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Manufactured Housing Communities in Pennsylvania: The Basics

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COMMUNITY DEVELOPMENT AND REGIONAL OUTREACH

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Introduction

Land-lease manufactured housing communities (MHCs)[1] are a unique and understudied housing arrangement, in which groups of manufactured homes are placed on rented land. These homes are often, although not always, owner-occupied, and residents typically pay a monthly lot rent to the landowner in addition to standard housing costs. This *split-tenure* model — in which ownership of the home is separate from the land beneath it — makes this style of housing a more attainable homeownership option for many but also increases residents' vulnerability to financial exploitation and displacement (Sullivan, 2018; Aman and Yarnal, 2010; Genz, 2001).

Although MHCs are often acknowledged as a key segment of the unsubsidized, or "naturally occurring," affordable housing stock (Durst and Sullivan, 2019), relatively little is known about these communities because of their lack of inclusion in commonly used public data sets (Sullivan, Makarewicz, and Rumbach, 2022). Drawing on a novel, rigorously compiled data set that captures the locations of MHCs in Pennsylvania, this report provides foundational information on the size, spatial distribution, and socioeconomic context of 2,288 communities, home to an estimated 55,900 households, across the state. Findings indicate that MHCs are located in a range of rural, exurban, and suburban communities, as well as some lower-density urban areas. Demand for this style of housing appears particularly high in the outskirts of large and midsize metropolitan areas, where MHCs may offer a relatively affordable housing option.

What Are Manufactured Homes and Manufactured Housing Communities?

In contrast with conventional site-built homes, manufactured homes are factory-constructed on a chassis, then transported for installation on a site. Manufactured homes are subject to the Manufactured Home Construction and Safety Standards (HUD Code) enacted in 1976[2] and are technically distinct from mobile homes, which are factory-built housing units constructed before the implementation of the HUD Code. However, for brevity, the remainder of this report will use manufactured homes as an umbrella term for these units.[3] As a result of improved production standards, modern manufactured homes are comparable with site-built homes in terms of quality and resident satisfaction (Boehm and Schlottmann, 2004), although many older or improperly installed homes experience severe repair and maintenance challenges (Aman and Yarnal, 2010; Lamb, Shi, and Spicer, 2023). These issues contribute to the generally high prevalence and costliness of repair needs among manufactured homes (Divringi, 2023).

Contrary to popular perception, most manufactured homes are not located in MHCs. Approximately two in five existing manufactured homes are in MHCs (Durst and Sullivan, 2019), and less than one-third of new manufactured homes were placed in these communities in 2021.[4] Still, there are over 43,000 MHCs nationwide, encompassing an estimated 4.3 million homesites (Manufactured Housing Institute, 2022). Although MHCs are present throughout the United States, the largest numbers of these communities are in the southeast, Texas, California, and the Rust Belt states (George and Yankausas, 2011). Additionally, although MHCs account for a larger segment of the rural housing stock, recent examinations of the spatial distribution of MHCs have highlighted their presence in suburban, and even moderate-density urban, contexts (Sullivan, Makarewicz, and Rumbach, 2022; Pierce, Gabbe, and Gonzalez, 2018). What constitutes a "community" of manufactured homes varies by state and local legislation, which may in turn differ

[1] This style of housing is referred to in policy documents, news media, and academic literature by a wide variety of names, including manufactured housing communities, mobile home parks, trailer parks, mobile home courts, and various permutations of those words. This report uses manufactured housing communities (MHCs) as a generic term for this type of land-lease community.

[2] For more information, see www.hud.gov/program_offices/housing/rmra/mhs/faqs.

[3] Manufactured homes are also distinct from recreational vehicles (RVs) and park model homes, which are generally classified as motor vehicles. Although these may be present in some of the MHCs included in this data set, sites that primarily cater to these users or seasonal campers are excluded from the analysis.

[4] This represents an increase from less than one-quarter in 2020 but is comparable with the average share since 2014 (U.S. Census Bureau, 2021).

from how MHC resident organizations would define their constituencies. In Pennsylvania, the Manufactured Home Community Rights Act defines a community as a group of three or more manufactured homes on a site (68 P.S. § 398.1).[5] This size threshold was used to compile the data set of MHCs used in this report.

Manufactured housing is widely considered an important contributor to the unsubsidized affordable housing stock. Although previous research suggests manufactured homeownership is more affordable when the homeowner also owns the underlying land, MHC homeownership remains substantially more affordable than site-built homeownership, even after factoring in lot rent and accounting for neighborhood characteristics and geography (Durst and Sullivan, 2019). The affordability of MHC homeownership is largely a result of the savings associated with factory-built housing. In 2022, the average cost per square foot for a manufactured home ($72.21) was roughly half that of a new site-built home ($143.83)[6] (Manufactured Housing Institute, 2022).

MHCs have received scant attention from housing researchers and community development practitioners. This has been attributed to several factors, including misguided beliefs that manufactured homes are inherently low-quality or obsolete and that MHCs are not meaningfully present in, or connected to, urban areas (Lamb, Shi, and Spicer, 2023). Negative stereotypes about MHC residents, rooted in class-based bias, are another likely contributor to the lack of policy attention to these communities (Aman and Yarnal, 2010; Furman, 2015).

Even scholars and practitioners who are motivated to examine MHCs often find that these communities are not captured well in commonly used, publicly available data sets. The U.S. Census Bureau's American Community Survey does not distinguish manufactured homes by land tenure or presence in an MHC, and the American Housing Survey provides proxy variables at only highly aggregated geographies. The Department of Homeland Security maintains a national geospatial layer of MHC locations, which was incorporated into the data set compiled for this analysis, but I find that this layer substantially undercounts the number of these communities in Pennsylvania.[7] This dearth of information on land-lease communities has spurred recent efforts to construct new, original data sets leveraging information from multiple sources to provide a more complete picture of MHC locations and surrounding contexts (Sullivan, Makarewicz, and Rumbach, 2022). This report builds on these local and regional efforts, expanding the scope of analysis to an entire state, encompassing a wide range of urban, suburban, and rural contexts.

What Challenges Do Residents of Manufactured Housing Communities Face?

While MHCs have the potential to reduce upfront barriers to homeownership through lower purchase costs, there are significant drawbacks to a land-lease arrangement for MHC homeowners. The most widely cited is that such arrangements limit wealth-building potential, and that potential is a powerful motivating norm in American homeownership policy (Lamb, Shi, and Spicer, 2023; Furman, 2015). Unlike site-built homeowners and manufactured homeowners who own their land, MHC homeowners cannot rely on stable or increasing land values to offset unit depreciation. Even properly installed, well-maintained units are subject to wear and tear, making it less likely that the owner will be able to resell their home at a similar or a higher purchase price (Jewell, 2003; Boehm and Schlottmann, 2004).[8] Furthermore, unlike site-built homeowners, who are able to lock in relatively consistent monthly housing payments through their mortgages, MHC homeowners are exposed to market pressures through lot rents, which can increase rapidly and erode the financial

[5] For more information, see www.palawhelp.org/resource/mobile-home-park-tenant-rights.

[6] Both figures exclude land costs.

[7] The full data set compiled for this analysis includes 2,288 MHCs; by comparison, the DHS data set contains 1,581 records, including some that were misclassified or that are no longer active.

[8] Jewell (2003) finds evidence that some homes in MHCs do appreciate, but appreciation is less likely and smaller in magnitude than that for both site-built homes and manufactured homes on owned land.

benefits associated with lower purchase prices (Jewell, 2003; Durst and Sullivan, 2019). A growing number of MHCs have been acquired by large real estate investment companies, heightening concerns about the potential for extractive rent increases (Associated Press, 2022).

These wealth-building challenges are compounded by the unusual financial treatment of manufactured homes located on leased land. Without land ownership, these homes cannot be titled as real property, preventing homebuyers from accessing traditional purchase mortgages. Instead, MHC homebuyers are limited to the less regulated, higher-cost personal property, or "chattel," loan market. Prospective homebuyers often select lenders based on the options presented at manufactured home retailers, resulting in relatively limited comparison shopping (Genz, 2001; Kaul and Pang, 2022). Like subprime mortgage lenders, these financing companies specialize in making higher-interest loans to borrowers with less-than-perfect credit. Still, just over half of chattel purchase loan applications are denied (Russell et al., 2021), and the extent and terms of alternative financing arrangements for those unable to qualify for these loans are not widely documented (Canavan, Roche, and Siegel, 2022). Furthermore, chattel lending is not covered by the Real Estate Settlement Procedures Act (RESPA), potentially exposing borrowers to excessive or unexpected fees and loan costs at closing.

Chattel borrowers whose homes are located in land-lease MHCs are at a substantially higher risk of default than manufactured homebuyers who own their underlying land (Park, 2022), which may reflect the intersecting challenges of modest borrower incomes, high loan costs, and exposure to lot rent increases. Chattel borrowers who default on their loans are not subject to foreclosure but rather face repossession, a much faster process for which consumer protections vary widely across states.[9] Furthermore, these borrowers are often ineligible for programs designed to assist struggling homeowners. For example, despite being disproportionately lower-income, MHC homeowners were not covered by the mortgage forbearance protections provided in the Coronavirus Aid, Relief, and Economic Security (CARES) Act (Russell et al., 2021).

> **Unlike site-built homeowners and manufactured homeowners who own their land, MHC homeowners cannot rely on stable or increasing land values to offset unit depreciation.**

While most homeowners who keep up with housing payments can expect some measure of housing security, MHC homeowners remain at risk of displacement if the property owner closes the community. There are many reasons a property owner may close an MHC, including an inability to finance needed improvements to aging infrastructure, the enactment of burdensome or exclusionary local regulations, and market incentives to convert to a more profitable land use (Abu-Khalaf, Arabo, and Swann, 2021; Sullivan, 2018). Despite the persistence of the term "mobile home," many manufactured homeowners do not intend, or could not afford, to relocate their homes, and homeowners in manufactured units are no more likely to be transitory than those in site-built units (Boehm and Schlottmann, 2004). The cost of moving a manufactured home is estimated at $5,000–$10,000, but it can vary widely by home size and condition (Ehrenfeucht, 2016). Many older units are not moveable, and newer multisection models, which have grown in popularity in recent years, are more costly to relocate (Aman and Yarnal, 2010; Sullivan, 2018). In the event of an MHC closure, homeowners who are unable to move their homes may abandon their units, forfeiting their already diminished opportunity for asset building (Sullivan, 2018). In response, several states and municipalities require relocation assistance payments for residents displaced by MHC closures (Ehrenfeucht, 2016). However, even homeowners who can relocate may have difficulty finding a suitable alternative site nearby because of widespread exclusionary zoning practices (Dawkins, et al., 2011).

[9] Some states provide repossession protections specifically for manufactured homeowners. For example, in Pennsylvania, a manufactured homeowner must receive a 30-day advance notice and can stop the repossession by making up back payments and related fees (12 P.S. § 6262).

Last, while this report focuses on several issues specific to MHC homeowners, roughly 30 percent of MHC households are likely to be renters.[10] The risk of community closure may represent an added layer of residential insecurity for lower-income renters, who already face acute shortages of affordable units (JCHS, 2022). Although requirements vary by state, eligibility for relocation assistance is often limited to MHC homeowners.

Despite these drawbacks, MHCs continue to house millions of residents nationwide, providing affordable and attainable homeownership opportunities in a wide range of communities. Accordingly, it is important for housing practitioners and policymakers to better understand this unique tenure type and the challenges facing low- and moderate-income MHC residents. The remainder of this report will provide essential background information on MHCs in Pennsylvania as a starting point for advancing solutions-based conversations around preserving affordability and improving housing security.

> “Even homeowners who can relocate may have difficulty finding a suitable alternative site nearby because of widespread exclusionary zoning practices.

Manufactured Housing Communities in Pennsylvania

The following sections describe the spatial distribution, utilization, and community contexts of MHCs in Pennsylvania.[11] While some information is available from public data sets, such as the American Housing Survey (AHS) and Home Mortgage Disclosure Act (HMDA) data, the primary source is a novel data set of MHC locations that I compiled from three sources: tax assessment data assembled by CoreLogic Solutions (CoreLogic), Homeland Infrastructure Foundation-Level Data from the Department of Homeland Security, and the membership list of the Pennsylvania Manufactured Housing Association. This new data set is intended to provide a comprehensive inventory of MHCs in the state, along with limited information on community size and lot vacancies. For a detailed description of the construction and validation of this data set, see Appendix A.

To shed light on the characteristics of communities in which MHCs are located, I used geographic information system (GIS) software to spatially join the locations of MHCs to Census Bureau geographies from the TIGER/Line Shapefiles,[12] which enabled the data set to be merged with neighborhood-level demographic and socioeconomic data from the 2016–2020 American Community Survey and built environment data from the Center for Neighborhood Technology Housing + Transportation Affordability Index.[13]

Size of the Manufactured Housing Stock

According to the 2021 AHS, there are roughly 169,200 occupied manufactured housing units in Pennsylvania. Of those, nearly one-third (55,900) are in groups of seven or

[10] Author’s calculations using the AHS Table Creator, available at www.census.gov/programs-surveys/ahs/data/interactive/ahstablecreator.html. This estimate is based on the number of renter-occupied units in manufactured homes in groups of seven or more in 2021.

[11] Pennsylvania was selected as the focus of this analysis based on research indicating that it is home to the highest number of MHCs across the three states of the Third Federal Reserve District (George and Yankausas, 2011). Future work will explore the potential to expand this dataset to New Jersey and Delaware.

[12] Available at www.census.gov/geographies/mapping-files/time-series/geo/tiger-line-file.2019.html.

[13] Available at htaindex.cnt.org/download/.

more, which are likely to be in land-lease MHCs.[14] While this accounts for just over 1 percent of the occupied housing stock in the state, this figure is comparable with the number of Pennsylvania households in federally funded public housing (53,558) and Project-Based Section 8 housing (58,369), both of which receive substantial attention from housing scholars and policymakers (U.S. Department of Housing and Urban Development, 2021).

From 2017 to 2021, an average of 1,706 new manufactured homes were shipped to Pennsylvania each year. While data on the placement of new manufactured units are not available at the state level, the majority of units shipped to the Northeast were placed in land-lease communities during that period, ranging from 55 to 70 percent, depending on the year (U.S. Census Bureau, 2021). Despite these new shipments, the number of occupied manufactured homes (both inside and outside MHCs) declined by 12.5 percent statewide from 2011 to 2021,[15] most likely driven by declines in older units that aged out of the housing stock.

Affordability

Table 1 compares recent home purchase loan characteristics for site-built and manufactured homebuyers in Pennsylvania. Manufactured homebuyers were generally lower-income and obtained substantially smaller loans than their counterparts purchasing site-built homes. Manufactured homebuyers who used chattel loans for properties to be placed on leased land (likely MHC homebuyers) were the lowest-income and received the smallest loan amounts by far, which is unsurprising, given that these loans excluded the underlying land. However, although the median loan-to-value ratio was much lower, the typical chattel loan carried more than double the interest rate of a typical manufactured home mortgage. Controlling for borrower characteristics, such as income and credit score, would likely narrow but not completely close this interest rate gap (Park, 2022; Russell et al., 2021).

As outlined in Table 1, the typical MHC homebuyer would see a monthly loan payment of $376, substantially lower than the loan payments for both site-built and manufactured

TABLE 1

Comparison of Originated Loan Characteristics by Land Ownership and Build Type, Pennsylvania, 2019–2021

	Manufactured: Chattel Loan, Leased Land	Manufactured: Mortgage Loan, Direct Land Ownership	Site-Built: Mortgage Loan
Number	2,002	2,794	412,692
Median Applicant Income	$52,000	$56,000	$78,000
Median Interest Rate	7.99%	3.88%	3.25%
Median Loan Amount	$45,000	$125,000	$215,000
Median Loan Term (Months)	240	360	360
Median Loan-to-Value Ratio	83.9%	90.0%	95.0%
Est. Monthly Loan Payment	$376	$588	$936

Notes
Calculations include only originated, first-lien purchase loans for owner occupancy. Chattel loans to manufactured homebuyers with direct land ownership, indirect land ownership, and unpaid leaseholds are excluded. Estimated monthly loan payments are based on median loan amounts, median terms, and median interest rates reported in the table.

Sources
Author's calculations using 2019–2021 Home Mortgage Disclosure Act data

[14] The American Housing Survey (AHS) does not directly ask manufactured home residents if they live in land-lease communities or parks. Instead, the AHS reports the number of manufactured homes located in groups across three size bins: one to six homes, seven to 20, and 21 or more. The 55,900 figure should be considered a rough estimate, as it excludes MHCs with three to six units but may include groups of manufactured homes where homeowners own the land beneath their properties.

[15] Author's calculations based on U.S. Census Bureau 2011 and 2021 American Community Survey.

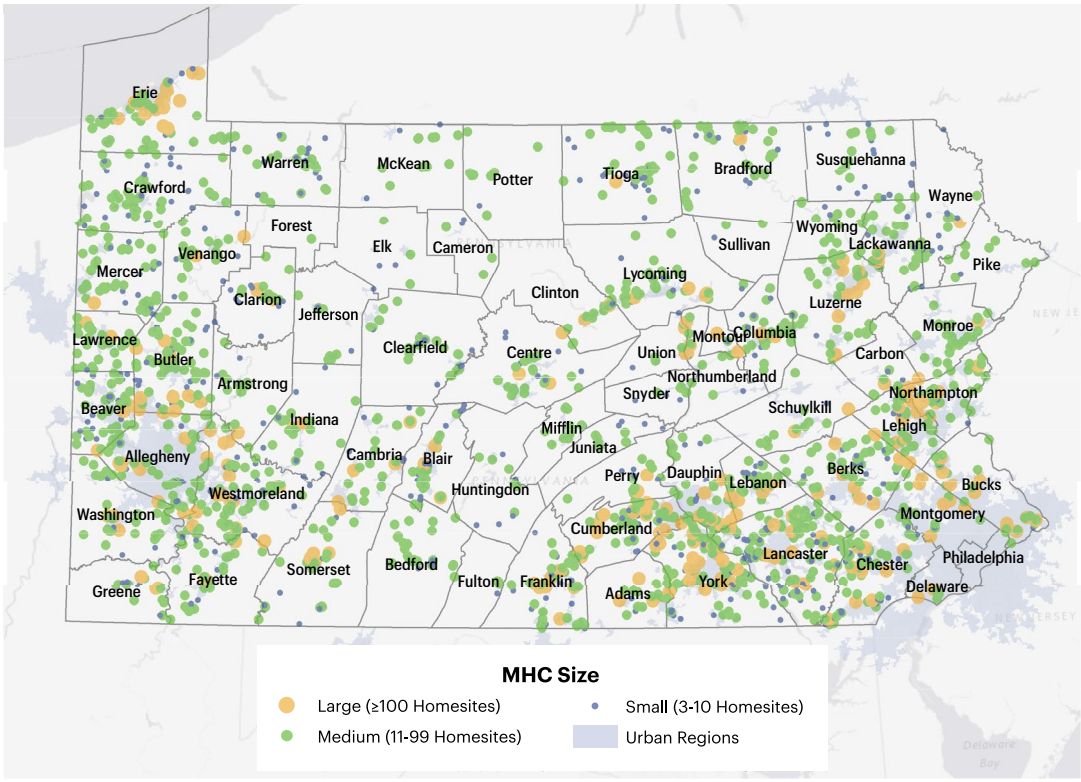
homebuyers with mortgages. However, in addition to loan payments, chattel borrowers are exposed to the cost of lot rent. According to the 2021 AHS, median monthly lot rent in Pennsylvania was $370.[16] Factoring this in, monthly rent plus loan costs for the median MHC homebuyer would be $746. While this omits certain housing costs, such as property taxes,[17] this back-of-the-envelope exercise highlights the critical importance of lot rents to the overall affordability of the MHC arrangement.

Geographic Distribution

Figure 1 displays the location and size of MHCs in Pennsylvania. Notably, MHCs are present in every county in the state except for Philadelphia County. Overall, MHCs are spatially clustered in the populous west and southeast regions of the state, and along highway routes in less densely populated areas. The two counties with the largest number of MHCs are Lancaster (140) and York (109), which are adjacent, single-county metropolitan areas with midsize central cities (see Appendix B for breakouts for all Pennsylvania counties).

Just under two-thirds (62.5 percent) of MHCs in the data set are categorized as medium-sized, with 11 to 99 homesites. Small MHCs with three to 10 homesites account for another quarter (26.2 percent), and the remaining tenth (11.4 percent) are large MHCs that have 100 or more homesites.[18] As illustrated in Figure 1, large MHCs tend to be located along the urban fringe in midsize and large metropolitan areas, particularly around Pittsburgh (Allegheny County), Erie, Allentown (Lehigh County), Scranton (Lackawanna County), York, and Harrisburg (Dauphin County). Small and medium-sized MHCs are more dispersed and present in less populated parts of the state, although many are similarly clustered around the outskirts of cities and suburbs.

FIGURE 1 Locations of MHCs in Pennsylvania



Notes
Urban/Rural classifications are based on the 2010 census.

Sources
Philadelphia FRB Manufactured Housing Community Dataset, Census TIGER/Line Shapefiles, and OpenStreetMap

[16] Includes manufactured homeowners who lease their land but are not in an MHC. Median lot rent in Pennsylvania was not significantly different (at the 90 percent confidence level) from the national median ($414). Relative to the three states with the largest numbers of MHCs (George and Yankausas, 2011), the median lot rent in Pennsylvania was significantly lower than those in in California ($700) and Florida ($600), but not significantly different than that in Texas ($315).

[17] Manufactured homes that are titled as personal property (such as those in land-lease MHCs) are subject to real property taxes in Pennsylvania, which are not factored into the figures above, although the portion of property taxes applied to the leased land are likely passed through in lot rent. Manufactured homebuyers with direct land ownership would be assessed taxes on both their home and land, neither of which is included in these figures.

[18] Large MHCs can include hundreds of homesites or more. For example, Pennwood Crossing in Bucks County, Pennsylvania, has over 1,000 homesites (see www.mhvillage.com/parks/22829).

TABLE 2 MHCs by Urban/Rural Location and MHC Size

	Count	Row % in Size Category		
		Small (3–10 homesites)	Medium (11–99 homesites)	Large (≥100 homesites)
Rural	1,063	30.2	64.5	5.3
Small Urban Region	372	30.4	61.0	8.6
Large Urban Region	853	19.3	60.5	20.2
Total	**2,288**	**26.2**	**62.5**	**11.4**

Notes
Urban/Rural classifications are based on the 2010 census. Figures are tabulated at the MHC level and are not unit-weighted.

Sources
Author's calculation using the Philadelphia FRB Manufactured Housing Community Dataset and Census TIGER/Line Shapefiles.

Notably, although MHCs are considered a predominantly rural housing type (Aman and Yarnal, 2010), Table 2 indicates that a slight majority of Pennsylvania MHCs (1,225, or 53.5 percent) are in urban areas, with close to four in ten in large urban regions.[19] Still, given that rural areas account for less than one-quarter of the total housing units in the state,[20] MHCs are disproportionately located in rural settings.

Table 2 confirms the patterns visible in Figure 1. Large MHCs are a much greater share of the MHC landscape in large urban regions (20.2 percent) than in rural areas (5.3 percent). Small MHCs, which are sometimes found interspersed among site-built homes in lower-density neighborhoods, are more common in both rural areas (30.2 percent) and small urban regions (30.4 percent) than in other settings. Medium-sized MHCs account for a relatively consistent share across community types but are slightly more common in rural areas (64.5 percent).

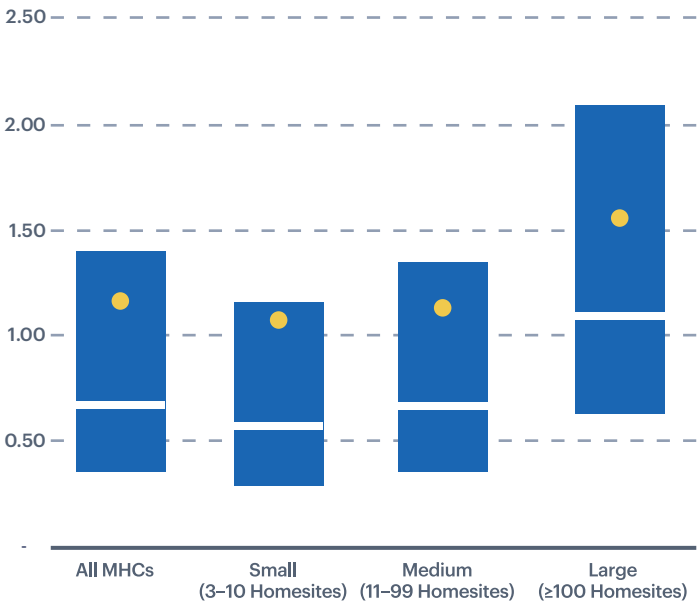
[19] The Census Bureau delineates urban and rural areas based on land use, residential density, and road connections. Urban area designations based on the 2010 census were the most recent available at the time of analysis and are used throughout this report. In the 2010 urban area designations, the Census Bureau divides urban areas into two categories – small urban regions ("Urban Clusters") and large urban regions ("Urbanized Areas"). Large urban regions typically consist of an assemblage of central cities and adjacent suburbs. Small urban regions typically comprise small towns that are not near a larger central city. Areas that do not meet the 2010 census urban criteria are classified as rural. On December 29, 2022, the Census Bureau finalized a new list of urban areas based on the 2020 census using revised criteria that, among other changes, increased the minimum population threshold for urban classification. Using the 2020 census urban areas, 82 MHCs (3.6 percent of the total) classified as urban in this analysis would instead be classified as rural.

[20] Author's calculations using 2021 data from the AHS Table Creator.

To further illustrate the range of settings in which MHCs can be found, Figure 2 presents the distribution of residential densities, in households per acre (HH/acre), of the census tracts containing MHCs. For context, the average residential density across Pennsylvania is 0.77 HH/acre, which is less than the average across tracts containing MHCs (1.17 HH/acre), but higher than the median (0.68 HH/acre).

FIGURE 2

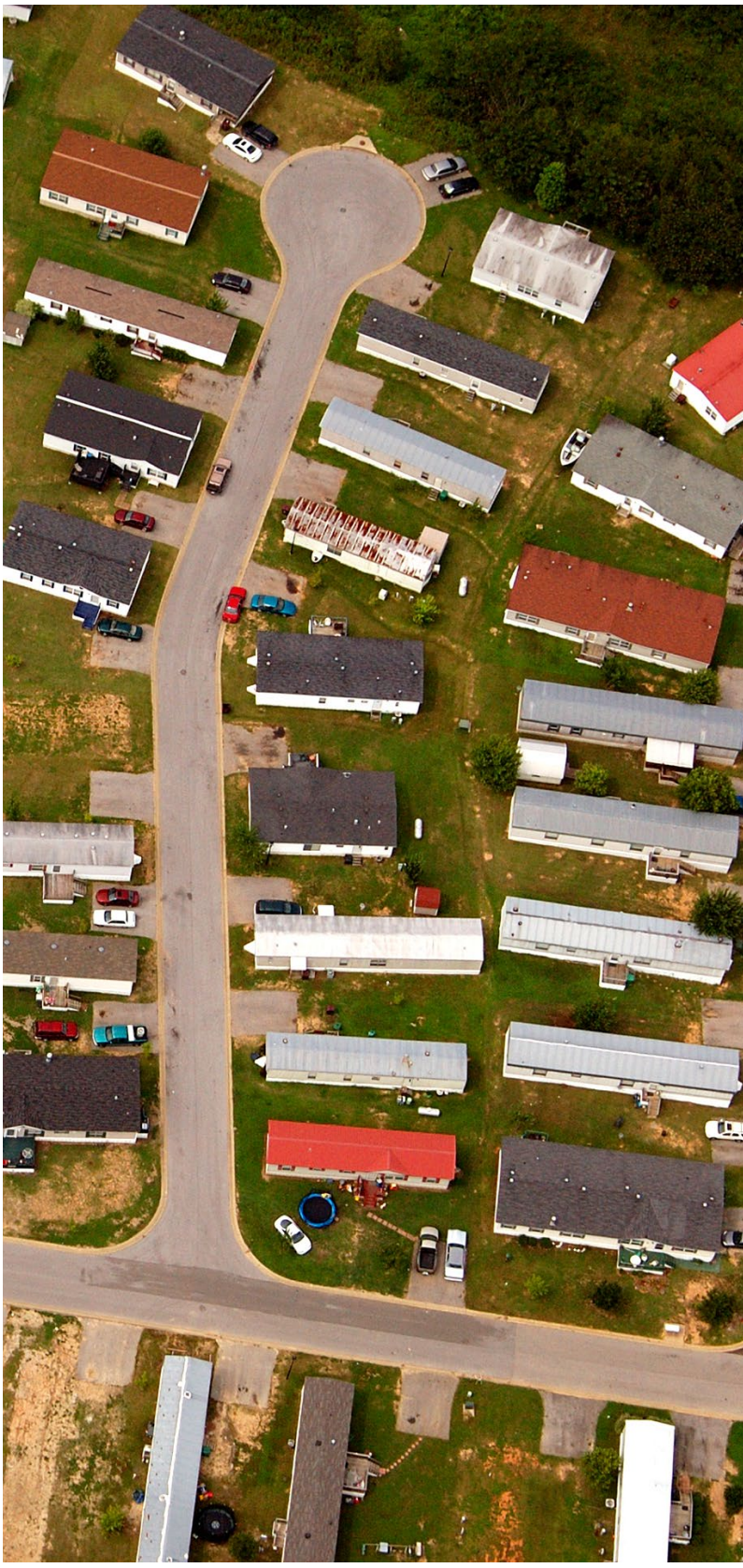
Residential Density (HH/Acre) of Tracts Containing MHCs



Notes
Boxes reflect 25th to 75th percentile values; interior white lines represent the medians; and markers represent the mean value.

Sources
Author's calculation using the Philadelphia FRB Manufactured Housing Community Dataset, Census TIGER/Line Shapefiles, and Center for Neighborhood Technology Housing + Transportation (H+T®) Affordability Index, based on 2010 census blocks.

Although the majority of MHCs are in low-density areas, the 75th percentile (1.40 HH/acre) is comparable with the residential densities associated with counties in midsize metropolitan areas (e.g., Lackawanna County in the Scranton MSA and Northampton County in the Allentown MSA). Tracts containing small and medium-sized MHCs follow a similar distribution as MHCs overall, while large MHCs tend to be in tracts with somewhat higher densities (to which these communities likely contribute), aligning with previous findings about the disproportionately suburban location of this subset of MHCs.



Lot Utilization

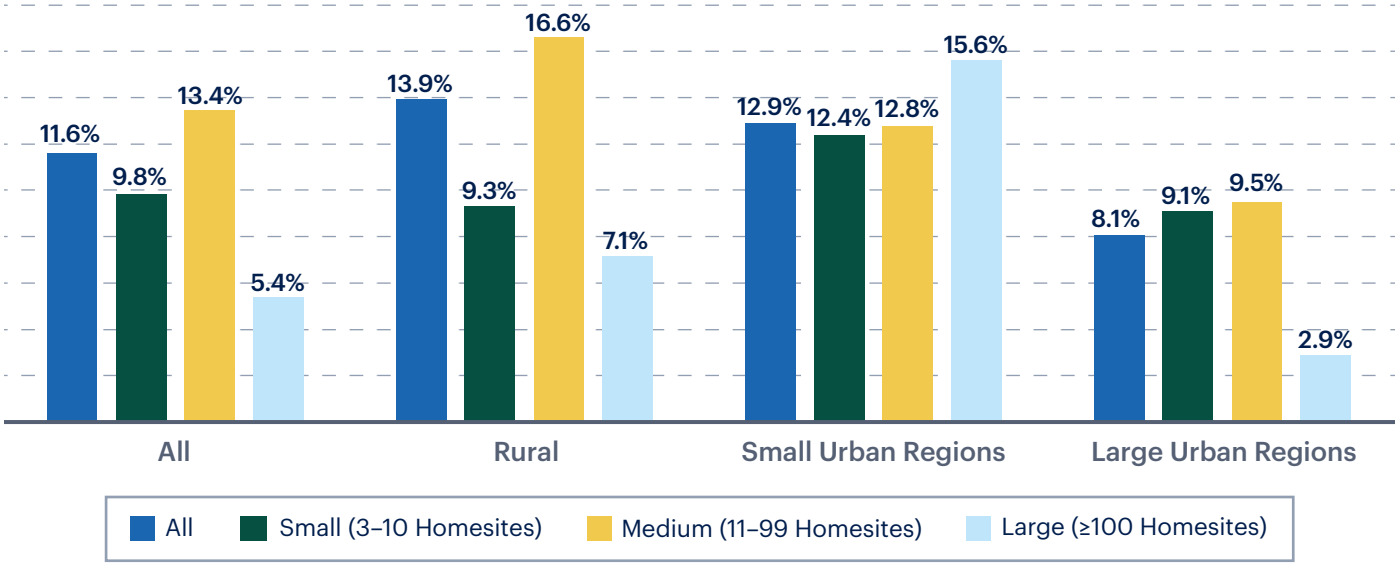
Figure 3 compares the share of MHCs identified as having a high rate of lot vacancy by community size and urban/rural location. An MHC was considered to have high lot vacancy if 30 percent or more of its homesites were vacant (i.e., not occupied by a manufactured home) in the most recent available aerial image.[21] Although this represents a snapshot of utilization for a relatively dynamic housing arrangement, lot vacancy can be viewed as an indicator of MHC demand.[22] Additionally, since each unused homesite represents forgone income for the property owner, MHCs with high lot vacancy may be at an elevated risk for disinvestment or closure due to inadequate revenue from lot rents.

Just over one in nine MHCs (11.6 percent) in the data set met the definition for high lot vacancy, suggesting significant underutilization, given the high threshold for this category. The prevalence ranged substantially across MHC size and location. Overall, high lot vacancy was more common in rural areas (13.9 percent) than in other community types and among medium-sized MHCs (13.4 percent) when compared with smaller and larger communities. The level of high lot vacancy among small MHCs (9.8 percent), which require only a few vacant sites to meet the threshold, was slightly below average and relatively consistent across locations, although slightly elevated in smaller urban regions. Large MHCs (5.4 percent) were the least likely to have high lot vacancy, driven in part by the concentration of these MHCs in larger urban regions, where MHCs across size categories were least likely to have high lot vacancy. However, large MHCs were much more likely to experience high lot vacancy in smaller urban regions, suggesting that demand for these communities is concentrated in the housing markets surrounding larger and midsize cities.

Demographic and Socioeconomic Context

Table 3 compares the demographic characteristics of the census tracts surrounding MHCs with those of Pennsylvania

FIGURE 3 Share of MHCs with High Lot Vacancy (≥30 Percent)



Notes
Urban/Rural classifications are based on the 2010 census. Percentages were calculated at the MHC level and are not unit-weighted.

Sources
Author's calculation using the Philadelphia FRB Manufactured Housing Community Dataset and Census TIGER/Line Shapefiles.

[21] See Appendix A for details.

[22] A high vacancy rate may also reflect the difficulty of adapting older MHCs to accommodate larger units that have grown in popularity in recent years, particularly in cases in which these modifications would trigger a zoning review.

TABLE 3 Demographic Characteristics of Census Tracts Containing MHCs Relative to Pennsylvania

	PA	PA Tracts Containing MHCs			
		All MHCs	Small (3–10 homesites)	Medium (11–99 homesites)	Large (≥100 homesites)
Race/Ethnicity					
Share Black	10.6%	1.9%	1.8%	1.8%	2.2%
Share Hispanic/Latino	7.6%	3.2%	3.0%	3.2%	3.7%
Share White	75.7%	92.0%	92.8%	92.1%	90.3%
Share Other/Multiracial	6.1%	2.9%	2.5%	2.9%	3.7%
Age					
Share 65 Years or Older	18.3%	20.7%	20.4%	21.0%	20.1%

Notes
Race/ethnicity categories are mutually exclusive. The Black, White, and other/multiracial categories are non-Hispanic; Hispanic/Latino can be of any race.

Sources
Author's calculations using the Philadelphia FRB Manufactured Housing Community Dataset and U.S. Census Bureau American Community Survey 2020 5-Year Estimates.

overall. It is important to note that these should not be interpreted as the demographics of MHC residents, but rather as context for the communities in which MHCs are located. Demographic characteristics of tracts containing MHCs are remarkably similar across size categories. Compared with Pennsylvania overall, these areas have a much higher share of non-Hispanic White residents and, as a result, lower shares of residents of color, particularly non-Hispanic Black residents.[23]

The share of residents aged 65 years or older is somewhat higher in tracts containing MHCs than in Pennsylvania overall, even though the state has a relatively large share of older adult residents (Kilduff, 2021). In some cases, the presence of MHCs in these tracts may contribute to this higher share of retirement-age adults, since a subset of MHCs is age-restricted communities. Additionally, some unrestricted MHCs evolve into "naturally occurring retirement communities," as the unique physical, social, and financial characteristics of these living arrangements often appeal to older adults (Tremoulet, 2010).

Table 4 summarizes the socioeconomic characteristics of the areas surrounding MHCs, both overall and by community size. Compared with the state, these areas have somewhat lower levels of educational attainment, with larger shares of adults having a high school diploma or less. This is true across size categories but is more pronounced for the areas around small and medium-sized MHCs. A similar pattern holds for household incomes and home values. However, the areas surrounding large MHCs have similar, if not slightly higher, household incomes than Pennsylvania overall, likely owing to the concentration of these communities in higher-wage metropolitan job markets.

[23] By contrast, a recent analysis of MHCs in the Houston, TX, metropolitan area found that these communities were disproportionately located in areas with larger Hispanic or Latino populations (Sullivan, Makarewicz, and Rumbach, 2022).

Despite lower rates of educational attainment and more modest household incomes and home values, the areas surrounding MHCs do not appear to be, on average, particularly distressed. For MHC tracts overall and in each size category, labor force participation and unemployment rates are comparable with statewide figures, rates of family poverty are lower, and homeownership rates are markedly higher. Taken together, these characteristics suggest that, relative to the state of Pennsylvania as a whole, MHCs often provide low-cost housing opportunities in low-poverty, high-homeownership neighborhoods.

TABLE 4 Socioeconomic Characteristics of Census Tracts Containing MHCs Relative to Pennsylvania

	PA	PA Tracts Containing MHCs			
		All MHCs	Small (3–10 homesites)	Medium (11–99 homesites)	Large (≥100 homesites)
Educational Attainment					
High School or Lower	43.2%	50.9%	54.1%	50.5%	46.8%
Bachelor's Degree or Higher	32.3%	24.2%	21.3%	24.5%	28.4%
Employment					
Labor Force Participation Rate	62.8%	61.5%	60.8%	61.5%	62.8%
Unemployment Rate	5.4%	4.3%	4.2%	4.4%	4.0%
Income					
Family Poverty Rate	8.1%	5.9%	6.5%	5.8%	5.2%
Median Household Income	$68,962	$65,165	$63,133	$64,934	$70,442
Housing					
Homeownership Rate	69.0%	79.7%	78.9%	79.8%	80.7%
Median Home Value	$204,213	$176,114	$167,711	$175,223	$197,607
Share Housing Cost Burdened	27.2%	22.5%	22.4%	22.4%	23.2%

Notes
Estimates for MHC tracts are weighted based on the universe of the target estimate (i.e., population in category, number of families, or number of households). Educational attainment measures are calculated for the population 25 years old and over. Employment measures are calculated for the population 16 years old and over. Medians are calculated as household-weighted averages of tract medians. A household is housing cost–burdened if total housing costs equal or exceed 30 percent of household income.

Sources
Author's calculations using the Philadelphia FRB Manufactured Housing Community data set and U.S. Census Bureau American Community Survey 2020 5-Year Estimates.

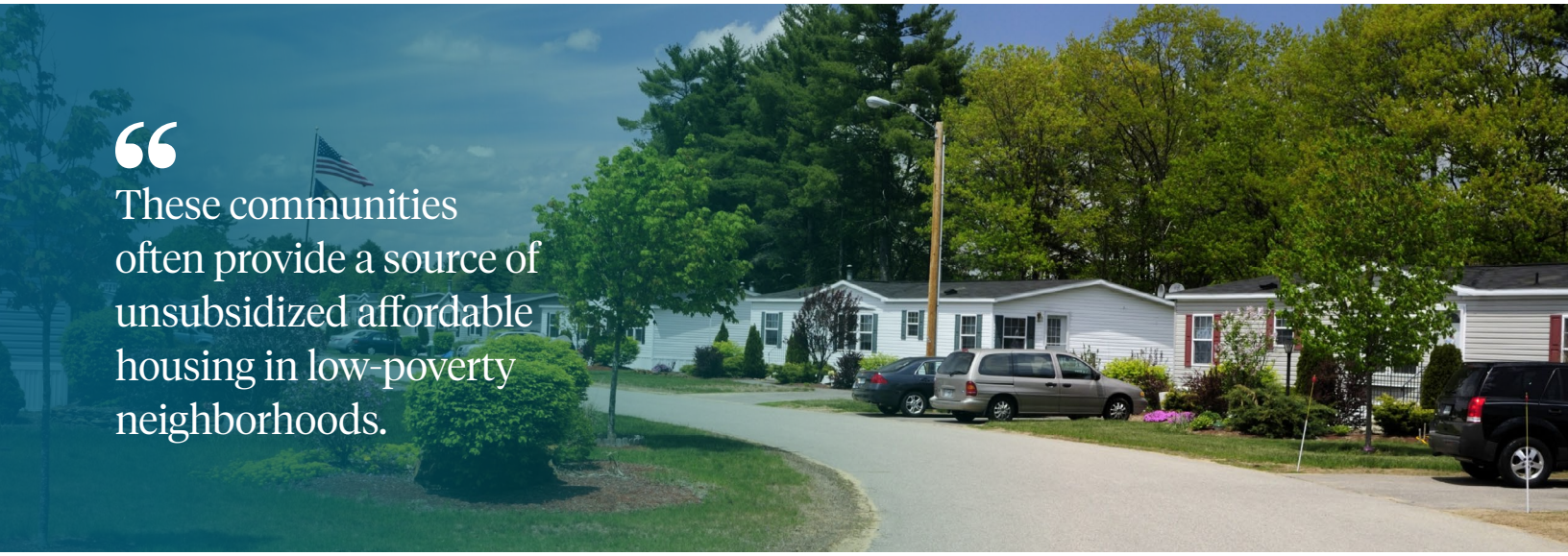
Takeaways for Policy and Practice

A few noteworthy themes emerge in this initial statewide analysis of MHCs in Pennsylvania. The first is that MHCs are present across a wide range of rural to midsize urban communities and, contrary to common perception, are present in the housing markets that surround larger urban areas. Furthermore, the lower likelihood of excessive lot vacancy in these regions suggests that demand for MHC-style housing is strongest on the outskirts of larger urban areas, where they may represent a more attainable option for lower-income homebuyers.

Although the areas surrounding MHCs are not especially affluent, findings from this initial analysis suggest that these communities often provide a source of unsubsidized affordable housing in low-poverty neighborhoods. By contrast, formally subsidized housing developments have been criticized for disproportionately concentrating households in distressed, economically marginalized neighborhoods (Newman and Schnare, 1997; McClure, 2008). With high construction costs and a shortage of low-cost for-purchase homes (Choi and Zinn, 2022), housing practitioners may consider opportunities to preserve, or even expand, access to MHCs as part of their affordable housing toolkit.

Researchers and practitioners focusing on MHCs have proposed several strategies for leveraging the potential of these communities as a response to the shortage of low-cost housing (Sullivan, 2018). For example, facilitating residents' cooperative ownership of the land beneath their homes is often discussed as a means of increasing residential security, while providing MHC homeowners with an avenue for asset building (NCLC, 2021; George and Yankausas, 2011; Ward, French, and Giraud, 2006; Abu-Khalaf, Arabo, and Swann, 2021).[24] Additionally, although access to small-dollar home purchase loans remains a challenge for even site-built homebuyers (Goldstein and DeMaria, 2022), innovations in community development finance can yield more consumer-friendly purchase loan products as alternatives to high-cost chattel financing (Thomas, 2019).

While this report provides baseline information to ground our understanding of the spatial distribution of MHCs in Pennsylvania, future work will take a closer look at pressing issues affecting the continued affordability and livability of these communities. Forthcoming research briefs will explore MHC residents' access to employment and public infrastructure, their exposure to climate-related risks, and other emerging challenges. These briefs are intended to fill critical information gaps on this understudied segment of the low-cost housing stock and can help policymakers and practitioners better understand and respond to the unique circumstances facing MHC households.



[24] For more information, see rocusa.org/whats-a-roc/what-is-a-roc-how-is-it-different/.

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Appendix A. Data and Methods

Philadelphia FRB Manufactured Housing Community (MHC) Data Set

I developed the Philadelphia FRB MHC Dataset for this report and future analyses with the goal of addressing information gaps in MHC research.[25] This initial iteration covers only Pennsylvania, although future improvements may include additional states. The data set provides the latitude and longitude for all identified land-lease MHCs and categorizes entries as small (three to 10 homesites), medium (11 to 99 homesites), or large (100 or more homesites). MHCs in which 30 percent or more of the homesites are not in use are categorized as having high lot vacancy.

I used aerial imagery to visually code communities into size and lot vacancy categories. I determined the thresholds for these categories early in the data set development process based on a review of an initial set of confirmed MHC locations, with the intent of making qualitative distinctions across communities. An individual lot was considered vacant if it appeared to previously be the site of a manufactured home that had since been moved or demolished based on the most recent available aerial image. Existing units that may have been unoccupied did not count toward this vacancy measure. Vacant lots were included in size category determinations.

In accordance with Pennsylvania's Manufactured Home Community Rights Act of 2012,[26] MHCs are defined as groupings of at least three manufactured homes that lease the land on which they are situated. Communities with manufactured homes in which residents own their underlying parcel are not included this data set, as they are not subject to the split-tenure arrangement that characterizes land-lease MHCs. Campsites that cater primarily to nightly or seasonal RV campers are also excluded, since these are not intended for long-term residential use. In the construction of this data set, I made inclusion determinations based on available information from public records, community/campsite websites, and other online sources. I take responsibility for any errors or omissions.

I used the following sources to construct the data set:

- **CoreLogic Solutions Property Records Data:**[27] This data set consists of public property assessment records, including information on land use, address, and geographic coordinates. A custom query designed to capture keywords associated with MHCs was used to generate a list of potential locations. For most Pennsylvania counties, records were queried from the 2021 tax year. For Sullivan and Warren counties, 2021 tax year data were not available at time of query; as a result, tax year 2020 data were substituted.

- **Pennsylvania Manufactured Housing Association (PMHA) Membership List:** PMHA is a membership organization that advocates for the factory-built housing industry in Pennsylvania.[28] Its membership list includes records with mailing addresses for individual MHCs, manufactured home builders, and other manufactured housing-related stakeholders. After cleaning and filtering this data set based on inclusion criteria described previously, retained records were geocoded using the PolicyMap Data Loader tool.

[25] External researchers may be able to access the data set for research produced in collaboration with the Federal Reserve Bank of Philadelphia. Inquiries should be sent to Eileen Divringi at eileen.divringi@phil.frb.org.

[26] For more information, see www.phfa.org/legislation/act156.aspx.

[27] For more information, see www.corelogic.com/wp-content/uploads/sites/4/downloadable-docs/capital-markets-data-sources.pdf.

[28] For more information, see pmha.org/.

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- **Department of Homeland Security (DHS) Homeland Infrastructure Foundation Level Data (HIFLD):**[29] The Mobile Home Parks feature class/shapefile contains mobile home, residential trailer, and recreational vehicle (RV) parks in the continental United States and Alaska. The final data set includes the relevant features from the Pennsylvania subset of this file.

- **Google Earth:**[30] Google Earth is a desktop-based mapping application that combines recent and historic aerial imagery with GIS data, making it possible to search and review aerial imagery for both addresses and geographic coordinates. Each MHC record was verified and coded into size and vacancy categories using Google Earth aerial imagery. Depending on the location, the most recent available imagery ranged from less than a year old to more than five years old.

The initial data set was derived from a query of the CoreLogic data intended to identify MHC parcels or units within MHCs. To deduplicate MHC records within the query output, I removed records with identical geographic coordinates, clustered locations within 500-foot buffers, and reviewed contextual fields in the assessment data to determine if the records pertained to the same site. Following this initial data set cleaning, I reviewed each retained property record on Google Earth to confirm its use as an MHC.

In some cases, it was not possible to infer from aerial images whether MHCs consisted of multiple adjacent parcels or if each parcel represented a distinct MHC. In these cases, I cross-referenced parcels with boundary maps accessed via the Regrid online mapping application.[31] If adjacent parcels had different owners of record, the parcels were retained as separate MHCs. If adjacent parcels had the same owner but did not appear to share a street entrance or interior streets, the parcels were retained as separate MHCs. Adjacent parcels with the same owner of record and shared entrances or interior streets were consolidated into one MHC record.

The PMHA membership list and DHS Mobile Home Parks data sets were used to supplement the outputs from the initial CoreLogic query. To prevent introducing duplicates, I overlaid the geocoded PMHA data set with the cleaned CoreLogic data set and removed any points in the PMHA dataset within a 1,000-foot buffer of CoreLogic data set points. I repeated this process for the DHS data set, using 1,000-foot buffers for both the cleaned CoreLogic data set and deduplicated PMHA supplement. This generated two new lists of MHC records, which were then reviewed and coded for size and vacancy using Google Earth. Verified records from each input data set were collated into a combined file. For a final deduplication check, I truncated the geographic coordinates of every record to two decimal places and verified duplicate values using Google Earth and Regrid.

Spatial Joins

To examine the community contexts of MHCs, I used GIS software to spatially join the coordinates of MHCs to three sets of geographies:

- To classify MHCs as urban or rural, I joined the MHC data set to the U.S. Census Bureau TIGER/Line Shapefile for Urban Areas based on the 2010 census, which includes differentiations between small and

[29] The full data set is available at hifld-geoplatform.opendata.arcgis.com/datasets/geoplatform::mobile-home-parks/about.

[30] Available at earth.google.com/web/. Historical imagery available in desktop version of Google Earth.

[31] Regrid is a property data company that maintains a nationwide parcel boundary mapping application that includes information, such as parcel ownership, from public records data. Cross-referencing the mapped parcel boundaries with satellite imagery helped identify and distinguish between multiparcel and adjacent MHCs. The mapping application is accessible at app.regrid.com/.

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large urban regions. To account for situations in which an MHC parcel may be partially included in an urban area while its associated geographic coordinate falls outside that area, I added a 500-foot buffer around the urban area shapefile before conducting the join. MHC coordinates that fell within this buffer were classified as urban. All MHCs that were not spatially joined to an urban area were classified as rural.

- I joined the MHC dataset to the TIGER/Line Shapefile for 2020 census tracts. I used the 11-digit Federal Information Processing System (FIPS) codes from this join to merge in tract-level estimates of demographic and socioeconomic characteristics from the 2016–2020 American Community Survey. Each MHC was retained as a record for the analysis, even if multiple MHCs were located in the same census tract.

- To incorporate data on residential density, I joined the MHC locations to the TIGER/Line Shapefile for 2019 census tracts and merged this data set with the tract-level Housing + Transportation Index created by the Center for Neighborhood Technology.[32] In this data set, net residential density is calculated as the average number of households per residential acre for census blocks in each tract, weighted by the count of households in each block.[33] At the time of writing, the most recent available block-level household counts were from the 2010 census.[34] Each MHC was retained as a record for the analysis, even if multiple MHCs were located in the same census tract.

Owing to differences in the inputs used to construct the Pennsylvania MHC data set, there are some variations across records in the location of geographic coordinates relative to the MHC parcel. Most records were derived from the CoreLogic dataset (1,881 of the total 2,288), which provided the coordinates of the parcel centroid.[35] However, a subset of these records (approximately 300) was missing coordinates in the CoreLogic dataset. These, as well as the 262 nonduplicate MHCs incorporated from the PMHA membership list, were geocoded using the PolicyMap Data Loader tool, which provided the coordinates associated with each street address. Similarly, the DHS HIFLD spatial layer, which accounted for an additional 145 nonduplicate MHC records, provided coordinates corresponding to street addresses. Future enhancements to the data set will standardize these coordinate locations. Since the vast majority of MHCs were wholly contained within a single census tract, this variation in coordinate locations is expected to have minimal impact on the analyses presented in this report.

[32] Available at htaindex.cnt.org/. The Center for Neighborhood Technology bears no responsibility for the analyses or interpretations of the data presented here.

[33] For more information, see htaindex.cnt.org/about/method-2022.pdf.

[34] This analysis was repeated with an alternative measure of residential density (gross household density) from the H+T data set based on 2015–2019 American Community Survey data. The patterns in the results were virtually identical, although actual values were much lower because this measure includes blocks in which no households are present. I report net residential density because I believe this measure is more intuitive to interpret.

[35] For multiparcel MHCs, this is the centroid of the parcel record retained in the final dataset.

Appendix B. Manufactured Housing Communities by County, Size, and Lot Vacancy Status

County	MHCs	Size Category			Share High Lot Vacancy
		Small (3-10 Homesites)	Medium (11-99 Homesites)	Large (≥100 Homesites)	
Adams	19	2	13	4	0%
Allegheny	50	10	32	8	18%
Armstrong	20	8	11	1	5%
Beaver	60	20	36	4	20%
Bedford	33	11	22	0	9%
Berks	66	18	36	12	6%
Blair	43	16	24	3	9%
Bradford	44	12	31	1	20%
Bucks	31	3	17	11	6%
Butler	93	20	61	12	15%
Cambria	31	9	18	4	35%
Cameron	5	2	3	0	40%
Carbon	10	2	6	2	10%
Centre	41	17	21	3	2%
Chester	77	21	46	10	8%
Clarion	29	12	14	3	21%
Clearfield	37	14	23	0	22%
Clinton	14	1	11	2	29%
Columbia	48	17	29	2	4%
Crawford	62	23	39	0	19%
Cumberland	64	14	37	13	3%
Dauphin	45	13	26	6	9%
Delaware	5	0	3	2	20%
Elk	6	3	3	0	0%
Erie	82	10	54	18	7%
Fayette	34	8	24	2	12%
Forest	1	0	1	0	0%
Franklin	59	20	31	8	8%

Appendix B. Manufactured Housing Communities by County, Size, and Lot Vacancy Status

County	MHCs	Size Category			Share High Lot Vacancy
		Small (3-10 Homesites)	Medium (11-99 Homesites)	Large (≥100 Homesites)	
Fulton	7	2	5	0	0%
Greene	19	8	9	2	11%
Huntingdon	10	4	6	0	20%
Indiana	26	6	18	2	27%
Jefferson	9	2	7	0	22%
Juniata	12	5	7	0	8%
Lackawanna	34	7	25	2	21%
Lancaster	140	44	82	14	1%
Lawrence	34	2	30	2	18%
Lebanon	37	8	23	6	3%
Lehigh	34	3	23	8	6%
Luzerne	45	7	28	10	22%
Lycoming	51	12	35	4	14%
McKean	15	4	11	0	27%
Mercer	53	10	42	1	30%
Mifflin	18	6	12	0	11%
Monroe	28	1	26	1	4%
Montgomery	16	1	9	6	13%
Montour	5	1	2	2	0%
Northampton	34	3	25	6	3%
Northumberland	14	2	8	4	14%
Perry	20	6	11	3	5%
Philadelphia	0	0	0	0	n/a
Pike	9	1	8	0	0%
Potter	10	2	8	0	10%
Schuylkill	11	1	8	2	9%
Snyder	9	3	6	0	0%
Somerset	35	9	21	5	3%

Appendix B. Manufactured Housing Communities by County, Size, and Lot Vacancy Status

County	MHCs	Size Category			Share High Lot Vacancy
		Small (3-10 Homesites)	Medium (11-99 Homesites)	Large (≥100 Homesites)	
Sullivan	3	1	2	0	33%
Susquehanna	31	19	12	0	10%
Tioga	52	19	32	1	4%
Union	6	1	4	1	17%
Venango	27	9	16	2	15%
Warren	39	17	22	0	23%
Washington	44	6	33	5	11%
Wayne	21	12	8	1	0%
Westmoreland	97	19	60	18	18%
Wyoming	15	2	13	0	27%
York	109	28	60	21	5%

Notes

An MHC was classified as high lot vacancy if 30 percent or more of its homesites were vacant in the most recent available aerial image. Percentages were calculated at the MHC level and are not unit weighted.

Sources

Author's calculation using the Philadelphia FRB Manufactured Housing Community data set and Census TIGER/Line Shapefiles.

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