessment data estimates fell within the range of fitness ratios < -1. This benefit was not observed in regards to the real estate taxes paid.

Exhibit 13

Fitness Ratios for Number of Housing Units for Housing Value and Real Estate Taxes Paid Across Census Tracts for Arlington County, 2009–2013
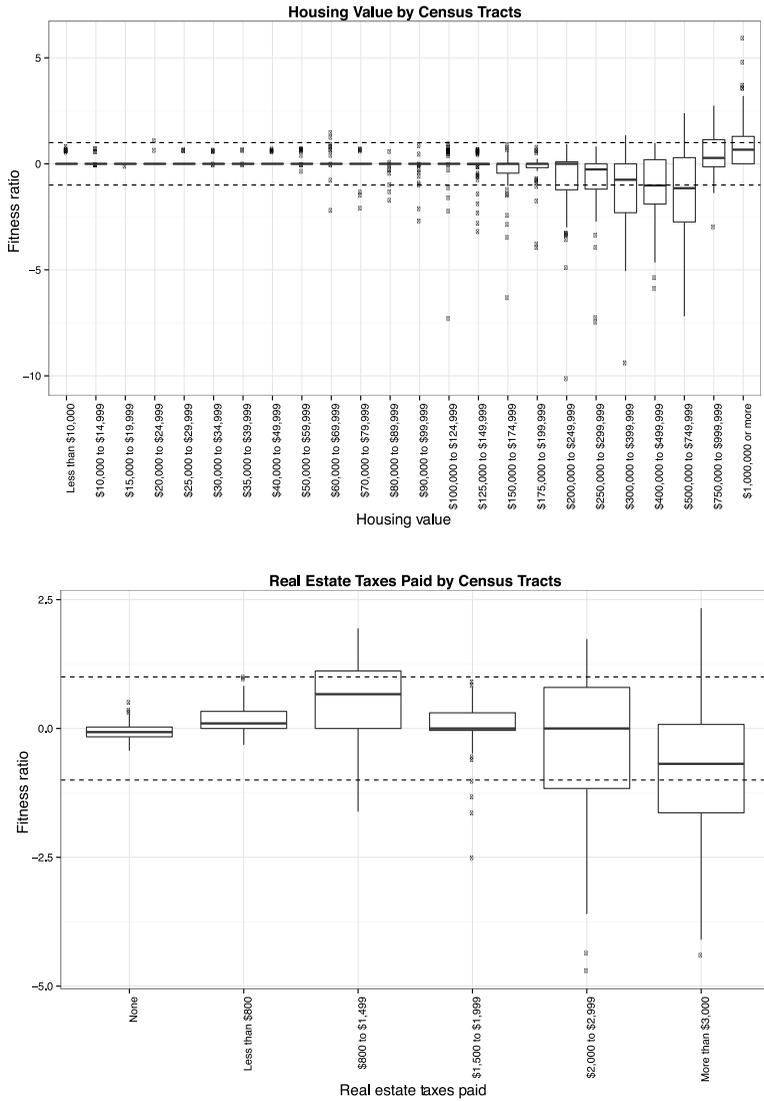
Notes: Boxplots display the distributions of the fitness ratios at the census tract level. Estimates falling outside the dashed reference lines of 1 were not within the ±90-percent American Community Survey (ACS) margins of error. For presentation purposes, three extreme lower outliers (-15.35 for $200,000 to $249,999, -32.19 for $100,000 to $124,999, and -35.12 for $150,000 to $174,999) were removed from the value boxplots and one extreme lower outlier (-14.98 for $800 to $1,499) was removed from the real estate taxes boxplot.
Sources: Arlington County real estate assessments 2009–2013; 2009–2013 ACS 5-year estimates

Exhibit 14

Fitness Ratios for Number of Housing Units Valued at $500,000 to $749,999 by Census Tracts for Arlington County, 2009–2013
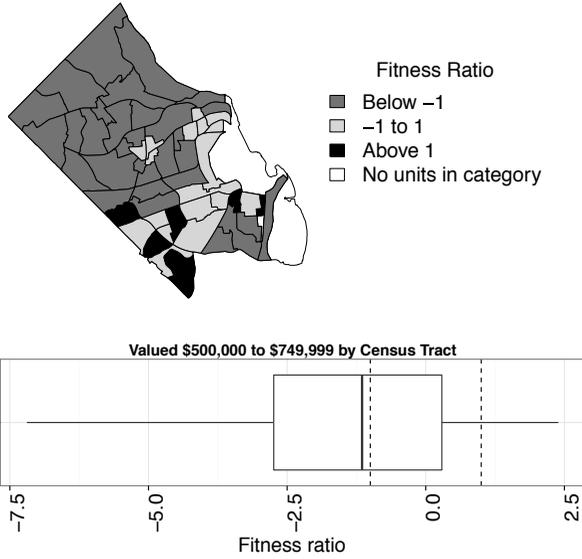
Notes: Boxplots compare the distribution of the fitness ratios for housing units valued between $500,000 to $749,999 and their relation to the ±90-percent American Community Survey (ACS) margins of error. Estimates falling outside the dashed reference lines or light gray color of 1 were not within the ±90-percent ACS margins of error.
Sources: Arlington County real estate assessments; 2009–2013 ACS 5-year estimates

Exhibit 15

Fitness Ratios for Number of Housing Units for Housing Value and Real Estate
Taxes Paid by Census Tracts Using CoreLogic for Arlington County, 2009–2013
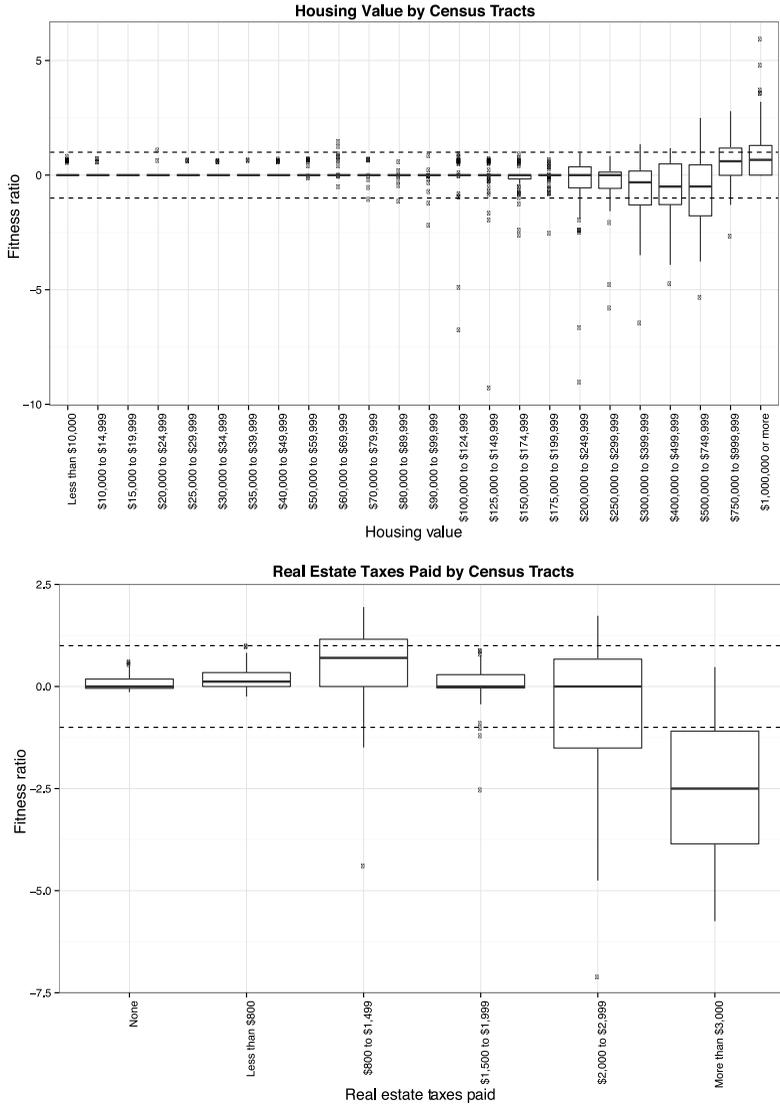
Notes: Boxplots display the distributions of the fitness ratios at the census tract level. Estimates falling outside the dashed
reference lines of 1 were not within the ±90-percent American Community Survey (ACS) margins of error.
Sources: CoreLogic, Inc., real estate assessments, 2009–2013; 2009–2013 ACS 5-year estimates

Limitations and Opportunities of Using Local Administrative Data

Some challenges in the use of real estate assessment data are associated with the characteristics of
administrative data. The time and effort it takes to acquire and prepare data can be substantial and

varies by jurisdiction and data source. Data aggregators like CoreLogic may help to standardize the data. Such data come with their own set of limitations, however, as detail can potentially be lost through the standardization process. Without knowledge of the intricacies of the real estate assessment data on which they are based, it can be difficult to understand these limitations, which must be evaluated based on how the data will be used. One particular technological advance that would assist federal statistical agencies in their use of data from aggregators is to implement automated longitudinal editing to identify and correct errors. Doing so requires multiple years of data and can be done by data aggregators or federal statistical agencies. Other methods include "borrowing strength" from nearby geographical areas to identify possible issues and even correct those errors through modeling. For example, it is unlikely for changes in house values in northwestern Arlington to be very different from house prices trajectories in neighboring parts of Fairfax County, Virginia. *Dasymetric mapping*, a method of mapping that uses areal symbols to spatially classify volumetric data, may further support our findings by improving alignment between real estate assessment data and ACS estimates of the total number of housing units and number of units (see Leyk et al., 2013).

Another approach to improving administrative data is to reconcile differences using other sources of housing data. For example, multiple listing service (MLS) data on real estate transactions is another source for many of these same data. MLS data include information on the physical characteristics of a house and the transaction at the time the house was sold on the open market. To the extent that these data are available to survey organizations, it might be possible to model such items as housing value using hedonic indexes. More research on accuracy of other potential external data sources and the feasibility of incorporating such data to enhance and supplement federal statistics is needed.[6]

In principle, both the AC and the CL assessment data can be linked to confidential, internal ACS data for Arlington to examine the relationship of respondent-reported values to the assessment data. For instance, the CL assessment data do not include zero-bedroom units, and zero-bedroom units in the AC assessment data seemingly include housing units with one or more bedrooms based on their value—in fact, the highest-value housing unit in Arlington is listed as having zero bedrooms. Examining how zero-bedroom units appear in both data sets can provide insight into how external real estate data can be edited to better capture these housing units. Although such an undertaking is beyond the scope of this article, it would need to be at a larger scale than one urban county so the results could be generalizable. Replication of the work described in this article, along with additional attempts to compare microdata from the ACS and perhaps the AHS with administrative assessment data, could be used to move further along the path to productive use of administrative data in the federal sphere. One possibility is for the Census Bureau to start with addresses known to be in the ACS and the AHS and acquire CoreLogic data for those addresses.[7]

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[6] See Keller et al. (2016) for an indepth inventory of housing data, additional comparisons of some of these other data sources, and an investigation of hedonic models using administrative data.

[7] To avoid revealing the addresses that appear in the survey, any request made to the vendor would have to include a large number of addresses not in the surveys, or the vendor's programmer would have to become a Special Sworn Status employee of the Census Bureau.

Conclusions

This article examined the potential of using local sources of administrative data to enhance, supplement, or replace federally collected survey data about housing units. We examined real estate assessment data for Arlington County, Virginia, obtained directly from the county and from a commercial data aggregator, and compared estimates derived from the assessment data at various geographic levels to corresponding estimates from the ACS. Our findings demonstrate that some real estate assessment data can be repurposed for statistical purposes. Three of the six real estate assessment data-based estimates examined—year built, house value, real estate taxes paid—align well with ACS estimates and may indeed be better. These data could potentially replace the corresponding questions in the survey. Real estate assessment data provide greater granularity, which opens the opportunity to conduct indepth research on local housing and neighborhood characteristics that is not possible with the ACS alone.

Whereas ACS housing estimates for small areas are available only as 5-year estimates, real estate assessment data are available annually at the parcel level, which means estimates can be produced each year at the block-group or even lower geographic levels. This level of detail opens up a wide range of possibilities for local government officials. They could use ACS data to benchmark their own administrative data-based estimates, and then use their own data for more frequent updates and for comparisons to nearby jurisdictions. One particular example is housing value. Using their own data, local government officials could track changes annually for geographic levels as small as a block, thereby providing an early peek at changes under way in the local housing market.

Appendix A. Data Quality Checks for Property Data

The steps outlined in this appendix constitute a guide for assessing the quality of property data. They are written in general terms; further steps might need to be taken depending on the jurisdiction/data source. Assessing quality of property data requires judgment and creativity. These steps are based on review of property data for 5 years from 2009 to 2013. Data for later or earlier years may have additional rules and hence require new checks.

I. **Unique identifier:** Each observation in the property data should come with a unique identifier. Ideally, this unique identifier will be a parcel number (ID), which will allow for quick linkage to other data sources.

   A. The parcel IDs should be unique for each year of data and specific county or political jurisdiction.

      i. If the parcel IDs are not unique, these parcels might be multi-dwelling properties, defined as separate housing units on the same parcel. Then one needs to ask whether the data flag or somehow indicate multi-dwelling properties?

   B. If the parcel IDs are formatted (for example, with dashes), they should be in a consistent format.

II. **Location:** Property data often come with geographic information.

   A. Geographic coordinates (latitudes and longitudes) allow for properties to be placed geo-spatially with high levels of granularity.

      i. One must know the coordinate reference systems, which define a specific map projection. Map projections allow for the representation of the globe on a two-dimensional surface. Without this information, it would be difficult to spatially join additional geographic information that might not be present in the current data (for example, census tracts).

   B. Another type of geographic information in property data includes census tract codes. Census tracts are identified by up to a four-digit integer code that may have an optional two-digit suffix. Additional prefixes may be attached to identify the state and county by Federal Information Property Standard (FIPS) code. Within a property data set, these census tract codes should be in the same format.

      i. If the census tract code is not consistent, there might be a pattern (for example, some might be tract codes and others block group codes; some might include the state FIPS code and others not).

      ii. These census tract codes should represent the appropriate jurisdiction (for example, Washington, D.C. properties should have Washington, D.C. tracts). One can confirm the jurisdictions by crosschecking with the Census Tract Reference Maps[8] for that jurisdiction or breaking down the ID to FIPS (state and county) codes.

   C. Property data might come with a corresponding shapefile that allows for the creation of maps and other data visualizations. It should be confirmed that the unique identifier for the shapefile is the parcel ID. If that is not the case, another way to merge property data onto the shapefile needs to be found beyond address as addresses often have different formats.

      i. Condominiums can be treated in different ways in a shapefile. Condominium complexes can be represented by one polygon or they can be represented through multiple stacking polygons (one for each condominium within the complex). Each implies a different type of join when merging property data to the shapefile: a one-to-one relationship or a one-to-many relationship.

III. **Housing type classification:** Land use codes classify the type of housing located on a parcel (for example, single-family detached). Depending on how housing type is classified in the data, it might be preferable to recode land use into broader categories (single-family not elsewhere classified [NEC], single-family detached, single-family attached, condominium, and apartment) to aid in the data preparation process. One should confirm that parcels have been properly classified and that parcels not of interest are flagged (for example, hotels). One way is to plot the distribution of total value by property type/land use code.

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[8] Census Tract Reference Maps can be found at: https://www.census.gov/geo/maps-data/maps/2010tract.html.

A. If the maximum value by property type is high, there might be an error in property type/classification (for example, If a condo is listed at $800 million, the property might be a condo complex or other multifamily building and not an individual condo). Checking other fields for these parcels might provide more evidence of misclassification.

B. Low values by property type (for example, a single-family unit listed as $2,000) are also of concern, as these parcels might be vacant land, common areas, multi-jurisdiction properties, or parking lots.

    i.   Vacant land might have no improvement value, as no building is on the property. Parking lots might not have a land value. These rules depend on rules in the jurisdiction. Removing such properties temporarily and reevaluating the value distributions might aid in deciding which need to be removed from the analysis.

    ii. If only the improvement value is low, it may indicate vacant land or a property under construction, especially if other data (for example, the number of bedrooms) are missing.

C. Some property data that include multiple jurisdictions may also include standardized land use codes as land use codes are created by each individual jurisdiction. Confirming consistency in classification can be done by creating a cross-tab of standardized land use codes to the original land use codes to check for consistency (for example, the standardized land use code for condominiums is used for properties listed as townhouses or lowrise apartments in the original land use code) or through selecting a random sample and checking the standardized land use code to the property type listed on an online property search tool (search by way of parcel number). This method can be done if the data are for small area studies and/or if county land use codes are known.

IV. **Individual housing characteristics:** Each variable of interest needs to be individually examined with respect to consistency, validity, completeness, and uniqueness. In doing so, it is important to subset by land use code. For ease, it might be preferable to recode land use into broader property type categories and subset by single-family NEC, single-family detached, single-family attached, condominium, and apartment. Although the distribution might be valid overall, there could be patterns further down that are problematic (for example, are all missing bedroom counts for properties classified as multifamily properties? Do condo buildings go up to only a certain number of stories?).

    A. *Variability:* Is there variability within each field in the data (for example, all properties listed as being owner occupied)? Is there variability by property type (for example, all condominiums listed as having paid $999 in property taxes)?

    B. *Range:* The minimum and maximum values in each field should make sense. Often, this characteristic is a judgment call as there is no universal rule (for example, what is the maximum possible bedroom count or lot size?). Subsetting by property type will help pinpoint potential errors (for example, a condominium valued at $1 billion might actually be a multifamily building).

C. *Missing data and zeros:* Missing data can represent true missing data or zeros if zeros are not transferred from the original data. One way to check is to subset by a different variable (for example, subsetting housing value by number of bedrooms, which might show housing values that are low and have NA for number of bedrooms may actually be studios/efficiencies).

D. *Definitions:* Depending on the research purpose, how a housing characteristic is defined will affect if the data capture the same housing characteristic of interest (for example, heating can mean heating type or heating fuel). The definition should be consistent both across jurisdictions and within the field (for example, data on heating having both baseboard and electric baseboard, which are not mutually exclusive).

E. *Multiple years of data:* If the data are for a longitudinal study, locating large unexplained changes within the same parcel across the years will aid in data preparation. Missing values can be assigned from a previous or later year. Is there a pattern of missing data across the years (for example, missing values of year built occurring when a new building is under construction and thus the year built is updated when completed)?

Appendix B. Assigning Geographic Coordinates

The Arlington County real estate assessment (AC assessment) data do not include geographic coordinates. To overcome this issue, we created a master address list that contains all the unique addresses in the AC assessment data on which geographic information can be attached. Creating geographic coordinates by a parcel's address ensures that a parcel has the same coordinates and thus census boundary information across years. Occasionally parcels change addresses across the years. For example, 191 parcels in the AC assessment data have at least one different address during the period from 2009 to 2013. These addresses are recoded to match the majority or most complete address. Although the CoreLogic, Inc., real estate assessment (CL assessment) data do include longitudinally consistent geographic coordinates, to ensure geographic consistency with the AC assessment data, we recoded the CL assessment data coordinates. For completeness, we added addresses in CL assessment data that are not in the AC assessment data to the master address list.

We then used this master address list to geocode the addresses using the Google Maps API based on address. Google Maps API is a service provided by Google, Inc., to convert an address into geographic coordinates that can then be plotted on a map (Google, 2015).[9] Using Google Maps API geographic coordinates from the integrated master address file, we placed the addresses within the appropriate census tract and block group. The three main types of geocoding outputs are rooftop, approximate, interpolated.

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[9] Access to the API to code large numbers of addresses can be obtained for a relatively low cost.

- *Rooftop* is the most accurate as it measures the exact location. The goal was to have all outputs be rooftop.

- *Approximate* is when Google Maps does not have either the specific address or a close match to the address, so it will output the centroid of the smallest known administrative area, for example, the center of Arlington County.

- *Interpolated* is when Google Maps does not have the specific street number but has close street numbers so it outputs the center between two points, for example, the ends of a street block.

To ensure that all addresses were appropriately placed within the county, we edited addresses to match the structure of Google Maps data (for example, with unit numbers removed and state information added). We then merged this master address list back into both the AC assessment data and CL assessment data by address with attached census tract and block group information. Due to inherent spatial errors that occur while geolocating (see Cayo and Talbot, 2003), 56 parcels that are on the border of Arlington had coordinates outside the county lines. Although off only by mere feet, the geocoded point is still technically outside the county polygon. The census tract and block group were manually edited for these data.

Acknowledgments

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New Public Data Available on USDA Rural Housing Service's Single-Family and Multifamily Programs

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Views and opinions expressed in this article are those of the authors and do not necessarily reflect the views and policies of the U.S. Department of Agriculture or the U.S. government.

Abstract

The Rural Housing Service (RHS) within the U.S. Department of Agriculture's Rural Development agency has released a comprehensive set of public data on its direct and guaranteed loans across its single-family and multifamily housing program areas. These data are available for free download via a periodic release on data.gov and available to the public to map along with select public demographic, social, and economic variables compiled and maintained by PolicyMap. This article briefly describes the RHS data available by program area, discusses the challenges and limitations inherent in the data, and recommends some potential uses for future research on U.S. rural housing.

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Introduction

The Bankhead-Jones Farm Tenant Act of 1937[1] first authorized the U.S. Department of Agriculture (USDA) to provide low-interest, long-term loans to farm workers for housing purposes. This authority was subsequently expanded by Title V of the Housing Act of 1949[2] and amended in the 1960s to include nonfarm single-family and multifamily properties. Originally called the Farmers Home Administration, USDA's Rural Housing Service (RHS) is responsible for implementing the Housing Act of 1949 in rural communities with the goal of providing safe, decent, sanitary housing for every American family.

RHS has two housing program areas: multifamily and single-family housing.[3] Each program provides direct loans financed and serviced by RHS and also guaranteed loans issued through private lenders, all of which serve low- and moderate-income households living in eligible rural communities.[4] Although the definition of rural has changed slightly over time, RHS housing programs today generally are restricted to communities of 35,000 people or less.[5] These programs provide access to credit in markets underserved by conventional private capital.

The multifamily housing program at USDA RHS offers direct loans to owners (Section 515 Rural Rental Housing and Section 514 Farm Labor Housing) and guaranteed loans made by approved lenders (Section 538) for the construction and preservation of rental properties. Many properties in the direct loan programs are older and in need of financial preservation—to extend use restrictions for affordable rental housing—and physical rehabilitation. Owners of such properties can apply for the Multifamily Preservation & Revitalization (MPR) Demonstration to defer existing debt, provide new loans to help properties maintain their affordability and quality, or both. Many residents living in Section 515 or 514 properties also receive Section 521 Rental Assistance to reduce their rent payments to no more than 30 percent of their adjusted household income.

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[1] Pub. L. 75-210, July 22, 1937.

[2] Pub. L. 81-171, July 15, 1949.

[3] USDA RHS also has a Community Facilities program area that provides loans, guarantees, and grants for essential community facilities and public infrastructure. That program area is not addressed in this article.

[4] The housing programs also include grant programs: multifamily housing grants for repair (Section 533) and farm labor housing projects (Section 516), and single-family home repair loans and grants to very low-income rural homeowners (Section 504). Data on these programs had not been released as of the writing of this article.

[5] As of this writing, the current definition of *rural* for RHS housing programs is contained in Section 520 of the Housing Act of 1949 as amended by the Agricultural Act of 2014 (Farm Bill): "Any open country, or any place, town, village, or city which is not part of or associated with an urban area and (1) has a population not is excess of 2,500 inhabitants, or (2) has a population is excess of 2,500 but not in excess of 10,000 if it is rural in character, or (3) has a population in excess of 10,000 but not in excess of 20,000, and (A) is not contained within a standard metropolitan statistical area, and (B) has a serious lack of mortgage credit for lower and moderate-income families, as determined by the Secretary and the Secretary of Housing and Urban Development. For purposes of this subchapter, any area classified as 'rural' or a 'rural area' prior to October 1, 1990, and determined not to be 'rural' or a 'rural area' as a result of data received from or after the 1990, 2000, or 2010 decennial census, and any area deemed to be a 'rural area' for purposes of this subchapter under any other provision of law at any time during the period beginning January 1, 2000, and ending December 31, 2010, shall continue to be so classified until the receipt of data from the decennial census in the year 2020, if such area has a population in excess of 10,000 but not in excess of 35,000, is rural in character, and has a serious lack of mortgage credit for lower and moderate-income families" (42 U.S.C. § 1490).

The RHS single-family program seeks to provide affordable homeownership opportunities to low- and moderate-income households that lack access to credit but seek to purchase modest homes in eligible rural communities. It provides direct mortgage loans to homebuyers (Section 502 Direct) and guaranteed loans made through qualified lenders (Section 502 Guaranteed). The Mutual Self-Help Housing program (Section 523) also funds technical assistance to groups of low-income families contributing sweat equity to help build one another's homes. These households are eligible for Section 502 Direct loans.

Before 2016, publicly available data on the RHS portfolio was limited to ineligible area maps, annual obligations, real estate owned and foreclosed properties, and a limited release, beginning in 2011, of multifamily Section 515 Rural Rental Housing project characteristics. The new release expands the multifamily data available and adds aggregated data on active single-family loans and borrowers for the first time. RHS expects to release the new data sets, which are posted on the USDA Rural Development Datasets webpage[6] and archived by data.gov, at least annually.

Multifamily Data

The newly released multifamily data cover all properties with at least one active loan in the RHS direct loan programs—Section 515 and Section 514—and guaranteed loan program—Section 538. Some MPR and Section 521 rental assistance data also are included in the direct loan program data.

The direct loan program data include three data sets that can be merged using a unique property identifier. The three data sets are (1) property characteristics, (2) property transaction history, and (3) tenant characteristics. For each property in the property characteristics data set, the data include latitude and longitude coordinates and property address; resident population type served by the development; date of operation and initial occupancy; ownership and management information, including profit type of owner and name of management agent; identifiers indicating RHS loan program (Section 515, Section 514 Off-Farm, or Section 514 On-Farm), federal Low-Income Housing Tax Credit status and expiration date, and RHS MPR Demonstration status; and unit information including total number of units, units authorized to receive Section 521 rental assistance, bedroom sizes, and vacancies. As of the first public data release in June 2016, the property characteristics data set included 14,480 properties with 434,317 units. Exhibit 1 highlights key data elements available by property and units.

The property transaction history data set for the direct loan programs shows the history of property transfers, consolidations, and sales within the USDA RHS property portfolio. These actions are the primary means through which properties can be preserved as affordable rental housing beyond their initial loan terms or as individual owners desire to exit the program. This data set includes all new property identification numbers and associated former property identification numbers, type of transaction, and effective dates to allow for the tracking and analysis of these transactions over time.

As of the first public data release in June 2016, 3,140 properties had been preserved through these transaction types.

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[6] https://www.sc.egov.usda.gov/data/data_files.html.

Exhibit 1

Summary of USDA Section 515 and Section 514 Direct Loan Property and Unit Characteristics, June 2016

Property or Unit Characteristic	Properties	Units
Totals	14,480	434,317
Program		
Section 515 Rural Rental Housing	13,877	417,511
Section 514 Off-Farm Farm Labor Housing	300	16,133
Section 514 On-Farm Farm Labor Housing	303	673
Project type		
Family	9,328	284,245
Elderly	4,798	137,465
Mixed	193	7,941
Other	162	4,666
Preservation		
USDA restrictive use provision expires January 2017 or later	7,437	238,816
USDA Multifamily Preservation & Revitalization Demonstration	718	24,746
USDA consolidated, transferred, or sold	3,140	NA
Low-Income Housing Tax Credit	6,005	196,605
Property characteristics		
Average date of operation	1987	NA
One-bedroom units	12,408	216,803
Two-bedroom units	11,311	182,173
Three-bedroom units	3,261	31173
Four-bedroom units	467	3228
Five-bedroom units	19	60
Handicapped-accessible units	7,290	17,481
Vacant units (as of April 2016)	8,985	27,077
Rental assistance		
Units authorized	12,177	283,307

NA = not applicable. USDA = U.S. Department of Agriculture.

The final direct loan program data set includes aggregated tenant characteristics by property. These characteristics include property address and aggregated demographic information including female-headed households, residents ages 62 or older, minors, disability status, race, and ethnicity. The data set also includes average annual income; average annual income by source of income; a cost-burden indicator for those paying more than 30 percent of their adjusted income for rent; a zero-income indicator; and rental assistance subsidy counts by type of assistance, including USDA Section 521, U.S. Department of Housing and Urban Development (HUD) Project-Based Section 8 program, and HUD Housing Choice Vouchers. As of June 2016, USDA Section 515 and 514 properties were home to 687,869 residents occupying 407,240 units. A summary of resident characteristics is presented in exhibit 2.

The guaranteed loan data set contains loan-level data on all active loans, including details on loan, property, and community characteristics. Loan characteristics, summarized in exhibit 3, include fiscal year obligation date, date of loan closing, lender name, borrower name (borrowers classified as individuals are redacted), loan amount, total development cost, loan-to-cost ratio of RHS loan, and a program indicator for the Low-Income Housing Tax Credit Program. Property characteristics include name; location via latitude and longitude coordinates and address; resident population type served by the development; construction type (new construction or rehab/repair); and unit information including total number of units, bedroom sizes, and average contract rent by bedroom size. Community characteristics include whether the property is in a colonia or tribal community

or designated by HUD as an Enterprise Zone or Enterprise Community, the population of the community at time of obligation, and the median household income of the community at time of obligation. In July 2016, 789 active loans to 736 properties were providing 36,595 affordable rental units. Property and unit characteristics as of July 2016 are summarized in exhibit 4.

Exhibit 2

Summary of USDA Section 515 and Section 514 Direct Loan Resident Characteristics, June 2016

Resident Characteristic	Value
Total households[a]	407,240
Total residents	687,869
Composition	
Female-headed households	285,338
Elderly (age 62 or older) residents	162,328
Disabled/handicapped residents	127,100
Children residents	203,059
Race/ethnicity[b]	
American Indian/Alaskan Native	4,791
Asian	17,279
Black/African-American	162,224
Hawaiian/Pacific Islander	4,640
White	533,445
Unspecified	2,671
Ethnicity—Hispanic	137,000
Income	
Residents receiving any rental assistance[c]	541,237
USDA Section 521	447,783
HUD Project-Based Section 8	51,317
HUD Housing Choice Voucher	33,530
Other public rental assistance/reduced rents	7,974
Other private rental assistance	633
Residents receiving no rental assistance	146,632
Median value of average household income	$12,976
Households with no income	2,517
Households paying more than 30% adjusted income for rent	46,621

HUD = U.S. Department of Housing and Urban Development. USDA = U.S. Department of Agriculture.
[a] This characteristic is the same as occupied units, which is calculated by subtracting vacant units from total units in exhibit 1.
[b] Due to errors in underlying data, counts of residents by race are overstated by approximately 37,000 individuals. Counts by race exceed resident counts in 8,636 properties and are fewer than resident counts in 661 properties. See the Challenges and Limitations section for further discussion on data quality issues.
[c] Residents receive only one type of rental assistance.

Exhibit 3

Summary of USDA Section 538 Guaranteed Loan Characteristics, July 2016

Loan Characteristic	Value
Number of active loans	789
Average loan closing date	April 2010
Average loan amount	$1,241,810
Average total development cost	$6,074,191
Median loan-to-cost ratio of guaranteed loan	0.2
Loans made with allocation of Low-Income Housing Tax Credits	751
Loans made within colonia/tribal area	15
Loans made within EZ/EC-designated area	18

EZ/EC = Enterprise Zone/Enterprise Community. USDA = U.S. Department of Agriculture.

Exhibit 4

Summary of USDA Section 538 Guaranteed Property and Unit Characteristics, July 2016

Property or Unit Characteristic	Properties	Units
Totals	**736**	**36,595**
Project type		
Family	465	24,080
Elderly	220	9,806
Mixed	23	1,292
Other	2	99
Low-Income Housing Tax Credit	703	34,724
Property characteristics		
Average number of units	NA	50
Construction type—new construction	413	20,959
Construction type—rehab/repair	298	14,408
Construction type—other	25	1,228
One-bedroom units	520	11,744
Two-bedroom units	632	15,409
Three-bedroom units	420	8,172
Four-bedroom units	100	1,262
Five-bedroom units	1	8
Average contract rent—one-bedroom	$472	NA
Average contract rent—two-bedroom	$526	NA
Average contract rent—three-bedroom	$574	NA
Average contract rent—four-bedroom	$594	NA
Average contract rent—five-bedroom	$875	NA
Community characteristics		
Average population at obligation	9,759	NA
Average median household income at obligation	$40,360	NA
Colonia/tribal area	12	613
EZ/EC-designated area	15	784

EZ/EC = Enterprise Zone/Enterprise Community. NA = not applicable. USDA = U.S. Department of Agriculture.

Due to data system limitations, no reliable administrative data crosswalk exists between Section 515/514 and Section 538 properties, although many Section 538 loans have been made to preserve older Section 515/514 properties. The property names and addresses contained in the separate databases for each program can be merged, however, to determine an approximate overlap and reveal additional information on properties and tenants in those Section 538 properties that are also part of the Section 515/514 portfolio.

Single-Family Data

The RHS single-family data release includes loan, borrower, and property characteristics for all active loans in the Section 502 Direct and Guaranteed loan portfolios, aggregated to the county and congressional district levels. The Section 502 Direct loan program data are available in four separate data sets covering loan and borrower characteristics by county and by congressional district. Active loan characteristics include the number of loans, average loan amount, average

loan amount by 5-year ranges, number of loans to Section 523 Mutual Self-Help Housing program participants, and number of leveraged loans that are supplemented by an affordable housing loan or grant from another funding source. Active borrower characteristics include the number of borrowers, income level, race, ethnicity, marital status, average number of children in household, and average household size. As of July 2016, 232,753 active Section 502 Direct loans had been made to 232,582 borrowers. A summary of loan and borrower characteristics is presented in exhibit 5.

The Section 502 Guaranteed loan program data released cover loan, borrower, and property characteristics for all active loans aggregated by county and congressional district. Loan characteristics include average requested loan amount, average loan amount, average loan-to-value ratio, and average appraised home value. Borrower characteristics released include average household income, average monthly total household debt-to-income ratio, race, ethnicity, marital status, average number of dependents, average household size, first-time homebuyer status, age, and disability status. Property characteristics include project type (planned unit development, condominium, or cooperative), housing structure (detached or attached), whether the property is a manufactured home, and living-area square footage. As of July 2016, 962,953 Section 502 Guaranteed loans were active. A summary of loan, borrower, and property characteristics is presented in exhibit 6.

Exhibit 5

Summary of USDA Section 502 Direct Loan and Borrower Characteristics, July 2016

Loan or Borrower Characteristic	Value
Loans	
Number of active loans	232,753
Median value of average loan amount by county	$69,210
Loans to Section 523 Mutual Self-Help Housing program participants	17,080
Leveraged loans	39,305
Borrowers	232,582
Borrowers by income group	
Very-low income	91,033
Low income	139,947
Borrowers by marital status—married	82,197
Borrowers by race/ethnicity	
American Indian/Alaskan Native	3,475
Asian	2,874
Black/African-American	48,081
Hawaiian/Pacific Islander	1,282
White	171,651
Ethnicity—Hispanic	38,180
Median value of average number of children by county	1.2
Median value of average household size by county	2.5

USDA = U.S. Department of Agriculture.

Exhibit 6

Summary of USDA Section 502 Guaranteed Loan, Borrower, and Property Characteristics, July 2016

Characteristic	Value
Loans	
Number of active loans	962,953
Median value of average loan amount by county	$104,085
Median value of average appraised value by county	$106,970
Median value of average loan-to-value ratio by county	0.98
Borrowers	
Borrowers by income group	
Very-low income	37,759
Low income	208,424
Moderate income	699,512
Median value of average borrower gross income by county	$49,578
Median value of average monthly total household debt-to-income ratio by county	0.35
First-time homebuyers	789,893
Borrowers by marital status—married	420,632
Median value of average borrower age by county	37
Borrowers with disabilities	5,480
Median value of average number of dependents by county	0.8
Median value of average household size by county	2.3
Borrowers by race/ethnicity	
American Indian/Alaskan Native	5,880
Asian	8,077
Black/African-American	52,276
Hawaiian/Pacific Islander	3,785
White	893,252
Ethnicity—Hispanic	85,969
Properties	
Median value of average living area (square feet) by county	1,445
Planned unit development	115,885
Condominiums	11,921
Cooperatives	316
Detached homes	876,137
Attached homes	36,149
Manufactured homes	370

USDA = U.S. Department of Agriculture.

Challenges and Limitations

The release of these data is a significant step forward in public access to USDA rural housing data, and it occurred despite a variety of procedural and substantive challenges. In this section, we detail some of these challenges to provide context for this initial release, and we describe areas for future investment and improvement in RHS capacity for data management and public release.

First, RHS does not have a research mandate and accompanying comprehensive research division or dedicated research staff. The agency therefore lacks inhouse experts who (1) understand all substantive program areas, (2) are familiar with the various systems for inputting and storing program data, and (3) can properly clean and reliably extract quality program data from these systems. Before this release, the process for extracting and releasing public data within USDA Rural Development was not widely documented or understood. As a result of this effort, during which

extra resources were available to strengthen inhouse expertise, this process has been expanded and more formally institutionalized to facilitate the standardized and regular release of multiple data sets.

Second, RHS data and data systems are challenging to navigate. Such old and diverse portfolios—in terms of types of borrowers, property types, and financial products and servicing requirements—mean multiple information technology systems that track varied types of data collected and input by multiple sources at different times in the loan process, from application through closing and servicing. To complicate matters, systems are structured to track and service individual loans and grants, not multiple loans and awards to the same borrower or property. Significant effort is therefore required to avoid duplicate reporting when loan-level data are aggregated. It also means that less attention is paid to the quality of data not directly needed to monitor RHS's statutory and financial obligations.

Third, the presence of personally identifiable information related to individual borrowers and tenants provides a further obstacle for data extraction and aggregation. The government has an obligation to protect individual-level data—a particular challenge in small rural communities where individuals are more likely to be identified by their personal characteristics. For example, loan-level data similar to Home Mortgage Disclosure Act data may be useful for research on the RHS Section 502 Direct and Guaranteed loan portfolios, but the possibility for individual identification makes such data difficult, if not impossible, to provide.

Finally, internal divisions within the USDA Rural Development agency between the information technology, accounting, and servicing divisions and the program staff in national and field offices complicate data quality, management, and utilization. When taken together with the lack of research staff, complex data systems, and presence of extensive personally identifiable information, these divisions cause RHS continuing challenges in data management and public release. One result of these challenges is the lack of data cleaning before the first public release of the data sets described in this article, with some desired data elements omitted from the release due to concerns about error. Additional investment in this area could improve future data releases.

Uses for New Data

The release of these data sets on USDA housing investments across rural America provides new opportunities to assess the impact of federal investments on expanding opportunities for affordable homeownership and rental housing. These data can be used for a variety of planning, policymaking, and evaluation purposes. A variety of recent and current planning efforts can immediately tap into these new data to provide a more comprehensive analysis of housing needs and futures for rural communities. A partnership with PolicyMap allows for data to be freely mapped along with a variety of additional data points and layers highlighting community assets and needs.[7] This mapping improves public access and the usefulness of the data for community-driven analysis. For example, RHS data can bolster analyses of public investments and resources in housing, particularly for plans that cover rural communities, such as HUD's required Assessment of Fair Housing

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[7] Data can be freely viewed via PolicyMap under the Housing category at https://www.policymap.com/maps.

plans.[8] Other regional planning activities, such as USDA Rural Development's Stronger Economies Together[9] and HUD's Sustainable Communities Initiative,[10] also include an assessment of housing opportunities and challenges that can be improved through the use of new RHS data. Rural and Tribal Promise Zones[11] can also make use of the new data in identifying housing investments and needs in their communities.

For the first time, USDA housing data are available for evidence-based research on rural housing. These data can be combined with other data on housing markets and consumers to pose critical questions about the past, present, and future of federal rural housing policy. Researchers can pursue answers to general questions about USDA's overall effect on rural housing markets and to program-specific questions such as how to improve access to single-family mortgage credit for certain populations and geographies, and where and how to preserve existing and produce new affordable rental housing. This increased research attention and evidence on rural housing can help improve the effectiveness of rural housing policies and programs and increase federal responsiveness to rural community needs.

Acknowledgments

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David Lipsetz, at the time of writing this article, was the Associate Administrator of the Rural Housing Service in the Rural Development agency of the U.S. Department of Agriculture.

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[8] Details on HUD's new Assessment of Fair Housing tool are available at huduser.gov/portal/affht_pt.html.

[9] Overviews of USDA Rural Development's Stronger Economies Together program are available at http://www.rd.usda.gov/about-rd/initiatives/stronger-economies-together and http://srdc.msstate.edu/set/home.

[10] A program description and details on HUD's Sustainable Communities Initiative are available at https://www.hudexchange.info/programs/sci/.

[11] A program description and details on rural Enterprise Zones—jointly coordinated by HUD and USDA Rural Development—are available at https://www.hudexchange.info/programs/promise-zones/.

Geographic Information Systems (GIS) organize and clarify the patterns of human activities on the Earth's surface and their interaction with each other. GIS data, in the form of maps, can quickly and powerfully convey relationships to policymakers and the public. This department of Cityscape *includes maps that convey important housing or community development policy issues or solutions. If you have made such a map and are willing to share it in a future issue of* Cityscape*, please contact john.c.huggins@hud.gov.*

Housing Tenure and Affordability Relative to Communities of Opportunity in the Cincinnati Metropolitan Area

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Opinions expressed in this article are those of the author and do not necessarily reflect the views and policies of the U.S. Department of Housing and Urban Development or the U.S. government.

The primary purpose of the Comprehensive Housing Affordability Strategy (CHAS) data is to demonstrate the number of households in need of housing assistance. This number is estimated by examining the number of households that have certain housing problems and have incomes low enough to qualify for U.S. Department of Housing and Urban Development (HUD) programs (primarily 30, 50, and 80 percent of HUD Area Median Family Income (HAMFI). It is also important to consider the prevalence of housing problems among different types of households such as elderly, disabled, and minority households, among others. CHAS data provide counts of the numbers of households that fit these HUD-specified characteristics in HUD-specified geographic areas. In addition to estimating low-income housing needs, CHAS data contribute to a more comprehensive market analysis by documenting issues like lead paint risks, affordability mismatch, and the interaction of affordability with variables like age of homes, number of bedrooms, and building type.

In exhibit 1, CHAS data are used to supply a dot-density illustration of affordable market-rate rental units.[1] The dot-density representation of housing units is further juxtaposed with neighborhood

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[1] *Affordable market-rate rental units* are defined as for rent, with gross rent affordable to a household with income equal to 30 percent of HAMFI, and vacant (available) or occupied by a household with income less than or equal to 30 percent HAMFI.

opportunity scores represented by the HUD School Proficiency Index.[2] The comparison of the two data sets clearly illustrates high concentrations of affordable housing within low-scoring areas of the Cincinnati, Ohio metropolitan urban core. However, the map also indicates light availability of affordable housing within the higher-scoring suburban areas surrounding the city, albeit where transportation options may be sparse.

Exhibit 1

Cincinnati Metropolitan Area Housing Tenure and Affordability Relative to Communities of Opportunity
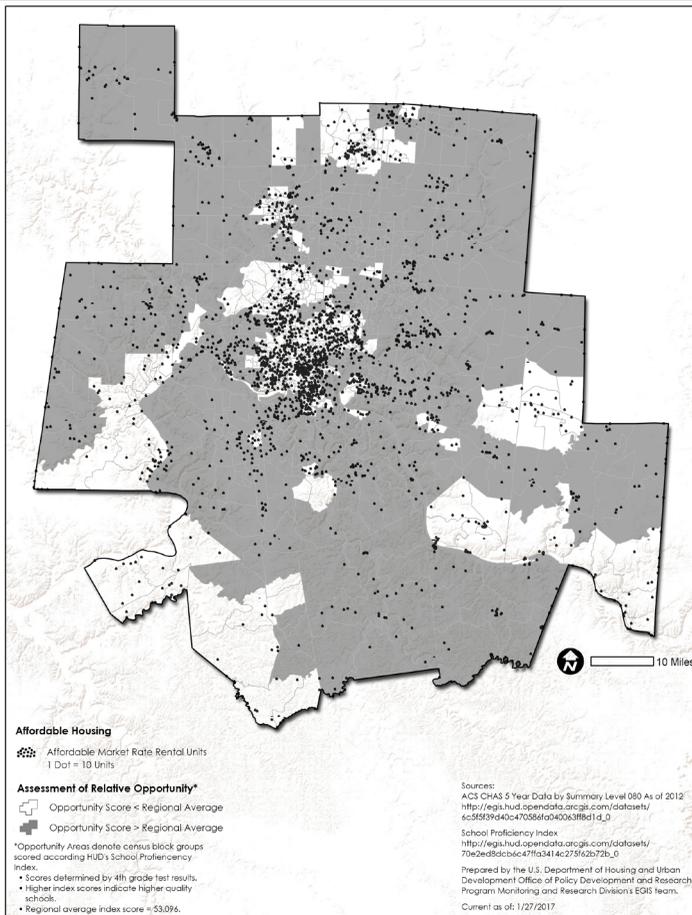
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[2] *School proficiency* for the area of interest is defined by reading and math proficiency of fourth-graders in neighborhood schools, as reported by the state of Ohio.

Affordable Design

The U.S. Department of Housing and Urban Development sponsors or cosponsors three annual competitions for innovation in affordable design. This Cityscape *department reports on the competitions and their winners. Each competition seeks to identify and develop new, forward-looking planning and design solutions for expanding or preserving affordable housing. Professional jurors determine the outcome of these competitions.*

2016 AIA/HUD Secretary's Housing and Urban Development Design Awards

Rachelle L. Levitt, compiler
Director, Research Utilization Division, HUD Office of Policy Development and Research

Regina Gray, compiler
Social science analyst, HUD Affordable Housing Research and Technology Division

Excellence in Affordable Housing Design Award
David Baker Architects: Lakeside Senior Apartments, Oakland, California

Community-Informed Design Award
Collaboration of builders and architects: Texas Disaster Recovery—Round 2, Houston, Texas

Alan J. Rothman Housing Accessibility Award
FabCab: Port Townsend Residence, Port Townsend, Washington

Creating Community Connection Award
Private-public-nonprofit partnership: Dorchester Art-Housing Collaborative, Chicago, Illinois

The Jury
Jamie Blosser, American Institute of Architects (Chair), Atkin Olshin Schade Architects, Santa Fe, New Mexico; Ariella Cohen, Editor-in-Chief, *Next City*, Philadelphia, Pennsylvania; Kevin Harris, Fellow, American Institute of Architects (FAIA), Kevin Harris Architect, LLC, Baton Rouge, Louisiana; Rachelle L. Levitt, Director, Research Utilization Division, U.S. Department of Housing and Urban Development, Washington, D.C.; David Lee, FAIA, Stull and Lee, Inc., Roxbury Crossing, Massachusetts; Lynn M. Ross, Deputy Assistant Secretary, Policy Development, U.S. Department of Housing and Urban Development, Washington, D.C.; Suman Sorg, FAIA, Sorg & Associates, P.S., Washington, D.C.

Opinions expressed in this article are those of the author and do not necessarily reflect the views and policies of the U.S. Department of Housing and Urban Development or the U.S. government.

Introduction

Since 1999, the U.S. Department of Housing and Urban Development (HUD) has partnered with the American Institute of Architects (AIA) Housing and Custom Residential Community Knowledge Community to sponsor four awards that promote innovative approaches to affordable housing design, community-based housing development, participatory planning and design, and accessibility. This year's recipients were recognized for their efforts to encourage durable housing design without sacrificing affordability. Each award recipient made a valuable contribution to the knowledge and understanding of how and why design matters and responded to the needs of a thriving community and also to the families who live in them.

The **Excellence in Affordable Housing Design Award** is given to a project that offers a set-aside of at least 20 percent of its units for low-income residents or families. The project team must go beyond HUD and other federal requirements under existing programs, such as the Low-Income Housing Tax Credit or Choice Neighborhoods, to expand affordable housing options, demonstrate adherence to established design guidelines, and integrate new and innovative approaches to housing design and development. This year's award recipient was David Baker Architects. The project, Lakeside Senior Apartments, in Oakland, California, was recognized for the unique attention paid to energy-efficient building materials and design technologies.

The **Community-Informed Design Award** was given to a collaboration of builders and architects in Houston, Texas. The jury acknowledged the Texas Disaster Recovery—Round 2 for its disaster neighborhood revitalization efforts that focus less on housing and more on the integration of many different building types and uses to transform a community. The award emphasizes the importance of participatory design throughout all stages of the planning and development process—empowering residents to be active in the decisionmaking process and encouraging private-public partnerships in the reinvestment of transitioning communities.

The **Alan J. Rothman Award** is awarded to development projects that demonstrate a commitment to accessible housing for people living with disabilities. The design must be visionary and far reaching—responding to the needs of a community with a range of physical impairments and going beyond standard federal requirements under the Americans with Disabilities Act (ADA) and the Fair Housing Act. The Port Townsend Residence features new technologies that incorporate universal design principles that allow for easy wheelchair passage and also adjustable amenities that are physically attractive and accommodate all levels of activity and mobility. Located in Port Townsend, Washington, the development boasts a community garden, a resident center, and expanded recreational space that appeal to all residents in the neighborhood. FabCab received the award for the Port Townsend house.

Special Focus: Creating Community Connection Award

The final award category is for **Creating Community Connection**. The Dorchester Art-Housing Collaborative (DA + HC) is an art-centered residential community of 32 two-story townhouses in

the Greater Grand Crossing neighborhood in Chicago's South Side. A formerly abandoned public housing development, the rehabilitated project was the creation of a partnership among a local artist, a development company, an architect, and the Chicago Housing Authority (CHA). Initiated and led by local conceptual artist Theaster Gates, the partnership demonstrates both the possibility and pragmatism of rehabilitating neighborhoods through arts programming. The chairman of the AIA jury, Jamie Blosser, Director of the Atkin Olshin Schade Architects Santa Fe, New Mexico office noted: "This project does a remarkable job of transforming what was very generic public housing into handsome structures with landscaping. The key is the community art building, which ties it all together. This is part of something very large and momentous happening in Chicago right now, and is empowering an entire community."

The Arts Center was constructed in a central location where four of the original townhomes once stood and spans 2,200 square feet. It is the heart of DA + HC. The center features a spring-loaded dance floor, a specially padded acoustic ceiling, and a workshop area where residents, artists, and community members gather to perform, share ideas, troubleshoot projects, and use a variety of available design tools. Resident artists and other local artisans regularly offer workshops on videography, painting, ceramics, and other media. The Rebuild Foundation schedules events and spaces, which include yoga and mindfulness classes, summer workshops for children, and live performances.[1]

The development team indicated a number of significant challenges.[2]

1. The existing buildings were poorly built and long abandoned. The original construction, especially of the masonry walls, was of poor detailing and required many of the walls to be rebuilt and shored up. For example, the brick abutted at the angled walls rather than weaving together, which, over time, caused them to split apart. In addition, some of the buildings had sustained extensive fire and water damage. In one instance, a broken water main had washed away the ground beneath four of the townhomes and the units' concrete foundations were essentially floating in the air. In addition to having most of the units and masonry walls rebuilt, frame walls were added as necessary and details and features were modernized throughout.

2. Accessibility was a challenge in adapting two-story townhomes that sit 15 to 18 feet above grade. First, the site is now entirely ADA accessible with the introduction of ramps as needed. To create accessible units, four townhomes were turned on their side—combining the first floors of several units at grade and then stacking nonaccessible units above them.

3. Safety and security were of high importance and required the rethinking of open, communal spaces in a distressed neighborhood because no real barriers exist between the site and the street, and the minimal fencing (at the back and near parking) is open and creates a mental barrier more than a physical one. Communal spaces were made highly visible, to highlight community activity and street presence—using openness and participation to combat gang activity that once plagued the site.

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[1] https://rebuild-foundation.org/events/.

[2] The list of challenges is from an interview with Landon Bone Baker Architects, Chicago, Illinois.

Making It Work

DA + HC is not the first housing development in the country that features art or artists, but it is the first mixed-income public housing redevelopment with an arts center and a preference for artist-residents. This unique approach has proven to be a sustainable model for art-centered, mixed-income housing. The artists assist in the programming of the Arts Center, with the intent of fostering dialogue and collaboration between both groups.

Funding for the development of DA + HC included low-income housing tax credits. The other major funding source was CHA's HOPE VI Program (Housing Opportunities for People Everywhere).[3]

What Others Can Learn From the Project

DA + HC is an outward-facing development that provides a public resource and an amenity. Envisioned as a place open and available to all, the Arts Center's glass walls create visibility to the center's events and inclusive, all-ages programming. In turn, foot traffic and public safety have improved, with more active engagement within the community and on the streets. Although the program is small in size, the introduction of arts programming allows the 32-unit, mixed-income housing project to play a larger role in the investment and revitalization of the South Side neighborhood. DA + HC is a testament to the power of shared space, the value in collaboration and partnerships, and the importance of a participatory development model to create innovative and enduring projects.

The landscape and site design connect DA + HC to the surrounding neighborhood and strengthen its function as a community hub. Children are offered creative and nature play opportunities—stone outcroppings; lush native plantings; and hard(er)-scape materials like concrete, gravel, and mulch that are less prescribed than typical playgrounds. The site is fully accessible with minimal fencing, and each resident has private outdoor space that melds with larger courtyards in the back and with the sidewalk and front street.

The Arts Center has become a community asset and cultural hub. It is used by residents and neighbors of all ages for yoga, classes, performances, discussion groups, exhibits, and more and by local institutions, such as the Hyde Park School of Dance and the South Shore Fine Arts Academy, to serve South Side children and youth. The introduction of arts to revitalize a community and the introduction of the new Arts Center as a community asset both are innovative features, especially within an affordable housing development.

Especially innovative was how the project flipped traditional development on its head. Rather than being initiated by a developer, the community nonprofit had a vision for the project, sought out an architect to articulate the vision, and partnered with an affordable housing developer and the CHA to bring the vision to fruition. The project embodies a successful collaboration between private, public, and nonprofit sectors committed to transforming the Chicago neighborhood into an arts incubator.

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[3] https://portal.hud.gov/hudportal/HUD?src=/program_offices/public_indian_housing/programs/ph/hope6.

The project weaves in the existing fabric of neighborhoods—with a large majority of CHA public housing now demolished, DA + HC is important in that it saved not only a building but also part of the neighborhood and the city's history and story. Dante Harper Homes' size and construction allowed the buildings to be part of the neighborhood again—a rare opportunity and typology in Chicago's public housing past.[4]

Acknowledgments

The compilers thank Landon Bone Baker Architects.

Postscript

To learn more about the HUD/AIA award recipients, visit https://www.huduser.gov/portal/about/secaward.html and http://www.aia.org/practicing/awards/2016/hud-awards/.

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[4] From an interview with Landon Bone Baker Architects, Chicago, Illinois.

What Have We Learned About the Causes of Recent Gentrification?

Jackelyn Hwang
Jeffrey Lin

Correction

The volume 18, number 3 issue of *Cityscape* contained errors in exhibit 2 and on pages 12 and 14 in the article titled, "What Have We Learned About the Causes of Recent Gentrification?" by Jackelyn Hwang and Jeffrey Lin.

The article stated that, "In 1970, only 1.1 percent of downtown tracts in big cities had experienced such large increases in SES since 1960. By 2010, that share had increased to 7.7 percent. […] In 1970, only one in four large cities and virtually no small cities had at least one gentrifying downtown neighborhood by this measure. By 2010, more than one-half of all large cities and 15 percent of smaller metropolitan areas had seen such changes."

The sentences should have read, "In 1970, only 1.9 percent of downtown tracts in big cities had experienced such large increases in SES since 1960. By 2010, that share had increased to 13.2 percent. […] In 1970, 11 of 26 large cities and virtually no small cities had at least one gentrifying downtown neighborhood by this measure. By 2010, 23 of 26 large cities and 15 percent of smaller metropolitan areas had seen such changes."

The corrected exhibit 2 appears on the next page.

The authors thank Devin Bunten for bringing these errors to our attention.

Exhibit 2

Gentrification Has Spread to More Neighborhoods and Metropolitan Areas Since 1960

Panel A. Downtown Tracts
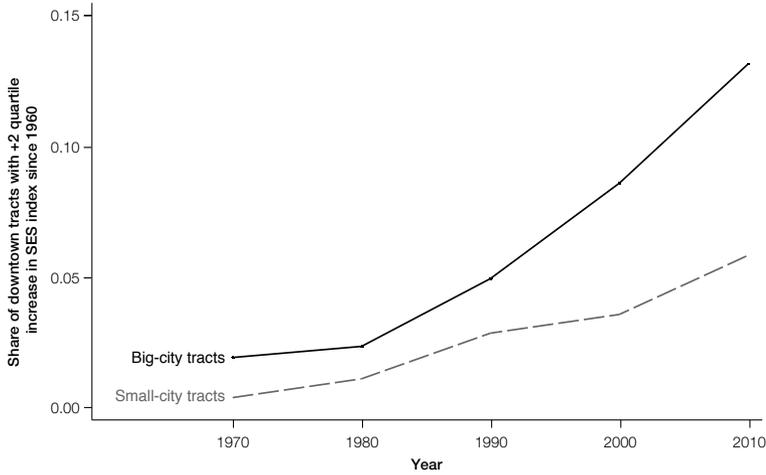
Panel B. Metropolitan Areas
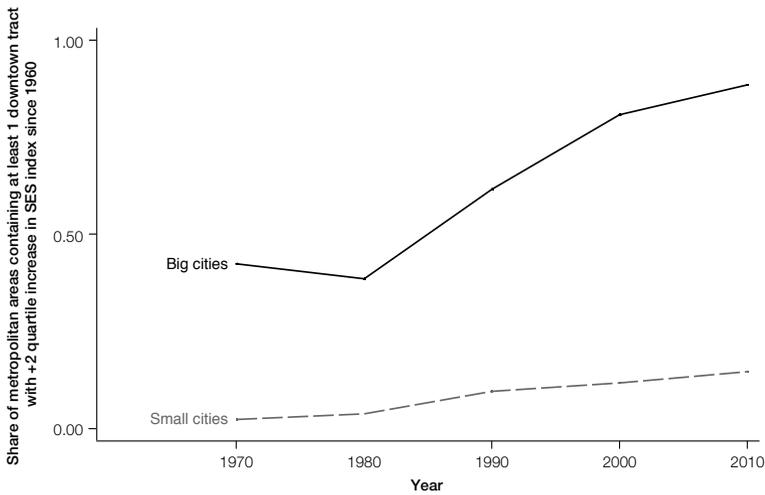
SES = socioeconomic status.
Notes: Downtown tracts are consistent-boundary census tracts closest to the city center comprising 10 percent of the Core Based Statistical Area population in 1960. Big cities (solid lines) are 26 metropolitan areas with populations of at least 1 million in 1960. Panel A shows the share of downtown tracts. Panel B shows the share of metropolitan areas.
Source: Authors' calculations using census data

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