

Discussion Paper

How Prevalent Were Racially Restrictive Covenants in 20th Century Philadelphia? A New Spatial Data Set Provides Answers

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How Prevalent Were Racially Restrictive Covenants in 20th Century Philadelphia? A New Spatial Data Set Provides Answers

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Abstract

One of the tools used by early 20th century developers, builders, and white homeowners to prevent African Americans from accessing parts of the residential real estate market was the racially restrictive covenant. In this paper, we present a newly constructed spatial data set of properties in the city of Philadelphia with deeds that contained a racially restrictive covenant at any time from 1920 to 1932. To date, we have reviewed hundreds of thousands of property deeds and identified nearly 4,000 instances in which a racial covenant had been included in the deed. The covenanted properties formed an invisible barrier to less densely populated areas sought after by white residents and around predominantly white neighborhoods throughout the city. We present the data in a series of geospatial maps and discuss plans for future enhancements to the data set.

Keywords: racially restrictive covenants, exclusionary zoning, segregation, race, property, Philadelphia

JEL Classification Numbers: J15, K11, K25, R12

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I. Introduction

One of the tools used by early 20th century developers, builders, and white homeowners to prevent African Americans from accessing parts of the residential real estate market was the racially restrictive covenant (racial covenant). Racial covenants were obligations inserted into property deeds that typically forbade the premises from being occupied or owned by persons not of Caucasian descent.¹ The covenants were most often written into the deeds by private developers but enforced through the courts. Evidence of racial covenants is present in cities throughout the country, including [Baltimore](#); [Boston](#); [Charlotte](#), NC; [Hartford](#), CT; [Kansas City](#), MO; [Los Angeles](#); [St. Louis](#), MO; and [Sacramento](#). Researchers have compiled databases and interactive maps of properties with racial covenants in [Chicago](#); [Minneapolis](#), MN; [Portland](#), OR; [Richmond](#), VA; [Seattle](#), and [Washington, D.C.](#) There is some evidence that property developers in Philadelphia also used racial covenants to prevent African Americans and other minority ethnic groups from owning, renting, or residing in homes constructed in more desirable parts of the city (Gottlieb, 2015). References to “restricted sections” of the city in real estate advertisements from as early as 1911 demonstrate that builders were not only imposing restrictions on new homes, but the restrictions were a primary selling point (see **Figure 1**). And careful searches through handwritten deeds of the time reveal the presence of covenants, stating that land shall not be occupied by persons “other than those of the Caucasian Race” (see **Figure 2**).

While much work has been done to document the existence of racial covenants, relatively little is known about their effects. This is beginning to change. Recent work by Sood, Speagle, and Ehrman-Solberg (2019) presents evidence that racial covenants placed on properties during the 1940s had significant and persistent effects on home prices (measured as of 2007) and African American spatial concentrations and homeownership rates in the Minneapolis area (measured as of 2010). Their results add to a growing body of economic research that includes Aaronson, Hartley, and Mazumder (2017), who find long-lasting effects of redlining during the 1930s, and Aliprantis, Carroll, and Young (2018), who find that, conditional on income and

¹ Although the terms have been used interchangeably for many years, *white* and *Caucasian* share no etymological resemblance; *white* refers to skin tone, while *Caucasian* describes a taxon of people indigenous to Europe, Asia, and certain parts of Africa.

wealth, household racial composition predicts large differences in neighborhood racial composition. Their result is consistent with the hypothesis that a legacy of racial segregation created persistent differences in neighborhood outcomes.

It is against this backdrop that we undertook an effort to discover the full extent to which racial covenants had been used to restrict homeownership in Philadelphia, the largest city in the Third Federal Reserve District and one of the most residentially segregated cities in the country.² With the help of the City of Philadelphia Department of Records (DOR), we began to develop a spatial database of racial covenants in Philadelphia property deeds. To date, we have reviewed hundreds of thousands of property deeds written from 1920 to 1932 and identified nearly 4,000 instances in which a racial covenant was included in a property deed.

We are able to make a number of interesting observations with our data. First, visual pattern analysis suggests that properties with racial covenants were not randomly distributed throughout the city. Instead, the dispersion pattern suggests the covenants were put in place to restrict the movement of African Americans into new developments and predominantly white neighborhoods.³

Second, analyzing the location of covenanted properties in relation to smaller geographical units sheds more light on the patterns of neighborhood segregation and racial covenants than does analysis at higher levels of aggregation. While this may seem intuitive, researchers have only recently been able to examine residential segregation prior to 1950 at civil divisions smaller than the city ward. Studies conducted at the enumeration district (ED) level, as noted in Logan et al. (2015), have generated results that cast doubt on longstanding beliefs about the patterns and timing of residential segregation.⁴ For reasons we discuss in Section III, we initially report the locations of covenanted properties at the ward level and conduct a ward-level

² Massey and Denton (1988) define residential segregation as, “the degree to which two or more groups live separately from one another, in different parts of the urban environment.” In 2000, the Philadelphia metropolitan area ranked 18th out of 318 in terms of black/white segregation, ahead of cities such as Kansas City (37), Pittsburgh (38), Baltimore (44), and Atlanta (67). Source: http://www.censuscope.org/us/rank_dissimilarity_white_black.html.

³ The spatial pattern of racial covenants may also reflect the preferences of particular developers and the properties they chose to purchase and develop during that period.

⁴ The 1950 Decennial Census was the first to capture information at the tract level. Logan et al. (2015), revisiting work by Cutler, Glaeser, and Vigdor (1999), show that segregation was much higher in the early 20th century than previously reported, when measured at the enumeration district level. Massey and Denton (1993) also underestimate the extent of residential segregation by race.

analysis with census data from 1920. However, with some additional work, we were able to identify approximate latitude and longitude coordinates for many of the covenanted properties and map them against demographic data at the ED level.⁵ Analysis at the ED level paints a much richer picture of the dynamics at play between property developers and owners, as well as the perceived threat posed by neighboring African American communities.

Third, there is a weak relationship between the location of covenanted properties and the neighborhood grades subsequently assessed by the federal government's Home Owners' Loan Corporation (HOLC) in 1937. Racial covenants can be found in areas of every grade, from A to D, with more than 80 percent located in midgrade areas (see **Figure 4**). This suggests that the racial composition of an area may have been an important factor in determining whether an area would receive a B or a C grade. Racial covenants were probably not needed to discourage most African Americans from relocating into grade A areas; the barrier of home prices was sufficient (Kaul, 2019). Thus, only 4 percent of covenants were found in grade A areas. In addition, the presence of covenants in the lowest graded areas could have resulted from developers, including boilerplate racial covenants into all of their property deeds.

The paper proceeds as follows. In the next section, we discuss the origins of racial covenants. In Section III, we explain the process of creating the spatial database. We present some geographic information system (GIS) images and the results of preliminary analyses in Section IV and conclude with thoughts for future research in Section V.

II. Racial Zoning and Racial Covenants

In the early 20th century, a confluence of factors instigated a large and extended migration of African Americans from southern states to northern cities, a movement commonly referred to as “the first Great Migration.” From 1915 until 1940, hundreds of thousands of poor, rural African Americans left the southeastern United States for the northern cities of Baltimore, Chicago, Detroit, New York City, and others. Where the 1910 Census indicated that 90 percent of African Americans resided in the South, the rate had fallen by 13 percentage points by 1940 (Gibson and Jung, 2002).

⁵ Enumeration districts are smaller than census tracts and typically contain fewer than 2,000 residents.

The influx of African Americans into northern cities had the effect of magnifying existing racial disparities and residential segregation patterns. Logan et al. (2015) find evidence of residential segregation in northern cities as early as 1880, a time when few African Americans lived in the northern states.⁶ Those who resided in the north tended to work as servants and housekeepers for wealthy white families and often resided near their place of employment. However, while white families lived along main streets, African American residences were often clustered along side streets and back alleys.

During the early 20th century, African American neighborhoods grew larger and more homogeneous. The question of how these early segregation patterns evolved is a topic of debate among researchers. It was certainly the result of both *sorting* (residents choosing to collocate in neighborhoods predominantly populated by people of similar race or ethnicity) and *steering* (individuals of a certain race or ethnicity made to reside in less-desirable areas than they would have otherwise chosen). While the distinction between sorting and steering is not always clear (the expectation of discrimination may induce sorting via a preference for avoiding conflict), African American migrants, having ventured northward at the urging of northern friends and family members, were likely to live in or near existing African American communities.⁷ And as African American communities grew, nearby white residents may have chosen to move toward the outer limits of cities and neighboring suburbs, foreshadowing the white flight of the 1950s and 1960s.⁸

Urban whites used a variety of tactics to prevent African American migrants from settling in predominantly white neighborhoods. Early methods of deterrence were both physical and economic. Violence against African Americans was common in low-income neighborhoods, while home prices and the imposition of various fees and dues created an economic barrier in upper-income neighborhoods. In many ways, steering practices became institutionalized. For example, for more than 30 years, real estate brokers followed a code that urged them to maintain neighborhood racial composition. Until 1956, the National Association of Real Estate Boards'

⁶ Their study includes data for 10 cities: Boston, Brooklyn (a separate city in 1880), Cincinnati, Chicago, Cleveland, Detroit, New York, Philadelphia, Pittsburgh, and St. Louis.

⁷ This process is often referred to as chain migration; see Boustan (2017).

⁸ Shertzer and Walsh (2016) examine white flight in the prewar era, and Boustan (2010) does so in the postwar era.

code of ethics instructed member agents to never be instrumental in introducing into a neighborhood “members of any race or nationality, or any individuals whose presence will clearly be detrimental to property values in that neighborhood” (National Association of Real Estate Boards, 1928).

Over time, the tactics of residential discrimination also relied more heavily on local government and law enforcement (Rose, 2013). In an early use of the legal system to exclude African Americans from white neighborhoods, white plaintiffs argued that the mere presence of African Americans in a neighborhood constituted a nuisance because it could reduce the value of their home (Rose, 2013). More often, plaintiffs bundled a racially motivated case with complaints of noise or congestion. In the end, the courts tended to side with the opinion that a person’s race — “a natural condition not in any way traceable to human activity” — could not constitute a nuisance (Freund, 1904).

While the tactic of using a nuisance law to execute residential segregation was mostly unsuccessful, the concept of using the legal system as a means of restricting the free movement of African Americans took hold. The next facet of governance to be appropriated in the pushback against integration was the zoning ordinance.

A. Zoning Ordinances

By the early 20th century, zoning began replacing urban planning as the primary means of regulating land use. Zoning ordinances dictated what activities property owners could engage in, what structures they could erect, and where on the property the structures could be erected. Brought to the United States from Germany in the 1890s, zoning ordinances were an efficient means of improving the harmony of urban spaces by separating factories and businesses from residences (Hirt, 2014). But by 1910, zoning ordinances were being used to exclude African Americans from purchasing homes in majority white neighborhoods. In response to middle-class African American families moving out of crowded, predominantly same-race neighborhoods into more affluent, less-crowded white neighborhoods, the city of Baltimore passed the nation’s first racial zoning ordinance in 1910 (Brooks and Rose, 2013). The ordinance prohibited African Americans from buying homes on majority white blocks and vice versa (*New York Times*, 1910). The use of zoning ordinance to segregate neighborhoods garnered widespread use in the early

20th century, with southern cities including Atlanta, Birmingham, Miami, Charleston, Dallas, Louisville, New Orleans, Richmond, and St. Louis following Baltimore's lead.

In the 1917 case of *Buchanan v. Warley*, the Supreme Court ruled that municipally mandated racial zoning was unconstitutional. The court opinion notes that the 14th Amendment prevents state interference with property rights, except by due process of law, and that the amendment protects all U.S. citizens, regardless of color or race.⁹ Despite the ruling, cities including Atlanta, Austin, Birmingham, Richmond, and West Palm Beach continued to adopt and enforce racial zoning ordinances. Such ordinances were again held unconstitutional in 1927; yet, the ordinances were enforced in some cities well into the 1980s.¹⁰

With racial zoning now illegal, property developers turned to restrictive covenants in property deeds (see sidebar on page 7) as the primary means of establishing residential segregation.

B. Racially Restrictive Covenants

In the same way deed restrictions were used to insulate new residential subdivisions from the potential harm of industrial use, it became popular to use restrictions to insulate predominantly white subdivisions from African American buyers. Clauses typically put into deeds by land developers, racial covenants restricted the sale of new properties to whites only and prevented future generations of homeowners from selling or renting the property to African Americans.

The first restrictive covenant to restrict the sale of a property on the basis of race or ethnicity appeared in Brookline, MA, in 1843, where deeds from the Linden Place subdivision

A property deed is a legal document whose purpose is to record a transfer of ownership from a grantor, or owner, to a grantee, or purchaser. Deeds typically include a description of the property and its boundaries, an indication of the type of conveyance embodied, and the names and signatures of the grantor and grantee. They may also include clauses or covenants restricting the use and ownership of the property.

To see how restrictive covenants might be used, consider a real estate developer who is planning a new residential subdivision. The developer might prohibit nonresidential uses such as business, manufacturing, hospitals, or prisons as well as so-called nuisance activities such as keeping chickens or locating fuel tanks above ground (Monchow, 1928). In this way, the appeal and value of residential property could be preserved from the potential harm of industries known for emitting noxious fumes and waste (McGruder, 2015).

⁹ See *Buchanan v. Warley*, 245 U.S. 60 (1917).

¹⁰ See *Harmon v. Tyler*, 273 U.S. 668 (1927).

included a clause stating that the residences could not be sold to “any Negro or native of Ireland” (McGruder, 2015). The pace of deed restrictions accelerated rapidly through the 1910s and 1920s. A 1926 Supreme Court decision may have accelerated the spread of racial covenants throughout the country. In the matter of *Corrigan v. Buckley*, the Supreme Court found that, while states could not engage in racial zoning, nothing prohibited private individuals from agreeing not to sell their homes to people of designated races, ethnicities, or nationalities (Brooks and Rose, 2013).

One study found that, from 1910 to 1920, the number of properties with racial covenants in Minneapolis, MN, increased by almost 500 percent, from 1,436 in 1910 to 8,534 in 1920.¹¹ By 1950, there were approximately 17,500 racial covenants on Minneapolis properties. Racially restrictive covenants remained enforceable in state courts until 1948, when the U.S. Supreme Court ruled that, while not illegal in and of themselves, racial covenants could not be enforced through the state court system.¹²

Racial covenants (and the less familiar but closely related racially restrictive condition) tended to fall into one of three categories (Monchow, 1928; and Scanlan, 1949). The first category includes covenants that restricted ownership, more specifically the sale, lease, conveyance to, or ownership by any member of a certain racial or ethnic group. The second category includes covenants that prohibited use or occupancy by any member of such a group, and the third prohibited both ownership and occupancy. Once a deed restriction was in place, it might remain with the property for decades. This was often achieved by way of one or more workarounds to the rule against perpetuities (RAP), a common law doctrine that was intended to prohibit property restrictions from remaining in place for more than one generation (about 21 years; Brooks and Rose, 2013). Thus, many deed restrictions were written with an explicit duration of 20 or 21 years, particularly around the turn of the 20th century.¹³ Real estate developers could also circumvent the RAP doctrine by structuring their purchase agreements to retain a reversionary interest in the property. A reversionary interest could be established by

¹¹ See <https://www.mappingprejudice.org/index.html>.

¹² See *Shelley v. Kraemer*, 334 U.S. 1 (1948).

¹³ In our data, covenants with an explicit (and finite) duration tended to be for 10, 25, and 30 years. More often, the covenant was said to extend “hereafter forever.”

stating that, if one of the covenants is violated, the property would revert back to the developer. Thus, maintaining a residual ownership interest in the property was another way to circumvent the RAP doctrine and extend deed restrictions for many decades (Brooks and Rose, 2013).

A 1928 survey of 84 deeds found that deed restrictions typically contained a stated duration as well as a set of conditions under which the restrictions could be extended (Monchow, 1928). Some restrictions were designated to renew automatically at the frequency of the original term, unless certain conditions were met. For example, some deeds specified that either a majority or supermajority (e.g., two-thirds) of owners in the development had to agree in writing to terminate the automatic extension. Automatic renewals and high thresholds for termination may help to explain why racial covenants remain on deeds throughout the country, having followed properties through many generations of ownership (WOSU Public Media, 2017).

The use of racial covenants was promoted by trade groups, including the National Association of Real Estate Brokers (NAREB), the national trade group for white real estate brokers (Jones-Correa, 2000). In 1924, NAREB adopted an amendment to its member code of ethics that required brokers to practice racial steering or risk expulsion. A model real estate licensing act, adopted by 32 states, authorized state real estate commissions to revoke licenses of agents who violated the NAREB code of ethics (Plotkin, 2001). In 1927, in conjunction with the U.S. Department of Commerce, NAREB drafted a model racial covenant (see sidebar on page 10).¹⁴ Restrictions based on the NAREB model were inserted into deeds across the country. NAREB also encouraged local real estate boards to partner with homeowner associations to spread the model covenant (Roithmayr, 2014).

¹⁴ See <http://wbhsi.net/~wendyplotkin/DeedsWeb/philpott.html> for additional information.

At their core, racial covenants served the purpose of maintaining separate residential areas for persons of different ethnic groups. In suburban areas where residential real estate development was just beginning and in urban areas where aging housing stocks were being replaced with new homes and subdivisions, racial covenants were a means of introducing social norms into places where none existed

previously, or of codifying social norms already in place. Since they were embedded in deeds, racial covenants were contractual, and since they were entered into by private businesses and citizens, they were not explicitly actions of the state and thus not public policy. However, the responsibility for enforcing racial covenants ultimately fell upon the judicial system, a public institution. It was on this basis that, in 1948, racial covenants were challenged in court and deemed unenforceable. In *Shelley v. Kraemer*, the U.S. Supreme Court ruled that any court that enforced a racial covenant violated the equal protection clause of the 14th Amendment, which prohibits states from denying a person within its jurisdiction the equal protection of the law.¹⁵

The court's decision meant that enforcing a racial covenant through the court system was akin to the state taking action against citizens, violating their 14th Amendment rights (Brooks and Rose, 2013). Still, the court ruling did not prevent racial covenants from being written into deeds. It was not until 1968 when Title VIII of the Civil Rights Act made racial covenants illegal.¹⁶

Model Racial Covenant (NAREB, 1927)

1. No part of said premises shall in any manner be used or occupied directly or indirectly by any negro or negroes, provided that this restriction shall not prevent the occupation, during the period of their employment, of janitors' or chauffeurs' quarters in the basement or in a barn or garage in the rear, or of servants' quarters by negro janitors, chauffeurs or house servants, respectively, actually employed as such for service in and about the premises by the rightful owner or occupant of said premises.

2. No part of said premises shall be sold, given, conveyed or leased to any negro or negroes, and no permission or license to use or occupy any part thereof shall be given to any negro except house servants or janitors or chauffeurs employed thereon as aforesaid.

¹⁵ See <https://constitutioncenter.org/interactive-constitution/amendments/amendment-xiv/the-equal-protection-clause/clause/20> for more information.

¹⁶ See Pub L. No. 90-284, 82 Stat. 73 (1968). Title VIII of the Civil Rights Act is known as the Fair Housing Act.

Despite the demise of the racial covenant more than 50 years ago, research suggests that African Americans continue to face challenges in securing favorable residential opportunities. A feature of modern residential discrimination is that it tends to occur via the home-buying process. A recent paper by Christensen and Timmons (2018) found strong evidence that real estate agents continue to steer similarly situated minority households toward worse neighborhoods than their white counterparts. Controlling for income and locational preferences, discriminatory steering explains a significant fraction of the disproportionate share of minority households in impoverished neighborhoods and neighborhoods nearby contaminated land designated as Superfund sites by the U.S. Environmental Protection Agency.¹⁷

III. Creating the Spatial Database

Beginning in 2018, we launched an initiative to discover the extent to which racial covenants had been used to restrict homeownership in Philadelphia. Our goal was to create a spatial database of racial covenants in Philadelphia property deeds. The database would enable researchers to map the location of properties that were once restricted by race and to analyze the covenants' effect on residential patterns and the disparities in economic outcomes between white and nonwhite Philadelphians. The historical deed books are a matter of public record and are accessible through the DOR's historical land and vital records [website](#). Although pages of the deed books have been copied to microfilm and converted to electronic image files, the site was designed to facilitate the retrieval of individual deed records. To create a spatial database, we would need to search millions of deeds spanning a period of 20 or more years. The DOR provided electronic records for the period 1920–1938. This window was selected because it coincided with the period during which racial covenants were being written into deeds and because most Philadelphia deed records prior to 1917 were handwritten, making the task of optical character recognition (OCR) significantly more challenging. We received more than 1.2 million files (146GB), each file containing a scanned copy of two pages from the deed book.

To convert the images to searchable PDF files, we read small batches of image files (300–400) into OCR software. The software was configured to automatically correct various aspects of the image prior to executing the character recognition process. Because the image files

¹⁷ See <https://www.epa.gov/superfund/what-superfund> for more information.

varied widely in fidelity, some text was well reproduced from the images, while images that were blurred, too dark, or too light tended to generate long string of nonsense characters.

Once a batch of deeds had been converted from images to searchable text, we began the process of identifying deeds containing racial covenants. To do so, we searched for keywords such as: *Caucasian*, *Negro*, *white*, *black*, *descent*, and *occupied*. One way we attempted to overcome the image fidelity and clarity challenges was to search for keyword fragments. For example, we searched for the word *Caucasian* as well as *cau*, *cauc*, *asian*, and *ian*. This approach yielded many more hits than searching by keyword alone.

As of the writing of this paper, our search has yielded more than 3,800 distinct properties with racial covenants, spanning the period 1920–1932.¹⁸ Properties that appeared more than one time in the deeds data set were entered into the spatial database as different records, but only enter the final tally once. In most instances, this occurred when a property changed hands. For example, the property at 1031 Flanders Road in the 34th Ward was sold by Edward Hoopes in April 1928, and by Albert Simon in February 1930. In some instances, we observed a property transferring hands twice in one day, as on April 15, 1920, when the property at 3833 Walnut Street was bought and sold both by George E. Outhette and William Alexander Brown.

Since the deed records are not marked with a chronological identification number, we were unable to compute the exact number of deed records searched. We estimate that a total of 600,000 to 1.2 million deed records were searched, since most of the 1.2 million image files contained a left- and right-hand page, and a single deed record tended to be between two and four pages in length.

Upon locating a keyword or keyword fragment, we noted the location of the deed in the electronic records, as well as the following information:

- Date of deed
- Race-related search term identified in the text
- First seller listed
- Location of plot(s)
- Ward number

¹⁸ We found 15 racial covenants in deeds that were dated 1919.

With additional resources, we would have recorded several additional pieces of information for each deed containing a racial covenant, including the exact text of the covenant, the stated covenant duration, and the first listed buyer. This — and other areas for future work — will be discussed in the final section.

A. Two Important Caveats

In a world where searching is as easy as typing a word into a search bar, it is worth noting that the process of converting pictures of documents into machine readable text is not as precise. In this section, we discuss two important caveats for readers. The first is that our findings should be interpreted as a lower bound on the true number of racial covenants added to properties from 1920 until 1932. We can say with certainty that there are zero instances in which our algorithm identified a covenant where one did not exist (i.e., Type I error). However, we are less certain that our algorithm found all covenanted properties (i.e., Type II error). The second caveat directs attention to the additional work needed to enhance the precision of our coordinate estimates.

1. A Lower Bound

First, our tally likely underestimates the number of racial covenants present in the data sample. As noted previously, varying image quality affected the OCR software's ability to translate images into words. The typewritten deed records also varied in type spacing and horizontal alignment. Lines of text sometimes drift down the page and letters of the same word are often not on the same horizontal plane. All of these factors created challenges in converting the images to searchable documents. We attempted to mitigate the effects of these and other challenges by searching for word fragments, but it is unlikely our process identified all racial covenants. In addition, deeds are not required to be immediately recorded in the county deed books. Thus, although we reviewed files from the deed books corresponding to the period 1920–1932, our sample contained some deeds written before 1920 and probably excluded some that were not recorded until after 1932. Last, some deed writers might have used uncommon or obscure words to refer to African Americans or persons of another religion or ethnicity. For example, other analyses of racial covenants have found African Americans broadly referred to as Ethiopians, a word that was initially on our search list but was dropped for the sake of efficiency when it did not appear to be yielding hits.

2. *Imprecise Coordinate Estimates*

Second, we were unable to ascertain the exact location of most properties on the basis of information provided in the deed itself. Plots of land in the city of Philadelphia have historically been identified by a metes-and-bounds description — a surveying methodology that identifies a piece of land by placing it in relation to nearby landmarks — rather than by parcel number or other unique identifier. Philadelphia County was very much under development during the first half of the 20th century; thus, many of the deeds in our sample convey plots of land to developers who would then go on to subdivide the property and build streets and homes. After 1927, we observed more deeds being associated with a particular address (or addresses). Thus, the need to match metes-and-bounds descriptions to addresses may diminish as we progress further into the deeds data.¹⁹

When a street address was available, we used a geocoding application programming interface (API) to generate latitude and longitude coordinates. Likewise, for a small number of deeds, we were able to easily determine the street address based on the metes-and-bounds description and could then retrieve its coordinates from the API.

When a street address was unavailable, we approximated the property location to either the nearest street intersection or the intersection that marked the beginning of the metes-and-bounds description. In the first case, we leveraged the order imposed by central Philadelphia's gridiron-style layout; in instances where a north-to-south running numbered street intersected an east-to-west running named street (e.g., 18th Street and Walnut Street), the property was assigned the coordinates of the first even-numbered property on the block (e.g., 1800 Walnut Street). In the second case, if a metes-and-bounds description began at the corner or intersection of two streets, we approximated the property location with the set of coordinates corresponding to the center of the intersection.

¹⁹ Today, each property in Philadelphia has a unique, nine-digit parcel number, initially created by the Board of Revision of Taxes. Since 2010, the process has been administered by the Office of Property Assessment; however, current Philadelphia County document recording [requirements](#) state that properties must only be identified by the metes-and-bounds description and street address.

IV. Preliminary Observations

A. Ward-Level Analysis

As noted in Section III, most deeds from the 1920s referenced properties that did not yet have street addresses. In other cases, an address might not have been provided. Fortunately, each deed included a reference to the ward in which the property was situated.²⁰ Thus, our most geographically accurate representation of the new data is at the ward level. Column (b) of **Table 1** lists the number of covenanted properties found in each of Philadelphia's 48 wards.²¹ We use data from the 1920 census to calculate the number of covenants per thousand dwellings in column (c).

For the period 1920–1932, the largest number of covenants were found in Ward 22, an area of northwest Philadelphia with a population that was 7.8 percent African American in 1920, just above the overall rate of 7.4 percent. The 877 covenanted properties in Ward 22 account for about 23 percent of the total covenants in the 1920–1932 subsample. The next largest shares of covenanted properties were found in Wards 34 and 42, with 593 and 434 covenants, respectively. Taken together, Wards 22, 34, and 42 contained nearly 50 percent of all covenants in the sample. The remainder of covenanted properties were found in another 20 wards, while no properties with covenants were found in 20 of the 48 wards. The 20 wards in which no covenants were found mostly fall along the Delaware River on the city's eastern shore line.

At the ward level, there is evidence that racial covenants could have reduced the inflow of African Americans into particular wards. The percentages of ward residents identified as black in 1920 and 1930 are found in columns (d) and (e) of **Table 1**. The correlation between racial covenants per thousand dwellings and the change in the percentage of African American residents from 1920 to 1930 is -0.258, suggesting that the relationship is directionally within expectations. In addition, the percentage of African Americans in wards in which 0 to 10

²⁰ The Census Bureau did not adopt the census tract as an official geographic entity until the 1940 census. See https://www.census.gov/history/www/programs/geography/tracts_and_block_numbering_areas.html.

²¹ The city had 48 wards from 1914 until 1932. Today it is divided into 66 wards. See <https://www.philadelphivotes.com/en/resources-a-data/political-maps>.

covenants were located grew by 8.1 percent, compared with 2.3 percent in wards with 10 or more covenants.²²

The 22nd Ward, with 877 covenanted properties, lies in the northwestern part of the city and includes the neighborhoods of Germantown, Mount Airy, and Chestnut Hill. These neighborhoods were initially home to middle class and wealthy Philadelphians seeking to avoid the congestion of Center City. As development expanded outward and more areas became accessible by streetcar, the area became increasingly accessible to working-class citizens traveling along the old 23 streetcar line that ran from Chestnut Hill to South Philadelphia.²³ Situated between Chestnut Hill and Germantown, Mount Airy is better known for its intentional efforts to be an integrated community throughout the 1950s and 1960s (Rolland and DeMaria, 2016; and Ferman, Singleton, and DeMarco, 1998).

Similarly, Ward 34 in West Philadelphia, containing 593 covenanted properties, began as a getaway for upper-class Philadelphians. In the second half of the 19th century, its location on the western banks of the Schuylkill River made it attractive to developers who built country homes for middle-class buyers. Shortly after its incorporation in 1902, Philadelphia Rapid Transit began construction of electric streetcar lines to West Philadelphia, earning the area the moniker of streetcar suburb.²⁴ By the 1920s, many of the 19th century homes were demolished to make way for the construction of large, four- or five-story apartment houses.²⁵

The number of covenanted properties in a ward is, in part, a function of the residential construction occurring there. Thus, we would expect to see fewer covenants in wards that experienced very little construction. As late as 1937, much of the far northeast, from Pennypack Park to Bucks County, still contained vast swaths of farmland.²⁶ **Figure 3** shows that, on a per-dwelling basis, the areas of the city with the most covenanted properties were in Wards 35 and

²² Calculations weighted by population totals from the 1920 census.

²³ See http://www.phillytrolley.org/1923map/1923_prt_map_z1.html.

²⁴ In 1998, the West Philadelphia Streetcar Suburb Historic District was placed on the National Register of Historic Places.

²⁵ See <http://www.uchs.net/HistoricDistricts/wpsshd.html>.

²⁶ Source: HOLC Residential Security Map for Philadelphia, PA, available at <https://dsl.richmond.edu/panorama/redlining/#loc=12/40.038/-75.12&city=philadelphia-pa>.

41 in the northeast and far northeast (dark red), respectively.²⁷ While sparsely populated in 1920 — combined, these two wards had a density of 866 persons per square mile, much lower than the overall county density of 14,000. By 1930, the populations of the two wards had grown by 314 percent and 95 percent, respectively. Thus, if much of the new residential construction that occurred in the greater northeastern part of the city during the 1920s was covered by racial covenants, we would indeed expect to see a high concentration of covenants per thousand dwellings, as **Figure 3** suggests.

B. HOLC Map Analysis

Next, we replace the ward-level map with HOLC's 1937 residential security map of Philadelphia. HOLC was established by Congress in 1933, with a mandate to refinance residential mortgages in default.²⁸ Beginning in 1935, HOLC staff created maps of cities throughout the country as a reference to assist in the collection and disposition of the mortgage debt it had purchased from lenders. Areas shaded in green (grade A) were expected to be racially homogeneous and have space for new construction (Aaronson, Hartley, and Mazumder, 2017). Those shaded in blue (grade B) were similar to green but no longer had space for new residential construction. Areas shaded in yellow (grade C) were declining and might be racially or ethnically mixed or have the potential to become mixed. Red areas (grade D) were undesirable and often had high concentrations of Jewish or African American residents.

Figure 4 shows where covenanted properties fell on the HOLC map, bearing in mind that the covenants were written several years prior to the HOLC map and were certainly considered by HOLC staff when grading an area. The latitude and longitude coordinates associated with each of the covenanted properties is superimposed. As noted in Section IV, we do not currently have exact coordinates for many of the covenanted properties. For those properties, we chose to append the coordinates of the nearest intersection. Thus, the size of each red dot signifies the number of covenanted properties that have been mapped to that particular location, with larger red dots signifying more properties.

²⁷ In 1920, the Bureau of Labor Statistics began collecting data on new building permits issued in the country's largest cities. While Philadelphia is included in the data set, the data are not available at the ward level. In lieu of data on building permits, we computed the number of covenanted properties as a percentage of the number of dwellings listed in the 1920 Census.

²⁸ It did so by exchanging government bonds for defaulted mortgages. See Hillier (2002) for additional information.

Only about 4 percent of covenants were in green areas, while over 60 percent of the covenants were in blue areas and 23 percent in yellow areas. This suggests the hypothesis that HOLC staff may have viewed the presence of covenants as a second-order factor in highly rated portions of the city but weighed them more heavily when determining whether an area should receive a blue grade or a yellow grade.

A second observation in **Figure 4** that warrants further examination is the location of covenanted properties near the borders of differently colored areas. This is particularly visible in Northeast Philadelphia, where covenants in the blue area dot the perimeter between it and several yellow areas, and in Southwest Philadelphia, where yellow areas border red areas. Covenanted properties along area borders are further evidence that developers and builders may have viewed covenants as necessary buffers between white neighborhoods and nearby African American neighborhoods.

C. Enumeration District-Level Analysis

In their work on residential segregation, Allison Shertzer, John Logan, and their colleagues have found that the geographic scale in which one examines residential segregation can have significant effects on results. Shertzer, Walsh, and Logan (2016) argue that this issue — known as the Modifiable Areal Unit Problem — has affected the work of previous researchers whose analyses relied on ward-level data. For this reason, they recommend using EDs to examine racial composition prior to introduction of census tracts in the 1940s.²⁹ Moreover, they have created and made publicly available ED shapefiles for the period 1900–1930 for 10 cities, including Philadelphia.³⁰

In **Figure 5**, the city is divided into hundreds of EDs, many of which are no larger than a few city blocks. Alison Shertzer also provided us with demographic data at the ED level, which we use to map the racial composition of each ED (shaded in blue). **Figure 5** places the covenanted properties in relation to the many small African American neighborhoods that dotted the city in 1920, and, in doing so, significantly refines the narrative. The covenanted properties

²⁹ In addition, Smith (2016) recommends using *intensive* data representations — those that are comparable across areal units of different sizes and characteristics — to conduct areal data analysis. An example would be to use population per square mile in place of population count.

³⁰ The shapefiles are available to download at https://s4.ad.brown.edu/Projects/UTP2/HGISDoc/Final_Version_All_ED_Maps.zip.

tend to fall along a large horizontal swath of land just south of the greater Northeast, with concentrations in neighborhoods, such as Dearnley Park (Shawmont), East Falls, East Mount Airy, East Germantown, West Oak Lane, Lawndale, Juniata Park, Frankford, Mayfair, and Tacony. West of the Schuylkill River, the covenants are clustered in the neighborhoods of Overbrook, Carrol Park, Wynnefield, Kingsessing, Southwest Schuylkill, and Clearview. Just east of the river, across from Southwest Schuylkill, covenanted properties were found in Grays Ferry. In the greater Northeast, covenanted properties were found in Fox Chase and in the Somerton Gardens section of Somerton, a small development along the city’s northern edge.

Many of the covenanted properties are in neighborhoods adjacent to those with high concentrations of African Americans. For example, in Tacony — a neighborhood on the city’s northeastern waterfront — the ED formed by Princeton Avenue, Gillespie Street, Route 73, and a railway line, was 35 percent African American (**Figure 6**). There, racially covenanted properties dot the bordering streets, presumably to keep African American residents from advancing into adjacent, mostly white neighborhoods.³¹ Likewise, in **Figure 7**, covenanted properties located in the center of East Falls lie just north of two EDs with higher proportions of African American residents.

In some instances, the imposition of racial covenants appears to have been driven by an existential — rather than imminent — threat. In the Germantown Westside neighborhood, a group of 44 homeowners living along either side of West Penn Street banded together in 1927 to voluntarily impose a rather strict covenant, whereby violators could be evicted “by force of arms” (**Figure 8**). The full text of the covenant is reproduced below:

That at no time hereafter forever shall any of the said properties be owned, occupied, or leased by any persons other than those of the Caucasian race. That at any time hereafter forever if any person or persons of any other race occupy any of the said properties or any portion thereof, it shall be permissible for any owner or occupier of any property hereinbefore mentioned to evict the same by

³¹ Recall from Section III.A.2 that, when a street address was unavailable, we approximated the property location to either the nearest street intersection or the intersection that marked the beginning of the metes-and-bounds description. Thus, it is likely that a racial covenant located at an intersection is linked to an interior lot. We do not believe this affects the results presented here.

force of arms or by action at law, and any title given by any deed to any person other than that of the Caucasian race shall be null and void.

V. Concluding Remarks

The research presented in this Philadelphia Fed Discussion Paper represents a critical first step in a broader initiative to ascertain the causal effects of racial covenants on a variety of economic and social outcomes, including the wide and persistent racial wealth gap. We have begun the process of cataloguing Philadelphia's covenanted properties, finding 3,826 distinct covenants placed on city properties from 1920 to 1932.

Going forward, we hope to better leverage our technological resources by automating key parts of the discovery process, testing more powerful OCR software, and investigating how the process might benefit from the tools of machine learning. With a refined process in hand, we hope to continue to work with the Philadelphia Department of Records to expand our window back to 1910 and forward to the *Shelley* decision of 1948 and beyond. Our preliminary findings suggest there is a rich vein to be mined, and the information will only become more valuable as more information is gathered and the geolocation process refined.

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Figure 1. Advertisement for New Homes (1911)

60th STREET

BELOW CATHARINE ST.
In the New Restricted Section.

2-STORY 10 ROOM

PORT DEPOSIT GRANITE

STONE FRONT HOMES

Some have breakfast rooms and some have pantries. All have hot water heat, combination coal and gas ranges, hardwood, tiled bath rooms, wide porches and terraces, basement laundries, with electric equipment and roof ventilators.

THE STREET IS 80 FEET WIDE.

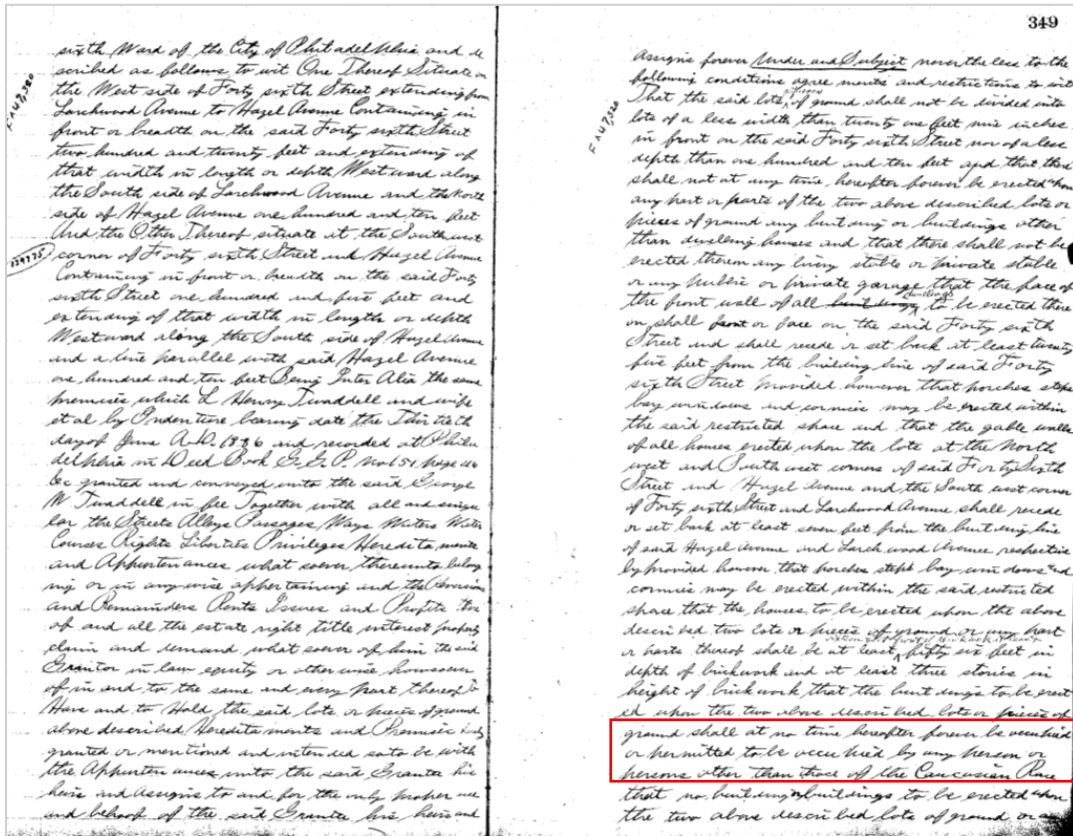
\$4400 HONEST VALUE

SAMPLE HOUSE, 708 S. 60TH ST.
Elevated Railway to 60th st., with free transfers.

JOHN L. FRY, BUILDER
ON PREMISES

Source: *The Philadelphia Inquirer*, Sunday, March 5, 1911; courtesy of J.M. Duffin, University of Pennsylvania.

Figure 2. Excerpt from Deed of Sale from James H. Watson to George W. Twaddell (April 10, 1912)



Source: City of Philadelphia Department of Records; courtesy of J.M. Duffin, University of Pennsylvania.

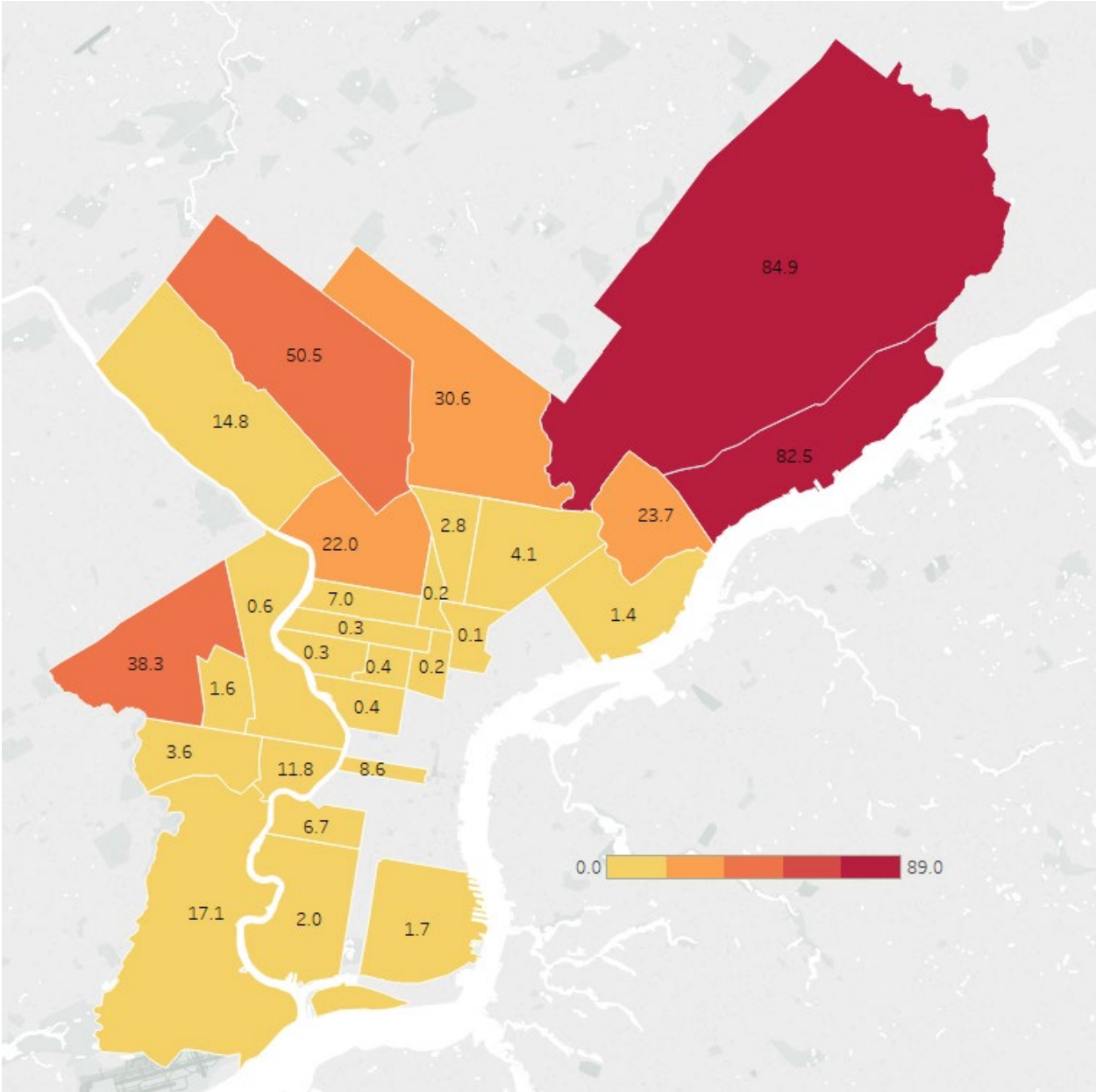
Table 1. Racial Covenants Identified in Philadelphia Deed Books, 1920–1932

(a) Ward	(b) Number of Covenanted Properties	(c) Racial Covenants per Thousand Dwellings	(d) Percent African American, 1920	(e) Percent African American, 1930
1	0	0	0.6%	2.4%
2	0	0	5.6%	17.9%
3	0	0	7.9%	21.1%
4	0	0	15.6%	33.0%
5	0	0	6.7%	11.9%
6	0	0	5.1%	19.8%
7	0	0	46.5%	41.5%
8	16	8.6	13.1%	8.5%
9	0	0	12.5%	6.0%
10	0	0	5.5%	8.7%
11	0	0	4.2%	21.3%
12	0	0	4.1%	20.3%
13	0	0	11.1%	26.4%
14	0	0	27.0%	46.0%
15	3	0.4	8.4%	10.7%
16	0	0	1.0%	6.8%
17	0	0	2.0%	3.6%
18	0	0	0.3%	0.1%
19	1	0.1	1.2%	3.0%
20	2	0.2	17.6%	35.9%
21	111	14.8	1.8%	2.6%
22	877	50.5	7.8%	9.1%
23	192	23.7	2.2%	2.9%
24	7	0.6	13.5%	23.7%
25	0	0	0.6%	1.3%
26	0	0	9.1%	8.9%
27	39	11.8	12.1%	13.0%

(a) Ward	(b) Number of Covenanted Properties	(c) Racial Covenants per Thousand Dwellings	(d) Percent African American, 1920	(e) Percent African American, 1930
28	84	7.0	3.4%	12.7%
29	2	0.3	5.3%	21.9%
30	0	0	52.5%	70.3%
31	0	0	0.1%	0.1%
32	3	0.3	8.3%	31.7%
33	61	4.1	0.4%	0.2%
34	593	38.3	4.9%	16.0%
35	228	84.9	1.8%	1.5%
36	74	6.7	24.1%	29.8%
37	1	0.2	4.8%	8.0%
38	336	22.0	2.8%	3.8%
39	25	1.7	1.0%	2.9%
40	283	17.1	5.0%	6.8%
41	318	82.5	5.0%	5.4%
42	434	30.6	1.1%	0.7%
43	36	2.8	1.8%	1.7%
44	14	1.6	7.9%	26.2%
45	11	1.4	0.9%	0.8%
46	62	3.6	1.3%	1.7%
47	2	0.4	27.9%	40.9%
48	11	2.0	0.1%	0.6%
Totals	3,826	10.8	7.4%	11.3%

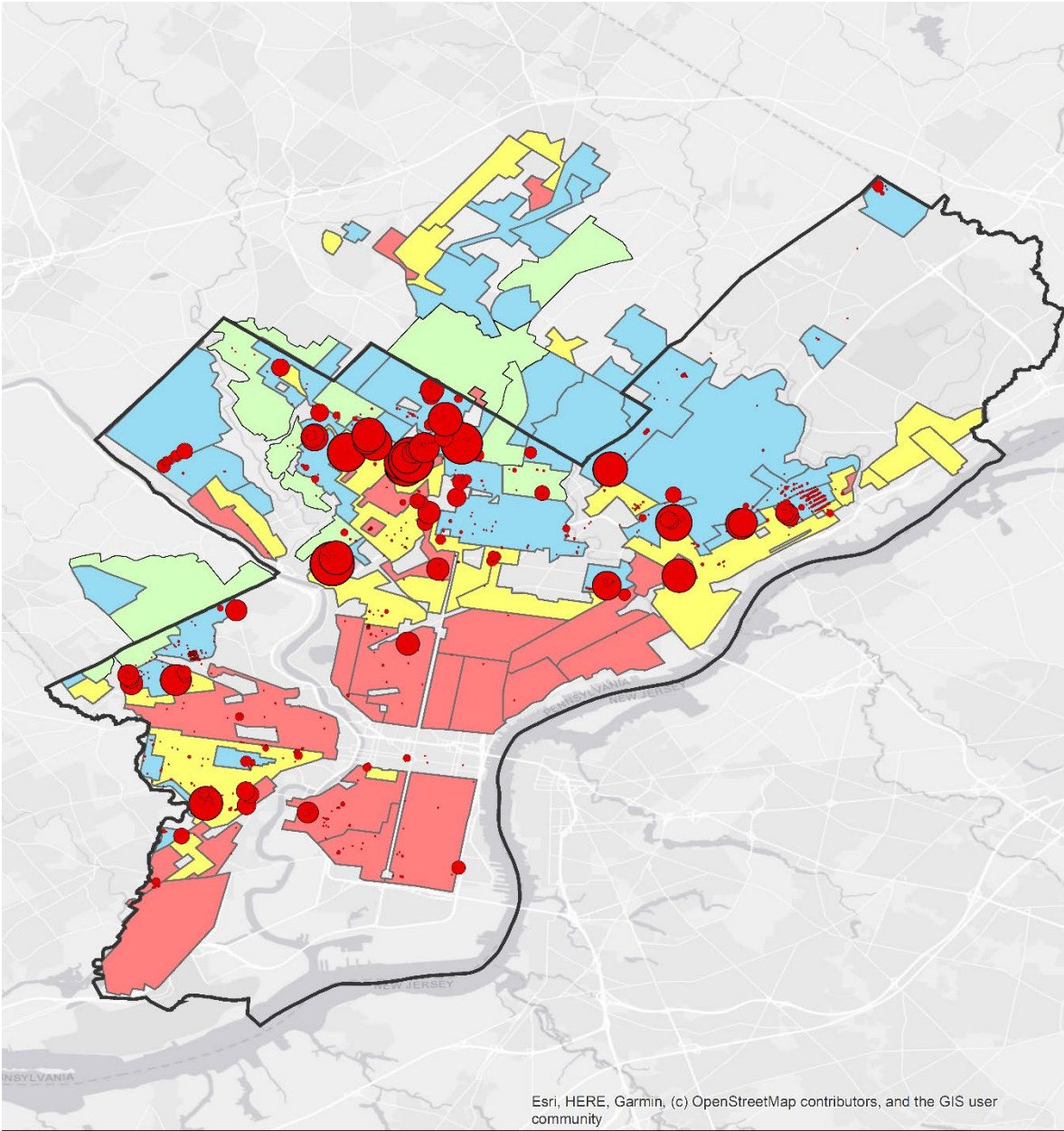
Notes: Number of racial covenants identified in property deeds found in City of Philadelphia Deed Books from 1920 to 1932. Multiple covenants on a single property are counted once. Totals include the population and dwellings of all 48 wards, including those in which no racial covenants were found.

Figure 3. Number of Covenanted Properties per Thousand Dwellings, by Ward, 1920–1932



Source: Author’s calculations
 Notes: Number of racial covenants identified in deeds books from 1920 until 1932. Dwellings are from 1920 Decennial Census.

Figure 4. Location of Racial Covenants on HOLC Residential Security Map (1937)



Coordinate Markings

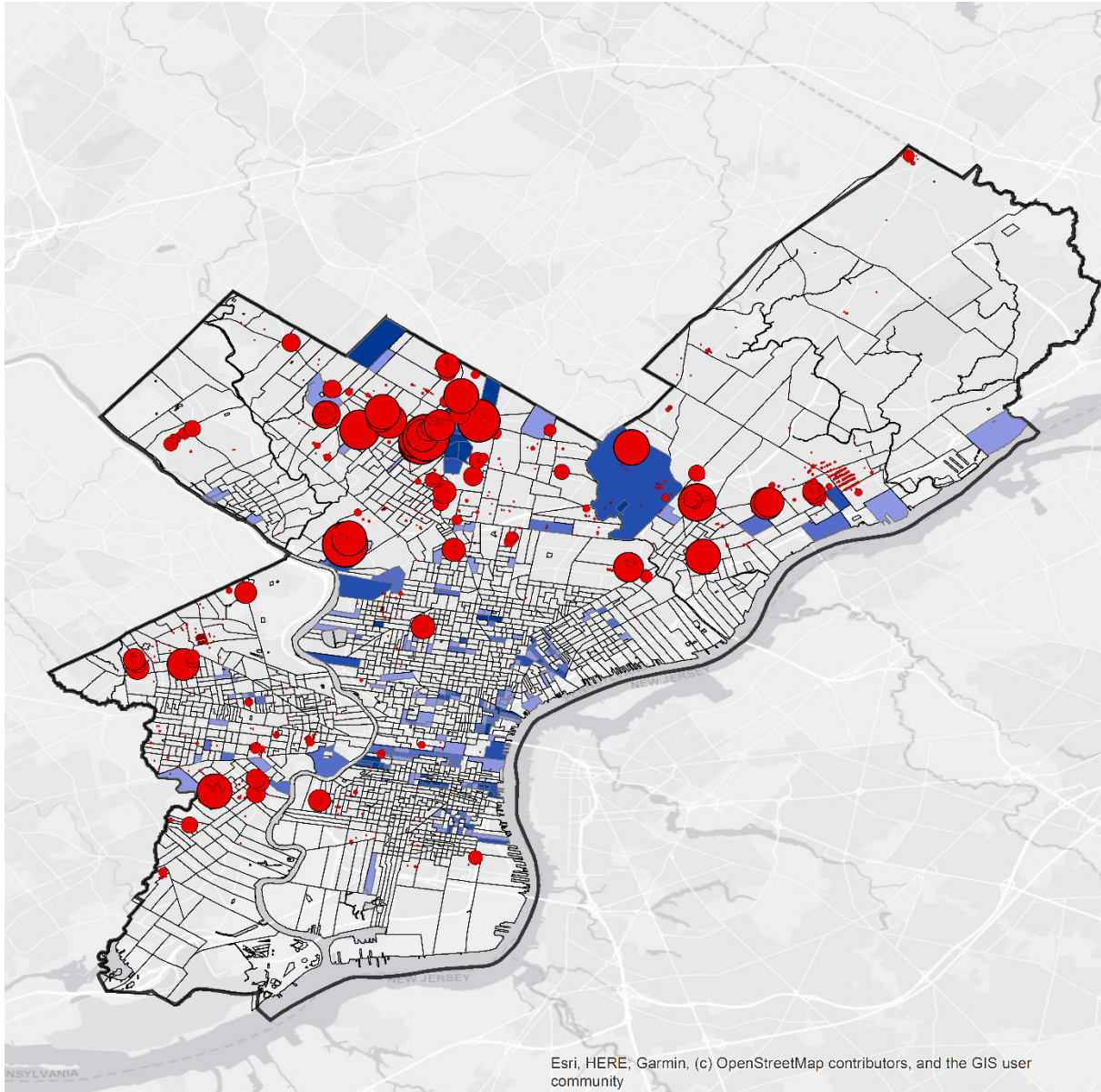
● Covenanted Location *Number of racial covenants associated with a set of coordinates.*

HOLC Grade

- A
- B
- C
- D

Note: Geographic boundaries are enumeration districts.

Figure 5. Location of Covenanted Properties Relative to African American Population



Coordinate Markings

● Covenanted Location *Number of racial covenants associated with a set of coordinates.*

Percent African American (1920)

- 0-3%
- 3-10%
- 10-25%
- 25-50%
- 50-100%

Note: Geographic boundaries are enumeration districts.

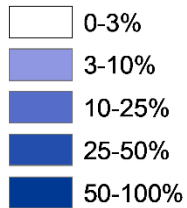
Figure 6. Tacony Neighborhood, Philadelphia



Coordinate Markings

● Covenanted Location *Number of racial covenants associated with a set of coordinates.*

Percent African American (1920)



Notes: Scale 1:10,000. Coordinate markings not adjusted for concentration.

Figure 7. East Falls Neighborhood, Philadelphia



Coordinate Markings

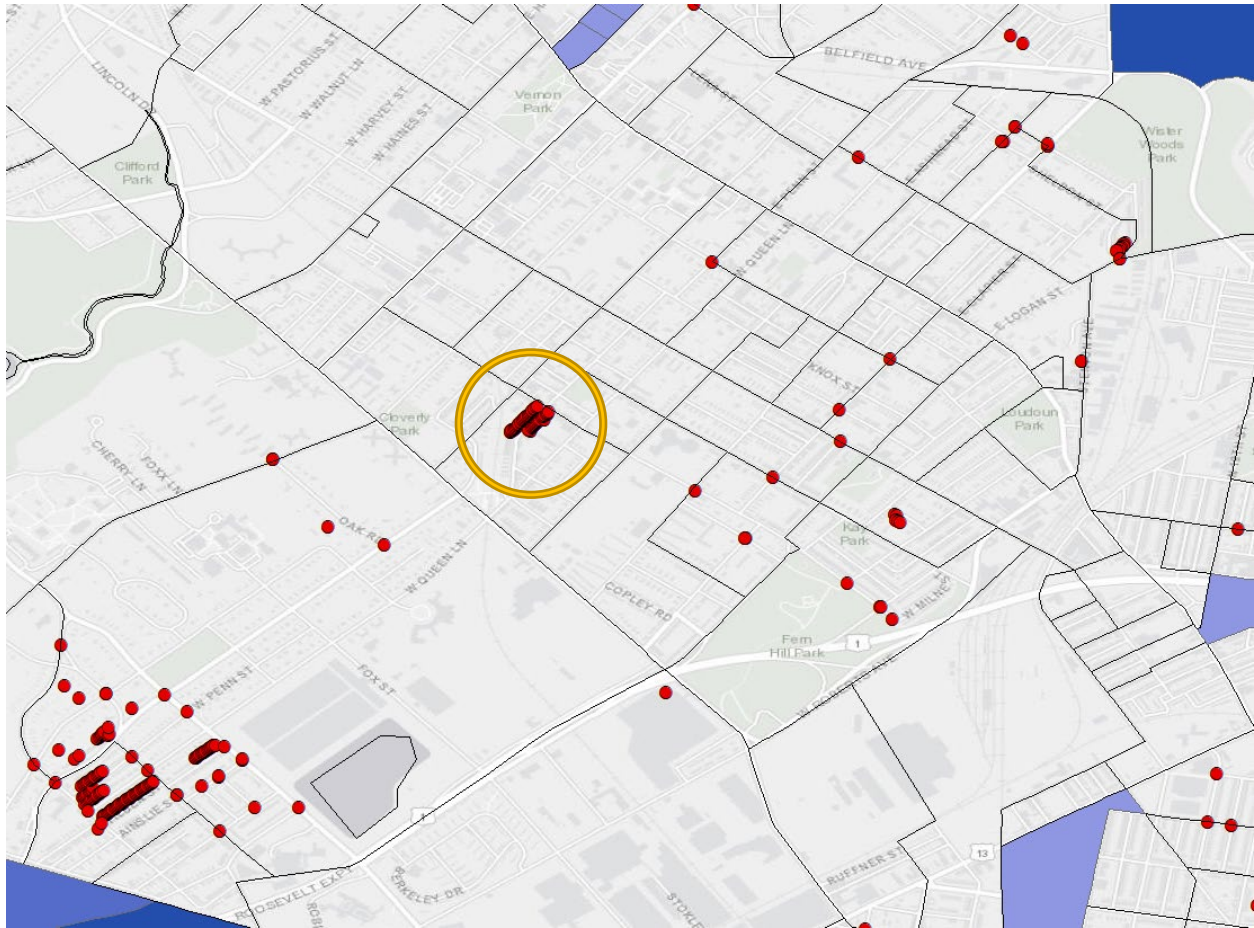
● Covenanted Location *Number of racial covenants associated with a set of coordinates.*

Percent African American (1920)

- 0-3%
- 3-10%
- 10-25%
- 25-50%
- 50-100%

Note: Scale 1:10,000. Coordinate markings not adjusted for concentration.

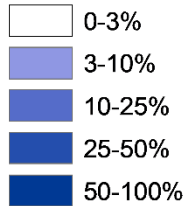
Figure 8. Voluntary Neighbor Agreement, West Penn Street in Germantown



Coordinate Markings

● Covenanted Location *Number of racial covenants associated with a set of coordinates.*

Percent African American (1920)



Note: Scale 1:15,000. Coordinate markings not adjusted for concentration.



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