New Deal Public Housing Projects and Their Impact on Local Communities

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Abstract

Out of the programs created during the Great Depression, the introduction of public housing has been one of the most controversial. A myriad of recent papers have found public housing is associated with higher crime rates and worse health outcomes in the modern era, lending to the belief that public housing was largely a failure. However, it is not clear that public housing projects prior to World War 2 were subject to the outcomes as the high-rise projects constructed after the war. Housing conditions for low-income families during the 19^{th} and the first decades of the 20^{th} centuries were generally poor. Edith Elmer Wood argued that as many as a third of all families across the United States resided in dimly lit, crowded housing with many dwellings dilapidated and prone to fire and disease.

I explore the effect of public housing on surrounding property values and contract rents for six cities in the United States between 1934 and 1940 using a series of hedonic models incorporating "locational heterogeneity", described in Páez, Uchida, and Miyamoto (2002). The data set was constructed from a set of public housing projects for each city and combine it with census tract-level data from the real property inventories and a special census of Chicago and matched them to the 1940 United States Census, the latter I had obtained from the National Historical Geographic Information System (NHGIS).

My findings suggest the median property values largely rose in census tracts within a mile radius as a result of public housing construction between 1934 and 1940. Moreover, there is evidence to suggest that public housing increased property values on the periphery of the cities, perhaps as a result of city-wide slum clearance and the increasing segregation of low-income families into public housing projects. However, the estimates of the effect of public housing projects on median contract rents are mixed, both within and between cities.

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1 Introduction

Public housing is a contentious issue. Since the 1920s, publicly funded housing had been attacked from the entire gamut of the political spectrum. On one hand, critics argued that public housing interfered with the private housing market, while housing advocates argued that the selection into public housing was discriminatory and excluded minorities. However, it was clear that low-income families were not able to obtain housing outside of the slums without subsidization from the government.

While the U.S. government has focused it's future low-income strategy on voucher programs such as Section 8 housing, having a deeper understanding of the influence of early public housing projects on local communities is still very important. Supporters of low-cost public housing prior to the Great Depression argued that providing families with housing services below market rates would help improve their long-term socioeconomic prospects. This contrasts the negative image that many large, high-density public housing projects now convey: areas of high crime, low educational attainment, and few job prospects. This paper explores the relationship between public housing projects, property values and contract rents to understand how the public had ultimately responded to the construction of the projects.

Public housing in the Progressive and New Deal era was touted as the cure-all to improving the lives of families by placing them in a social structure that would help to improve their levels of human capital (see Wood (1940)). However, Meyerson and Banfield (1955) found that many of the public housing projects in Chicago resulted in large relocation of the slum's population. Yet if these housing projects resulted in actual or perceived neighborhood improvements, this influence should be capitalized into higher surrounding property values. On the other hand, with its strict income requirements, public housing created dense pockets of low-income households while simultaneously tearing down existing neighborhood institutions that may have ultimately worsened the conditions that advocates such as Edith Elmer Wood wished to eliminate. These pockets of low-income households could also have spurred middle class families to move further from the city center.

While several papers such as Hartley (2010) and Shester (2010) have found modern public housing projects are associated with negative crime and health outcomes, there has been no conclusive evidence to suggest how the initial housing projects influenced these outcomes. Nourse (1963) is the earliest study to my knowledge on evaluating the effects of public housing on property values in Saint Louis, Missouri from 1937 through 1959 using hand-matched data samples. Unlike recent work, Nourse was testing the hypothesis that property values would increase. However, he finds no evidence to support this theory.

Throughout this paper, I proceed to answer whether the public housing constructed through 1940 led to increased property values and contract rents in their neighborhoods. Any changes in crime and health

outcomes and improvements in neighborhood aesthetics will be capitalized in housing values and rents, this paper allows me to assess the general influence of public housing on the community. I examine six cities across the United States using a hedonic model approach accounting for "locational heterogeneity." Páez, Uchida, and Miyamoto (2002) suggests a model along the lines of a Geographically Weighted Regression in which a data set exhibiting spatial dependence can be modeled using local coefficient estimates by estimating location-specific kernel bandwidths. This locally estimated bandwidth can then be used to estimate the location-specific influence of public housing on the distribution of contract rents.

The six cities that I examine are Chicago, IL; Washington, DC; Philadelphia, PA; New York, NY; Boston, MA; and Louisville, KY. While not representative of all urban areas in the United States, these cities represent a diverse range of economic conditions and geographic regions. My findings suggest the median property values largely rose in census tracts within a mile radius as a result of public housing construction between 1934 and 1940. Moreover, there is evidence to suggest that public housing increased property values on the periphery of the cities, perhaps as a result of city-wide slum clearance and the increasing segregation of low-income families into public housing projects. However, the estimates of the effect of public housing projects on median contract rents are mixed, both within and between cities.

2 Background on Public Housing

2.1 Growing Government Involvement

Despite regulations, living conditions for many households were considered substandard in many industrial cities in the 19^{th} century and early 20^{th} century. Wood (1919, pp. 7–9) argues that as many as a third of all families across the United States resided in overcrowded, poorly-lit, and dilapidated housing. These poor conditions resulted in several cholera epidemics in 1832, 1849, and in 1852 in lower Manhattan. Conditions were similar in other cities. A survey conducted in the 1860s indicated that 480,368 of the 700,000 people in Manhattan resided in only 15,309 substandard tenements (Plunz, 1990, p. 22). The cycle of epidemics resulted in the death rate exceeding the birth rate for much of the century. Cities like New York would have experienced population declines if not offset by the large flows of immigration (Burrows and Wallace, 1999, pp. 785, 790).

The fear of continued epidemics and the concern about fires the magnitude of the Great Chicago Fire in 1871 forced cities to pass housing laws to increase building standards. For example, the 1867 Tenement House Act in New York required that at least one water closet was installed per twenty tenants. It also provided fire escapes in non-fireproof buildings (Plunz, 1990, p. 22). Subsequent legislation in 1879 required windows for

every room, yet this legislation quickly led to the adoption of the "dumbbell" tenement in which the air-shaft in the middle of the tenement was often used for garbage and became a firetrap (Burrows and Wallace, 1999, p. 1173). It was not until the passage of the Tenement House Act of 1901 in New York, colloquially known as the "New Law" which made some tangible improvements to the quality of the tenements. The law required additional building height restrictions, running water, wider interior courtyards, and a water closet in every apartment (Plunz, 1990, p. 47).

Despite the poor living conditions across the United States, the Federal Government's first foray into public housing was directed towards the war effort during World War I. In 1918, Congress authorized the United States Housing Corporation and the Emergency Fleet Corporation to build housing for employees working in war-related industries. Through these programs, the federal government built housing for over 14,000 people at a cost of $132 million. This amount still fell short of their overall construction goals. The United States Housing Corporation completed only 5,998 units out of a proposed 25,000 units Radford (1996, pp. 16–17). After the war, Congress sold the housing in a fire sale at a $74 million loss in 1920 (Plunz, 1990, p. 125).

After World War I, the the city and state of New York began to set themselves apart from the rest of the United States with regards to low-income housing.[1] The state of New York began examining how to provide incentives to private corporations to build low-cost, but not low-quality housing for the poor. Housing advocates noted that profit margins on quality, yet low-cost housing were often too little to attract serious capital investments from private parties (Radford, 1996, pp. 30–36).[2].

To spur development, the New York state legislature amended their insurance code in 1922 to allow insurance companies to directly invest up to 10% of their assets in housing, conditional on the contract rents averaging no more than $9 per room ($119 in 2011).[3] Insurance companies such as The Metropolitan Life Insurance Company, which had lobbied for the legislation, built several projects across New York City housing over 2,000 families during the 1920s (Marquis, 1976; Plunz, 1990). Further, New York also passed the Limited Dividend Housing Companies Law in 1926, which allowed, wider latitude to condemn private property and additional tax abatements for companies to build housing as long as any investor into the company did not receive more than than a 6% dividend on the profit from the housing and that any mortgage interest rate did not exceed five percent. A further stipulation required the corporation to choose low-income households as tenants.[4]

[1]The one major exception is the Veterans Farm and Home Purchase Act of 1921 in which California issued bonds in which the proceeds provided housing loans to 11,600 veterans Wood (1934).

[2]Other cities including Boston and Washington, DC had philanthropic organizations that constructed housing for the poor, these organizations were not able to produced housing at a level to alleviate the poor conditions of the lowest income households

[3]Typical apartments would be three or four rooms in the apartments built by The Metropolitan Life Insurance Company.

[4]Several states followed New York with their own limited dividend laws in 1933 including Arkansas, California, Delaware, Florida, Illinois, Kansas, Massachusetts, New Jersey, Ohio, North Carolina, South Carolina, Texas, and Virginia in order to

While limited-dividend projects and “model" tenements created housing for thousands of families, the Great Depression nonetheless created a greater demand for low-cost housing. The Emergency Relief and Construction Act of 1932 directed the Reconstruction Finance Corporation (RFC) to make loans of up to 85% of the development cost to limited dividend corporations to provide either low-income housing or slum clearance. The requirements of the RFC, such as the approval of a state or municipal housing board, often made it difficult for projects to qualify for loans. As a result, only two projects were funded by the RFC: Knickerbocker Village in New York City for $8 million and rural homes in Ford County, KS for $155,000 (Committee on Banking and Currency, 1950).

2.2 The Federal Government Response through 1940.

While the RFC ultimately failed to provide any substantial low-cost housing stock, President Roosevelt signed the National Industrial Recovery Act in 1933 which authorized the Public Works Administration to provide funds for low-cost and slum clearance projects (Committee on Banking and Currency, 1950). The first effort by the Housing Division within the PWA continued the limited dividend program established under the RFC. This program lent funds at 4% interest towards limited-dividend housing corporations. Like the RFC, the Housing Division did not have a great record of success, approving only seven of the more than 500 projects submitted for approval (Public Works Administration, 1939). However, the PWA argued that it was largely a failure of state and municipal governments to be fully aware of the requirements for low-cost housing. For example, applications included a 12 story hotel in the Arizona desert, theaters, and a variety of retail stores. Other applications often included proposals to unload real estate purchased by speculators during the peak of the housing boom in the 1920s. As a result, the PWA abandoned the limited-dividend program and instituted a federal program to directly oversee the construction and management of housing projects (Public Works Administration, 1936, pp. 29–30). This program lent up to 70% of the development cost of the property at 4% interest and provided 30% of the cost as a direct grant.

The PWA went through several steps before a project was completed. It first began with an assessment of the locations that desired public housing. However, the high demand for housing and relatively limited funding forced the PWA to consider only cities which had a local agency willing and able to prepare local surveys and other data in order to gauge potential sites for the housing. As slums were identified as potential candidates for public housing, the PWA began to acquire options to purchase property once the exact location within the slum was identified. Eminent domain was also an option if adequate real estate could not be easily acquired through market transactions. The use of eminent domain was more difficult after a lawsuit was

qualify for the requirements of the limited dividend housing arm of the RFC and later PWA. See Public Works Administration (1936, p. 27) for details.

filed in 1935 by a Louisville landowner. The owner had argued that housing did not constitute a public good, a challenge which had been upheld through the United States Supreme Court until the case was withdrawn due to the passage of subsequent legislation. However, this had the effect of making land acquisition in slum areas more difficult, thus often requiring projects to be located on vacant land. Ultimately 27 of the 50 projects begun under the PWA were built in cleared slums (Public Works Administration, 1936, pp. 30–42).[5]

The PWA was also responsible for relocating tenants who resided in the neighborhoods being redeveloped. They were required to find accommodations of similar or improved quality at no additional monthly rent to the tenants. The tenants were typically moved at the expense of the local housing authority and in some cases became employed through a New Deal agency, such as the Works Progress Administration. The management of the public housing could be leased to the local authority or directly managed by the Federal government. However, the Federal government ultimately managed the majority of the properties due to a lack of trained officials employed in local housing authorities (Public Works Administration, 1936, pp. 43–45).

The public housing program through the PWA was only the beginning of federal spending in low-cost housing. Passed in September 1937, the United States Housing Act was created to provide additional loans and grants to local housing authorities for low-income housing (Committee on Banking and Currency, 1950). The act allowed the United States Housing Authority (USHA) to provide loans at 50 basis points above the cost of lending by the Federal Government for up to 90% of the development cost of the housing project. The USHA was also able to provide grants to local housing authorities in order to fill in the gap between the market rental rate and the amount that the lowest income families could afford (United States Housing Authority, 1939, p. 7). The new act required the demolition of "unsafe or insanitary" dwellings for a project regardless of whether the project was constructed in a slum. As an example, approximately two-thirds of the 6,700 dwellings demolished in New York City by the USHA in 1938 were off-site from three housing projects under construction (United States Housing Authority, 1939, p. 25).[6] Unlike the PWA projects, USHA housing were operated through a local authority with a further stipulation that the USHA was to move the management of the PWA projects to a local authority (United States Housing Authority, 1939, p. 41).

[5]Several housing projects were transferred prior to completion to the United States Housing Authority. See (United States Housing Authority, 1939, p. 42) for details.

[6]Elimination of slums could be deferred in some cases in which the available housing supply to relocate families was not available.

3 Data

To assess the relationship of public housing's influence on local property values and contract rents, I have collected data from several sources. These sources include the 1934 Real Property Inventory, a special census of Chicago from 1934, census tract maps from 1930 United States Census, and data at the census tract level from the 1940 United States Census obtained via the National Historical Geographic Information System (NHGIS).

The location of the public housing projects came from several sources. The locations of the Limited-Dividend housing from both the RFC and the PWA were obtained from the appendices of *Urban Housing: The Story of the PWA Housing Division 1933-36.* The locations of the housing constructed under the USHA were obtained from architectural drawings found at the National Archives in Record Group 196, Entry 14, Records of the Public Housing Administration. To verify the accuracy of the appendices and architectural drawings, these records were compared to the locations of the developments on the website of the New York City Housing Authority[7], Philadelphia Housing Authority[8], Chicago Housing Authority[9], District of Columbia Housing Authority[10], Boston Housing Authority[11], and Louisville Metro Housing Authority[12].[13]

The location of all public housing approved projects are displayed in Figure 1. Each box indicate how the census tracts were divided in each city, while the shaded areas represent the locations of all approved public housing projects through 1940. The majority of these housing projects were mid-rise, garden-style apartments. It is interesting to note from this figure that the public housing projects in many of the cities surrounded the central commercial district of the city, yet none were constructed within the downtown area. However, Washington, DC was an exception in which several of the projects were built in a sparser region of the city. As it often took several years to complete a project once approved, it is possible that construction had not begun in several of the locations which had only been approved by 1940. Details of all of the housing projects are provided in Table 1. The table lists the 53 public housing projects approved in New York, Chicago, Washington, DC, Boston, Louisville, and Philadelphia through 1940. It is important to note that only half of these projects were completed before 1941. The coordinates indicate the centroid of these housing projects. The name of the projects in the table are the name of the housing projects in 1947 and in some cases differ from the name of the project during the design phase as well as their modern names.[14]

The definitions of the variables used in the paper are provided in Table 2. These are the definitions

[7]The website can can be found at http://www.nyc.gov/html/nycha/html/developments/dev_guide.shtml
[8]http://pha.phila.gov/housing/pha-sites-map.aspx
[9]http://www.thecha.org/pages/housing/19.php
[10]http://www.dchousing.org/default.aspx?prop=1
[11]Which can be accessed from http://www.bostonhousing.org/
[12]The Authority's website is at http://www.lmha1.org/index1.htm
[13]These websites were last accessed in July 2012.
[14]In several cases, the original structures in a given project have been replaced with newer structures, often townhouses.

used within the summary statistics and all estimations. While the definition of the variables are largely consistent across time and location, there are a couple of deviations. For example, the definition of the share of nonwhite families differs from 1934 and 1940. The 1934 definition takes the share of nonwhite families while the 1940 definition is enumerated by population. Moreover, the multi-family structures are defined as any structure exceeding three units in the data for all cities except for New York City and Louisville which define multi-family structures as exceeding two-units.

Housing data for New York City in 1934 was collected from the Residential Report of the *Real Property Inventory: City of New York* (New York City Housing Authority, 1934). Data for Philadelphia in 1934 was found in five volumes of the *Report of Philadelphia Real Estate Survey, 1934* (Philadelphia Local Work Division, 1934). The data for Washington, DC in 1934 obtained in the *Real Property Inventory for the District of Columbia, 1934* (Federal Housing Administration, 1934). Real Property Inventory data from Boston was collected from Volume II of the *Report on Real Property Inventory: Boston, Mass* (Brinkers, Henry S., 1934). Further, the data from Louisville was obtained from the *General Summary of Statistics from Real Property Inventory of 1934* conducted by the Louisville City Planning & Zoning Commission (Louisville City Planning & Zoning Commission, 1936). The data for the 1934 Census of Chicago was obtained through the National Historical Geographic Information System (NHGIS) (Minnesota Population Center, 2007). The NHGIS was also the source for the shapefiles of the census tracts in the analysis as well as the data tables of the 1940 U.S. Census which provided all of the housing data for Chicago, New York, Philadelphia, and the District of Columbia.

The Real Property Inventory for New York City was conducted between February 5 through May 31, 1934. The survey was funded by the city and state of New York as well as the Federal Emergency Relief Administration. It was conducted by over 5,000 enumerators, many of them white collar workers on public assistance. To offset the lack of training, the survey began in areas in which external data could be used to verify the survey. To facilitate ease of comparison, the survey was tabulated by the 3,414 census tracts defined by the U.S. Bureau of the Census in 1930 with a couple of minor exceptions in Staten Island (New York City Housing Authority, 1934, pp. XI – XIII).[15]

Similar to the survey in New York, the Real Property Inventory in the District of Columbia was conducted between January and February 1934 and employed 500 workers from the Civil Works Administration. The techniques for this survey were those approved for the Federal Real Property Survey. The tabulation of the results were completed in 1936 and compiled for the 95 census tracts as well as the entire city (Federal Housing Administration, 1934).

[15]In some cases, boundaries from the 1930 U.S. Census were bounded by streets existing only in planning books and did not actually exist. The Real Property Inventory adjusted some boundaries to either real streets or other natural boundaries.

The residential survey for Philadelphia in 1934 was conducted began in March 1934 and was completed in December 1934. It was funded through several agencies including the Civil Works Administration, the State [Pennsylvania] Social Surveys, and William H. Connell who was the Director of the Local Works Division. Like the other surveys, the Philadelphia survey employed 1700 unemployed white-collar workers. The results were then tabulated to the 404 census tracts created for the 1930 U.S. Census.

The Real Property Inventory for Boston was initiated in May 1934 by the City Planning Board in conjunction with the federal Bureau of Foreign and Domestic Commerce (BFDC). As in the aforementioned surveys, Boston's Real Property Inventory was developed using the forms developed by the BFDC, although unlike the other surveys, the results of the inventory were hand tabulated. Like the New York Survey, the Boston Real Property Inventory did not report property values (Brinkers, Henry S., 1934). Unfortunately, the Louisville City Planning & Zoning Commission did not provide any documentation regarding the collection and processing of their Real Property Inventory.

The summary statistics can be found in Table 3. The variables which are given as a "share" of a census tract are scaled from 0 to 100 to facilitate easier interpretation of the subsequent local GWR estimates. The distance to public housing is reported in miles from the centroid of a census tract to the centroid of the nearest public housing project. Completed public housing projects are all housing projects completed through 1940, while approved public housing projects also includes all of the public housing projects approved for funding through 1940.

Each census tract has data on the type of structures, condition of the buildings, family quarters, race of families, and the distribution of property values and contract rents with a few exceptions. For example, the 1934 census of Chicago did not provide information on the number of units that were overcrowded and did not report the maintenance of structures. Further, the real property inventories of Boston and New York did not report the distribution of property values.

The real property inventories did not directly report an average or median property value for each census tract, but rather several bands of property values and contract rents.[16] To ease the interpretation of the results, I created estimates of median property values and contract rents using the same methodology employed by the United States Census Bureau. To create the median I used the following procedure: Create the cumulative distribution for each category, select the first category in which the cumulative distribution exceeds 50 percent and note the percentage (CH) of the distribution, minimum value of that category (VL), and range of the category (R). It is also necessary to then note the percentage of cumulative distribution of

[16]While each city used a different band of categories, the categories of property values for Philadelphia are as follows: 1000-1499, 1500-1999, 2000-2499, 2500-2999, 3000-3499, 3500-3999, 4000-4499, 4500-4999, 5000-5499, 5500-5999, 6000-6499, 6500-6999, 7000-7499, 7500-7999, 8000-8999, 9000-9999, 10000-12499, 12500-14999, 15000-19999, 20000-29999, 30000-49999, 50000-up. The categories for rent are: Less than 10.00, 10.00-19.99, 20.00-29.99, 30.00-39.99, 40.00-49.99, 50.00-59.99, 60.00-69.99, 70.00-79.99, 80.00-89.99, 90.00-99.99, 100.00-124.99, 125.00-up.

the previous category (CL). The median is then calculated by the following formula:

$$Median = VL + \frac{50 - CL}{CH - CL} \cdot R$$

As an example, if 35 percent of properties were valued under $3,000 while 51 percent were valued under $4,000, the median would be calculated as:

$$Median = 3,937.50 = 3000 + \frac{50 - 35}{51 - 35} \cdot 1000$$

The summary statistics are provided in Table **??**. While the later analysis focuses on the change in characteristics between 1934 and 1940, I have split the summary statistics by city and year in order to show the different conditions present in each city. Out of cities in the sample, we can see that property values and contract rents were typically lower in Louisville and highest in Washington, DC. It is interesting to note from the summary statistics that while median property values fell in each of the four cities in which data is available, median contract rents in those cities rose. However, rents were not rising in all of the cities, as median rents fell in both New York and Boston between 1934 and 1940.

The mean distance to the nearest completed public housing project varied across the cities, ranging from 1.4 to 3.6 miles. While New York City had the largest stock of public housing, the large average distance to public housing, 3.56 miles, was a result of the large range of the city limit.

In demographics of each city also varied. While New York was home to Harlem and Bedford-Stuyvesant, predominately settled by African Americans, only 2.3 percent of the families in the city were nonwhite in 1934. This compares to 22.6 percent of families being nonwhite in the average census tract in the District of Columbia. The share of nonwhites increased between 1934 and 1940 in all cities except for Chicago and Louisville. The average homeownership rate also varied across the six cities. On average, a census tract in Philadelphia had 48.2 percent homeownership rate compared to the low of 22 percent for Boston. However, these figures are likely skewed upwards from the actual city average due to the presence of outlying census tracts which had high homeownership rates, but low populations.

The share of multifamily dwellings varied across cities as well. Louisville had an average of 3.2 percent of its dwelling units with multi-family structures, which is small share compared to nearly 30 percent of the structures in Boston. However, it is quite interesting to note the dynamic shift in Louisville, as the 1940 statistics reveal that the average rose to 18.8 percent of structures. Similar to Louisville, Philadelphia had an average of 7.8 percent of its dwellings within multifamily structures in 1934. This may also indicate the reluctance of Philadelphia's mayor to accept PWA public housing funding on the grounds that "Philadelphia is a city of homes" (Bauman, 1987, p. 29). While overcrowding was one of the arguments for the construction

of public housing, it did not exceed 2 percent of any units with the exception of Louisville in which nearly five percent of dwelling units had over two people per room in 1934. However, this figure dropped to just under three percent by 1940. Conditions of the housing structures varied in the sample. While Washington, Philadelphia, and New York had just under 10 percent of dwellings needing major repairs in 1934, Boston and Louisville's dwellings were in further state of disrepair. However, it appears that the slum clearance efforts began to improve the state of repair in the cities. Figure 2 shows the location of regions in which the city tore down housing stock. It is interesting to note that slum clearance occurred across the city and was not limited to the neighborhoods which had public housing.

4 Public Housing and Rents: A Local Approach

4.1 Overview

One concern of publicly funded housing was the potential crowding out of private investment in the housing market. To counter these claims, the agencies involved in public housing maintained providing public housing for the lowest income bracket was rarely a profitable venture for private capital. However, the goals of public housing extended beyond providing only low-cost housing. These projects aimed to improve education outcomes, provide sanitary housing, and lower crime rates. If public housing was built in a slum, it is reasonable to expect that if public housing was effective at improving education and health while lowering crime rates, the housing projects should be reflected as a positive externality within a neighborhood. These spillovers should thus be capitalized in property values and in the contract rents of the surrounding area. However, if public housing had a negligible influence on these outcomes, one should see little influence on surrounding property values and contract rents. On the other hand, if public housing began to concentrate low income households and resulted in increased income segregation within the city, the resulting construction of public housing may have led to declines neighborhood-level education, health, and increases in crime within the region surrounding public housing. The resulting income segregation could also result in the prestige of the neighborhoods in which the low-income families departed, resulting in increased property values.

Another potential concern about the construction of public housing was the destruction of local institutions such as churches, community centers, and retail centers. These were often torn down during the construction of public housing with only limited replacement. Meyerson and Banfield note that the demand for public housing in the slum neighborhoods was not always unanimous:

> The priest would be left without a parish, for of course the new project would be occupied by eligible families from all over the city, not from the old sections itself. The old neighborhood

> would, in fact, be scattered. People who could not live in public projects somewhere else would have a hard time finding places to live even though the Authority would try to help them by maintaining a relocation program. To the politician, the storekeeper, the minister and others who had some stake in the slum neighborhood, its destruction was especially to be feared. For such people, the passing of the old neighborhood meant the loss of power and place that had been hard won (Meyerson and Banfield, 1955, p. 99).

4.2 Hedonic Model Setup

In a typical hedonic framework, Rosen (1974) suggests a differentiated good such as housing can be modeled as a combination of the physical attributes of the housing stock, neighborhood-level public services, and local amenities. The price of the i^{th} house can then be modeled as $P_i = P(x_{i1}, x_{i2}, ..., x_{ik})$ where x_{ij} is the j^{th} characteristic for house i. The partial derivative of P with respect to the j^{th} component is often referred to as the marginal implicit price for the j^{th} attribute. To determine the implicit prices for the characteristics, the housing market is assumed to be competitive. This implies that the marginal prices of the attributes are determined through multiple interactions with buyers and sellers. Similarly, we should expect contract rents to also be reflective of the attributes of the housing stock and neighborhood-level amenities. This equation will typically take the following form:

$$r = X\beta + \varepsilon \tag{1}$$

where r is a $n \times 1$ vector of the median property values or contract rents, X is a $n \times k$ matrix of housing, neighborhood, and demographic attributes, β is a $k \times 1$ vector of coefficients, and ε is an $n \times 1$ vector of i.i.d. error terms. However, as discussed in Section 3, data from the 1934 real property inventories as well as the 1940 U.S. Census are aggregated at the census tract level. In cases of aggregated data, it is common therefore to model the influence of neighborhood housing stock and characteristics as a function of the median housing value or contract rent.

In cases of hedonic models when utilizing data on land-use and property values, the data is likely to be influenced through a form of spatial dependence. In particular, Páez, Uchida, and Miyamoto (2001) note that these models can be susceptible to parametric instability over space. They suggest attempts to adjust for heterogeneity through partitioning groups by observed characteristics.[17] Alternatively, a follow up paper by Páez et al. (2002) suggests that a geographically weighted regression utilizing a location-specific bandwidth is an alternative model to estimate what they subsequently term "locational heterogeneity." In

[17] See Deschênes and Greenstone (2007) as an example in which heterogeneity is modeled on an arbitrary definition of a variable.

this framework, Equation 1 can be restated for each location or focal point o as:

$$r = X\beta_o + \varepsilon_o \tag{2}$$

where $\varepsilon_o \sim N(0, \Omega_o)$ and $\Omega_o = E(\varepsilon_o \varepsilon_o) = \sigma_o^2 W_o$. The diagonal elements in W_o, $K_o^{-1}(d_{oi}/d_o)$, are the inverse of a kernel function which is dependent on the distance (d_{oi}) between the focal point o and element i and the distance or bandwidth of the kernel function, d_o.[18] Typically, d_o is set as the maximum distance to q nearest neighbors and as a general rule, q will range between $2{\cdot}k$ and $0.3 \cdot n$.

Several properties of these kernels are required including that $K_{oi}(0) = 1$ and that for all $d_{oi} \geq d_o$, $K_{oi}(d_{oi}/d_o) = 0$. Several kernels that meet this criteria include the Bartlett kernel, the Epanechnikov kernel, and the Bisquare kernel, although several additional kernels also satisfy the requirements of this model. In this application, the coefficient estimates are robust to the specification of the kernel, thus I chose the Epanechnikov kernel which is defined as:

$$K_{oi}(d_{oi}/d_{o,j}) = \left[1 - (d_{oi}/d_o)^2\right] \cdot \mathbf{1}(d_{oi} \leq d_o)$$

Conditional on knowing the correct local bandwidth for d_o in each location, it becomes a relatively simple exercise to estimate the remaining parameters of the model, β_0^j and σ_0^2. The parameters can be estimated using a Weighted Least Squares estimator where:

$$\hat{\beta}_o = \left(X' \Omega_o^{-1} X\right)^{-1} X' \Omega_o^{-1} r = \left(X' W_o^{-1} X\right)^{-1} X' W_o^{-1} r$$

and

$$\sigma_o^2 = \frac{\left(r - X\hat{\beta}_o\right)' W_o^{-1} \left(r - X\hat{\beta}_o\right)}{n_o - k}$$

where n_o is the number of non-zero elements in W_o.

The definition of the kernel function above suggests that the choice of bandwidth is a critical component in the dependence in the error structure of the model. In a typical Geographically Weighted Regression defined in Fotheringham et al. (1997), the bandwidth $d_0 = d^*$ for all i and the global bandwidth is calculated using a cross-validation technique. In the case in which a bandwidth is calculated for each location o, cross-validation becomes a computationally-intensive approach when the sample size becomes larger than several hundred observations. An alternative approach to calculate d_o is where

[18] The distance is usually measured between the centroids of the census tracts.

$$d_o = \underset{d}{argmin} \frac{\left(r - X\tilde{\beta}_o\right)' \left(r - X\tilde{\beta}_o\right)}{n_o}$$

and $\tilde{\beta}_o$ is the estimated coefficient of β_o for a given d.[19]

4.3 Influence of Public Housing

During the Progressive Era, several studies such as Clifford Shaw's 1929 study, *Delinquency Areas, Series II*, Shaw finds evidence that "throughout the long period, whether a [data] series dealt with adults or juveniles, male or female, the heaviest concentration of cases was in the downtown area of bad housing around the Loop, the next greatest concentration being near the stockyards and steel mills" (Wood, 1940, pp. 54-55). Yet, Wood argues that poor housing conditions were not directly the cause of delinquency and poor health outcomes. Wood argues that the real issue of high density slums was the "smaller minority that does the damage – the underworld of vice and crime and corrupt politics." It is these individuals Wood argues that can exert a negative influence through negative social spillovers as exemplified in the quote:

> If there is no house yard, mere infants are forced into the street and out of their mother's sight... Her censorship of her child's playmates, could she exert it, would protect him from the grosser forms of moral contagion. As it is, he imitates what catches his attention, and bad behavior is more striking than good. The worst damage is done before he is old enough to go to school. (Wood, 1940, p. 58)

The suggestion of peer effects has persisted for some time and indeed papers studying recent efforts to alleviate poverty argue the need to better understand the role of neighborhoods on children's human capital accumulation. Katz et al. (2001) study of "Moving to Opportunity," a program that provided households with vouchers and counseling to obtain housing outside of public housing projects, found evidence of improved health outcomes of household heads as well as a decline in behavioral issues in boys. While the results did not indicate an influence on earnings among the household heads, these results reflect the suggestion by Edith Elmer Wood that peer influences may have had non-negligible influence on children. However Wood believed that public housing was the key to improving human capital for children, yet papers by Hartley (2010) and Shester (2010) suggest that public housing imparts negative externalities on neighborhoods and its residents. Shester (2010) for example finds that beginning in the 1970s, public housing began to have negative and statistically significant influences on property values and family income. Moreover, Hartley (2010) finds that the demolition of high density public housing in Chicago is associated with a three percent

[19] Results using simulated data exhibiting spatial dependence yielded similar estimates of the coefficient between this methodology and a localized cross-validation technique.

decline in the city's murder rate. Despite these findings, it is unclear that this negative relationship with public housing and crime and property values would have persisted backwards to the beginnings of the public housing era. Compared to the housing standards today, many of the high-density public housing projects fall short. However, public housing in New York during the Great Depression was competing against Old-Law and Pre-Law Tenements which in certain neighborhoods had at best shared indoor plumbing.

While it would be beneficial to directly test whether public housing influenced social outcomes such as delinquency, crime rates, school enrollment, and household income, the data are not currently available. An alternative in the absence of these measures is property values and contract rents. If crime rates decline in the presence of public housing, this should be capitalized in the surrounding properties. However, it is reasonable to expect that any influence of these public housing projects may exert on their surroundings may diminish over space. Rossi-Hansberg, Sarte, and Owens III (2010) find that as a consequence of the urban revitalization efforts of the Neighborhoods-in-Bloom program, land prices increased anywhere from two to five percent. However, this influence on distance had a half-life of approximately 1,000 feet.

To capture the effect of the public housing on median property values and contract rents, I include the inverse distance to public housing in the hedonic equation:

$$r = \frac{1}{DisPubHouse}\beta_{o,1} + X\beta_{o,2} + \varepsilon_o \tag{3}$$

where $DisPubHouse$ is an $n \times 1$ vector of distances to the nearest public housing site in miles and $\beta_{o,1}$ and $\beta_{o,2}$ are scalar coefficients measuring the influence of public housing on the median property values or contract rents.

One critique of using cross-section data in a hedonic model is omitted variable bias in the coefficients due to unmeasured heterogeneity in the neighborhoods. As I am interested in calculating the influence of public housing on the share of property values or contract rents, any omitted variable that is correlated with both the placement of public housing and the distribution of property values and contract rents may bias the coefficient estimates. One method for mitigating the influence of these omitted variables is to take the difference between the distribution of property values for 1934 and 1940 to estimate the influence of public housing on the change in the distribution of contract rents. This leads to the following model:

$$\Delta r = \frac{1}{DisPubHouse}\gamma_{o,1} + \Delta X\gamma_{o,2} + \xi_o \tag{4}$$

where Δr is the change in the median property values or contract rents between 1934 and 1940, and ΔX is the change in housing and neighborhood characteristics between 1934 and 1940. The set of covariates in ΔX include the change in population density, change in percent nonwhite population, change in home ownership

rate, change in the share of crowded dwelling units, change in the share of units requiring major repairs, and change in the share of multifamily units.

First differencing results in the cancellation of time-invariant characteristics for both the housing stock and neighborhood characteristic in the model. As public housing did not exist in 1934, the distance to the nearest public housing is effectively infinite, thus the inverse distance to public housing in 1934 is zero. Therefore, the inverse distance to public housing in 1940 measures the influence that public housing had on the change in the median property value or contract rent.

The main results focus largely on the influence of completed housing projects on median property values and rent. However, an alternate possibility is that property values and contract rents were influenced at the onset of the approval of a public housing project in a neighborhood. This is plausible as newspapers would often tout the project after approval and thus could have already altered the future expectations in the neighborhood. Therefore, the results will show coefficient estimates both with and without the inclusion of approved, but not completed, public housing projects

5 Main Results

The coefficient estimates are provided in Tables 4 through 13. This series of tables are divided by city and dependent variable, either median property value or median contract rent. Each city was estimated separately due to the nature of the GWR methodology. This is not likely to bias the results as the housing market was not highly integrated during this period. As noted above, I use a local GWR methodology to estimate coefficient estimates for each census tract in the sample. Due to the large number of resulting coefficient estimates, it is neither possible or useful to display individual coefficient estimates.

To gauge the general trend of the coefficient estimates, each table has summarized the coefficient estimates for each city and dependent variable. For example, Table 4 displays the coefficient estimates of the change in neighborhood characteristics of Chicago between 1934 and 1940 on the change in median property values. Columns (2) - (5) provide information on the regressions which used completed public housing projects as the variable of interest, while Columns (6) - (9) summarize the coefficient estimates when information on approved housing projects are also included in the public housing project variable. The mean coefficient estimate is the average coefficient estimate for the regressor in the sample, while the 5th and 95th percentile summarize the range of coefficient estimates in the sample. Lastly, "% Sig" provides an indication of the number of coefficient estimates in the sample which were statistically significant at the 5% level of significance. The final row provides summary statistics on the number of nearest neighbors used to calculate the coefficient estimates.

Focusing our attention on the coefficient estimates for median property values in which the completed public housing measure was used, the signs of the coefficient estimates in Tables 4, 6, 8, and 10 are largely consistent. These tables show a positive relationship between the inverse distance to public housing and median property values, *ceteris paribus*. This suggests that on average, property values closer to public housing rose faster than those on the outskirts of the city. However, since property values were generally falling during this six year stretch, it may be more appropriate to indicate property values dropped less near public housing. It is apparent from these tables that the coefficient estimates of the influence of public housing varies significantly both within and across cities. Tables 5, 7, 9, 11, 12, and 13 provide the coefficient estimates for the regressions of public housing on median contract rents. It is interesting to note that in the four cities in which both property values and contract rents are provided, the sign of the average coefficient estimates on the inverse distance to public housing are switched. We can also see in the coefficient estimates for Boston and New York that on average coefficient estimates are positive.

Yet due to the non-linearity of the inverse distance, it is not appropriate to directly interpret the relationship of public housing from the coefficient estimates without putting into context the distance of the census tract from public housing. This will be discussed in detail below. However, it is possible to glean information from the remaining coefficient estimates.

The results from the tables suggest that an increase in the share of nonwhite families in a census tract is, on average, related to a decline in the median property values and contract rents with the exception of the median contract rents in New York and Louisville. Previous work from Kollmann (2011) as well as historical evidence from Osofsky (1996, p. 93) suggest that landlords would overcharge African Americans tenants in New York which would be consistent with these coefficient estimates. In the case of Louisville, the general trend was an exodus of African Americans in the city, thus the positive coefficient estimates may be evidence of declining demand for rental housing in predominately black neighborhoods. Further, this would not refute the possibility of declining property values as Card, Mas, and Rothstein (2008) found some evidence of property values moderately declining when a neighborhood "tipped" due to black in-migration in the 1990s.

5.1 Effects of Public Housing on Median Property Values

To assess the impact of public housing on property values, it is necessary to construct the fitted values of the local GWR coefficient estimates of the inverse distance to public housing. Table 14 provide the estimates of the influence of public housing on median property values and contract rents respectively sorted by distance to public housing. I have averaged these effects within five categories in order to understand how these

effects change over distance from public housing. The categories are: 0.00 - 0.25 miles, 0.26 - 0.50 miles, 0.51 - 1.00 miles, 1.01 - 2.00 miles, and greater than 2.00 miles. Table 14(a) provide the estimates when using only completed public housing, while Table 14(b) provide the estimates when using the distance to both completed and approved public housing projects.

If we first focus on the results on the average effect of just completed public housing projects on median property values, we can see an interesting trend, median property values rise in Chicago, Philadelphia, and Louisville within a quarter-mile from public housing and the magnitude decreases in census tracts from 0.26 miles through 2.00 miles. In the case of Chicago, median property values in the two tracts within 0.25 miles of public housing rose an average of $3,462 between 1934 and 1940 as a result of the construction of public housing. The magnitude of this effect is large as the average median property value in Chicago in 1940 is only $3,697. However, the effect of public housing in the next tier, 0.26 - 0.50 miles is weaker, resulting in an average of $824 increase in the median property values in the 13 census tracts. The results for Philadelphia and Louisville are similar, although the relative magnitude of the predicted effects are smaller than those predicted using the Chicago dataset.

The positive coefficient estimates for these cities do provide an indication that in general, public housing is being perceived to have positive spillovers within a community. While it is impossible to uniquely identify which components of public housing were responsible for the increase in property values, it is apparent that some combination of slum clearance, intensive application process of public housing tenants, construction of schools and other institutions, and health programs offered at public housing improved the local neighborhoods of Chicago, Philadelphia, and Louisville.

However, the estimated effects of public housing for Washington, DC in the census tracts under two miles from public housing are a glaring departure for the other three cities in the sample. To gain a better understanding of why this may be the case, it is useful to examine the differences in public housing between Washington, DC and the remaining cities. As mentioned earlier, it appears that the the PWA employed a different strategy when locating the public housing projects within Washington, DC. As seen in Figure 1, public housing in Washington, DC was built further from the commercial region of the city than the rest of the sample. This is largely confirmed in Bird (2010, p. 68) as well as observing the summary statistics of the census tracts within a mile radius of completed public housing which is provided in Table 17. These statistics indicate that in every city with the exception of Washington, DC, the population density of the census tracts near the location of public housing is typically higher than the city average.

This in of itself does not provide a reason why public housing is correlated with a decline in property values in Washington, but combined with a large increase in the African American population in the census tracts between 1934 and 1940, these two factors may have led to tipping which may have resulted in a

decline in property values, similar to results found in Kollmann (2011). While the change in non-white families has been accounted for in the dataset, several of the housing projects in DC were exclusively African American, thus the two variables may have been highly correlated and driving the negative coefficients on public housing. Despite this decline in property values, the region near public housing in Washington, DC was still growing. Table 16 provides OLS estimates of the relationship of the change in the number of dwelling units by distance to completed public housing in each city. The results suggest strong growth near the housing projects. However, Washington, DC grew by around 33% between 1930 and 1940, thus it should be expected that growth is going to occur near the least developed part of the city.

Another interesting result to emerge from Table 14(a) is the estimated impact on public housing on property values distant from public housing. While the estimated impact under two miles decays much in the same manner as the neighborhood revitalization project in Richmond, VA described in Rossi-Hansberg et al. (2010), there is an unexpected surge in housing values at the periphery of the city.[20] There is some anecdotal evidence that this could be a result of the income segregation created by public housing in Chicago which was described in Meyerson and Banfield (1955).

If we again look at Figures 2 and 3, we see an unexpected picture of slum clearance and poverty. Figure 2 shows the location of slum clearance with New York City and it is quickly clear that housing was condemned throughout the city, not just within the location of the public housing projects, although it appears that significant slum clearance occurred near public housing projects. This could suggest that areas outside of public housing projects may have benefited from public housing, despite not being located geographically near the projects. Figure 3 showcases the geographic distribution of public housing applications for the Williamsburg housing project, located in northern Brooklyn. This figure indicates that low-income families, while concentrated in certain neighborhoods, were still present throughout the city. However, public housing did effectively concentrate low-income families into particular neighborhoods, which could have resulted in increased income segregation. This could be relevant if the "prestige" of a neighborhood is particularly important to homeowners, thus removing low-income families from a tract could improve property values. However, this could still result in the public housing projects in having a net improvement in property values if the other factors are taken into consideration.

When I include approved public housing projects to the completed housing projects in the analysis, the estimate effect of housing projects on property values changes signs. Table 14(b) shows that approved public housing projects are associated with a decline in property values in three of the four cities within 0.25 miles of the centroid of the housing project site. One explanation for these results is that while newspapers generally

[20]The estimated magnitudes of the revitalization efforts in Rossi-Hansberg et al. (2010) were smaller than those predicted in this paper.

indicated the neighborhoods, this was too broad of a measure for any significant real estate speculation until the actual location was chosen. However, this would indicate that we would expect to find no economic impact on property values. Thus, the results may indicate that housing authorities were choosing declining neighborhoods within the city to place future public housing projects. If we again compare the summary statistics of the locations near completed public housing versus the city averages, Tables 17 and 3 respectively, we see that the locations of public housing were often in neighborhoods where residents were in over-crowded, densely populated housing with lower rates of homeownership and in which property values and contract rents tended to be below the city average.

5.2 Effects of Public Housing on Median Contract Rents

The estimated effects of public housing projects on median contract rents are provided in Table 15. These estimates are constructed in the same manner as the effects on property values. However, the results quickly reveal more variation than the results on property values. In the case of Chicago, the median contract rent increased an additional $11.11 per room per month within a 0.25 mile of public housing, a substantial increase, while more modest increases were estimated in census tracts between 0.26 and 1.00 miles away from public housing. However, it is estimated that public housing had a negative influence on median contract rents in the rest of the city with the average effect depressing median contract rents within the city. This overall decline is also estimated for both Philadelphia and Washington, DC, although the results suggest that contract rents fell near public housing in Philadelphia, but grew near public housing in Washington, DC. In the case of Louisville, the overall effect is nearly zero, although there is mixed results in census tracts near the completed public housing projects.

In the two cities in which property values were not published in 1934, New York and Boston, we stronger indications of a general rise in median contract rents. In the case of Boston, public housing is predicted to increase median contract rents by $1.59 within a quarter-mile of public housing, $0.41 from 0.26 - 0.50 miles, and 2.77 from 0.51 to 1.00 miles. New York on the other hand experienced mixed results in census tracts, a small increase of $0.76 within 0.25 miles of public housing, but declines ranging from $0.42 to $1.11 in census tracts from 0.26 to 2.00 miles from housing projects.

With this wide range of predicted signs of how public housing affected contracted rents, it is difficult to pin down a theory on what was driving the results. On one hand, the change in median contract rents near public housing appears to be positively correlated with the change in the housing stock in these locations as seen when comparing the signs of the coefficient estimates of New York and to a limited extent, Louisville and Washington, DC in Tables 15(a) and Table 16. However, this correlation with the change in the housing

stock does not appear to hold in the case of Chicago, Philadelphia, or Boston. These results suggest that contract rents appear to be driven by different economic factors than property values, but this perhaps should be unsurprising considering that median contract rents and property values moved in the opposite direction between 1934 and 1940 for the four cities in which the data was available.

6 Discussion

Early publicly funded housing in the United States appears to have been driven by the desire to improve the living conditions of low-income families during the Great Depression. The zeal of the politicians to promote public housing during the Great Depression suggests that they saw public housing as a viable model to improve the living conditions of slums. As slums required additional police and fire protection while prone to disease outbreaks, public housing may have been seen as a way to reduce the cost of providing public services while retaining the patronage of the families served by public housing and the surrounding communities.

The overall picture of the influence of public housing on the surrounding community is mixed. On one hand, property values appear to have increased, or decreased at a slower rate, as a result of the construction of public housing in the latter half of the 1930s. The exception is Washington, DC in which the choice of locating public housing for African Americans in previously undeveloped land may have slowed residential development in the eastern part of the city. Despite the results in Washington, DC, these results provide evidence that public housing was initially accomplished its goal of providing quality housing to low-income families while improving the local neighborhood. Of course, this benefit appears to have been short-lived if public housing was a contributing factor to increased income-segregation within a city. Moreover, the results on contract rents is mixed, rising in some cities and falling in others. It is unclear what the underlying process influenced the direction of contract rents, but is perhaps related to changes in personal income which is unfortunately unavailable in this dataset.

While the results do offer estimates of the net results of public housing on property values, this paper cannot identify the underlying factors. Ultimately, the true litmus test of the influence of public housing should measure the effect of public housing on crime, education, health, and income outcomes, factors which are not yet available at this level of aggregation.

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Figure 1

Notes. Shaded areas represent locations of public housing announced and completed through 1940. Top Row: Chicago, IL; Washington, DC; and Boston, MA. Bottom Row: Philadelphia, PA; New York, NY; and Louisville, KY.

Figure 2: Areas of Slum Clearance in New York City

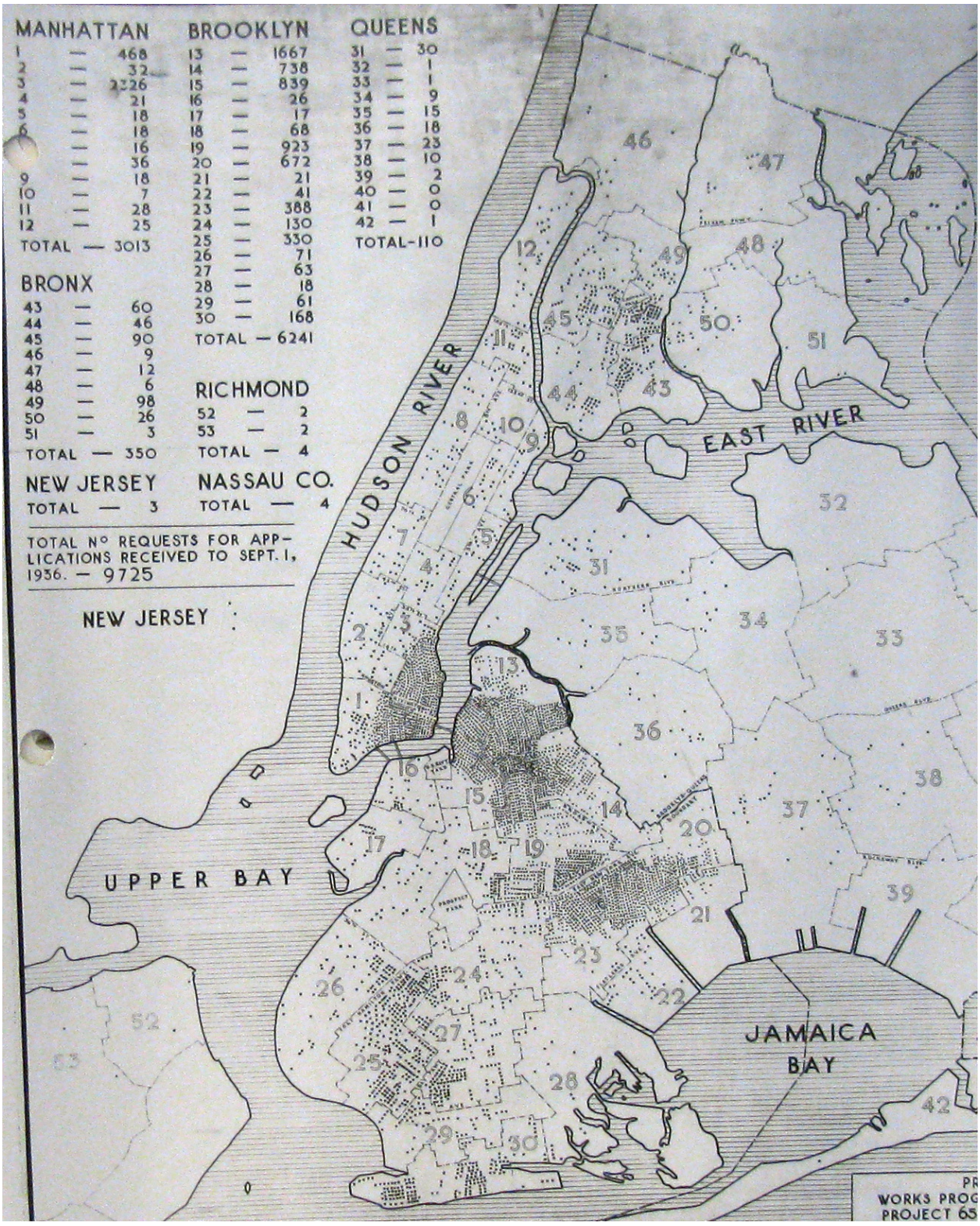

Figure 3: Location of Applications for Williamsburg Homes

Table 1: Location of Public Housing

Project Name	Lat	Long	Approved	Completed	Project Name	Lat	Long	Approved	Completed
Chicago					New York City				
Jane Addams	41.867	-87.659	1935	1938	Hillside	40.877	-73.849	1933	1935
Trumbull	41.701	-87.564	1935	1938	Boulevard Gardens	40.758	-73.906	1933	1935
Lathrop	41.932	-87.681	1935	1938	First Houses	40.724	-73.986	1933	1935
Ida Wells	41.826	-87.613	1938	1941	Knickerbocker Village	40.711	-73.995	1933	1934
Cabrini	41.899	-87.641	1939	1942	Williamsburg	40.710	-73.944	1935	1938
Brooks	41.865	-87.659	1939	1943	Harlem River	40.826	-73.937	1935	1937
Bridgepons	41.837	-87.648	1939	1943	Red Hook	40.676	-74.006	1938	1939
Lawndale	41.846	-87.694	1939	1943	Queenbridge	40.755	-73.945	1938	1940
Washington, DC					Vladeck	40.713	-73.982	1938	1940
Langston	38.900	-76.973	1935	1938	Kingsborough	40.675	-73.925	1938	1941
Fort Dupont	38.887	-76.973	1938	1940	South Jamaica	40.696	-73.795	1939	1940
Ellen Wilson	38.880	-76.997	1938	1941	East River	40.787	-73.940	1939	1941
James Creek	38.875	-77.012	1938	1941	Clason Point Gardens	40.821	-73.870	1939	1941
Douglass	38.849	-76.980	1938	1941	Edwin Markham	40.640	-74.117	1940	1943
Carrollburg	38.878	-77.001	1939	1941	Ingersoll	40.695	-73.980	1940	1944
Kelly Miller	38.919	-77.017	1939	1941	Whitman	40.694	-73.975	1940	1944
Barry Farm	38.860	-76.999	1939	1943	Boston				
Parkside	38.911	-76.938	1940	1943	Old Harbor Village	42.326	-71.054	1935	1938
Philadelphia					Lenox Street	42.336	-71.082	1938	1940
Carl Mackley	40.013	-75.099	1933	1935	Charleston	42.379	-71.058	1938	1940
Hill Creek	40.037	-75.110	1935	1937	Mission Hill	42.334	-71.098	1938	1941
James Welden	39.984	-75.177	1938	1940	East Boston	42.371	-71.042	1939	1942
Tasker	39.932	-75.196	1938	1940	Orchard Park	42.330	-71.080	1939	1942
Richard Allen	39.967	-75.153	1938	1942	Heath Street	42.325	-71.102	1940	1942
Louisville									
LaSalle Place	38.241	-85.765	1935	1938					
College Court	38.224	-85.790	1935	1938					
Clarksdale	38.251	-85.742	1938	1940					
Beecher Terrace	38.254	-85.768	1938	1940					
Sheppard Square	38.243	-85.745	1940	1942					
Parkway Place	38.225	-85.777	1940	1943					

Source. Public Housing Administration (1947)

Table 2: Variable Definitions

Variable	*Definition*
Median Contract Rent	*Median contract rents per room per month for rental-occupied dwellings within a census tract.*
Median Property Value	*Median property values for owner-occupied dwellings within a census tract.*
Distance to Public Housing	*Distance of centroid of census tract to the centroid of the nearest public housing project in miles. Completed Projects are all projects completed through 1940. Approved Projects are all projects approved, including those completed, through 1940.*
Population Density	*Total population in thousands residing in a census tract per square mile.*
Share of Nonwhite People	*In 1934, Share of families that are non-white in a census tract. Family generally follows the 1930 U.S. Census definition: "a group of persons, related by either blood or by marriage or adoption, who live together as one household." The 1940 definition is the share of non-white people residing in a census tract.*
Homeownership Rate	*Ratio of owner-occupied to occupied dwellings in a census tract.*
Share of Multifamily Units	*Share of occupied dwellings in structures exceeding three dwellings per structure or exceeding two dwellings per structure in Louisville or New York City).*
Share of Overcrowded Units	*Share of occupied dwellings exceeding two occupants per room, not including bathrooms. Data not available for Chicago*
Share of Units Major Repairs	*Share of occupied dwellings defined as either needing major structural repairs or are "practically unfit for human habitation." Data not available for Chicago*
Dwelling Units	*Number of residentail dwelling units within the census tract.*

Table 3: Summary Statistics

	Chicago				Washington, DC				Philadelphia			
	1934		1940		1934		1940		1934		1940	
Variable	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Median Contract Rent	26.90	11.92	29.59	12.79	44.17	17.19	45.47	16.73	29.37	15.41	30.89	16.81
Median Property Value	4344	2887	3697	2508	9015	4990	8317	3683	5469	4322	4451	3400
Dist to Complete Pub Housing (mi)	—	—	3.46	1.86	—	—	3.41	1.69	—	—	2.70	1.68
Dist to Approved Pub Housing (mi)	—	—	2.57	1.71	—	—	1.60	1.14	—	—	2.60	1.75
Pop Density ('000s/sq mi)	24.52	16.51	25.68	17.76	19.18	15.07	24.45	18.49	21.71	22.01	22.57	22.31
Share of Nonwhite People	9.01	24.89	8.99	25.68	22.56	29.56	26.72	30.29	8.93	18.70	10.13	19.35
Share of Homeownership	31.97	18.59	27.76	19.29	39.05	22.75	32.56	21.51	48.20	21.04	42.68	20.08
Share of Multifamily Units	25.43	19.98	36.42	27.06	25.21	25.22	33.32	24.53	7.77	14.97	8.85	15.56
Share of Overcrowded Units	—	—	—	—	1.02	0.95	2.18	2.52	1.80	6.13	0.56	1.18
Share of Units Major Repairs	—	—	—	—	8.93	9.30	2.75	4.14	9.63	16.63	8.39	13.02
Number of Dwelling Units	915	753	1087	873	1487	700	1948	816	1312	1318	1382	1375
Observations:	910				95				386			

	New York				Boston				Louisville			
	1934		1940		1934		1940		1934		1940	
Variable	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Median Contract Rent	40.19	17.03	39.67	16.33	27.32	13.27	26.55	9.74	20.11	10.77	21.68	11.01
Median Property Value	—	—	—	—	—	—	—	—	3273	2270	3200	1899
Dist to Complete Pub Housing (mi)	—	—	3.56	2.74	—	—	1.44	1.10	—	—	1.67	0.99
Dist to Approved Pub Housing (mi)	—	—	2.69	1.94	—	—	1.12	0.93	—	—	1.57	1.00
Pop Density ('000s/sq mi)	34.72	40.81	37.47	42.76	40.53	34.80	44.19	34.75	9.60	6.57	10.92	7.48
Share of Nonwhite People	2.32	9.58	3.37	12.22	4.13	12.68	4.22	12.17	15.42	24.28	14.45	23.87
Share of Homeownership	39.18	27.70	33.71	24.47	22.12	13.24	18.40	10.73	39.11	18.71	39.50	20.27
Share of Multifamily Units	16.61	23.40	20.59	24.44	29.62	28.47	29.52	26.34	3.16	3.88	18.83	18.57
Share of Overcrowded Units	1.01	4.20	0.50	0.98	0.75	1.30	0.71	0.87	4.99	6.48	2.97	2.77
Share of Units Major Repairs	8.85	14.62	5.81	5.17	16.38	17.58	13.55	15.36	21.78	19.26	13.39	13.42
Number of Dwelling Units	714	905	765	931	1675	1260	1679	1261	941	462	1058	515
Observations:	2859				126				89			

Source. See Section 3 for details.

Table 4: Local GWR Estimates of Public Housing on Median Property Values in Chicago between 1934-40

Dependent Variable:	Δ in Median Property Values							
	Completed Public Housing				Approved Public Housing			
		Percentile				Percentile		
	Mean	5^{th}	95^{th}	% Sig	Mean	5^{th}	95^{th}	% Sig
Constant	-1298.1	-6582.2	3607.8	96.1	-827.1	-4595.4	2952.2	95.1
Inv Dist to Pub Housing	2531.7	-16265.2	25225.9	97.1	653.7	-10843.2	14574.6	94.2
Δ in Pop Density	-33.5	-481.0	473.5	93.1	-38.2	-499.9	485.1	92.3
Δ Shr of Nonwhite People	-106.9	-3686.0	2199.6	84.2	-103.5	-3651.8	2031.7	84.9
Δ in Homeownership Rate	-29.2	-252.8	175.9	94.4	-33.5	-262.9	181.9	93.2
Δ Shr of Multifamily Units	-26.6	-176.1	77.1	91.6	-26.8	-177.5	77.3	92.1
Bandwidth	40.8	12	250		40.8	12	258	

Table 5: Local GWR Estimates of Public Housing on Median Contract Rents in Chicago between 1934-40

Dependent Variable:	Δ in Median Contract Rents							
	Completed Public Housing				Approved Public Housing			
		Percentile				Percentile		
	Mean	5^{th}	95^{th}	% Sig	Mean	5^{th}	95^{th}	% Sig
Constant	4.371	-14.121	22.296	99.4	4.831	-5.217	17.232	98.3
Inv Dist to Pub Housing	-0.805	-93.230	117.382	98.9	-2.925	-46.160	41.327	98.3
Δ in Pop Density	-0.081	-1.392	1.229	90.3	-0.052	-1.333	1.197	92.0
Δ Shr of Nonwhite People	-0.516	-3.253	2.925	80.6	-0.455	-4.663	3.299	82.9
Δ in Homeownership Rate	0.125	-0.294	0.621	96.9	0.138	-0.337	0.659	94.9
Δ Shr of Multifamily Units	-0.044	-0.472	0.273	92.0	-0.040	-0.453	0.240	89.7
Bandwidth	41.011	12	198		41.851	12	200	

Table 6: Local GWR Estimates of Public Housing on Median Property Values in Philadelphia between 1934-40

Dependent Variable:	Δ in Median Property Values							
	Completed Public Housing				Approved Public Housing			
		Percentile				Percentile		
	Mean	5^{th}	95^{th}	% Sig	Mean	5^{th}	95^{th}	% Sig
Constant	-1229.7	-5177.7	1801.0	94.9	-1074.5	-4191.6	1570.4	95.2
Inv Dist to Pub Housing	1745.4	-7199.7	21252.4	89.9	1590.1	-6642.3	15044.1	87.1
Δ in Pop Density	-376.7	-1974.4	787.7	91.0	-376.0	-1962.3	785.6	91.9
Δ Shr of Nonwhite People	-44.6	-1154.2	979.6	90.4	-49.1	-1155.6	985.9	90.2
Δ in Homeownership Rate	4.7	-180.5	221.2	93.5	-0.4	-173.8	178.7	93.0
Δ Shr of Multifamily Units	79.2	-670.1	485.6	88.8	77.4	-683.1	476.1	87.1
Δ Shr Overcrowded Units	94.6	-787.3	1553.4	91.6	100.4	-756.7	1558.7	91.0
Δ Shr Units Maj Repair	15.6	-101.1	173.1	91.0	17.9	-96.6	173.3	89.6
Bandwidth	23.0	12	118		23.9	12	124	

Table 7: Local GWR Estimates of Public Housing on Median Contract Rents in Philadelphia between 1934-40

Dependent Variable:	Δ in Median Contract Rents							
	Completed Public Housing				Approved Public Housing			
		Percentile				Percentile		
	Mean	5^{th}	95^{th}	% Sig	Mean	5^{th}	95^{th}	% Sig
Constant	4.425	-11.836	21.418	95.5	4.892	-12.482	29.134	94.4
Inv Dist to Pub Housing	-12.853	-57.029	50.613	84.2	-13.607	-62.449	55.485	83.2
Δ in Pop Density	0.786	-0.881	3.641	89.6	0.795	-0.833	3.657	88.8
Δ Shr of Nonwhite People	-0.052	-3.919	4.053	89.0	-0.044	-3.910	4.051	89.3
Δ in Homeownership Rate	0.208	-0.453	1.327	93.3	0.214	-0.366	1.296	93.3
Δ Shr of Multifamily Units	-0.081	-1.977	1.435	87.7	-0.085	-1.984	1.438	86.9
Δ Shr Overcrowded Units	0.571	-2.322	4.495	87.4	0.562	-2.602	4.429	87.7
Δ Shr Units Maj Repair	-0.058	-0.507	0.335	81.8	-0.054	-0.508	0.335	81.6
Bandwidth	28.086	12	120		27.936	12	120	

Table 8: Local GWR Estimates of Public Housing on Median Property Values in Washington, DC between 1934-40

Dependent Variable:	Δ in Median Property Values							
	Completed Public Housing				Approved Public Housing			
		Percentile				Percentile		
	Mean	5^{th}	95^{th}	% Sig	Mean	5^{th}	95^{th}	% Sig
Constant	-1874.0	-22990.2	4877.0	86.3	-1072.3	-7234.4	3652.7	93.7
Inv Dist to Pub Housing	4734.5	-27770.0	67292.9	91.6	-7.6	-5551.2	7363.2	83.2
Δ in Pop Density	-17.7	-468.0	270.8	82.1	9.8	-487.4	358.2	77.9
Δ Shr of Nonwhite People	-19.1	-878.7	268.8	75.8	-13.5	-873.4	313.6	77.9
Δ in Homeownership Rate	-64.0	-713.1	156.9	89.5	-28.9	-598.6	225.8	87.4
Δ Shr of Multifamily Units	-49.7	-833.5	219.5	86.3	-44.6	-660.6	209.9	90.5
Δ Shr Overcrowded Units	-194.1	-3027.3	932.3	73.7	-102.2	-3349.6	1290.3	69.5
Δ Shr Units Maj Repair	-42.6	-463.3	354.6	78.9	-15.2	-446.4	442.9	82.1
Bandwidth	15.8	12	38		15.4	12	40	

Table 9: Local GWR Estimates of Public Housing on Median Contract Rents in Washington, DC between 1934-40

Dependent Variable:	Δ in Median Contract Rents							
	Completed Public Housing				Approved Public Housing			
		Percentile				Percentile		
	Mean	5^{th}	95^{th}	% Sig	Mean	5^{th}	95^{th}	% Sig
Constant	4.570	-18.871	22.710	91.6	2.823	-7.148	10.963	88.4
Inv Dist to Pub Housing	-14.336	-106.744	80.305	95.8	-2.811	-19.457	13.237	83.2
Δ in Pop Density	0.193	-0.921	1.355	81.1	0.164	-0.950	1.285	83.2
Δ Shr of Nonwhite People	-0.069	-0.756	0.599	89.5	-0.080	-0.920	0.829	87.4
Δ in Homeownership Rate	0.018	-0.887	0.847	89.5	-0.003	-0.940	0.741	89.5
Δ Shr of Multifamily Units	-0.194	-0.666	0.336	89.5	-0.152	-0.542	0.441	81.1
Δ Shr Overcrowded Units	-1.567	-6.367	1.427	84.2	-1.629	-6.448	1.590	85.3
Δ Shr Units Maj Repair	-0.163	-1.105	0.638	86.3	-0.175	-1.180	0.444	86.3
Bandwidth	15.474	12	27		15.284	12	26	

Table 10: Local GWR Estimates of Public Housing on Median Property Values in Louisville between 1934-40

Dependent Variable:	Δ in Median Property Values							
	Completed Public Housing				Approved Public Housing			
		Percentile				Percentile		
	Mean	5^{th}	95^{th}	% Sig	Mean	5^{th}	95^{th}	% Sig
Constant	353.6	-882.3	1827.3	93.2	268.3	-894.3	1370.0	88.6
Inv Dist to Pub Housing	209.6	-1419.6	1320.9	84.1	67.6	-1569.0	1060.8	85.2
Δ in Pop Density	-82.1	-639.3	454.5	69.3	-69.6	-596.8	394.9	63.6
Δ Shr of Nonwhite People	-68.9	-517.3	357.4	70.5	-61.2	-523.1	362.6	70.5
Δ in Homeownership Rate	23.7	-81.6	159.0	80.7	29.4	-90.1	147.9	81.8
Δ Shr of Multifamily Units	-29.8	-109.2	66.5	92.0	-23.9	-99.9	65.4	93.2
Δ Shr Overcrowded Units	-6.6	-201.6	196.3	78.4	-23.6	-180.2	140.0	78.4
Δ Shr Units Maj Repair	-4.7	-47.3	31.7	69.3	-7.5	-67.3	29.6	69.3
Bandwidth	15.6	12	34		16.3	12	38	

Table 11: Local GWR Estimates of Public Housing on Median Contract Rents in Louisville between 1934-40

Dependent Variable:	Δ in Median Contract Rents							
	Completed Public Housing				Approved Public Housing			
		Percentile				Percentile		
	Mean	5^{th}	95^{th}	% Sig	Mean	5^{th}	95^{th}	% Sig
Constant	2.015	-0.846	4.438	94.4	2.082	-0.928	5.172	94.4
Inv Dist to Pub Housing	-0.255	-9.140	5.527	67.4	-0.735	-8.682	2.663	71.9
Δ in Pop Density	-0.091	-1.644	2.039	71.9	-0.050	-1.485	2.052	73.0
Δ Shr of Nonwhite People	0.177	-0.533	0.755	66.3	0.107	-0.633	0.651	66.3
Δ in Homeownership Rate	0.113	-0.226	0.459	92.1	0.123	-0.168	0.472	92.1
Δ Shr of Multifamily Units	-0.033	-0.227	0.214	62.9	-0.031	-0.208	0.213	70.8
Δ Shr Overcrowded Units	-0.104	-0.432	0.505	89.9	-0.086	-0.422	0.681	85.4
Δ Shr Units Maj Repair	-0.025	-0.467	0.113	55.1	-0.028	-0.461	0.106	55.1
Bandwidth	17.596	12	39		17.730	12	37	

Table 12: Local GWR Estimates of Public Housing on Median Contract Rents in New York between 1934-40

Dependent Variable:	Δ in Median Contract Rents							
	Completed Public Housing				Approved Public Housing			
		Percentile				Percentile		
	Mean	5^{th}	95^{th}	% Sig	Mean	5^{th}	95^{th}	% Sig
Constant	-3.253	-54.317	39.013	98.8	-0.433	-37.794	34.854	97.5
Inv Dist to Pub Housing	21.153	-198.089	292.760	97.0	2.233	-130.436	147.824	96.2
Δ in Pop Density	0.051	-1.599	1.559	94.7	0.055	-1.482	1.525	95.2
Δ Shr of Nonwhite People	0.281	-6.622	6.623	95.9	0.250	-6.714	6.811	96.1
Δ in Homeownership Rate	0.040	-0.653	0.760	96.7	0.047	-0.606	0.796	96.9
Δ Shr of Multifamily Units	-0.176	-1.735	1.144	96.3	-0.165	-1.704	1.122	96.0
Δ Shr Overcrowded Units	0.195	-5.253	5.066	95.9	0.151	-5.425	5.295	96.1
Δ Shr Units Maj Repair	0.001	-1.009	1.004	96.5	0.012	-0.993	0.952	96.9
Bandwidth	54.399	12	335		56.120	12	439	

Table 13: Local GWR Estimates of Public Housing on Median Contract Rents in Boston between 1934-40

Dependent Variable:	Δ in Median Contract Rents							
	Completed Public Housing				Approved Public Housing			
		Percentile				Percentile		
	Mean	5^{th}	95^{th}	% Sig	Mean	5^{th}	95^{th}	% Sig
Constant	-0.683	-9.783	4.277	78.6	-0.329	-7.914	5.052	88.1
Inv Dist to Pub Housing	0.669	-3.325	6.873	81.7	0.468	-2.615	6.700	81.0
Δ in Pop Density	-0.045	-0.340	0.179	86.5	-0.058	-0.385	0.227	84.9
Δ Shr of Nonwhite People	-0.303	-5.415	1.340	82.5	-0.521	-5.582	1.160	82.5
Δ in Homeownership Rate	0.377	-0.248	2.805	85.7	0.384	-0.236	2.777	86.5
Δ Shr of Multifamily Units	0.060	-0.084	0.709	81.7	0.084	-0.083	0.673	87.3
Δ Shr Overcrowded Units	-1.108	-10.096	2.595	87.3	-1.183	-10.133	2.684	83.3
Δ Shr Units Maj Repair	-0.047	-0.212	0.037	81.0	-0.040	-0.190	0.053	88.9
Bandwidth	14.159	12	22		14.032	12	19	

Table 14: Average Effect of Completed Public Housing on Median Property Values Sorted by Distance to Public Housing

		Distance of Tract Centroid to Public Housing in Miles					
Location		0.00 - 0.25	0.26 - 0.50	0.51 - 1.00	1.01 - 2.00	2.00 - Up	All
Chicago	Effect	3462.47	823.83	399.66	182.66	730.70	627.26
	#	2	13	41	152	664	872
Philadelphia	Effect	279.21	260.81	380.70	40.35	601.35	415.44
	#	1	5	24	93	197	320
DC	Effect	—	-1115.79	-293.90	-292.82	1686.62	1222.08
	#	0	1	3	16	67	87
Louisville	Effect	1947.03	1483.58	539.43	173.93	19.17	348.01
	#	1	9	10	26	28	74

(a) Completed Public Housing

		Distance of Tract Centroid to Public Housing in Miles					
Location		0.00 - 0.25	0.26 - 0.50	0.51 - 1.00	1.01 - 2.00	2.00 - Up	All
Chicago	Effect	-115.80	-84.00	75.98	202.38	201.70	170.11
	#	9	33	116	213	475	846
Philadelphia	Effect	-1698.51	-237.84	178.01	-45.02	509.33	279.46
	#	4	6	31	86	183	310
DC	Effect	-304.47	123.65	343.00	849.05	-440.20	214.05
	#	3	6	20	25	25	79
Louisville	Effect	1222.06	1337.27	391.30	-7.05	-36.59	256.54
	#	3	9	12	24	27	75

(b) Approved Public Housing

Table 15: Average Effect of Completed Public Housing on Median Contract Rents Sorted by Distance to Public Housing

		Distance of Tract Centroid to Public Housing in Miles					
Location		0.00 - 0.25	0.26 - 0.50	0.51 - 1.00	1.01 - 2.00	2.00 - Up	All
Chicago	Effect	11.11	1.17	0.36	-1.29	-0.44	-0.51
	#	1	13	43	154	658	869
Philadelphia	Effect	-3.41	-0.42	-0.01	0.75	-4.00	-2.28
	#	1	6	22	91	195	315
DC	Effect	—	8.25	4.39	0.51	-3.18	-2.12
	#	0	1	4	15	71	91
Louisville	Effect	-1.23	1.37	-0.01	-0.21	-0.07	0.02
	#	2	7	9	22	20	60
New York	Effect	0.76	-0.42	-0.70	-1.11	4.91	3.09
	#	20	64	214	551	1863	2712
Boston	Effect	1.59	0.41	2.77	0.47	-0.02	0.91
	#	3	8	23	47	22	103

(a) Completed Public Housing

		Distance of Tract Centroid to Public Housing in Miles					
Location		0.00 - 0.25	0.26 - 0.50	0.51 - 1.00	1.01 - 2.00	2.00 - Up	All
Chicago	Effect	0.50	0.02	0.27	-0.88	-0.68	-0.57
	#	6	27	113	225	483	854
Philadelphia	Effect	-1.80	-0.09	-0.27	0.51	-4.93	-2.66
	#	4	8	32	93	174	311
DC	Effect	3.82	0.58	-0.51	0.43	-2.61	-0.73
	#	1	6	24	24	24	79
Louisville	Effect	2.62	1.89	0.12	-0.44	-0.62	-0.02
	#	1	9	12	22	20	64
New York	Effect	0.66	-0.23	0.10	-0.12	0.47	0.24
	#	33	99	317	741	1501	2691
Boston	Effect	-0.97	0.00	1.55	0.52	-0.16	0.64
	#	4	15	36	31	16	102

(b) Approved Public Housing

Table 16: OLS Estimates of Relationship between Change in Dwelling Units by Distance to Completed Public Housing in 1934-40

Dependent Variable: Change in Dwelling Units 1934-40					
	Distance to Public Housing in Miles				
	0.00 - 0.25	0.26 - 0.50	0.51 - 1.00	Constant	N
Chicago	286.86**	-41.85	-25.44	174.14***	910
	(146.18)	(55.64)	(30.34)	(7.10)	
Philadelphia	283.54**	87.04	47.63	61.46***	396
	(114.63)	(81.40)	(35.54)	(10.67)	
DC	—	870.44**	506.84***	424.56***	95
		(381.87)	(174.53)	(40.25)	
Louisville	-473.68***	155.92***	72.75	97.18***	89
	(118.43)	(56.22)	(46.29)	(21.10)	
New York	130.71***	-168.12***	-33.05**	56.25***	2859
	(44.16)	(27.00)	(14.96)	(4.37)	
Boston	-330.72***	49.91	-24.95	16.72	126
	(126.86)	(79.78)	(50.52)	(28.37)	

Notes. Standard Errors are in parentheses. Coefficient estimates are statistically significant at the * - 10%, ** - 5%, or *** 1% level of significance.

Table 17: Summary Statistics for Tracts within a One-Mile Radius of Completed Public Housing

	Chicago				Washington, DC				Philadelphia			
	1934		1940		1934		1940		1934		1940	
Variable	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Median Contract Rent	18.18	5.03	18.55	5.98	33.77	3.92	36.62	2.55	26.25	8.23	29.31	8.19
Median Property Value	2729	1041	2320	1741	5501	1139	5718	202	4453	2191	3531	1597
Pop Density ('000s/sq mi)	32.48	13.89	33.61	14.05	15.98	17.67	19.56	19.17	29.15	26.11	30.92	27.40
Share of Nonwhite People	7.11	14.07	5.52	13.81	15.31	8.30	26.31	7.33	16.04	26.72	18.02	27.97
Share of Homeownership	23.38	10.47	19.07	10.33	44.92	9.08	36.35	15.79	40.21	20.08	35.66	20.03
Share of Multifamily Units	24.98	12.67	39.44	19.54	13.71	6.18	25.76	14.09	5.58	10.15	7.93	12.50
Share of Overcrowded Units	—	—	—	—	1.31	0.63	1.76	1.42	1.29	2.96	0.51	0.70
Share of Units Major Repairs	—	—	—	—	7.57	4.81	2.90	2.74	9.30	13.96	8.70	9.87
Observations:	49				5				34			

	New York				Boston				Louisville			
	1934		1940		1934		1940		1934		1940	
Variable	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Median Contract Rent	34.36	16.93	33.50	12.47	22.77	7.62	22.49	7.07	15.71	7.00	15.66	6.32
Median Property Value	—	—	—	—	—	—	—	—	2649	1600	2476	968
Pop Density ('000s/sq mi)	42.01	39.79	44.31	42.60	39.89	34.13	44.70	33.77	12.25	7.64	14.69	8.63
Share of Nonwhite People	4.97	15.70	6.64	18.84	2.38	6.85	2.53	7.11	26.35	27.72	23.78	27.10
Share of Homeownership	23.04	22.69	19.39	19.03	18.78	9.54	16.15	8.12	21.50	12.89	19.72	13.67
Share of Multifamily Units	30.83	26.72	35.07	25.79	32.26	31.36	31.88	29.20	5.53	5.58	29.92	20.41
Share of Overcrowded Units	1.80	5.57	0.71	0.85	0.87	1.25	0.86	0.81	4.83	3.94	4.35	2.45
Share of Units Major Repairs	18.11	21.42	8.07	6.49	21.10	16.32	16.40	17.09	32.67	17.07	17.58	13.95
Observations:	236				35				16			