Article

Urban Affairs Review
1–43

DOI: 10.1177/10780874211032637
journals.sagepub.com/home/uar

Investing in Gentrification: The Eligibility of Gentrifying Neighborhoods for Federal Place-Based Economic Investment in U.S. Cities

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Abstract

Place-based policies commonly target disadvantaged neighborhoods for economic improvement, typically in the form of job opportunities, business development or affordable housing. To ensure that investment is channeled to truly distressed areas, place-based programs narrow the pool of eligible neighborhoods based on a set of socioeconomic criteria. The criteria, however, may not be targeting the places most in need. In this study, we examine the relationship between neighborhood gentrification status and 2018 eligibility for the New Markets Tax Credits, Opportunity Zones, Low Income Housing Tax Credits, and the Community Development Financial Institutions Program. We find that large percentages of gentrifying neighborhoods are eligible for each of the four programs, with many neighborhoods eligible for multiple programs. The Opportunity Zone program stands out, with the probability of eligibility nearly twice as high for gentrifying tracts than not-gentrifying tracts. We also found that the probability of eligibility increases with a greater percentage of adjacent neighborhoods experiencing gentrification.

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Keywords
place-based development, gentrification, Opportunity Zones, New Market Tax Credits, Low Income Housing Tax Credits

Introduction

Government institutions and community-based organizations have employed various community economic development (CED) strategies to alleviate disadvantages in distressed neighborhoods. A place-based solution targeting low-income neighborhoods for economic and social reinvestment is among the more popular approaches. Place-based programs typically draw from investment capital or tax credits to achieve specific objectives such as workforce or affordable housing development alongside broader goals to enhance the overall welfare of residents in disadvantaged communities (Neumark and Simpson 2015). Place-based approaches have a long tradition in policy intervention work and continue to be a popular strategy in CED as evidenced by the recent rollout of the Opportunity Zone (OZ) program, a new federal community investment tool designed to drive long-term capital to low-income neighborhoods (Theodos, Meixell and Hedman 2018).

There is extensive literature examining the effects of place-based programs on an assortment of socioeconomic outcomes (Foell and Pitzer 2020). These studies offer mixed evidence, finding positive (Busso, Gregory and Kline 2013), no (Neumark and Kolko 2010), and sometimes negative effects (Givord, Rathelot and Sillard 2013). One potential explanation for this conflicting evidence is the significant variation in the types of neighborhoods that are eligible for investment (Ellen and Horn 2018; Freedman 2012). Before dollars are invested and projects break ground, place-based programs narrow the pool of eligible neighborhoods based on a set of socioeconomic thresholds to channel funding toward truly distressed areas. The selection criteria, however, may not be targeting the places most in need of economic investment. In particular, some have argued that place-based programs provide benefits to already-gentrifying areas (Gelfond and Looney 2018; Layser 2021; Richardson, Mitchell and Edlebi 2020). Although following a trajectory toward middle or higher socioeconomic status, gentrifying neighborhoods may be eligible for place-based programs based on their current lower-income position. Granting eligibility to gentrifying neighborhoods seemingly goes against the goal of using a set of criteria to target neighborhoods that are underserved and low income. Furthermore, place-based investments in gentrifying neighborhoods may accelerate the gentrification process that is already underway and take dollars away from higher-need areas. In this case, given the potential negative consequences associated with

gentrification, including the displacement of low-income residents, rising income inequality, and negative health effects among minority and economically vulnerable residents, place-based programs fail to alleviate the problem they were intended to remedy—the spatial inequality of disadvantage (Christafore and Leguizamon 2019; Ding, Hwang and Divringi 2016; Smith et al. 2020).

In this article, we examine the relationship between neighborhood gentrification status and eligibility for the following four federal place-based programs: New Markets Tax Credit (NMTC), OZ, Low Income Housing Tax Credit (LIHTC), and the Community Development Financial Institutions (CDFI) program. We chose these four programs because they are national in geographic scope, have varied selection criteria, base eligibility and implementation at the census tract level, and are four of the largest federal place-based programs in the United States based on total spending (Tach et al. 2019). Recent concerns regarding the selection of gentrifying neighborhoods have focused on the OZ program, arguably the largest place-based policy innovation in the United States since the 1990s (Gelfond and Looney 2018; Theodos, Meixell and Hedman 2018). However, whether and how many gentrifying neighborhoods have been selected as OZs has remained largely unexamined. Moreover, other place-based programs may also be susceptible to the selection of gentrifying neighborhoods. Comparing eligibility across multiple place-based programs with different selection criteria and programmatic goals shifts the focus away from the OZ program to place-based policies in general. It also moves the discussion away from the assumption that eligibility in gentrifying neighborhoods is necessarily inefficient and will exacerbate existing inequalities. Instead, the eligibility of neighborhoods experiencing socioeconomic ascent may lead to positive or negative consequences depending on program objectives.

Using a series of descriptive methods and multivariate regression models, we examine the association between program eligibility for each of the four programs in 2018 and gentrification status based on neighborhood change between 2000 and 2018 in over 450 U.S. cities. Specifically, we address the following research questions. First, is place-based program eligibility associated with gentrification status? And does this relationship vary by program? Given variation in eligibility criteria and CED focus, certain programs may be more prone to selecting socioeconomically ascending neighborhoods. Second, is the number of programs that a neighborhood is eligible for associated with gentrification status? Pooling dollars from more than one program has proven to be an effective approach to overcoming investment barriers in distressed neighborhoods (Rodriguez-Pose and Wilkie 2017; Theodos, González-Hermoso and Meixell 2020). In the case of gentrifying neighborhoods, multiple program eligibility may accelerate

the gentrification process and take away more dollars from higher-need areas. Third, is program eligibility associated with the gentrification status of nearby neighborhoods? Given potential spillover effects, neighborhoods adjacent to gentrifying areas may be at risk of gentrifying, and place-based program investments may tip these neighborhoods into gentrification.

Background

Program Descriptions

Place-based programs take on two forms: (1) a place-based people strategy that offers resources to residents in a distressed neighborhood and (2) a pure place-based strategy that focuses on improving the physical and economic vitality of a geographically defined area without explicit attention to the residents who live there (Brazil 2016). Examples of the first approach include reduced-price housing for residents in low-income areas and workforce development programs connecting residents to local businesses (Bartik 2020a). Examples of the second approach include tax incentives to relocate or create businesses within a designated area or locality development efforts focused on improving aspects of the built environment theorized to impact local economic well-being (Ladd 1994). The history and economic basis of place-based policies in the United States and globally have been extensively covered (see Bartik 2020a; Kline and Moretti 2014; Neumark and Simpson 2015), but, in brief, they aim to provide an efficient allocation of scarce resources to the areas with the greatest need. Efficient allocation means not just the direct targeting of high-need residents, but includes multiplier, interactional, and spillover effects that benefit all residents in a disadvantaged neighborhood and nearby communities (Brazil 2016).

The four place-based programs examined in this study are currently among the largest in the United States in terms of geographic scope and investment dollars. The CDFI Fund is a division of the U.S. Department of the Treasury and was established in 1994 as a part of the Riegle Community Development and Regulatory Improvement Act. The goal of the CDFI is to increase economic empowerment and well-being in historically disinvested communities across the United States. In this paper, we examine two of its place-based programs—the NMTC and CDFI programs. The CDFI program invests in CDFIs, which are mission-driven financial institutions that create economic opportunity for individuals and small businesses, quality affordable housing, and essential community service. The program provides these institutions with financial and technical assistance to enhance their ability to make loans and investments and provide services for the benefit of designated

investment neighborhoods (Harger, Ross and Stephens 2019). Projects vary widely, but they typically focus on small businesses development, affordable housing, job creation, and workforce development. Financial Assistance awards are made in the form of loans, grants, equity investments, deposits, and credit union shares, which awardees are required to match dollar-for-dollar with non-Federal funds.

The NMTC program, which was signed into law in 2000 as part of the Community Renewal Tax Relief Act, arose out of a desire to encourage private capital investment in low-income neighborhoods (Abravanel et al. 2013). The program focuses on job creation and affordable housing projects, but investment dollars support projects that run the full CED gamut. The program provides tax credits to investors who make equity investments in Community Development Entities (CDE). NMTC program rules dictate that substantially all of the investments made by CDEs go to designated low-income census tracts.

The LIHTC program is the United States' largest affordable housing program. Established through the Tax Reform Act in 1986, it has funded over 47,000 projects and three million housing units since its inception (Scally et al. 2018). The LIHTC program consists of a 9% tax credit and a 4% tax credit. The 9% tax credits are awarded through a competitive grant process whereas developers and investors apply directly for the 4% tax credits through the Internal Revenue Service. The program requires each state agency that allocates tax credits to have a qualified allocation plan (QAP). The QAP sets out the state's eligibility priorities and criteria for awarding federal tax credits to housing properties. LIHTC projects can be developed in any neighborhood, but developers receive up to more than 30% more tax credit funding if their project is located in disadvantaged neighborhoods known as qualified census tracts (QCTs). All states are required by federal law to give preference in LIHTC allocations to projects that are located in federally designated QCTs.

The OZ program, which was established through the 2017 Tax Cuts and Jobs Act, has a similar funding structure as the NMTC. The program attracts dollars into designated census tracts by allowing individual and corporate investors to (1) defer and reduce their capital gains taxes on realized gains if they immediately reinvest the gains in intermediaries called opportunity funds and (2) exclude future capital gains taxes on the incremental appreciation of that investment if held for at least 10 years (Marcin 2020). The funds can be invested in commercial, residential and industrial real estate, infrastructure, and businesses. In return, investors receive a percentage increase in their original investment depending on how many years they keep their investment in the fund. Fund dollars must be invested in projects located in designated OZ census tracts.

Program Eligibility

Ample empirical attention has been paid to the effectiveness of place-based programs in the United States (Foell and Pitzer 2020). There is also a significant literature examining where place-based dollars are being spent and the types of projects that are funded (Neumark and Kolko 2010). The evidence suggests that place-based programs may have limited to no effects (Busso, Gregory and Kline 2013; Freedman 2015; Hanson 2009; Neumark and Kolko 2010; Reynolds and Rohlin 2014). In some cases, place-based programs may exacerbate inequalities, with benefits dissipating through several channels, including non-residents taking the jobs that are created, gentrification, and economic activity relocating to other neighborhoods (Neumark and Simpson 2015).

Prior work has identified several potential factors explaining the mixed effects of place-based policies, including the amount of dollars invested, the types of projects developed, and the resident population groups benefiting from projects (Freedman 2015; Harger, Ross and Stephens 2019). However, before dollars are invested and projects break ground, place-based programs first narrow the pool of eligible neighborhoods based on a set of socioeconomic criteria. This narrowing is intended to target neighborhoods most in need of investment. For example, when the first round of OZ eligibility was announced, the program was heralded as "attracting needed private investment into low-income communities" that will lead to their economic revitalization (US Department of Treasury 2018). Similarly, the U.S. Department of Treasury describes investments made through the NMTC as "breathing new life into low-income communities" that lack access to affordable financial products and services (US Department of Treasury 2020). Clearly, these programs are intended to alleviate disadvantage in historically underserved, low-income communities. However, program eligibility criteria may include neighborhoods that are already on the economic upswing. Not only does this go against the goal of narrowing the pool of neighborhoods to only those that are most in need, but also eligible disadvantaged communities may receive comparatively less investment dollars or be completely passed over in favor of neighborhoods that are already receiving significant capital investment. As such, it is not merely the amount of dollars spent, the set of investors and stakeholders involved, and the types of projects that are funded that act as potential knots along the place-based investment pipeline, but also the criteria that make neighborhoods eligible in the first place.

Inefficient targeting may occur for several reasons. First, many programs rely on a narrow set of characteristics to determine eligibility despite the multidimensionality of disadvantage (Galster 2019). This may result in a

definition of "low income" that excludes neighborhoods that are disadvantaged in some domains but not in others and includes areas that are not truly distressed. For example, the NMTC program uses the poverty rate and median family income (MFI) to determine neighborhood eligibility. Characteristics such as housing cost burden and local employment characteristics are not taken into consideration despite the significant amount of NMTC dollars invested toward affordable housing and job development projects (Theodos et al. 2021a).

Second, criteria are not standardized across programs, with eligibility varying by the number of criteria, the type of eligibility characteristics, and the numeric thresholds for meeting eligibility. In other words, despite sharing the same objective of channeling investments into high-need neighborhoods, the definition of "high-need" varies considerably across programs. For some programs, the eligibility criteria are opaque, often leaving the selection of neighborhoods up to state or local jurisdictions. For example, after limiting the pool of neighborhoods eligible for OZ investment to those with poverty rates >20%, the federal government left each state's Governor's office to select up to 25% of these neighborhoods for the final cut, with most states not publicly sharing their selection criteria. An examination of neighborhoods eligible for OZ funding found that many states selected large shares of tracts that were not considered to be distressed (Gelfond and Looney 2018; Theodos, Meixell and Hedman 2018) and whose state legislators shared the same political affiliation as the governor (Alm, Dronyk-Trosper and Larkin 2020; Frank, Hoopes and Lester 2020). The LIHTC program also provides considerable flexibility to states to determine which neighborhoods are eligible to receive affordable housing credits. Some states set their eligibility to match the QCT, but others add additional criteria to achieve certain development outcomes (Ellen and Horn 2018).

Third, some programs give eligibility to tracts that do not meet socioeconomic thresholds if they are adjacent to eligible tracts. Fourth, many programs do not use up-to-date data to measure eligibility. For example, the NMTC program uses 2011–2015 American Community Survey (ACS) data to measure eligibility in 2018. Census tracts that are disadvantaged according to their 2015 data but reach higher socioeconomic status by 2018 will be eligible for program dollars. Fifth, many programs use cross-sectional measures to capture disadvantages, thus ignoring the socioeconomic trajectory of places. That is, most programs consider what neighborhoods look like right now, but ignore where they are coming from. Not accounting for neighborhood change may exclude areas that are relatively well-off, but experiencing socioeconomic decline, and include neighborhoods that are seemingly disadvantaged, but experiencing positive socioeconomic changes.

The Eligibility of Gentrifying Neighborhoods

One form of neighborhood change that has received attention in the place-based literature is gentrification (Bartik 2020b; Gelfond and Looney 2018; Layser 2019, 2021; Richardson, Mitchell and Edlebi 2020; Theodos et al. 2021b; Zuk et al. 2018). Although the precise empirical definition of gentrification varies widely, most measures designate gentrifying neighborhoods as those that are relatively lower income compared to the metropolitan area but are experiencing an increase in college-educated residents, income, and housing and/or rental values (Barton 2016). From this standard definition, gentrifying neighborhoods may qualify for place-based programs because their current socioeconomic characteristics reflect relative disadvantage despite undergoing change toward higher socioeconomic status. The four programs examined in this study do not explicitly account for or incorporate gentrification or any neighborhood change in their selection criteria.

Because neighborhoods undergoing gentrification are already receiving significant capital investments, and gentrification has been associated with a variety of negative consequences, providing them eligibility seemingly goes against the policy objectives of directing financial capital to disinvested, high-need areas and decreasing geographic inequalities within cities. However, the implications of granting eligibility to gentrifying neighborhoods will depend on a number of other factors, including the program's investment and funding mechanisms, governance structure, development focus, and the types of projects that are typically developed. Given variation in these factors across the four programs examined in this study, the eligibility of gentrifying neighborhoods may carry both beneficial and harmful consequences.

For most place-based interventions, being eligible does not guarantee that a neighborhood receives any funding, and if it does, it also does not determine how much investment dollars a neighborhood receives and the types of projects that are developed. Investors and local program administrators have significant control over these decisions. However, whether and how much funding and project development an eligible neighborhood receives is influenced by the program's investment structure (Neumark and Simpson 2015). Programs that rely on private investments to finance projects may encounter conflicting goals as they attempt to balance market-oriented interests with community-oriented interests. If these programs emphasize financial returns over social impact, gentrifying neighborhoods may be preferred over more in-need places because they are already set up for capital investments (Theodos, González-Hermoso and Meixell 2020).

From the supply side perspective, private capital and investments are key mechanisms of gentrification (Zuk et al. 2018). Flows of capital focus on profit-seeking and the work of broader economic forces to make inner-city

areas profitable for in-movers. The socioeconomic change in gentrifying neighborhoods is the spatial manifestation of the restructuring of capital through shifting land values and housing development (Smith 1979). Local and state governments can help establish the conditions that spur and catalyze the gentrification processes via public policies and programs (Zuk et al. 2018). Smith (1979) sees government as part of a larger political economy that aims to accumulate capital through land use management and city development, echoing the idea of the city as a "growth machine" (Logan and Molotch 1987). Given these preexisting conditions, place-based investments may be directed away from higher-need areas toward eligible gentrifying areas because they will be seen as producing larger financial gains from the start. This result may be due to investors simply seeking the greatest returns to their investments or because programs intentionally target eligible places that appear more likely to succeed, such as gentrifying neighborhoods, because it generally takes more resources to achieve results in places with more need than in places with less need (Greenbaum 2004; Kim 2021). Indeed, in an examination of the initial rollout of the OZ program, Theodos, González-Hermoso and Meixell (2020) found that investors tended to favor projects that were developed in socioeconomically appreciating OZ neighborhoods because they offered greater returns on investment at a faster rate. Similar patterns were also found in the NMTC program (Abravanel et al. 2013). The investment structures of the LIHTC and CDFI are similar to the OZ and NMTC in that they require equity investments from private actors to help fund projects. In the case of the LIHTC, private investors receive a federal income tax credit as an incentive to make equity investments in affordable rental housing with some evidence indicating that developers differentially select gentrifying neighborhoods as locations for their developments (Baum-Snow and Marion 2009).

The implications of granting eligibility to gentrifying neighborhoods will also depend on the types of projects that are developed in these neighborhoods. On the one hand, the projects developed in eligible gentrifying neighborhoods may have no impact on gentrification or potentially exacerbate it. Studies examining the NMTC program provide some evidence that project development is associated with markers of gentrification such as increasing housing and rental values and household turnover rates (Abravanel et al. 2013; Freedman 2012; Layser 2021; Theodos et al. 2021b). Results from studies of the OZ program are mixed, with some finding increasing housing and rental prices (Bekkerman et al. 2021) and others finding no effects (Chen, Glaeser and Wessel 2019). Similarly, findings from studies examining the association between affordable housing development and measures associated with gentrification are not conclusive (Santiago, Galster and Tatian 2001; Woo, Joh and Van Zandt 2016).

On the other hand, programs can effectively engage with the gentrification process by financing projects that help counter its negative consequences. For example, affordable housing in gentrifying neighborhoods that remains affordable long term may prevent the displacement of long-time residents and the exclusion of lower-income households from moving in (Freeman and Schuetz 2017). NMTC and OZ investments, which focus on workforce and small business development in addition to affordable housing, can finance projects that minimize the displacement and exclusion of residents through affordable housing and increasing the wealth of lower-income residents by expanding their workforce skills and opportunities for higher-paying jobs (Theodos, González-Hermoso and Meixell 2020). CDFI funding can be used to provide affordable loans and other financial services to residents and businesses that match the rising costs in their neighborhoods (Harger, Ross and Stephens 2019). In all of these examples, rather than countering the place-based objective of reducing spatial inequality, eligibility in gentrifying neighborhoods would support it by acting as a mechanism for placing residents into relatively affordable higher-opportunity residential settings or a tool for mitigating and countering the negative consequences of gentrification. Whether projects help mitigate or fuel gentrification will partly depend on the type and amount of oversight and accountability over which projects are financed and their measurable impacts on communities (Forbes 2006; Hula and Jordan 2018).

Despite the many implications of granting program eligibility to gentrifying neighborhoods, place-based program eligibility has been understudied in the academic literature. This study fills this gap by descriptively examining the relationship between gentrification and the eligibility criteria for four of the largest federal place-based programs in U.S. cities. We do not examine the amount of investment dollars or the types of projects that are developed by these programs. These decisions are less under the control of the federal and state agencies overseeing the programs and more under the control of local public and private actors. Furthermore, we do not examine whether gentrification is a consequence of program eligibility and investment. Instead, we seek to fill a more descriptive objective—understanding the extent to which gentrifying neighborhoods are eligible to receive place-based investment dollars in the first place.

Data

Place-Based Program Eligibility

Our main dependent variables are indicators of neighborhood eligibility for the NMTC, OZ, LIHTC, and CDFI programs in 2018. Each program defines neighborhoods as census tracts, which are small, relatively homogenous areas containing between 2,000 and 8,000 residents. A description of

each program's eligibility criteria follows, with a summary provided in Table 1. Based on 2011–2015 ACS data, a tract is eligible for CDFI program investments in 2018 if it meets one of the following criteria: poverty rate of at least 20%; unemployment rate 1.5 times the national average; for tracts within metropolitan statistical areas (MSAs), has an MFI at or below 80% of the greater of either the metropolitan or national metropolitan MFI; for tracts outside of MSAs, has an MFI at or below 80% of the greater of either the statewide or national nonmetropolitan MFI; is located within an Enterprise Zone or Enterprise Community; for tracts within MSAs, is in a county with at least a 10% population loss between the two most recent census periods; or for tracts outside of MSAs, is in a county with at least 5% population loss over the last five years. Census tracts contiguous to tracts that meet one of the above criteria are also eligible.

A 2018 LIHTC QCT is any census tract in which at least 50% of households have an income <60% of the MSA median gross income. There is a limit on the number of QCTs in any MSA that may be designated to receive an increase in eligible basis: all the designated census tracts within a given MSA may not together contain more than 20% of the total population of the MSA. Although states rely on the QCT to determine LIHTC eligibility in their QAPs, there is significant variation in how much they rely on this criterion. As such, we view the QCT as the federal criteria for defining the theoretically set of eligible tracts that states can choose from when directing LIHTC developments into disadvantaged neighborhoods. That is, QCTs are established as eligible for the 30% increase in the maximum LIHTC subsidy, but states are allowed to adjust which neighborhoods in addition to those designated as QCTs may receive the credit boost.

Based on 2011–2015 ACS data, a census tract is eligible for NMTC investment in 2018 if it has a poverty rate of at least 20% or an MFI <80% of the greater of the MSA or statewide MFI. Census tracts contiguous to tracts meeting the eligibility criteria, designated as Empowerment Zones with populations under 2,000, affected by Hurricane Katrina and located in rural counties with high out-migration rates also qualify for the program's tax credit.

To be designated as an OZ in 2018, tracts must either have an MFI at or below 80% of area median income or a poverty rate of 20% or greater as determined by 2011–2015 or 2012–2016 Census ACS data. State governors then nominated up to 25% or 25 total, whichever is larger, of qualified tracts. Up to 5% of tracts that are nominated can be selected without meeting the above criteria as long as they are contiguous to an eligible tract and have an MFI that is not >125% of the adjacent eligible tract. We defined eligible tracts as those meeting the federal criteria and were selected by states as OZs.

Table 1. Place-Based Economic Development Program 2018 Eligibility Summary.

Program	Eligibility criteria	Are contiguous tracts eligible?	ACS data used for 2018 eligibility
OZ[a]	A census tract is considered eligible if it meets ONE of the following criteria 1a. The poverty rate is at least 20% *OR* 1b. The median family income is at or below 80% of the statewide or metropolitan median family income *AND* 2. The state selected the tract as an OZ[e]	Yes[h]	2011–2015, 2012–2016
NMTC[b]	A census tract is considered eligible if it meets ONE of the following criteria[f]: 1. The poverty rate is at least 20%. 2. The median family income is at or below 80% of the greater of the MSA or statewide median family income. 3. It is entirely within an Empowerment Zone with a population under 2,000. 4. It was affected by Hurricane Katrina.	Yes	2011–2015
CDFI program[c]	A census tract is considered eligible if it meets ONE of the following criteria: 1. The poverty rate is at least 20%. 2. The unemployment rate is at least 1.5 times the national average. 3. The median family income is at or below 80% of the greater of the metropolitan or national MSA median family income.[f] 4. It is entirely within an Empowerment Zone or Enterprise Community. 5. The county population loss is ≥10% between the two most recent census periods.[f]	Yes	2011–2015

(continued)

Table 1. (continued)

Program	Eligibility criteria	Are contiguous tracts eligible?	ACS data used for 2018 eligibility
LIHTC[d]	A census tract is considered eligible if it meets the two following criteria: 1. Fifty percent of its households have incomes below 60% of the area median gross income. 2. The population of all eligible census tracts is not >20% of the total area population.[g]	No	2014–2018

Note. OZ = Opportunity Zone; NMTC = New Market Tax Credit; CDFI = Community Development Financial Institutions; LIHTC = Low Income Housing Tax Credit; MSA = metropolitan statistical area.
[a]https://www.cdfifund.gov/Pages/Opportunity-Zones.aspx.
[b]https://www.cdfifund.gov/Documents/Forms/GeographicReports.aspx.
[c]https://www.cdfifund.gov/research-data/Pages/research-report-detail.aspx?ReportID=1882.
[d]https://www.huduser.gov/portal/datasets/qct.html.
[e]States were able to select 25% of their tracts that met criteria 1a or 1b.
[f]Census tracts in non-MSAs must meet another set of conditions.
[g]If the population of all eligible census tracts exceeds 20% of the area population, census tracts are ordered by the percentage of eligible households and selected from highest to lowest until the 20% threshold is reached. If a census tract excluded because it exceeds the 20% population threshold, tracts with smaller populations are considered.
[h]The tract's median family income must not exceed 125% of the eligible tract it is contiguous to.

Gentrification Status

Our main independent variable measures a neighborhood's gentrification status. Because there is no consensus on how to measure gentrification (Barton 2016), we evaluated several common definitions to determine which variables to include and how to evaluate such variables (Choi, Van Zandt and Matarrita-Cascante 2018; Ding, Hwang and Divringi 2016; Preis et al. 2020). We found that household income, housing value, gross rent, and college-educated residents are consistently incorporated into measures of gentrification. These four variables can be measured using publicly available tract-level data at the national level. Although some scholars have defined gentrification by racial turnover or displacement because of the strong interaction between race/ethnicity and the migration of higher-income residents into lower-income areas in the United States, we did not incorporate race/ethnicity because several scholarly accounts of gentrification have found that it does not always follow these patterns, with evidence of neighborhood

socioeconomic change sometimes driven by middle-class non-White population groups (Freeman 2011; Pattillo 2007).

Our gentrification measure follows in detail. Using 2000 as the baseline year, we analyzed the change from 2000 to 2014–2018 to determine neighborhood gentrification status in 2018. By definition, in order for tracts to gentrify, they have to be lower income at the beginning of the period. Tracts are gentrifiable if they meet three out of four of the following criteria based on 2000 decennial census data: (1) median household income is less than the median household income of the MSA; (2) median housing value is less than the median housing value of the MSA; (3) median gross rent is less than the median gross rent of the MSA; and (4) percentage of college-educated residents is less than the percentage in the MSA. We used 2000 as opposed to 1990 as the baseline year for our analysis because a 30-year period is relatively long and thus may include neighborhood change processes other than gentrification. We did not use 2010 because the data will capture the significant economic downturn due to the Great Recession.

For tracts that were gentrifiable, they were considered gentrifying if they met the following four criteria based on changes from 2000 to 2014–2018: (1) the percentage change in median household income is greater than the percentage change in the median household income of the MSA; (2) the percentage change in median housing value is greater than the percentage change in the median housing value of the MSA; (3) the percentage change in median gross rent is greater than the percentage change in the median gross rent of the MSA; and (4) the percentage change in college-educated residents is greater than the percentage change in college-educated residents of the MSA. Tracts are considered "not-gentrifying" if they were gentrifiable but did not meet the gentrifying criteria.

Although our criteria are inclusive of the factors incorporated in typical operationalizations of gentrification, our definition is more conservative because it incorporates multiple measures of socioeconomic change whereas other operationalizations rely on one or more but not all variables used in our method. To test the sensitivity of the results to other operationalizations, we ran analyses using two different measures of gentrification. First, we tested the measure introduced by Ding, Hwang and Divringi (2016) and adopted by several subsequent studies (e.g., Gibbons, Barton and Reling 2020). They consider tracts to be gentrifiable if they had a median household income below the citywide median at the beginning of the period of analysis. A gentrifiable tract is considered to be gentrifying if it experienced both an above citywide median percentage increase in either its median gross rent *or* median home value *and* an above citywide median increase in its share of college-educated residents.

Second, we tested a modified version of our gentrification measure that maintains the same criteria for identifying gentrifiable tracts but relaxes the criteria for identifying tracts that are gentrifying. Rather than meeting all four change criteria, gentrifiable tracts are designated as gentrifying if they meet criteria separately capturing changes in resident and housing characteristics. Specifically, a gentrifiable tract is considered to be gentrifying if it meets the following two conditions: (1) the percentage change in average household income is greater than the percentage change in the MSA or the percentage change in college-educated residents is greater than the percentage change in the MSA and (2) the percentage change in average housing value is greater than the percentage change in the MSA or the percentage change in average gross rent is greater than the percentage change in the MSA. This method recognizes that gentrification can be driven by either shifts in income or the in-migration of lower-income college-educated residents on the resident side, and changes in either housing values or rent depending on the housing stock in the neighborhood (Preis et al. 2020). Regression models based on these two measures yielded results that are generally consistent with those based on our primary gentrification measure. These results are provided in Supplemental Appendix Tables 2–7.

Because tract boundaries change over time, we used areal interpolation methods to normalize 2000 boundaries to 2010 tract boundaries (Logan, Xu and Stults 2014). We used the 2015 U.S. Office of Management and Budget MSA definitions. We kept tracts located in urban areas. A tract is defined as urban if either their centroid is located in or 50% of its area is within the first principal city listed in the title of the MSA or a principal city with a total population >100,000 (Airgood-Obrycki, Hanlon and Rieger 2020). We filtered out tracts with population sizes <50 in either 2000 or 2018 and missing values on any variable used in the analysis, yielding a final analytic sample of 21,354 tracts located in 458 cities. Figure 1 shows the percentage of tracts eligible for each program in 2018. Figure 2 shows the percentage of tracts by gentrification status. All project data are accessible through an interactive online Geographic Information Systems dashboard (https://neighinvestproject.shinyapps.io/neighborhood investmentproject/).

Analytic Strategy

We ran a series of multivariate regression models to examine the relationship between program eligibility and gentrification status. First, we regressed a binary indicator of program eligibility on gentrification status in 2018 and a

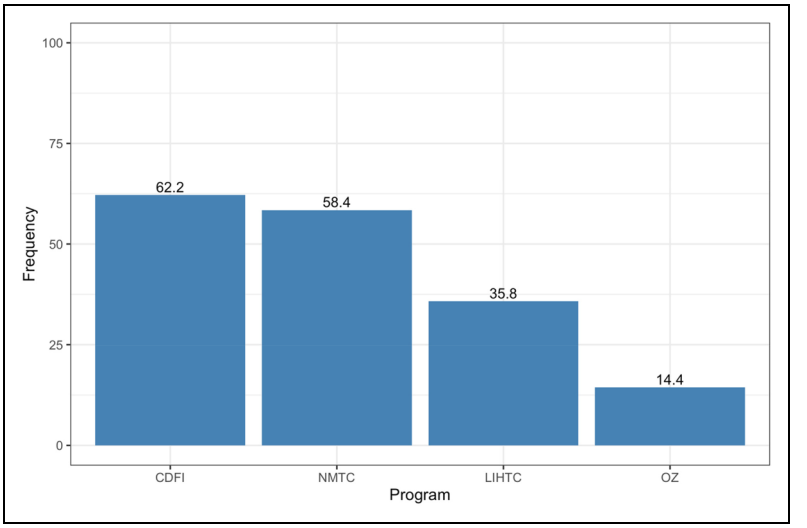

Figure 1. Percent of tracts eligible for each program in 2018 ($N = 21{,}354$).

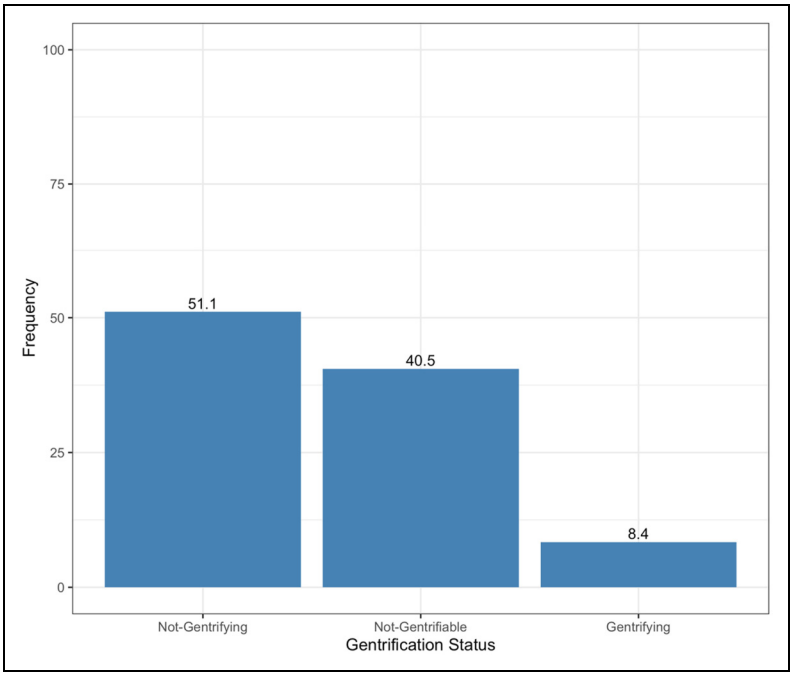

Figure 2. Percent of tracts by 2000–2018 gentrification status ($N = 21{,}354$).

set of control variables using the following logistic model:

$$\log\left(\frac{P_i^j}{1-P_i^j}\right) = \beta_0 + \beta_1 \text{Gent}_i + \beta_2 \text{Not Gentrifiable}_i + \gamma X_i + \varepsilon_i, \quad (1)$$

where P_i^j is the probability that tract i is eligible for program j in 2018, Gent_i is an indicator of whether tract i was gentrifying between 2000 and 2018, $\text{Not Gentrifiable}_i$ is an indicator of whether tract i was not-gentrifiable in 2000 (not-gentrifying is the reference), X_i is a set of tract-level control variables measured in 2018 using 2014–2018 ACS data, and ε_i is an error term. The control variables include percentage non-Hispanic Black, percentage non-Hispanic Asian, percentage Hispanic, unemployment rate, poverty rate,[1] percentage of housing units that are vacant, and log population size. β_1 is the main coefficient of interest, and it represents the difference in log odds of eligibility between gentrifying and not-gentrifying tracts. For interpretability, we converted all coefficients into odds ratios. The interpretation of the odds ratio is a value greater than one represents a higher probability of program eligibility for gentrifying versus not-gentrifying tracts. All standard errors are clustered at the city level.

We ran additional models that included city fixed effects, which controls for unobservable city-level characteristics that influence the relationship between eligibility and gentrification status. We chose to run a fixed effects model over a multi-level model because we are not interested in examining the broader scale factors explaining the relationship between gentrification and eligibility. Instead, we treat these factors as potential confounders and rely on within-city variation to explain program eligibility. This is justifiable because gentrification is generally considered a within-city phenomenon, and thus most gentrification studies include city or MSA fixed effects (e.g., Ellen, Horn and Reed 2019; Hwang 2015). Moreover, Hausman tests on a linear probability estimation of equation (1) indicated that the fixed effects specification is more appropriate than a multi-level specification (Wooldridge 2016). The inclusion of the city fixed effects may yield more conservative coefficient estimates. For this reason, we show results for models with and without city fixed effects.

Second, because programs allow for the eligibility of contiguous tracts, thus introducing spatial dependency in the dependent variable, we ran spatial lag regression models. Moran's I, which is a standard measure of spatial autocorrelation (Moran 1950), is relatively large and statistically significant at the 0.05 significance level for all four programs (0.30, 0.48, 0.47 and 0.46 for OZ, NMTC, CDFI, and LIHTC, respectively). The spatial lag model tests for spatial autocorrelation in the dependent variable, or the association of program eligibility between geographically proximate

tracts (Anselin 2013). The model takes on the following form:

$$P_i^j = \beta_0 + \beta_1 \text{Gent}_i + \beta_2 \text{Not Gentrifiable}_i + \gamma X_i + \rho WP^j + \varepsilon_i, \quad (2)$$

where W is a row-standardized spatial weights matrix measuring neighbor connectivity, defined as Queen contiguity, which are tracts that share a side or vertex, WP^j is the eligibility probability for program j of i's geographic neighbors, and ρ represents the influence of the probability of eligibility of neighbors.

It might also be the case that program eligible neighborhoods whether gentrifying or not are surrounded by gentrifying neighborhoods. Prior measures of gentrification have incorporated adjacency to a higher-income or socioeconomically ascending tract as a criterion for being at risk of gentrification (Turner and Snow 2001). As such, we incorporated a spatial lag in the gentrification indicator variable. Here, we tested whether the gentrification status of nearby neighborhoods influence the eligibility status of the focal neighborhood. The model takes on the following form:

$$P_i^j = \beta_0 + \beta_1 \text{Gent}_i + \beta_2 \text{Not Gentrifiable}_i + \gamma X_i + \rho WP^j + \delta W\text{Gent} + \varepsilon_i, \quad (3)$$

where δ is the influence of the percentage of gentrifying neighbors on eligibility status.

Finally, because CED projects typically rely on more than one source of funding, we ran a regression model using the total number of programs eligible as the dependent variable and the same independent variables specified in equation (1). This model estimates the association between gentrification status and the number of programs a tract is eligible for. Because the number of programs is right and left censored, we use a Tobit model censored at zero and four eligible programs. We also ran models incorporating a spatial lag for total eligible programs (Moran's I: 0.55) where the lag variable represents the average number of eligible programs of a tract's geographic neighbors, and a spatial lag of gentrification status. We used spatial autoregressive Probit and Tobit models with Bayesian Markov Chain Monte Carlo estimation to estimate the spatial lag models using the spatial probit package in R (Wilhelm and de Matos 2013).

Descriptive Results

The percentage of tracts in our sample that are eligible for OZ, NMTC, CDFI, and LIHTC funding are 14.4, 58.4, 62.2, and 35.8, respectively. Table 2 breaks down eligibility by not-gentrifying, gentrifying, and not-gentrifiable for each place-based program. Approximately two-thirds of gentrifying

Table 2. Percent of Eligible Tracts by Gentrification Status, 2018.

	Gentrifying		Not-gentrifying		Not-gentrifiable		Total
	N	%	*N*	%	*N*	%	*N*
OZ	372	20.8	2,466	22.6	235	2.7	3,073
NMTC	1,144	64.0	9,465	86.8	1,869	21.6	12,478
CDFI	1,222	68.3	9,752	89.4	2,299	26.6	13,273
LIHTC	645	36.1	6,491	59.5	504	5.8	7,640
N	1,788		10,910		8,656		21,354

Note. OZ = Opportunity Zone; NMTC = New Market Tax Credit; CDFI = Community Development Financial Institutions; LIHTC = Low Income Housing Tax Credit.

tracts are eligible for CDFI and NMTC, followed by 36.1% for LIHTC and 20.8% for OZ. Much lower percentages of not-gentrifiable tracts are eligible, with a high of 26.6% for CDFI and a low of 2.7% for OZ. The key contrast is the comparison of eligibility percentages in gentrifying vs. not-gentrifying tracts. Although more than half of gentrifying tracts are eligible for NMTC and CDFI, significantly larger percentages of not-gentrifying tracts are eligible (86.8% and 89.4%, respectively). Similarly, a much larger percentage of not-gentrifying tracts are eligible for the LIHTC program (59.5%). In contrast, nearly similar percentages of not-gentrifying (22.6%) and gentrifying (20.8%) tracts are eligible for the OZ program. That is, while the likelihood of a gentrifying tract being eligible for LIHTC, CDFI, and NMTC is much smaller compared to a not-gentrifying tract, it is nearly equal for OZ.

Table 3 shows the percentages of gentrifying, not-gentrifying, and not-gentrifiable tracts eligible by a number of programs. A large percentage of not-gentrifiable tracts are eligible for no programs (72.9%), followed by 30.4% of gentrifying tracts and only 10.1% of not-gentrifying tracts. While a much larger percentage of not-gentrifying tracts are eligible for at least two programs (86.5%), nearly two-thirds of gentrifying tracts are eligible for multiple programs.

Which combinations of programs are most common? The first column in Table 4 shows the distribution of tracts by all unique combinations of program eligibility. Approximately 37% of tracts are not eligible for any program. Of those eligible, the most common combination is NMTC, CDFI, and LIHTC (24.5%) followed by NMTC and CDFI (19.5%) and all four programs (11.2%). There is a significant drop to the next most common combinations, which are CDFI only (4.0%) and OZ, NMTC and CDFI (2.9%). The rest combined make up>1% of all tracts. The remaining columns in Table 4 show the percentage of tracts by gentrification status for each combination. Nearly 80%

Table 3. Percent of Tracts by Gentrification Status and Number of Eligible Programs, 2018.

No. of programs	Gentrifying		Not-gentrifying		Not-gentrifiable		Total
	N	%	*N*	%	*N*	%	*N*
0	543	30.4	1,098	10.1	6,311	72.9	7,952
1	99	5.5	370	3.4	492	5.7	961
2	405	22.7	2,577	23.6	1,224	14.1	4,206
3	490	27.4	4,810	44.1	549	6.3	5,849
4	251	14.0	2,055	18.8	80	0.9	2,386
N	1,788		10,910		8,656		21,354

Table 4. Percent of Tracts by Gentrification Status Program and Eligibility Combination, 2018 ($N = 21,354$).

Program combination	Total[a] (%)	Gentrification status[b]			
		Gentrifying (%)	Not-gentrifying (%)	Not-gentrifiable (%)	Total (%)
None	37.2	6.8	13.8	79.4	100
OZ	0.2	32.5	22.5	45.0	100
NMTC	0.3	5.1	55.9	39.0	100
CDFI	4.0	9.2	37.8	53.0	100
LIHTC	0.1	29.4	52.9	17.7	100
OZ–NMTC	0.1	9.1	81.8	9.1	100
OZ–CDFI	0.1	23.1	38.5	38.5	100
OZ–LIHTC	0.01	50.0	0.0	50.0	100
NMTC–CDFI	19.5	9.6	61.3	29.1	100
NMTC–LIHTC	0.0	—	—	—	—
CDFI–LIHTC	0.03	16.7	66.7	16.7	100
OZ–NMTC–CDFI	2.9	16.6	62.4	21.0	100
OZ–NMTC–LIHTC	0.0	—	—	—	—
OZ–CDFI–LIHTC	0.01	0.0	100.0	0.0	100
NMTC–CDFI–LIHTC	24.5	7.4	84.6	8.0	100
OZ–CDFI–NMTC–LIHTC	11.2	10.5	86.1	3.4	100
Total	100				

Note. OZ = Opportunity Zone; NMTC = New Market Tax Credit; CDFI = Community Development Financial Institutions; LIHTC = Low Income Housing Tax Credit.
[a]Percent of total neighborhoods by all unique combinations of program eligibility.
[b]Percent of neighborhoods by gentrification status within each program combination.

of the tracts with no eligibility are not-gentrifiable. OZ only, LIHTC, OZ and LIHTC, and OZ and CDFI have relatively large proportions of their tracts that are gentrifying (32.5%, 29.4%, 23.1%, and 50.0%, respectively). However, only OZ only (32.5% vs. 22.5%) and OZ and LIHTC (50.0% vs. 0.0%) have greater percentages of tracts that are gentrifying relative to those that are not-gentrifying.

Table 5 provides a glance into the types of cities with considerable overlap between neighborhood gentrification and program eligibility. The table shows the top 10 cities with at least five gentrifying tracts that have the largest percentages of gentrifying tracts eligible by program. Although no one defining feature characterizes all of these cities, several patterns are evident. Most cities are medium sized and located in the Midwest, with those not in the Midwest located in fast-growing cities in the West and South. While there is consistency in the cities that appear in the top 10 of NMTC, LIHTC, and CDFI, four cities (Columbus, Ohio, Oakland, California, Philadelphia, Pennsylvania, and Houston, Texas) appear for OZ but not for any other program. Cincinnati, Ohio, stands out as the city with the highest percentages of gentrifying tracts eligible across all programs, with all gentrifying tracts eligible for NMTC, CDFI, and LIHTC. Figure 3 presents the locations of neighborhoods by gentrification and eligibility status in Cincinnati. The visual patterns are consistent across all programs. Nearly all of the not-gentrifying tracts in the eastern side of the city are eligible, very few of the tracts on the western side are eligible and the cluster of gentrifying tracts in the city's business district are eligible.

Figure 4 presents maps for four cities that appear in the top 10 in Table 5 for only a single program: Philadelphia, Pennsylvania (OZ), New Orleans, Los Angeles (NMTC), Long Beach, California (CDFI), and Nashville, Tennessee (LIHTC). The locations of gentrifying neighborhoods in Philadelphia are clustered in certain parts of the city. However, only the gentrifying tracts located in the central to northern areas are eligible for OZ investments whereas eligible not-gentrifiable and not-gentrifying tracts are more geographically dispersed. The locations of New Orleans' NMTC eligible gentrifying tracts are not as concentrated as the OZ eligible gentrifying tracts in Philadelphia, but there is a large cluster located in the mid-city area. Similar to Philadelphia with OZ, NMTC eligible not-gentrifiable and not-gentrifying tracts in New Orleans are spatially dispersed. There is stronger geographic clustering of CDFI eligibility across all gentrification categories in Long Beach. Clusters of eligible gentrifying and not-gentrifying tracts are located downtown, a cluster of eligible not-gentrifying tracts appear in the northern part of the city, and a cluster of eligible not-gentrifiable tracts appear on the eastern side. Nashville also shows strong clustering of LIHTC eligible tracts across all gentrification categories. There is a cluster

Table 5. Top 10 Cities by Percent of Gentrifying Tracts That are Eligible by Program, 2018.

OZ		NMTC		CDFI		LIHTC	
City	%	City	%	City	%	City	%
Cincinnati, Ohio	75.0	Cincinnati, Ohio	100.0	Cincinnati, Ohio	100.0	Cincinnati, Ohio	100.0
Cleveland, Ohio	61.5	Cleveland, Ohio	100.0	Cleveland, Ohio	100.0	Grand Rapids, Michigan	100.0
Indianapolis, Indiana	55.6	Chattanooga, Tennessee	100.0	Chattanooga, Tennessee	100.0	Cleveland, Ohio	84.6
Detroit, Michigan	55.6	Grand Rapids, Michigan	100.0	Grand Rapids, Michigan	100.0	Chattanooga, Tennessee	71.4
Columbus, Ohio	45.5	Indianapolis, Indiana	88.9	Buffalo, New York	100.0	Buffalo, New York	66.7
Chattanooga, Tennessee	42.9	Buffalo, New York	83.3	San Antonio, Texas	90.9	Richmond, Virginia	66.7
Oakland, California	36.7	San Antonio, Texas	81.8	Indianapolis, Indiana	88.9	Nashville, Tennessee	63.2
Sacramento, California	33.3	Norfolk, Virginia	80.0	Detroit, Michigan	88.9	Atlanta, Georgia	62.1
Philadelphia, Pennsylvania	33.3	Atlanta, Georgia	79.3	Long Beach, California	88.2	Sacramento, California	60.0
Houston, Texas	30.8	New Orleans, Los Angeles	78.3	Atlanta, Georgia	86.2	Savannah, Georgia	57.1

Note. Excludes cities with less than five gentrifying tracts. OZ = Opportunity Zone; NMTC = New Market Tax Credit; CDFI = Community Development Financial Institutions; LIHTC = Low Income Housing Tax Credit.

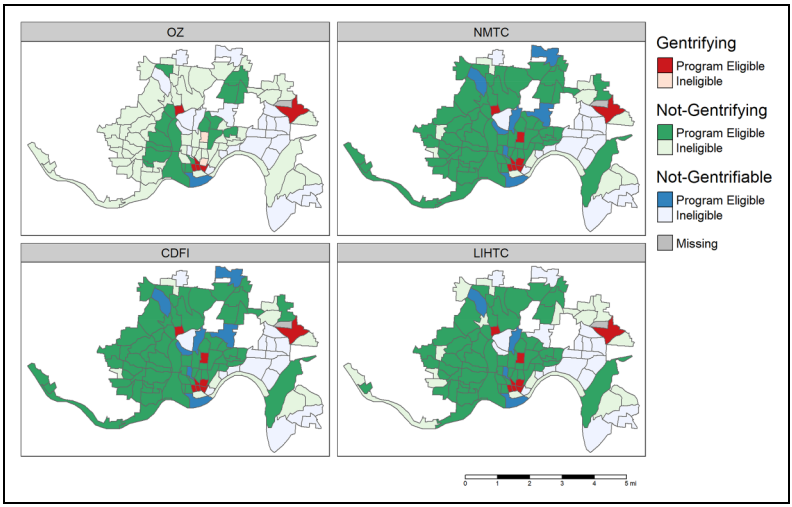

Figure 3. Maps of tract gentrification status by 2018 program eligibility in Cincinnati, Ohio.

of eligible gentrifying, not-gentrifying, and not-gentrifiable tracts in the central city and a large eligible not-gentrifiable cluster in the southeastern portion of the city.

Table 6 shows the demographic and socioeconomic characteristics of gentrifying and not-gentrifying tracts by program eligibility. Several key results are worth highlighting. First, not-gentrifying eligible tracts are clearly the most disadvantaged across all programs. They have the highest poverty and unemployment rates and the lowest median housing values, median gross rent, median income, and percentage of residents with a college degree. Second, gentrifying not eligible tracts are clearly the most advantaged. Third, gentrifying eligible tracts are more advantaged than not-gentrifying, not eligible tracts for NMTC, LIHTC, and CDFI. In contrast, gentrifying OZ eligible tracts are equally or more advantaged than not-gentrifying, not eligible tracts. For example, the median household income in gentrifying OZ eligible tracts is $47,174 whereas in not-gentrifying, not OZ eligible tracts it is $43,277. In contrast, the comparable incomes for NMTC are $51,741 and $63,268. This result means that the OZ program selected gentrifying tracts over equal or lower-income not-gentrifying tracts. Supplemental Appendix Table 1 presents the demographic and socioeconomic characteristics of gentrifying and not-gentrifying tracts by the number of eligible programs. In general, gentrifying tracts are more advantaged than non-gentrifying tracts. However, the advantage increases with the greater number of eligible programs.

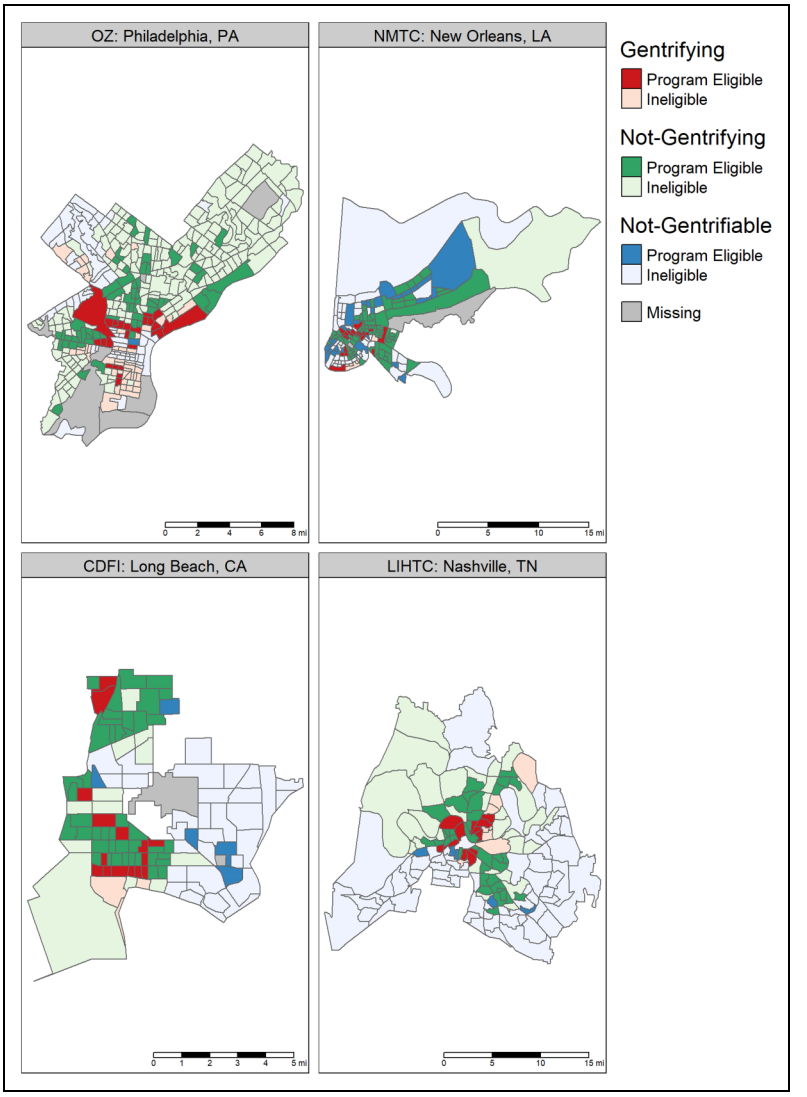

Figure 4. Maps of tract gentrification status by 2018 program eligibility in Philadelphia, Pennsylvania, New Orleans, Louisiana, Long Beach, California, and Nashville, Tennessee.

In summary, nontrivial percentages of gentrifying tracts are eligible across all programs and for more than one program. However, OZ eligibility stands out. Nearly equal percentages of gentrifying and not-gentrifying tracts are OZ

Table 6. Characteristics of Gentrifying and Not-gentrifying Neighborhoods by 2018 Program Eligibility.

	Gentrifying		Not-gentrifying		Gentrifying		Not-gentrifying	
Variable	Eligible	Not eligible	Eligible	Not eligible	Eligible	Not eligible	Eligible	Not eligible
	OZ				NMTC			
Percent non-Hispanic White	33.3%	44.2%	23.9%	32.6%	34.5%	54.6%	27.5%	50.3%
Percent non-Hispanic Black	28.6%	17.0%	35.0%	24.6%	23.5%	12.3%	28.9%	14.1%
Percent non-Hispanic Asian	7.0%	8.7%	4.8%	6.5%	8.3%	8.6%	5.7%	8.8%
Percent Hispanic	27.3%	26.2%	32.8%	32.8%	30.3%	20.2%	34.4%	22.8%
Percent with bachelor's degree	35.3%	43.8%	15.9%	20.3%	36.9%	50.3%	17.3%	30.3%
Median housing value ($)	365,249	428,750	175,918	204,221	389,218	462,295	183,270	293,153
Median gross rent ($)	1,107	1,331	865	986	1,162	1,500	926	1,170
Median household income ($)	47,174	66,677	32,413	43,277	51,741	81,945	37,395	63,268
Total population	3,387	3,871	3,659	3,998	3,638	4,006	3,872	4,249
Unemployment rate	7.6%	5.7%	11.1%	8.1%	7.0%	4.6%	9.3%	5.5%
Housing vacancy rate	12.9%	10.5%	14.4%	11.3%	11.6%	9.9%	12.7%	8.0%
Poverty rate	25.5%	15.6%	32.0%	23.6%	22.1%	10.0%	27.6%	12.0%
	CDFI				LIHTC			
Percent non-Hispanic White	35.1%	56.3%	28.0%	52.1%	32.0%	47.3%	23.2%	40.4%
Percent non-Hispanic Black	23.2%	11.3%	28.8%	11.7%	28.1%	14.8%	33.3%	18.5%
Percent non-Hispanic Asian	8.2%	8.8%	5.7%	9.7%	6.9%	9.1%	5.1%	7.5%

(continued)

Table 6. (continued)

	Gentrifying		Not-gentrifying		Gentrifying		Not-gentrifying	
Variable	Eligible	Not eligible	Eligible	Not eligible	Eligible	Not eligible	Eligible	Not eligible
Percent Hispanic	30.0%	19.3%	34.1%	22.4%	29.6%	24.8%	35.1%	29.8%
Percent with bachelor's degree	37.3%	51.4%	17.5%	32.1%	34.0%	46.1%	15.1%	24.3%
Median housing value ($)	392,383	465,531	184,398	310,884	340,658	457,794	163,841	247,740
Median gross rent ($)	1,179	1,511	931	1,193	1,048	1,417	871	1,088
Median household income ($)	53,231	82,891	37,916	65,294	44,321	72,946	32,634	52,848
Total population	3,660	4,008	3,884	4,235	3,477	3,936	3,703	4,243
Unemployment rate	6.9%	4.4%	9.3%	5.1%	7.8%	5.2%	10.3%	6.9%
Housing vacancy rate	11.6%	9.7%	12.6%	7.4%	13.0%	9.9%	14.3%	9.0%
Poverty rate	21.3%	9.8%	27.2%	11.4%	26.2%	13.1%	31.9%	17.1%

Note. OZ = Opportunity Zone; NMTC = New Market Tax Credit; CDFI = Community Development Financial Institutions; LIHTC = Low Income Housing Tax Credit.
Source. 2014–2018 American Community Survey.

Table 7. Results from Logistic Regressions of 2018 Program Eligibility on Gentrification Status.

	OZ				NMTC				CDFI				LIHTC			
	(1)		(2)		(1)		(2)		(1)		(2)		(1)		(2)	
	b	*p*	*b*	*p*	*b*	*p*	*b*	*p*	*b*	*p*	*b*	*p*	*b*	*p*	*b*	*p*
Gentrifying[a]	1.654	.000	1.793	.000	0.604	.000	0.803	.027	0.592	.000	0.804	.044	0.951	.479	1.115	.174
	(0.068)		(0.089)		(0.078)		(0.099)		(0.080)		(0.108)		(0.070)		(0.080)	
Not-gentrifiable[a]	0.273	.000	0.292	.000	0.191	.000	0.273	.000	0.222	.000	0.284	.000	0.173	.000	0.265	.000
	(0.079)		(0.137)		(0.053)		(0.075)		(0.054)		(0.082)		(0.067)		(0.083)	
Percent non-Hispanic Black	1.005	.000	1.013	.000	1.018	.000	1.030	.000	1.024	.000	1.038	.000	1.013	.000	1.031	.000
	(0.001)		(0.002)		(0.001)		(0.004)		(0.001)		(0.005)		(0.001)		(0.003)	
Percent non-Hispanic Asian	1.002	.451	1.002	.385	1.014	.000	1.035	.000	1.008	.000	1.034	.000	1.015	.000	1.029	.000
	(0.002)		(0.003)		(0.002)		(0.003)		(0.002)		(0.003)		(0.002)		(0.004)	
Percent Hispanic	1.005	.000	1.012	.000	1.023	.000	1.061	.000	1.024	.000	1.060	.000	1.013	.000	1.049	.000
	(0.001)		(0.003)		(0.001)		(0.005)		(0.001)		(0.005)		(0.001)		(0.003)	
Unemployment rate	1.021	.000	1.025	.005	1.049	.000	1.063	.000	1.131	.000	1.129	.000	1.009	.117	1.019	.005
	(0.004)		(0.009)		(0.008)		(0.011)		(0.009)		(0.014)		(0.006)		(0.007)	
Poverty rate	1.049	.000	1.052	.000	1.270	.000	1.283	.000	1.252	.000	1.257	.000	1.175	.000	1.218	.000
	(0.002)		(0.003)		(0.004)		(0.006)		(0.005)		(0.005)		(0.003)		(0.007)	
Housing vacancy rate	1.008	.006	1.025	.001	1.020	.000	1.049	.000	1.027	.000	1.039	.000	1.030	.000	1.064	.000
	(0.003)		(0.008)		(0.004)		(0.006)		(0.004)		(0.006)		(0.004)		(0.007)	
Log total population	0.974	.594	0.858	.072	0.840	.001	0.811	.098	0.857	.004	0.714	.002	0.921	.111	0.899	.501
	(0.048)		(0.085)		(0.054)		(0.127)		(0.054)		(0.110)		(0.052)		(0.157)	
Intercept	0.046	.000	1.000	.000	0.077	.000	1.000	.000	0.067	.000	1.000	.000	0.016	.000	1.000	.000
	(0.412)		(0.000)		(0.459)		(0.000)		(0.456)		(0.000)		(0.440)		(0.000)	
City fixed effects	N		Y		N		Y		N		Y		N		Y	

Note. Robust standard errors in parentheses. Coefficients are in odds ratios. *b* = regression coefficient estimates; *p* = *p*-values; OZ = Opportunity Zone; NMTC = New Market Tax Credit; CDFI = Community Development Financial Institutions; LIHTC = Low Income Housing Tax Credit.
[a]Reference is not-gentrifying.

eligible, OZ only and OZ–LIHTC are the only unique program combinations that show greater percentages of tracts that are gentrifying relative to not-gentrifying, many cities that have the highest percentages of gentrifying OZ eligible tracts do not have the highest percentages in any of the other programs, and gentrifying OZ eligible tracts are equally or more disadvantaged than not-gentrifying, not OZ eligible tracts.

Multivariate Regression Results

Table 7 presents results from logistic models regressing program eligibility on gentrification status. We present models for each program with (model 1) and without (model 2) city fixed effects. Across all programs, we found that not-gentrifiable neighborhoods have significantly lower probabilities of eligibility relative to not-gentrifying neighborhoods. Similarly, the odds of eligibility for the NMTC and CDFI programs is 0.8 times lower for gentrifying neighborhoods relative to not-gentrifying neighborhoods. In contrast, gentrifying neighborhoods have a higher probability of being eligible for OZ investment relative to not-gentrifying neighborhoods. Specifically, the odds of OZ eligibility are 1.8 times higher for gentrifying tracts than not-gentrifying tracts. Although the coefficient indicates a positive association between gentrification and eligibility, the probability of LIHTC eligibility is the same across gentrifying and not-gentrifying neighborhoods based on conventional levels of statistical significance. Modeling results with and without fixed effects did not differ.

To quantify the magnitude of these relationships, Figure 5 plots the adjusted predicted probabilities of program eligibility by gentrification status from the fixed effects models. The probability that a gentrifying neighborhood is eligible for the OZ program is 20.5%, which is higher than the probabilities for not-gentrifying (12.5%) and not-gentrifiable (4.0%). The probabilities that gentrifying and not-gentrifying neighborhoods are eligible for LIHTC are nearly equal (17.6% and 17.1%, respectively). The comparable probabilities are 88.5% and 90.5% for CDFI, and 84.1% and 86.8% for NMTC.

Coefficient results for the control variables indicate that percentage Black, percentage Hispanic, unemployment rate, and the poverty rate are positively associated with eligibility for all programs. Percentage Asian is positively associated with NMTC, CDFI, and LIHTC eligibility, but has no association with OZ eligibility. Log population size has no association with OZ, NMTC, and LIHTC eligibility, but has a negative association with CDFI eligibility.

Table 8 shows results from spatial probit models incorporating spatial lag effects. All models include city fixed effects, with the first set of models including a spatial lag on eligibility and the second with spatial lags on

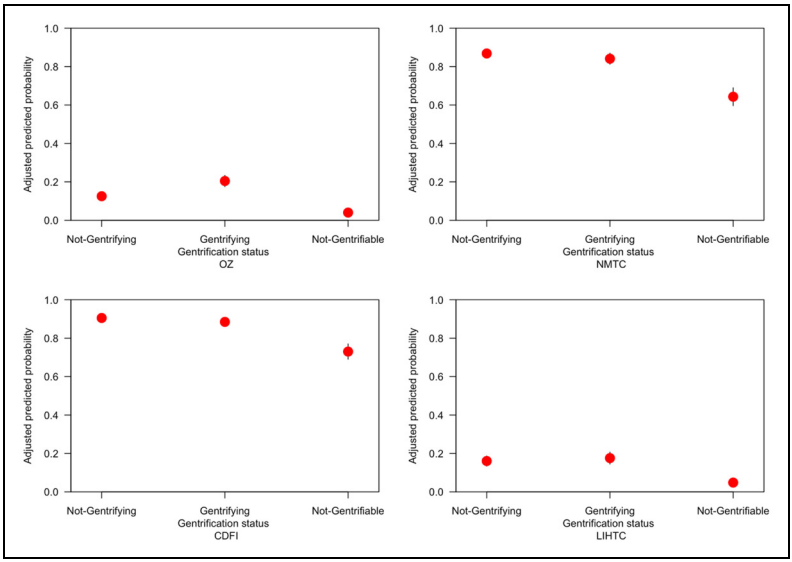

Figure 5. Adjusted predicted probabilities of program eligibility by gentrification status (with 95% confidence intervals).

eligibility and gentrification status. Coefficients with values less than zero indicate a negative association. We find that neighbor eligibility is positively associated with eligibility in a tract for all programs. This is not surprising for the OZ, NMTC, and CDFI programs, as they allow for the eligibility of contiguous tracts even if they do not meet socioeconomic criteria. In contrast, the LIHTC program does not include adjacency as a criterion.

In addition to eligibility, the gentrification status of nearby neighborhoods is positively associated with tract eligibility above and beyond its own eligibility and gentrification status and its neighbors' eligibility status. That is, the greater percentage of adjacent neighborhoods that are gentrifying, the greater likelihood a neighborhood will have program eligibility whether it is gentrifying or not. However, while this association is true for OZ, NMTC, and LIHTC, it is not for the CDFI program.

Table 9 shows results for Tobit regression models using the total number of eligible programs as the dependent variable. The first two columns of results are for models without spatial lag effects. These results indicate that not-gentrifiable neighborhoods have on average 1.5 less eligible programs than not-gentrifying tracts. The difference in the number of eligible programs between gentrifying and not-gentrifying tracts is not significant. After the inclusion of city fixed effects, the difference between not-gentrifiable and

Table 8. Results from Spatial Probit Regressions of 2018 Program Eligibility on Gentrification Status With Spatial Lags on Eligibility and Gentrification.

	OZ				NMTC				CDFI				LIHTC			
	(1)		(2)		(1)		(2)		(1)		(2)		(1)		(2)	
	b	*p*	*b*	*p*	*b*	*p*	*b*	*p*	*b*	*p*	*b*	*p*	*b*	*p*	*b*	*p*
Gentrifying[a]	0.281	.000	0.148	.003	−0.150	.002	−0.191	.001	−0.156	.001	−0.189	.001	0.014	.759	−0.034	.514
	(0.041)		(0.050)		(0.047)		(0.060)		(0.048)		(0.059)		(0.045)		(0.052)	
Not-gentrifiable[a]	−0.496	.000	−0.487	.000	−0.729	.000	−0.730	.000	−0.718	.000	−0.717	.000	−0.722	.000	−0.718	.000
	(0.042)		(0.043)		(0.037)		(0.038)		(0.037)		(0.036)		(0.042)		(0.044)	
δ Gentrifying lag			0.435	.000			0.212	.032			0.146	.114			0.198	.015
			(0.075)				(0.099)				(0.092)				(0.081)	
ρ Eligibility lag	0.374	.000	0.363	.000	0.049	.000	0.043	.001	0.043	.001	0.039	.003	0.103	.000	0.101	.000
	(0.019)		(0.020)		(0.012)		(0.013)		(0.012)		(0.013)		(0.013)		(0.013)	
Percent non-Hispanic Black	0.000	.000	0.005	.000	0.000	.000	0.016	.000	0.000	.000	0.020	.000	0.000	.000	0.015	.000
	(0.000)		(0.001)		(0.000)		(0.001)		(0.000)		(0.001)		(0.000)		(0.001)	
Percent non-Hispanic Asian	0.000	.523	0.002	.301	0.000	.000	0.018	.000	0.000	.000	0.018	.000	0.000	.000	0.014	.000
	(0.000)		(0.002)		(0.000)		(0.002)		(0.000)		(0.002)		(0.000)		(0.002)	
Percent Hispanic	0.000	.000	0.004	.000	0.000	.000	0.031	.000	0.000	.000	0.031	.000	0.000	.000	0.024	.000
	(0.000)		(0.001)		(0.000)		(0.001)		(0.000)		(0.001)		(0.000)		(0.001)	
Unemployment rate	0.000	.000	0.014	.000	0.000	.000	0.034	.000	0.001	.000	0.069	.000	0.000	.089	0.008	.041
	(0.000)		(0.003)		(0.000)		(0.005)		(0.000)		(0.006)		(0.000)		(0.004)	
Poverty rate	0.000	.000	0.026	.000	0.001	.000	0.140	.000	0.001	.000	0.129	.000	0.001	.000	0.107	.000
	(0.000)		(0.001)		(0.000)		(0.003)		(0.000)		(0.003)		(0.000)		(0.002)	

(continued)

Table 8. (continued)

	OZ				NMTC				CDFI				LIHTC			
	(1)		(2)		(1)		(2)		(1)		(2)		(1)		(2)	
	b	*p*	*b*	*p*	*b*	*p*	*b*	*p*	*b*	*p*	*b*	*p*	*b*	*p*	*b*	*p*
Housing vacancy rate	0.000	.000	0.012	.000	0.000	.000	0.027	.000	0.000	.000	0.021	.000	0.000	.000	0.030	.000
	(0.000)		(0.002)		(0.000)		(0.003)		(0.000)		(0.003)		(0.000)		(0.002)	
Total population	−0.042	.133	−0.027	.361	−0.086	.010	−0.086	.010	−0.169	.000	−0.164	.000	−0.009	.788	0.000	.991
	(0.028)		(0.030)		(0.033)		(0.033)		(0.033)		(0.036)		(0.032)		(0.035)	
Intercept	−1.608	.001	−1.759	.000	−1.951	.025	−1.872	.058	5.634	.317	16.349	.000	−3.000	.000	−3.037	.000
	(0.475)		(0.478)		(0.867)		(0.986)		(5.634)		(4.583)		(0.772)		(0.787)	
City fixed effects	Y		Y		Y		Y		Y		Y		Y		Y	

Note. Robust standard errors in parentheses. *b* = regression coefficient estimates; *p* = *p*-values; OZ = Opportunity Zone; NMTC = New Market Tax Credit; CDFI = Community Development Financial Institutions; LIHTC = Low Income Housing Tax Credit.
[a]Reference is not-gentrifying.

Table 9. Results from Regular and Spatial Tobit Regressions of Number of 2018 Eligible Programs on Gentrification Status.

	b	*p*	*b*	*p*	*b*	*p*	*b*	*p*
Gentrifying[a]	−0.050	.199	0.120	.002	0.041	.214	−0.034	.315
	(0.039)		(0.038)		(0.033)		(0.034)	
Not-gentrifiable[a]	−1.463	.000	−1.192	.000	−1.012	.000	−1.002	.000
	(0.029)		(0.030)		(0.027)		(0.026)	
δ Gentrifying lag							0.326	.000
							(0.054)	
ρ Eligibility lag					0.225	.000	0.221	.000
					(0.009)		(0.009)	
Percent non-Hispanic Black	0.011	.000	0.021	.000	0.014	.000	0.015	.000
	(0.001)		(0.001)		(0.001)		(0.001)	
Percent non-Hispanic Asian	0.006	.000	0.021	.000	0.017	.000	0.018	.000
	(0.001)		(0.001)		(0.001)		(0.001)	
Percent Hispanic	0.013	.000	0.030	.000	0.022	.000	0.022	.000
	(0.001)		(0.001)		(0.001)		(0.001)	
Unemployment rate	0.007	.007	0.006	.038	−0.002	.322	−0.002	.455
	(0.003)		(0.003)		(0.002)		(0.002)	
Poverty rate	0.084	.000	0.076	.000	0.058	.000	0.057	.000
	(0.001)		(0.001)		(0.001)		(0.001)	
Housing vacancy rate	0.009	.000	0.016	.000	0.011	.000	0.011	.000
	(0.002)		(0.002)		(0.001)		(0.001)	
Total population	−0.004	.876	−0.050	.043	0.017	.421	0.021	.301
	(0.024)		(0.025)		(0.021)		(0.020)	
Intercept	−0.475	.020	−0.315	.546	−0.560	.192	−0.608	.173
	(0.204)		(0.521)		(0.430)		(0.446)	
City fixed effects	N		Y		Y		Y	

Note. b = Regression coefficient estimates; p = p-values. Robust standard errors in parentheses.
[a]Reference is not-gentrifying.

not-gentrifying tracts persists, whereas gentrifying tracts now show a higher number of programs compared to not-gentrifying tracts, although the magnitude of the difference is small (0.120). The last two columns of results are from models incorporating spatial lags on eligibility and gentrification status. We find that while the negative association between not-gentrifiable and the number of programs persists, the positive association of gentrification disappears. However, the spatial lag coefficient ρ indicates that the average number of eligible programs in nearby neighborhoods is positively associated

with a neighborhood's number of eligible programs. The spatial lag on gentrification status δ also suggests that a greater percentage of adjacent neighborhoods that are gentrifying is associated with a greater number of eligible programs in a neighborhood. We also find percentage Black, percentage Hispanic, percentage Asian, the poverty rate and the housing vacancy rate are positively associated with the number of eligible programs across all models.

Discussion

High concentrations of disadvantage in cities provide a rationale for place-based policies (Bartik 2020a). They alleviate concentrated disadvantage by incentivizing investments into neighborhoods that have been historically ignored by traditional mainstream economic actors. The effectiveness of place-based policies in fulfilling this goal is potentially minimized if the neighborhoods eligible for program funding are not the most in need. In particular, neighborhoods experiencing gentrification, which are already receiving significant capital investments, may be eligible because program criteria ignore a neighborhood's socioeconomic trajectory. This study analyzed the association between neighborhood gentrification status and eligibility for four of the largest place-based CED programs in the United States.

We found that the odds of OZ eligibility are 1.8 times higher for gentrifying tracts than not-gentrifying tracts. We also found that the percentage of tracts that are only OZ eligible that are gentrifying (32.5%) and not-gentrifiable (45.0%) are significantly higher than the percentage that is not-gentrifying (22.5%). These results support the criticism that the program's loose geographic requirements make it easier for less in-need neighborhoods that are desirable sites of investment to benefit from the program (Gelfond and Looney 2018; Layser 2019). Specifically, our results corroborate prior quantitative work demonstrating that while OZ neighborhoods are poor and low-income on average, many of the selected tracts have structural advantages, including undergoing positive socioeconomic changes (Frank, Hoopes and Lester 2020; Gelfond and Looney 2018; Richardson, Mitchell and Edlebi 2020). As such, future improvement in gentrifying OZ neighborhoods will be misattributed to the program when instead it may be driven by preexisting positive socioeconomic trends.

In contrast to OZ eligibility, the probability of NMTC and CDFI eligibility for gentrifying tracts are considerably lower than for not-gentrifying tracts. This may be due to the NMTC and CDFI providing less local control over which neighborhoods are considered eligible, largely forcing program administrators to follow federal criteria. Nevertheless, non-trivial percentages of gentrifying tracts were eligible for NMTC and CDFI program funding.

In addition to incorporating change over time in the eligibility criteria, the most up-to-date ACS data should be used to determine which tracts are experiencing recent socioeconomic improvement.

The probability of LIHTC eligibility for gentrifying tracts is not significantly different from not-gentrifying tracts. On the one hand, LIHTC funding in gentrifying neighborhoods may mitigate the displacement effects of gentrification by increasing the supply of affordable housing (Levy, Comey and Padilla 2007) and increases access for low-income families to more neighborhood resources than can be found in the disadvantaged, low-resource and segregated areas that have historically received LIHTC developments (Reid 2019). On the other hand, LIHTC development in gentrifying areas is concerning given it is siting affordable housing in areas that might become less affordable over time as the neighborhood's overall cost of living increases, which LIHTC development may directly contribute to by replacing abandoned buildings, unsightly vacant lots and other disamenities that suppress local property values (Woo, Joh and Van Zandt 2016).

Several limitations of the study and potential avenues for future work should be acknowledged. First, it is important to emphasize that the aims of this study were purely descriptive. Consequently, the observed associations between eligibility and gentrification should not be interpreted as causal. Given the limits of a national-scale analysis, comparative case studies are critical for providing knowledge regarding why a large proportion of a city's gentrifying neighborhoods is eligible for place-based investment. This study identifies cities where those investigations are likely to bear fruit. Case studies can identify municipal and neighborhood level factors, such as zoning regulations, political orientations, and economic development policies that might influence why certain cities may have greater or lesser proportions of eligible gentrifying neighborhoods and how these factors may differ depending on the program. Second, because the current study focuses on a single year of eligibility, it does not identify how gentrification shapes neighborhood eligibility over time. Furthermore, the study does not examine the amount of money that is invested and the number and types of projects that are placed in eligible neighborhoods, and whether these factors contribute to or exacerbate gentrification. The study also focuses on urban areas, but large proportions of suburban and rural neighborhoods are also eligible for place-based investments. Finally, the study focuses on gentrification, but other forms neighborhood change, such as incumbent upgrading, "new-build" gentrification and socioeconomic decline, are also important to investigate (Delmelle 2017).

Despite these limitations, the study offers several takeaway conclusions. First, because a nontrivial percentage of gentrifying neighborhoods are eligible across all programs, program officials and administrators should explicitly

account for neighborhood socioeconomic changes in the neighborhood selection and project development process. Because we do not examine the specific projects that have been developed in these neighborhoods, and the impact of a program will likely depend on project funding, size, and type, we cannot speak to whether eligibility in gentrifying neighborhoods mitigates or exacerbates spatial inequality. As such, we cannot conclude that programs should reconfigure their criteria to explicitly *exclude* gentrifying neighborhoods. However, because eligibility structures where projects are developed in the first place, our results should prompt policymakers, program administrators, and project sponsors to engage with gentrification more directly, which can be done in several ways.

First, policymakers should categorize eligibility by neighborhood type rather than treating neighborhoods as homogeneously high or low opportunity. Neighborhoods experiencing gentrification and other forms of socioeconomic change can be labeled as such, offering greater transparency for administrators when they are deciding which projects to develop and where, and for the public when evaluating where investment dollars from government place-based programs are being spent. The LIHTC program already provides states with the ability to modify or add to the QCT eligibility criteria through their QAP, which includes identifying gentrifying neighborhoods. For example, California's LIHTC program introduced in 2020 a methodology to identify areas that are "moderate resource" but may soon become "high resource" based on recent socioeconomic trends (Reid 2019). This was done from the perspective that locating affordable housing units in socioeconomically ascending neighborhoods offers the types of neighborhood resources, such as access to public transportation, less environmental hazards, and greater access to healthy food outlets, to lower-income residents that they either cannot find in the disadvantaged neighborhoods that LIHTC developments typically go to, or are excluded from in the wealthier neighborhoods that LIHTC developments are less likely to be placed in (Walter, Wang and Jones 2018). However, considerable variation exists in how states modify the QCT criteria, with many making no adjustments and others modifying it but not incorporating neighborhood change (Ellen and Horn 2018). In the case of the OZ, CDFI, and NMTC programs, gentrification is not explicitly accounted for in their eligibility criteria. Although we focus on gentrification in this study, policymakers should also identify eligible neighborhoods experiencing other forms of neighborhood change, such as higher-income areas experiencing a decline and stable low- or high-income neighborhoods, as the most effective projects will likely differ across these categories.

Second, programs can go beyond the simple labeling of neighborhoods as gentrifying or not by encouraging or incentivizing the development of projects that have been shown to mitigate the negative consequences of

gentrification, primarily the displacement of long-term residents and the exclusion of lower-income households (Zuk et al. 2018). Some have argued that person-place-based projects are more effective in improving neighborhood outcomes and preventing gentrification than exclusively place-based projects (Bartik 2020b). Here, low-income residents in targeted neighborhoods would be eligible for projects intended to enhance their overall economic well-being, and thus keep them in neighborhoods that socioeconomically ascend. For example, providing job skills training to low-income residents may lead to positive labor market outcomes, resulting in increased household income that will help prevent their displacement due to the rising local cost of living (Bartik 2020b).

The second takeaway conclusion is that in addition to the gentrification status of a neighborhood, programs should also be aware of the gentrification status of nearby neighborhoods. This is important considering that many programs provide eligibility to neighborhoods that do not meet socioeconomic criteria if they are adjacent to neighborhoods that do meet the criteria. Given that poverty is spatially concentrated, low-income neighborhoods that are gentrifying will likely be next to low-income neighborhoods that did not gentrify (Iceland and Hernandez 2017). Therefore, the probability of eligibility will increase with a greater percentage of adjacent neighborhoods experiencing gentrification, which is what we found with the OZ, NMTC, and CDFI programs. We also found that instead of own neighborhood gentrification status, it is the percentage of nearby neighborhoods that are gentrifying that has a positive association with the total number of eligible programs. These results suggest that project sponsors and program administrators should be aware of the spatial configuration of place-based investments within cities. On the one hand, directing investment to neighborhoods near gentrifying areas might reduce local inequalities if they are economically isolated (Christafore and Leguizamon 2019), which is important if displaced low-income households relocate out of gentrifying neighborhoods into adjacent neighborhoods. On the other hand, given positive economic spatial spillover effects, such as the appreciation of nearby rent and housing values, neighborhoods next to gentrifying areas may already be at risk of gentrifying, and investment with no guard rails will tip them toward gentrification, further spatially concentrating capital within a city (Guerrieri, Hartley and Hurst 2013).

The final takeaway is that although the overlap between eligibility and gentrification is present across all four programs, it is strongest for the OZ program. This overlap is particularly concerning for the OZ program because its neighborhood eligibility process and investment structure make it susceptible to the types of project development that may reinforce the negative consequences of gentrification (Layser 2019). In the case of establishing

eligibility, the OZ program allows considerable flexibility in tract selection. Specifically, governors had authority and significant discretion in choosing their respective states' qualifying OZ neighborhoods, with prior work demonstrating that nonsocioeconomic factors such as local political representation influenced neighborhood selection (Alm, Dronyk-Trosper and Larkin 2020; Frank, Hoopes and Lester 2020). The program's only objective criterion is the poverty rate, which is a limited measure of neighborhood disadvantage (Galster 2019). Although a more robust selection procedure standardized across all states may not be optimal given variation in state policies and economies, some selection guard rails in addition to the poverty threshold should be followed, as is already done in the NMTC and CDFI programs. Moreover, not only should additional indicators of economic distress be incorporated into the program's qualifying criteria, but also changes in these indicators over time.

The OZ's investment structure further makes the program more vulnerable to the development of projects that exacerbate gentrification's negative effects. The program limits tax gains to a 10-year period, which disincentives investment in mission-oriented projects because they offer lower rates of return and require a period of investment beyond 10 years (Theodos, González-Hermoso and Meixell 2020). The program is also dependent on the small wealthy proportion of individuals who possess capital gains, thus freezing out most community stakeholders from investing in their own revitalization (Theodos, González-Hermoso and Meixell 2020). Moreover, unlike the CDFI, NMTC, and LIHTC programs, the OZ program does not require projects to have a social-impact mission, nor to be governed by community members. It lacks built-in restrictions on the types of projects developed and safeguards that help incorporate social impact in evaluating project effectiveness such as input from community stakeholders via advisory boards (Kim 2021). The OZ program is distinctive from typical federal place-based programs in that it is driven mostly by private investors with few rules imposed by local government, and indeed cities will not always know where these investments have been made and how they are used. For these reasons, along with being the most recent large-scale economic development program with the potential for being the largest in U.S. history, the OZ program warrants serious future investigation in terms of what projects are developed and the impact of those projects on community well-being.

Acknowledgments

We are grateful to Corey Rodda and Grace Kumetat for their excellent research assistance.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

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Supplemental Material

Supplemental material for this article is available online.

Note

1. The poverty rate is included as an eligibility criterion for some of the programs. Regression models excluding the poverty rate do not significantly alter the results.

References

Abravanel, Martin D., Nancy M. Pindus, Brett Theodos, Kassie Bertumen, Rachel Brash, and Zach McDade. 2013. "New Markets Tax Credit (NMTC) Program Evaluation." Urban Institute. Accessed October 7, 2020. https://www.urban.org/sites/default/files/publication/24211/412958-New-Markets-Tax-Credit-NMTC-Program-Evaluation.PDF.

Airgood-Obrycki, Whitney, Bernadette Hanlon, and Shannon Rieger. 2020. "Delineate the US Suburb: An Examination of how Different Definitions of the Suburbs Matter." *Journal of Urban Affairs* 1–22. doi: 10.1080/07352166.2020.1727294.

Alm, James, Trey Dronyk-Trosper, and Sean Larkin. 2020. "In the Land of OZ: Designating Opportunity Zones." *Public Choice* 1–21. doi: 10.1007/s11127-020-00848-9.

Anselin, Luc. 2013. *Spatial Econometrics: Methods and Models*. The Netherlands: Springer Science & Business Media.

Bartik, Timothy. 2020b. "Targeting Jobs Toward the People who Need Them." *Journal of Policy Analysis and Management* 39 (3): 854–856. doi: 10.1002/pam.22226 .

Bartik, Timothy. 2020a. "Using Place-Based Jobs Policies to Help Distressed Communities." *Journal of Economic Perspectives* 34 (3): 99–127. doi: 10.1257/jep.34.3.99.

Barton, Michael. 2016. "An Exploration of the Importance of the Strategy Used to Identify Gentrification." *Urban Studies* 53 (1): 92–111. doi: 10.1177/0042098014561723.

Baum-Snow, Nathaniel, and Justin Marion. 2009. "The Effects of low Income Housing tax Credit Developments on Neighborhoods." *Journal of Public Economics* 93 (5–6): 654–66. doi: 10.1016/j.jpubeco.2009.01.001.

Bekkerman, Ron, Maxime C. Cohen, John Maiden, and Dmitry Mitrofanov. 2021. "The Impact of the Opportunity Zone Program on the Residential Real Estate Market." Accessed June 8, 2021. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3780241.

Brazil, Noli. 2016. "Using Place-and Person-Based Interventions to Measure Neighborhood Effects." In *Recapturing Space: New Middle-Range Theory in Spatial Demography*, edited by Frank Howell, Jeremy Porter, and Stephen Matthews, 57–75. Cham, The Netherlands: Springer.

Busso, Matias, Jesse Gregory, and Patrick Kline. 2013. "Assessing the Incidence and Efficiency of a Prominent Place Based Policy." *American Economic Review* 103 (2): 897–947. doi: 10.1257/aer.103.2.897.

Chen, Jiafeng, Edward L. Glaeser, and David Wessel. 2019. *The (non-) Effect of Opportunity Zones on Housing Prices*. Cambridge, MA: National Bureau of Economic Research. Accessed June 18, 2021. https://www.nber.org/papers/w26587.

Choi, Myungshik, Shannon Van Zandt, and David Matarrita-Cascante. 2018. "Can Community Land Trusts Slow Gentrification?" *Journal of Urban Affairs* 40 (3): 394–411. 10.1080/07352166.2017.1362318.

Christafore, David, and Susane Leguizamon. 2019. "Neighbourhood Inequality Spillover Effects of Gentrification." *Papers in Regional Science* 98 (3): 1469–84. doi: 10.1111/pirs.12405.

Delmelle, Elizabeth. 2017. "Differentiating Pathways of Neighborhood Change in 50 US Metropolitan Areas." *Environment and Planning A* 49 (10): 2402–24. doi: 10.1177/0308518x17722564.

Ding, Lei, Jackelyn Hwang, and Eileen Divringi. 2016. "Gentrification and Residential Mobility in Philadelphia." *Regional Science and Urban Economics* 61: 38–51. doi: 10.1016/j.regsciurbeco.2016.09.004.

Ellen, Ingrid Gould, and Keren Mertens Horn. 2018. "Points for Place: Can State Governments Shape Siting Patterns of low-Income Housing Tax Credit Developments?" *Housing Policy Debate* 28 (5): 727–45. doi: 10.1080/10511482.2018.1443487.

Ellen, Ingrid Gould, Keren Mertens Horn, and Davin Reed. 2019. "Has Falling Crime Invited Gentrification?" *Journal of Housing Economics* 46: 101636. doi: 10.1016/j.jhe.2019.101636.

Foell, Andrew, and Kyle Pitzer. 2020. "Geographically Targeted Place-Based Community Development Interventions: A Systematic Review and Examination of Studies' Methodological Rigor." *Housing Policy Debate* 30 (5): 741–65. doi: 10.1080/10511482.2020.1741421.

Forbes, Jennifer. 2006. "Using Economic Development Programs as Tools for Urban Revitalization: A Comparison of Empowerment Zones and New Markets Tax Credits." *University of Illinois Law Review* 2006 (1): 177–204.

Frank, Mary Margaret, Jeffrey L. Hoopes, and Rebecca Lester. 2020. "What Determines Where Opportunity Knocks? Political Affiliation in the Selection of Opportunity Zones. Political Affiliation in the Selection of Opportunity Zones." Accessed October 19, 2020. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3534451.

Freedman, Matthew. 2012. "Teaching New Markets Old Tricks: The Effects of Subsidized Investment on Low-Income Neighborhoods." *Journal of Public Economics* 96 (11–12): 1000–14. doi: 10.1016/j.jpubeco.2012.07.006.

Freedman, Matthew. 2015. "Place-Based Programs and the Geographic Dispersion of Employment." *Regional Science and Urban Economics* 53: 1–19. doi: 10.1016/j.regsciurbeco.2015.04.002.

Freeman, Lance. 2011. *There Goes the Hood: Views of Gentrification From the Ground Up*. Philadelphia, PA: Temple Univ. Press.

Freeman, Lance, and Jenny Schuetz. 2017. "Producing Affordable Housing in Rising Markets: What Works?" *Cityscape* 19 (1): 217–36.

Galster, George. 2019. *Making our Neighborhoods, Making our Selves*. Chicago, IL: Univ. of Chicago Press.

Gelfond, Hilary, and Adam Looney. 2018. "Learning From Opportunity Zones: How to Improve Place-Based Policies." Washington, DC: Brookings Institution. Accessed June 18, 2021. https://www.brookings.edu/wp-content/uploads/2018/10/looney_opportunity-zones_final.pdf.

Gibbons, Joseph, Michael S. Barton, and Timothy T. Reling. 2020. "Do Gentrifying Neighbourhoods Have Less Community? Evidence From Philadelphia." *Urban Studies* 57 (6): 1143–63. doi: 10.1177/0042098019829331.

Givord, Pauline, Roland Rathelot, and Patrick Sillard. 2013. "Place-Based Tax Exemptions and Displacement Effects: An Evaluation of the Zones Franches Urbaines Program." *Regional Science and Urban Economics* 43 (1): 151–63. doi: 10.1016/j.regsciurbeco.2012.06.006.

Greenbaum, Robert. 2004. "Siting it Right: Do States Target Economic Distress When Designating Enterprise Zones?" *Economic Development Quarterly* 18 (1): 67–80. doi: 10.1177/0891242403259999.

Guerrieri, Veronica, Daniel Hartley, and Erik Hurst. 2013. "Endogenous Gentrification and Housing Price Dynamics." *Journal of Public Economics* 100: 45–60. doi: 10.1016/j.jpubeco.2013.02.001.

Hanson, Andrew. 2009. "Local Employment, Poverty, and Property Value Effects of Geographically-Targeted Tax Incentives: An Instrumental Variables Approach." *Regional Science and Urban Economics* 39 (6): 721–31. doi: 10.1016/j.regsciurbeco.2009.07.002.

Harger, Kaitlyn R., Amanda Ross, and Heather M. Stephens. 2019. "What Matters the Most for Economic Development? Evidence From the Community Development Financial Institutions Fund." *Papers in Regional Science* 98 (2): 883–904. doi: 10.1111/pirs.12396.

Hula, Richard C., and Marty P. Jordan. 2018. "Private Investment and Public Redevelopment: The Case of New Markets Tax Credits." *Poverty & Public Policy* 10 (1): 11–38. doi: 10.1002/pop4.204.

Hwang, Jackelyn. 2015. "Gentrification in Changing Cities: Immigration, New Diversity, and Racial Inequality in Neighborhood Renewal." *The Annals of the American Academy of Political and Social Science* 660 (1): 319–40. doi: 10.1177/0002716215579823.

Iceland, John, and Erik Hernandez. 2017. "Understanding Trends in Concentrated Poverty: 1980–2014." *Social Science Research* 62: 75–95. doi: 10.1016/j.ssresearch.2016.09.001.

Kim, Minjee. 2021. "How do Tax-Based Revitalisation Policies Affect Urban Property Development? Evidence From Bronzeville, Chicago." *Urban Studies*. doi: 10.1177/0042098021995148.

Kline, Patrick, and Enrico Moretti. 2014. "People, Places, and Public Policy: Some Simple Welfare Economics of Local Economic Development Programs." *Annual Review of Economics* 6 (1): 629–62. doi: 10.1146/annurev-economics-080213-041024.

Ladd, Helen F. 1994. "Spatially Targeted Economic Development Strategies: Do They Work?" *Cityscape* 1 (1): 193–218.

Layser, Michelle D. 2019. "The Pro-Gentrification Origins of Place-Based Investment tax Incentives and a Path Toward Community Oriented Reform." *Wisconsin Law Review* 2019 (5): 745–817.

Layser, Michelle D. 2021. "Subsidizing Gentrification: A Spatial Analysis of Place-Based Tax Incentives." Accessed June 8, 2021. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3793209.

Levy, D. K., J. Comey, and S. Padilla. 2007. "In the Face of Gentrification: Case Studies of Local Efforts to Mitigate Displacement." *Journal of Affordable Housing & Community Development Law* 13 (3): 238–315.

Logan, John, and Harvey Molotch. 1987. *Urban Fortunes: The Political Economy of Place*. Berkeley, CA: Univ. of California Press.

Logan, John R., Zengwang Xu, and Brian J. Stults. 2014. "Interpolating US Decennial Census Tract Data From as Early as 1970 to 2010: A Longitudinal Tract Database." *The Professional Geographer* 66 (3): 412–20. doi: 10.1080/00330124.2014.905156.

Marcin, Daniel. 2020. "Opportunity Zones." *Cityscape* 22 (2): 101–10.

Moran, Patrick A. 1950. "Notes on Continuous Stochastic Phenomena." *Biometrika* 37 (1–2): 17–23. doi: 10.2307/2332142.

Neumark, David, and Jed Kolko. 2010. "Do Enterprise Zones Create Jobs? Evidence From California's Enterprise Zone Program." *Journal of Urban Economics* 68 (1): 1–19. doi: 10.1016/j.jue.2010.01.002.

Neumark, David, and Helen Simpson. 2015. "Place-Based Policies." In *Handbook of Regional and Urban Economics*, edited by Giles Duranton, J. Vernon Henderson, and William Strange, 1197–287. Amsterdam: Elsevier.

Pattillo, Mary. 2007. *Black on the Block: The Politics of Race and Class in the City*. Chicago, IL: Univ. of Chicago Press.

Preis, Benjamin, Aarthi Janakiraman, Alex Bob, and Justin Steil. 2020. "Mapping Gentrification and Displacement Pressure: An Exploration of Four Distinct Methodologies." *Urban Studies* 58 (2): 405–24. doi: 10.1177/0042098020903011.

Reid, Carolina K. 2019. "Rethinking "Opportunity" in the Siting of Affordable Housing in California: Resident Perspectives on the Low-Income Housing Tax Credit." *Housing Policy Debate* 29 (4): 645–69. doi: 10.1080/10511482.2019.1582549.

Reynolds, Curtis L., and Shawn Rohlin. 2014. "Do Location-Based tax Incentives Improve Quality of Life and Quality of Business Environment?" *Journal of Regional Science* 54 (1): 1–32. doi: 10.1111/jors.12035.

Richardson, Jason, Bruce Mitchell, and Jad Edlebi. 2020. "Gentrification and Disinvestment 2020 Do Opportunity Zones Benefit or Gentrify Low-Income Neighborhoods?" National Community Reinvestment Coalition. Accessed June 18, 2021. https://ncrc.org/download/76310/.

Rodríguez-Pose, Andrés, and Callum Wilkie. 2017. "Revamping Local and Regional Development through Place-Based Strategies." *Cityscape* 19 (1): 151–70.

Santiago, Anna M., George C. Galster, and Peter Tatian. 2001. "Assessing the Property Value Impacts of the Dispersed Housing Subsidy Program in Denver." *Journal of Policy Analysis and Management* 20 (1): 65–88. doi: 10.1002/1520-6688(200124)20:1<65::AID-PAM1004>3.0.CO;2-U.

Scally, Corianne Payton, Amanda Gold, Carl Hedman, Matthew Gerken, and Nicole DuBois. 2018. "The Low-Income Housing Tax Credit: Past Achievements, Future Challenges." Washington, DC: Urban Institute. Accessed June 18, 2021. https://www.urban.org/sites/default/files/publication/98761/lihtc_past_achievements_future_challenges_finalized_1.pdf.

Smith, Neil. 1979. "Toward A Theory of Gentrification A Back to the City Movement by Capital, not People." *Journal of the American Planning Association* 45 (4): 538–48. doi: 10.1080/01944367908977002.

Smith, Genee S., Hannah Breakstone, Lorraine T. Dean, and Roland J. Thorpe. 2020. "Impacts of Gentrification on Health in the US: A Systematic Review of the Literature." *Journal of Urban Health* 97 (6): 845–56. doi: 10.1007/s11524-020-00448-4.

Tach, Laura, Alexandra Cooperstock, Samuel Dodini, and Emily Parker. 2019. "The Place-Based Turn in Federal Policymaking, 1990–2015." Paper Presented at the Annual Meeting for the Population Association of America, Austin, April 9–13.

Theodos, Brett, Jorge González-Hermoso, and Brady Meixell. 2020. "The Opportunity Zone Incentive Isn't Living up to its Equitable Development Goals. Here are Four Ways to Improve it." Washington, DC: The Urban Institute. Accessed October 19, 2020. https://www.urban.org/urbanwire/opportunity-zone-incentive-isnt-living-its-equitable-development-goals-here-arefour-ways-improve-it.

Theodos, Brett, Brady Meixell, and Carl Hedman. 2018. "Did States Maximize Their Opportunity Zone Selections?" Washington, DC: Brookings Institution, Metropolitan Housing and Communities Policy Center. Accessed June 18,

2021. https://www.urban.org/sites/default/files/publication/98445/did_states_maximize_their_opportunity_zone_selections_2.pdf.

Theodos, Brett, Christina Stacy, Daniel Teles, Christopher Davis, and Ananya Hariharan. 2021b. "What are the NMTC Program's Impacts on Local Economic Conditions?" Washington, DC: The Urban Institute. Accessed June 4, 2021. https://www.urban.org/sites/default/files/publication/103959/what-are-the-nmtc-programs-impacts-on-local-economic-conditions_0.pdf.

Theodos, Brett, Christina Stacy, Daniel Teles, Christopher Davis, and Ananya Hariharan. 2021a. "Which Types of Projects Receive New Market Tax Credit Funding?" Washington, DC: The Urban Institute. Accessed June 4, 2021. https://www.urban.org/sites/default/files/publication/103956/which-types-of-projects-receive-new-markets-tax-credit-funding_0.pdf.

Turner, Margery, and Christopher Snow. 2001. "Leading Indicators of Gentrification in D.C. Neighborhoods." Presentation at the Urban Institute D.C. Policy Forum, Washington, DC, June 14, 2001, Washington, DC: Urban Institute.

U.S. Department of Treasury. 2018. "Treasury, IRS Announce First Round of Opportunity Zones Designations for 18 States." Accessed February 27, 2021. https://home.treasury.gov/news/press-releases/sm0341.

U.S. Department of Treasury. 2020. "New Market Tax Credits Program Fact Sheet." Accessed February 27, 2021. https://www.cdfifund.gov/sites/cdfi/files/documents/nmtc-fact-sheet-english-16sept2020-final.pdf.

Walter, Rebecca J., Ruoniu Wang, and Sarah Jones. 2018. "Comparing Opportunity Metrics and Locational Outcomes in the Low-Income Housing Tax Credit Program." *Journal of Planning Education and Research* 38 (4): 449–62. doi: 10.1177/0739456x17711224.

Wilhelm, Stefan, and Miguel G. de Matos. 2013. "Estimating Spatial Probit Models in R." *The R Journal* 5 (1): 130–43. doi: 10.32614/rj-2013-013.

Woo, Ayoung, Kenneth Joh, and Shannon Van Zandt. 2016. "Impacts of the low-Income Housing tax Credit Program on Neighborhood Housing Turnover." *Urban Affairs Review* 52 (2): 247–79. doi: 10.1177/1078087414561824.

Wooldridge, Jeffrey M. 2016. *Introductory Econometrics: A Modern Approach*. Boston, MA: South-Western Cengage Learning.

Zuk, Miriam, Ariel H. Bierbaum, Karen Chapple, Karolina Gorska, and Anastasia Loukaitou-Sideris. 2018. "Gentrification, Displacement, and the Role of Public Investment." *Journal of Planning Literature* 33 (1): 31–44. doi: 10.1177/0885412217716439.

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