



IN THIS ISSUE

Philadelphia lost over 23,000 low-cost rental housing units (gross rent of \$750 or less) between 2000 and 2014.

Gentrifying neighborhoods lost low-cost units at nearly five times the rate of nongentrifying neighborhoods.

There are over 2,300 federally subsidized rental units in gentrifying neighborhoods with affordability requirements that will expire in the next five years.

Of these expiring units in gentrifying neighborhoods, over 1,000 are owned by for-profit entities.

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Gentrification and Changes in the Stock of Low-Cost Rental Housing in Philadelphia, 2000 to 2014

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ABSTRACT

Philadelphia has experienced increased rental housing affordability challenges in recent years, especially in neighborhoods that have undergone gentrification. This report explores one aspect of gentrification's impact on housing costs by examining its association with changes in Philadelphia's stock of units that rent for less than \$750 per month. Using tract-level U.S. Census Bureau data, this report finds that, between 2000 and 2014, the city lost one out of five units with rents that fell below this cost threshold. These losses were

especially acute in gentrifying neighborhoods, as these neighborhoods lost low-cost units at nearly five times the rate of nongentrifying neighborhoods. These losses were mitigated by the city's stock of federally subsidized affordable housing, but 20 percent of these subsidized units will see their affordability restriction periods expire within the next five years. Of particular concern are the 23 federally subsidized properties — comprising 1,099 units — that are located in gentrifying neighborhoods and owned by for-profit entities. These properties may be at higher risk of converting to market rate and subsequently becoming unaffordable for lower-income renters. These findings confirm that gentrification has been associated with especially acute losses of low-cost rental housing in Philadelphia. The preservation of federally subsidized units would help stem the city's loss of housing that is affordable to lower-income residents and would give these residents greater access to improving neighborhoods that may otherwise be financially unattainable.

INTRODUCTION

The demand for rental housing in Philadelphia¹ grew substantially between 2000 and 2014, with the total number of renter households in the city increasing by 15.3 percent.² While housing costs in Philadelphia have remained low relative to other large northeastern cities, lower-income renters have still faced shrinking affordable rental housing options. The number of affordable rental units available for every 100 lower-income renter households fell from 82 to 68 between 2005 and 2014. For the lowest-income renters, there were just 33 affordable and available units per 100 renter households in 2014.³ This growing deficit of affordable rental housing has resulted in higher cost burdens. More than one-third of all Philadelphia renter households were classified as severely cost burdened in 2014, meaning they spent at

least 50 percent of their income on rent and utilities. Among renters in the city's lowest-income quartile, 77.4 percent were classified as severely cost burdened.⁴

This report examines one important measure of Philadelphia's rental affordability challenges: the change in the city's stock of low-cost rental units, defined as units for which gross rent is less than \$750 per month in 2014 dollars.⁵ Although such low-cost units may be in distressed neighborhoods and in poor physical condition, or may not provide an adequate amount of space for residents, they often represent the only financially attainable source of housing for many lower-income residents. Thus, the total number of low-cost rental units in Philadelphia captures one important dimension of the city's overall affordability of housing for lower-income residents.

Overall, Philadelphia lost a total of 23,628 low-cost rental units (20 percent of the initial stock) between 2000 and 2014.⁶ These losses were more concentrated in neighborhoods near the city center and in neighborhoods that experienced gentrification. Gentrification occurs when an initially low-income central city neighborhood experiences an influx of new residents of a higher socioeconomic status than the incumbent residents. The increased demand for housing from more economically advantaged in-movers leads to higher housing prices, which increase housing cost pressures on existing vulnerable residents and make the neighborhood less accessible to lower-income in-movers.⁷

In addition to looking at the stock of low-cost rental units, this report also profiles the city's stock of federally subsidized rental housing, which constitutes a signif-

¹ Throughout this report, Philadelphia refers to the city of Philadelphia, rather than the metro area.

² Author's calculations based on U.S. Census Bureau 2000 Census SF3 Table H007 and 2014 American Community Survey (ACS) one-year estimates Table B25003.

³ Federal Reserve Bank of Philadelphia, Rental Housing Affordability data tool (date accessed: 11/30/2016), based on the U.S. Census Bureau's American Community Survey (ACS) Public Use Microdata Sample (PUMS); available at www.philadelphiafed.org/rentalhousing.

⁴ Ingrid Gould Ellen and Brian Karfunkel, "Renting in America's Largest Metropolitan Areas," New York University Furman Center/Capital One National Rental Housing Landscape, March 2016; available at http://wagner.nyu.edu/files/faculty/publications/NYU_Furman_Center_2016_Renting_in_Americas_Largest_Metropolitan_Areas.pdf.

⁵ This report uses the U.S. Census Bureau's definition of *gross rent*, which equals contract rent plus the estimated average monthly cost of utilities and fuels. Rent levels were adjusted for inflation. All monetary amounts in this report are in constant 2014 dollars. See the Appendix for details on inflation adjustment and how renter costs are reflected in census/ACS data.

⁶ Throughout the rental cost analysis in this report, the year 2014 refers to the period 2010–2014, from which the 2014 ACS five-year estimates are derived.

⁷ Lei Ding, Jackelyn Hwang, and Eileen Divringi, "Gentrification and Residential Mobility in Philadelphia," *Regional Science and Urban Economics*, 61 (2016), pp. 38–51.

icant component of the overall low-cost rental stock, particularly in neighborhoods with stronger housing markets. The report finds that 20 percent of the city's 37,369 subsidized rental units are due to expire within the next five years. Of these expiring units, 14 percent are located in gentrifying neighborhoods and owned by for-profit entities. These upcoming expirations may result in the loss of an important tool for maintaining economic diversity in rapidly redeveloping neighborhoods.

CHANGE IN STOCK OF LOW-COST RENTAL UNITS

Philadelphia increased its total stock of rental housing between 2000 and 2014, yet experienced a significant loss of low-cost rental units, defined as units with gross rents of less than \$750 per month in 2014 dollars. A gross rent of \$750 per month is affordable to households with incomes of at least \$30,000 per year, based on the 30-percent-of-income affordability standard used by the U.S. Department of Housing and Urban Development (HUD). This is notably close to the median household income of Philadelphia renters (\$28,726 in 2014),⁸ suggesting that \$750 is a plausible threshold for affordable rent for the typical Philadelphia renter household.⁹

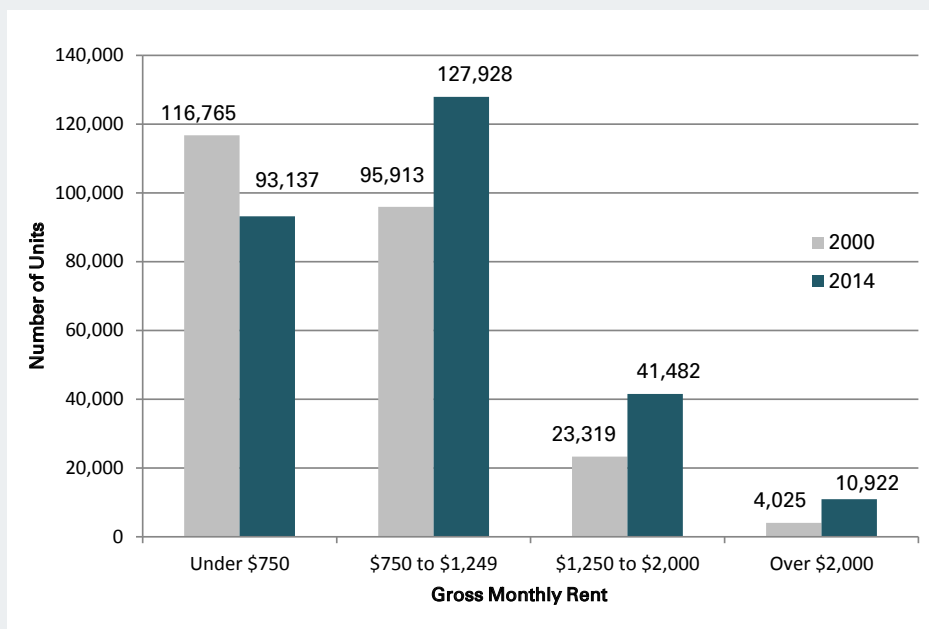
The city's overall growth in rental units between 2000 and 2014 was not distributed evenly across the cost

⁸ 2014 ACS one-year estimates Table B25119. See the Appendix for more details on how renter costs are reflected in census/ACS data.

⁹ This threshold for low-cost rental units is also used in a similar analysis in Dan Immergluck, Ann Carpenter, and Abram Lueders, "Declines in Low-Cost Rented Housing Units in Eight Large Southeastern Cities," Community and Economic Development Discussion Paper, Federal Reserve Bank of Atlanta, May 2016; available at www.frbatlanta.org/-/media/Documents/community-development/publications/discussion-papers/2016/03-housing-declines-in-low-cost-rented-housing-units-in-eight-large-southeastern-cities-2016-05-10.pdf.

FIGURE 1

Changes in Number of Rental Units in Philadelphia by Cost Level, 2000 to 2014



Source: Census 2000 and 2014 ACS five-year estimates.

Note: All changes are significant at the 0.1 level. See the Appendix for details on the significance tests used in this report. Five-year ACS estimates are used in this figure in order to be consistent with the estimates at the census tract level presented in the text.

spectrum. Figure 1 displays the change in the number of units rented at four different cost levels over this time period. The number of units with gross rent under \$750 declined by 23,628. Yet the stock of units increased for all cost categories above \$750. The \$750 to \$1,249 cost category contained the most units in 2014, with the city-wide median gross rent of \$936 falling within this cost range.¹⁰ Units with gross rent over \$2,000 had the largest percentage change in stock, increasing by 191 percent over the study period.

Examining these changes at the census tract¹¹ level reveals that the net loss of low-cost rental housing was not spread equally throughout Philadelphia. Table 1 shows that 101 census tracts experienced a statistically

¹⁰ The 2014 median rent comes from 2014 ACS one-year estimates Table B25064.

¹¹ To maintain comparable geographies over time, year 2000 census tracts that were split in the year 2010 boundaries were recombined and analyzed as a tract group. For the purposes of this analysis, these tract groups are treated as a single tract.

TABLE 1

Changes at the Census Tract Level in Low-Cost Rental Units by Level of Change, 2000 to 2014

Level of change in low-cost rental units	Number of tracts*	Number of low-cost units (gross rent less than \$750/month)		Change in low-cost units, 2000 to 2014	
		2000	2014	Number	Percent
Gain of 1 to 375 units	10	3,215	5,141	1,926	59.9
No statistically significant change	234	68,304	64,828	-3,476	-5.1
Loss of 1 to 99 units	12	1,678	678	-1,000	-59.6
Loss of 100 to 499 units	73	37,228	20,138	-17,090	-45.9
Loss of 500 to 882 units	6	6,340	2,352	-3,988	-62.9

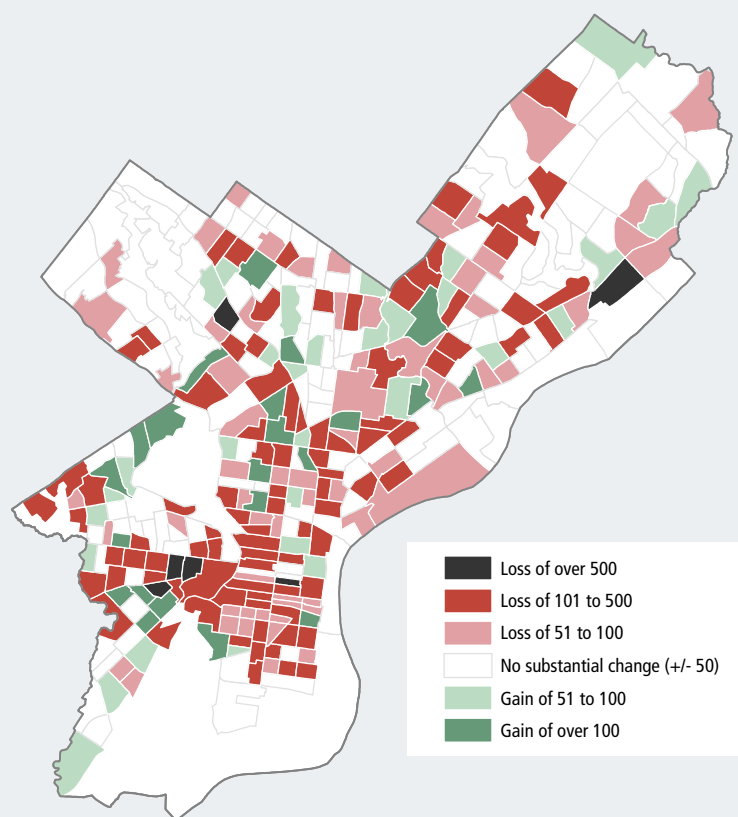
*Excludes tracts with fewer than 50 residents or zero housing units in 2000 or 2010–2014.
 Source: Author’s calculations using data from Census 2000 and 2014 ACS five-year estimates.
 Note: All statistical significance tests use a 0.1 significance threshold.

significant net change in their stock of low-cost rental units over the study period. Of these 101 tracts, 91 experienced a net loss of low-cost units, with only 10 tracts gaining low-cost units. Furthermore, the total loss of low-cost units was concentrated in a relatively small number of tracts. The tracts with the 10 largest losses accounted for nearly one-quarter of the city’s total net loss of low-cost units, yet these tracts comprised only 6 percent of the city’s total rental units in 2014.

Figure 2 maps the change in stock of low-cost rental units at the census tract level. The map shows that both gains and losses in low-cost units tended to be scattered throughout Philadelphia, though tracts that gained low-cost units generally lie on the outer fringes of the city, with a few lying closer to the center. The three largest statistically significant tract-level gains occurred in the Wynnefield Heights neighborhood (+289 units), a tract north of Temple University near Fotterral Square (+257 units), and the neighborhood surrounding Stenton Park in North Philadelphia (+213 units). On the other hand, tract-level losses

FIGURE 2

Changes at the Census Tract Level in Low-Cost Rental Units in Philadelphia, 2000 to 2014



Source: Author’s calculations using data from Census 2000, 2014 ACS five-year estimates, and U.S. Census TIGER/Line Shapefiles.
 Note: Not all tract-level estimates depicted in this map are statistically significant at the 0.1 level.

were also scattered throughout the city, but had a higher concentration around the city's downtown core. The three largest statistically significant tract-level losses occurred in the University City area (−882 units), the Holmesburg neighborhood in Northeast Philadelphia (−737 units), and the area of Center City around Thomas Jefferson University Hospital (−730 units).

A closer look at the tracts with the largest net gains and losses in low-cost rental housing helps to illustrate the various forces that shape supply at the lower end of the rental market. For example, the area near Fotterral Square contains mostly older, single-family housing. This neighborhood likely saw some owner-occupied housing converted into rental housing between 2000 and 2014. The percentage of all housing units in this tract that were occupied by renters increased from 29 to 48 percent over this period, an increase that is 13 percentage points higher than the citywide change.¹² These rental conversions add to the rental housing stock, although single-family homes that rent for less than \$750 per month may not be well-maintained. The overall demand for rental housing may have also declined in these neighborhoods that gained low-cost units. Weak demand can lead to lower market rent prices, causing more units to fall into the sub-\$750 range of affordability.

Neighborhood losses in low-cost units also stem from a combination of factors. Rising market rents can cause units to lose their affordability in areas with higher demand for rental housing such as University City. Low-cost units in these areas can also lose their affordability by being renovated to cater to more affluent residents. Some low-cost units were also likely removed from the market completely in the city's older neighborhoods. This can occur if the unit's physical condition depreciates to the point where it becomes no longer economically feasible to maintain and the unit lapses into vacancy and disrepair. Additionally, low-cost units can be lost to demolition. This was the case in the Holmesburg neighborhood (−737 units), where a large public housing development was razed in 2011.¹³

¹² Author's calculation using data from 2000 Census Tables H001 and H004, and 2014 ACS five-year estimates Tables B25001 and B25003. Changes are statistically significant at the 0.1 level.

¹³ Philadelphia City Planning Commission, "Upper Holmesburg: Neighborhood Goals and Strategies Report," May, 2011; available at <http://phila2035.org/wp-content/uploads/2011/05/UHGSR2.pdf>.

Philadelphia's loss of low-cost rental units would be less concerning if households experienced a corresponding increase in income, allowing them to afford more expensive units. But incomes of renters in Philadelphia have not kept pace with rising rents. While the city's median gross rent increased by nearly 20 percent between 2000 and 2014, the median renter income fell by 2 percent.¹⁴ Additionally, 26 percent of Philadelphia residents had incomes below the poverty line in 2014.¹⁵ Such low incomes leave these residents with few options for quality affordable housing, given that the city's lowest-cost properties are more likely to suffer from under-maintenance and neglect.

LOW-COST RENTAL HOUSING AND GENTRIFICATION

Gentrification represents one important pattern of neighborhood change that can affect local rental housing costs. Researchers have long associated gentrification with rising housing costs, and some recent studies have even used rising rents as the central defining characteristic of gentrification.¹⁶ Gentrification has also been studied in Philadelphia. Ding, Hwang, and Divringi (2016) use a two-step criterion to identify Philadelphia tracts that were gentrifying between 2000 and 2013.¹⁷ They then further classify gentrifying tracts as *weak*, *moderate*, *intense*, or *continued* based on the tract's median housing costs and its history of gentrification prior to 2000. See the box for more information on how these measures were derived.

The housing criteria used to define gentrification in Ding, Hwang, and Divringi (2016) do not necessarily predict gentrification's effect on the stock of low-cost rental units. For example, a census tract's median rent could

¹⁴ Author's calculations using data from 2000 Census SF3 Tables H063 and HCT012, and 2014 ACS one-year estimates Tables B25064 and B25119. Data were adjusted for inflation.

¹⁵ 2014 ACS one-year estimates Table DP03.

¹⁶ New York University Furman Center, *State of New York City's Housing and Neighborhoods in 2015*. New York: New York University, 2016; available at http://furmancenter.org/files/sotc/NYUFurmanCenter_SOCin2015_9JUNE2016.pdf.

¹⁷ Lei Ding, Jackelyn Hwang, and Eileen Divringi, "Gentrification and Residential Mobility in Philadelphia," *Regional Science and Urban Economics*, 61 (2016), pp. 38–51.

GENTRIFICATION CRITERIA AND CLASSIFICATION USED IN DING, HWANG, AND DIVRINGI (2016):

- To be eligible to gentrify: Census tract must have had a median household income below the citywide median in 2000.
- To be classified as gentrifying: Tract must be eligible to gentrify, and must have experienced both
 - an above citywide median increase in share of college-educated residents between 2000 and 2009–2013, and
 - an above citywide median increase in either median gross rent or median home value over the 2000–2013 period.
- Among tracts classified as gentrifying:
 - Weak gentrification: Tract is in the bottom quartile of gentrifying tracts for both median rent and median home value in 2009–2013.
 - Moderate gentrification: Tract is in the 2nd or 3rd quartile of gentrifying tracts for either median rent or median home value in 2009–2013.
 - Intense gentrification: Tract is in the top quartile of gentrifying tracts for either median rent or median home value in 2009–2013.
 - Continued gentrification: Tract had been gentrifying in the 20 years prior to 2000, and continued gentrifying from 2000 to 2009–2013.

Source: Lei Ding, Jackelyn Hwang, and Eileen Divringi. "Gentrification and Residential Mobility in Philadelphia," *Regional Science and Urban Economics*, 61 (2016), pp. 38–51. Calculations from 1980, 1990, 2000 Census, and 2013 ACS five-year estimates.

rise solely through higher-end infill development that keeps the stock of low-cost units intact. Table 2 shows how census tracts at each level of gentrification fared in their stock of low-cost rental units between 2000 and 2014. A total of eight tracts in Philadelphia are classified as having experienced intense gentrification. These tracts began the study period with the largest supply of low-cost units per tract (676.1) out of all gentrification categories. This is not surprising as these tracts encompass densely populated, renter-heavy areas in Center City and University City, and thus started out with the largest *total* rental stock out of all gentrification categories. These intensely gentrifying tracts lost 318 low-cost rental units per tract, by far the largest per-tract loss of all gentrification types. Intense gentrification in Philadelphia generally took place in the neighborhoods that had the most low-cost units to lose, and thus caused the largest absolute loss of low-cost units per tract of all gentrification categories.

TABLE 2

Average Change and Percent Change in Low-Cost Rental Units per Tract, by Type of Gentrification, 2000 to 2014

Type of gentrification	Number of tracts in Philadelphia	Total number of low-cost units per tract in 2000	Total number of low-cost units per tract in 2014	Average change in low-cost units per tract	Percent change in low-cost units
Weak	7	600.8	526.3	-74.5*	-12.4*
Moderate	17	448.9	304.5	-144.5*	-32.2*
Intense	8	676.1	358.1	-318.0*	-47.0*
Continued	19	500.1	312.9	-187.2*	-37.4*
Nongentrifiable	166	229.5	164.6	-64.9*	-28.3*
Nongentrifying	120	432.7	401.5	-31.3*	-7.2*

Notes: Tract gentrification measures were developed based on the methodology outlined in Ding, Hwang, and Divringi (2016) but were applied to year 2010 tract boundaries for this report, with the exception of 2000 tracts that were split in 2010. For these tracts, the gentrification measure based on the 2000 boundaries was applied to the recombined tract group. *Estimates are significant at the 0.1 level.

Source: Author's calculations using data from Census 2000 and 2014 ACS five-year estimates.

Moreover, tracts with intense gentrification lost low-cost rental units at the highest rate, as measured by their losses as a percentage of initial stock. These central city neighborhoods lost nearly half of their low-cost units between 2000 and 2014. This finding is unsurprising considering that by definition these tracts had some of the highest median rents in the city by the end of the study period. Tracts with continued gentrification, generally clustered in South Center City and north of Market Street in University City, also lost over a third of their low-cost units. Development activity prior to 2000 may have prepared these neighborhoods to undergo intensive upgrading in the years covered by this report. For example, three tracts with continued gentrification in the Graduate Hospital neighborhood already had high proportions of investor-owned properties in 2000.¹⁸ This may have allowed local housing prices to respond quickly to the increased demand that ensued between 2000 and 2014. Many tracts that experienced moderate gentrification are adjacent to continued gentrification tracts and may have experienced spillover demand from these neighborhoods. Even weak gentrification tracts, which continued to have comparatively low housing costs, lost over one in 10 of their low-cost rental units during the study period.

Figure 3 maps the changes in the stock of low-cost rental units in Philadelphia tracts that were classified as gentrifying using the approach outlined by Ding, Hwang, and Divringi (2016).¹⁹ Almost all gentrifying tracts (48 of 51) experienced either a net loss or no significant change in low-cost units over the study

¹⁸ Emily Dowdall, "Philadelphia's Changing Neighborhoods: Gentrification and Other Shifts Since 2000," Report, Pew Charitable Trusts, May 2016; available at www.pewtrusts.org/~media/Assets/2016/05/Philadelphias_Changing_Neighborhoods.pdf.

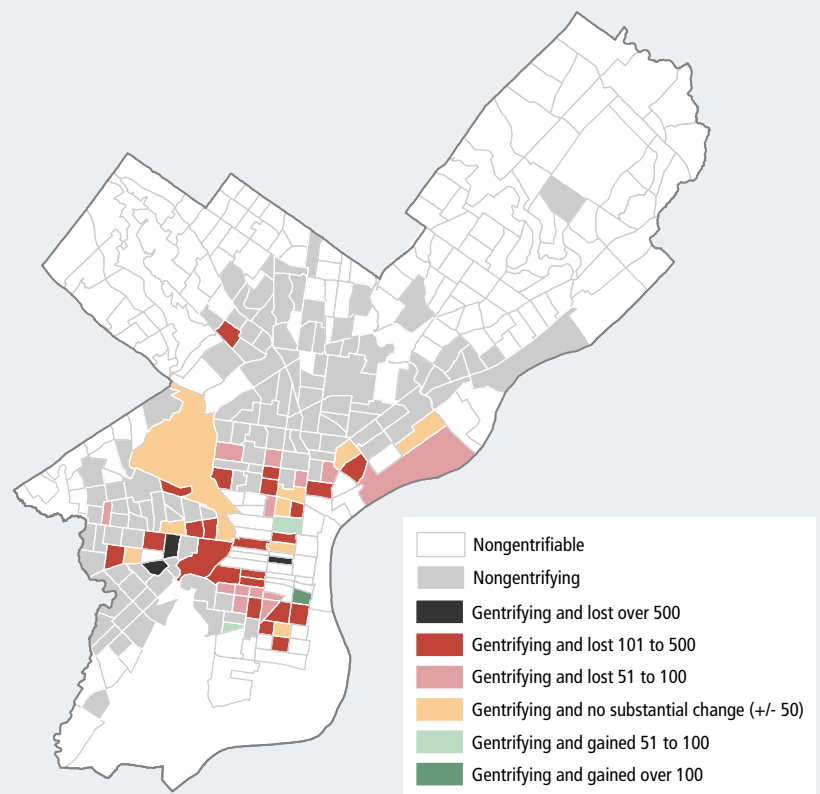
¹⁹ Though largely identical, some tracts included in Figure 3 differ slightly from those identified as gentrifying in Ding, Hwang, and Divringi (2016), which used 2000 tract boundaries rather than the modified 2010 tract boundaries used in this report. The overall number of gentrifying tracts differs for the same reason.

period. Two tracts experienced both intense gentrification and a statistically significant loss of more than 500 low-cost rental units. These tracts are located in university-adjacent neighborhoods in West Philadelphia, and most likely lost low-cost units due to rising market values and pressure to renovate properties for more affluent in-movers.

In their study of gentrification in Philadelphia, Ding, Hwang, and Divringi (2016) find that rising housing costs make lower-income residents less likely to move into gentrifying neighborhoods. This represents a form of indirect displacement, where vulnerable residents face barriers to entering improving neighborhoods and are relegated to living in more disadvantaged areas. The above findings complement this conclusion in two

FIGURE 3

Changes in Low-Cost Rental Units in Gentrifying Philadelphia Census Tracts, 2000 to 2014



Source: Tract gentrification definitions from Ding, Hwang, and Divringi (2016). Author's calculations using data from Census 2000, 2014 ACS, and U.S. Census TIGER/Line Shapefiles.
Note: Not all tract-level estimates depicted in this map are statistically significant at the 0.1 level.

ways. First, the numbers show that renters did indeed face shrinking low-cost housing options in most gentrifying neighborhoods between 2000 and 2014. Second, the tracts that experienced any level of gentrification lost 34 percent of their low-cost rental units over this period, while tracts that were eligible but did not gentrify lost only 7 percent.²⁰ Thus, gentrifying neighborhoods lost low-cost units at nearly five times the rate of nongentrifying neighborhoods.

STOCK OF FEDERALLY SUBSIDIZED RENTAL HOUSING IN PHILADELPHIA

Rising cost pressures in Philadelphia make it difficult for the private market to provide affordable housing for lower-income renters without some form of subsidy. To this end, the federal government offers property-based rental assistance through several programs. The largest of these programs in Philadelphia is public housing, which is operated by the Philadelphia Housing Authority using federal funding.²¹ The Low-Income Housing Tax Credit (LIHTC) program provides tax credits to property owners who agree to rent a percentage of their property's units to lower-income renters at below-market rents. Additionally, HUD offers subsidies through its Project-Based Rental Assistance (PBRA) and HOME programs, as well as other loan programs that place affordability restrictions on properties. These HUD programs generally require rents to be limited to 30 percent of the occupying household's income.²²

²⁰ Both of these losses are statistically significant at the 0.1 level, as is the difference between the two losses.

²¹ The Philadelphia Housing Authority also owns several LIHTC-funded properties.

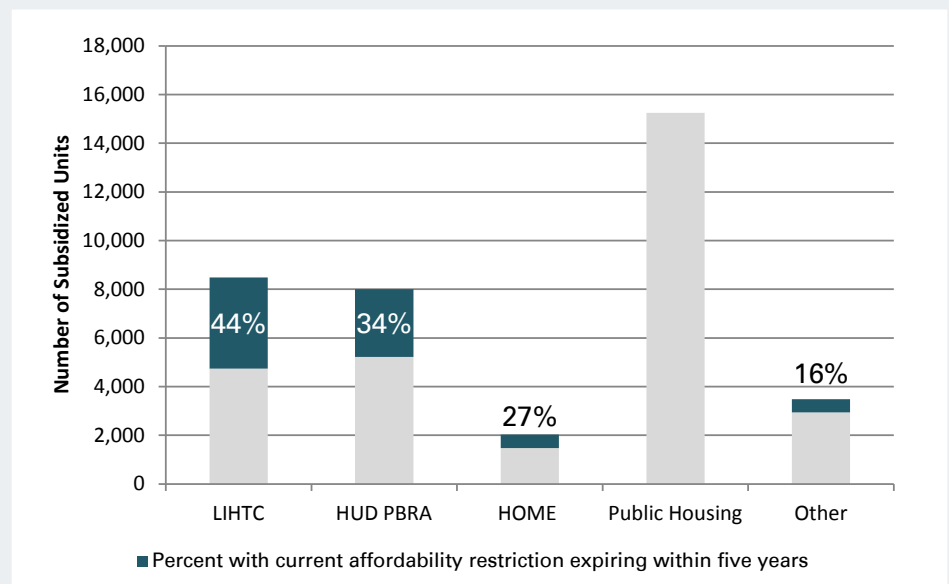
²² Rent contributions are capped at 30 percent of household income in public housing as well as in the HUD PBRA, HOME, and other subsidy programs. Maximum rents in the LIHTC program are set at 30 percent of either 50 or 60 percent of the area median income.

Philadelphia had 37,369 rental units with property-based federal subsidies as of January 1, 2016, according to the National Housing Preservation Database (NHPD). However, 20 percent of these units are expected to reach the end of their current affordability restriction period within the next five years. This may pose a serious challenge to the preservation of the city's subsidized housing stock. Figure 4 shows that there are more than 8,000 LIHTC-funded units in the city. Yet the LIHTC-mandated 30-year affordability periods will elapse for 44 percent of these units in the next five years. Units covered by HUD's PBRA and HOME programs also face significant rates of impending expirations. The city's public housing units do not have official expiration dates, but can still be lost through forces such as shifting federal funding priorities, insufficient maintenance, and demolition.²³

²³ David Raskin, "Revisiting the Hope VI Public Housing Program's Legacy," *Governing*, May 2012; available at www.governing.com/topics/health-human-services/housing/gov-revisiting-hope-public-housing-programs-legacy.html.

FIGURE 4

Total Subsidized Units in Philadelphia, and Percent Due to Expire Within Five Years



Source: Author's calculations using data from the National Housing Preservation Database (www.preservationdatabase.org).

Notes: "Other" units are covered by various types of HUD mortgage insurance programs or Section 202 direct loans. Data include properties with one or more active subsidies as of January 1, 2016. The analysis of expiring subsidies is based on the subsidy with the latest end date associated with each property. See the Appendix for more details.

TABLE 3

Expiring Units in Philadelphia at Higher Risk of Losing Affordability

Subsidy type	Current number of subsidized units	Units with subsidies expiring in next five years			
		Total	With for-profit ownership*	In gentrifying census tracts†	In gentrifying tracts and with for-profit ownership‡
LIHTC	8,483	3,742	1,917	974	495
HUD PBRA	8,121	2,780	1,025	914	604
HOME	2,025	549	0	191	0
Other	3,486	543	0	317	0
Public Housing	15,254	0	0	0	0
Total	37,369	7,614	2,942	2,396	1,099

*3,167 subsidized units were excluded from this analysis because their ownership information could not be verified. See the Appendix for more details.

†5,450 subsidized units were excluded from this analysis because their geographic location could not be determined from the National Housing Preservation Database. See the Appendix for more details.

‡8,600 subsidized units were excluded from this analysis because either their geographic location could not be determined or their ownership information could not be verified. See the Appendix for more details.

Source: Author's calculations using data from National Housing Preservation Database and gentrification definitions from Ding, Hwang, and Divringi (2016).

Federally subsidized rental properties do not necessarily lose their affordability when their current compliance period elapses. For example, a recent study of LIHTC-funded properties found that the vast majority of properties remain affordable after their restrictions expire.²⁴ Some owners choose to recapitalize their property with new tax credits, which extend the property's affordability restrictions. Many others do not renew their tax credits, but still continue to operate the property as affordable low-income housing. This is common among properties owned by nonprofit entities whose mission is to provide durable affordable housing, as well as properties in neighborhoods with low market rents. Subsidized properties often further bolster their affordability by layering subsidies from multiple funding sources. These layered subsidies can contain overlapping financing terms and affordability periods, which give the property added levels of protection as

each subsidy expires.²⁵ For properties with multiple active federal subsidies, this report's analysis is based on the subsidy with the latest expiration date that covers a majority of the units.²⁶

Prior research has found that properties with expiring subsidies are more likely to lose their affordability if they have for-profit ownership and are located in areas where market rents for comparable properties are higher than the rent allowed by the subsidy.^{27,28} The pockets of gentrification in Philadelphia may, therefore, threaten the continued affordability of expiring subsidized units, as rising rents may induce for-profit owners in these

²⁴ Jill Khadduri, Carissa Climaco, Kimberly Burnett, Laurie Gould, and Louise Elving, *What Happens to Low-Income Housing Tax Credit Properties at Year 15 and Beyond?* Washington, D.C.: U.S. Department of Housing and Urban Development, August 2012; available at www.huduser.gov/portal/publications/pdf/what_happens_lihtc_v2.pdf.

²⁵ Vincent Reina and Jaclene Begley, "Will They Stay or Will They Go: Predicting Subsidized Housing Opt-Outs," *Journal of Housing Economics*, 23 (2014), pp. 1–16.

²⁶ Note that the analysis in this report does not include state or local subsidies, which can further extend affordability periods and cover additional rental units.

²⁷ Jill Khadduri et al., 2012.

²⁸ Multi-Disciplinary Research Team, "Opting In, Opting Out a Decade Later," U.S. Department of Housing and Urban Development, May 2015; available at www.huduser.gov/portal/sites/default/files/pdf/508_MDRT_Opting%20In_Opting%20Out.pdf.

areas to convert their properties to market-rate housing. With this in mind, Table 3 describes the federally subsidized units in Philadelphia that may be at higher risk of losing their affordability upon expiration. Of the 7,614 subsidized units with impending expirations, 14 percent are located in a gentrifying neighborhood and are owned by a for-profit entity.

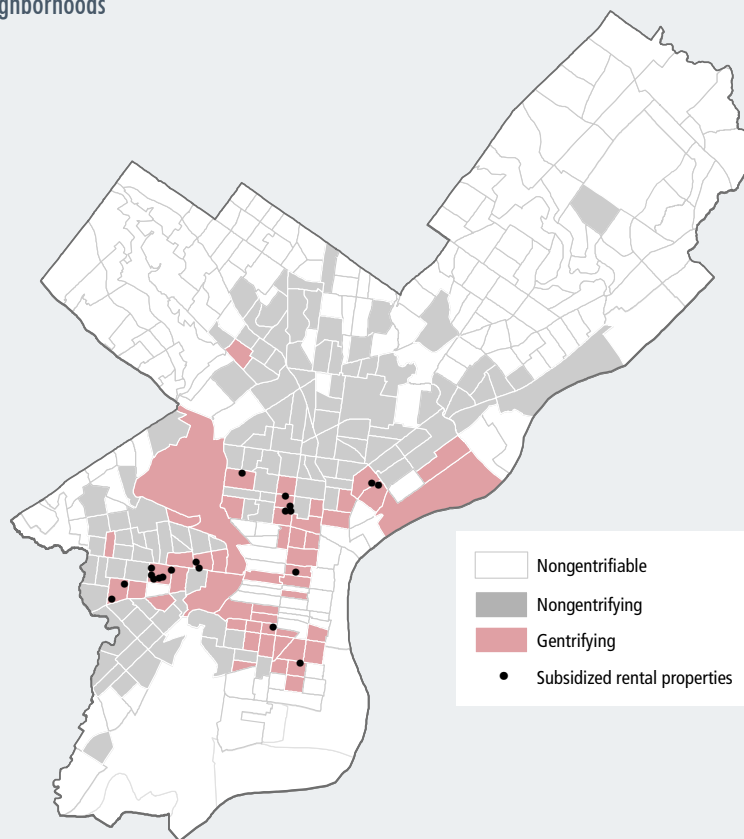
Two factors add further uncertainty to the sustained affordability of the city's 1,099 expiring for-profit subsidized units in gentrifying neighborhoods. First, properties whose owners wish to renew their subsidies may require additional funding for the maintenance and rehabilitation that older, low-cost facilities often need. But this funding has become less durable through HUD's increasing use of shorter-term contracts for property-based rental assistance.²⁹ Second, these 1,099 units are spread among only 23 separate properties. This means that their continued affordability hinges on the decisions of a much smaller number of property owners. Figure 5 shows the location of these 23 properties. Eleven of the 23 properties, comprising 333 total units, are located in tracts with intense gentrification. Three of the properties, comprising 539 units, are in tracts with continuing gentrification. One property in particular, a high-rise apartment building located at 3901 Market Street in University City, contains 440 HUD PBRA-subsidized units that will expire within five years.

The upcoming expirations among Philadelphia's federally subsidized rental stock become more significant in light of the city's widespread loss of low-cost rental units. Many of the city's remaining low-cost units likely owe their low-cost status to their participation in federal subsidy programs, especially in gentrifying neighborhoods. For example, there were 17,670 low-cost units in

²⁹ Staff of the National Housing Trust, "Project-Based Rental Assistance," National Low-Income Housing Coalition, Advocates' Guide, 2015; available at http://nlihc.org/sites/default/files/Sec4.08_Project-Based-Rental-Assistance_2015.pdf.

FIGURE 5

Federally Subsidized Rental Properties with For-Profit Ownership in Gentrifying Neighborhoods



Note: 267 properties were excluded from this analysis either because their geographic location could not be determined or their ownership information could not be verified. See the Appendix for more details.

Source: Author's calculations using data from National Housing Preservation Database and gentrification definitions from Ding, Hwang, and Divringi (2016).

the city's gentrifying neighborhoods in 2014, and 9,021 subsidized units in these neighborhoods.³⁰ Data limitations make it unclear exactly how many of the 9,021 subsidized units met this report's definition of low-cost in 2014, but many likely had contract rents of less than \$750 per month as determined by their respective subsidies.³¹ In tracts with intense gentrification, subsidized units likely account for a large share of the remaining affordable options for lower-income renters. Tracts with

³⁰ Author's calculations using data from 2014 ACS five-year estimates and the National Housing Preservation Database.

³¹ The various subsidy programs use different formulas to determine contract rents, with some more closely reflecting local market rents than others. There is a notable ambiguity in the census/ACS gross rent data, however, that makes it difficult to assess how many subsidized units met this report's definition of low-cost. See the Appendix for further explanation.

moderate gentrification lost a large percentage (32 percent) of their low-cost units despite ending up with lower median housing costs than the intensely gentrifying tracts, likely because they had a much lower concentration of subsidized units.

More importantly, by reserving occupancy for lower-income residents and capping their rent contributions at below-market level, subsidized units form a crucial component of Philadelphia's stock of rental housing that is *affordable* to the city's most vulnerable households. In fact, the Urban Institute estimates that over half of Philadelphia's rental units that are affordable to extremely low-income households would be lost without these assistance programs.³² Units with subsidized affordability are also often in better physical condition than similarly priced market-rate units because they must pass routine physical inspection in order to continue receiving funding. These subsidy programs, therefore, address both of the city's predominant forms of affordable housing loss. In gentrifying neighborhoods, they protect vulnerable households from rising cost pressures by capping their rent contributions. And in nongentrifying neighborhoods where losses of affordable units often stem from under-maintenance and abandonment, these programs guard units against neglect by providing ongoing funding that is tied to routine inspection. Overall, the preservation of subsidized units would significantly mitigate Philadelphia's loss of affordable rental housing.

CONCLUSION

Philadelphia's low-income renters face several concurrent challenges. Between 2000 and 2014, the city lost 20 percent of its units that rented for less than \$750 per month. Losses of low-cost units were more pronounced in neighborhoods near the city center and in neighborhoods that have experienced gentrification. This report finds that the rising housing prices in gentrifying areas are not only fueled by new construction, but they are also driven by the loss of low-cost housing — a loss that occurs at nearly five times the rate of loss seen in neighborhoods that were eligible for gentrification but did not gentrify. The heightened loss of low-cost units in gentri-

fying neighborhoods was likely driven by rising market rents and luxury renovations. Losses of low-cost units in the city's nongentrifying areas also likely stemmed in part from rising rents, but may be attributable to the removal of units from the rental market through conversion to owner-occupancy, abandonment, or demolition. The increased loss of low-cost units in gentrifying neighborhoods also helps explain the finding in Ding, Hwang, and Divringi (2016) that these neighborhoods tend to become less accessible to lower-income residents.

In light of this significant loss of low-cost units, Philadelphia's stock of federally subsidized rental housing provides an increasingly vital source of housing that is affordable to the city's lowest-income renters. But 20 percent of the city's 37,369 subsidized units are expected to see their affordability restriction periods expire within the next five years. Of particular concern are the 1,099 units that have for-profit ownership and are located in gentrifying neighborhoods. These units face the highest risk of losing their affordability after their subsidy expires. Federally subsidized units offer an important tool for maintaining economic diversity in rapidly redeveloping neighborhoods. Their impending expiration could further reduce the accessibility of the city's high-opportunity neighborhoods to vulnerable residents.

The shrinking stock of affordable housing in Philadelphia leaves lower-income renters saddled with higher rent burdens, greater financial distress, and insecure housing arrangements.³³ At the community level, the loss of affordable units could contribute to residential patterns that are segregated by income and socioeconomic status. The pockets of gentrification in Philadelphia appear to reinforce these patterns in several ways. First, gentrifying neighborhoods become less accessible to lower-income movers, limiting their housing search to more distressed and less central neighborhoods. Vulnerable residents who remain in these upgrading neighborhoods often face higher housing costs and are less likely to see improvements in their financial health. In addition, vulnerable residents in neighborhoods that are in more advanced stages of gentrification may even be-

³² "Mapping America's Rental Housing Crisis," Urban Institute; available at <http://apps.urban.org/features/rental-housing-crisis-map/>.

³³ Joint Center for Housing Studies of Harvard University, "The State of the Nation's Housing 2016," 2016; available at www.jchs.harvard.edu/sites/jchs.harvard.edu/files/jchs_2016_state_of_the_nations_housing_lowres.pdf.

come more likely to move out of these neighborhoods.³⁴ Each of these consequences of gentrification reflects the impact of increasingly burdensome housing costs, driven by losses of both low-cost rental units and units with subsidized affordability. With a growing body of research highlighting the influence of neighborhood characteristics on residents' economic outcomes, these

³⁴ Lei Ding, Jackelyn Hwang, and Eileen Divringi, "Gentrification and Residential Mobility in Philadelphia," *Regional Science and Urban Economics*, 61 (2016), pp. 38–51.

trends merit serious consideration from policymakers concerned with community inclusivity and economic mobility.^{35,36}

³⁵ Raj Chetty, Nathaniel Hendren, and Lawrence F. Katz, "The Effects of Exposure to Better Neighborhoods on Children: New Evidence from the Moving to Opportunity Experiment," *American Economic Review*, 106:4 (2016), pp. 855–902.

³⁶ Patrick Sharkey, "Neighborhoods, Cities, and Economic Mobility," *RSF: The Russell Sage Foundation Journal of the Social Sciences* 2:2 (2016), pp. 159–177; available at <http://muse.jhu.edu/article/616925>.

STOCK OF RENTAL HOUSING

Data at the census tract level on the stock of rental housing come from the U.S. Census *Summary File 3* for the year 2000 and from the American Community Survey (ACS) 2010 to 2014 five-year estimates for the year 2014. These data were harmonized to 2010 tract boundaries using the Census Bureau’s Census Tract Relationship File. This harmonization method assumes that housing units of all cost levels are distributed uniformly within each tract. Tracts that split in 2010 were, therefore, combined back into their 2000 geographies in the analysis to avoid this potential source of error.

This report excludes nine Philadelphia census tracts from analysis based on their census data. Following the method employed by Ding, Hwang, and Divringi (2016), tracts were excluded if they had fewer than 50 residents or had zero housing units during the 2000 to 2014 study period. These tracts comprise areas of Philadelphia such as the Navy Yard, Hunting Park, industrial sites along the lower Schuylkill River, and the neighborhoods containing the city’s two airports.

The rental cost data were also adjusted for inflation using the Consumer Price Index, which increased by 37.5 percent between 2000 and 2014. This adjustment was done by crosswalking three gross rent cost levels between the 2000 and 2014 data as follows:

Gross rent cost level in 2000 census data	Gross rent cost level in 2014 dollars	Corresponding gross rent cost level in 2014 ACS data
\$550	$\$550 \times 1.375 = \756.25	\$750
\$900	$\$900 \times 1.375 = \$1,237.50$	\$1,250
\$1,500	$\$1,500 \times 1.375 = \$2,062.50$	\$2,000

All comparisons between estimates were tested for statistical significance. For ACS estimates, the standard errors were derived using the margins of error that are included in the data tables. The Census 2000 *Summary File 3* does not provide margins of error. For these estimates, standard errors were calculated using the method de-

scribed in Chapter 8 of the *2000 Census of Population and Housing, Summary File 3: Technical Documentation*.³⁷

It is also important to note that the census data represent the cost of rent and utilities as reported by tenants themselves. This has several implications for this report’s analysis of the stock of low-cost units. First, the census rent data may reflect factors specific to the individual tenant, such as a personal arrangement with a landlord in which the tenant pays very low or no rent. This reported rent may not reflect the unit’s prevailing market price. The use of tenant-reported rents likely overstates the prevalence of low-cost rental units, especially among households that were categorized in the census data as paying no cash rent (for which the unit was assigned a rent price of \$0). Additionally, the census rent data were not adjusted to control for the number of bedrooms in the housing unit. Larger units costing above \$750 often may be considered affordable because the rent can be shared among more household members. Therefore, this report likely underestimates the loss of affordable units on a per-bedroom or per-household member basis.

FEDERALLY SUBSIDIZED RENTAL HOUSING

Data on federally subsidized rental properties in Philadelphia come from the National Housing Preservation Database (NHPD), maintained by the National Low Income Housing Coalition and the Public and Affordable Housing Research Corporation.³⁸ This database contains information on many federally subsidized housing properties in the United States.

Twenty-one Philadelphia properties are listed in the NHPD as “scattered sites,” meaning that their individual units are scattered in different locations throughout the city. These properties contain a total of 5,450 subsidized units, 31 of which are due to expire in the next five years. These units were included in the overall analysis

³⁷ U.S. Census Bureau, *2000 Census of Population and Housing, Summary File 3: Technical Documentation*, 2002; available at www.census.gov/prod/cen2000/doc/sf3.pdf.

³⁸ Available at www.preservationdatabase.org/.

Appendix: Data and Methodology

of expiring subsidies, but excluded from the geographic analysis because they could not be assigned a location.

Two inconsistencies in the NHPD data were addressed before analysis. First, some properties had unclear classifications of their type of ownership (for-profit versus nonprofit). For all properties that contained ownership information, this information was verified using the Pennsylvania Department of State Business Entity directory.³⁹ Some properties were consequently reclassified as either for-profit or nonprofit based on the information listed in this directory, while others were excluded from ownership type analyses because the type could not be verified. Second, several properties had geographic coordinates that did not appear to correspond to their street address. All properties were, therefore, geocoded again based on associated street addresses.

Finally, some properties are listed in the NHPD as having multiple types of federal subsidies. For this report, these properties were classified by the subsidy that has the latest expiration date and also covers at least half of the property's total units. Properties were then classified as being at risk of loss if this subsidy has an expiration date no later than December 31, 2020.

OVERLAP BETWEEN FEDERALLY SUBSIDIZED UNITS AND LOW-COST UNITS

Despite their affordability to lower-income tenants, many of Philadelphia's federally subsidized rental units may not technically qualify as low-cost according to the definition used in this report. This is because these units have a higher official contract rent that is different from the amount paid by the tenants. HUD's PBRA and HOME programs use fair market rents (FMRs) and the contribution of renters to determine the monthly amount that HUD must pay the owner for renting the property. But it is notably unclear whether the census gross rent data, in the case of a subsidized unit, reflect the unit's

official contract rent or merely the household's limited rent contribution. An internal Census Bureau analysis of subsidized renter households in California estimated that 40 percent of these households reported only their limited rent contribution in the ACS, 32 percent reported their official contract rent, and 28 percent reported an amount that did not match either their rent contribution or their full contract rent.⁴⁰

If the census gross rent data do indeed capture the official contract rents of subsidized units, then some of the loss of low-cost units documented in this report could have been caused by subsidy-mandated rent increases between 2000 and 2014. For example, this report's \$750 low-cost threshold in 2000 was higher than the FMR for HUD-subsidized efficiency units in Philadelphia⁴¹ and higher than the maximum allowable rent for efficiency and one-bedroom LIHTC units.⁴² As a very conservative estimate, there were approximately 3,200 such units in Philadelphia between 2000 and 2014.⁴³ These units could have lost their low-cost status over the study period simply because their contract rents were increased from below \$750 to above \$750 by their subsidy programs. The ambiguity in the census data regarding subsidized rent costs leaves open the question of how many subsidized units meet this report's definition of low-cost, and how many low-cost units were lost due to rising contract rents within subsidy programs.

³⁹ Available at www.corporations.pa.gov/search/corpsearch.

⁴⁰ Josh Leopold, Liza Getsinger, Pamela Blumenthal, Katya Abazajian, and Reed Jordon, "The Housing Affordability Gap for Extremely Low-Income Renters in 2013," Policy Advisory Group Report, Urban Institute, June 2015; available at www.urban.org/research/publication/housing-affordability-gap-extremely-low-income-renters-2013/view/full_report.

⁴¹ "Fair Market Rent History 2000 to 2005 for Philadelphia PA--NJ PMSA," U.S. Department of Housing and Urban Development; available at www.huduser.gov/portal/datasets/fmr/fmrs/histsummary.odb?inputname=6160.0*Philadelphia%2C+PA--NJ+PMSA.

⁴² "Rent & Income Limit Calculator," Novogradac and Company, LLP; available at <https://ric.novoco.com/tenant/rentincome/calculator/z1.jsp>.

⁴³ Author's estimate based on data from National Housing Preservation Database, HUD LIHTC database (<http://lihtc.huduser.gov/>), and Internet searches to determine the unit mix within each subsidized property. The author can be reached at seth.adam.chizeck@gmail.com for more information on how this estimate was derived.



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