

UCLA

UCLA Electronic Theses and Dissertations

Title

Flying Under the Radar: 4% Low-Income Housing Tax Credit Program

Permalink

<https://escholarship.org/uc/item/6w99v334>

Author

Kuai, Yiwen

Publication Date

2021

Peer reviewed|Thesis/dissertation

UNIVERSITY OF CALIFORNIA

Los Angeles

Flying Under the Radar: 4% Low-Income Housing Tax Credit Program

A dissertation submitted in partial satisfaction of the
requirements for the degree Doctor of Philosophy in
Urban Planning

by

Yiwen Kuai

2021

© Copyright by

Yiwen Kuai

2021

ABSTRACT OF DISSERTATION

Flying Under the Radar: 4% Low-Income Housing Tax Credit Program

by

Yiwen Kuai

Doctor of Philosophy in Urban Planning

University of California, Los Angeles, 2021

Professor Michael C. Lens, Chair

The Low-Income Housing Tax Credit program is by far the largest federal subsidy for affordable housing production in America. There are two types of tax credits in this program and the research typically does not differentiate. The “non-competitive” 4% credit, as opposed to the “competitive” 9% credit, is flying under the radar of researchers and policymakers. Prioritization towards siting in neighborhoods with higher opportunities are often optional, unclear, and unenforceable in the 4% program. The results from this project show that both credits do very little to reduce the patterns of poverty concentration and racial segregation in the United States. Moving into any type of new tax credit unit may notably reduce a subsidized household’s experiences and undermine its ability in translating stable rents into economic mobility. During the most recent decade, some states started to incentivize siting more 9% developments in areas with lower poverty and higher opportunities through the use of Qualified Allocation Plans. State

legislators and housing authorities have yet to carry out meaningful oversight and guidance for the 4% program. The finding points to that the tax credit program, particularly with the 4% tax credit, has some unleashed potentials to increase our ability to create housing and neighborhood opportunities for all and advance fair housing goals.

This dissertation of Yiwen Kuai is approved.

Evelyn Blumenberg

Edward Kung

Paavo Monkkonen

Michael C. Lens, Committee Chair

University of California, Los Angeles

2021

Table of Contents

Abstract of Dissertation	ii
Table of Contents	v
List of Tables	vi
List of Figures	viii
Glossary	ix
Acknowledgements	xv
Abridged Vita	xvi
Introduction	1
Background	3
Literature Review	9
Overview of Chapters	18
Chapter 1 - State Priorities and Qualified Allocation Plans	21
Research Strategy	22
Data	25
Analysis	26
Conclusions	51
Chapter 2 - Siting and Concentration	54
Research Strategy	56
Data	57
Analysis	59
Conclusions	95
Chapter 3 - Neighborhood Opportunity	97
Research Strategy	100
Data	102
Analysis	111
Conclusions	135
Findings, Policy Implications, and Recommendations	138
Appendices	144
References	274

List of Tables

Table 1-1: Summary for State Priorities in 4% Tax Credit Program, 2016 _____	33
Table 1-2: Distribution of Low-Income Tax Credit Units by Type and Region, 2005-2007 and 2016-2018 _____	40
Table 1-3: Distribution of New Construction Tax Credit Units, 2005-2007 and 2016-2018 ____	41
Table 1-4: Locational Priority Change Index, 2005 to 2016 _____	42
Table 1-5: Summary of Regression-Adjusted Means, 4% Tax Credit _____	47
Table 1-6: Summary of Regression-Adjusted Means, 9% Tax Credit _____	48
Table 1-7: Summary of Regression-Adjusted Means for Set-Asides _____	49
Table 1-8: Tract-Level Regression Results, 4% Tax Credit _____	50
Table 1-9: Tract-Level Regression Results, 9% Tax Credit _____	51
Table 2-1: Low-Income Tax Credit Units Description, 1987 to 2016 _____	59
Table 2-2: Simulated Neighborhood Household Poverty Rate, New Construction Projects ____	64
Table 2-3: Simulated Neighborhood Householder Minority Rate, New Construction Projects_	66
Table 2-4: Average Poverty Exposure Comparison _____	70
Table 2-5: Unit Distributions by Neighborhood Poverty Rate and Period _____	72
Table 2-6: Unit Distributions by Neighborhood Poverty Rate and Core-Based Statistical Area Size _____	74
Table 2-7: Unit Distributions by Neighborhood Poverty Rate and Region _____	77
Table 2-8: Average Minority Exposure Comparison _____	79
Table 2-9: Unit Distributions by Neighborhood Minority Share and Period _____	80
Table 2-10: Unit Distributions by Neighborhood Minority Share and Core-Based Statistical Area Size _____	81
Table 2-11: Unit Distributions by Neighborhood Minority Share and Region _____	82
Table 2-12: Structural Equations Modeling Results of Tax Credit Investment on Poverty Rate, 1987 to 2016 _____	88
Table 2-13: Structural Equations Modeling Results of New and Rehabilitation Tax Credit Investment on Poverty Rate, 1987 to 2016 _____	90
Table 2-14: Structural Equations Modeling Results of Tax Credit Investment on Minority Share, 1987 to 2016 _____	93
Table 2-15: Structural Equations Modeling Results of New and Rehabilitation Tax Credit Investment on Minority Share, 1987 to 2016 _____	94
Table 3-1: Low-Income Tax Credit Units Description, Active Developments _____	103
Table 3-2: Averages of Neighborhood Opportunity Indicators _____	109
Table 3-3: Neighborhood Characteristics of Low-Income Units, Active Developments _____	113
Table 3-4: Neighborhood Characteristics of Renters and Subsidized Housing Units _____	114
Table 3-5: Tracked Low-Income Household Sample Comparisons, 2006 to 2017 _____	125
Table 3-6: Neighborhood Characteristics of Tracked Tax Credit Tenants and Other Types of Renters _____	127
Table 3-7: Average Changes in Opportunity Indicators of Tracked Movers _____	128
Table 3-8: Regression Results for Changes in Neighborhood Poverty Rates and Minority Shares _____	131

Table 3-9: Regression Results for Changes in Neighborhood Poverty Rates and Minority Shares among Low-Income Movers	132
Table 3-10: Abridged Regression Results for Changes in Neighborhood Indicators among Low-Income Movers	133
Table 3-11: Abridged Regression Results for Changes in Neighborhood Indicators among Low-Income Movers and New Tax Credit Units	134
Table 3-12: Logistic Regression Results for Changes in Neighborhood Indicators among Low-Income Movers	135

List of Figures

Figure 2-1: Average and 90 th Percentile of Numbers of Low-Income Tax Credit Units per Tract by Period _____	61
Figure 2-2: Path Diagram for Structural Equation Model _____	86
Figure 3-1: Household-Level Data File Format _____	117
Figure 3-2: Access to Opportunity for Active Tax Credit Units and Other Types of Housing _____	118
Figure 3-3: Access to Opportunity for Active Newly Constructed Tax Credit Units and Other Types of Housing _____	120
Figure 3-4: Access to Opportunity for Tax Credit Units Placed in Service during 2010s _____	122
Figure 3-5: Active Tax Credit Projects in California, 2006-2015 _____	124

Glossary

20/50 Set-aside: At least 20% of the housing units must be rent-restricted to households whose income is 50% or less of the area median gross income adjusted for household size.

4% Credit: Provides subsidy up to 30% present value of an affordable housing development.

The subsidy equals approximately 4% of qualified costs each year for 10 years. 4% tax credit is considered “automatic” if a bond has been issued to cover at least 50% of the development costs for an affordable housing project. It is typically used for new construction or substantial rehabilitation.

40/60 Set-aside: At least 40% of the housing units must be rent-restricted to households whose income is 60% or less of the area median gross income adjusted for household size.

9% Credit: Provides subsidy up to 70% present value of an affordable housing development.

Subsidy equals 9% of the qualified costs each year for 10 years. It supports new construction or substantial rehabilitation of an existing building. The 9% credits are competitive and are subject to certain selection criteria and housing priorities outlined in the Qualified Allocation Plan (QAP).

Acquisition: Acquires ownership of an existing building. A building must be substantially rehabilitated to receive the tax credit for any acquisition cost.

AMI or AMGI: Area Median Income or Area Median Gross Income, used interchangeably in this project.

Basis Boost: A boost in a project’s eligible tax credit basis. A proposed project must be located in a Qualified Census Tract (QCT) or a Difficult Development Area (DDA) to receive a

30% basis boost. State tax credit allocation authorities may also elect their own criteria for awarding a basis boost to make a project financially feasible after 2008.

Community Development Block Grant (CDBG): A federal subsidy program to fund community activities to address community development needs for affordable housing, poverty reduction, and infrastructures.

Community Housing Development Organizations (CHDO): A private nonprofit, community-based, service organization to develop affordable housing for the community it serves.

Community Revitalization Plan: A plan outlines a formal, coordinated, and comprehensive framework to address problems in a distressed community.

Compliance Period: 15 taxable years beginning with the first year of a project's 10-year Credit Period. In addition, each project must have an Extended Low-Income Housing Commitment that requires, at a minimum, a 15-year extended use period.

Core Based Statistical Area (CBSA): Refers collectively to metropolitan and micropolitan statistical areas.

Difficult Development Area (DDA): An area designated by HUD with high land, construction, and utility costs relative to the AMGI. Projects in those areas are eligible for a 30% boost in its eligible basis.

Eligible Basis: For a new construction project, the eligible basis is the cost of construction determined at the first year of its credit period. For a substantial rehabilitation project, the eligible basis is the sum of rehabilitation costs over 24 months. For an existing building, the eligible basis is the cost of acquiring the building.

Extended Use Period: Timeframe restricts the eligibility of projects to receive tax credits to only those that agree to keep the property income and rent-restricted. The term for this

extended period is a minimum of 15 years in addition to the 15-year initial compliance period. This results in a total term of compliance period of 30 years. Projects receiving tax credits between 1987 and 1989 are not subject to an extended use period.

HOME Investment Partnerships Program (HOME): A federal grant program to fund a wide range of community activities including creating and rehabilitating affordable housing or providing rental assistance to low-income households.

Housing Bonds: Bonds, often tax-exempt, are used to finance multi-family rental housing projects.

Housing Choice Voucher (HCV): A major federal subsidy program for assisting very low-income families, the elderly, and the disabled to afford housing in the private market. Also known as the Section 8 vouchers. *See Section 8.*

Housing Finance Agency (HFA): Often a state-chartered authority administers a wide range of state and federal affordable housing and community development programs, such as housing bonds, housing tax credit, and the HOME Investment Partnerships program. HFAs may also administer other housing programs, including homeless assistance and Section 8 vouchers. *See the full list of state tax credit allocation agencies in Appendix A.*

Income Restrictions: Maximum income limits per household for very low-income (25% AMI) and low-income (50% or 60% AMI) units. Income Restrictions are adjusted periodically by HUD.

Internal Revenue Service (IRS): Federal administrator for the low-income housing credit and the Low-Income Housing Tax Credit program under section 42 of the Internal Revenue Code.

Low-Income Housing Tax Credit (LIHTC): A tax credit program for subsidizing affordable housing investments in the United States. LIHTC is often used to represent the “tax credit” used in the LIHTC program.

Maximum Allowable Rent: Maximum allowable gross rent for a tax credit unit. It includes a utility allowance representing the average monthly cost for utilities paid directly by the residents.

Metropolitan Statistical Area (MSA): A region with a core area containing a substantial population density, together with adjacent communities having a high degree of economic and social ties. A metropolitan statistical area has at least one urbanized area of 50,000 or more inhabitants. MSAs are defined by the U.S. Office of Management and Budget.

Micropolitan Statistical Area: An area that has at least one urban cluster of at least 10,000 but less than 50,000 population.

New Construction: A housing project with a completely new structure built.

Not-In-My-Backyard (NIMBY): An account of strong opposition to a proposed development by local residents.

Placed-In-Service (PIS) Date: A new or existing building is ready for its intended function on this date. The first unit in the building is often certified as suitable for occupancy under state or local law on this date.

Public Housing Agency (PHA): A local agency that governs public housing. It also provides assistance or specific information about public housing programs such as public housing and Section 8 vouchers.

Qualified Allocation Plan (QAP): A plan sets forth the selection criteria in awarding tax credit by a state.

Qualified Census Tract (QCT): Any Census Tract in which at least 50% of households have an income less than 60% of the AMGI. Projects in those HUD-designated areas are eligible for a 30% boost in its eligible basis.

Rehabilitation: Renovates or converts an existing residential or commercial structure for residential use.

Rural Rental Service (RHS): *see* **United States Department of Agriculture (USDA).**

Section 515: Section 515 Rural Rental Housing Loans, a rural housing assistance program administered by the United States Department of Agriculture (USDA). Section 515 Rural Rental Housing Loans are mortgages made by USDA to provide affordable rental housing for very low-, low-, and moderate-income families, the elderly, and the disabled.

Section 8: Section 8 of the Housing Act of 1937, as repeatedly amended, authorizes the payment of rental housing assistance to private landlords. The Housing Choice Voucher (HCV) program provides “tenant-based” rental assistance, so a tenant can move from one unit to another. Section 8 also authorizes a variety of “project-based” rental assistance programs, under which the owner reserves some or all of the units in a building for low-income tenants, in return for a federal government guarantee to make up the difference between the tenant’s contribution and the rent in the owner’s contract with the government. Section 8 program is administered by HUD.

Single Room Occupancy (SRO): A form of housing that is typically aimed at residents with low incomes. SRO is often used to house formerly or otherwise homeless individuals and populations with special needs.

Tax-Exempt Bond (TEB): A bond issued by a government body. A municipal bond is usually used to raise capital for improvements in infrastructure or other aspects of the

municipality. Such a bond is exempt from federal income taxes and sometimes from state and local taxes.

Tax Credit: A dollar-for-dollar reduction in the income tax liability of the investor or tax bill of the property owner under the federal tax code.

Transit-Oriented Development (TOD): A type of urban development that encourages the use of public transportation. TOD tries to maximize residential, business, and leisure density within walking distance of public transportation infrastructures.

Volume Cap: The total annual amount of private activity bonds that may be issued within a state in any calendar year on a tax-exempt basis. State volume cap ceilings are established annually based upon state population figures.

United States Department of Agriculture (USDA): A federal department responsible for developing and executing federal laws related to farming, food, forestry, and rural economic development. The Rural Housing Service (RHS) is a division within the USDA that manages a variety of programs to build or improve housing and essential community facilities in rural areas.

United States Department of Housing and Urban Development (HUD *or* U.S. HUD): A federal department responsible for federal policy and programs that address America's housing needs, that improve and develop communities, and enforce fair housing laws. HUD provides technical assistance to the Low-Income Housing Tax Credit program administered by the Internal Revenue Service. HUD publishes income eligibility requirements for the program. HUD also collects information on all tax credit developments and tenants in those developments.

Acknowledgements

I would first like to thank my phenomenal dissertation committee. I thank Mike Lens for his mentorship, encouragement, and patience throughout my time in the doctoral program. He has always been a supportive and strong guiding force as Chair of my committee. I am forever indebted to him. I would also like to express my gratitude to Evy Blumenberg, Ed Kung, and Paavo Monkkonen. I greatly appreciate valuable guidance and insightful feedback from them.

I'm extremely grateful for the opportunities to work with Mike Lens, Paavo Monkkonen, Ingrid Gould Ellen, Keren Horn, Zhan Guo, Michael Stoll, José Loya, Kyle Nelson, Ashley Gromis, and Justin Steil on various research projects. I thank these incredible collaborators for sharing their insight and expertise with me. I would like to extend my thanks to friends and colleagues for their continued support during my doctoral study, including C.J. Gabbe, Rebecca Crane, Lisa Berglund, Yoh Kawano, Bo Liu, Emily Erickson, JaeHyeon Park, Andre Comandon, Paloma Giottonini, Silvia González, Brenda Tully, Andy Schouten, Hugo Sarmiento, Wanyang Hu, Teo Wickland, Jessica Bremner, Chris Tilly, Meredith Phillips, Mohja Rhoads, Sean Capperis, Nam Nguyen, Norman Ornelas, Samuel Song, Jeff Mah, and Greg Michael. I have been so lucky to be surrounded by them. I would also like to thank UCLA and UCLA Luskin for the generous financial support over the years.

Nobody has been more important to me than my family. Without such a team behind me, I doubt that I would be in this place today. I would like to thank my parents for their countless sacrifices and unconditional love to help me get to this point. Most importantly, I wish to thank my loving and thoughtful husband, David, for always showing how proud he is of me. Words are truly not enough to express my deepest gratitude to him.

Abridged Vita

EDUCATION

New York University Master of Urban Planning	2014
University of California, Berkeley B.A. in Economics	2011

SELECTED PUBLICATIONS

Refereed journal articles

Nelson, K., Gromis, A., Kuai, Y., Lens, M. Spatial Concentration and Spillover: Eviction Dynamics in Los Angeles Neighborhoods, 2005-2015. *Housing Policy Debate*, forthcoming.

Lens, M., Nelson, K., Gromis, A., Kuai, Y. 2020. The Neighborhood Context of Eviction in Southern California. *City & Community*, 19(4): 912-932.

Ellen I. G., Horn, K., & Kuai, Y. 2018. Gateway to Opportunity? Disparities in Neighborhood Conditions Among Low-Income Housing Tax Credit Residents. *Housing Policy Debate*, 28(4): 572-591.

Papers under review

Kuai, Y. & Guo, Z. Residents' Preference towards Wide Street and On-Street Parking in American Suburbia.

Kuai, Y. Do Developers Utilize Location Incentives in Applying for Low-Income Housing Tax Credit?

Monkkonen P. & Kuai, Y. Does neighborhood diversity erode or enhance social interactions? Survey evidence from Hong Kong.

Other publications

Lens, M., Stoll, M. A., & Kuai, Y. 2019. *Trends in Misdemeanor Arrests in Los Angeles: 2001-2017*. Lewis Center for Regional Policy Studies, University of California, Los Angeles, Los Angeles.

Monkkonen, P. & Kuai, Y. 2018. *Federal Housing Assistance in Los Angeles County is Primarily for High-Income Neighborhoods*. Lewis Center for Regional Policy Studies, University of California, Los Angeles, Los Angeles.

Kuai, Y. & Guo, Z. 2016. *Do Suburban Residents Want to Pay for Wide Streets? A Survey on Consumer Preference and Ability to Afford towards Wide Street and On-Street Parking in American Suburbia*. University Transportation Research Center, New York.

Ellen, I. G., Horn, K., Kuai, Y., Pazuniak, R., & Williams, M.D. 2015. *Effect of QAP Incentives on the Location of LIHTC Properties*. U.S. Department of Housing and Urban Development, Office of Policy Development and Research, Washington D.C.

Capperis, S., De la Roca, J., Ellen, I. G., Karfunkel, B., Kuai, Y., Moriarty, S., Steil, J., Stern, E., Suher, M., Weselcouch, M., Willis, M., & Yager, J. 2015. *The State of New York City's Housing and Neighborhoods in 2014*. Furman Center for Real Estate and Urban Policy, New York University, New York.

RESEARCH & TEACHING POSITIONS

Luskin School of Public Affairs, University of California - Los Angeles

Graduate Student Researcher 2015-2021

(with Paavo Monkkonen and Michael Lens)

Teaching Assistant 2015-2021

(for undergraduate and master's level courses)

Lewis Center for Regional Policy Studies, University of California - Los Angeles

Graduate Student Researcher 2015-2021

California Center for Population Research, University of California - Los Angeles

Student Affiliate 2016-2021

Furman Center for Real Estate and Urban Policy, New York University

Research Affiliate 2015-2018

Junior Research Fellow 2014-2015

Research Assistant 2012-2014

Robert F. Wagner School of Public Service, New York University

Research Affiliate 2014-2016

Research Assistant 2012-2014

PROFESSIONAL MEMBERSHIPS

Member, American Planning Association 2012-present

Member, Urban Affairs Association 2015-present

Introduction

The Low-Income Housing Tax Credit (LIHTC) program is the largest federal subsidy for affordable housing production in America, providing financing for over 2.9 million low-income rental units since 1987.¹ The LIHTC program has a substantial influence on where low-income households live. The program's efficacy remains contested in terms of reducing neighborhood poverty concentration, promoting racial integration, and helping tenants reach neighborhoods with higher opportunities. There are two types of tax credit programs – a 9% tax credit and a 4% tax credit. Researchers, however, have not examined the differences between these two programs. The 9% tax credit is awarded on an extremely competitive basis to subsidize new construction. The 4% tax credit is typically claimed for rehabilitation and new construction on a non-competitive basis. The 9% credit covers up to 70% of the eligible development costs, whereas the 4% credit only covers 30% and thus requires additional financing. About 40% of all low-income tax credit units, or about 1.2 million units, were financed through the 4% tax credit program. This 4% program also includes a substantial number of newly constructed units, which accounted for almost half of all 4% units.²

Given the differences between the two programs, the siting of 4% developments may differ from projects financed with the 9% tax credit. Since applications for the 4% credit are not subject to the competitive review, projects selection based on poverty deconcentration, racial integration, and siting in high opportunity neighborhoods, if any, may not apply. In many cases,

¹ Tabulation of the total number of low-income affordable housing units ever received tax credits from this program based on Department of Housing and Urban Development's (HUD's) LIHTC Database (U.S. Department of Housing and Urban Development, 2020). As of June 2020, the latest version of this database includes tax credit projects placed in service until 2018.

² Tabulations from HUD's LIHTC Database (U.S. Department of Housing and Urban Development, 2020).

the financing layers (such as tax-exempt bonds) that are required to enable 4% credit projects to succeed also do not have any locational priorities.

The 4% program and the affordable housing projects it enables are understudied. There is limited knowledge about the siting outcomes of affordable housing projects enabled by the 4% credit and how they compare with the projects enabled by the 9% credit. Research is also limited on whether state incentives exist to further goals of poverty reduction and racial integration within the 4% credit program. Prior research has not examined possible differences in tenant experience and neighborhood access in different types of tax credit developments. I try to shed some light on how well the 4% federal tax credits work together with other financing sources to create or preserve affordable housing. Most importantly, I analyze the efficacy of the LIHTC 4% program and how the program compares with the 9% program and other subsidized housing programs. The results from this project contribute to the ongoing debate on the future of U.S. housing policy.

To preview my results, the effect of the 4% program on neighborhood poverty reduction and racial desegregation is similar to that of the 9% program. The gaps in accessing neighborhood opportunities between active 4% developments and active 9% developments are quite small. Findings from this project also point to that both the 4% and the 9% tax credits can somewhat increase our ability to create housing and neighborhood opportunities for all. However, both programs need to have stronger and more persistent locational incentives to further advance fair housing goals. While state allocation plans do incentivize 9% tax credit developments into neighborhoods with higher opportunities in recent years, priorities in these plans are often optional, unclear, and unenforceable for the 4% credit program. The 4% credit

can potentially be a solution in balancing two sometimes competing objectives in the LIHTC program: community-oriented development and prioritization towards opportunity. State housing agencies need to have explicit consideration and open discussion on the allocation plans for the 4% credit.

Background

The LIHTC program provides tax incentives to the developers and investors in rental housing that serves very low-income and low-income households. The program was established by the Tax Reform Act of 1986. As of 2020, the LIHTC program had financed over 2.9 million low-income units. Each funded project receives a ten-year stream of tax credits, which is estimated to total \$17 billion to date.³ The program is administered by the Internal Revenue Service (IRS), which allocates tax credits to designated state housing agencies based on a formula set by legislation. The U.S. Department of Housing and Urban Development (HUD) provides limited technical assistance to the program, for example, publishing income limits and collecting tenant information.⁴ There are two types of tax credits: the 9% credit and the 4% credit, which refer to the percentage of qualified development costs (known as the eligible basis) that may be used to lower the federal income tax liability of developers or investors each year, for a total of 10 years. The 9% credit is awarded on a competitive basis to mostly subsidizing new construction. Applications are usually scored and ranked in terms of the strength in financial

³ Tabulations from HUD's LIHTC Database (U.S. Department of Housing and Urban Development, 2020). Numbers are current as of June 2020 with placed-in-service projects through 2018.

⁴ The Housing and Economic Recovery Act of 2008 requires each state tax credit allocation agency to furnish HUD information concerning the demographics of households residing in each tax credit property. See Federal Register Volume 75, Issue 59 (Office of the Federal Register, National Archives and Records Administration, 2010).

proforma, access to opportunities, zoning and community approval, tenant composition, developer's prior experience, future management, and other state criteria. The state ceiling for the 9% tax credit in 2020 is the greater of \$2.8125 multiplied by the state population or \$3,217,500.⁵ The 4% credit is typically claimed for rehabilitation and new construction on a non-competitive basis. The 4% credit only covers 30% and thus requires additional layers of financing. Commonly, other forms of funding have to be secured first before getting the 4% tax credit. A 4% deal requires significantly more financial sources than a 9% deal (Reid & Kneebone, 2021).

An affordable housing project can qualify for tax credits if at least 40% of households have incomes below 60% of the Area Median Income (AMI) or if at least 20% of tenants have incomes below 50% of AMI (known as the "40/60" and "20/50" rules).⁶ In practice, the vast majority of tax credit projects contain only low-income units, or units affordable to households earning under 60% of AMI or lower, with 95% of units in tax credit projects qualified as low-income units (Collinson et al., 2016). Rents of low-income units at a tax credit property are capped at 30% of the income of the AMI.⁷ Rents are set for the unit rather than varying by occupant's income. Currently, projects must meet affordability requirements for a minimum of 30 years to qualify for the tax credits.⁸ Some states require a longer affordability period. For

⁵ See Rev. Proc. 2019-44, (Internal Revenue Service, 2019).

⁶ "Affordable housing," "low-income housing," (and to some extent, "subsidized housing") are frequently used to categorize the LIHTC program. This project uses these terms interchangeably when referring to the tax credit program. However, these terms are not synonymous with one or another in a broader context.

⁷ See HUD's Multifamily Tax Subsidy Income Limits. HUD, 2018. Available at <https://www.huduser.gov/portal/datasets/mtsp.html>.

⁸ The IRS requires LIHTC projects to have an extended use period for an additional 15 years after the 15-year compliance period, for at least 30 years of affordability.

example, California generally requires a 55-year extended use period for projects enabled by the federal 9% tax credit.⁹

The federal tax credit is allocated to developers by state housing agencies, which determine the priorities for siting projects. Each state is required to issue a Qualified Allocation Plan (QAP), typically updated annually or every other year. This document guides developers on selection criteria set forth by the tax credit allocation agency. Some criteria are required by federal regulation, such as setting a preference for projects serving tenants with the lowest income. But states also adopt additional, individually-tailored priorities, such as setting aside credits for developments in areas with the greatest housing need. With increasing competition for tax credits, additional criteria start to play a greater role in the final allocation of the tax credits. Some states explicitly incentivize siting projects in neighborhoods with low poverty rates, whereas others have prioritized investments in communities with higher poverty rates. In recent years, several states encourage siting developments in “areas of opportunity,” which have been defined either broadly or using specific metrics like low poverty rate, high school quality, and access to jobs and transportation by the state (Ellen et al., 2015). However, federal statute provides higher credit and a preference for projects in “Qualified Census Tracts” (“QCTs”), Census Tracts where at least 50% of the households have incomes of less than 60% of the AMI or a poverty rate of 25% or more. A project proposed in a QCT is required to contribute to a concerted community revitalization plan.¹⁰ This preferential treatment was likely designed to provide incentives to rehabilitate or replace rental housing stock in low-income areas (Hollar &

⁹ See Cal. Code of Regulations, 4 Div. 17 Ch 1, California Office of Administrative Law, 2018.

¹⁰ See 26 U.S.C. § 42(d)(5)(C)(ii)(I) and 26 U.S.C. § 42(m)(1)(B).

Usowski, 2007). Some states go beyond this federal statute and offer additional benefits for projects located in a QCT.

Once awarded the LIHTC tax credit, the developers can syndicate or sell credits to investors to raise equity for project construction. Tax credit investors receive a reduction in their federal income taxes for ten years after a project is placed in service. A 9% tax credit deal represents a significant percentage of equity in an affordable housing project, reducing the need for debt and other subsidies.

Sixteen states and the District of Columbia also have state-level affordable housing tax credits (Novogradac & Company LLP, 2017). A development that receives federal credit is typically eligible for the state credit as well. Thus, many states apply the same selection criteria from their federal tax credit programs to the state tax credit programs. In this dissertation, “tax credit” and “LIHTC” refer to the federal tax credit unless noted otherwise.

Developers most frequently couple the 4% credit with tax-exempt bond financing. Eighty percent of the 4% units are coupled with “volume capped” tax-exempt bonds.¹¹ To better understand how the 4% program enables affordable housing developments, I also examine the tax-exempt bond program for multifamily rental projects and its awarding processes. The 4% credit is awarded “automatically” to projects where 50% or more of the development costs are funded by a tax-exempt bond (Keightley, 2017).

Just as states receive an annual allocation of the 9% housing tax credit, each state also receives an annual allocation, called a “volume cap,” to issue private activity bonds which are

¹¹ Each state receives an annual allocation, called a “volume cap,” to issue private activity bonds that are exempted from federal (and often state) income tax (Keightley, 2017). While competing with other civil uses, rental housing generally enjoys a high priority (Cooper, 2010). Tabulation from HUD’s LIHTC Database, 2020.

exempted from federal (and often state) income tax (Keightley, 2017). For 2018, the state ceiling for the private activity tax-exempt bond volume cap is the greater of \$105 times the state population or \$311,375,000.¹² Volume cap bonds can be issued to finance multifamily housing developments, single-family housing, student loans, economic development projects, and many other public uses. Multifamily rental housing generally enjoys a high priority in most states as it competes with other eligible civil uses (Cooper, 2010). Tax-exempt bond-funded loans often offer better interest rates than other forms of debt (Keightley, 2017). For many years, the supply of bond cap funds exceeded the demand for these funds across the country (National Housing Conference, 2017). However, at least nine states face no carryforward or very limited carryforward of bond caps into 2019 (Novogradac, 2019). In other words, the demand exceeds supply in a given year.

States are in charge of establishing their own process for issuing tax-exempt bonds under the volume cap. Because of the volume cap, the tax-exempt bond allocation could effectively mean more competition for the 4% tax credit under certain conditions. Tax-exempt bond-financed projects have the same income restrictions as projects financed under the LIHTC program, meaning at least 40% of tenants have incomes below 60% of AMI or at least 20% of its tenants have incomes below 50% of AMI. Even though these two programs have similar affordability requirements, they usually have distinct awarding processes and criteria. These requirements generally last at least 15 years (Keightley, 2017). However, federal law does not limit the rent that may be charged to tenants through the tax-exempt bond program. Many

¹² See Rev. Proc. 2017-58, Internal Revenue Service, 2017.

projects are nonetheless subject to rent restrictions because of state regulations, receiving the federal 4% housing tax credit, or layering with other forms of housing subsidies (Keightley, 2017).¹³

Some states have already included incentives or thresholds to influence project selections within tax-exempt bond regulation, sections of QAP pertaining to the allocation of 4% credit, and the state's general housing plans. Developers wishing to receive tax-exempt bonds and 4% credits have to follow all relevant policies in these documents. For example, California awards bonus points if a tax-exempt bond-financed project is located in a neighborhood with a Community Revitalization Plan, which details specific efforts being undertaken in a community to improve economic conditions and quality of life.¹⁴ Other states have included these priorities in a general housing statement regulating all affordable housing production. Texas sets forth that new developments have to improve housing opportunities for protected classes in areas lacking affordable units and to increase the provision of affordable housing in areas where there has been significant recent community investment.¹⁵ States can elect one entity to both award tax credits and issue tax-exempt bonds. For example, in the State of Oregon, the entity is the Oregon Housing and Community Services. Some states have separate entities at the state level. In California, the California Debt Limit Allocation Committee allocates tax-exempt bond volume and the California Tax Credit Allocation Committee allocates tax credits. Tax-exempt bonds can also be issued by local governments and other units that are qualified by the Internal Revenue

¹³ A 4% tax credit development with tax-exempt financing has to satisfy program requirements outlined in both QAP and tax-exempt bond regulation if any.

¹⁴ See Cal. Code of Regulations, 4 Div. 9.5, California Office of Administrative Law, 2018.

¹⁵ See State of Texas Low Income Housing Plan and Annual Report - 2015 (Texas Department of Housing and Community Affairs, 2016).

Code of 1986. There may be several conduit or pooled bond issuers in one state. State housing finance agencies are by far the most common sponsors of pooled financing programs while state and local entities frequently act as conduit issuers (Keightley, 2017). In general, they all have to follow the same applicable state law. This study focuses on volume cap allocators at the state level.

Literature Review

This section reviews studies to date that examine the effects of the LIHTC program. Early critics of the LIHTC program argued that high profits were going to the developers (Ballard, 2003). The high amount of competition between developers for tax credits suggests credits may be overly generous. Recent analyses suggest that more funds are going into the construction activities. Developers receive about 70 cents on the dollar for credits (Eriksen, 2009). Issues related to fraud, such as inflated project costs and misused funds, have gone undetected (Sullivan & Anderson, 2017).

Studies raise other potential issues with the LIHTC program, questioning its financial efficiency as well as the role of the program in crowding out market-rent developments. Cummings and DiPasquale (1999) find that a dollar of tax credit produced about 62 cents of housing through 1996. Others estimated that costs of producing tax credit units are about 15% to 20% higher than an unsubsidized unit. Baum-Snow and Marion (2009) estimate that each LIHTC unit creates only 0.8 units of housing – the other 20% is private housing that would have been built but was not. However, on some positive notes, Eriksen and Rosenthal (2010) show that LIHTC affects the location of low-moderate income housing more than it affects the supply.

Eriksen (2009) shows that the LIHTC program encourages the construction of higher quality housing units on average. The program is also at the center of the debate between project-based and tenant-based assistance (Khadduri & Wilkins, 2008; Olsen, 2003). This body of research shows that more money is spent on the LIHTC program to produce the “same amount” of housing for recipients than provided by the Housing Choice Voucher (HCV) program, formerly known as the Section 8 program.

In terms of poverty and equity issues, the LIHTC program has produced mixed results so far. The program has produced more income mixing than public housing (Ellen et al., 2016; Khadduri, 2013; O’Regan & Horn, 2013). However, despite the “40/60” and “20/50” rules, most developments are occupied almost entirely by households under 60% AMI. A significant portion of tax credit units, or close to 50%, serve extremely low-income households (U.S. Department of Housing and Urban Development, 2018). In comparison, about 75% of units in HUD’s public housing and HCV programs serve these households. The LIHTC program serves a much larger share of units for extremely low-income households than required by the “40/60” and “20/50” rules. Overall, extremely low-income households in LIHTC developments (including those with rental assistance) experience rent burden levels that are markedly higher than tenants in other HUD programs (O’Regan & Horn, 2013).

Research examining spatial distributions of LIHTC investments shows that tax credit units are built in neighborhoods with poverty rates that are higher than average (Ellen et al., 2009; Freeman, 2004; McClure & Johnson, 2015), similar to that of the neighborhood where poor renters live (Lens et al., 2011), but lower than that of the neighborhood where residents of public housing units and other forms of project-based housing reside (Cummings & DiPasquale,

1999; Freeman, 2004; Rohe & Freeman, 2001). Ellen et al. (2009) report little change in trends in siting between the 1980s and the early 2000s. McClure (2006) finds that an average tax credit tenant ends up in a neighborhood with approximately the same poverty rate as the neighborhood where a voucher holder lives. In short, LIHTC tenants appear to be more likely to reach lower-poverty neighborhoods as compared to recipients of other federal housing assistance. However, this is arguably a low bar. LIHTC units were about three times more likely to be sited in high-poverty neighborhoods compared to all rental housing units in 2003 (Ellen et al., 2009).

Other studies have included additional neighborhood measures to analyze the siting patterns of LIHTC properties, such as spatial concentration of low-income units, employment activity, crime, and school quality in addition to neighborhood poverty and racial concentration (Dawkins, 2013; Ellen et al., 2018; Horn et al., 2014; Lens et al., 2011; Lens, 2014; McClure & Johnson, 2015). These studies show that tax credit projects are sited in less desirable neighborhoods than rental units as a whole but in more desirable neighborhoods than public housing projects. No research has specifically looked at the siting patterns of developments financed by the 4% credit.

Ellen et al. (2018) find that tax credit units are located in neighborhoods with higher poverty rates, weaker labor markets, more polluted environments, and lower performing schools, but better transit access when compared to other rental units. Poor and minority LIHTC tenants also live in neighborhoods that are significantly more disadvantaged than other LIHTC tenants (Ellen et al., 2018).

Lens (2014) shows LIHTC residents live in neighborhoods with more job opportunities than other renter households with similar incomes and other housing voucher households, but

significantly fewer job opportunities than tenants living in public housing. However, accounting for competition for these jobs, the differences largely disappear. McClure and Johnson (2015) find that tax credit units are located in neighborhoods with unemployment rates that are lower than the neighborhood where public housing units are located, but higher than the neighborhood of rental units as a whole.

Although tax credit residents are better integrated with the surrounding community, developments are often located near poorly connected transit stops (Welch, 2013). Adkins and colleagues (2017) find that tax credit units tend to concentrate in neighborhoods with better access to transit and jobs than other types of housing. However, less than half of the tax units built between 2007 and 2011 are in “location-efficient” places, which are neighborhoods with compact and mix-used designs to facilitate easy walking and biking access to transit, retail hubs, amenities, and employment centers.

As for crime, Lens et al. (2011) find that tax credit units are in neighborhoods with higher crime rates than both the neighborhoods where an average poor renter household lives and those where a typical household with a voucher lives. Other studies generally find that tax credit developments are located in areas where there are higher rates of crime in various cities across the United States (Fallon & Price, 2020; Tillyer & Walter, 2019; Woo & Joh, 2015; Zandt & Mhatre, 2013).

Horn et al. (2014) find that tax credit residents live in neighborhoods with slightly lower school quality than an average renter household and an average poor household. However, school quality is higher for an average public housing resident and an average voucher holder.

State variations exist as well. Pfeiffer (2009) finds that most tax credit units are located in low-performing school districts in California.

A few recent papers address the relationship between the LIHTC program and poverty concentration. Ellen, O'Regan, and Voicu (2009) find little evidence that the LIHTC is exacerbating poverty concentration. Their results suggest that tax credit investment is associated with modestly lower levels of poverty isolation, likely due to a combination of siting decisions, tenant mix, and spillovers in high-poverty neighborhoods. Prior research generally shows that the LIHTC program does not exacerbate poverty concentration, although it does little to reduce the concentration of poverty (Ellen et al., 2009, 2016; Shamsuddin & Cross, 2020).

However, making tax credit investments in distressed neighborhoods may spark neighborhood revitalization (Nguyen, 2005; Schwartz, 2016). Deng (2011) finds that tax credit investments in majority African American and high-poverty neighborhoods produce mostly positive changes, including decreased minority and poverty concentration in Miami-Dade County. Horn and O'Regan (2011) also find that the LIHTC investment may contribute to lower levels of segregation at the metropolitan level. Freedman and McGavock (2015) compare similar neighborhoods in different metropolitan areas by using local caps on QCT eligibility. They find some evidence that new tax credit investment increases neighborhood poverty rates. They conclude that these small impacts appear to be driven by the relocation of poor residents, rather than by changes in the composition of other residents in the neighborhood. Also utilizing the variations in designating QCTs, Freedman and Owens (2011) find that LIHTC developments significantly reduce violent crime, but not property crime, in the poorest neighborhoods. More

recently, Diamond and McQuade (2016) find significant increases in property values after LIHTC investments are made in the lowest income quartile tracts.

Some scholars have charged that a few specific features of the LIHTC may work to heighten poverty concentration and racial segregation. The primary feature that attracts criticism is that the federal government requires that developers are eligible for a “basis boost,” or a larger allocation of credits, when undertaking developments in QCTs, which are tracts with extremely high poverty rates. Some states even go beyond federal requirements and give additional incentives to revitalize blighted communities. Since not all households in LIHTC are low-income or extremely low-income, there can be income mixing from siting projects in QCTs. However, the federal government provides very little specific guidance on what constitutes a community revitalization plan (Ellen et al., 2015). In reality, some states may prioritize areas with concentrated poverty and pay no attention to neighborhood revitalization (Orfield, 2005; Roisman, 1998).

Other research suggests that this basis boost leads to an increased clustering of low-income housing in these designated communities (Baum-Snow & Marion, 2009; Dawkins, 2013). However, Lang (2012) argues that the opportunity costs, rather than the basis boost, could be driving these patterns. Developers prefer cheaper land in low-value neighborhoods as land costs are not covered by the tax credit. Overall, states may not be willing to site the majority of developments in high-poverty neighborhoods (Freeman, 2004; McClure, 2006).

Developers can also receive a “basis boost” if the project is located in a Difficult Development Area (DDA) with high land, construction, and utility costs. Initially, HUD defined these areas as entire counties (or equivalents). In 2015, there were only 35 DDAs located in a

handful of states (Shelburne, 2016). However, in 2016 HUD started designating metropolitan DDAs based on ZIP Code Tabulation Areas. The revised approach is intended to incentivize the development of LIHTC housing in lower-poverty “opportunity areas” (Shelburne, 2016). The Housing and Economic Recovery Act of 2008 relieved states from the obligation of awarding basis boosts to projects in QCTs and DDAs. States may award basis boosts to other projects to make them “financially feasible.”¹⁶ State credit allocating agencies can now determine which projects benefit from a 30% increase, in addition to those in QCTs and DDAs. 9% projects not already in a QCT or DDA that the state allocating agency chooses to award up to a 30% basis boost. It is unclear whether there are any impacts because of this change.

Several other features in QAPs could also influence developers’ location choice for tax credit developments. For example, requiring developers to obtain community approval may drive tax credit projects to higher poverty neighborhoods as residents and community leaders in these neighborhoods may be less likely to successfully oppose these proposals (Khadduri, 2013). Conversely, thresholds and priorities like avoiding the concentration of affordable housing developments may directly limit poverty concentration and racial segregation.

Although the LIHTC program was established before HUD specifically promoted poverty deconcentration and racial desegregation and long before the agency tried to overcome fair housing issues, housing advocates have charged the program with these goals (Hollar & Usowski, 2007; Shamsuddin & Cross, 2020; Steil & Kelly, 2019; Tisdale, 1999). The heightened interest in housing policy is motivated by the theory that deconcentration yields improved outcomes for low-income households by relocating them to healthier and lower-poverty

¹⁶ Housing and Economic Recovery Act of 2008. IRC §42(d)(5)(B)(v). (Housing and Economic Recovery Act, 2008)

communities with more opportunities (Freddie Mac Multifamily & National Housing Trust, 2018; O'Regan, 2017; Winkler et al., 2019).

Most recently, Chetty, Hendren, and Katz (2016) provide strong causal evidence that neighborhoods affect the earning trajectory of children from low-income households in the long run. Other research from the Moving to Opportunity experiment has also found that moving to lower-poverty neighborhoods improves the well-being of individuals (Baum-Snow & Marion, 2009; Clampet-Lundquist et al., 2011; Katz et al., 2003). In recent years, several states started to encourage siting tax credit developments in “areas of opportunity,” defined either broadly or using specific metrics like low poverty rate, high quality of schools, great connection to economic opportunities, and easy access to transportation (Ellen et al., 2015). These measures of “opportunity” in the LIHTC program often draw from a broader set of definitions than those in the neighborhood effects literature.¹⁷ Overall, Ellen et al. (2015) find that states have significantly increased overall prioritization of opportunity in QAPs and improved siting outcomes. However, the relative effects of different features on the locational outcomes remain unclear.

Based on these studies, many tax credit allocation agencies now focus on expanding housing choices for low-income households in neighborhoods with higher opportunities. However, there is ongoing debate about the limits of the neighborhood opportunity concept. Prior research has shown that mobility to opportunity neighborhoods provided by subsidized housing programs does not always result in increases in subjective well-being, earning, and

¹⁷ See Chetty, Hendren, & Katz, 2016; Ellen & Turner, 1997; Lens, 2014; McClure, 2010; Sanbonmatsu et al., 2011.

neighborhood satisfaction (Blumenberg & Pierce, 2014; Lens & Gabbe, 2017). The existing body of literature on LIHTC and tenant experience is quite limited. Additional research on the role of the LIHTC program in economic mobility is needed.

Another pressing issue is that many LIHTC projects are near or at the end of their affordability period. The National Low Income Housing Coalition estimates that the affordability period for over 115,000 LIHTC units expires between 2019 and 2023 (Scally et al., 2018). Lens and Reina (2016) find that a large share of tax credit properties that ended their compliance period between 2000 and 2010 either recapitalized through the LIHTC program or continued to receive support from another federal subsidy. Administrating agencies face a new tradeoff, deciding whether to use scarce resources to recapitalize existing tax credit properties, preserve affordable housing stock, or develop new housing. The neighborhood effects of the expiration of these subsidies are unclear.

The 4% program is a relatively unexamined aspect of the LIHTC program. Research on siting patterns and outcomes of LIHTC properties (*for example*, Diamond & McQuade, 2016; Ellen et al., 2009, 2016; Freedman & McGavock, 2015) do not often differentiate between the 4% and the 9% investments. While projects funded by the 4% credit must meet all basic LIHTC requirements, they do not count toward the state yearly per capita cap and often do not go through competitive allocation processes. Thus, findings on the siting priorities and project proposals of the 9% tax credit projects (*for example*, Ellen et al., 2015, 2016; Lang, 2012; Walter et al., 2018) may not apply to the 4% projects.

Overview of Chapters

To date, there is little knowledge on the siting outcomes of projects enabled by the federal 4% tax credit. It was unclear what state incentives exist within the 4% LIHTC program to further goals of poverty deconcentration, racial integration, and assisting low-income tenants to reach areas of opportunities prior to my dissertation. Existing research often aggregates the 9% and the 4% programs in their analyses. Other studies focus on the 9% program exclusively. The 4% program is flying under the researchers' radar. I fill this gap and examines how well the 4% federal low-income housing tax credit works to produce affordable housing units in this dissertation project. I evaluate the outcomes of the 4% credit program compared to those of the 9% tax credit program and other subsidized housing programs in the United States. I start the dissertation with an introduction to the LIHTC program and a literature review section.

This dissertation comprises three chapters to answer three related research questions on the LIHTC 4% program and its differences with the 9% program and other subsidized housing programs in the United States. Chapter 1 examines how state policy levers drive 4% tax credit siting outcomes with particular attention to the role in poverty deconcentration, racial integration, and access to higher-opportunity neighborhoods. I first examine policy levers that incentivize racial and economic desegregation and access to opportunity in all 50 states. I then spotlight two allocation cycles: 2005 and 2016 with siting outcomes from 2005 to 2007 and from 2016 to 2018. While state priorities toward opportunity are often optional, unclear, and unenforceable for the 4% program, these prioritizations do incentivize investments into higher-opportunity neighborhoods for the 9% program.

Chapter 2 examines the efficiency of the 4% program in affecting neighborhood poverty concentration and racial segregation. I quantitatively describe the locations of all developments enabled by the 4% tax credit and those of the 9% program and other housing subsidies. I then assess whether there is any evidence that the 4% tax credit program is exacerbating poverty, increasing racial concentration, or triggering improvements in the long term through a dynamic panel model with structural equations. While the 4% program does not exacerbate poverty concentration and racial segregation at the neighborhood level, it also does little to reduce poverty concentration and racial segregation. Such LIHTC investment may have sparked some neighborhood revitalization, but the effect is small.

Chapter 3 assesses the current spatial distribution of low-income tenants living in 4% tax credit units and whether the program helps these households reach neighborhoods with higher opportunities. I compare a set of neighborhood opportunity measures where households in 4% tax credit units with those of where other subsidized households and low-income renter households live. My finding indicates that the non-competitive 4% program is able to place low-income households into neighborhoods similar to those of the competitive 9% program. However, the qualities of tax credit neighborhoods are still far behind those of where non-poor renters live. I also examine whether the 4% program improves or worsens low-income households' ability to access neighborhood opportunities by linking the same household across years in a consumer database. Both 4% and 9% residents experience an increase in their neighborhood poverty exposure and decreases in many neighborhood amenities and resources on average.

At the end of this dissertation, I summarize my findings and propose policy recommendations. The LIHTC program is working in many ways, but it also needs improvement. The 4% program is flying under the radar of policymakers and housing officials. This program can become an important tool in creating housing and neighborhood opportunities for all through the use of Qualified Allocation Plans. States need to have stronger and more persistent locational incentives to overcome historic patterns of income and racial segregation. States should also carefully craft plans to balance the sometimes competing objectives of neighborhood revitalization and assisting tenants in reaching neighborhoods with higher opportunities in the 4% program. Findings and recommendations from this dissertation project contribute to the ongoing debate on the future of U.S. housing policy, especially on the efficacy of supply-side housing subsidies.

Chapter 1 - State Priorities and Qualified Allocation Plans

This chapter examines the relationship between Qualified Allocation Plans (QAPs) and siting outcomes with particular attention to the role in poverty deconcentration, racial integration, and access to higher-opportunity neighborhoods. It is expected that allocation mechanisms and outcomes of the 4% credit may differ significantly from the 9% credit due to their tax benefits and competitiveness. As 4% applications do not uniformly require competitive reviews, prioritizations toward poverty deconcentration, racial integration, and siting in high opportunity neighborhoods may not apply. While fair housing advocates argue that affordable housing should generally be placed in high opportunity areas to improve socioeconomic mobility of low-income households (Dawkins, 2013; McClure et al., 2020; Orfield, 2005; Sanbonmatsu et al., 2011; Shamsuddin & Cross, 2020), community-oriented development supporters believe that investment should be made in struggling neighborhoods to create additional low-cost housing and revitalize disadvantaged communities (Baum-Snow & Marion, 2009; Diamond & McQuade, 2016; Ellen et al., 2009; Shamsuddin & Cross, 2020). It is important to understand how states leverage 4% credit to address housing affordability and balance sometimes competing housing goals at the same time.

What state priorities exist in influencing the spatial distribution of poverty and opportunity of tax credit projects? This chapter tries to identify potential channels of influence on project siting towards poverty deconcentration, racial integration, and access to opportunity neighborhoods in the 4% program. It also updates prior knowledge on the 9% credit. Regulatory documents are thoroughly examined using text analysis. Changes in priorities are then correlated with changes in siting outcomes between 2005-2007 and 2016-2018. The result shows that siting

outcomes have worsened for new developments enabled by the 4% credit. Meanwhile, newly constructed 9% units are increasingly sited in lower-poverty neighborhoods. Changes in policy levers only correlate with changes in siting outcomes of 4% developments with regard to accessing amenities. Locational priorities have much stronger correlations with the outcomes of 9% developments. States may have missed a great opportunity in helping low-income households reaching opportunities using the 4% credit.

Research Strategy

This chapter first examines policy levers that incentivize racial and economic desegregation and access to opportunity for LIHTC tenants in all 50 states. A cross-sectional text analysis of all state QAPs is carried out. Since a proposal for the 4% credit requires other significant funding sources (for example, a tax-exempt bond,) it is worth documenting the level of coordination between allocating tax credit and awarding other financings. There are three components in analyzing allocation regulations. First, documenting the coordination among bond regulations, QAP, and other general housing plans in guiding the 4% tax credit allocation. Second, summarizing prioritizations toward racial and economic desegregation and access to opportunity for low-income households in these documents. Lastly, detailing how states balance preservation and investment in blighted neighborhoods with prioritization towards areas of opportunity.

This chapter spotlights two allocation cycles: 2005 and 2016 with siting outcomes from 2005 to 2007 and from 2016 to 2018. Most states issue QAPs annually, but they do not update bond legislations frequently. The most up-to-date tax-exempt bond regulation covering 2005 and

2016 are used in the analysis. Using funding cycles from 2005 captures regulatory activities before the Great Recession. 2016 to 2018 are the most recent allocation cycles.

To summarize how states incentivize racial and economic desegregation and access to opportunity neighborhoods in awarding tax credit to affordable housing developers, policy levers in QAPs and bond regulations are categorized under six categories. The first five categories are adapted from the framework developed by Ellen, Horn, Kuai, Pazuniak, & Williams (2015): 1) policies that direct siting in high-opportunity neighborhoods, 2) policies that encourage siting near amenities, 3) policies that require approval by the community, 4) policies that further investment in blighted neighborhoods, 5) policies that avoid concentrations of affordable housing. An additional category of changes in set-aside is added: 6) changes in set-aside and policies that prioritize preservation.

This section further illustrates these categories. 1) High-opportunity neighborhoods: prioritizing developments to site in high-opportunity neighborhoods. States define an “opportunity” area using criteria like low poverty rate, access to quality schools, and easy access to transit and jobs.¹⁸ 2) Access to amenities: directing siting near schools, job centers, public transit, and away from environmental hazards. The caveat is that neighborhoods with good transit access tend to be located in dense urban neighborhoods that also tend to have higher poverty rates (Grengs, 2001, 2005). The overall neighborhood effects from ensuring transit access to low-income households are none or unclear (Blumenberg et al., 2015; Ong & Houston, 2002; Shen, 2001). I then dissect this category into transit and non-transit measures. 3) Approval

¹⁸ The definitions of “opportunity” vary by state and are documented in the appendix.

by the community: soliciting approval by the community. The federal statute requires that a housing agency provides notice to the local government for comment. States may require full approval by the community. A development may be more likely to be sited in resource-poor areas with less local resistance.¹⁹ 4) Furthering investment in blighted neighborhoods: prioritizing investment in revitalizing blighted neighborhoods, that often have deteriorated structures and high poverty rates. The federal statute offers enhanced credit and a preference for locating in these neighborhoods (through the designation of QCTs). States may go beyond and incentivize siting in such neighborhoods. 5) Avoiding concentrations of affordable housing: preventing new affordable units built around existing low-income projects. Some states have adopted such a requirement to deconcentrate poverty and decrease racial segregation. 6) Set-aside and preservation efforts: reserving credit for certain targeted population or project type. A state may set aside certain credit to support various construction activities (*e.g.*, new construction, preservation, and rehabilitation) or to serve different populations (*e.g.*, homeless, seniors, and veterans). Set-asides only apply to 9% allocations. However, set-aside can alter the dynamics between 4% and 9% developments. If less 9% credit is set aside for new projects, more 4% credit is likely to be used to fill the gap for new projects. 4% applications often are not subject to competitive reviews and prioritizations.

Each policy change between 2005 and 2016 is categorized into “a minor change” or “a major change” along with the direction of change. A detailed scheme of categorization is

¹⁹ A proposal may face backlash from residents and officials. Residents and community leaders in lower-poverty neighborhoods are more likely to successfully oppose developments (Khadduri, 2013). Prior research also finds strong opposition in affluent and "socially-homogenous" areas with a high concentration of owner-occupied single-family homes (Davison et al., 2016; Galster et al., 2003; Scally & Tighe, 2015). Residents often fear that affordable housing may reduce the value of their property (Ellen et al., 2007; Nguyen, 2005).

outlined later. A positive change, in theory, increases units sited in low-poverty, low-minority, or opportunity-rich neighborhoods. Policy changes are correlated with changes in the characteristics of sited neighborhoods between 2005-2007 and 2016-2018 with a state-level regression model. It attempts to identify which policy lever may have improved siting outcomes for the 4% and the 9% programs. To verify these results, a tract-level regression is used as a robustness check.

Data

The analysis begins with creating a unique database identifying all policies influencing location choices of tax credit developments from both state QAPs and tax-exempt bond regulations across all 50 states in 2005 and 2016. In order to do so, these documents are collected from state housing financing agencies and the Affordable Housing Resource Center by Novogradac & Company LLP.²⁰

This chapter also uses HUD's LIHTC Project Database for tax credit allocations made in 2005, 2006, and 2007. However, HUD's database only includes projects that have been placed in service. The analysis thus supplements allocation information from state credit allocating agencies for allocations made in 2016, 2017, and 2018. A list of state tax credit agencies and bond issuers can be found in Appendix A-1.²¹ Appendix C-1 shows the numbers of projects by

²⁰ The analysis will exclude all sub-allocating agencies in Minnesota, New York, and Illinois. These agencies receive a sub-allocation of tax credit from the state and award only to a specific region or city within the state. For bond allocations, this study focuses on state-level bond regulators and issuers. If a state updates QAP bi-yearly and no relevant documents for 2005 and 2016 are available, documents in 2005 and 2015 are used as substitutes. Affordable Housing Resource Center can be assessed at <https://www.novoco.com/resource-centers/affordable-housing-tax-credits>.

²¹ Minnesota and New York have sub-allocating agencies which allocate on behalf of the State in certain geographic areas. The analyses carried out in this study exclude all sub-allocators.

state included in the analysis.²² Each project is geocoded to a Census Tract, which serves as the proxy for a neighborhood. Demographic variables are calculated from the American Community Survey (ACS) 5-year estimates (2005-2009 and 2012-2016).²³

Analysis

There are three main components in this section. First, I present text analysis of state programs and how they have changed over time. Then I analyze siting changes in tax credit units by neighborhood type. Lastly, I investigate any associations between locational prioritization and siting outcomes. To start, the first analysis includes textual analysis and summary of state allocation policies. This process creates a unique database identifying all policies could influence locational choices of LIHTC developments from state QAPs and tax-exempt bond regulations in all 50 states. Table 1-1 shows the summary of allocation locational priorities in 2016.

Basic Regulatory Frameworks

There are five structures that a state regulates the allocation process for the 4% credit: 1) a state regulates through the tax-exempt bond regulation and automatically awards the 4% credit to a bond project to boost the value of the tax-exempt bond authority; 2) a state directs a bond project wishing to receive the 4% credit to its QAP; 3) a state implements a combined administrative process; 4) a state allocates tax-exempt bond and tax credit separately; 5) a state

²² Maryland has combined allocations in 2017 and 2018. Rhode Island does not have 2018 bond cap in early 2019. Maine and Mississippi did not respond to public records requests.

²³ Data from the American Community Survey 2005-2009 are weighed into 2010 tract boundaries from 2000 geographies using a crosswalk compiled by the American Communities Project at Brown University. Data files can be accessed at <https://s4.ad.brown.edu/projects/diversity/Researcher/LTBDDload/DataList.aspx>.

has no clear state-specific requirements in awarding bond cap and tax credit. As every state has a mechanism which scores and/or ranks 9% applications, only 21 states utilize such a method (with much lower thresholds) for allocating the 4% credit.

Most states use QAPs to guide developers' locational choice of 4% projects as well. Thirty-eight states have relevant policies regarding poverty deconcentration, racial integration, and opportunity neighborhoods for 4% applications in 2016. In comparison, all states have at least one such policy in the 9% program. Twenty-six out of 39 states use only QAPs to regulate 4% allocations. Eleven states have policies in both QAPs and bond regulations, all with no contradictions. Twelve states have no locational policies for 4% projects in 2016. Structures do not differ from 2005 to 2016.

States use three main ways to influence a developer's choice of the neighborhood: a) threshold determination, b) incentive, and c) preference. *Threshold* determination typically requires a developer to satisfy certain requirements before an application is considered. These thresholds often apply to both 9% and 4% applications. For example, many states require developers to obtain proper community endorsement or local approval. Massachusetts asks developers to provide evidence of local support as a threshold. In Texas, new construction or adaptive reuse development cannot be proposed in a tract with more than 20% tax credit units per total households. Threshold determination is common in two categories: Approval by the Community and Avoiding Concentrations of Affordable Housing.

Preference determination gives preference to a project that fulfills certain policy goals. For example, a state can give preferential consideration to a new construction project located in high-opportunity neighborhoods that furthers its fair housing goals of poverty deconcentration

and racial integration. A preference clause is often seen in a general housing plan. For example, Georgia has a state housing priority to “[increase] access to thriving communities through outreach and development in areas of opportunity.” However, there are often no concrete metrics attached to a 4% application. It is unclear how a state operationalizes such a preference without providing other forms of incentives. In contrast, states can translate such a preference into meaningful bonus points under a scoring system for a 9% application.

A state can offer *incentives*, such as bonus points under a scoring system, when a proposal meets certain priorities. For example, Pennsylvania offers a project located in an area of opportunity up to 18 points. Incentives are commonly used in the following categories: High-Opportunity Neighborhoods, Access to Amenities, and Furthering Investment in Blighted Neighborhoods. Although securing as many points as possible is critical in obtaining funding under the competitive 9% program, these incentives are rather optional to many 4% applicants. With increased competition for the 4% credit, California, Texas, and Kentucky are the first few states to implement scoring and ranking for 4% applications. In these cases, incentives become more important to developers as they offer an advantage in securing funding. Some states apply the same scoring system designed for the 9% program to the 4% program, but with a much lower passing score. Virginia requires at least 325 points for a 4% application before any further consideration while requires 425 points for a 9% application to be considered in ranking in 2016. Overall, a locational incentive is more meaningful in the 9% allocation process because of the competitive nature.

A *tie-breaker* is another form of prioritization but is used infrequently. Tie-breakers can determine the fate of two or more applications with the same score in the 9% allocation process. For example, Alabama has a tie-breaker giving priority to a development located in a QCT. California has an elaborate tie-breaker system to favor projects with sound financing and specific siting locations.

Categories of Locational Priorities

There is a great variation on how states prioritize investment towards poverty deconcentration, racial integration, and access to opportunity for low-income households. As discussed earlier, locational priorities are classified into five main categories: a) high-opportunity neighborhoods, b) proximity to amenities, c) approval by the community, d) furthering investment in blighted neighborhoods, and e) avoiding concentrations of affordable housing. The full lists of state policies by category can be reviewed in Appendix D-1 to Appendix D-5. For the 2016 funding cycle, a summary with additional information on the determination of each policy is presented in Table 1-1. The additional category for changes in set-aside is presented in Appendix D-6. The determination, which includes the form and strength of each policy incentive, is discussed in the section after.

High-Opportunity Neighborhoods: states have increased prioritization towards opportunity over the years. Twenty-three states incentivize 4% projects to be located in high-opportunity neighborhoods in 2016, up from nine states in 2005. In comparison, 35 states have priorities towards opportunity in 2016 for 9% projects, up from 22 states in 2005. Policies set for 9% proposals are generally greater in strength than for the 4% applications. More discussion

about the form and strength of policies is in the next section. Prioritization towards opportunity could potentially place more projects in lower-poverty neighborhoods and away from concentrated poverty. In order to qualify as a high-opportunity area, states often include criteria like low poverty rate, quality schools, and/or transit and job center access. These definitions vary by state (*see* Appendix B - State Allocation Mechanism Notes). For example, Indiana gives bonus points to developments which are in close proximity to “growth opportunities such as quality education institutions and livable wages.” Kentucky has determined that a tract with a poverty rate of less than 10% is an area of opportunity. A number of states also use composite opportunity indices which include neighborhood poverty rate, number of jobs, educational quality, crime exposure, and other variables into consideration.

Access to Amenities: Thirty-one states set thresholds or give incentives for locating near high-performing schools, job centers, public transit, and away from environmental hazards in 2016 for 4% developments. Access criterion is also common among 9% applications with 41 states have such prioritization in 2016. Ensuring more access for tenants could potentially site more projects in lower-poverty neighborhoods with better amenities and away from poverty-concentrated. For example, applicants in Washington give incentives for location efficient projects which include requirements for transit access, walkability, and other neighborhood amenities in 2016. The access criterion is then further divided into transportation or non-transportation related policies. Non-transportation measure is arguably having a much clearer effect in terms of providing neighborhood opportunities to low-income tenants. Almost three-thirds of the states that have access criterion include some sort of transportation related incentives in both years. As neighborhoods with good transit access are often located in dense

central city area with higher poverty and transit access doesn't always connect with low-wage jobs, the overall effect from ensuring transit access to low-income households are unclear.

Approval by the Community: the federal statute requires that housing agencies provide notice to the local government and provide a reasonable opportunity for comment. However, 21 states often go beyond this mandate for 4% proposals. States often give extra points to encourage developers to secure additional support from local government, communities, and non-profit organizations. As a result, some proposals may face stronger backlash in certain types of neighborhoods. Residents in low-poverty neighborhoods may fear plunges in their property values after affordable housing is built. Some states justify the additional requirement by stating that having community support can potentially reduce the "NIMBY" issues.²⁴ For example, Alabama Housing Finance Authority clearly states in its QAP that "while a lack of expressed support does not mean that the project is necessarily opposed by the community, consideration is given to projects which are able to demonstrate support from the communities they will ultimately serve." On the other hand, states have reduced barriers to requiring community approval for 9% tax credit proposals. Twenty-six states still have additional requirements in obtaining community approvals for any 9% proposals in 2016, down from 31 states in 2005.

Furthering Investment in Blighted Neighborhoods: twenty-six have priorities encouraging the use of 4% tax credit and tax-exempt bond in investment in blighted neighborhoods, up from 19 in 2005 for 4% applications. The federal tax credit program provides a higher credit and a statutory preference favoring projects in QCTs (and Difficult Development Areas.)²⁵ For

²⁴ NIMBY stands for "Not-In-My-Backyard." It is often a characterization of opposition by residents to proposed developments in their local area.

²⁵ As discussed earlier, states can also award discretionary boosts to make projects financially feasible after 2008.

example, California awards additional points for tax-exempt bond projects located in Community Revitalization Areas or QCTs. In addition, many states use tax credit to incentivize investment in blighted neighborhoods by prioritizing projects that preserve existing affordable units. Delaware lists preservation for existing assisted affordable housing as one of three top housing priorities and offers bonus points for locating within a Community Revitalization Plan. Such prioritization could potentially cluster more projects in higher poverty neighborhoods and further increase poverty concentration. Almost all states offer more meaningful incentives in allocating 9% tax credit in furthering investment in blighted neighborhoods. This can be understood as an interpretation and operationalization of the federally mandated preference to projects located in QCTs by the state.²⁶ In 2016, a few states start to explicitly prioritize the 4% credit for preservation and rehabilitation purposes. For example, Georgia Department of Community Affairs states that it would utilize 4% bond allocation to the maximum extent possible for preservation of affordable housing.

Avoiding Concentrations of Affordable Housing: critics blame state policies for furthering concentrating poverty by building new low-income units around existing affordable rental projects. Fourteen states now only allow or give preferential treatment for 4% projects that are not located near other existing affordable housing projects in 2016, up from five in 2005. For example, Illinois' tax-exempt bond applicants should all include a preliminary project assessment of affordable rental concentrations. For the 9% program, 22 states have such a provision in 2005 and 28 states have it in 2016.

²⁶ Federal mandate gives preference to projects located in QCTs which contribute to a concerted community revitalization plan. See 26 U.S.C. § 42(m)(1)(B).

Table 1-1: Summary for State Priorities in 4% Tax Credit Program, 2016

State	4% Scoring /Ranking	Priorities Included In	High-Opportunity Neighborhoods	Access to Amenities	Approval by the Community	Furthering Investment in Blighted Neighborhoods	Avoiding Concentrations of Affordable Housing
Alabama		QAP			Preference		Threshold
Alaska		QAP	Incentive, Threshold		Threshold	Incentive	
Arizona		QAP			Threshold		
Arkansas		QAP & TEB			Threshold		
California	*	TEB		Incentive	Threshold	Incentive	
Colorado	*	QAP & TEB		Incentive		Incentive	
Connecticut	*	QAP	Threshold	Threshold			
Delaware		QAP & TEB	Incentive	Incentive	Incentive	Incentive	
Florida		QAP				Threshold	
Georgia		QAP	Preference		Preference, Threshold		
Hawaii		-					
Idaho	*	QAP	Incentive	Incentive		Incentive	
Illinois		QAP & TEB	Threshold, Preference		Threshold		Threshold
Indiana	*	QAP & TEB	Incentive, Preference	Incentive		Preference	Incentive
Iowa		-					
Kansas		QAP	Preference		Threshold		
Kentucky	*	QAP & TEB	Incentive	Incentive	Threshold	Threshold, Incentive	
Louisiana		QAP	Incentive	Incentive		Incentive	Threshold
Maine	*	QAP & TEB	Preference, Incentive	Preference, Incentive			
Maryland		QAP & TEB	Incentive	Incentive		Incentive	Incentive
Massachusetts		QAP	Preference	Preference	Threshold	Preference	
Michigan	*	QAP		Incentive		Preference, Incentive	
Minnesota	*	QAP	Incentive			Incentive	
Mississippi		QAP			Threshold		

Missouri	*	QAP	Preference	Preference	Preference	Preference	
Montana	*	QAP		Incentive	Incentive	Incentive	Preference
Nebraska		QAP		Preference			
Nevada		-					
New Hampshire		-					
New Jersey		-					
New Mexico	*	QAP		Incentive	Threshold	Incentive	
New York	*	QAP	Incentive	Incentive		Incentive	Incentive
North Carolina	*	QAP	Incentive	Incentive			Preference
North Dakota		QAP			Threshold		
Ohio		-					
Oklahoma		QAP			Threshold		
Oregon		-					
Pennsylvania	*	QAP & TEB	Incentive	Incentive	Preference	Incentive	
Rhode Island		QAP	Preference			Preference	
South Carolina		-					
South Dakota		-					
Tennessee	*	QAP & TEB	Incentive			Incentive	
Texas	*	QAP		Threshold	Incentive	Incentive	Threshold
Utah		-					
Vermont		-					
Virginia	*	QAP	Incentive		Incentive	Incentive	Incentive
Washington	*	QAP & TEB	Preference	Incentive		Incentive	
West Virginia		-					
Wisconsin	*	QAP	Incentive	Incentive	Incentive	Incentive	
Wyoming	*	QAP		Incentive	Incentive	Incentive	Incentive

Sources: State Qualified Allocation Plans, tax-exempt bond regulations, and other related documents (2016).

Note: QAP = Qualified Allocation Plan; TEB = Tax-Exempt Bond.

Changes in Set-Asides: changes in set-aside can potentially alter the siting pattern too. It exerts a direct effect on the 9% program and a spillover effect on the 4% program. Intuitively, increasing in set-aside for preservation (in the 9% program) can lead to more units being sited in more disadvantaged neighborhoods. It also affects the selection of *new* projects. If fewer resource is available for *new units*, competition rises and improves the siting of *new* 9% units as successful applicants need to score higher. Changes in set-aside also affect the siting of 4% units. For example, if fewer 9% credits are allocated for preservation, more 4% credits are used as substitutes. As the 4% program is increasingly more “competitive,” set-aside for 9% units potentially has larger influence on the siting of 4% units. In theory, fewer resource reserved for new constructions leads to more competition and better siting outcomes towards poverty deconcentration and racial integration as long as states prioritize locational opportunities. Thirty-seven states have changes in set-asides for preservation and rehabilitation from 2005 to 2016.

Determination of Locational Priorities

Through QAPs and tax-exempt bond regulations, states often use three main ways to influence a developer’s choice of neighborhood when applying their priorities: a) threshold determination, b) incentive, and c) preference. Table 1-1 presents these classifications by state. Threshold and preference are set for both the 9% and 4% applications. Since 9% applications are almost always scored and/or ranked, incentives are used more widely for allocating the 9% credit. Overall, a locational incentive is more meaningful in the 9% allocation process because of its competitive nature. These determinations do not apply for the set-asides.

Threshold determination: states typically require a developer to satisfy certain minimum requirements before a tax credit application is considered. These thresholds are often applicable to both 9% and 4% applications. For example, many states require developers to obtain proper community endorsement or local approval in the application. Massachusetts asks developers to provide evidence of local support and encourages the project to obtain full local support. Texas places limitations on developments in certain Census Tracts. For example, a new construction or adaptive reuse of a development cannot be proposed in a Census Tract with more than 20% housing tax credit units per total households. Threshold determination is common in two categories: Approval by the Community and Avoiding Concentrations of Affordable Housing.

Preference determination: a state can give preference to a project which fulfills its housing goals. State sometimes gives preferable treatment to new construction projects located in higher opportunity neighborhoods that further fair housing goals of poverty deconcentration and racial integration. Preference is occasionally drafted in a general housing statement or plan with no concrete metrics or selection criteria for the 4% applications. It is unclear how a state enforces its housing statement. For example, Georgia has a housing priority to “[increase] access to thriving communities through outreach and development in areas of opportunity.” States often translate this into meaningful and valuable points under a scoring system for the 9% applications.

Incentive determination: state can offer an incentive to a developer in meeting a priority. Such an incentive gives applicant an advantage in securing funding, frequently in the form of awarding points under a scoring system. For example, Pennsylvania offers a project located in an area of opportunity up to 18 points. Incentives are commonly included in the following categories: High-Opportunity Neighborhoods, Access to Amenities, and Furthering Investment

in Blighted Neighborhoods. Although securing as many incentives as possible are critical in obtaining the 9% tax credit, incentives are rather optional under the 4% program. With increased competition among the 4% credits and bond applicants, California, Texas, and Kentucky are the first states to implement a scoring *and* ranking system, in which locational incentives are becoming more important to developers. Some states have established a scoring system without ranking. States also apply the same scoring system designed for the 9% program to the 4% program, but with a much lower threshold. Thus, locational incentives become more important. Virginia requires at least 325 points for a 4% proposal with tax-exempt bond before any further consideration in 2016. Virginia requires 425 points for a 9% proposal to be considered.

Competing State Objectives

The design of the LIHTC program leads to two competing objectives: 1) siting in neighborhoods that provide tenants with better opportunity, and 2) furthering new investment in blighted neighborhoods by creating new affordable units or preserving existing housing stock. The conflicting paradigm is evident in states' housing regulations, but they tilt toward the latter, community development-oriented objective in recent years. States often have much stronger incentives in place for pushing development into poor neighborhoods than into high opportunity areas. For example, some states require developers to obtain community approval while also provide incentives for siting in an opportunity neighborhood at the same time. In theory, requiring community approval could potentially drive a tax credit development into a high-poverty neighborhood with no community objection and invest in a blighted neighborhood. On the other hand, providing incentives for siting in an opportunity neighborhood could potentially

encourage the same development to be sited in a low-poverty neighborhood. Kentucky awards bonus points if a project is located in an area of opportunity, however, a letter of support is required for any projects as a threshold. Thus, the community development-oriented objective is more easily achieved in Kentucky due to regulations. In addition, federal statute allows credit boost for siting in QCTs, which could already drive some developments into higher poverty neighborhoods. After 2008, states can also award such credit boost to projects located outside QCTs and DDAs. Some states, however, are offering additional incentives for projects located in QCTs at the same as giving incentives for developments in higher opportunity neighborhoods. In terms of the strength of regulations, states have included priorities for tax credit projects to reach opportunity areas, but most of these priorities are in the forms of weak incentive or obscure preference. In addition to competing policy objectives for investing in blighted neighborhoods and assisting tenants reach neighborhoods of opportunity, the conflicting goals of the federal tax credit program is also obvious in the setup of set-asides (for the 9% credit pool). On average, states have increased set-aside for preservation and rehabilitation from 2005 to 2016.

As 4% tax credit is used for both new construction and preservation, the paradigm of conflicting objectives is even more evident. A number of states (namely Connecticut, Georgia, Maryland, Massachusetts, Missouri, North Carolina, Pennsylvania, Texas, and Washington) are indicating their preference to utilize 4% credit for preservation and rehabilitation of existing housing in 2016. The share of 4% acquisition and rehabilitation low-income units increased from 27.0% in 2005-2007 to 31.7% in 2016-2018. States also have a considerable focus on furthering investment in blighted neighborhoods using the 4% credit. Nineteen states award bonus points for locating or preserving low-income units in blighted neighborhoods and five states have stated

preference towards investment in these neighborhoods in 2016 for 4% applications. Together with fewer incentives for siting new units in high-opportunity areas, this could push even more 4% developments to QCTs and lower-opportunity neighborhoods. Thus, policies are generally geared towards awarding 4% credit with tax-exempt bond in higher poverty neighborhoods.

Furthermore, currently no set-aside of any kinds have been implemented in the allocation of 4% tax credit. As states have increased set-aside for preservation and rehabilitation from 2005 to 2016 for the 9% program, this could potentially leave more resource in the 4% pool for non-competitive new developments. Increased resource means decreased competition among new developments applicants applying for the 4% credit. There is a potential negative spillover effect in siting outcomes for the 4% program.

Overall, there are more deliberations into the locational incentives in the 9% program than in the 4% program. For example, different incentives under a category for any 9% proposals are often weighted, tiered, and/or grouped under different priorities to generate an expected number of proposed projects across goals. These incentives are also designed to be measurable and enforceable. Besides, 9% allocations are subject to set-asides that quantitatively shape tax credit investment according to a predetermined distribution. In order to have a conscious design for the 4% tax credit to serve the needs of preserving the existing stock of affordable housing and promoting revitalization, states may have to deliberately list these goals and avoid the pitfalls of concentrated poverty and other negative externalities. If the sometimes competing fair housing and community development goals are both necessary, states may be more explicit about allocating the 4% credit into two types to balance these goals.

Distribution of LIHTC Projects and Low-Income Units

Table 1-2 presents the overall distribution of tax credit units by type, geographic areas, and metropolitan area sizes. During the period of 2005-2007, 45% of the low-income units are in developments enabled by the 4% credit. In the later period of 2016-2018, the share increased to 52%. About 55% of units are newly constructed during both periods. Total low-income units funded by the tax credit program have decreased slightly from 331,206 to 323,975. The South region has the most units in both periods and the Northeast region has the fewest units. More than half of the units are located in large metropolitan areas with population over one million.

Table 1-2: Distribution of Low-Income Tax Credit Units by Type and Region, 2005-2007 and 2016-2018

	2005-2007		2016-2018	
	Developments	Units	Developments	Units
Construction Type				
4% New Constructions	550	59,745	557	64,223
4% Rehabilitation	725	89,500	837	102,625
9% New Constructions	2,104	119,751	1,894	117,388
9% Rehabilitation	834	62,210	645	39,739
Geographic Region				
Midwest	1084	71552	826	52574
Northeast	544	33092	380	29929
South	1525	140516	1662	146898
West	1060	86046	1065	94574
Metropolitan Area Size				
>1 Million Population	1,679	169,874	1,876	184,637
250,000~1 Million Population	832	65,280	877	72,670
<250,000 Population	496	31,508	421	26,396
Total	4,213	331,206	3,933	323,975

Sources: HUD LIHTC Project Database, state allocation data, American Community Survey (2005-2009 and 2012-2016), and Census (2010).

Note: Geographic region uses classifications designated by the Census Bureau. Metropolitan (statistical) area population are calculated from the 2010 Census. HUD = Department of Housing and Urban Development, LIHTC = Low-Income Housing Tax Credit.

Table 1-3: Distribution of New Construction Tax Credit Units, 2005-2007 and 2016-2018

(Shares)	4% Tax Credit			9% Tax Credit		
	2005-2007	2016-2018	Change	2005-2007	2016-2018	Change
<10% Neighborhood Poverty Rate	31.1	27.9	-3.2	24.6	27.5	2.9
>30% Neighborhood Poverty Rate	12.0	15.7	3.7	22.5	18.9	-3.6
High Minority Share (White <10%)	16.2	18.7	2.5	20.4	19.3	-1.1
(Percents)						
Average Neighborhood Poverty Rate	10.0	17.3	7.3	17.4	11.2	-6.3

Sources: HUD LIHTC Project Database, state allocation data, and American Community Survey (2005-2009 and 2012-2016). HUD = Department of Housing and Urban Development, LIHTC = Low-Income Housing Tax Credit.

The next set of analysis focuses on new construction units only to explore how QAPs could influence siting decisions. Table 1-3 depicts the neighborhood demographics where newly constructed low-income units are located in 2005-2007 and in 2016-2018. First of all, newly constructed units enabled by the 4% credit are increasingly located in higher-poverty neighborhoods. The share of units located in low-poverty neighborhoods (tract poverty rate less than 10%) decreases from 31.1% to 27.9% while the share located in high-poverty neighborhoods (poverty rate greater than 30%) increases from 12.0% to 15.7%. The average weighed neighborhood poverty rate, which can also be interpreted as the average exposure to poverty, increases from 16.2% to 18.7% from 2005-2007 to 2016-2018. In addition, 4% units are more likely to be located in predominantly minority neighborhoods (those tracts with non-Hispanic White shares of less than 10%) in 2016-2018. The siting pattern for 9% units has improved from 2005-2007 to 2016-2018. The average poverty exposure dropped slightly from 20.4% in 2005-2007 to 19.3% in 2016-2018. Fewer units are located in predominately minority neighborhoods during 2016-2018. This siting outcome is potentially due to the increasing competitiveness of the 9% credit and weak locational prioritization within the 4% program.

Table 1-4: Locational Priority Change Index, 2005 to 2016

State	High-Opportunity Neighborhoods		Access to Amenities				Approval by the Community		Furthering Investment in Blighted Neighborhoods		Avoiding Concentrations of Affordable Housing		Aggregate Index			
	4%	9%	w/ Transit		w/o Transit		4% 9%		4% 9%		4% 9%		w/ Transit		w/o Transit	
			4%	9%	4%	9%	4%	9%	4%	9%	4%	9%	4%	9%	4%	9%
Alabama	0	2	0	0	0	0	0	0	-1	-1	0	2	-1	3	-1	3
Alaska	1	1	0	0	0	0	1	1	0	0	0	0	2	2	2	2
Arizona	0	0	0	1	0	0	0	0	0	1	0	2	0	4	0	3
Arkansas	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	2
California	0	-1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Colorado	0	0	2	2	1	1	0	0	1	1	0	0	3	3	2	2
Connecticut	1	1	1	0	1	0	0	-2	1	1	0	0	3	0	3	0
Delaware	0	0	0	0	0	0	0	1	0	-1	-2	-2	-2	-2	-2	-2
Florida	0	2	0	0	0	0	0	0	1	0	0	0	1	2	1	2
Georgia	1	2	0	1	0	1	1	1	-1	0	0	0	1	4	1	4
Hawaii	0	1	0	1	0	1	0	0	0	0	0	0	0	2	0	2
Idaho	1	1	2	2	2	2	0	0	0	0	-2	-2	1	1	1	1
Illinois	1	2	1	1	1	1	-1	-1	0	-1	1	0	2	1	2	1
Indiana	2	1	2	2	2	2	2	2	0	0	2	0	8	5	8	5
Iowa	0	2	0	0	0	0	0	0	0	2	0	2	0	6	0	6
Kansas	1	1	0	0	0	0	0	0	0	0	0	-2	1	-1	1	-1
Kentucky	1	1	2	2	1	1	0	0	0	1	0	0	3	4	2	3
Louisiana	1	0	1	1	1	1	0	2	0	1	0	0	2	4	2	4
Maine	1	2	0	0	0	0	0	0	0	2	0	0	1	4	1	4
Maryland	2	2	1	1	0	0	2	2	0	0	2	0	7	5	6	4
Massachusetts	0	1	0	0	0	0	0	0	0	0	0	-2	0	-1	0	-1
Michigan	0	-1	1	1	0	0	0	0	-1	0	0	-2	0	-2	-1	-3
Minnesota	-1	-1	-1	-1	-1	-1	0	0	0	0	1	1	-1	-1	-1	-1

Mississippi	0	2	1	1	1	1	-2	-2	0	-1	2	2	1	2	1	2
Missouri	1	1	1	1	1	1	-1	-1	-1	0	1	1	1	2	1	2
Montana	0	0	0	0	0	0	0	0	-1	-1	1	1	0	0	0	0
Nebraska	0	1	0	0	0	0	0	1	0	0	0	0	0	2	0	2
Nevada	0	-1	0	2	0	1	0	0	-1	0	0	0	-1	1	-1	0
New Hampshire	0	0	0	0	0	0	0	2	0	1	0	2	0	5	0	5
New Jersey	0	0	0	1	0	1	0	0	0	1	0	0	0	2	0	2
New Mexico	0	0	2	2	1	1	0	0	0	0	0	0	2	2	1	1
New York	2	2	1	0	1	0	2	1	-1	0	2	0	6	3	6	3
North Carolina	0	0	0	0	0	0	0	0	1	1	-1	-1	0	0	0	0
North Dakota	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ohio	0	2	0	2	0	1	0	2	0	1	0	0	0	7	0	6
Oklahoma	0	0	0	1	0	1	0	0	0	0	0	2	0	3	0	3
Oregon	0	1	1	1	1	0	0	2	0	1	0	2	1	7	1	6
Pennsylvania	2	2	2	1	2	1	-2	-2	0	0	0	0	2	1	2	1
Rhode Island	1	2	0	1	0	1	0	-2	0	0	0	0	1	1	1	1
South Carolina	0	0	0	0	0	0	0	-1	0	-1	0	0	0	-2	0	-2
South Dakota	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	2
Tennessee	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1
Texas	0	3	1	1	1	1	0	-2	0	1	2	2	3	5	3	5
Utah	0	0	0	2	0	1	0	0	0	0	0	0	0	2	0	1
Vermont	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0
Virginia	2	2	0	0	0	0	0	0	1	1	2	2	5	5	5	5
Washington	2	2	2	2	2	1	0	2	0	2	0	1	4	9	4	8
West Virginia	0	2	0	0	0	0	0	0	0	1	0	0	0	3	0	3
Wisconsin	1	1	-1	-1	-1	-1	0	0	0	0	0	0	0	0	0	0
Wyoming	0	0	0	0	0	0	0	0	0	0	2	0	2	0	2	0

Changes in Locational Priority between 2005 and 2016

In order to compare changes in locational prioritization across states, these changes are coded numerically for each category between 2005 to 2016 by state. The first set of indices includes priority changes within the 4% tax credit program and another set includes changes within the 9% program. Positive numbers in *all* categories indicate changes that theoretically would reduce the share of properties in high-poverty neighborhoods or decreases in income or racial segregation. Conversely, negative numbers indicate changes would increase poverty rates, racial, or economic segregation of the neighborhoods where new tax credit investment is made. For set-asides, reducing preservation and rehabilitation effort receives a positive score.

A small overall change is given a value of 1, for example, a small reduction in point value or a small text modification. Major changes would receive a score of 2, for example, adding a whole new scoring category. If more than one change is made in a given category, changes are coded holistically for each category with a maximum score of three or a minimum score of negative three. Then there are two aggregate change indices (without changes in set-asides). One includes transportation-related amenity and one excludes it. State-level indices are shown in Table 1-4.

States have increased overall prioritization towards siting in high opportunity neighborhoods from 2005 to 2016. The 9% program has much bigger changes than the 4% program. States have added more language on balancing between investment in blighted neighborhoods and placing tenants in higher-opportunity neighborhoods for the 9% program. States, on average, have increased the role of the 4% credit in preservation from 2005 to 2016. As 4%, tax-exempt bond programs and other financing sources are becoming more competitive,

more applications are now subject to scoring systems or higher thresholds. For example, Michigan prioritizes 4% applications that are part of strategic investments in neighborhood revitalization. Michigan also gives additional points for developments in neighborhood revitalization or investment activity areas. There are some modest improvements in locational priorities regarding access to amenities (but weaker without the transit element) and avoiding concentration of affordable housing across states. In addition, states have increasingly acknowledged the NIMBY issues and reduced barriers to obtain neighborhood approval for a proposed development. States have significantly improved prioritization towards economic and racial integration for low-income households, but there are some variations across states.

Association between Locational Prioritization and Siting Outcomes

Another key interest lies in whether these QAP changes are associated with changes in siting outcomes of newly constructed tax credit properties receiving allocations between 2005-2007 and 2016-2018. Neighborhood conditions include several measures calculated in Table 1-3: changes in units located in neighborhoods with poverty rates less than 10%, changes in units in neighborhoods with poverty rates greater than 30%, changes in average neighborhood poverty rates, and changes in units in neighborhoods with high minority shares (*i.e.*, tracts with less than 10% non-Hispanic White).

The following analysis includes two main sets of regressions at the state level, one for 4% developments with 4% policy change indices and one for 9% developments with 9% policy change indices. Change in the rental stock is used as the control variable.

$$\Delta LowPov_s = \alpha + \beta_1 \Delta QAP_s + \beta_2 \Delta Rental_s + \varepsilon_s$$

$$\Delta HighPov_s = \alpha + \beta_1 \Delta QAP_s + \beta_2 \Delta Rental_s + \varepsilon_s$$

$$\Delta AvePov_s = \alpha + \beta_1 \Delta QAP_s + \beta_2 \Delta Rental_s + \varepsilon_s$$

$$\Delta MinNbhd_s = \alpha + \beta_1 \Delta QAP_s + \beta_2 \Delta Rental_s + \varepsilon_s$$

$\Delta LowPov_s$, $\Delta HighPov_s$, $\Delta AvePov_s$, and $\Delta MinNbhd_s$ represent the values of four dependent variables in state s : change in the share of LIHTC units constructed in neighborhoods with 10% poor or less, change in the share of units in neighborhoods with 30% poor or more, change in poverty exposure of tax credit resident, and change in the share of units in predominantly minority neighborhoods. ΔQAP_s represents change in prioritization categories by using coded indices. $\Delta Rental_s$ is the control for the change in rental housing stock in state s . There are different measures in each regression, to match each of the dependent variables. For example, in the regression of the change in the share of units allocated tax credits in low-poverty neighborhoods, a variable capturing the change in the share of rental housing units in the state located in neighborhoods with less than 10% poverty is included. These regressions produce adjusted means for policy changes and changes in siting patterns between 2005 and 2016.

As shown in Table 1-5, QAP changes do not exhibit overall correlations with changes in siting patterns between 2006-2008 and 2016-2018 within the 4% program. However, positive changes in priorities towards furthering investment in blighted neighborhoods, meaning requiring no more than what is required federally in investing in blighted neighborhoods, does associate with positive changes in siting patterns. This further indicates that the state's actions in balancing rehabilitation and new construction have some potential influence on siting patterns for the 4% program. If a state improves one point in the index for Furthering Investment in Blighted Neighborhoods (meaning moves towards poverty and racial deconcentration and

economic integration), the share of units allocated in high-poverty neighborhoods reduces by 3.4 percentage points and average poverty exposure reduces by 1.1 percentage points on average across states.

Table 1-5: Summary of Regression-Adjusted Means, 4% Tax Credit

	Δ LowPov	Δ HighPov	Δ AvePov	Δ MinNbhd
Aggregate				
(Excludes Transportation)	1.770 (3.874)	1.294 (3.402)	0.748 (0.931)	1.086 (6.995)
(Includes Transportation)	0.945 (3.795)	1.414 (3.232)	0.901 (0.901)	3.339 (6.900)
High-Opportunity Neighborhoods	1.246 (2.994)	4.411 (10.08)	2.813 (2.834)	1.142 (2.231)
Access to Amenities				
(Non-Transportation)	14.29 (12.06)	4.457 (9.173)	0.658 (2.604)	6.894 (14.10)
(Transportation)	16.23* (9.970)	3.858 (7.100)	1.640 (2.220)	13.91 (12.16)
Approval by the Community	0.304 (2.780)	13.47 (18.53)	-4.637 (8.967)	0.944 (2.989)
Furthering Investment in Blighted Neighborhoods	4.226 (3.936)	-3.361*** (1.442)	-1.143* (0.774)	0.158 (3.220)
Avoiding Concentrations of Affordable Housing	2.241 (2.823)	6.714 (8.568)	8.702 (6.659)	1.637 (1.999)

*Note: Standard errors in parentheses. *** $p < 0.05$, ** $p < 0.10$, * $p < 0.15$.*

In comparison, policy changes in the 9% program have stronger associations with the siting patterns for new tax credit units. Positive changes in the aggregate indices and prioritization towards high-opportunity neighborhoods have a strong association with better siting outcomes. On average, one-point increase in the index for High-Opportunity Neighborhoods is associated with an almost four percentage-point reduction in poverty exposure. Relaxing community approval requirements also correlates with more positive siting patterns measured by three out of four outcome variables. Prioritizations towards poverty

deconcentration, racial integration, and opportunity neighborhoods are also associated with allocating fewer tax credit projects in predominately minority neighborhoods.

Table 1-6: Summary of Regression-Adjusted Means, 9% Tax Credit

	Δ LowPov	Δ HighPov	Δ AvePov	Δ MinNbhd
Aggregate (Excludes Transportation)	0.389 (0.680)	-0.363 (0.768)	-0.439** (0.241)	-2.108* (1.307)
Aggregate (Includes Transportation)	0.441 (0.614)	-0.0636 (0.687)	-0.313* (0.223)	-2.594** (1.261)
High-Opportunity Neighborhoods	1.246 (2.994)	0.872 (1.311)	-3.999*** (1.434)	-1.855*** (0.395)
Access to Amenities (Non-Transportation)	-2.805 (2.540)	-2.624 (2.793)	-1.447* (0.937)	-5.532 (5.197)
Access to Amenities (Transportation)	-1.891 (1.572)	0.445 (1.726)	-0.213 (0.597)	-5.416* (3.276)
Approval by the Community	0.304 (2.780)	-2.591** (1.481)	-3.603*** (1.638)	-1.286*** (0.536)
Furthering Investment in Blighted Neighborhoods	-4.226 (3.936)	2.468 (2.620)	3.091 (2.647)	1.075 (0.906)
Avoiding Concentrations of Affordable Housing	2.241 (2.823)	1.593 (1.698)	-1.211 (2.061)	-1.102** (0.615)

Note: Standard errors in parentheses. *** $p < 0.05$, ** $p < 0.10$, * $p < 0.15$.

Overall, states have shifted more resources into preservation and rehabilitation from 2005 to 2016 through the changes in set-aside and incentives towards preservation. Thus, it may be worth exploring how changes in set-aside affect siting patterns. Table 1-7 shows that changes in set-aside are associated with changes in siting patterns for the 9% tax credit developments. However, there are no direct effects on the siting outcomes for the 4% developments. The results show that if a state is decreasing preservation and rehabilitation effort and increasing new construction allocations through changing set-aside, fewer new 9% units are located in low-poverty neighborhoods and more are located in neighborhoods with higher poverty rates on average. A one-point increase in the Change in Set-Aside index is correlated with a 3.8

percentage-point reduction in the share of units in low-poverty neighborhoods and a 1.4 percentage-point increase in average poverty exposure. In other words, if a state shifts more resources from preservation into new construction (*i.e.*, a positive change in the index), funds available for new construction increase, and competition among new construction applications decreases. Such a change is associated with worse siting patterns in terms of poverty deconcentration, racial integration, and reaching neighborhoods of opportunity.

Table 1-7: Summary of Regression-Adjusted Means for Set-Asides

	ΔLowPov	$\Delta\text{HighPov}$	ΔAvePov	$\Delta\text{MinNbhd}$
Change in Set-Aside, 4% Tax Credit	2.820 (8.937)	-3.254 (4.628)	0.232 (1.825)	9.088 (8.760)
Change in Set-Aside, 9% Tax Credit	-3.777*** (1.688)	1.873 (1.846)	1.422*** (0.619)	-2.532 (3.647)

*Note: Standard errors in parentheses. *** $p < 0.05$, ** $p < 0.10$, * $p < 0.15$.*

I also estimate a tract-level regression. The dependent variable is the change in the number of tax credit units allocated between the 2005-2007 period and the 2016-2018 period per Census Tract. This regression model includes additional MSA and tract controls. The regression tests whether neighborhoods with lower poverty rates and lower minority shares in 2006 saw increases in tax credit investment when a state increases awarding prioritization towards neighborhoods with higher opportunities.

Specifically, the dependent variable is the change in the number of allocated units between the 2005-2007 period and the 2016-2018 period per tract. The regression model includes controls for the change in the aggregate index for a state, tract poverty rate and tract minority share in 2000, and interactions between the poverty rate or the minority share and the index. Then I cluster standard errors at the state level. The model is written as follows:

$$\Delta LIHTC_n = \alpha + \beta_1 \Delta QAP_s + \beta_2 Pov_n + \beta_3 Min_n + \beta_4 Pov_n \times \Delta QAP_s + \beta_5 Min_n \times \Delta QAP_s + \varepsilon_{ns}$$

where $\Delta LIHTC_n$ is the change in LIHTC units, 9% or 4%, at tract n . ΔQAP_s is the coded change index in QAP at the state level. Pov_n and Min_n are the poverty rate and the minority share in tract n .

Table 1-8: Tract-Level Regression Results, 4% Tax Credit

Variables	(1)	(2)	(3)	(4)
	Change in Allocated Low-Income Tax Credit Units			
Aggregate QAP Change Index (Excludes Transportation)	-0.0245 (0.0687)	-0.00595 (0.0821)	-0.0643 (0.0593)	-0.106* (0.0791)
Poverty Rate, 2005-2009	-0.00684 (0.0112)	0.00441 (0.00922)	-0.00455 (0.0104)	-0.00384 (0.0105)
Minority Share, 2005-2009	0.0115*** (0.00405)	0.00796** (0.00395)	0.00930*** (0.00386)	0.00943*** (0.00380)
Poverty Rate x Aggregate Change Index	0.00954 (0.0381)		0.00767 (0.0402)	0.00704 (0.0411)
Minority Share x Aggregate Change Index	0.131 (0.103)	0.133 (0.104)	0.133 (0.104)	0.00175 (0.00252)
ΔMetro Vacancy Rate		0.00309 (0.00265)	0.00198 (0.00272)	0.216*** (0.0962)
ΔMetro Vacancy Rate x Aggregate Change Index				(-0.0748)* (0.0562)
Constant	-0.0912 (0.133)	-0.118 (0.142)	-0.0473 (0.135)	-0.0151 (0.128)
Observations	66,638	66,638	66,638	60,652
R^2	0.001	0.001	0.001	0.001

Note: Robust standard errors in parentheses. *** $p < 0.05$, ** $p < 0.10$, * $p < 0.15$. QAP = Qualified Allocation Plan.

Results, shown in Table 1-8 and Table 1-9 are consistent with previous results. Changes in QAPs have very weak associations with siting patterns within the 4% program. For the 9% program, the results shown in Table 1-9 are more pronounced with consistently negative coefficients on the interaction between change in opportunity index and the poverty rate. This suggests that an increase in prioritization towards neighborhoods with higher opportunities in a state was associated with fewer units built in neighborhoods with higher poverty rates. However, there are no consistent effects on minority share in the tract-level regressions.

Table 1-9: Tract-Level Regression Results, 9% Tax Credit

Variables	(1)	(2)	(3)	(4)
	Change in Allocated Low-Income Tax Credit Units			
Aggregate QAP Change Index (Excludes Transportation)	0.0695 (0.0673)	0.145 (0.118)	0.105* (0.0677)	0.112* (0.067)
Poverty Rate, 2005-2009	-0.0253* (0.0132)	-0.0183 (0.0155)	-0.0308* (0.0211)	-0.0309* (0.0183)
Minority Share, 2005-2009	-0.00667 (0.00543)	-0.00451 (0.00837)	-0.00214 (0.00798)	-0.00237 (0.00794)
Poverty Rate x Aggregate Change Index	-0.00217* (0.00880)		-0.00564* (0.00283)	-0.00570* (0.00256)
Minority Share x Aggregate Change Index		-0.00109 (0.00203)	-0.00216 (0.00257)	-0.00203 (0.00233)
ΔMetro Vacancy Rate	0.214* (0.142)	0.208* (0.137)	0.208* (0.137)	0.159* (0.132)
ΔMetro Vacancy Rate x Aggregate Change Index				0.0198 (0.0732)
Constant	0.547*** (0.187)	0.384** (0.214)	0.469*** (0.186)	0.0198 (0.0732)
Observations	66,638	66,638	66,638	66,638
R²	0.001	0.001	0.001	0.001

Note: Robust standard errors in parentheses. *** $p < 0.05$, ** $p < 0.10$, * $p < 0.15$. QAP = Qualified Allocation Plan.

Conclusions

State priorities toward opportunity are often optional, unclear, and unenforceable for the 4% program. The results confirm that locational prioritizations may be driving tax credit investment into higher-opportunity neighborhoods for the competitive 9% program. Even though the siting outcomes between the 9% and the 4% developments are not significantly different during the first two periods of the LIHTC program, 4% developments are increasingly located in higher-poverty and lower-opportunity neighborhoods from 2005 to 2016. If states want to prioritize goals of furthering poverty deconcentration, racial integration, and helping tenants reach opportunity, they may have missed a unique opportunity in utilizing the 4% program. On a

positive note, this study shows that there is an increasing role played by the QAP in influencing the siting of 4% developments. Some states have introduced comprehensive reviews for 4% applications, including scoring and ranking applications. However, changes in QAPs only weakly influence the siting of 4% developments.

4% tax credit continues to be an important financing resource for creating new affordable housing while persevering existing housing stock. However, the 4% program is still largely flying under the radar of policymakers, housing authorities, and researchers. With increased competition, getting the so-called “automatic” 4% credit is not as easy as it used to be. State, which has significant power over the allocation process, has a great opportunity to further increase the overall prioritization of opportunity for new affordable projects. QAP can potentially be a more powerful tool in guiding neighborhood choices as more than half of the states regulate the allocation of 4% credit with bond financing through this document. More insight into the politics of drafting QAPs in each state is needed.

Nonetheless, state priorities toward opportunity are often optional, unclear, and unenforceable for the 4% applications. While the result suggests that the allocation plan does matter for the 9% program, state legislators and housing authorities have yet to carry out meaningful oversight of the 4% program. To further fair housing goals of reducing poverty concentration and increasing racial integration, states need to translate incentives towards opportunity neighborhoods into more purposeful motivations and defined thresholds. It is noticeable that siting outcomes for 4% low-income units have worsened over time. States should seize the opportunity in regulating 4% developments through the use of QAP and adopt more expressive incentives.

There may also be challenges in regulating the 4% program towards opportunity. One obstacle is that the equity from tax credits and tax-exempt bond are insufficient to fund a development without additional public contributions (National Housing Conference, 2017). Land costs tend to be higher in opportunity areas, making the financing needs greater. Requirements to site in higher cost areas may decrease demand for 4% credit and decrease preservation of projects in areas with less opportunity. States can offer (or encourage local governments) to donate public land, use housing trust fund, waive development fees, or purchase units to reduce financing cost of a tax credit project. In addition, when competition for tax-exempt bonds is intense, states may want to allocate more bond cap to affordable housing because the addition of 4% credit can vastly increase the value of the bond. States may also need to streamline their allocation process to reduce bond complications and encourage more 4% applications.

If a state wants to prioritize goals of furthering poverty deconcentration, racial integration, and helping tenants reach opportunity using the 4% tax credit, they may have missed a unique opportunity. A state should've seized the opportunity in regulating 4% developments through the use of QAP and adopt more expressive incentives. However, if a state wishes to use the 4% tax credit to serve the needs of preserving the existing stock of affordable housing and revitalizing distressed neighborhoods, it should be explicit about these goals and design a program that avoids poverty concentration and racial segregation. If the sometimes competing fair housing and community development goals are both necessary, much deliberate consideration is needed in balancing the two competing housing goals. States can start allocating the 4% credit into two types in order to balance the needs for different goals.

Chapter 2 - Siting and Concentration

This chapter investigates how do affordable housing developments enabled by the tax credit affect neighborhood poverty concentration and racial segregation and how do two types of credit differ. Housing advocates worry that the tax credit program is furthering poverty and racial concentration (Baum-Snow & Marion, 2009; Diamond & McQuade, 2016; Ellen et al., 2009; McClure et al., 2020). The most direct way is that states may be awarding a disproportionate share of tax credit deals in high-poverty or minority-concentrated neighborhoods. The Internal Revenue Code offers enhanced credit and a preference for locating a low-income development in high-poverty neighborhoods through the designation of Qualified Census Tracts. States may go beyond and offer additional incentives to encourage developers to do so.²⁷ Prior research suggests that this boost does lead to a marginally increased clustering in QCTs (Baum-Snow & Marion, 2009; Dawkins, 2013). Another concern is that the LIHTC program may draw low-income households away from certain neighborhoods, causing increased deterioration and abandonment in these neighborhoods (Rothenberg et al., 1991).

Supporters for community-oriented development also see the tax credit program as a tool to revitalize neighborhoods (Baum-Snow & Marion, 2009; Diamond & McQuade, 2016; Ellen et al., 2009). A subsidized housing project may have positive spillovers to the surrounding neighborhood. Limited evidence shows that *new* tax credit developments may have helped to revitalize low-income neighborhoods. They may have increased house prices, lowered crime rates, and attracted a more diverse population (Dawkins, 2013; Diamond & McQuade, 2016;

²⁷ For a detailed description of QCTs and state locational preference, please refer to Chapter 1.

Schill et al., 2002). However, some scholars argue that this spillover occurs only when LIHTC investment is part of a broader revitalization strategy (Deng, 2009; Khadduri & Wilkins, 2008).

In practice, siting tax credit developments in high-poverty or minority concentrated neighborhoods may not directly translate into increasing poverty or minority concentration. First, LIHTC developments often have market-rate units. About 30% of LIHTC developments have market-rate units with an average of five units per development.²⁸ Second, not all LIHTC tenants are poor. Studies on the composition of LIHTC tenants suggest that their incomes are higher than the incomes of tenants living in other forms of subsidized housing (Buron et al., 2000; Ellen et al., 2016). However, there is no public information on LIHTC tenant income below the state level. According to a 2017 HUD report, about 45% of LIHTC tenants have annual incomes of less than 30% of the area median gross income (Hollar 2014), which is roughly equal to the poverty threshold in an average metropolitan area (Buron et al., 2000). In a sample of LIHTC tenants from 12 states, Ellen, Horn, and O'Regan (2016) find that 36% of households are poor. On the same note, there is a lack of information on racial compositions in the LIHTC program. Among those who self-reported race and ethnicity in the HUD report, 64% of tenants are non-Hispanic white (U.S. Department of Housing and Urban Development, 2018).²⁹

This chapter tries to produce some empirical evidence into this debate by examining the extent to which the tax credit program may have contributed to neighborhood revitalization or poverty concentration. As I show in Chapter 1, some states have already attempted to prioritize

²⁸ Tabulation from an updated version of Department of Housing and Urban Development (HUD)'s LIHTC Database with allocations between 1986 and 2016. For details on improvements made, refer to Appendix E - Note on Improvements Made to HUD LIHTC Database.

²⁹ Sixty-nine percent of all tax credit properties are included. Eighty percent of households reported certified income from 2014, 2015, or 2016. Under the fair housing laws, tenants are not required to report their race or ethnicity. 58.6% of households reported race and ethnicity for the head of household.

the location of units financed with two types of credits differently. In recent years locational prioritization in the competitive 9% program has driven tax credit investment into higher-opportunity neighborhoods in recent years. However, state priorities toward opportunity are often optional, unclear, and unenforceable for the 4% program. Two types of credit may produce siting outcomes differently over time. To extend the previous chapter and existing literature, this chapter provides more comprehensive empirical analyses of the siting outcomes of the LIHTC program since its inception in 1986.

My empirical evidence reveals that the 4% program has some unleashed potential in fulfilling the goal of poverty deconcentration. While the LIHTC program does not seem to exacerbate poverty concentration and racial segregation at the neighborhood level, it also does not do much to reduce poverty concentration and racial segregation in most disadvantaged neighborhoods across America. Some positive effects on poverty deconcentration are found, but they are sparse and varied greatly by states. LIHTC investments also may be able to spark small long-term revitalization. Most surprisingly, the 4% program is producing similar neighborhood effects as the 9% program, but without much oversight and attention.

Research Strategy

This chapter uses quantitative analyses to examine how different tax credit programs may have contributed to poverty concentration, racial segregation, and neighborhood revitalization. As competition for affordable housing financing has increased, some states have started to prioritize investment in opportunity areas and set higher expectations for various housing

programs. As prior research has only focused on all or the 9% tax credit developments, it is crucial to distinguish the 4% investment from the 9% investment.

To overview this chapter, I first estimate the direct effect of placing LIHTC units in a neighborhood. I calculate a simulated neighborhood poverty rate and minority share after new units have been placed in service. Second, I describe the locations of all developments enabled by the 4% and 9% tax credit to assess whether tax credit investment is disproportionately made in high-poverty neighborhoods. To put the LIHTC program into the larger picture of subsidized housing, I also add comparisons with other forms of rental housing and different subsidy programs. Third, I study whether there is any evidence that the tax credit program is exacerbating poverty or triggering improvements in the long term through structural equations modeling with a dynamic panel model. Using the same framework, I examine the role tax credit investment may have played in exacerbating or reducing racial segregation. I pay particular attention to the difference between the two credit types.

Data

As the Internal Revenue Service administers the LIHTC program, the federal government does not actively monitor the siting outcomes of tax credit developments (Hollar & Usowski, 2007; Shamsuddin & Cross, 2020; Steil & Kelly, 2019). This presents a major challenge to data availability for this project. This chapter uses HUD's LIHTC Project Database as a starting point for information on tax credit developments. Since this database suffers from several data quality issues, I have made improvements drawing from other data sources including state allocation

lists and the National Housing Preservation Database.³⁰ The final sample for this study includes 43,254 active and inactive tax credit projects placed in service from 1987 through 2016. This chapter include all low-income units ever financed by the federal tax credit regardless of current active status. Each project is geocoded to a Census Tract, which approximates a neighborhood. Demographic variables are drawn from the Census (1980, 1990, 2000, and 2010) and the American Community Survey five-year estimates (2008-2012 and 2014-2018).³¹ Tract-level counts of public housing units and Housing Choice Voucher holders are added from HUD's National Geospatial Data Asset and Picture of Subsidized Households.³²

Table 2-1 presents the distribution of low-income tax credit units ever financed by the LIHTC program by credit and construction types. Low-income housing units financed by the 4% tax credit accounts for 40% of all tax credit units nationwide. This share peaks in the 2000s to almost 50% of all units. It is important to note that there is a great deal of variation across states and metropolitan areas as each state sets different awarding criteria as I have showed in Chapter 1. Almost half of all units were placed in service between 2000 and 2009 nationwide. While 60% of all units are located in large metropolitan areas with one million population or more, more than 70% of 4% units are located in these areas, indicating a potential deployment strategy of 4% credit towards large urban areas.

³⁰ For more details on consolidating different sources on tax credit projects, refer to Appendix E - Note on Improvements Made to HUD LIHTC Database.

³¹ Data from 1980, 1990 and 2000 are weighed into 2010 tract boundaries using a crosswalk compiled by the American Communities Project at Brown University. Data files can be accessed at <https://s4.ad.brown.edu/projects/diversity/Researcher/LTBDDload/DataList.aspx>.

³² Yearly Picture of Subsidized Households can be accessed at <https://www.huduser.gov/portal/datasets/assths.html>. Historical public housing datasets via the National Geospatial Data Asset can be accessed at <https://catalog.data.gov/dataset/>.

Table 2-1: Low-Income Tax Credit Units Description, 1987 to 2016

	All Tax Credit	4% New Cons.	4% Rehab.	9% New Cons.	9% Rehab.
Total Low-Income Units	2,670,318	538,544	528,776	1,051,557	551,441
(Shares)					
Year Placed in Service					
1987-1989	3.3	2.7	2.2	2.7	6.0
1990-1999	26.7	19.5	17.2	32.0	32.6
2000-2009	45.7	58.9	50.3	42.1	35.2
2010-2016	24.3	19.0	30.2	23.2	26.1
Geographic Region					
Midwest	21.0	11.6	19.4	23.2	27.4
Northeast	16.4	15.6	27.1	10.1	18.8
South	40.0	45.0	24.1	45.4	40.0
West	22.7	27.7	29.4	21.3	13.8
Core-Based Statistical Area					
Metro >1 Million Population	59.3	69.6	71.5	48.6	58.0
Metro 250,000~1 Million Population	19.5	17.1	17.1	21.5	20.0
Metro <250,000 Population	8.2	4.6	4.6	12.3	7.6
Micro Area	8.6	5.0	4.5	12.2	9.2
Non-CBSA Area	4.4	3.7	2.2	5.4	5.2

Sources: Updated HUD LIHTC Project Database and Census (2010).

Note: Geographic region uses classifications designated by the Census Bureau for each decade. CBSA definitions may vary from decade to decade. CBSA = Core-Based Statistical Area, HUD = Department of Housing and Urban Development, LIHTC = Low-Income Housing Tax Credit.

Analysis

This section empirically investigates how LIHTC investments, broken down by the two programs, may affect neighborhood demographic compositions and thus poverty and racial concentration. I first illustrate how LIHTC developments may mathematically affect neighborhood poverty rates and minority shares. I then describe the siting patterns of LIHTC developments to examine whether tax credit units are disproportionately located in high-poverty and minority-concentrated neighborhoods, potentially exacerbating short-run poverty and

minority concentration. Lastly, I examine whether construction and rehabilitation activities using tax credits have affected neighborhood demographics and triggered long-run revitalization.

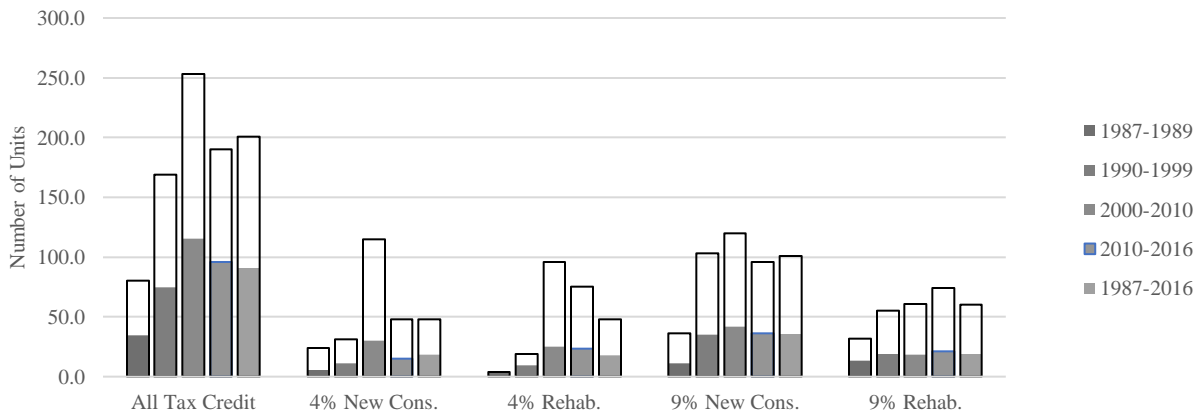
Neighborhood Poverty Rate & Minority Share Simulation

This first analysis simulates how the LIHTC program may directly alter the demographic compositions of a neighborhood in the short term. This is a simplified accounting exercise to explain how inflows of low-income households may mechanically change the neighborhood poverty rate. While poverty rates may fall in high-poverty neighborhoods, we can expect poverty rates to rise in low-poverty neighborhoods as new LIHTC developments increase the number of poor tenants. This exercise does not take into account any spillover effects or other socioeconomic factors which a neighborhood may experience at the same time. The result from this experiment shows that new LIHTC units alone would not drastically change the average neighborhood poverty rate. Only 1% of all tracts have changes in poverty rates more than 10 percentage points when I estimate that 40% of new tax credit tenants are poor at the project level.

First, I demonstrate the scale of LIHTC developments at the neighborhood level. Figure 2-1 tabulates the 90th percentile and the average number of new LIHTC low-income units per tract in where there is at least one LIHTC project ever built. Units are aggregated into four periods by the placed-in-service year: 1987-1989, 1990-1999, 2000-2009, and 2010-2016. A tract can get as high as 1,200 *new* low-income units in a decade – which is about 120 units per year. There are about twice as many new 9% units as new 4% units on average per tract.³³ I will now consider the relative size of LIHTC units per tract.

³³ Although I focus on aggregated tract effect, project size also varies by credit and type. The 4% projects tend to be larger than the 9% projects on average. New 4% projects have an average of 84 units while rehabilitated projects

Figure 2-1: Average and 90th Percentile of Numbers of Low-Income Tax Credit Units per Tract by Period



Sources: Updated HUD LIHTC Project Database, Census (1980, 1990, 2000, and 2010).

Note: Concrete bar height indicates the average and hollow bar height indicates the 90th percentile. Units are tabulated by Census Tract and four periods. Census tracts are consistent geographies using 2010 tract boundary. LIHTC = Low-Income Housing Tax Credit.

When low-income tenants move into a low-income housing project, they can immediately change the demographics of a neighborhood depending on how large the new tenant group is relative to the size of the neighborhood, and how different the tenant characteristics are compared to rest of the neighborhood. An average tract has 1,668 housing units in the U.S. Less than 29% of all tracts have ever received LIHTC funding. Tracts receiving LIHTC funding also tend to be 30% higher in neighborhood poverty rate than tracts have not yet received any funding across four decades at the time of siting. Overall, the average ratio between new tax credit units per period and the total number of households at the beginning of each decade is about 0.06 over the entire study period. 90% of tracts have this ratio below 0.1. In the simplest terms, LIHTC projects likely have a small effect on neighborhood household composition; however, these data do not preclude the possibility of some extreme cases. It is arguably harder to estimate the effect of rehabilitation units. I focus on *newly* constructed units in this first accounting exercise.

have an average of 99 units. New 9% projects have an average of 52 units while rehabilitated projects have an average of 54 units. Individual projects may have different spillover effects.

One challenge in estimating demographic change is that not everyone in LIHTC developments is poor. Prior research estimated that between 30% to 60% of the LIHTC tenants are poor (incomes at or below 30% of area median gross income.)³⁴ Rehabilitation projects may not change the neighborhood demographic composition as much as new construction developments with new tenants. Because of the lack of data on LIHTC tenant income at the project level and this is not an inquiry into any spillover effects yet, I focus only on newly constructed tax credit developments in this first analysis. Compared to rehabilitation projects, new construction arguably has greater potential to reduce poverty concentration, at least in the short run. Since the primary goal of rehabilitation projects is to preserve existing low-income and affordable housing stock, they may not have significant and immediate effects on the demographic composition of the neighborhood. The objective of rehabilitation investment is to bring about long-term neighborhood revitalization.

I apply three scenarios to estimate the share of poor tenants at the project level: 60% poor households, 40% poor households, and state averages from the HUD tenant study.³⁵ The 40% and 60% shares are based on lower- and upper-end estimates in prior studies of LIHTC tenants. 100% poor is listed as a reference category as every household in a project has annual incomes less than 30% of the area median gross income. The unit of analysis is household as each rental

³⁴ A 2017 HUD report states that about 45% of LIHTC tenants have annual incomes of less than 30% of the area median gross income, but this share can reach as high as 60% in some states (U.S. Department of Housing and Urban Development, 2018). Using a sample of 12 states, Ellen, Horn, and O'Regan (2016) find that 36% of LIHT tenants are poor households.

³⁵ State averages are calculated using the shares of households earning annual household income 30% or less relative to AMGI from the 2018 HUD report (Hollar 2014). Alabama, Indiana, Kansas, Kentucky, Texas, and Wisconsin did not report income data. These numbers are derived from the same shares in the voucher program from 2015 Picture of Subsidized Households (U.S. Department of Housing and Urban Development, 2018).

unit approximates one household and household income is used to determine eligibility. The simulated neighborhood *household* poverty rate is calculated as follows:

$$HHPov_{n,t+1} = \frac{PoorHH_{n,t} + LIUnits_{n,t'} \cdot s}{TotHH_{n,t} + LIUnits_{n,t'} + MktUnits_{n,t'}}$$

where $HHPov_{n,t+1}$ is the simulated household poverty rate of tract n at period $t+1$ (as $t+1 = 1990, 2000, 2010, \text{ and } 2016$). $PoorHH_{n,t}$ and $TotHH_{n,t}$ are the numbers of households in poverty and total households in tract n at period t (as $t = 1980, 1990, 2000, \text{ and } 2010$).

$LIUnits_{n,t'}$ represents the number of new LIHTC units placed in service in tract n during a period (as $t' = 1987-1989, 1990-1999, 2000-2009, \text{ and } 2010-2016$).³⁶ s is the estimated share of poor households in tax credit developments. s has four scenarios: 40%, 60%, 100%, and the state average. $MktUnits_{n,t'}$ represents the number of market-rate units in LIHTC projects which is the difference between total units and low-income units in tract n . LIHTC units are further disaggregated into 4% units and 9% units.

Table 2-2 shows that new LIHTC units alone would not drastically change the average neighborhood poverty rate among sited tracts. New LIHTC units may directly contribute to an average increase of neighborhood household poverty rate by one to two percentage points every period. There are, however, some extreme cases where new LIHTC projects can dramatically alter the tract poverty rates. Under the 40% poor scenario, poverty rates in a total 227 of tracts (out of 20,987 tracts ever received LIHTC funding) change more than 10 percentage points over

³⁶ The number of total new LIHTC units built per tract during a period is compared with the count of new rental units built in the Census data. Due to issues with survey sampling, tract boundary changes, and inaccuracy in project data, total LIHTC units are adjusted down to 150% of new rental units built in the same period if tract-level count of LIHTC units exceeds Census Tract count. In this calculation, there are a total of 1,492,427 new LIHTC units, accounting for 93.9% of the raw total new units between 1987 and 2016.

four periods. Ninety-nine percent of these tracts have fewer than 1,900 households. There are 306 tracts in which the poverty rate increased more than 10 percentage points using state averages and 573 tracts under the 60% poor scenario.

Table 2-2: Simulated Neighborhood Household Poverty Rate, New Construction Projects

	100% Poor	60% Poor	40% Poor	HUD Study
(Percents)				
Average Simulated Neighborhood Poverty Rate	21.9	19.8	18.7	19.1
(Percentage Points)				
Average Change in Neighborhood Poverty Rate	4.2	2.2	1.1	1.5
Average Change by Period of Placed-in-Service				
1987-1989	8.0	4.4	2.6	3.6
1990-1999	4.7	2.5	1.4	1.7
2000-2009	2.4	1.2	0.6	0.8
2010-2016	6.0	2.9	1.4	2.0
Average Change by Poverty Rate Category				
<10% Neighborhood Poverty Rate	5.4	3.1	2.0	2.4
10~20% Neighborhood Poverty Rate	3.6	1.9	1.1	1.3
20~30% Neighborhood Poverty Rate	3.5	1.6	0.7	1.1
>30% Neighborhood Poverty Rate	3.6	1.1	-0.2	0.3
Average Change by Credit Type and Poverty Rate Category				
4% New Developments				
<10% Neighborhood Poverty Rate	1.6	0.9	0.5	0.6
10~20% Neighborhood Poverty Rate	2.2	1.3	0.8	0.9
20~30% Neighborhood Poverty Rate	1.6	0.8	0.5	0.6
>30% Neighborhood Poverty Rate	1.3	0.6	0.3	0.3
9% New Developments				
<10% Neighborhood Poverty Rate	1.0	0.3	0.0	0.1
10~20% Neighborhood Poverty Rate	1.2	0.6	0.3	0.5
20~30% Neighborhood Poverty Rate	1.9	1.1	0.7	0.8
>30% Neighborhood Poverty Rate	0.9	0.5	0.3	0.4
20~30% Neighborhood Poverty Rate	0.9	0.4	0.2	0.3
>30% Neighborhood Poverty Rate	0.9	0.3	0.0	0.1

Sources: Updated HUD LIHTC Project Database, Census (1970, 1980, 1990, 2000, and 2010), American Community Survey (2008-2012), and HUD LIHTC Tenant Study.

Note: HUD = Department of Housing and Urban Development, LIHTC = Low-Income Housing Tax Credit.

In low-poverty neighborhoods, new units may increase the poverty rate by two to three percentage points. In high-poverty neighborhoods, LIHTC units do not alter the existing poverty

concentration significantly. Developments built between 2000 and 2009 cause the lowest increases in poverty rates. Projects built in the earliest period may alter poverty rates more. Under the scenario of 40% poor, LIHTC units only marginally reduce the average poverty rate. However, the poverty composition of LIHTC tenants is likely dependent on the existing poverty rate in the tract. Reduction in poverty rate under the 40% poor scenario is unlikely to happen as projects in these neighborhoods are more likely to have higher shares of poor tenants. More research with better data is needed. New 4% projects increase the average poverty rate slightly more than 9% projects across categories. However, these two programs produce similar marginal increases in average poverty rates in high-poverty neighborhoods. On average, tax credit projects alone may not be able to significantly alter the neighborhood poverty concentration.

It is undoubtedly harder to estimate minority share of tenants. The share of a particular racial group in the development is dependent on the existing demographics in the neighborhood. Neighborhood minority shares vary greatly across housing markets. I focus on the compositional changes in neighborhood minority shares before and after a tax credit development is placed in service. Using a similar approach as the simulation in neighborhood poverty rate, I calculate a simulated neighborhood minority share of householders with three different scenarios.

The average minority share across states from a HUD study is 63.8% (U.S. Department of Housing and Urban Development, 2018) while the same share within voucher holders is 68.0% (U.S. Department of Housing and Urban Development, 2015). I apply three scenarios based upon these previous estimates: 50% units with minority householder in developments,

60% units with minority householders in developments, and shares from state averages in the HUD tenant study.³⁷ The share of 100% minority household is listed as a reference category.

Table 2-3: Simulated Neighborhood Householder Minority Rate, New Construction Projects

	100% Minority	60% Minority	50% Minority	HUD Study
(Percents)				
Average Neighborhood Minority Share	32.2	35.8	32.3	33.9
(Percentage Points)				
Average Change in Neighborhood Minority Share	3.6	1.2	0.6	1.6
Average Change by Placed-in-Service Year				
1987-1989	4.5	2.4	1.8	2.3
1990-1999	4.2	2.0	1.4	2.2
2000-2010	3.7	1.0	0.3	1.6
2010-2016	2.2	0.3	-0.2	0.7
Average Change by Minority Share Difference with CBSA/County				
<-20 pts. Minority Share Difference	6.5	3.6	2.9	4.9
-20~20 pts. Minority Share Difference	4.1	2.0	1.5	2.2
>20 pts. Minority Share Difference	1.4	-1.5	-2.3	-0.7
Average Change by Credit Type and Minority Share Category				
4% New Developments				
<-20 pts. Minority Share Difference	2.6	0.4	0.2	0.7
-20~20 pts. Minority Share Difference	1.7	1.4	1.2	2.1
>20 pts. Minority Share Difference	0.5	0.8	0.5	1.0
9% New Developments				
<-20 pts. Minority Share Difference	1.4	-0.5	-0.8	-0.1
-20~20 pts. Minority Share Difference	1.0	0.3	0.1	2.3
>20 pts. Minority Share Difference	2.7	1.5	1.2	0.6
>20 pts. Minority Share Difference	1.1	0.6	0.4	-0.3
>20 pts. Minority Share Difference	0.4	-0.4	-0.6	0.4

Sources: Updated HUD LIHTC Project Database, Census (1970, 1980, 1990, 2000, and 2010), American Community Survey (2008-2012), and HUD LIHTC Tenant Study.

Note: CBSA = Core-Based Statistical Area, HUD = Department of Housing and Urban Development, LIHTC = Low-Income Housing Tax Credit.

³⁷ State averages are based on the race and ethnicity of householder from the 2018 HUD report (Hollar 2014). Florida, North Dakota, Pennsylvania, Texas, and Washington did not report race and ethnicity data. Estimates are drawn from the data on housing choice voucher holders from the 2015 Picture of Subsidized Households (U.S. Department of Housing and Urban Development, 2015).

Table 2-3 lists changes in neighborhood minority shares before and after a tax credit project has placed in service using four different estimates of racial composition among LIHTC tenants. The results show that new LIHTC developments, on average, may have similar racial compositions as their sited neighborhoods, thus would not change neighborhood makeups. New tax credit projects are located in neighborhoods with an average household minority share of 32.2% between 1987 and 2016. However, the racial makeup of American neighborhoods has changed significantly, the average minority share of neighborhoods with new LIHTC projects doubles from 21.1% during the 1980s to 41.9% during the 2010s. New LIHTC units may directly contribute to an increase of average minority share by about one percentage point. The racial composition of developments built in the recent period are more similar to the makeup of their neighborhoods than those of projects built in earlier periods. It is important to note that the magnitude of these changes may have diminished over time as neighborhoods across America have become more diverse.

Table 2-3 includes the average changes grouped by the difference between neighborhood minority share and minority share in the CBSA or County as a whole. HUD defines a “minority-concentrated” neighborhood as a Census Tract where the percentage of minority persons is at least 20 percentage points higher than the housing market area as a whole (U.S. Department of Housing and Urban Development, 2016).³⁸ The analysis applies HUD’s definition of housing

³⁸ For the Rental Assistance Demonstration (RAD) program, HUD defines an area of minority concentration either as (1) “the percentage of persons of a particular racial or ethnic minority within an area is at least 20 percentage points higher than the percentage of that minority group in the housing market area as a whole” or (2) “the total percentage of minority persons within the area of the site is at least 20 points higher than the total percentage of minorities in the housing market area.” HUD specifies that it uses Census Tracts to approximate such an area. HUD also lists that a “housing market area” generally corresponds to (1) the Metropolitan Statistical Area; (2) the Micropolitan Statistical Area; or (3) if neither, then the county or the Public Housing Authority’s service area. For details, refer to Rental Assistance Demonstration Notice Regarding Fair Housing and Civil Rights Requirements and Relocation Requirements Applicable to RAD, U.S. Department of Housing and Urban Development, 2016.

market area as CBSA or County. LIHTC projects can potentially increase minority shares in these neighborhoods by three to five percentage points in white-dominant neighborhoods. In minority-concentrated neighborhoods, new LIHTC units may be able to reduce racial segregation by one to two percentage points. Both new 4% units and new 9% units may be able to reduce minority shares slightly in these neighborhoods. However, tax credit projects alone may not be able to significantly change existing neighborhood racial compositions.

Combined, these simulations show that new LIHTC developments can only marginally alter economic and racial compositions of a neighborhood. While tax credit developments in low-poverty and white-dominant neighborhoods may slightly increase the poverty rate and minority share in the short term, they do not seem to change, either significantly increase or decrease, those shares in high-poverty and minority-concentrated neighborhoods. 4% developments seem to be able to accomplish more than 9% developments. Although tax credit developments do not appear to have direct effects on neighborhood poverty and racial composition, it is possible that they have neighborhood spillover effects. Therefore, the next set of analyses examines variation in subsequent neighborhood conditions of tax credit developments.

Siting Patterns of Tax Credit Developments

The second set of analyses describes the *actual* and *observed* neighborhood demographics after a tax credit development has been placed in service between 1987 and 2016. This snapshot assesses whether tax credit investments are disproportionately made in high-

poverty or racially concentrated neighborhoods and compares siting patterns with the locations of other subsidized units.

I pool low-income tax credit units into four periods by the placed-in-service year: 1987 to 1989, 1990 to 1999, 2000 to 2009, and 2010 to 2016. I then add neighborhood characteristics from the 1990 Census, the 2000 Census, the 2010 Census with additions from the 2008-2012 American Community Survey, and the 2014-2018 American Community Survey respectively. I first calculate the rate of poverty exposure, which is the weighted average neighborhood poverty rate.³⁹ I compute weighted averages by neighborhood poverty categories. These categories are low-poverty neighborhoods (poverty rates less than 10%), neighborhoods with 10% to 20% tract poverty rate, neighborhoods with 20 to 30% tract poverty rate, and high-poverty neighborhoods (poverty rates greater than 30%).

To benchmark the performance of each LIHTC program, the next set of tables compares the distribution of tax credit units with those of other subsidized housing programs, poor renters (renters who live below the poverty line,) and rental housing units.⁴⁰ Housing choice voucher and public housing are two major forms of rental assistance programs to low-income households. In examining the extent of poverty concentration, I also add where poor renters and all renters are located as two reference groups. Prior research has shown that LIHTC tenants appear to be more likely to reach low-poverty areas as compared to recipients of other housing assistance programs, even voucher holders (Ellen et al., 2009, 2016; Lens et al., 2011; McClure, 2006). My analyses try to disaggregate how each of the LIHTC program perform comparing to other forms of

³⁹ For easier comparisons with other subsidy programs, I switch to more commonly used population poverty rates for the next two sets of analyses.

⁴⁰ Counts of poor renters at tract-level are not available in the 1980 Census.

subsidy and housing. Tract-level counts of Housing Choice Voucher holders are from HUD’s Picture of Subsidized Households.⁴¹ Public Housing data are aggregated from HUD’s National Geospatial Data Asset.⁴²

Table 2-4: Average Poverty Exposure Comparison

(Percents)	All Tax Credit	4% New Cons.	4% Rehab.	9% New Cons.	9% Rehab.	Public Housing	HCV	Poor Renters	Renters
1987-2016	23.3	20.8	25.4	21.4	27.1	31.0	20.6	23.8	17.4
1987-1989	22.8	18.7	26.2	15.2	29.8	30.3	-	-	16.2
1990-1999	19.3	15.3	21.3	16.8	25.4	29.5	19.1	22.3	16.0
2000-2009	25.3	22.2	26.4	25.3	28.9	32.6	23.8	25.6	19.0
2010-2016	23.7	22.2	26.0	21.6	26.0	31.5	22.7	24.2	17.8

Sources: Updated HUD LIHTC Project Database, Picture of Subsidized Households (1997, 2000, 2010, and 2016), Census (1990, 2000, and 2010), American Community Survey (2008-2012 and 2014-2018), and National Geospatial Data Asset.

Note: Tabulations include all tracts in the United States. Poor renter tabulations are not available in the 1990 Census. Housing Choice Voucher tabulations are not available in the 1990s. HCV = Housing Choice Vouchers. LIHTC = Low-Income Housing Tax Credit.

An average tenant faces a poverty exposure rate of 23.3%. Tenants in LIHTC units built during the 2000s experience the highest poverty exposure rate. This is partly due to increases in the poverty rate during and since the Great Recession. The 2000s is also the period that has the highest tax credit activity to date (partly due to economic recovery efforts.)

Table 2-4 shows poverty exposure for 9% tenants is considerably higher than the exposure of 4% tenants in the 1990s and the 2000s. Poverty exposure rates between the two programs converged in the most recent period. Increased competition and improved prioritization towards opportunity may have played a role in reducing poverty exposure in the 9% program. Chapter 1 shows that increased locational prioritizations are significantly correlated with siting in higher-

⁴¹ Picture of Subsidized Households can be accessed at <https://www.huduser.gov/portal/datasets/assthsg.html>. Due to data availability, years of Picture of Subsidized Households used are 2000 (for 1990-1999), 2010 (for 2000-2009), and 2016 (for 2010-2016).

⁴² To access “Assisted Housing - Public Housing” datasets, visit <https://catalog.data.gov/dataset/assisted-housing-public-housing-buildings>.

opportunity neighborhoods within the competitive 9% program. However, other factors also may be in play, such as neighborhood change and gentrification, local support and resistance, and preservation and revitalization efforts. For example, LIHTC investment is required to be part of a concerted neighborhood revitalization plan to receive credit boost.

Rehabilitation projects have considerably higher poverty exposure than new construction projects. There are several reasons for this. First of all, old affordable housing stock is disproportionately located in segregated and resource-poor areas. Second, it may be part of a state's strategy to leverage LIHTC investments hoping to revitalize these neighborhoods. Third, developers may pick projects in low-financing-cost but deteriorating neighborhoods. Study of the siting patterns of rehabilitated units may be beneficial in understanding how states can leverage 4% credit to addresses housing affordability while balancing the potentially competing housing objectives of poverty reduction and racial integration in financing rehabilitation.

How do siting patterns of LIHTC developments compare with those of other housing and subsidy programs? The average poverty exposure of LIHTC tenants is comparable to those of voucher holders and poor renters, but significantly higher than the rate of renters as a whole and lower than the rate of public housing residents. For instance, LIHTC tenants experience an average poverty exposure rate of 23.7% in units built between 2010 to 2016 while an average poor renter experiences a poverty exposure rate that is only 0.5 percentage points higher. The gap between LIHTC tenants and poor renters has narrowed from earlier estimates and is consistent with more recent ones (Lens et al., 2011; McClure, 2006). While public housing residents face extreme poverty exposure of 31.5%, an average renter experiences a poverty rate

of only 17.8%. These siting patterns indicate that tax credit development is unlikely to trigger more economic segregation.

Table 2-5: Unit Distributions by Neighborhood Poverty Rate and Period

(Shares)	All Tax Credit	4% New Cons.	4% Rehab.	9% New Cons.	9% Rehab.	Public Housing	HCV	Poor Renters	Renters
Neighborhood Poverty Rate Category									
1987-2016									
<10%	20.0	25.3	13.4	24.7	12.0	7.7	22.4	15.3	34.6
10~20%	28.5	31.2	27.3	29.6	24.8	21.1	32.8	31.0	32.7
20~30%	22.2	20.1	25.7	20.2	24.5	22.5	22.8	24.7	17.3
>30%	29.4	23.4	33.5	25.6	38.6	48.7	22.0	29.1	15.4
1987-1989									
<10%	23.2	25.4	14.4	38.8	12.2	9.3	-	-	41.1
10~20%	31.3	39.7	26.6	35.6	25.6	22.5	-	-	30.4
20~30%	18.7	21.0	20.1	14.2	20.9	22.6	-	-	14.2
>30%	26.8	13.9	38.8	11.4	41.2	45.6	-	-	14.2
1990-1999									
<10%	28.8	38.5	21.7	34.9	15.4	9.3	25.0	20.2	38.9
10~20%	32.5	37.8	32.9	34.4	25.8	24.5	35.4	32.2	32.8
20~30%	18.2	12.0	23.0	16.1	23.0	21.9	22.0	21.9	15.5
>30%	20.5	11.7	22.4	14.6	35.8	44.3	17.6	25.7	12.8
2000-2009									
<10%	15.3	21.5	10.6	16.5	8.6	6.0	15.0	11.0	28.9
10~20%	26.6	29.7	27.4	25.9	22.2	18.4	29.5	29.0	33.1
20~30%	23.7	22.3	25.7	22.4	26.3	22.7	25.7	26.4	19.6
>30%	34.4	26.5	36.3	35.2	42.9	53.0	29.8	33.6	18.4
2010-2016									
<10%	18.7	23.6	13.4	23.9	12.4	6.7	16.1	12.5	31.3
10~20%	27.1	27.9	24.1	28.8	27.0	19.4	31.2	31.1	34.1
20~30%	24.2	21.7	27.8	22.4	25.0	22.9	26.0	27.0	19.1
>30%	30.0	26.9	34.7	24.9	35.6	51.0	26.6	29.4	15.5

Sources: Updated HUD LIHTC Project Database, *Picture of Subsidized Households (1997, 2000, 2010, and 2016)*, Census (1980, 1990, 2000, and 2010), American Community Survey (2008-2012 and 2014-2018), and National Geospatial Data Asset.

Note: Tabulations include all tracts in the United States. Poor renter tabulations are not available in the 1990 Census. Housing Choice Voucher tabulations are not available in the 1990s. HCV = Housing Choice Vouchers, LIHTC = Low-Income Housing Tax Credit.

On average, households in newly constructed 4% developments have the closest poverty exposure to voucher holders. New construction projects by both credit types have shown some signs of poverty deconcentration in certain periods. The poverty exposure rate is 8.3 points lower for a household living in a new 4% units built between 1990 and 1999 than an average poor renter. This is also the largest difference between any type of LIHTC and poor renters.

Next, I describe the LIHTC siting patterns in detail. In terms of the number of low-income units, 4% investments are less likely to be made in high-poverty neighborhoods but more likely to happen in low-poverty neighborhoods than the 9% program. New 4% units are least likely to be sited in high-poverty neighborhoods. More 4% rehabilitation investments are made in low-poverty neighborhoods than the 9% credit. Overall, 4% investments are made in neighborhoods with better opportunity measures than 9% investments. While neither credit type shows persistent patterns of poverty concentration, 4% tax credit may have a slight edge over 9% credit in poverty deconcentration when compared with the spatial distributions of poor renters.

Among new construction developments, the difference between the siting patterns of 4% units and those of 9% units is small. Units enabled by the 4% credit is only slightly more likely to be located in low-poverty neighborhoods and slightly less likely to be located in high-poverty ones than those enabled by the 9% credit during the 1990s and 2000s. For projects built between 2010 and 2016, the trend reverses although the difference is still small. Among rehabilitated units, significantly fewer 4% units are located in high-poverty neighborhoods (33.5% vs. 38.6%). This is likely to be driven by the siting patterns during the 1990s.

Table 2-5 confirms that tax credit tenants live in similar neighborhoods as voucher holders in terms of the poverty rates (Ellen et al., 2009; McClure, 2006), differences do exist between

construction and credit types. Tax credit units are far less likely to be located in high-poverty neighborhoods than public housing units. LIHTC tenants are also more likely to live in low-poverty areas than other housing assistance recipients. Overall, an average neighborhood where tax credit units are located is comparable to that of where an average voucher holder lives.

The result reveals that larger shares of new tax credit units are constructed in low-poverty neighborhoods than those of voucher holders. However, the siting patterns of tax credit developments are still a lot worse than renters as a whole. While only 15.4% of renters live in high-poverty neighborhoods, almost 30% of all LIHTC tenants, 23.5% of tenants in new 4% units, and 25.6% of tenants in new 9% tenants live in such neighborhoods. In addition, rehabilitated units financed by the tax credit are far more likely to be located in higher poverty neighborhoods than where voucher holders and poor renters live. This pattern persists through all periods with available data. Such an investment strategy potentially does nothing to reduce poverty concentration.

Table 2-6 reveals that the siting of LIHTC units differs tremendously by housing market size and location.⁴³ Consistent with Chapter 1, the majority of states have set-asides for rural areas and specific targets that vary by housing market area. LIHTC deals reflect different state preferences, local market conditions, and regional costs and financing terms. As the size of housing market areas decreases, the siting pattern becomes more similar to the distribution of renters in that area.

Table 2-6: Unit Distributions by Neighborhood Poverty Rate and Core-Based Statistical Area Size

⁴³ To simplify, I only show the distributions of units collapsed together. CBSA definitions may vary from decade to decade. Units built during 1987-1989 are based on 1980 CBSA designations, units built during 1990-1999 are based on 1990 CBSA designations, units built during 2000-2009 are based on 2000 CBSA designation, and units built during 2010-2016, are based on 2010 CBSA designations.

(Shares)	All Tax Credit	4% New Cons.	4% Rehab.	9% New Cons.	9% Rehab.	Public Housing	HCV	Poor Renters	Renters
Neighborhood Poverty Rate Category									
Metro >1 Million Population									
<10%	20.9	25.6	13.6	27.8	13.1	7.5	24.8	16.9	38.9
10~20%	25.5	28.0	25.1	26.1	21.9	15.2	30.6	28.1	30.1
20~30%	22.1	20.5	26.5	18.9	23.9	18.4	22.3	24.2	16.2
>30%	31.5	25.9	34.8	27.2	41.1	58.9	22.3	30.9	14.8
Metro 250,000~1 Million Population									
<10%	20.6	28.5	13.0	25.1	11.0	9.1	22.1	15.6	34.4
10~20%	27.7	33.6	29.1	26.8	23.2	21.9	31.9	29.2	31.5
20~30%	20.4	17.2	22.4	19.1	23.9	21.5	21.8	23.1	16.7
>30%	31.4	20.7	35.4	28.9	41.9	47.5	24.1	32.1	17.4
Metro <250,000 Population									
<10%	18.9	24.3	15.3	21.6	9.9	8.1	19.1	14.2	27.4
10~20%	32.5	38.4	34.4	33.3	25.4	22.5	34.5	33.2	35.2
20~30%	22.4	20.9	21.9	21.6	26.1	25.5	23.7	23.6	18.5
>30%	26.2	16.5	28.4	23.5	38.6	43.8	22.8	29.0	18.9
Micro Area									
<10%	17.4	19.5	13.0	19.8	12.2	7.3	16.7	12.0	22.9
10~20%	39.6	47.8	39.7	38.9	37.1	32.2	41.7	39.1	42.3
20~30%	22.3	19.9	27.3	21.1	24.2	30.3	23.9	26.6	20.5
>30%	20.7	12.8	20.0	20.2	26.6	30.2	17.7	22.3	14.3
Non-CBSA Area									
<10%	11.9	14.2	9.1	13.7	7.8	6.5	10.7	8.6	15.7
10~20%	43.2	48.2	45.6	41.7	41.7	38.7	46.4	43.8	48.7
20~30%	30.1	25.9	30.0	30.5	32.3	36.9	30.1	32.5	25.7
>30%	14.8	11.6	15.2	14.1	18.3	17.9	12.9	15.2	10.0

Sources: Updated HUD LIHTC Project Database, Picture of Subsidized Households (1997, 2000, 2010, and 2016), Census (1980, 1990, 2000, and 2010), American Community Survey (2008-2012 and 2014-2018), and National Geospatial Data Asset.

Note: CBSA population is calculated based on CBSA designations per decade. Poor renter tabulations are not available in the 1990 Census. Housing Choice Voucher tabulations are not available in the 1990s. CBSA = Core-Based Statistical Area, HCV = Housing Choice Vouchers, LIHTC = Low-Income Housing Tax Credit.

While 31.5% of all tax credit units are located in high-poverty neighborhoods within a metropolitan with one million population or more, only 14.8% of units are in these neighborhoods in non-Core-Based Statistical (non-CBSA) Areas.⁴⁴ These shares are in line with

⁴⁴ CBSAs include both metropolitan and micropolitan statistical areas. Metropolitan statistical areas have at least one urbanized area of 50,000 or more population, plus adjacent territory that has a high degree of social and economic integration. Micropolitan statistical areas have at least one urban cluster of at least 10,000 but less than

the distribution of poor renters. There are only 4.4% of all LIHTC units located in non-CBSA areas. It is likely that development cost is more homogenous across neighborhoods in these areas so that developers can place units to where demand exists.

In general, there are higher percentages of new 4% units almost always have more shares in low-poverty neighborhoods and fewer shares in high-poverty neighborhoods than new 9% units across housing market sizes. Noticeably, these shares are trended in better directions than those of voucher holders except metropolitan areas with one million population or more. Overall, neighborhoods of LIHTC units have slightly higher poverty rates than neighborhoods where voucher holders live across housing market sizes.

Apart from what is required by the federal statute, states set own awarding criteria and prioritization. To simplify, Table 2-7 shows variation of siting patterns grouped by regions.⁴⁵ States in the West have a relatively smaller share of tax credit units located in high-poverty neighborhoods. However, a much smaller share of voucher holders is located in these neighborhoods in the West. The South region generally has comparable shares of tax credit units in low-poverty and high-poverty neighborhoods as the shares of voucher holders. The distributions of tax credit are correlated with the distributions of poor renters in these regions. States in the Northwest have the highest share of tax credit units in high-poverty neighborhoods, far past the shares of voucher holders and poor renters. Overall, the regional differences in the distributions of poor renters (and thus the distribution of poverty) are likely to correlate with the distribution of tax credit units.

50,000 population, plus adjacent territory that has a high degree of social and economic integration. Non-CBSA areas are smaller, often rural, areas.

⁴⁵ These distributions are collapsed together across all decades.

Table 2-7: Unit Distributions by Neighborhood Poverty Rate and Region

(Shares)	All Tax Credit	4% New Cons.	4% Rehab.	9% New Cons.	9% Rehab.	Public Housing	HCV	Poor Renters	Renters
Geographic Region									
Neighborhood Poverty Rate Category									
Midwest									
<10%	27.2	34.5	17.0	37.8	13.9	12.4	23.7	20.1	38.2
10~20%	27.7	32.9	26.1	28.4	25.5	28.7	32.7	31.5	31.5
20~30%	17.2	14.8	17.2	14.7	22.3	19.6	20.8	20.3	14.5
>30%	27.9	17.8	39.7	19.2	38.3	39.3	22.8	28.1	15.8
Northeast									
<10%	20.8	28.5	10.3	35.3	14.0	8.1	27.9	17.4	39.6
10~20%	21.5	21.6	22.1	22.1	20.0	16.3	29.8	27.0	28.8
20~30%	20.7	13.5	26.9	15.0	23.8	19.6	20.2	22.6	15.8
>30%	37.0	36.3	40.6	27.6	42.2	56.0	22.1	32.9	15.8
South									
<10%	16.0	18.5	13.1	18.2	10.4	3.6	16.2	12.0	29.2
10~20%	29.4	31.7	29.4	29.8	26.2	20.6	31.6	31.4	34.1
20~30%	24.4	24.5	26.4	23.2	25.8	27.8	25.7	26.9	19.7
>30%	30.1	25.2	31.1	28.8	37.6	48.1	26.4	29.6	17.0
West									
<10%	19.7	30.7	14.3	19.3	10.4	12.3	24.2	15.1	35.0
10~20%	32.5	34.9	31.2	33.9	26.2	26.6	37.6	32.9	35.1
20~30%	23.8	18.9	29.6	22.2	26.3	21.3	22.9	26.3	17.6
>30%	23.9	15.4	24.8	24.5	37.1	39.9	15.3	25.8	12.3

Sources: Updated HUD LIHTC Project Database, Picture of Subsidized Households (1997, 2000, 2010, and 2016), Census (1980, 1990, 2000, and 2010), American Community Survey (2008-2012 and 2014-2018), and National Geospatial Data Asset.

Note: Poor renter tabulations are not available in the 1990 Census. HCV tabulations are not available in the 1990s. HCV = Housing Choice Vouchers, LIHTC = Low-Income Housing Tax Credit.

New 4% developments perform better in the Midwest and West regions, similar performance in the South region, and perform worse in the Northeast region than new 9% developments by the shares of units sited in high- and low- poverty tracts. When compared to where voucher holders are, the West region loses its edge. This again shows different strategies a state may use in utilizing different credit types. This siting pattern also brings questions into the efficacy of 9% credit, which is subject to much stronger locational prioritization and oversight from the states but without a significantly better siting outcome.

The analysis continues with minority exposure experienced by different types of households. Table 2-8 shows that an average LIHTC tenant lives in a neighborhood with a rate of minority exposure of 52.8% over four periods. LIHTC tenants are generally more likely to face higher minority concentration than voucher holds and poor renters. 4% tenants have higher minority exposure than 9% tenants with both construction types.

The racial composition of the population varies greatly by state and housing markets, perhaps a better measure is the exposure to minority as compares with the larger housing market.⁴⁶ More than 40% of tax credit units are currently located in minority-concentrated areas (*i.e.*, the difference in minority shares between a neighborhood and its CBSA or county greater than 20 percentage points). Forty-two percent of LIHTC tenants live in minority-concentrated neighborhoods, 1.7 times higher than the share of renters live in such neighborhoods. While shares of new LIHTC units in minority-concentrated neighborhoods are similar to those of voucher holders and poor renters, tenants in rehabilitated projects are much more likely to live in minority-concentrated areas. Rehabilitated tax credit units are less likely to be sited in a non-concentrated area. The results suggest that *new* tax credit developments may not exacerbate minority segregation, nor do they reduce it.

⁴⁶ In this chapter, I acknowledge the limitations of grouping minority population together. The distributions of different minority groups are different across states and regions. I tend to focus on the general pattern of the distribution of minority.

Table 2-8: Average Minority Exposure Comparison

(Percents)	All Tax Credit	4% New Cons.	4% Rehab.	9% New Cons.	9% Rehab.	Public Housing	HCV	Poor Renters	Renters
1987-2016	52.8	53.9	60.0	47.2	55.5	57.1	48.6	50.7	40.1
1987-1989	35.4	20.7	35.2	23.2	52.2	49.7	-	-	30.7
1990-1999	44.3	32.8	53.6	37.6	58.8	56.0	47.4	46.3	38.4
2000-2009	56.8	59.0	60.4	53.3	56.2	60.1	56.4	52.9	43.2
2010-2016	56.9	64.2	65.0	52.0	51.2	61.3	57.9	55.0	45.9

Sources: Updated HUD LIHTC Project Database, Picture of Subsidized Households (1997, 2000, 2010, and 2016), Census (1980, 1990, 2000, and 2010), American Community Survey (2008-2012 and 2014-2018), and National Geospatial Data Asset.

Note: Tabulations include all tracts in the United States. Poor renter tabulations are not available in the 1990 Census. HCV tabulations are not available in the 1990s. HCV = Housing Choice Vouchers, LIHTC = Low-Income Housing Tax Credit.

Table 2-9 suggests LIHTC units are increasingly financed in minority-concentrated neighborhoods from the 1980s to the 2000s. During the same periods, the distributions of renters and poor renter have been stable. While the shares of rehabilitated units in such neighborhoods have increased, those shares of new units have increased more dramatically. Such a siting pattern is potentially due to state siting decisions and the aging of affordable housing stock more than demographic changes. The siting of new 9% units shows signs of improvement over new 4% units during the 2010s. Fewer 9% rehabilitation investments have been made in minority-concentrated areas than 4% investment during the same period. This may indicate a shift in allocating policies after the 2000s.

More than half of tax credit units are located in minority-concentrated neighborhoods in large metropolitan areas as shown in

Table 2-10. However, this share is similar to that of where poor renter lives. In other housing areas, the ratios between the share of LIHTC units and the share of poor renters in minority-concentrated areas are slightly over 1. LIHTC does not seem to exacerbate minority concentration. Similar shares of new 4% units are located in high-minority neighborhoods as the

shares of new 9% units. The shares of new 4% units are smaller than the shares of poor renters across housing area types. This indicates that some parts of the LIHTC program may help with reducing economic and minority concentration, at least in the short term.

Table 2-9: Unit Distributions by Neighborhood Minority Share and Period

(Shares)	All Tax Credit	4% New Cons.	4% Rehab.	9% New Cons.	9% Rehab.	Public Housing	HCV	Poor Renters	Renters
Neighborhood Minority Share Difference with CBSA/County									
1987-2016									
<-20 pts.	5.3	6.2	3.8	6.4	3.8	2.8	5.9	6.9	12.3
-20~20 pts.	53.0	55.4	46.2	58.8	46.1	43.7	55.2	54.3	62.8
>20 pts.	41.7	38.3	50.0	34.9	50.2	53.5	38.9	38.8	24.9
1987-1989									
<-20 pts.	4.0	5.3	1.9	5.4	3.0	2.6	-	-	12.1
-20~20 pts.	63.6	81.3	61.5	79.1	43.5	49.2	-	-	66.5
>20 pts.	32.4	13.4	36.6	15.5	53.5	48.2	-	-	21.4
1990-1999									
<-20 pts.	6.3	8.8	4.8	7.2	3.7	2.5	5.7	7.0	12.2
-20~20 pts.	58.0	71.9	48.0	66.1	39.6	44.1	55.8	56.5	62.6
>20 pts.	35.8	19.3	47.1	26.7	56.6	53.4	38.4	36.5	25.2
2000-2009									
<-20 pts.	4.4	5.4	2.7	5.2	3.5	2.8	5.5	6.7	12.5
-20~20 pts.	50.2	51.4	46.7	53.3	45.9	41.5	47.9	52.8	61.7
>20 pts.	45.4	43.2	50.7	41.5	50.6	55.7	46.6	40.6	25.8
2010-2016									
<-20 pts.	6.0	6.2	5.1	7.5	4.3	3.2	5.5	6.9	12.5
-20~20 pts.	51.4	47.5	43.3	56.2	55.0	40.9	48.5	52.7	61.3
>20 pts.	42.6	46.3	51.6	36.2	40.7	55.9	46.1	40.4	26.3

Sources: Updated HUD LIHTC Project Database, Picture of Subsidized Households (1997, 2000, 2010, and 2016), Census (1980, 1990, 2000, and 2010), American Community Survey (2008-2012 and 2014-2018), and National Geospatial Data Asset.

Note: Tabulations include all tracts in the United States. Poor renter tabulations are not available in the 1990 Census. HCV tabulations are not available in the 1990s. CBSA = Core-Based Statistical Area, HCV = Housing Choice Vouchers, LIHTC = Low-Income Housing Tax Credit.

There are regional differences in the distributions of minority as well. The West region has the smallest share of LIHTC units in minority-concentrated neighborhoods. This share in the West is also smaller than the share of poor renters in such neighborhoods in. These trends, again,

are in relation with the distributions of poor renters across regions. 9% units are more likely to be located in minority-concentrated neighborhoods than 4% units in the West. In the South, the share of LIHTC units in minority-concentrated neighborhoods is 1.3 times higher than the share of poor renters in these neighborhoods. 4% units are more likely to be sited in minority-concentrated areas than 9% units in the South and the Northeast.

Table 2-10: Unit Distributions by Neighborhood Minority Share and Core-Based Statistical Area Size

(Shares)	All Tax Credit	4% New Cons.	4% Rehab.	9% New Cons.	9% Rehab.	Public Housing	HCV	Poor Renters	Renters
Neighborhood Minority Share Difference with CBSA/County									
Metro >1 Million Population									
<-20 pts.	6.8	7.3	4.1	9.9	4.7	3.1	8.1	9.0	17.0
-20~20 pts.	41.6	47.2	38.1	45.2	33.5	25.2	42.1	38.8	51.1
>20 pts.	51.5	45.5	57.9	44.9	61.8	71.7	49.8	52.2	31.9
Metro 250,000~1 Million Population									
<-20 pts.	3.2	3.8	3.0	3.5	2.2	1.2	2.7	4.6	6.9
-20~20 pts.	59.4	67.0	56.1	62.3	50.0	49.7	64.5	62.8	73.2
>20 pts.	37.4	29.1	40.9	34.2	47.9	49.2	32.8	32.6	19.9
Metro <250,000 Population									
<-20 pts.	1.8	1.4	2.4	1.4	2.7	1.1	1.6	3.4	4.1
-20~20 pts.	72.8	79.3	78.6	73.5	63.3	61.8	75.3	73.2	81.9
>20 pts.	25.5	19.4	19.0	25.1	34.1	37.2	23.1	23.4	14.0
Micro Area									
<-20 pts.	1.8	3.4	2.1	1.7	1.2	1.6	1.6	2.5	2.8
-20~20 pts.	84.6	89.0	86.5	83.8	83.4	80.2	86.6	84.5	89.0
>20 pts.	13.6	7.6	11.4	14.5	15.5	18.2	11.8	13.0	8.2
Non-CBSA Area									
<-20 pts.	7.2	8.0	6.6	7.7	5.9	7.9	10.0	9.1	9.4
-20~20 pts.	78.8	81.7	82.4	76.5	79.7	76.7	81.3	79.0	82.6
>20 pts.	14.1	10.3	11.1	15.8	14.5	15.5	8.7	11.9	8.1

Sources: Updated HUD LIHTC Project Database, Picture of Subsidized Households (1997, 2000, 2010, and 2016), Census (1980, 1990, 2000, and 2010), American Community Survey (2008-2012 and 2014-2018), and National Geospatial Data Asset.

Note: CBSA population is calculated from the 2010 Census. Poor renter tabulations are not available in the 1990 Census. HCV tabulations are not available in the 1990s. CBSA = Core-Based Statistical Area, HCV = Housing Choice Vouchers, LIHTC = Low-Income Housing Tax Credit.

Table 2-11: Unit Distributions by Neighborhood Minority Share and Region

(Shares)	All Tax Credit	4% New Cons.	4% Rehab.	9% New Cons.	9% Rehab.	Public Housing	HCV	Poor Renters	Renters
Geographic Region									
Midwest									
<-20 pts.	4.3	6.3	3.1	5.1	3.0	4.0	4.1	5.5	8.4
-20~20 pts.	61.2	70.7	48.8	69.8	51.9	58.2	58.4	59.6	70.6
>20 pts.	34.5	23.1	48.1	25.0	45.1	37.8	37.4	34.9	21.1
Northeast									
<-20 pts.	6.0	7.7	3.4	11.1	3.0	1.7	8.1	7.0	13.4
-20~20 pts.	37.8	42.4	32.1	45.5	33.9	28.8	50.1	41.2	54.1
>20 pts.	56.2	49.9	64.4	43.3	63.1	69.4	41.8	51.8	32.5
South									
<-20 pts.	5.3	5.1	3.3	6.3	4.6	3.1	4.8	7.3	12.1
-20~20 pts.	49.2	48.4	43.5	53.7	43.6	49.5	53.0	56.0	62.2
>20 pts.	45.5	46.5	53.2	40.1	51.8	47.4	42.2	36.7	25.7
West									
<-20 pts.	5.7	7.3	4.9	5.7	4.0	3.4	6.5	7.4	15.0
-20~20 pts.	63.1	67.8	59.7	63.9	58.3	52.6	60.9	57.4	64.5
>20 pts.	31.3	24.9	35.4	30.4	37.7	44.0	32.5	35.2	20.6

Sources: Updated HUD LIHTC Project Database, *Picture of Subsidized Households (1997, 2000, 2010, and 2016)*, Census (1980, 1990, 2000, and 2010), American Community Survey (2008-2012, 2014-2018), and National Geospatial Data Asset.

Note: Tabulations include all tracts in the United States. Poor renter tabulations are not available in the 1990 Census. Geographic region uses classifications designated by the Census Bureau. Housing Choice Voucher tabulations are not available in the 1990s. HCV = Housing Choice Vouchers, LIHTC = Low-Income Housing Tax Credit.

Overall, LIHTC units do not seem to exacerbate poverty concentration, at least in the short run. New LIHTC units may have helped to reduce poverty concentration by siting more units in low-poverty neighborhoods and away from the high-poverty neighborhoods in which poor renters are more likely to live. The difference between LIHTC units and poor renters, however, is very small. LIHTC program provides slightly worse access to low-poverty neighborhoods than the housing voucher program, but significantly better than access to low-poverty neighborhoods than public housing. The 4% program has a slight edge over the 9% program in placing low-income households into low-poverty neighborhoods and away from

high-poverty neighborhoods, potentially reducing poverty concentration, until the most recent period. On average, households in newly constructed 4% developments have the closest poverty exposure to voucher holders. As discussed in Chapter 1, improvement in the siting outcomes of 9% units may be due to increased competition and improved location prioritization across states.

The overall LIHTC program also does not seem to exacerbate minority segregation, nor does it reduce it to any meaningful extent in the short term. The spatial distributions of LIHTC units are similar to those of housing voucher holders. Until the 2000s, residents of 4% units lived in slightly more racially diverse and white-dominant neighborhoods than residents of 9% units. However, racial siting patterns seem to be varying greatly by states.

Newly constructed units can certainly have a more direct impact on poverty and racial compositions than rehabilitated units. The spatial distribution of new 4% units is comparable to those of voucher holders and poor renters. Another way that the LIHTC could affect poverty and minority concentration is through the rehabilitation of existing affordable housing stock. These effects perhaps are more longer-term. A significant share of 4% and 9% credits are used to rehabilitate existing units. Between the two tax credit types, rehabilitated 4% units are more likely to be located in lower-poverty neighborhoods than the 9% tax credit units. Rehabilitated 4% units have lower average poverty exposure than rehabilitated 9% units. However, units in the two credit type programs have similar distributions across high- and low-minority neighborhoods.

In general, 4% units are sited in less-poor neighborhoods than 9% units. However, 4% units are slightly more likely to be located in minority-concentrated areas. Overall, the 4% program, without much competition or oversight, has a slightly advantageous spatial distribution

than the 9% program. LIHTC units may also likely affect the longer-term trajectory of a neighborhood. As a neighborhood may also change before, during, and after a tax credit deal is reached and placed in service, it is important to isolate any subsequent changes and potential impacts made solely due to the LIHTC investment.

Tax Credit Investments and Neighborhood Change

The analyses above focus on the short-term compositional effect of tax credit investments on neighborhoods. In the short term, the siting of LIHTC units may not further segregation (and in some cases may even reduce concentration.) In the long run, however, these investments can potentially help to revitalize low-income areas, the subject of empirical analysis in this section.

Many neighborhood-impact studies face the methodological challenge of determining the direction of causality (Freeman & Botein, 2002; Galster, 2012), a challenge also present in isolating the impacts of LIHTC developments. The selection of tax credit developments is inevitably endogenous. The results may overstate the positive effects of these investments, if they were sited in neighborhoods that already were improving. The results also may mischaracterize the negative effects of these investments in neighborhoods that were experiencing increases in poverty.

To address the endogeneity problem caused by reverse causality and unobserved heterogeneity, I use a structural equation modeling framework with maximum likelihood method (SEM-ML) to estimate longer-term effects (Allison, 2009; Allison et al., 2017). I use a dynamic panel model with fixed effects which maps the interplay between dependent and independent variables over time by including lagged values of the dependent variable and allowing for

reciprocal causation. This SEM-ML framework has been theoretically proven to reduce bias in the case of reverse causality (Allison et al., 2017; Leszczensky & Wolbring, 2019).

I first create a panel pooling LIHTC units across the four periods (1980-1989, 1990-1999, 2000-2009, and 2000-2016). To isolate the impacts of LIHTC developments on neighborhood changes, the model includes fixed effects to control for unobserved time-invariant differences, such as discrepancies between tracts that receive allocations and those that do not receive allocations. Clusters on CBSAs are introduced to control for trends within a housing market area and regional differences that might affect both LIHTC allocation and poverty rates. The full estimation is as follows:

$$Pov_{nt} = \alpha + \beta_1 Pov_{nt-1} + \beta_2 LIHTC4_{nt-1} + \beta_3 LIHTC9_{nt-1} + \beta_4 X_{nt-1} + \alpha_n + \varepsilon_{nt}$$

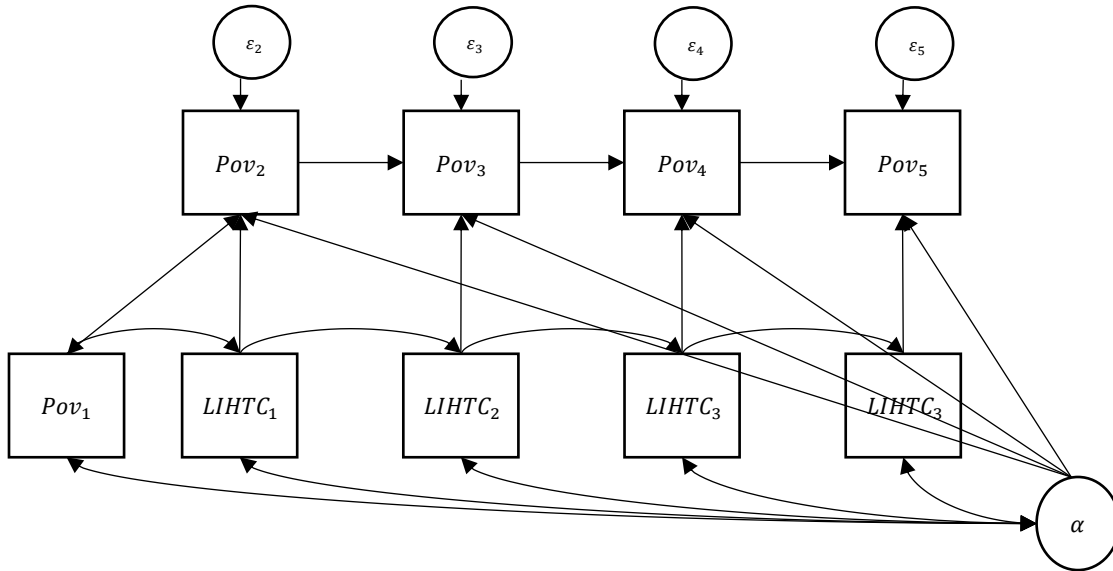
where Pov_{nt} represents the neighborhood poverty rate in tract n in time t . Pov_{nt-1} is the lagged tract poverty rate. $LIHTC4$ and $LIHTC9$ represent the total numbers of 4% units placed in service during one period. That is, for each tract I model poverty rate as of 1990, 2000, 2010, and 2016 as a function of counts of LIHTC units in 1987-1989, 1990-1999, 2000-2009, and 2010-2016 respectively.⁴⁷ α_n represents the combined fixed effects of all time-invariant unobserved variables. Error terms and α are also called latent exogenous variables.

Figure 2-2 shows a simplified path diagram for this model. In the model, there are the endogenous poverty rate variables (Pov_t) and the predetermined LIHTC count variables ($LIHTC_t$). All predetermined variables are allowed to freely correlate with each other, as well as the initial poverty rate in 1970, which is treated like any other exogenous variable. The latent

⁴⁷ Neighborhood change is likely to be a long process. A decade-long interval is designed to approximate the causal lag – that is, the period that it takes for tax credit units to cause an effect (Taris, 2000). There are no estimates on how long it takes to affect any neighborhood changes. Also due to data limitations, a decade panel model is applied.

variable α (enclosed in a circle) is allowed to correlate with all the exogenous variables. α affects each poverty rate variable.

Figure 2-2: Path Diagram for Structural Equation Model



I then add a collection of lagged time-variant tract characteristics (X_{mt-1}), which describe the characteristics of the tract as of 1980, 1990, 2000, and 2016 respectively. These variables include the share of African Americans, the share of Hispanic, the share of foreign-born, the share of population with bachelor’s degree or more, percent of owner-occupied units, percent of housing units built before 1940, and percent of housing units in the last 10 years at the tract level. I use these variables to control for different types of neighborhood and measure neighborhood changes with a focus on housing investment and demographics (Beauregard, 1990; Cohen & Pettit, 2019; Quercia & Galster, 2000). I estimate this model on all tracts and then interact LIHTC units with tract poverty rates at the start of the period. Lastly, I separate the impacts of new construction projects and rehabilitation projects. While new construction projects are

expected to have both direct and spillover effects, rehabilitation projects may mostly produce longer-term spillover effects on the surrounding neighborhood.

Table 2-12 includes all LIHTC developments ever been placed in service from 1987 to 2016 in metropolitan and micropolitan areas (collectively called CBSAs). The pooled panel data include all active, inactive, new, or rehabilitated units. Without control variables, investment of one-hundred 4% units decreases the neighborhood poverty rate by 0.33 percentage points on average. 9% investments reduce the poverty rates by 0.68 percentage points. The ratio between these two effect sizes is about 1:2. According to Figure 2-1, the average number of 9% units per tract is also twice as many as the average of 4% units per tract.

LIHTC investments may affect poverty differently in different types of neighborhoods. For the second and third columns, interaction terms between LIHTC units and neighborhood poverty categories are added. In reference to the base category of low-poverty neighborhoods, one-hundred 4% units may reduce the poverty rates of high-poverty neighborhoods by 0.63 percentage points. On the other hand, every one-hundred 9% unit reduces poverty rates of high-poverty neighborhoods by 1.12 percentage points. Again, the effect size of 9% investments is almost twice as much as the effect size of 4% investments. Even though these magnitudes are still quite small, it reveals the potential to reduce poverty concentration. The model with full controls in the third column shows that every one-hundred 4% units financed and one-hundred 9% units financed reduces neighborhood poverty rates in high-poverty neighborhoods by 0.23 and 1.09 percentage points respectively when compared with low-poverty neighborhoods. Both tax credit programs are reducing poverty rates in neighborhoods with moderate poverty tracts to a similar magnitude.

Table 2-12: Structural Equations Modeling Results of Tax Credit Investment on Poverty Rate, 1987 to 2016

	(1)	(2)	(3)
		Poverty Rate	
4% Credit Units / 100	-0.328*** (0.077)	-0.135 (0.128)	0.253*** (0.096)
9% Credit Units / 100	-0.682*** (0.093)	-0.246*** (0.084)	0.242*** (0.067)
Poverty Rate 10-20% X 4% Credit Units / 100		0.041 (0.130)	-0.189* (0.108)
Poverty Rate 20-30% X 4% Credit Units / 100		-0.034 (0.146)	-0.474*** (0.132)
Poverty Rate >30% X 4% Credit Units / 100		-0.497*** (0.183)	-0.84*** (0.159)
Poverty Rate 10-20% X 9% Credit Units / 100		-0.306* (0.128)	-0.37*** (0.097)
Poverty Rate 20-30% X 9% Credit Units / 100		-0.238 (0.154)	-0.591*** (0.146)
Poverty Rate >30% X 9% Credit Units / 100		-0.878*** (0.204)	-1.329*** (0.173)
Pct. African American			14.014*** (0.979)
Pct. Hispanic			10.148*** (0.829)
Pct. Foreign-Born			3.319*** (1.049)
Pct. With 4-Year College Degree or More			-10.219*** (0.833)
Pct. Owner Occupied Units			-16.155*** (0.775)
Pct. Structures Built in Last 10 Years			-1.682*** (0.265)
Pct. Structures Built More Than 30 Years Ago			1.613*** (0.266)
Observations	56,598	56,598	56,598
RMSEA	0.078	0.045	0.045
Comparative Fit Index	0.938	0.994	0.997
Clusters	CBSA	CBSA	CBSA

*Note: Robust clustered standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. CBSA = Core-Based Statistical Area, RMSEA = Root Mean Square Error of Approximation.*

Overall, LIHTC investments do not seem to exacerbate poverty. Spillover effects from LIHTC investments seem to explain the longer-run decline in poverty rates. LIHTC investments may have sparked neighborhood revitalizations and slightly reduced poverty rates in high- and

moderate-poverty areas for about one percentage-point for every 100 units financed. Again, these effect sizes are small.

New construction developments arguably have more potentials to reduce poverty concentration immediately. As the primary goal for rehabilitation is often to preserve existing low-income and affordable housing stock, rehabilitation investments may not significantly alter demographic compositions straightaway. Table 2-13 includes all LIHTC units placed in service between 1987 to 2016 in metropolitan and micropolitan areas separated by construction types. The first column in the table shows that the creation of one-hundred new 4% units is estimated to reduce average poverty rates by 0.34 percentage points. The magnitude is 2.6 times higher when investment is made through the 9% program. Rehabilitation does not seem to have a meaningful and significant effect on the average neighborhood poverty rate. Rehabilitated 9% units may significantly, but negligibly, reduce poverty rate by 0.002 percentage points per 100 units.

When introduced interaction terms, the decreases in poverty rates after the creation of new 4% units are mostly from building in low-poverty neighborhoods. While the 4% program reduces poverty rates in high-poverty neighborhoods by 0.80 percentage points per 100 new units, the 9% program reduces neighborhood poverty rates by 1.77 percentage points. The effect is, again, about two times higher for the new 9% units. The difference in reduction is slightly smaller when other control variables are added to the model. The 9% program also marginally reduces poverty rates in neighborhoods with moderate poverty rates.

Table 2-13: Structural Equations Modeling Results of New and Rehabilitation Tax Credit Investment on Poverty Rate, 1987 to 2016

	(1)	(2)	(3)
		Poverty Rate	
New 4% Credit Units / 100	-0.344*** (0.056)	-0.091 (0.126)	0.245** (0.095)
New 9% Credit Units / 100	-0.908*** (0.056)	-0.182** (0.080)	0.241*** (0.067)
Poverty Rate 10-20% X New 4% Credit Units / 100		-0.083 (0.134)	-0.190* (0.109)
Poverty Rate 20-30% X New 4% Credit Units / 100		-0.024 (0.179)	-0.475*** (0.133)
Poverty Rate >30% X New 4% Credit Units / 100		-0.705*** (0.179)	-0.830*** (0.159)
Poverty Rate 10-20% X New 9% Credit Units / 100		-0.468*** (0.143)	-0.357*** (0.098)
Poverty Rate 20-30% X New 9% Credit Units / 100		-0.599*** (0.177)	-0.591*** (0.147)
Poverty Rate >30% X New 9% Credit Units / 100		-1.585*** (0.240)	-1.327*** (0.175)
Rehabilitated 4% Credit Units / 100	-0.078 (0.001)	0.037 (0.136)	0.155 (0.112)
Rehabilitated 9% Credit Units / 100	-0.002*** (0.001)	0.001 (0.001)	0.004*** (0.001)
Poverty Rate 10-20% X Rehabilitated 4% Credit Units / 100		0.143 (0.137)	0.039 (0.146)
Poverty Rate 20-30% X Rehabilitated 4% Credit Units / 100		-0.112 (0.125)	-0.315** (0.126)
Poverty Rate >30% X Rehabilitated 4% Credit Units / 100		-0.245 (0.184)	-0.461** (0.183)
Poverty Rate 10-20% X Rehabilitated 9% Credit Units / 100		-0.004** (0.002)	-0.004*** (0.002)
Poverty Rate 20-30% X Rehabilitated 9% Credit Units / 100		-0.002 (0.002)	-0.004** (0.002)
Poverty Rate >30% X Rehabilitated 9% Credit Units / 100		-0.004* (0.003)	-0.010*** (0.002)
Pct. African American			13.963*** (0.994)
Pct. Hispanic			10.181*** (0.835)
Pct. Foreign-Born			3.283*** (1.065)
Pct. With 4-Year College Degree or More			-10.184*** (0.855)
Pct. Owner Occupied Units			-16.110*** (0.779)
Pct. Structures Built in Last 10 Years			-1.671*** (0.267)
Pct. Structures Built More Than 30 Years Ago			1.650*** (0.267)
Observations	67,154	67,154	67,154
RMSEA	0.030	0.020	0.044
Comparative Fit Index	0.994	0.999	0.997
Clusters	CBSA	CBSA	CBSA

Note: Robust clustered standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. CBSA = Core-Based Statistical Area, RMSEA = Root Mean Square Error of Approximation.

First and foremost, LIHTC investments do not seem to exacerbate poverty at the neighborhood level. As expected, new construction units are likely to have larger long-term impacts in terms of poverty reduction. While the 9% program reduces poverty rates in high-poverty neighborhoods twice as much as the 4% program, the 4% program is also producing some poverty reduction results in that regard without much oversight and competition. Either by market forces or inexplicit government policies, 4% developments are more likely to initiate changes in moderate-poverty neighborhoods than in high-poverty areas. Rehabilitation investment does not seem to affect neighborhood poverty rates in the long run.

I then estimate a minority share model with a similar approach:

$$Min_{nt} = \alpha + \beta_1 Pov_{nt-1} + \beta_2 LIHTC4_{nt-1} + \beta_3 LIHTC9_{nt-1} + \beta_4 X_{nt-1} + \alpha_n + \varepsilon_{nt}$$

where Min_{nt} represents the minority share in tract n in time t . $LIHTC4$ and $LIHTC9$ represent the total number of 4% units and the total number of 9% units placed in service in a tract. For each tract I model minority share as of 1990, 2000, 2010, and 2016 as a function of counts of LIHTC units in 1987-1989, 1990-1999, 2000-2009, and 2010-2016 respectively, and a collection of lagged, time-varying tract characteristics (X_{nt-1}). These variables include poverty rate, the share of foreign-born, the share of population with bachelor's degree, percent of owner-occupied units, percent of housing units built before 1940, and percent of units built in the last 10 years at the tract level. I then separate new construction from rehabilitation.

The first column of Table 2-14 shows that changes in poverty rates by LIHTC investment are not statistically significant in the model without controls. The second and third columns add interaction terms between LIHTC units and minority shares. Different from the poverty models, baseline coefficients show that tax credit units may be able to reduce neighborhood minority

shares. However, it is worth digging deeper on how they change minority shares in different types of neighborhoods. 4% investment marginally increases minority shares in minority-concentrated neighborhoods by about 0.15 percentage points per 100 units financed. Every one-hundred 9% unit is also increasing the average minority share by 0.86 percentage points in minority-concentrated neighborhoods. However, when neighborhood controls are introduced, 9% investments per 100 units reduces minority shares in minority-concentrated neighborhoods by 0.76 percentage points. However, 4% investments do not significantly change minority shares in these neighborhoods. The overall results indicate that 4% investments may be more likely to initiate neighborhood changes in poor but not minority-concentrated neighborhoods.

Lastly, I separate new construction from rehabilitation projects. The first column in Table 2-15 reveals that new 4% units and new 9% units reduce neighborhood minority shares by 0.36 and 0.65 percentage points per 100 units respectively. Rehabilitated 9% units have a small effect of increasing minority share by 0.01 percentage points per 100 units. With interactions terms, most of these changes are from decreases in minority shares of units built in low-minority neighborhoods. Both credit types slightly increase minority shares in minority-concentrated neighborhoods. With full controls, both tax credit programs increase minority shares in minority-concentrated neighborhoods by only 0.2 percentage points. Rehabilitated 9% units imperceptibly increase minority share by about 0.01 percentage points per 100 units.

The LIHTC program does not seem to exacerbate racial segregation. It also does not reduce minority concentration. Overall, the 4% investments in new construction projects are doing comparably with the 9% investments in terms of racial segregation. Both programs seem to decrease minority-concentrations in low-minority areas. However, the magnitude of these

coefficients is very small. Both programs may have induced more in-flows of white households into these neighborhoods or placed more white low-income households into these neighborhoods. More insights are needed for the actual compositions of tenants within projects sited in these neighborhoods. The 4% program has slightly increased minority concentration in high-minority areas. Table 2-8 shows that the average minority exposure of a 4% rehabilitated unit is 60.0%, almost five points higher than an average 9% rehabilitated unit.

Table 2-14: Structural Equations Modeling Results of Tax Credit Investment on Minority Share, 1987 to 2016

	(1)	(2)	(3)
		Minority Share	
4% Credit Units / 100	-0.179 (0.0569)	-0.797** (0.358)	-0.363* (0.199)
9% Credit Units / 100	-0.004 (0.0667)	-1.205*** (0.310)	-0.580*** (0.215)
Min. Share Diff. -20~20 pts. X 4% Credit Units / 100		0.073 (0.434)	-0.095 (0.255)
Min. Share Diff. >20 pts. X 4% Credit Units / 100		0.940* (0.551)	0.378 (0.354)
Min. Share Diff. -20~20 pts. X 9% Credit Units / 100		0.280 (0.308)	0.148 (0.215)
Min. Share Diff. >20 pts. X. 9% Credit Units / 100		2.065*** (0.377)	1.337*** (0.277)
Poverty Rate			13.242*** (0.893)
Pct. Foreign-Born			47.773*** (4.691)
Pct. With 4-Year College Degree or More			-8.443*** (1.271)
Pct. Owner Occupied Units			-14.448*** (0.987)
Pct. Structures Built in Last 10 Years			-1.947** (0.835)
Pct. Structures Built More Than 30 Years Ago			-2.01*** (0.735)
Observations	58,647	58,647	58,647
RMSEA	0.137	0.087	0.088
Comparative Fit Index	0.970	0.991	0.991
Clusters	CBSA	CBSA	CBSA

*Note: Robust clustered standard errors in parentheses. * p < 0.05, ** p < 0.01, *** p < 0.001. CBSA = Core-Based Statistical Area, RMSEA = Root Mean Square Error of Approximation.*

Table 2-15: Structural Equations Modeling Results of New and Rehabilitation Tax Credit Investment on Minority Share, 1987 to 2016

	(1)	(2)	(3)
		Minority Share	
New 4% Credit Units / 100	-0.363** (0.0157)	-1.520*** (0.391)	-0.787*** (0.237)
New 9% Credit Units / 100	-0.653*** (0.120)	-1.457*** (0.336)	-0.659*** (0.234)
Min. Share Diff. -20~20 pts. X New 4% Credit Units / 100		0.615 (0.394)	0.284 (0.271)
Min. Share Diff. >20 pts. X New 4% Credit Units / 100		1.744*** (0.547)	0.945** (0.435)
Min. Share Diff. -20~20 pts. X New 9% Credit Units / 100		0.163 (0.350)	0.028 (0.251)
Min. Share Diff. >20 pts. New 9% Credit Units / 100		1.602*** (0.332)	0.874*** (0.251)
Rehabilitated 4% Credit Units / 100	-0.042 (0.150)	-0.123 (0.422)	0.049 (0.244)
Rehabilitated 9% Credit Units / 100	0.010*** (0.002)	-0.005* (0.003)	-0.002 (0.002)
Min. Share Diff. -20~20 pts. X Rehabilitated 4% Credit Units / 100		-0.386 (0.534)	-0.473 (0.191)
Min. Share Diff. >20 pts. X Rehabilitated 4% Credit Units / 100		0.240 (0.624)	-0.082 (0.387)
Min. Share Diff. -20~20 pts. X Rehabilitated 9% Credit Units / 100		0.003 (0.004)	0.002 (0.003)
Min. Share Diff. >20 pts. Rehabilitated 9% Credit Units / 100		0.021*** (0.005)	0.016*** (0.004)
Poverty Rate			13.159*** (0.903)
Pct. Foreign-Born			47.748*** (4.000)
Pct. With 4-Year College Degree or More			-8.465*** (1.140)
Pct. Owner Occupied Units			-14.389*** (1.057)
Pct. Structures Built in Last 10 Years			-1.957** (0.846)
Pct. Structures Built More Than 30 Years Ago			-1.976** (0.773)
Observations	58,647	58,647	58,647
RMSEA	0.103	0.063	0.088
Comparative Fit Index	0.969	0.995	0.991
Clusters	CBSA	CBSA	CBSA

*Note: Robust clustered standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. CBSA = Core-Based Statistical Area, RMSEA = Root Mean Square Error of Approximation.*

My estimates are consistent with previous studies on the siting patterns of 9% on neighborhood changes (Deng, 2009; Ellen et al., 2009), but the effect sizes are smaller. The

construction of a SEM model is likely to reduce bias and helps to reveal the actual change in poverty caused by LIHTC investment. We could improve our understanding with better data on the timing of LIHTC siting, more frequent measures of neighborhood demographic, and better identified theories in other types of neighborhood changes.

Conclusions

Housing advocates have high hopes for the LIHTC program. While implementation of the program does not do enough to make all these hopes possible. While whole program does not exacerbate poverty concentration and racial segregation at the neighborhood level, it also does not do much to reduce poverty concentration and racial segregation in most disadvantaged neighborhoods across America. Some positive effects on poverty deconcentration are found, but they are sparse and varied greatly by states. LIHTC investments may have sparked some neighborhood revitalization, but the magnitude is very small. Rehabilitation investment alone does not seem to trigger any significant changes in neighborhood trajectories. LIHTC investment may have to be part of a border revitalization effort.

The empirical evidence in the first two analyses reveals that the 4% program may have some unleashed potential in addressing the goals of poverty deconcentration. Considering the number of LIHTC units per neighborhood, the effect of the 4% program is similar to that of the 9% program. Without much oversight and attention, the 4% program has helped to reduce poverty concentration in some high-poverty neighborhoods. This sub-program has better siting outcomes than those of the voucher program in some respects. However, these achievements may be attributed to underlying housing market conditions, competitions in affordable housing

financing, and unspoken policy levers. Future research is required to better understand the underlying reasons for these outcomes.

Finally, considering the 4% program as the new benchmark, much more should be desired with the 9% program. Even with increased competition and improved locational prioritization in recent years, the 9% program has yet to meaningfully improve housing access for poor American households to higher opportunity neighborhoods. If the sometimes competing fair housing and community development goals are both necessary, states may want to be clear about balancing between preserving affordable housing in blighted neighborhoods while creating new units in opportunity areas.

Chapter 3 - Neighborhood Opportunity

In addition to supporting efforts to revitalize distressed neighborhoods, the production of tax credit housing can also help expand access to neighborhoods with more opportunities than low-income households currently live. Prior studies have described that tax credit tenants are likely to live in neighborhoods with poverty rates higher than the U.S. average during the 2000s and 2010s (Ellen et al., 2009; Freeman, 2004; McClure & Johnson, 2015). Studies concerning other neighborhood measures (such as employment activity, crime, and school quality) generally point to that Low Income Housing Tax Credit (LIHTC) projects are located in less desirable neighborhoods than rental units as a whole (Dawkins, 2013; Ellen et al., 2018; Horn et al., 2014; Lens, 2014; Lens et al., 2011; McClure & Johnson, 2015). No research has specifically looked at the current spatial distribution of low-income tenants living in developments financed by the 4% credit. I assess whether LIHTC units financed by the 4% credit and the 9% credit are better able to help tenants reach certain types of neighborhood opportunities nationwide. In addition to cross-sectional analyses, this study is the first attempt to track LIHTC tenants in different types of tax credit units *over time*. Using an extensive consumer database, I examine how the LIHTC program affects tenants' neighborhood quality before and after they move into tax credit units in California.

Neighborhoods are the immediate social context in which individuals and families interact with the institutions and social agents (Gephart, 1997). Neighborhoods also control one's access to community opportunity structures and resources (Gephart, 1997). Extensive research has concluded that the quality of a neighborhood affects a wide range of resident life outcomes (*see* Ellen and Turner 1997; Freddie Mac Multifamily and National Housing Trust 2018; Jencks

and Mayer 1990; Winkler, Varn, and Lee 2019). Results from the Moving to Opportunity experiment show that moving to lower-poverty neighborhoods can improve the well-being of low-income individuals (Baum-Snow & Marion, 2009; Clampet-Lundquist et al., 2011; Katz et al., 2003). More recently, Chetty, Hendren, and Katz (2016) show that neighborhood quality can significantly affect the long-run earning trajectory of children from low-income households.

The private market typically does not produce enough affordable housing for low-income households in desirable neighborhoods (Been et al., 2019; Khadduri & Wilkins, 2008). Low-income households also face discrimination (Nguyen, 2005; Tighe, 2012; Tighe et al., 2017) and lack of information (Kleit & Galvez, 2011; Pendall, 2000) which may prevent them from accessing opportunity-rich neighborhoods. One of the primary motivations for providing housing assistance to lower income households is to help them reach neighborhoods of opportunity (Acolin & Wachter, 2017; Ellen et al., 2018; Reid, 2019). A place-based housing subsidy is one tool to increase the prevalence of affordable housing in relatively high-cost neighborhoods, increasing the chances that low-income households can live there (Khadduri & Wilkins, 2008).

As shown in Chapter 1, thirty-six state allocation authorities encourage placing tax credit investments in “areas of opportunity” with adequate “access to neighborhood amenities”. States either broadly or use specific metrics to define these “opportunity areas” in the Qualified Allocations Plans (QAPs) or other relevant documents.⁴⁸ These definitions often include “low poverty rate,” “high school quality,” and “convenient and cheap access to jobs and transportation.”⁴⁹ This chapter examines how the spatial distribution of LIHTC developments affects low-income households’ access to opportunities. It focuses on whether *active*

⁴⁸ See Chapter 1 and Appendix B for definitions of “areas of opportunity” and related selection criteria in QAPs.

⁴⁹ See Chapter 1 and Appendix B for detailed definitions by state.

developments financed by the 4% tax credit help *current* low-income tenants reach neighborhoods with more opportunities.

Results from Chapter 1 show that states have increasingly used policy levers to drive 9% tax credit investment into higher-opportunity neighborhoods. However, the same priorities are often optional, unclear, and unenforceable for the 4% program. Developments financed by the 9% credit and the 4% credit may thus place low-income tenants into different neighborhoods. In this chapter, I begin to compare neighborhood conditions where active 4% units are located with those where active 9% units and other types of rental units are located. The second part of chapter examines whether the LIHTC program improves or worsens low-income households' ability to access neighborhoods of opportunities. Despite the importance of tax credit in the production of affordable housing, the literature is quite thin on tenants' experiences with neighborhood conditions and economic mobility concerning any part of the program. Using an extensive longitudinal consumer database, I track the movements of low-income renters in California to assess how the LIHTC program affects tenants' neighborhood access and exposure in the state. I also examine whether two different types of credit have distinct outcomes.

My results indicate that the 9% program has provided participants with only slightly better neighborhood opportunities than the 4% program. Affordable housing developments financed by the 9% credit are, on average, located in neighborhoods with marginally better schools, environmental quality, and accessibility to all jobs (but not low-wage jobs) than those financed by the 4% credit. This result is surprising as the non-competitive 4% program is often not subject to prioritizations towards siting in opportunity-rich neighborhoods. Both tax credit programs produce mixed results in access to opportunities when compared to the housing choice

voucher program and public housing. More importantly, opportunity measures among LIHTC tenants are far lower than those of non-subsidized renter households in terms of poverty exposure, education quality, accessibility to low-wage jobs, but not in terms of transportation measures. Furthermore, exploratory results from tracking low-income renters in California show that LIHTC residents experience a significant increase in their neighborhood poverty rates along with decreases in other amenities and resources when they move in either type of tax credit unit. This finding is consistent with the cross-sectional results that the LIHTC program has not significantly improved low-income residents' access to neighborhoods with better opportunities when compared to the voucher program and the rental market generally. A low-income household may have to sacrifice improved neighborhood amenities for low-rent neighborhoods offered by a tax credit unit. On average, a household moving into a 9% unit faces a more pronounced decrease in access to neighborhood opportunities than one who moved into a 4% unit. Additional research is needed to reveal the reasons behind this disparity by examining how and where developers select tenants by credit type. It is also critical to survey low-income tenants' perceptions of housing and neighborhoods as well as their considerations to improve economic mobility for themselves and their families.

Research Strategy

I begin by comparing an array of neighborhood characteristics and opportunity measures where households in 4% tax credit units with those of where other subsidized households and low-income renter households live. First, I cross-sectionally describe the locations of all active low-income LIHTC units across the U.S. I rely on the updated LIHTC Project Database

developed in Chapter 2 to locate all *active* LIHTC developments across America. I then match projects with neighborhood opportunity measures tabulated from the Census, the American Community Survey (ACS), and the Department of Housing and Urban Development's (HUD's) Affirmatively Furthering Fair Housing (AFFH) dataset at Census Tract level. I then estimate the adjusted means of neighborhood opportunity measures where a typical active LIHTC unit is located. Briefly, these measures include neighborhood poverty rate, chance of being located in a high-poverty neighborhood, chance of being located in a minority-concentrated neighborhood, school proficiency index, jobs proximity index, low-wage jobs proximity index, low transportation cost index, transit trips index, and environmental health index. To help with the estimation of adjusted means, I use a regression model with a state by Core-Based Statistical Area (CBSA) fixed effect to control for any regional differences. I compare neighborhood opportunities of LIHTC tenants with those of low-income renters receiving other housing subsidies, poor renters, and non-poor renters as a whole.

The second part examines whether the LIHTC program improves or worsens low-income households' ability to access neighborhoods of opportunities. To estimate true impacts of LIHTC siting, tenant characteristics and their prior addresses are required. But that information rarely exists. I experiment with an alternative method to track tenant movements in California using a proprietary longitudinal consumer database. This database provides yearly locations and demographics of all households in California. By linking the same household across years, I can locate where a household lived before moving into a LIHTC unit. I can then empirically examine how the LIHTC program changes, if any, tenants' neighborhood access to amenities and opportunities across California.

Data

Primary data sources for this chapter are the updated LIHTC Project Database, the ACS, and a proprietary consumer database by InfoUSA.⁵⁰ Different from Chapter 2, analyses in this chapter include only *active* LIHTC projects that are still in service.⁵¹ Demographic variables are from the Census (2010) and the ACS five-year estimates (2014-2018). Additional tract-level opportunity indicators are drawn from HUD's AFFH dataset.⁵² I use these indicators to measure neighborhood opportunities, which are explained individually in the next section. To facilitate the comparison between LIHTC tenants with renters in other types of housing, I add counts of Housing Choice Voucher holders from HUD's 2017 Picture of Subsidized Households⁵³ and counts of public housing units in 2016 from HUD's National Geospatial Data Asset.⁵⁴

There are currently over 2.3 million active low-income LIHTC units, which account for 88.3% of units that ever received tax credit funding (

Table 3-1). Many units financed during the 1980s and early 1990s are no longer with the program as the required affordability period has expired with no extensions.⁵⁵ Among all active

⁵⁰ InfoUSA is a data aggregator and is currently known as Data Axle.

⁵¹ The analyses include active and placed-in-service projects as of 2016 unless noted otherwise. The active/inactive status of a project is determined by information collected at the National Housing Preservation Database and HUD. The version of HUD LIHTC Database used in this study is from June 2020 for projects placed in service from 1987 through 2016. March 2020 version of the National Housing Preservation Database is used. This analysis uses all active and placed-in-service tax credit developments through 2016. For more information, refer to Appendix F.

⁵² The last and latest version of this dataset is published in July 2020. The data are available at <https://datacatalog.urban.org/dataset/data-and-tools-fair-housing-planning>.

⁵³ 2017 Picture of Subsidized Households can be accessed at <https://www.huduser.gov/portal/datasets/assthsg.html>. Due to the time lag in datasets, 2017 data are used to represent the distribution of subsidized tenants in 2016.

⁵⁴ Public Housing (Assisted Housing) datasets via National Geospatial Data Asset can be accessed at <https://catalog.data.gov/dataset/>. Data used is last refreshed in June 2020.

⁵⁵ The IRS requires LIHTC projects to have a 15-year compliance period. In 1990, a change in federal law required an additional 15 years of compliance. LIHTC projects generally have at least 30 years of affordability (as some states may require a longer period.) A project can also drop out of the affordability period if, rarely, faces a foreclosure (Keightley, 2017).

units, 4% units are slightly more likely to be located in large metropolitan areas than 9% units. I also separate newly constructed tax credit developments from rehabilitation projects. Almost 40% of all active units are located in newly constructed developments. As shown in previous chapters, spatial distributions of newly constructed developments are different from those of rehabilitated projects. State policy levers are more direct and somewhat more effective in driving new construction proposals to higher-opportunity neighborhoods in recent years. In addition, states may implicitly utilize one type of credit for a particular category of construction activities.

Table 3-1: Low-Income Tax Credit Units Description, Active Developments

	All Tax Credit	4% New Cons.	4% Rehab.	9% New Cons.	9% Rehab.
Total Low-Income Units	2,357,764	492,072	481,657	931,598	452,437
(Shares)					
Placed-in-Service Year					
1987-1989	0.1	0.1	0.0	0.1	0.2
1990-1999	22.9	16.6	14.2	28.3	28.1
2000-2009	49.9	62.7	53.0	45.9	40.7
2010-2016	27.1	20.5	32.8	25.8	31.0
Geographic Region					
Midwest	19.0	10.4	18.3	20.5	26.2
Northeast	16.8	15.2	27.3	10.7	19.9
South	40.1	45.0	22.9	46.4	40.3
West	24.0	29.5	31.5	22.3	13.7
CBSA					
Metro >1 Million Population	60.2	72.7	72.3	48.9	56.9
Metro 250,000~1 Million Population	19.2	16.8	16.7	21.4	20.1
Metro <250,000 Population	8.1	4.1	4.4	12.2	7.6
Micro Area	8.3	3.7	4.3	12.1	9.8
Non-CBSA Area	4.2	2.6	2.2	5.3	5.6

Sources: Updated HUD LIHTC Project Database and Census (2010).

Note: Geographic region uses classifications designated by the Census Bureau. CBSA population is calculated from the 2010 Census. CBSA = Core-Based Statistical Area, LIHTC = Low-Income Housing Tax Credit.

As reviewed at the beginning of this project and briefly in this chapter, there is mounting evidence that neighborhood contexts may shape life outcomes and geographic disparities can

have serious consequences. However, there is little agreement among scholars on how neighborhood opportunity indicators matter and which neighborhood dimensions matter most for a particular type of opportunity (Galster, 2008; Lung–Amam et al., 2018; Sharkey & Faber, 2014). As policy-makers, researchers, and communities are increasingly interested in the spatial structure of opportunity, a few recent studies have also raised questions about how opportunity should be defined and by whom in the urban policy context. Broadly, Lung-Amam and colleagues (2018) show several neighborhood factors appear to matter across various resident groups, such as “safety, access to employment, school quality, and sense of community.” However, differences exist in the ways that residents perceive neighborhood opportunity by race, income, and geography. Using qualitative data, Reid (2019) sheds some light on the potential disconnect among opportunity measures in QAPs, tenants’ experiences and decision-making, and the intent of improving economic mobility through the LIHTC program.

Many states start to encourage the siting of more tax credit developments in “areas of opportunity” with good “access to amenities.” To align with the overarching goal of assessing the LIHTC program - a housing subsidy program, the selection of analytic framework and opportunity measures in this chapter is primarily based upon policy goals and levers in the LIHTC program. I choose tract-level demographics from the ACS for poverty and racial composition measures and opportunity indicators from the AFFH data to describe different neighborhood conditions where tax credit and other rental units are located. These indicators identify several key measures of opportunity beyond the dimensions of poverty concentration and racial segregation. I present the results of key opportunity measures individually to ensure correct interpretations and avoid the issue with weighing in a composite measure.

Poverty and racial segregation measures are the most popular indicators of how scholars characterize neighborhood opportunity (Galster & Sharkey, 2017; Lung–Amam et al., 2018). Scholars have characterized spatial opportunity using other social and spatial factors. These measures, such as unemployment rate, education equality, or health outcomes, are often seen in the literature on neighborhood effect (*see* Ellen and Turner 1997; Freddie Mac Multifamily and National Housing Trust 2018; Jencks and Mayer 1990; Winkler, Varn, and Lee 2019).

I pick the AFFH framework to identify neighborhood conditions. Opportunity measures in this framework were being (and will be) used by HUD grantees to conduct their mandatory Assessments of Fair Housing. Fair Housing Act of 1968 requires federal agencies to administer any housing-related programs “in a manner affirmatively to further” fair housing.⁵⁶ The goal of the AFFH rule is to aid HUD program participants in taking actions to promote fair housing choice, overcome historic patterns of segregation, and foster inclusive communities (U.S. Department of Housing and Urban Development, 2019). Although the rule was suspended in 2018 (and is pending revival during the new administration,⁵⁷) it is still a valuable data-based instrument for community housing assessments.

I choose five measures from the AFFH to match specific metrics states use like “low poverty rates,” “away from environmental hazards,” “quality education institutions,” and “access to transportation and employment” (*see* Chapter 1, Appendix B, and Ellen et al., 2015).

Indicators from the AFFH dataset try to assess different dimensions of opportunities: school proficiency index (for education quality), jobs proximity index (for economic opportunities), low

⁵⁶ See 42 U.S.C. § 3608. The AFFH was not intended for the LIHTC program, which is administered by the IRS with assistance from HUD. However, Fair Housing Act requires all federal housing programs to further fair housing.

⁵⁷ Announcement of the revival is outlined in the presidential campaign’s housing plan (Biden For President, 2020).

transportation cost index (for locational affordability), transit trips index (for transportation access), and environmental health index (for a healthy environment). I also create a proximity index for low-wage jobs modeled after HUD's methodology. A higher score on each index means better opportunity in that neighborhood. Appendix F - Note on Neighborhood Opportunity Indicators lists how these indicators are derived mathematically.

I then add poverty and racial composition measures to connect this chapter with the longitudinal analyses in the previous two chapters. The poverty rate is the most common measure of neighborhood opportunity for assisted households in research (Lens & Reina, 2016; McClure, 2006; Pendall, 2000). Besides, the poverty rate is frequently used by states to define an "area of opportunity" in their QAPs (*see* Chapter 1, Appendix B, and Ellen et al., 2015). I calculate three additional measures from the ACS 2014-2018 five-year estimates: the current tract poverty rate for an active unit, whether an active unit is currently located in a high-poverty neighborhood (poverty rates greater than 30%), and whether an active unit is currently located in a minority-concentrated neighborhood (where the difference between the neighborhood and CBSA minority shares is greater than 20%).

Overall, an individual's well-being may be significantly impacted by the quality and availability of neighborhood services. While some neighborhood measures promoted by policy-making have clear linkage with meaningful life outcomes, others do not have clear empirical support. First of all, schools serve as an important mediator of neighborhood context (Morenoff, Sampson, & Raudenbush, 2001; Popkin, Harris, & Cunningham, 2002). Prior research has generally shown a strong correlation between educational resources and student performance (Condrón & Roscigno, 2003; Jargowsky & El Komi, 2009; Lankford, Loeb, & Wyckoff, 2002).

If a school lacks basic resources, students are unlikely to receive a quality education. Students may struggle and later become frustrated and disenchanting. Moreover, many parents believe that fewer local resources can negatively impact their children's experiences (Galster & Santiago, 2006) and resort to seeking resources outside their neighborhoods (Jarrett, 1997).

Neighborhoods may also matter in the access to economic opportunities and advancement. Residents of neighborhoods that are a long distance from jobs or lack access to a transportation mode may be unable to get decent jobs.⁵⁸ Many welfare policies—built upon the conceptualization of the spatial mismatch hypothesis (Ihlanfeldt & Sjoquist, 1991; Kain, 1968)—focuses on the long commutes needed to connect welfare participants in central-city residential locations and those rapidly expanding job opportunities in the suburbs. Many QAPs also use on criteria on job access.⁵⁹ I use AFFH's jobs proximity index to quantify the accessibility of a neighborhood to all job locations within a Core-Based Statistical Area. Nevertheless, recent empirical evidence indicates that social-interactive dimensions of neighborhoods matter more than this spatial mismatch in an individual's economic outcomes (Rothstein, 2017; Weinberg et al., 2004; Zenou, 2013). Lens (2014) finds that subsidized households are often located near employment centers. He shows that these households also live among the greatest concentration of low-skilled unemployed individuals who compete for the same low-wage jobs. I thus derive an additional index to measure the accessibility to low-wage jobs and competition among low-wage workers.

⁵⁸ Jobs proximity measures focus on the concentrations and competitions of jobs based on distances. Prior research shows that many low-income workers do not have high employment accessibility because they do not own any motor vehicle and hence have limited spatial mobility (Shen, 1998, 2001).

⁵⁹ See discussions in the section of "Access to Amenities" in Chapter 2. For example, Georgia encourages siting in an area "with access to local jobs and where employees have significant commute distances." Others focus on high job growth areas.

Almost two-thirds of the states have included locational affordability and transit elements in their 2016 QAPs to encourage developers siting projects in transit-rich and low-transportation-cost areas. I include the AFFH's low transportation cost index and transit trips index in this analysis. A fundamental justification for access to low-cost transportation, largely transit, is to provide a basic level of mobility to all persons, especially the transportation disadvantaged. In theory, living in a neighborhood with low transportation costs may *enable* low-income families to access jobs, education, shopping, and other services. By examining the Moving to Opportunity program participants, Dawkins and colleagues (2015) find that better access to vehicles and public transit increases neighborhood satisfaction. The influence of vehicle access varies with transit proximity. These findings point to the importance of transportation in assisting low-income households live in more desirable neighborhoods. However, we need to interpret these indicators with caution. Firstly, having low transportation costs in a neighborhood is often correlated with having access to the transit network. They have a correlation coefficient of 0.79 from the data used in this chapter. Secondly, the overall neighborhood effects from ensuring transit access to low-income households are unclear (Blumenberg et al., 2015; Ong & Houston, 2002; Shen, 2001). Access to automobiles, which is not a neighborhood factor, shows stronger positive relationships with employment outcomes among low-income households (Blumenberg et al., 2015; Ong & Houston, 2002; Shen, 2001). Thirdly, most families who move to areas with low transportation costs may not reduce their transportation expenditures (Smart & Klein, 2018). This means that locational affordability theory may overstate the benefit of cost savings in transit-rich neighborhoods and ignore the importance of car ownership to low-income households (Smart & Klein, 2018).

Table 3-2: Averages of Neighborhood Opportunity Indicators

	4%	9%	4% New Cons.	9% New Cons.	Public Housing	HCV	Poor Renter	Non- Poor Renter
Poverty Rate (-)	23.8	22.7	22.5	20.5	32.5	22.8	24.3	16.9
In High-Poverty Neighborhood (-)	30.2	27.2	26.6	22.3	53.8	27.1	30.1	13.8
In Minority-Concentrated Neighborhood (-)	49.9	44.6	45.5	40.7	61.5	50.5	45.3	49.7
School Proficiency Index (+)	40.6	40.5	42.2	42.5	38.1	38.5	40.8	41.5
Environmental Health Index (+)	43.0	35.3	44.4	36.3	36.2	40.8	41.5	52.4
Jobs Proximity Index (+)	59.1	55.4	57.8	54.6	62.2	52.5	51.4	55.5
Low-Wage Jobs Proximity Index (+)	46.2	47.4	44.9	46.2	43.1	46.5	47.0	47.2
Low Transportation Cost Index (+)	54.7	68.7	51.6	64.5	62.3	61.9	58.3	61.1
Transit Trips Index (+)	54.6	51.1	66.4	62.2	64.9	61.7	58.8	59.1

Sources: Updated HUD LIHTC Project Database, HUD AFFH datasets, American Community Survey (2014-2018), and Census (2010).

Note: HCV = Housing Choice Vouchers. (+) means a positive correlation between the index and neighborhood opportunity. (-) means a negative relationship. LIHTC = Low-Income Housing Tax Credit.

Many scholars have probed the impacts of the physical environment on health outcomes (see Ellen and Turner 1997; Freddie Mac Multifamily and National Housing Trust 2018; Jencks and Mayer 1990). Clear links to health have been identified for pollution and noise (Schell & Denham, 2003; van Os, 2004). A large body of empirical evidence points to that lower-income and minority-occupied neighborhoods are exposed to higher concentrations of air-, water-, and soil-borne pollutants (Ash & Fetter, 2004; Hamilton, 1995; Hynes & Lopez, 2008). I use AFFH's environmental health index to capture potential exposure to harmful toxins at the neighborhood level.

Table 3-2 include the summary statistics of unadjusted neighborhood opportunity indicators. Consistent with the historic spatial patterns of tax credit investment discussed in the prior chapters, active LIHTC units are still located in high-poverty, racially segregated

neighborhoods, and often resource-poor neighborhoods. Active LIHTC units are, on average, located in neighborhoods similar to those of voucher holders and poor renters, except for measures on transportation. Active 4% units are in neighborhoods with environmental health and overall jobs proximity than active 9% units. Neighborhoods of active 9% units tend to have lower transportation costs while neighborhoods of active 4% units tend to have better access to transit. A more comprehensive analysis between tenant access and neighborhood opportunities is carried out after the data section.

To fully understand whether LIHTC projects, financed by either 9% or 4% tax credits, provide low-income households with better access to opportunities, access to tenant data and data on tenant movements is particularly important. Unfortunately, there is no public information on LIHTC households nor renter movements on a mass scale. To fill this gap, I experiment with an alternative method to locate low-income households in California in a proprietary consumer database by InfoUSA. InfoUSA aggregates raw household data from real estate and tax assessments, voter registration files, utility connects, postal data, and other public sources. This database provides yearly address information of households across California with demographic information on predicted household income, estimated household wealth, predicted owner and renter status, presence of children, and age, and imputed race and ethnicity of the householder.⁶⁰ In 2017, there are 16 million records in this dataset.⁶¹ By linking households across years using a unique ID, I can track the movements of any tenant who ever lived in a tax credit project

⁶⁰ Race and ethnicity are imputed using names (first, middle, last), geography (home and work addresses), other ethnic heritage descriptors, and historical traits by InfoUSA.

⁶¹ The definition of one address does not directly translate into one household nor one housing unit. However, this dataset is likely to suffer from overcounting and undercounting issues across years. Per the estimates from the ACS 2014-2018, there are a total of 12,965,435 households and 14,084,824 housing units in California.

between 2006 and 2017 and appeared in this database. I further identify what neighborhood opportunities a tenant experienced before moving into a tax credit unit. Using a regression framework, I determine whether the LIHTC tenant benefits from moving into a tax credit unit. I track the movements of low-income households between 2006 and 2017, who moved into active new 4% or 9% LIHTC projects placed in service between 2006 and 2015 in California. Additional information on tax credit projects in California is from data published by the California Tax Credit Allocation Committee (CTCAC).⁶²

Analysis

As I show in Chapter 2, LIHTC program does not exacerbate concentrated poverty and racial segregation, nor does it significantly reduce them since its inception three decades ago. In terms of the overall neighborhood impact, the non-competitive 4% programs performing similarly to the competitive 9% program. In addition to longer-term neighborhood effects, this chapter switches gears and looks at whether the LIHTC program helps current tenants reach neighborhoods of opportunities. In other words, this chapter quantitatively examines the spatial distributions and neighborhood conditions of tax credit units currently occupied by low-income households. I first compare neighborhood opportunity measures of 4% tax credit units with other types of subsidized and non- subsidized rental units. In the second part, I use new information on renter movements in California to identify whether LIHTC projects expand access to neighborhood opportunities for low-income households.

⁶² The list of active developments receiving tax credits from 1987 to 2019 in California can be accessed at <https://www.treasurer.ca.gov/ctcac/projects.xlsx>. This file was last updated in October 2019.

To preview the results, current low-income households living in units financed by tax credits are exposed to relatively high levels of neighborhood poverty and minority concentration. Participants live in neighborhoods with significantly worse education quality, more polluted environment, worse job accessibility, *but* greater transportation access than other renters. Small differences do exist between two types of credit. Active 9% units are located in neighborhoods with slightly better opportunity measures than active 4% units. This snapshot reveals that the LIHTC program has not expanded access for low-income households to neighborhood opportunities. Locational prioritizations in recent years have not significantly changed where subsidized households live across America. By examining the experimental longitudinal data, relocated LIHTC tenants overwhelmingly experience declined neighborhood quality across California. A 9% unit tends to worsen tenant's access to neighborhood opportunities more than a 4% unit does on average.

Poverty and Minority Exposures of Tax Credit Tenants

I start by briefly describing the spatial distribution of active tax credit units in terms of neighborhood poverty rate. An average low-income household living in a tax credit unit today faces a significant level of exposure to poverty. Recent state prioritizations towards neighborhood opportunity in the LIHTC program remain limited in reversing the historical patterns of residential segregation and housing isolation of low-income households as seen in Chapter 2 of this dissertation.

Table 3-3: Neighborhood Characteristics of Low-Income Units, Active Developments

	All	4% New Cons.	4% Rehab.	9% New Cons.	9% Rehab.
(Percents)					
Average Poverty Exposure	23.4	20.5	25.1	22.5	26.9
Average Minority Exposure	57.7	60.2	63.0	53.0	53.0
(Shares)					
Neighborhood Poverty Rate Category					
<10%	18.0	24.3	12.9	21.3	10.3
10~20%	28.8	32.3	28.3	29.3	25.0
20~30%	23.6	21.1	25.7	22.7	25.8
>30%	29.6	22.3	33.1	26.6	38.9
Neighborhood Minority Share Difference with CBSA					
<-20 pts.	5.4	5.9	4.3	6.4	4.0
-20~20 pts.	51.2	53.8	45.0	56.2	45.5
>20 pts.	43.4	40.2	50.7	37.5	50.6

Sources: Updated HUD LIHTC Project Database and American Community Survey (2014-2018).

Note: CBSAs are defined as of the 2010 Census. CBSA = Core-Based Statistical Area. HUD = Department of Housing and Urban Development, LIHTC = Low-Income Housing Tax Credit.

The neighborhood poverty rate of where 9% LIHTC units are located is higher than that of where tenants in 4% LIHTC units live. Tabulations in Table 3-3 reveal that almost 30% of active low-income tax credit units are located in high-poverty neighborhoods (poverty rates of 30% or more) while only 18% of units are in low-poverty neighborhoods (poverty rates of 10% or less). The distribution of active units is more analogous to the patterns of projects placed in service during the 2000s and the 2010s than those built in the earlier decades (*see* Table 2-4 and Table 2-5 in Chapter 2). This is consistent with the prior finding that expiring LIHTC projects are located in slightly lower-poverty neighborhoods than new developments (Lens & Reina, 2016). Active 4% developments exhibit a better siting pattern than active 9% developments as 4% units are slightly more likely to be located in low-poverty neighborhoods than 9% units.

Many active tax credit units are located in neighborhoods with high minority shares. Nevertheless, active 4% and 9% units are generally found in similar neighborhoods. 4% tenants

face higher minority exposure (61.6%) than 9% tenants (53.0%) on average. When compared with the larger housing markets, more than 40% of active units are currently located in minority-concentrated areas (*i.e.*, the minority share is at least 20 percentage points higher than the minority share of the CBSA.) On the other hand, only 5.4% of units are in white-concentrated areas. New 9% units are least likely to be located in minority-concentrated neighborhoods.

The next set of analyses compares the distribution of active LIHTC units as of 2016 with those of public housing units, units occupied by voucher holders, and units occupied by poor renter households. I add statistics for the overall population of renter households as well. While the summary statistics confirm that both LIHTC tenants and voucher holders live in similar neighborhoods in terms of the poverty rate, differences do exist when dissecting credit and construction types.

Table 3-4: Neighborhood Characteristics of Renters and Subsidized Housing Units

	Public Housing	HCV	Poor Renters	Renters
(Percents)				
Average Poverty Exposure	32.5	22.8	24.3	17.8
Average Minority Exposure	64.2	59.2	56.9	47.0
(Shares)				
Neighborhood Poverty Rate Category				
<10%	6.2	16.3	12.9	32.1
10~20%	18.2	30.7	30.5	33.4
20~30%	21.9	25.9	26.5	18.7
>30%	53.8	27.1	30.1	15.8
Neighborhood Minority Share Difference with CBSA				
<-20 pts.	2.6	5.2	6.7	12.5
-20~20 pts.	37.9	47.5	51.1	60.4
>20 pts.	59.5	47.3	42.2	27.1

Sources: Picture of Subsidized Households (2018), National Geospatial Data Asset (2020), and American Community Survey (2014-2018).

Note: CBSAs are defined as of the 2010 Census. HCV = Housing Choice Voucher, CBSA = Core-Based Statistical Area, LIHTC = Low-Income Housing Tax Credit.

Current low-income tenants living in 4% units experience lower neighborhood poverty than poor renters, voucher holders, and public housing residents. New construction is arguably having a more immediate effect on the spatial distribution of low-income households. It is encouraging to see that more than 24% of newly constructed 4% units are in low-poverty neighborhoods while only 16% of voucher holders and 13% of poor renters live in these neighborhoods. The bottom panels of Table 3-3 and Table 3-4 show that LIHTC tenants have similar minority exposures as voucher holders and poor renters. Housing assistance recipients, including LIHTC tenants, are still living in minority-concentrated areas across the country. The LIHTC program, particularly with new constructions, is more likely to place low-income tenants into less-racially-segregated neighborhoods than public housing and housing vouchers are. Rehabilitated units are more likely to be located in high-poverty neighborhoods than newly constructed units. Tenants in these units are far more likely to be in higher-poverty neighborhoods than voucher holders and poor renters. Rehabilitated 4% unit bears the highest chance to be located in minority-concentrated areas. This reflects the inexplicit locational preference states may have in utilizing 4% tax credit for preservation and revitalization efforts.

Overall, the distribution of active LIHTC units does not seem to overwhelmingly place low-income tenants into high-poverty and racially segregated areas. It also does not provide significant benefit in reducing poverty and minority exposure for low-income households when compared with other poor renters. One progress is that a newly constructed 4% unit increases the chance of a low-income household living in a low-poverty neighborhood (which is still moderately racially segregated.) A rehabilitated 9% unit is least likely to place a tenant into a

low-poverty neighborhood. Neighborhoods in which LIHTC tenants live, however, are still far worse than those of non-poor renters on average.

Access to Neighborhood Opportunities

The next set of analyses explores neighborhood opportunities beyond the dimensions of poverty and racial concentration. I estimate (regression-adjusted) means of neighborhood opportunity measures for all active LIHTC units. To control for any regional differences, I utilize a regression framework with a state by CBSA fixed effect.⁶³ I continue to estimate regression-adjusted means of all opportunity measures among other types of rental housing. These types are voucher holders, public housing residents, poor renters, and non-poor renters as of 2016. I estimate this model similar to Ellen et al. (2018).

In preparing for the estimation, I first build a household-level dataset by expanding tract-level counts of rental units by classification into numbers of observations. Each observation represents either a LIHTC 4% unit, a 9% unit, a public housing unit, a unit where a voucher holder lives, a unit occupied by a poor renter household, or a unit occupied by a non-poor renter household.⁶⁴ Each rental classification is coded into a dummy variable. For example, one dummy variable takes a value of 1 for each 4% LIHTC unit. Another one takes a value of 1 for a 9% LIHTC unit. Another one takes a value of 1 if the unit is occupied by a poor renter household.⁶⁵

⁶³ This regression model does not test for causality. Rather, this framework is used to create regression-adjusted means of opportunity measures. A state by CBSA fixed effect is used since a statistical area can span two or more states under different QAPs.

⁶⁴ Due to data limitations, I am not able to distinguish the overlaps among being a voucher holder, a LIHTC tenant, or a poor renter.

⁶⁵ This is not the best comparison group as some LIHTC tenants are not poor. Alternatively, I can compare the neighborhoods of LIHTC tenants to those of just renter households, but this is imperfect too as LIHTC tenants typically have lower incomes than other renters in the same metropolitan area. For this analysis, I choose poor and non-poor renters as two comparison groups. Non-poor renter is the omitted category.

If all of the dummies have a value of 0, then this observation is a unit occupied by a non-poor renter household. A sample dataset is presented in Figure 3-1: Unit 001 is a 4% tax credit unit, Unit 002 is occupied by a non-poor renter household, and Unit 003 is a 9% tax credit unit. The tract identifier is used to match a housing unit with other tract-level demographics and measures.

Figure 3-1: Household-Level Data File Format

Unit No.	4% LIHTC	9% LIHTC	HCV	Public Housing	Poor Renter	Tract Identifier
001	1	0	0	0	0	XXXXXXXXXXXXX
002	0	0	0	0	0	XXXXXXXXXXXXX
003	0	1	0	0	0	XXXXXXXXXXXXY
004	0	1	0	0	0	XXXXXXXXXXXXZ
...

I then regress each measure of neighborhood opportunity on these dummy variables. For example, the coefficient on the dummy variable for a 4% tax credit unit shows whether, on average, locations of 4% units differ from those of units occupied by non-poor renters. The coefficient on the dummy variable for a 9% credit unit shows whether the locations of 9% units differs from those of units occupied by non-poor renters. I include a state by CBSA fixed effect to ensure I am comparing the neighborhoods surrounding LIHTC units with those surrounding other units within the same metropolitan area and under the same state and metropolitan policies.

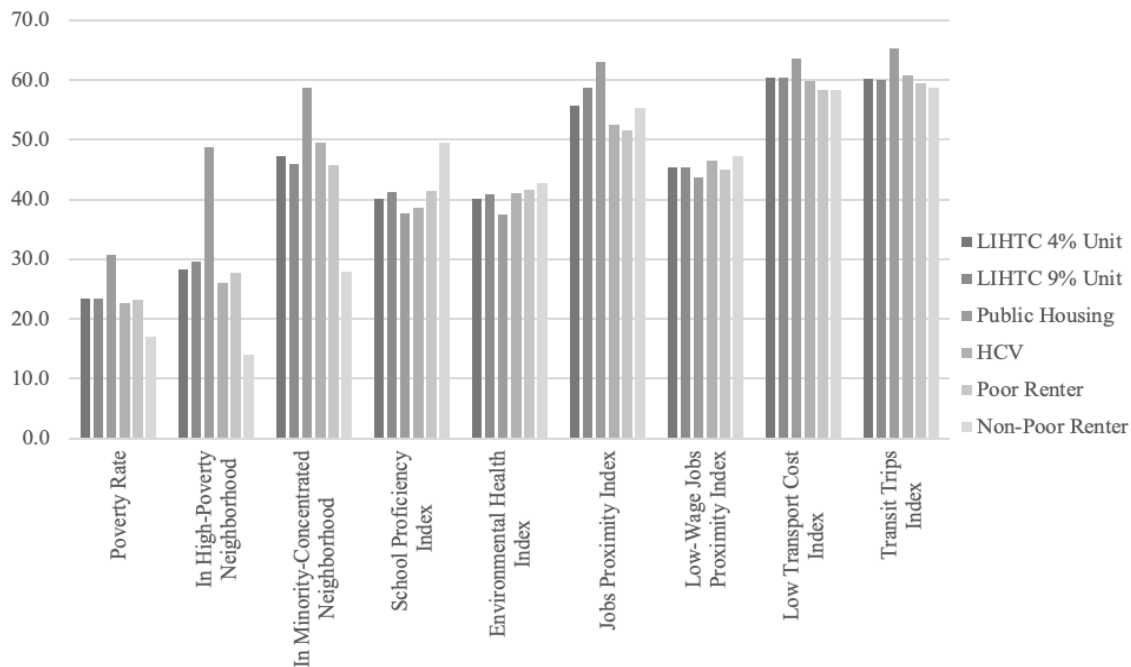
Specifically, I estimate the following model to get regression-adjusted means (β s):

$$Opp_{hnm} = \beta_1 LIHTC4_{hnm} + \beta_2 LIHTC9_{hnm} + \beta_3 HCV_{hnm} + \beta_4 PubHsg_{hnm} + \beta_5 PoorRenter_{hnm} + \mu_m + \varepsilon_{hnm}$$

where *Opp* is an opportunity measure. *h* represents the housing unit, *n* the Census Tract, and *m* the State/CBSA. μ_m represents the state by CBSA fixed effect, and ε represents an error term. I estimate this model for each measure of neighborhood opportunity. I then replicate the same set of regressions to include only units in new construction projects. To interpret the results, the

coefficient β_1 reveals the difference between the metric of the neighborhood opportunity where a typical tax credit 4% unit is located and the same metric of a typical housing unit occupied by a non-poor renter household in the same metropolitan area and state. The coefficient β_2 reveals the difference between the metric where a typical 9% unit is located and the same metric of a typical unit occupied by a non-poor renter household. Appendix G reports the results from these regressions. For ease of comparison, Figure 3-2 visualizes the coefficients from regressions among *all active* units presented in Appendix G-1. The next set of regressions compares the *newly constructed* tax credit units with other types of rental housing in Appendix G-2. Figure 3-3 visualizes the coefficients from these regressions.

Figure 3-2: Access to Opportunity for Active Tax Credit Units and Other Types of Housing



Source: Adjusted means from regressions in Appendix G-1.

Note: HCV = Housing Choice Vouchers, LIHTC = Low-Income Housing Tax Credit.

When compared with other forms of rental housing, Figure 3-2 reveals that the LIHTC program has produced mixed results in terms of tenants’ access to neighborhood opportunities.

An average tax credit household experiences a higher neighborhood poverty rate than a non-poor renter household by about six percentage points. Tax credit residents face slightly higher neighborhood poverty rates than voucher holders, but considerably lower than public housing residents. However, tax credit households still face high poverty rates which are comparable to those of poor renters. The regression result also reveals that the 4% program is doing slightly better than the 9% program in terms of tenant's exposure to poverty. The current distribution of 4% units is less likely to place low-income households in high-poverty neighborhoods, but more likely to place them in minority-concentrated neighborhoods than that of 9% units.

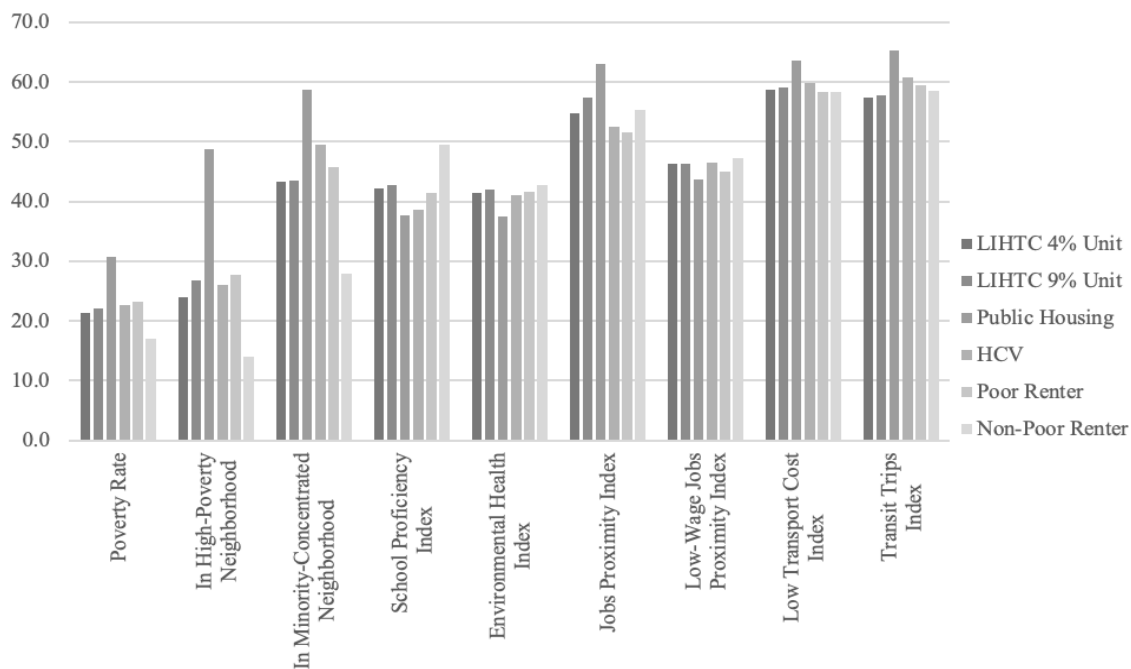
In terms of other opportunity measures, subtle differences exist between the two LIHTC programs. Participants living in 9% tax credit units have access to neighborhoods with slightly better education quality than participants in the 4% program. When compared to other subsidized households, tax credit tenants have access to better schools on average. The school proficiency index is 1.56 points higher for a household in a 4% unit and 2.57 points higher for a household in a 9% unit than that of an average voucher holder. However, the bar is quite low as the average quality of elementary schools accessible to LIHTC tenants only stands at the 40th percentile statewide. A non-poor renter has access to schools at the 50th percentile statewide.

A low-income renter household in a 9% unit has access to a slightly less-polluted environment than a similar household in a 4% unit. The average neighborhood environment quality, however, is behind that of non-poor renters. Tax credit tenants, on average, experience a neighborhood with the environmental quality only at the 40th percentile statewide.

9% projects provide tenants with significantly greater access to jobs than 4% projects. However, this measure captures distance-based accessibility to all jobs among competitions from

other workers. When switched to a low-wage jobs proximity index, accessibility decreases for both programs, but scores are more comparable to each other. This pattern indicates that 9% units are more clustered in neighborhoods with high job accessibility but low job compatibility. That is, a 9% tenant is more likely to live in a location with a high concentration of all jobs. However, subsidized tenants are still disconnected from low-wage jobs. Housing choice voucher holders have a slight advantage over the LIHTC program in accessing low-wage jobs despite competition for those jobs in their neighborhoods.

Figure 3-3: Access to Opportunity for Active Newly Constructed Tax Credit Units and Other Types of Housing



Source: Adjusted means from regressions in Appendix G-2.

Note: HCV = Housing Choice Vouchers, LIHTC = Low-Income Housing Tax Credit.

Lastly, the low transportation cost indices of the two tax credit programs are similar to that of other poor renters but lower than that of voucher holders. This indicates that subsidized households have relatively cheap transportation access. To be extremely cautious here, location

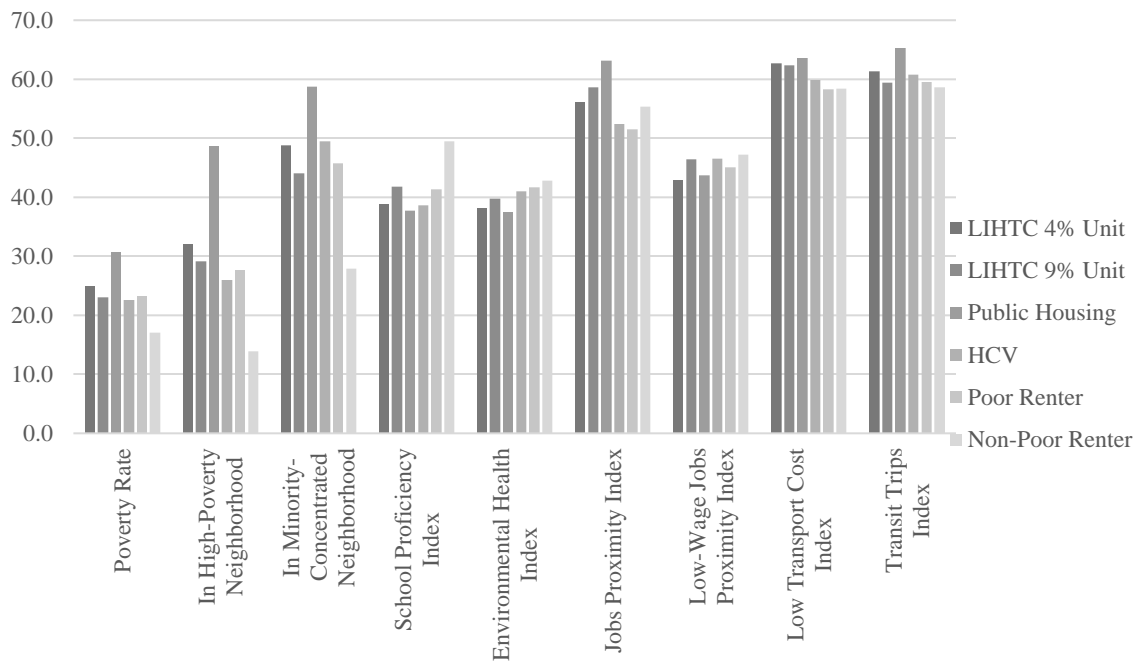
affordability index, like the low transportation cost index, may significantly overstate the promise of cost savings in transit-rich neighborhoods, especially for lower-income households (Smart & Klein, 2018). Tax credit tenants also have better access to transit than voucher holders and other poor renters. However, as noted earlier, having good access to transit may not translate into direct benefits for low-income households. Low-income and subsidized households often suffer from a mismatch in travel mode (Blumenberg et al., 2015; Blumenberg & Ong, 2001; Blumenberg & Pierce, 2014; Grengs, 2010). For example, low-wage and unskilled jobs may be readily accessible by automobiles but not by public transit.

Newly constructed tax credit units are often located in neighborhoods with higher opportunity measures than rehabilitated units. When limiting the sample to only newly constructed tax credit units, Figure 3-3 shows that the 9% program shows a consistent, but small, advantage over the 4% program. New 9% units are situated in neighborhoods with better school quality, environmental health, jobs access, and transportation access than 4% units. However, households in new and active 4% units are facing a lower poverty rate and are less likely to be in high-poverty neighborhoods than households in new and active 9% units. This again reveals the difference in siting priorities for the two tax credit programs.

Since many states have increased prioritization towards opportunity in the most recent decade, I create Figure 3-4 from Appendix G-3 to highlight opportunities measures for LIHTC tenants living in projects placed in service during the 2010s. All neighborhood opportunity measures have not changed much for units built during the 2010s when compared with earlier decades. 9% units see a small improvement over 4% units in terms of placing in high-poverty and minority-concentrated neighborhoods. This indicates that increased prioritization towards

opportunity in the 9% program may have some efficacy in reducing tenants' poverty exposures and racial concentrations. In other words, developers are able to receive funding to place tax credit projects in less-poor and less-segregated areas but those neighborhoods are still limited in other types of opportunities.

Figure 3-4: Access to Opportunity for Tax Credit Units Placed in Service during 2010s



Source: Adjusted means from regressions in Appendix G-3.

Note: HCV = Housing Choice Vouchers, LIHTC = Low-Income Housing Tax Credit.

Overall, tax credit tenants have access to comparable neighborhoods of voucher holders. These neighborhoods are still significantly different from those of other non-poor renters. Neighborhoods of newly constructed tax credit units generally outperform those of the units occupied by voucher holders. While the 9% program has provided tenants with slightly better access to neighborhood opportunities, the 4% program is more likely to place low-income households into less-poor neighborhoods. Noticeably, the gaps in neighborhood opportunity measures between the 4% program and the 9% program are quite small. There are almost no

differences in neighborhood measures of low-wage job access, transportation cost, and transit access. 9% units built during the 2010s with increased prioritizations also do not greatly improve access to neighborhood opportunities over 4% units built during the same decade other than slightly reduce poverty and racial concentrations. That means the non-competitive 4% program is achieving a similar level of siting outcomes in terms of neighborhood opportunities even as the competitive 9% program with increased prioritization in place.

Tracking Tenant Movements

To overcome the lack of data on tenant movements, I apply a new and innovative method to track the movements of low-income households in California. I then use these movements to assess whether tax credit developments improve or worsen the chance of low-income households accessing higher neighborhood opportunities. I first extract a list of building-level addresses of tax credit projects placed in service between 2006 and 2015 from the updated LIHTC Project Database and data published by the CTCAC. I then search LIHTC households in InfoUSA's California Consumer Database for every year between 2006 and 2017 by their addresses. I link households across years using an identifier provided by InfoUSA to select households who moved into tax credit units within three years after a project is placed in service between 2006 and 2015. I consider these households as new low-income tenants into a tax credit project. I also record the origin of each move. I define a household as low-income if the predicted household income (supplied by the InfoUSA dataset) is less than 60% of the CBSA median income.⁶⁶ The predicted renter status must be "most likely" or "reported" renter. I also track the movements of

⁶⁶ "60% of area median income" is a conservative estimate used to align with HUD's administrative standard on income eligibility of a tax credit unit.

all low-income renter households as counterfactuals. Figure 3-5 shows the spatial distribution of active tax credit developments in California. There is no significant geographic difference between the locations of tracked and non-tracked projects.

Figure 3-5: Active Tax Credit Projects in California, 2006-2015

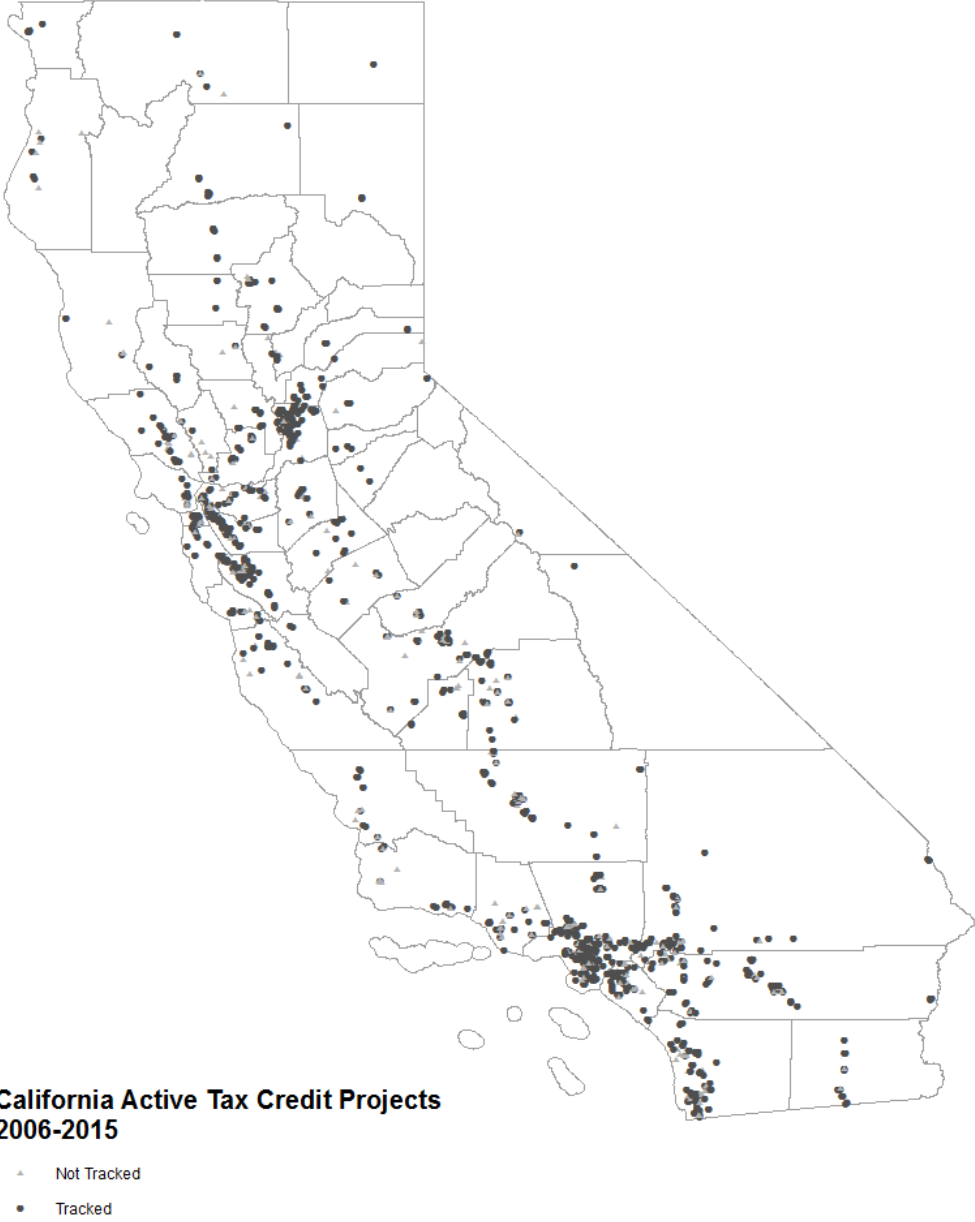


Table 3-5: Tracked Low-Income Household Sample Comparisons, 2006 to 2017

	All Developments in California	Low-Income Households Sampled
No. of Developments	1,653	1,233
No. of Low-Income Units	132,243	31,129
	(Shares)	
Credit Type		
4% Units	64.8	65.4
9% Units	35.1	34.6
New Construction	57.7	64.3
4% Units	47.6	54.4
9% Units	76.7	83.1
Elderly	27.9	31.2
4% Units	30.3	32.8
9% Units	23.5	28.2

Sources: Updated HUD LIHTC Project Database and InfoUSA U.S. Consumer Database 2005-2017.

Note: HUD = Department of Housing and Urban Development, LIHTC = Low-Income Housing Tax Credit.

CTCAC, which oversees the allocation of tax credits in California, has improved its prioritization towards opportunity in its QAPs. California starts to encourage LIHTC developments to be sited near growth or high-income areas and near public amenities as early as 2003 (California Tax Credit Allocation Committee, 2003). One competing incentive, however, gives extra points for siting in a locally designated revitalization area. In addition, CTCAC uses a tie-breaker system based on several project factors which include the ability to fulfill housing goals, gain administrative support, and acquire external funds. In 2012, only 17 of the 236 new construction proposals *did not* receive the maximum number of points (Lang, 2015). While this indicates that there is substantial demand for tax credits, the tie-breaker system may undermine the efficacy of locational prioritization. CTCAC further revised its QAP in 2017 to include a fair housing goal (California Tax Credit Allocation Committee, 2017). Large family developments receive extra points if it is located in a tract designated “Highest or High Resource” on the

“Opportunity Area Maps” (California Tax Credit Allocation Committee, 2017). In general, these tracts tend to be lower-poverty and more suburban with a lower share of minorities.

Table 3-5 compares sampled households with all units placed in service between 2006 and 2015 in California. I am able to track the movements of 31,129 low-income households who moved into tax credit units. The total accounts for 23.6% of all tax credit units placed in service in California during the same period.⁶⁷ Overall, the database may lose track of or completely miss a household and their moves when such a household maintains no formal financial ties, does not use postal services, splits from another household, or has other informal living arrangements. The sample seems to be representative of the whole portfolio of new tax credit units in California. There are slightly more households living in new construction units in the sample when compared with the whole population of new units in California during the same period. Rehabilitation may likely be done while tenants are still occupying some units. Thus no (out-of-property) moves are recorded. There is a higher percentage of elderly units in the sample as elderly households may have more formal ties.

The first two columns in Table 3-6 show that the distribution of sampled units is comparable to the distribution of all tax credit units in California. Sampled units are slightly less likely to be located in higher-poverty neighborhoods. Table 3-6 also compares the distribution of sampled LIHTC tenants with those of other types of subsidized and non-subsidized renters in California. LIHTC tenants are living in high-poverty and high-minority neighborhoods on average across California. Consistent with the national trend, LIHTC tenants in California live in comparable neighborhoods as voucher holders in terms of poverty and racial composition.

⁶⁷ The average ratio between the number of tracked residents and the total number of low-income units in a tracked project is 0.37, ranging from 0.01 to 2.00.

Neighborhood poverty rates and minority shares of LIHTC tenants are lower than those of all poor renters, but still far higher than the average rates of all renters.

With InfoUSA’s consumer database, I can identify the neighborhoods where a household lives before and after each move. Table 3-7 displays the unadjusted mean differences of neighborhood measures before and after a move by tenant type. A LIHTC tenant faces an increase in poverty rate by almost five percentage points on average after moving into a 9% tax credit unit in California. In comparison, a low-income renter faces almost no change in poverty exposure after the relocation. New tax credit tenants also see decreased neighborhood opportunities on average, except for the low transportation cost and transit trips indices.

Table 3-6: Neighborhood Characteristics of Tracked Tax Credit Tenants and Other Types of Renters

	All Projects	Developments in Sample	Public Housing	HCV	Poor Renter	Renters
Average Neighborhood Poverty Rate	24.0	21.4	33.6	22.1	23.8	17.9
4% Units	22.1	20.2				
9% Units	27.6	23.7				
Average Neighborhood Minority Share	69.6	66.7	79.3	71.2	72.9	60.3
4% Units	68.0	65.4				
9% Units	72.6	69.0				
% in High-Poverty Neighborhoods	29.8	24.2	60.4	24.6	30.0	16.1
4% Units	24.7	21.0				
9% Units	39.3	30.3				
% in Minority-Concentrated Neighborhoods	39.0	38.1	61.4	41.4	45.5	26.9
4% Units	35.7	35.6				
9% Units	45.2	42.7				

Sources: Updated HUD LIHTC Project Database, InfoUSA U.S. Consumer Database, Picture of Subsidized Households (2010), Census (2010), American Community Survey (2008-2012), and National Geospatial Data Asset. Note: Tabulations include all tracts in California. HCV = Housing Choice Vouchers, HUD = Department of Housing and Urban Development, LIHTC = Low-Income Housing Tax Credit.

Table 3-7: Average Changes in Opportunity Indicators of Tracked Movers

	Poverty Rate	School Proficiency Index	Environmental Health Index	Jobs Proximity Index	Low-Wage Jobs Proximity Index	Low Transportation Cost Index	Transit Trips Index
Movers into 4% Units	2.1	-0.8	-1.8	3.7	-1.6	2.5	1.6
Movers into 9% Units	4.8	-4.3	-0.1	2.4	-0.6	0.6	0.2
Low-Income Renter Movers	0.8	0.6	0.5	-0.5	0.8	-0.8	-1.0

Sources: Updated HUD LIHTC Project Database and InfoUSA U.S. Consumer Database.

Note: HUD = Department of Housing and Urban Development, LIHTC = Low-Income Housing Tax Credit.

Then, I estimate the following regression model to examine the extent of change in neighborhood poverty rate more precisely:

$$Pov_{imt} = Pov_{imt-1} + \beta_1 Credit_i + \beta_2 Type_i + \beta_3 Credit \times Type_i + \mu_t + \theta_m + \varepsilon_{tmt}$$

where Pov_{imt} is the destination neighborhood poverty rate for a household i in CBSA area m after they move into a tax credit development in year t . Pov_{imt-1} is the origin neighborhood

poverty rate for a household i in CBSA area m before they move into a tax credit in year $t-1$. I

then include a credit type dummy for the 9% credit ($Credit_i$) and a project type dummy for new development ($Type_i$). Then I add the interaction term between these dummies. μ_t represents the

CBSA fixed- effect, and θ_m represents the year fixed effect. The next specification adds

household characteristics: the presence of children, age group, marital status change, and

predicted income. Since the imputed racial and ethnicity variable does not cover every

household, this variable is added separately to an additional model. I replicate the same models

with minority share at the destination as the dependent variable. The results are in Table 3-8.

A LIHTC tenant faces increased neighborhood disadvantage when moved into a tax credit unit in California. Average neighborhood poverty rate increases by about four more

percentage points when a low-income household moves into a 9% tax credit unit when compared to a 4% unit in California. Neighborhood minority share also increases by about four more percentage points for 9% tenants. These rates do not differ significantly by construction type. Using imputed race and ethnicity of the householder, an African American household experiences an additional 1.4-point increase in poverty rate when compared to a similarly relocated Non-Hispanic White household. Higher-income and elderly tax credit households are more likely than lower-income and younger households to move into LIHTC developments in lower-poverty and less-racially-segregated neighborhoods across California.

A better comparison group is perhaps those low-income renter households who also moved during the same period as low-income households moved into tax credit units. I estimate a model using this group as the counterfactual. However, this group is also imperfect. A low-income household typically has to go through an application process for an available tax credit unit.⁶⁸ Thus, a typical low-income renter household may be more likely to move voluntarily than a tax credit household. Due to data limitations, I am not able to separate subsidized households from non-subsidized households in this group. The model is constructed as follows:

$$Opp_{imt} = Opp_{imt-1} + \beta_1 LIHTC4_i + \beta_2 LIHTC9_i + \mu_t + \theta_m + \varepsilon_{tmt}$$

where Opp_{imt} is the neighborhood opportunity indicator for a low-income renter household i in

⁶⁸ The previous study shows that low-income unit applicants make their decisions primarily based on information concerning the new community's specific resources, rather than a more general interest in high opportunity areas (Infranca, 2011). Research on the LIHTC program in California reveals that residents' barriers to opportunity areas are driven by "the lack of a ladder in labor and housing markets" other than neighborhood factors (Reid, 2019). Residents' perceptions of desirable neighborhoods are more nuanced than the definition of opportunity outlined by the allocation authority (Reid, 2019). Also, each development submits an affirmative marketing plan to comply with the federal nondiscrimination requirement and additional state requirements outlined in the state's QAP (Haberle et al., 2012). The selection process is under the individual developer's purview (Haberle et al., 2012). Limited prior research also suggests that marketing processes used by the developers may not be reaching the targeted audience effectively (Haberle et al., 2012; Infranca, 2011). Tax credit tenants are likely to face additional hurdles.

CBSA area m . This household i moves in year t . I include a dummy for whether this household moves into a 9% credit unit ($LIHTC9_i$) or a 4% credit unit ($LIHTC4_i$). The omitted reference group is other low-income households who moved during year t in CBSA m . I report full results with poverty rates and minority shares in Table 3-9. I use specifications in the second model from Table 3-9 to estimate changes in other opportunity indicators. I report abridged regression results of opportunity indicators in Table 3-10.

In California, LIHTC households experience greater increases in neighborhood poverty rates after they move into tax credit units when compared with other low-income renter households. The neighborhood poverty rate for a 4% household increases by about 2.3 percentage points over other low-income renter households. A 9% household faces an even larger increase in poverty rate by about six percentage points over other low-income renters. The overall results in Table 3-9 paint a concerning picture for tax credit households in California.

Table 3-10 displays abridged results for changes in the neighborhood opportunity measures: school proficiency index, environmental health index, jobs proximity index, low-wage jobs proximity index, low transportation cost index, and transit trips index. 9% tenants experience more pronounced drops in neighborhood opportunities than 4% tenants. 9% tax credit households experience larger decreases in the school proficiency index, the low-wage jobs proximity, the jobs proximity, and the transit trips indices than 9% households. By additional calculations of unweighted means, while there is almost no change among 4% households with children, this index decreases by 3.7 points among 9% households with children. 9% households experience slightly improved environmental health and slightly lowered transportation cost than 4% households and other low-income renter households after the relocation.

Table 3-8: Regression Results for Changes in Neighborhood Poverty Rates and Minority Shares

Variables	(1)	(2)	(3)	(4)	(5)	(6)
	Poverty Rate at Destination			Minority Share at Destination		
New Construction	-0.306 (0.412)	0.445 (0.437)	0.717 (0.418)	-0.694 (0.432)	0.317 (0.446)	0.593 (0.423)
9% Units	4.577*** (0.688)	4.324*** (0.687)	3.592*** (0.850)	4.439*** (0.712)	4.243*** (0.693)	3.507*** (0.879)
New Construction x 9% Units	-1.126 (0.917)	-1.305 (0.824)	-0.821 (1.098)	-0.666 (0.950)	-1.062 (0.831)	-0.591 (1.133)
Children Presence		-0.478* (0.255)	-0.199 (0.292)		-0.545* (0.254)	-0.255 (0.294)
Age: 25-44		0.132 (0.444)	0.388 (0.464)		0.0647 (0.456)	0.355 (0.473)
Age: 45-64		-0.887* (0.434)	-0.584 (0.425)		-0.976* (0.449)	-0.658 (0.436)
Age: 65+		-3.639*** (0.430)	-3.299*** (0.405)		-3.999*** (0.457)	-3.657*** (0.414)
Remain Single		-1.246*** (0.300)	-1.260*** (0.329)		-0.962*** (0.300)	-1.000** (0.333)
Become Single		-0.0832 (0.422)	0.0779 (0.358)		-0.200 (0.400)	-0.0621 (0.358)
Become Married		-1.059** (0.385)	-1.184*** (0.373)		-0.771* (0.381)	-0.915** (0.348)
Predicted Income (in \$1,000)		-0.290*** (0.0307)	-0.302*** (0.0364)		-0.325*** (0.0304)	-0.336*** (0.0360)
African American			1.355** (0.456)			1.230** (0.489)
Hispanic			-0.320** (0.123)			-0.517*** (0.137)
Other			1.388*** (0.335)			1.143*** (0.332)
Poverty Rate at Origin	0.288*** (0.00822)	0.183*** (0.0100)	0.180*** (0.0112)			
Minority Share at Origin				0.0884*** (0.00444)	0.0483*** (0.00482)	0.0485*** (0.00620)
Constant	10.89*** (0.643)	18.16*** (0.785)	18.56*** (0.804)	13.32*** (0.709)	20.20*** (0.853)	20.63*** (0.892)
Observations	31,125	31,125	24,702	31,129	31,129	24,705
R²	0.268	0.336	0.340	0.230	0.320	0.325
CBSA FE & Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Sources: Updated HUD LIHTC Project Database, InfoUSA U.S. Consumer Database,

Note: Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Omitted categories are age: <25, rehabilitation project, 4% unit, remain married, and non-Hispanic White. CBSA = Core-Based Statistical Area, FE = Fixed Effect, HCV = Housing Choice Vouchers, HUD = Department of Housing and Urban Development, LIHTC = Low-Income Housing Tax Credit.

Table 3-9: Regression Results for Changes in Neighborhood Poverty Rates and Minority Shares among Low-Income Movers

Variables	(1)	(2)	(3)	(4)	(5)	(6)
	Poverty Rate at Destination			Minority Share at Destination		
4% Unit	2.226*** (0.446)	2.325*** (0.442)	2.582*** (0.393)	1.960*** (0.444)	2.235*** (0.440)	2.486*** (0.392)
9% Unit	6.182*** (0.252)	5.997*** (0.322)	5.891*** (0.367)	5.871*** (0.269)	5.876*** (0.329)	5.783*** (0.376)
Children Presence		0.292*** (0.0757)	0.270*** (0.0822)		0.121 (0.0787)	0.133 (0.0837)
Age: 25-44		0.488*** (0.0523)	0.396*** (0.0524)		0.387*** (0.0632)	0.381*** (0.0600)
Age: 45-64		0.366** (0.120)	0.420*** (0.0973)		0.142 (0.131)	0.271** (0.103)
Age: 65+		-1.709*** (0.123)	-1.342*** (0.0692)		-1.881*** (0.135)	-1.533*** (0.0754)
Remain Single		-2.089*** (0.367)	-1.641*** (0.312)		-1.565*** (0.339)	-1.305*** (0.296)
Become Single		-0.338 (0.483)	0.00140 (0.406)		-0.349 (0.450)	-0.0750 (0.383)
Become Married		-1.048*** (0.113)	-0.866*** (0.121)		-0.705*** (0.114)	-0.623*** (0.121)
Predicted Income (in \$1,000)		-0.297*** (0.00759)	-0.300*** (0.00733)		-0.311*** (0.00708)	-0.318*** (0.00688)
African American			2.786*** (0.0845)			2.288*** (0.0686)
Hispanic			1.873*** (0.0592)			1.334*** (0.0491)
Other			0.369*** (0.0604)			0.0564 (0.0584)
Poverty Rate at Origin	0.278*** (0.00382)	0.180*** (0.00528)	0.167*** (0.00381)			
Minority Share at Origin				0.124*** (0.00211)	0.0789*** (0.00228)	0.0701*** (0.00159)
Constant	8.990*** (0.423)	15.85*** (0.463)	15.43*** (0.355)	9.139*** (0.423)	15.86*** (0.473)	15.78*** (0.381)
Observations	1,017,988	1,017,988	779,911	1,018,077	1,018,077	779,981
R²	0.171	0.237	0.243	0.158	0.232	0.236
CBSA FE & Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Sources: Updated HUD LIHTC Project Database, InfoUSA Consumer Database, and American Community Survey (2014-2018).

Note: Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Omitted categories are age: <25, rehabilitation project, 4% unit, remain married, and non-Hispanic White. CBSA = Core-Based Statistical Area, FE = Fixed Effect, LIHTC = Low-Income Housing Tax Credit.

Table 3-10: Abridged Regression Results for Changes in Neighborhood Indicators among Low-Income Movers

	School Proficiency Index	Environmental Health Index	Jobs Proximity Index	Low-Wage Jobs Proximity Index	Low Transportation Cost Index	Transit Trips Index
4% Unit	-0.716 (0.850)	-0.176 (0.196)	-3.404*** (0.956)	-0.744** (0.252)	0.324* (0.160)	-1.665*** (0.277)
9% Unit	-8.040*** (0.594)	2.423*** (0.273)	-8.952*** (0.670)	-2.540*** (0.273)	1.830*** (0.0832)	-2.617*** (0.520)
Constant	11.19*** (0.896)	24.11*** (1.000)	7.918*** (1.394)	5.826*** (0.890)	13.05*** (0.293)	28.94*** (1.209)
Observations	779,911	779,911	779,911	779,911	779,911	779,911
R²	0.258	0.602	0.434	0.529	0.241	0.162
CBSA FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Sources: Updated HUD LIHTC Project Database, InfoUSA Consumer Database, and American Community Survey (2014-2018).

Note: Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Omitted categories are age: <25, rehabilitation project, 4% unit, remain married, and non-Hispanic White. Coefficients for poverty rate at the origin, minority share at the origin, presence of children, age groups, marital status, and predicted income are not reported. CBSA = Core-Based Statistical Area, FE = Fixed Effect, HUD = Department of Housing and Urban Development, LIHTC = Low-Income Housing Tax Credit.

A state arguably has more leverage on new constructions over rehabilitation projects.

Table 3-11 shows the regression results among tenants who moved into newly constructed LIHTC developments in California.⁶⁹ Consistent with prior findings, new tax credit units perform better than rehabilitated ones in expanding access to areas of opportunity. However, newly constructed 9% units still overwhelmingly *worsen* access to opportunities for low-income households. While 4% tenants experience an increase in school proficiency index over other low-income renters by 2.8 percentage points, 9% households see an eight-percentage-point decrease when compared to other low-income renters. The only improved indicator for a relocated 9% LIHTC tenant is with the environmental health. Low-income households who moved into 4%

⁶⁹ The comparison group is still moved low-income renter households. Due to data availability and consolidation issues, building status (*i.e.*, new construction or existing) of moved low-income renter households is not determined in this study.

units have the best chance of gaining access to neighborhoods with better opportunities when compared with households who moved into 9% units and other low-income renters.

Table 3-11: Abridged Regression Results for Changes in Neighborhood Indicators among Low-Income Movers and New Tax Credit Units

	Poverty Rate	Minority Share	School Proficiency Index	Environmental Health Index	Jobs Proximity Index	Low-Wage Jobs Proximity Index	Low Transportation Cost Index	Transit Trips Index
4% Unit	2.528*** (0.591)	5.198*** (0.641)	2.751** (1.203)	0.858*** (0.243)	2.166*** (0.398)	-2.010*** (0.404)	-0.975*** (0.254)	-2.189*** (0.555)
9% Unit	5.989*** (0.340)	7.142*** (0.483)	-8.075*** (0.612)	2.614*** (0.291)	-2.451*** (0.650)	-2.889*** (0.297)	-2.373*** (0.169)	-3.229*** (0.623)
Constant	16.18*** (0.508)	20.18*** (0.919)	11.55*** (0.946)	24.08*** (1.107)	30.30*** (1.162)	6.164*** (1.003)	19.02*** (0.973)	28.98*** (1.237)
Observations	779,911	779,911	779,911	779,911	779,911	779,911	779,911	779,911
R²	0.236	0.408	0.257	0.601	0.198	0.525	0.781	0.161
State/CBSA FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Sources: Updated HUD LIHTC Project Database, InfoUSA Consumer Database, and American Community Survey (2014-2018).

Note: Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Omitted categories are age: <25, rehabilitation project, 4% unit, remain married, and non-Hispanic White. Coefficients for poverty rate at the origin, minority share at the origin, presence of children, age groups, marital status, and predicted income are not reported. CBSA = Core-Based Statistical Area, FE = Fixed Effect, HUD = Department of Housing and Urban Development, LIHTC = Low-Income Housing Tax Credit.

Lastly, Table 3-12 looks at the likelihood of relocation into a high-poverty neighborhood with a logistic regression framework. A 4% LIHTC household is 1.6 times and a 9% LIHTC is 2.5 times more likely to move into a high-poverty neighborhood compared to other low-income households who moved during the same time. A 9% household is also 1.7 times more likely to move into a minority-concentrated neighborhood. Overall, LIHTC households in 4% units are less likely to be in high-poverty neighborhoods and minority-concentrated neighborhoods than those in 9% units in California.

Table 3-12: Logistic Regression Results for Changes in Neighborhood Indicators among Low-Income Movers

	All Tax Credit Units		New Construction Units	
	In High-Poverty Neighborhood	In Minority-Concentrated Neighborhood	In High-Poverty Neighborhood	In Minority-Concentrated Neighborhood
4% Unit	1.594*** (0.0302)	0.934*** (0.0188)	1.975*** (0.0506)	1.023 (0.0276)
9% Unit	2.476*** (0.0573)	1.664*** (0.0417)	2.362*** (0.0600)	1.754*** (0.0479)
Constant	0.0121*** (0.00459)	0.124*** (0.00821)	0.0147*** (0.00558)	0.127*** (0.00847)
Observations	779,911	779,911	779,325	779,325
Pseudo R²	0.157	0.211	0.157	0.210
State/CBSA FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Sources: Updated HUD LIHTC Project Database, InfoUSA Consumer Database, and American Community Survey (2014-2018).

Note: Coefficients in odds ratios, exponentiated standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Omitted categories are age: <25, rehabilitation project, 4% unit, remain married, and non-Hispanic White. Coefficients for poverty rate at the origin, minority share at the origin, presence of children, age groups, marital status, and predicted income are not reported. CBSA = Core-Based Statistical Area, FE = Fixed Effect, Department of Housing and Urban Development, LIHTC = Low-Income Housing Tax Credit.

Conclusions

The LIHTC program has not meaningfully helped low-income households reach “neighborhoods of opportunity.” Nationwide, LIHTC tenants have access to neighborhoods similar to where voucher holders live. However, the program participants still considerably lack access to opportunity areas when compared with the distribution of non-poor renters. The 4% program is more likely to place low-income households into less-poor neighborhoods than the 9% program. A newly constructed 4% unit provides the best chance to access a low-poverty neighborhood than a newly constructed 9% unit and all rehabilitated units. Furthermore, the gaps in neighborhood opportunity measures between the 4% program and the 9% program are quite small. There are almost no differences in tenants’ access to low-wage jobs, low-cost

transportation, and transit at the neighborhood level. This result indicate that the non-competitive 4% program is able to place low-income households into neighborhoods similar to those of the competitive 9% program. Recent prioritizations towards opportunity in the 9% program remain limited in reducing the historical pattern of economic and racial segregation in the U.S. Overall, states have missed the mark in improving access to neighborhood opportunities for low-income households by leveraging the tax credit investment.

Although residents may have a fair amount of agency in choosing their neighborhoods, it is uncertain whether the LIHTC program can help residents leverage stable rents into greater economic mobility. Results from tracking movements of low-income renters in California paint a more troublesome picture for the LIHTC program, especially for the 9% program. LIHTC residents on average experience increases, rather than decreases, in their neighborhood poverty exposure while face decreases in many other neighborhood amenities and resources. That means a low-income household may have to trade better neighborhood amenities with low rent offered by a tax credit unit. More research is needed to understand the drivers of residential mobility among low-income households.

Different siting patterns in terms of neighborhood opportunities also suggest that state officials should consider a range of characteristics when designing allocation criteria and monitoring siting patterns. The empirical results indicate that increased prioritization towards opportunity in the 9% program during the most recent decade have reduced tenants' poverty exposure, but have not significantly improved access to other types of opportunities. Focusing solely on one aspect of siting, such as the neighborhood poverty rate, may undermine the ability to serve the needs of low-income households and improve their life experiences. Policymakers

should re-consider some allocation criteria to match with empirical evidence, such as locational affordability and transit access. Policymaking needs to reconcile neighborhood quality measures with how low-income residents' perceptions of what a good environment is for themselves and their children. More research is needed in these areas. Besides, state allocation agencies should strengthen monitoring to examine how variation in allocation and implementation influences residents' experiences and life chances. If some type of access and opportunities are not immediately available to tenants after a project is placed in service, state and local governments need to act immediately to bridge the gaps by providing meaningful connections to relevant quality services. In this process, states perhaps also need to consider other non-geographic dimensions of opportunities for low-income households such as automobile access.

Findings, Policy Implications, and Recommendations

The Low-Income Housing Tax Credit (LIHTC) program remains critical in the creation of affordable housing in the United States. It has a substantial influence on where low-income households live. This study has provided new empirical evidence on the efficacy and siting outcomes of affordable housing projects financed by the federal housing credit. It offers a comprehensive analysis of how the 4% credit program compares with the 9% credit program within the LIHTC program. The whole program misses the mark in reducing poverty concentration and expanding neighborhood opportunities for low-income households. During the most recent decade, some states have made progress in siting more 9% developments in areas with higher opportunities. The 4% program is flying under the radar of policymakers and housing officials. State legislators and housing authorities have yet to carry out meaningful guidance and oversight of the 4% program.

By extending the existing literature, this project examines how the LIHTC program and its different credit types affect neighborhood poverty concentration and racial segregation across America. While the whole program does not exacerbate poverty concentration and racial segregation, it does very little to reduce the historical pattern of poverty concentration and racial segregation across America. LIHTC investments may have sparked some degree of neighborhood revitalization, but this effect is small. The effect of the 4% program on neighborhood poverty reduction and racial desegregation is surprisingly similar to that of the 9% program after accounting for the number of tax credit units per neighborhood.

This study also updates the existing scholarship on neighborhood conditions surrounding affordable housing projects financed by the tax credit program. Neighborhoods with tax credit

developments still significantly lag behind those of other non-poor renters. The LIHTC program has limited capacity to help low-income households translate stable rents into economic mobility. Moving into a new tax credit unit in California notably reduces low-income households' access to neighborhood opportunities. The gaps in accessing neighborhood opportunities between active 4% developments and active 9% developments, however, are quite small. In other words, this finding shows that the non-competitive 4% program can place low-income households into neighborhoods similar to those of the competitive 9% program.

The study reveals that many states have increased prioritization towards neighborhood opportunity through the use of Qualified Allocation Plans (QAPs) for both credits. Twenty-three states incentivize 4% projects to be located in high-opportunity neighborhoods while 35 states have similar priorities for 9% projects in 2016. However, these priorities are often optional, unclear, and unenforceable in the 4% program.

Overall, the efficacy of the 9% program remains weak in decreasing poverty concentration, reducing racial segregation, and helping low-income tenants access neighborhoods with higher opportunities. Historical siting patterns show that the 9% program offers no significant advantages over the 4% program. This is disappointing as the 9% credit has been the largest supply-side housing subsidy with direct state supervision for over three decades. There are certainly limits to what can be accomplished through the siting of a limited number of tax credit developments. Perhaps one goal is to expand the tax credit program to increase funding for more affordable housing developments. The Affordable Housing Credit Improvement Act, which was just re-introduced in Congress, would do just that. However, even this legislation

leaves locational considerations to the states. Results from this study indicate that recent policy levers do incentivize more 9% tax credit developments into neighborhoods with higher opportunities. Tenants living in these developments placed in service during the 2010s face lower poverty exposure than tenants living in developments financed with the 4% credit over the same period. Likely, the siting outcomes between 4% developments and 9% developments may diverge in the future. The finding also points to those locational incentives need to be stronger and more persistent to overcome historic patterns of racial and income segregation in the U.S.

The underregulated 4% program may have some unleashed potential on its own in addressing the goals of poverty deconcentration by increasing prioritization towards opportunity. But this program faces some unique obstacles. One of the biggest challenges is balancing two sometimes competing housing goals: community-oriented development and prioritization towards opportunity. If fair housing and community development goals are both necessary but in conflict, states may want to explicitly allocate the use of the 4% credit, providing some funds to preserving affordable housing in blighted neighborhoods while creating new units in opportunity-rich areas. The 4% credit could potentially be a solution in balancing these goals while the 9% credit covers more expensive developments in high-cost neighborhoods with greater opportunities. As the 4% tax credit deal requires other financial resources, a state can couple this credit with other coordinated efforts to revitalize a neighborhood. However, much explicit consideration and open discussion are needed at the state level in fulfilling its housing objectives and advance fair housing goals. For example, a state needs to assess the housing needs of low-income households in specific areas and ensure LIHTC investments can successfully revitalize low-resource neighborhoods with other coordinated revitalization effort. In addition, to

increase the efficiency of housing subsidy programs, federal and state agencies must coordinate awarding objectives and streamline allocation processes. Lastly, as the 4% credit is not as lucrative as the 9% credit, it is a difficult balancing act between creating meaningful policy levers in pushing developments built with the 4% credit into opportunity-rich areas and ensuring financial sustainability for developers. Congress and states may have to offer additional financial incentives for opportunity-based housing in the 4% program.

Findings from this study should not be used to undermine the states' efforts to integrate fair housing goals and expand neighborhood opportunities into the LIHTC program. Providing low-income households with greater housing choices allows them to make decisions that meet their unique circumstances and needs. The hope is that neighborhoods with higher opportunities will provide low-income households with benefits "beyond the provision of affordable housing" (McClure, 2010). Ultimately, siting LIHTC units in lower-poverty and lower-opportunity neighborhoods does nothing to reduce structural inequalities in the housing and labor markets. In many states, competition for the 9% tax credit is fierce. There is also growing competition for the 4% tax credit and the tax-exempt bond cap. These factors This research and other studies show that the QAP is a powerful tool that can be used by state officials to influence the siting of tax credit housing. As I show in this study, siting outcomes fall short of having significant impacts on reducing housing segregation and expanding neighborhood opportunities for low-income households across America. States may need to translate incentives towards opportunity neighborhoods into more purposeful motivations and defined thresholds.

Different siting patterns and spatial distributions of opportunities also suggest that policymakers and officials should consider a variety of neighborhood dimensions when designing policies and monitoring siting patterns in the LIHTC program. Focusing solely on one aspect of siting, such as neighborhood poverty, may miss other important avenues in improving participants' life experiences, as well as the larger structural changes needed to better ensure equality in planning and housing. Long-term neighborhood revitalization will require developers and housing officials to craft plans that better enhance or connect low-income tenants to amenities and services.

States need to seize the opportunity through the allocation of tax credits to reverse the persistent pattern of housing segregation and eliminate barriers for low-income households to access opportunities. Policymakers and housing officials need to enhance allocation criteria, strengthen implementation, and expand monitoring in the LIHTC program. It is time to deepen the commitments to fair housing goals and better fulfill the promises of the Fair Housing Act of 1968. Hopefully, the LIHTC program, especially the 4% program, can play a more substantial role in this endeavor. The results from this research project also illustrate the urgent need to better grasp the complexity of the LIHTC program and its different components. More research is needed to identify which policy lever works the best and how fast it initiates changes. Additional research is also needed to understand LIHTC's impacts on tenant experiences, wellbeing, and economic mobility. In order to do so, states and the federal government should provide better data on the characteristics of households that live in tax credit developments as well as implement strategies to monitor and assess tenant selections, residential moves, and

community services. Research on the LIHTC program is particularly valuable for informing future housing policy. The reintroduction of the Affordable Housing Credit Improvement Act in Congress is an opportunity to expand and enhance the federal tax credit program by convening researchers and policymakers, engaging the public, and supporting a subsidy that best benefit low-income households.

Appendices

Appendix A - State Tax Credit Allocation Agency _____	145
Appendix B - State Allocation Mechanism Notes _____	147
Appendix C - Number of Projects by Year and Credit Type _____	193
Appendix D - State Locational Priorities _____	195
Appendix E - Note on Improvements Made to HUD LIHTC Database _____	260
Appendix F - Note on Neighborhood Opportunity Indicators _____	267
Appendix G - Regression Results for Neighborhood Opportunity Indicators _____	271

Appendix A - State Tax Credit Allocation Agency

Appendix A-1: State Tax Credit Allocation Agency and Major Tax-Exempt Bond Issuer

State	Tax Credit Allocating Agency		Tax-Exempt Bond Issuer (If Different)
Alabama	AL	Alabama Housing Finance Authority	
Alaska	AK	Alaska Housing Finance Corporation	
Arizona	AZ	Arizona Department of Housing	Arizona Commerce Authority
Arkansas	AR	Arkansas Development Finance Authority	
California	CA	California Tax Credit Allocation Committee	California Debt Limit Allocation Committee California Housing Finance Agency
Colorado	CO	Colorado Housing & Finance Authority	
Connecticut	CT	Connecticut Housing Finance Authority	
Delaware	DE	Delaware State Housing Authority	
Florida	FL	Florida Housing Finance Corporation	
Georgia	GA	Georgia Department of Community Affairs	
Hawaii	HI	Housing & Community Development Corporation of Hawaii	
Idaho	ID	Idaho Housing & Finance Association	
Illinois	IL	Illinois Housing Development Authority	
Indiana	IN	Indiana Housing & Community Development Authority	
Iowa	IA	Iowa Finance Authority	
Kansas	KS	Kansas Housing Resources Corporation	
Kentucky	KY	Kentucky Housing Corporation	
Louisiana	LA	Louisiana Housing Finance Agency	
Maine	ME	Maine State Housing Authority	
Maryland	MD	Maryland Department of Housing & Community Development	
Massachusetts	MA	Massachusetts Department of Housing & Community Development	Massachusetts Housing Finance Agency Massachusetts Economic Development & Finance Agency
Michigan	MI	Michigan State Housing Development Authority	
Minnesota*	MN	Minnesota Housing Finance Agency	
Mississippi	MS	Mississippi Home Corporation	
Missouri	MO	Missouri Housing Development Commission	Missouri Department of Economic Development
Montana	MT	Montana Board of Housing	
Nebraska	NE	Nebraska Investment Finance Authority	
Nevada	NV	Nevada Housing Division	
New Hampshire	NH	New Hampshire Housing Finance Authority	
New Jersey	NJ	New Jersey Housing & Mortgage Finance Agency	
New Mexico	NM	New Mexico Mortgage Finance Authority	New Mexico Board of Finance Division
New York*	NY	New York State Homes & Community Renewal (New York State Division of Housing & Community Renewal)	New York State Homes & Community Renewal (New York State Housing Finance Agency)
North Carolina	NC	North Carolina Housing Finance Agency	

North Dakota	ND	North Dakota Housing Finance Agency	
Ohio	OH	Ohio Housing Finance Agency	
Oklahoma	OK	Oklahoma Housing Finance Agency	Oklahoma State Bond Advisor
Oregon	OR	Oregon Housing & Community Services	
Pennsylvania	PA	Pennsylvania Housing Finance Agency	
Rhode Island	RI	Rhode Island Housing & Mortgage Finance Corporation	
South Carolina	SC	South Carolina State Housing Finance & Development Authority	
South Dakota	SD	South Dakota Housing Development Authority	
Tennessee	TN	Tennessee Housing Development Agency	
Texas	TX	Texas Department of Housing & Community Affairs	Texas Bond Review Board
Utah	UT	Utah Housing Corporation	Private Activity Bond Review Board
Vermont	VT	Vermont Housing Finance Agency	
Virginia	VA	Virginia Housing Development Authority	
Washington	WA	Washington State Housing Finance Commission	
West Virginia	WV	West Virginia Housing Development Fund	
Wisconsin	WI	Wisconsin Housing & Economic Development Authority	
Wyoming	WY	Wyoming Community Development Authority	

Note: Excludes Minnesota and New York sub-allocators.

Appendix B - State Allocation Mechanism Notes

This section contains state-level allocation mechanisms for the 4% credit. Unless noted otherwise, 4% applications are exempt from competitive scoring and ranking processes set for the 9% applications. This section also includes state requirements and definitions regarding the federally mandated *concerted community revitalization plan* and state *area of opportunity* (or equivalent) if available.

Alabama

The Consolidated Plan, in addition to providing an overall assessment of housing needs for the State, identifies the housing needs associated with special needs groups (minorities, single-parent families, the elderly, people with disabilities, mental illness, or AIDS/HIV and homeless persons). A demographic analysis performed for the first Consolidated Plan (and still true today) concluded that a significant number of individuals in all parts of the state are in need of housing assistance. Those with the greatest needs are, predictably, concentrated at the lowest levels of the income hierarchy, wherein the housing cost burden is also the most severe. The largest numbers relative to housing needs are found in the state's most populous urban and metropolitan counties, but the greatest concentration of need is observed in the rural counties located in the southern portion of the state, the Black Belt in particular.

Alabama Housing Finance Authority (AHFA) defines a Revitalization Plan as a published document, approved and adopted by the local governing body by ordinance or resolution, that targets local funds to specific geographic areas (the geographic area cannot be the entire town or city that has adopted the plan) for low-income residential developments (serving

residents at, or below, 60% of the area median income). AHFA does not consider a Consolidated Plan the same as a Revitalization Plan for the purpose of receiving points.

Alaska

Bond-financed project must be considered eligible for tax credits under Alaska's Qualified Allocation Plan, including the minimum threshold requirements and points criteria.

Community revitalization plan: a local comprehensive planning document that specifically includes community revitalization as a priority or defines community revitalization efforts that are consistent with that comprehensive document. If no comprehensive planning document is prepared in a community, then a letter from the chief executive officer of the local government attesting to a proposed project's role in achieving community revitalization will substitute.

Arizona

Community Revitalization: Project is located in an U.S. Department of Housing and Urban Development (HUD) designated Neighborhood Revitalization Strategy Area pursuant to 24 CFR 91.215(g) and designated in a five-year plan developed in accordance with HUD CPD Notice 96-01 which contains a distinct neighborhood or geographic area targeted for revitalization, or federally designated Promise Zone, or HUD approved five-year Consolidated Plan or HUD approved Indian Housing Plan and provide supporting documentation from HUD to evidence that the Project is located therein.

Arkansas

A Community Revitalization Plan is approved by the appropriate planning authority and such Plan must specifically address a need for affordable housing.

California

California Debt Limit Allocation Committee allocates volume cap of tax-exempt bonds. California Tax Credit Allocation Committee administers the Low-Income Housing Tax Credit program.

Neighborhood Revitalization Area is defined as an area, other than one in the Rural set-aside, that is part of a neighborhood revitalization strategy area designated by the U.S. Department of Housing and Urban Development, an Empowerment Zone, Enterprise Community, Renewal Community, or an area that has been designated by a local agency to be the focus of revitalization or similar efforts.

(2016) Community Revitalization Area means a Distressed Community for which a comprehensive Community Revitalization Plan has been adopted and efforts specific to the plan have occurred.

(2016) Community Revitalization Plan means a comprehensive plan that details specific efforts being undertaken in a neighborhood or a community, that will result in the improvement of the economic conditions and the quality of life in that area.

Colorado

Colorado Housing and Finance Authority has established 60 points as the minimum number of points which a tax-exempt bond financed development under the Scoring worksheet. Colorado has also established 130 points as the minimum number of points for a 9% development.

Concerted Community Revitalization Plan: a published document, approved and adopted by the local governing body by ordinance or resolution, that targets local funds to specific geographic areas (the geographic area cannot be the entire town or city that has adopted the plan) for both commercial/retail and low-income residential developments (serving residents at, or below, 60% of the area median income).

Connecticut

Community Revitalization Plan: a plan intended to provide a coordinated and comprehensive approach to addressing the problems in a community's distressed areas, and to foster healthy and vibrant residential and commercial opportunities, adopted by a municipality.

Delaware

All applications for 4% tax credit with tax-exempt financing must meet a minimum score.

Community Revitalization Plan: a municipal, county, or regional plan that has been formally endorsed by a governing body. This includes, but is not limited to, a municipal and/or county Consolidated Plan, local or regional redevelopment plan, neighborhood redevelopment plan as endorsed and approved by local government, or a development that is located in an Enterprise Community.

Areas of Opportunity – A, B, and C Markets (as identified in Delaware Housing Needs Assessment, 2015 – 2020) and/or areas where students are attending schools achieving a proficiency level of 90% or higher. These are strong, high value markets where new affordable housing opportunities should be supported.

Florida

Developments that receive Tax-Exempt Bonds issued without any other competitive funding, will be deemed to have met the minimum threshold criteria by successfully completing a request for Housing Credits in Non-Competitive Application for the Bonds.

Limited Development Area: in an effort to ensure that the state is not funding new rental developments near vulnerable, existing, affordable developments, Florida Housing developed a process for identifying these areas, minimizing the construction of new, affordable housing units in these areas, and ensuring that funding is targeted towards markets having an unmet demand for affordable units. Florida Housing evaluates occupancy data in designating Limited Development Areas. The following physical occupancy rate divisions were used to focus on properties and areas of concern: 1) Less than 90% occupancy, indicating a development whose financial operations are typically not self-sustaining, and is thus reliant on sources other than project revenues; 2) Between 90% and 93% occupancy, typically indicating financial operations approaching break-even; and 3) 93% and above, typically indicating healthy occupancy and financial operations.

Areas of Opportunity: the designation of two and three factor Census Tracts is partially a response to a recent change in the way the U.S. Department of Housing and Urban Development

(HUD) designates Difficult Development Areas in metropolitan areas. Previously, HUD designated entire metropolitan counties as Difficult Development Areas. Two and three factor tracts are Census Tracts with high indicators of community wellbeing. The designations were developed using three threshold criteria: 1) tract median income greater than the 40th percentile of all Census Tracts within the county; 2) educational attainment above the median of all tracts in the county, measured as the proportion of adults over 25 years old who have completed at least some college; and 3) tract employment rate greater than the statewide employment rate. Florida Housing applied these thresholds to identify the Areas of Opportunity. Tracts which meet two but not three of the criteria are two factor tracts. Tracts which meet all three criteria are three factor tracts. Florida Housing discourages development of new affordable housing in Racially/Ethnically Concentrated Areas of Poverty (RECAPs). Almost all RECAPs are Qualified Census Tracts (QCTs) designated by HUD. However, most QCTs are not RECAPs. Applications for funding from non-RECAP QCTs will not be subject to the disincentive. The “basis boost” eligibility of proposed tax credit developments in these QCTs is not impacted by the actions of Florida Housing.

Georgia

Community revitalization plans must meet the follow requirements:

- Be officially adopted by a Local Government;
- Include public input and engagement during the planning stages;
- Be current, ongoing, and directly affect the proposed site;
- Clearly delineate a target area that includes the proposed site;

- Call for the rehabilitation or production of affordable rental housing as a policy goal
- for the community;
- Designate implementation measures along with specific time frames for the achievement of such policies and housing activities. The timeframes and implementation measures must be current and ongoing;
- Include an assessment of the existing physical structures and infrastructure of the community; and
- A discussion of resources that will be utilized to implement the plan.

The Community plan Revitalization Plan must also have been adopted at least six months prior to the Application Submission and a copy must be included in the Application. The proposed development project must support at least one of the goals of the redevelopment or revitalization plan.

Hawaii

A concerted community revitalization plan is determined by Hawaii Housing Finance & Development Corporation. For example: site is located in an Enterprise Community, Empowerment Zone, or part of a County redevelopment plan.

Idaho

Developments to be financed by the issuance of Bonds by the Association shall be reviewed by the Association under the procedures and requirements set forth in the Allocation Plan, and will not be required to compete in the same application period with other tax credit

developments. An Association Bond financed development will be permitted to receive tax credits only if it receives more points in the process than the other development(s) proposed for the area or the professionally prepared market studies indicate that there is market demand for both the Bond financed development and the other proposed same-area developments. In any event, the Bond financed development must meet the minimum threshold requirements under the Allocation Plan in order to receive tax credits.

A concerted community revitalization plan is defined as a certified urban renewal district or other city-designated geographic area located within a qualified Census Tract that specifically addresses affordable housing as a goal. To receive points for this category, documentation from the urban renewal district or the city must confirm to the Association's satisfaction that the proposed development lies within certified boundaries and meets the urban renewal district's or city's goal of providing affordable housing.

Illinois

(2005) Revitalization or redevelopment plan: Enterprise Community, Empowerment Zone, Tax Abatement, Tax Increment Finance designation, or other leverage, as set forth in Local Governmental Financial Assistance scoring category.

(2016) Community Revitalization Efforts that are likely to lead to measurable increases in the following (for information, see <https://www.ihda.org/developers/market-research/community-revitalization/>):

- Access to employment and living wage jobs;
- Access to healthcare and supportive services;

- Access to a range of community amenities, including (but not limited to) parks, schools,
- groceries, businesses, and retail locations;
- Access to transportation;
- Improvement in the quality of housing stock; and
- Affordable housing opportunities.

(2016) Opportunity Areas (OAs), as defined by IHDA, are communities with low poverty, high access to jobs and low concentrations of existing affordable rental housing. OAs are identified annually and retain the designation for at least four years as long as they continue to meet the identification criteria. For more information, see <https://www.ihda.org/developers/market-research/opportunity-areas/>.

Indiana

Minimum scoring thresholds are set for projects seeking Private Activity Tax Exempt Bonds with 4% tax credits.

Promote Place-Based Initiatives: Indiana Housing & Community Development seeks to promote developments that build upon a community's existing assets, take advantage of its available resources, promote quality of life, and fit into the community's overall plan. While the opportunities and challenges may vary, every community should strive to be a place where people choose to live, work, and play. A thriving community is a community with job opportunities, strong schools, safe neighborhoods, a full range of housing choices, and a vibrant culture. A community's potential lies in the identification and creation of a shared vision, planned by local leadership, and carried out by an array of partners. The demolition of blighted

structures, the rehabilitation of long-vacant housing and the creation of new community amenities and retail opportunities serve as a tipping point for future development through market forces.

Opportunity Index: the proposed Development Site may earn up to 5 points (with 1 point for each feature) for proximity to growth opportunities such as quality education institutions and livable wages. The Development is located within: a county at the top quartile for median household income in the state and not within a Qualified Census Tract (QCT); a county at the bottom quartile for poverty rate in the state and not within a QCT; at least one public K-12 school (including charter schools) assigned to that location with a rating of “A” or “exemplary” or equivalent according to the most recent accounting from the Indiana Department of Education; a county that has an unemployment rate below the State average; and/or county ranked from 1-23 on the Overall Rankings of Healthy Outcomes.

Iowa

A concerted community revitalization plan is an Iowa Economic Development Authority (IDED) Enterprise Zone, U.S. Department of Housing and Urban Development (HUD) Enterprise Community, IDED Main Street Program, IDED Tax Increment Finance Variance approved communities, Self-Supporting Municipal Improvement District or historic structures listed on the National Register of Historic Places or determined eligible for the National Register by the State Historic Preservation Officer.

Opportunity Index: The “high” and “very high” opportunity areas were calculated as part of the State of Iowa’s Analysis of Impediments to Fair Housing Choice. Each dimension

analyzed for Iowa's Analysis of Impediments to Fair Housing Choice includes a collection of variables describing conditions for each Census Tract in the State.

- Prosperity includes rates of family poverty and the receipt of public assistance (cash welfare, such as Temporary Assistance to Needy Families) to capture the magnitude of a given neighborhood's rate of poverty.
- Labor Market Engagement measures the level of employment, labor force participation, and educational attainment in each neighborhood to describe its local human capital.
- Job Access gives each Census Tract a score based on distance to all job locations, weighting larger employment centers more heavily. The distance from any single job location is positively weighted by the number of job opportunities at that location and inversely weighted by the labor supply (competition) of the location.
- Mobility was calculated based on commute times and the percent of people who travel to work via public transit.
- School Proficiency uses the results of the Adequate Yearly Progress test by elementary, middle, and high school students as a proxy for educational quality. Rates of proficient scores for all grades for both the reading and math exams are combined into one overall score for each school district.
- Community Health for a given tract was calculated as a function of the number of residents without health insurance and low food access ranking by the United States Department of Agriculture.

Kansas

None.

Kentucky

Applicants requesting to finance projects with tax-exempt bonds must complete a separate application and will be scored separately.

Areas of Opportunity: Kentucky Housing Corporation (KHC) has determined that Census Tracts with a poverty rate of less than 10% are areas of opportunity for the development of affordable housing and as such is incentivizing development in these areas. A listing, by county, of the Census Tracts with a poverty rate of less than 10% is available on Kentucky Housing Corporation's website.

To be considered a current revitalization plan, it must have been created or updated within the last five years. KHC's findings reflect that Qualified Census Tracts (QCTs) have benefited over the years with the creation of affordable housing developments. Treasury regulation §1.42-9(a) mandates compliance with the United States Department of Housing and Urban Development (HUD) directives including Title VIII of the Civil Rights Act of 1968. To meet the requirements of the Fair Housing Act and Treasury regulation §1.42-9(a), KHC has restricted the creation of new affordable housing units in QCTs. KHC will now require developments that propose the creation of new units in QCTs to undergo a thorough review and justification process prior to accepting an application for funding. Developments must demonstrate one of the following to be eligible:

- The creation of new affordable units in a QCT must be part of a written community revitalization plan. The community revitalization plan (or its equivalent) must have been

in existence prior to an application for funding and must have been created or updated within the last 5 years. The plan must be consistent with the Fair Housing Act. Projects located in a HOME Participating Jurisdiction (PJ) must also obtain a certification from the PJ in which the property is located. The certification must specifically identify the proposed development and state that the creation of new affordable units in a QCT is consistent with its AI and certification to HUD.

- Developments proposing new affordable housing units in a QCT located in the state jurisdiction covered by KHC's AI will not be accepted. Developers may request a waiver of this requirement prior to seeking funding from KHC. Waivers will be granted on a case-by-case basis at KHC's sole and absolute discretion. All waiver requests must be sent to KHC's legal department and include detailed information on the project, existing affordable housing developments located within the QCT and within the market area as determined by a third-party market analyst. Additionally, KHC will require letters from community officials and affordable housing organizations which discuss the community's existing affordable housing, the rationale for the creation of new units in a QCT and the availability of affordable rental housing in their community in locations outside of the QCT. KHC will reject waiver requests that appear to violate fair housing laws (24 CFR 100). Applicants who received a QCT waiver in the most previous funding round, but whose project was not selected for funding, may submit updated documentation demonstrating that no changes have occurred in the community and request that KHC consider reissuing the QCT waiver.

KHC will continue to allow Housing Credits in QCTs for the preservation of existing affordable housing developments that have been previously assisted by federal or state programs.

Louisiana

Applicants requesting to finance projects with tax-exempt bonds must complete a separate application and are scored separately. Bond financed projects must satisfy all elements of the Qualified Allocation Plan. Cost and profit limitations and minimum score may be waived by the Governor in the executive order allocating private activity volume cap; however, Taxpayer/Owners of bond-financed projects must enter into an appropriate regulatory agreement and compliance monitoring agreement.

Concerted Community Revitalization Plan: a plan, made up of measurable and/or tangible objectives, approved by a local governmental unit following a public hearing which describes an area, draws attention to the area's condition, states the incentives and the measures to coordinate and target resources to the area for purposes of redeveloping or revitalizing the area and identifies the strategies, financial resources (other than financing for the housing development at issue), and organizations to implement revitalization. An executed resolution must be included in the application submission in addition to the aforementioned plan as evidence of local governmental approval.

Maine

“Community Revitalization Plan” means (1) a community that has been designated by the United States Department of Housing and Urban Development or as an Empowerment Zone, a

Renewal Community or Enterprise Community, or a Neighborhood Revitalization Strategy Area; or (2) a written plan that is formally adopted by the governing body of a municipality following a concerted planning process and public input, specifically targets a neighborhood or area in the community (not a single building or site or the entire municipality) for redevelopment or revitalization, and includes (a) an assessment of the existing physical structures and infrastructure of the area, (b) detailed policy goals with respect to economic redevelopment, the rehabilitation or development of housing (including multi-family rental housing) and the improvement or expansion of infrastructure, and (c) proposed activities and a timetable for implementing the policy goals. Comprehensive plans, zoning and land use plans and other plans about the growth or use of areas within a municipality, plans for a single development and plans formulated by or on behalf of the Applicant are not Community Revitalization Plans.

Service Centers: the communities where residents work, shop, obtain medical care or enjoy a cultural experience are what the Legislature has termed “service centers” or “regional service centers.” For more details:

https://www.maine.gov/dacf/municipalplanning/service_centers.shtml

Maryland

The allocation criteria and the competitive process apply to residential rental projects other than those financed by tax-exempt bonds. Applications requesting Bond Financing with non-competitive tax credits, while not subject to the competitive process, must still meet the threshold criteria and obtain a minimum score under the selection criteria.

The following areas qualify as Priority Funding Areas:

- every municipality, as they existed in 1997;
- areas inside the Washington Beltway and the Baltimore Beltway;
- areas already designated as enterprise zones, neighborhood revitalization areas, heritage areas and existing industrial land.

A community revitalization plan is a plan that is consistent with Maryland Smart Growth and revitalization policies and established to prevent or reverse the decline or disinvestment in the community. The plan must be local in nature with defined geographic boundaries. To be acceptable, a plan also should include evidence of a concerted planning process including consultation with and input from major stakeholders, particularly community residents and businesses. Plans will be evaluated and scored based on the evidence and the extent of the endorsement of the Plan by either local government or by established community-based organizations. The plan should include discussions of the types of development that will be encouraged, the potential sources of funding, services to be offered to the community, participants in the revitalization effort, or outreach and marketing efforts to be undertaken. The plan must include more than a mapping of where housing, commercial, industrial and other development will be allowed. A County or municipal zoning or land use plan or consolidated plan prepared as required by the United States Department of Housing and Urban Development does not qualify unless it meets the standards for Community Revitalization Plans as described above.

The Communities of Opportunity designated on the Maryland's Qualified Allocation Plan (QAP) Comprehensive Opportunity Maps are based on a "Composite Opportunity Index" developed by Maryland Department of Housing & Community Development (DHCD). The

Composite Opportunity Index uses publicly-available data and is based on three major factors: community health, economic opportunity, and educational opportunity. To be designated a Community of Opportunity, and mapped as such to the Maryland QAP Comprehensive Opportunity Maps, the community must have a Composite Opportunity Index that it is above the statewide average. The three major indicators that comprise the Composite Opportunity Index are: Community Health, Economic Opportunity, and Educational Opportunity.

Defined Planning Areas are:

- communities expected to experience economic growth as a result of federal Base Realignment and Closure (BRAC) consolidations that have brought additional military facilities and personnel to Maryland. There are nine such BRAC impacted areas in Maryland: Baltimore City and Cecil, Harford, Baltimore, Howard, Frederick, Montgomery, Anne Arundel, and Prince George's Counties.
- rural areas that include any areas eligible under the U.S. Department of Agriculture's Rural Development programs or any areas in Allegheny, Caroline, Dorchester, Garrett, Kent, Somerset, Washington, Wicomico, or Worcester Counties that are not otherwise CDBG entitlement communities or HOME Participating Jurisdictions.
- Certified Heritage Areas within county designated growth areas; Sustainable Communities; Empowerment Zones; Federal or Maryland Enterprise Zones; Main Street/Maple Street Maryland Communities; or Rural villages designated in county comprehensive plans as of July 1, 1998 and where there is evidence of other recent public investment in the plan area.

Massachusetts

(2005) Commonwealth's Sustainable Development principles:

- Redevelop first. Support the revitalization of community centers and neighborhoods. Encourage reuse and rehabilitation of existing infrastructure rather than the construction of new infrastructure in undeveloped areas. Give preference to redevelopment of brownfields, preservation and reuse of historic structures and rehabilitation of existing housing and schools.
- Concentrate development. Support development that is compact, conserves land, integrates uses and fosters a sense of place. Create walkable districts mixing commercial, civic, cultural, educational and recreational activities with open space and housing for diverse communities.
- Be fair. Promote equitable sharing of the benefits and burdens of development. Provide technical and strategic support for inclusive community planning to ensure social, economic and environmental justice. Make regulatory and permitting processes for development clear, transparent, cost-effective, and oriented to encourage smart growth and regional equity.
- Restore and enhance the environment. Expand land and water conservation. Protect and restore environmentally sensitive lands, natural resources, wildlife habitats, and cultural and historic landscapes. Increase the quantity, quality and accessibility of open space. Preserve critical habitat and biodiversity. Promote developments that respect and enhance the state's natural resources.

- Conserve natural resources. Increase our supply of renewable energy and reduce waste of water, energy and materials. Lead by example and support conservation strategies, clean power and innovative industries. Construct and promote buildings and infrastructure that use land, energy, water and materials efficiently.
- Expand housing opportunities. Support the construction and rehabilitation of housing to meet the needs of people of all abilities, income levels and household types. Coordinate the provision of housing with the location of jobs, transit and services. Foster the development of housing, particularly multifamily, that is compatible with a community's character and vision.
- Provide transportation choice. Increase access to transportation options, in all communities, including land and water based public transit, bicycling and walking. Invest strategically in transportation infrastructure to encourage smart growth. Locate new development where a variety of transportation modes can be made available.
- Increase job opportunities. Attract businesses with good jobs to locations near housing, infrastructure, water, and transportation options. Expand access to educational and entrepreneurial opportunities. Support the growth of new and existing local businesses.
- Foster sustainable businesses. Strengthen sustainable natural resource-based businesses, including agriculture, forestry and fisheries. Strengthen sustainable businesses. Support economic development in industry clusters consistent with regional and local character. Maintain reliable and affordable energy sources and reduce dependence on imported fossil fuels.

- Plan regionally. Support the development and implementation of local and regional plans that have broad public support and are consistent with these principles. Foster development projects, land and water conservation, transportation and housing that have a regional or multi-community benefit. Consider the long-term costs and benefits to the larger Commonwealth.

(2016) Commonwealth's Sustainable Development principles:

- Concentrate Development and Mix Uses. Support the revitalization of city and town centers and neighborhoods by promoting development that is compact, conserves land, protects historic resources, and integrates uses. Encourage remediation and reuse of existing sites, structures, and infrastructure rather than new construction in undeveloped areas. Create pedestrian friendly districts and neighborhoods that mix commercial, civic, cultural, educational, and recreational activities with open spaces and homes.
- Advance Equity. Promote equitable sharing of the benefits and burdens of development. Provide technical and strategic support for inclusive community planning and decision making to ensure social, economic, and environmental justice. Ensure that the interests of future generations are not compromised by today's decisions.
- Make Efficient Decisions. Make regulatory and permitting processes for development clear, predictable, coordinated, and timely in accordance with smart growth and environmental stewardship.
- Protect Land and Ecosystems. Protect and restore environmentally sensitive lands, natural resources, agricultural lands, critical habitats, wetlands and water resources, and cultural

and historic landscapes. Increase the quantity, quality and accessibility of open spaces and recreational opportunities.

- **Use Natural Resources Wisely.** Construct and promote developments, buildings, and infrastructure that conserve natural resources by reducing waste and pollution through efficient use of land, energy, water, and materials.
- **Expand Housing Opportunities.** Support the construction and rehabilitation of homes to meet the needs of people of all abilities, income levels, and household types. Build homes near jobs, transit, and where services are available. Foster the development of housing, particularly multifamily and smaller single-family homes, in a way that is compatible with a community's character and vision and with providing new housing choices for people of all means.
- **Provide Transportation Choice.** Maintain and expand transportation options that maximize mobility, reduce congestion, conserve fuel and improve air quality. Prioritize rail, bus, boat, rapid and surface transit, shared-vehicle and shared-ride services, bicycling, and walking. Invest strategically in existing and new passenger and freight transportation infrastructure that supports sound economic development consistent with smart growth objectives.
- **Increase Job and Business Opportunities.** Attract businesses and jobs to locations near housing, infrastructure, and transportation options. Promote economic development in industry clusters. Expand access to education, training, and entrepreneurial opportunities. Support the growth of local businesses, including sustainable natural resource-based businesses, such as agriculture, forestry, clean energy technology, and fisheries.

- Promote Clean Energy. Maximize energy efficiency and renewable energy opportunities. Support energy conservation strategies, local clean power generation, distributed generation technologies, and innovative industries. Reduce greenhouse gas emissions and consumption of fossil fuels.
- Plan Regionally. Support the development and implementation of local and regional, state and interstate plans that have broad public support and are consistent with these principles. Foster development projects, land and water conservation, transportation and housing that have a regional or multi-community benefit. Consider the long-term costs and benefits to the Commonwealth.

A concerted community revitalization plan may be formally adopted by a municipality or may be an action plan developed by the project sponsor in contact with one or more organizations within the community, provided that it addresses proposed investments in the community to improve residents' access to jobs, education, and/or health care.

Michigan

Tax-Exempt Funding Rounds: Applications for Tax-Exempt financing may be evaluated in two possible ways. A) Competitive Funding Round: Tax-Exempt proposals requesting Michigan State Housing Development Authority (MSHDA) gap funding will be subject to what is anticipated to be an annual competitive funding round, based on a Gap Financing Program and Notice of Funding Availability. B) Open Funding Round: Proposals not requiring gap financing from MSHDA or other MSHDA preservation developments not requiring gap financing in

excess of what would be recaptured by MSHDA in the event of refinancing may apply for financing at any time.

Neighborhood revitalization plan is defined as follows: a published document (approved and adopted by the local governing body by ordinance or resolution) that assesses the existing physical structures and infrastructure of the community and that targets specific geographic areas for residential developments. The plan should also contain detailed policy goals that include the redevelopment and production of affordable housing as well as the proposed timeline for achieving these goals. Additionally, the plan should explain municipal support to the particular area.

Minnesota

Request for Minnesota Housing Finance Agency administered tax credits from the State's volume cap must demonstrate the project is eligible and meet the minimum score requirement. Request for tax credits in association with Tax Exempt Bonds over and above the State's allocation of Housing Tax Credits must also demonstrate the project is eligible and meet the minimum score requirement.

Mississippi

Revitalization Area/Plan: Any area/plan for which the local jurisdiction in which the development is to be located certifies as follows: (i) either (1) the area is blighted, deteriorated, deteriorating or, if not rehabilitated, likely to deteriorate by reason that the buildings, improvements or other facilities in such area are subject to one or more of the following

conditions- dilapidation, obsolescence, overcrowding, inadequate ventilation, light or sanitation, excessive land coverage, deleterious land use, or faulty otherwise inadequate design, quality or condition, or (2) the industrial, commercial or other economic development of such area will benefit the city or county but such area lacks the housing needed to induce manufacturing, industrial, commercial, governmental, educational, entertainment, community development, healthcare or nonprofit enterprises or undertakings to locate or remain in such area; and (ii) private enterprise and investment are not reasonably expected, without assistance, to produce the construction or rehabilitation of decent, safe and sanitary housing and supporting facilities that will meet the needs of low and moderate income persons and families in such area and will induce other persons and families to live within such area and thereby create a desirable economic mix of residents in such area. The area within a redevelopment project, conservation project, or rehabilitation district established by the city or county shall be deemed a revitalization area without any such certification. A comprehensive plan does not qualify as certification of a revitalization area.

High Opportunity Areas are defined as areas where there is availability of sustainable employment, a low poverty rate, and/or high- performing schools. Developments located in a high opportunity area will be eligible for the discretionary 130% basis boost.

Missouri

Although the application does not have to compete for 4% Credits from the State Housing Credit Ceiling, applicants must submit an application during the posted Notice of Funding Availability (NOFA) period and meet all requirements of the reservation process and

this Plan. Missouri Housing Development Commission (MHDC) staff will review the application, determine if the development is eligible and meets the requirements of this Plan, and make an initial determination of the development's tax credit amount. At the close of the NOFA period, the Commission will approve the recommendation and ranking of successful applications for priority in the consideration for a private activity bond allocation by the Missouri Department of Economic Development.

Opportunity Areas: Missouri Housing Development Commission encourages affordable housing developments in opportunity areas by targeting communities that meet the following criteria: access to high-performing school systems, transportation and employment; as well as being located in a Census Tract with a 15% or lower poverty rate. Family developments that meet these criteria will receive a preference in funding. Family developments proposed in opportunity areas are required to include an affirmative marketing plan that proactively reaches out to families currently living in Census Tracts where the poverty rate exceeds 40%. The plan must include a Special Marketing Reserve to assist in initial relocation expenses for families with children. Developments that apply under this priority must also apply under the Service Enriched Priority. MHDC will, on a case by case basis with reasonable and well documented justification, allow flexibility for meeting all four criteria for qualification.

Montana

With the exception of not having eligible competition periods or submission deadlines, each project is required to submit the same information and meet the same requirements included in the current Qualified Allocation Plan as a project submitting an application under the State's

tax credit allocation volume cap. If the minimum criteria are not met, the project will not receive an allocation of tax credits. All developments must have met a minimum score as a threshold for further consideration.

Nebraska

Economic Development Certified Community: The Economic Development Certified Community (EDCC) Program, sponsored by the Nebraska Diplomats, certifies the communities that display economic development preparedness and a desire for growth. EDCC Communities with the highest level of economic readiness are most likely to succeed in the program. Each applicant community is evaluated on program standards related to their community's organization, community identified targets and/or markets, community infrastructure, local financing and business assistance, and existing sites and/or building information.

Nevada

None.

New Hampshire

Community Center Area: these areas were delineated by staff at the nine Regional Planning Agencies based on a common methodology, with input and review from staff at the Department of Environmental Services. The approach for delineating these areas focused on key characteristics of the nature of development including the presence of a higher-density development and/or a mix of different types of uses, such as residential, commercial and public

uses, core main streets areas and historic districts, higher-density neighborhoods within walking distance, appropriate zoning to retain its current characteristics, and recognition by the community as its center. Municipalities can have multiple center areas, provided they each meet the criteria described. Boundary lines generally follow the limits of current development (rather than parcel or property lines) and may follow significant manmade or natural features that serve as a boundary, such as a major roadway or river.

Formally designated community revitalization areas: HUD Enterprise Zones, Main Street Programs, historic districts, designated blighted areas or otherwise targeted areas.

New Jersey

Projects financed by tax-exempt bonds that request tax credits pursuant to Section 42(h)(4) of the Code are required by Section 42(m)(1)(D) of the Code to satisfy the requirements for allocation of a housing credit dollar amount under the qualified allocation plan. Projects requesting tax credits entirely from volume cap do not have to compete and there are no cycle deadlines. However, the following information shall be included in order for the application to be deemed complete: all applicable sections of the application corresponding to eligibility requirements at N.J.A.C. 5:80-33.12; those sections of the application corresponding to the point categories for period of restriction, conversion to tenant ownership (if applicable), tax abatement (if applicable) and the negative point categories; and a sponsor certification and breakdown of costs and basis.

Community revitalization plan means a plan endorsed by the municipality to designate areas in need of redevelopment. This plan is intended to incorporate a vision for future growth

that will lead to comprehensive neighborhood revitalization in the target area. For purposes of this subchapter, a community revitalization plan shall include the following criteria:

- (1) A tax map that delineates revitalization area boundaries;
- (2) A description of community revitalization planning process;
- (3) A list of stakeholders that developed the community revitalization plan;
- (4) A land use survey that includes: vacant buildings and lots, and use of each parcel;
- (5) Demographic, social and economic profile of the revitalization area;
- (6) A narrative describing the impact of the community revitalization plan towards achieving long-term viability in the target area; and
- (7) An implementation strategy that contains:
 - (a) A list of organizations participating in the implementation phase of the community revitalization plan;
 - (b) A strategy for meeting objectives described in the community revitalization plan; and
 - (c) A list of projects in the revitalization area.

“Smart growth areas” means locations that will provide for much of the State’s future development and redevelopment. Smart growth areas promote growth in compact forms and protect the character of existing stable communities. The areas defined as smart growth areas are Planning Area 1, Planning Area 2, Designated Centers, Proposed Centers, and Identified Centers.

Planning Areas are large masses of land that share a common set of conditions, such as population density, infrastructure systems, level of development or natural systems. Centers are compact forms of development that, compared to sprawl development, consume less land,

deplete fewer natural resources and are more efficient in the delivery of public services. For more information about the State Plan, contact the New Jersey Office of Smart Growth. The State Plan is not itself a regulation but a statement of State policy that has been adopted by the State Planning Commission pursuant to a statute to guide State, regional and local agencies in the exercise of their statutory authority.

New Mexico

Projects financed with Tax Exempt Bond volume cap allocated by the state may receive 4% Tax Credits without participating in the HTC allocation process described in this Plan. However, under IRS Code Section 42(m)(1)(D), such Projects must receive a determination that they “satisfy the requirements for allocation under the qualified Allocation Plan...” New Mexico Mortgage Finance Authority’s (MFA) determination that a Project satisfies the requirements of the Qualified Allocation Plan will be based on the Project’s meeting all Minimum Project Threshold Requirements, Staff Analysis, Application Processing, Feasibility Analysis, and Property Standards described in the Qualified Allocation Plan in effect when the determination is made, with one exception. That is, the Minimum Score for Tax Exempt Bond Financed Projects will be only 60% of the Minimum Score stated in the Plan. MFA will also undertake an analysis to determine the Credit amount necessary for financial feasibility.

Priority geographic areas: MFA determines high priority counties which receive scoring preferences on applications for funds. The prioritization is based on the following characteristics: poverty level, rate of homeownership, housing cost burden, population change and housing condition based on recent census data.

Concerted Community Revitalization Plan means a Metropolitan Redevelopment Plan as defined in NMSA 1978 Section 3-60A-4 prepared and enacted by a local, county or tribal government at least six months prior to the application deadline. For Projects located on sovereign tribal lands, “Concerted Community Revitalization Plan” means a written plan similar in content and affect to a Metropolitan Redevelopment Plan as defined in NMSA 1978 Section 3-60A-4, prepared and enacted by or tribal government at least six months prior to the application deadline, which identifies barriers to community vitality and promotes specific concerted revitalization activities within an area having distinct geographic boundaries.

New York (State)

(2016) Complete applications of projects financed by private activity bonds will be reviewed relative to criteria contained herein at section 2040.3(e) - Threshold eligibility review criteria - and (f) - Project scoring and ranking criteria - of this Part for eligibility and public purpose.

North Carolina

(2005) All applications must meet all threshold requirements and receive a minimum score to be considered for award and funding. Tax-exempt bond financing applications also requires a minimum score.

(2005) The Committee will allocate the multifamily portion of the state’s tax-exempt bond authority in the following order of priority: 1. Projects that serve as a component of an

overall HOPE VI revitalization effort; 2. Rehabilitation projects; 3. Adaptive re-use projects; 4. Other new construction projects.

(2016) The Committee will allocate the multifamily portion of the state's tax-exempt bond authority in the following order of priority: 1. Projects that serve as a component of an overall public housing revitalization effort. 2. Rehabilitation of existing rent restricted housing. 3. Rehabilitation of projects consisting of entirely market-rate units. 4. Adaptive reuse projects. 5. Other new construction projects.

Community revitalization plan (CRP): (i) the CRP was officially adopted by a local government after January 1, 1998, there is a specific timetable and funding commitment; and some of the progress or improvement described in the CRP is visibly evident, (ii) the activities described in the CRP are well underway, with at least some having been completed, or (iii) the proposed project includes a Community Service Facility.

North Dakota

None.

Ohio

The Opportunity index utilizes a number of indicators to identify the many dimensions of strong, vibrant and healthy communities and will be used to identify areas of opportunity, particularly regarding the siting of family housing, in Ohio. Analyzing differences in access to opportunity structures is in alignment with state and federal initiatives to further Fair Housing,

deconcentrate poverty and maximize equitable outcomes for low-income households. To measure opportunity, Kirwan Institute at The Ohio State University calculates a common statistical derivative known as a “z-score.” In laymen’s terms, it’s the distance away from the average; or z-scores are measured in standard deviations from the average. The greater the number away from 0 (ex. +4 or -4) the more unique that tract is. By combining factors, a comprehensive opportunity model is developed. For more information, see <https://ohiohome.org/ppd/documents/USR-Opportunity-Index.pdf>.

Oklahoma

The revitalization plan must be signed by the local governing body with jurisdiction over the site within which the proposed Development is located at the time of Application and must include a brief description of the plan, a brief description of how affordable housing benefits the plan, and a brief statement regarding the need for affordable housing in the area affected by the plan.

Oregon

Vulnerable Gentrification Areas are

- Areas with revitalization Plans.
- Areas in Qualified Census Tracts.
- Areas with racial or ethnic concentration.
- Areas with low educational achievement concentration.
- Areas with renter concentration.

Opportunity Areas are

- Areas in low poverty Census Tracts.
- Areas with high ratio of jobs to population.
- Areas below average unemployment rates.
- Areas with high scoring schools.

Pennsylvania

All tax-exempt development Applications will be scored pursuant to the Selection Criteria. To be considered, a development must obtain the minimum threshold requirement.

Area of Opportunity:

- Low poverty rates
- Limited affordable housing options, both subsidized and non-subsidized
- Limited affordable housing production in past twenty years
- Close proximity to employment
- Strong housing markets
- High owner-occupied markets

Projects proposed need to expand housing opportunities and design choices in areas suitable for long-term economic growth with an existing or planned infrastructure to support future growth in the area, in order to promote mixed-use and/or mixed-income development within a community setting. These developments will be located in areas of strong schools and employment opportunities and in communities which may have not received representative resources in the past.

Rhode Island

None.

South Carolina

None.

South Dakota

Concerted Community Revitalization Plan: Locally approved revitalization plan targeting specified areas or neighborhoods within the community for housing and economic development through the new construction or rehabilitation of existing housing. To qualify, the plan must be officially adopted by the local governing body, identify a specific time period, target a specific area within the community, and call for new construction or rehabilitation of affordable housing within the boundaries of the plan. Local housing need surveys, consolidated housing and/or economic development plans, short term work plans, municipal zoning or land use plans do not qualify as Concerted Community Revitalization Plans.

Area of Opportunity:

- Low Poverty Census Tracts – less than 10% poverty rate
- High Ratio of Jobs to Population – above the state average ratio
- Below Average Unemployment – less than the state unemployment rate
- High Scoring Schools – above average school performance index posted by South Dakota

Department of Education

Tennessee

Developments to be Financed with Tax Exempt Bonds: Initial Applications for developments pursuant to this Plan will be subject to the eligibility requirements in Part VII-A: Eligibility Determination and to the minimum scoring requirements in Part VII-B: Scoring Initial Applications. Applicants also need to file an application under the Multifamily Tax Exempt Bond Authority.

Tennessee Growth Policy Act includes five statements of legislative intent:

- to eliminate annexation or incorporation out of fear;
- to establish incentives to annex or incorporate where appropriate;
- to more closely match the timing of development to the provision of public services;
- to stabilize each county's education funding base and establish an incentive for each county legislative body to be more interested in education matters; and,
- to minimize urban sprawl.

Texas

Texas Department of Housing and Community Affairs (TDHCA) sets requirements for issuing Bonds, the procedures for applying for multifamily housing revenue Bond financing, and the regulatory and land use restrictions imposed upon Developments financed with the issuance of Bonds. TDHCA requires a separate application for Bond financing in addition to the tax credit application. Once approved, TDHCA, as an issuer in the Private Activity Program, will then submit a notice to the Texas Bond Review Board of its intent to issue bonds.

Concerted Revitalization Plan: an Application may qualify for points under this paragraph only if no points are elected under subsection related to Opportunity Index.

For Developments located in an Urban Area: an application may qualify for points if the Development Site is located in a distinct area that was once vital and has lapsed into a situation requiring concerted revitalization, and where a concerted revitalization plan has been developed and executed. The area targeted for revitalization must be larger than the assisted housing footprint and should be a neighborhood or small group of contiguous neighborhoods with common attributes and problems. The concerted revitalization plan that meets the criteria described in the following subclauses:

- The concerted revitalization plan must have been adopted by the municipality or county in which the Development Site is located.
- The problems in the revitalization area must be identified through a process in which affected local residents had an opportunity to express their views on problems facing the area, and how those problems should be addressed and prioritized. These problems may include the following:
 - long-term disinvestment, such as significant presence of residential and/or commercial blight, streets infrastructure neglect such as inadequate drainage, and/or sidewalks in significant disrepair;
 - declining quality of life for area residents, such as high levels of violent crime, property crime, gang activity, or other significant criminal matters such as the manufacture or distribution of illegal substances or overt illegal activities;

- Staff will review the target area for presence of the problems identified in plan and for targeted efforts within the plan to address those problems. In addition, but not in lieu of, such a plan may be augmented with targeted efforts to promote a more vital local economy and a more desirable neighborhood, including but not limited to:
 - attracting private sector development of housing and/or business;
 - developing health care facilities;
 - providing public transportation;
 - developing significant recreational facilities; and/or
 - improving under-performing schools.
- The adopted plan must have sufficient, documented and committed funding to accomplish its purposes on its established timetable. This funding must have been flowing in accordance with the plan, such that the problems identified within the plan will have been sufficiently mitigated and addressed prior to the Development being placed into service.

For Developments located in a Rural Area: the requirements for concerted revitalization in a Rural Area is distinct and separate from the requirements related to concerted revitalization in an Urban Area in that the requirements in a Rural Area relate primarily to growth and expansion indicators. An Application may qualify for up to points if the city, county, state, or federal government has approved expansion of basic infrastructure or projects, as described in this paragraph. Approval cannot be conditioned upon the award of tax credits or on any other event (*i.e.*, zoning, permitting, construction start of another development). not directly associated with the particular infrastructure expansion. The Applicant, Related Party, or seller of the

Development Site cannot contribute funds for or finance the project or infrastructure, except through the normal and customary payment of property taxes, franchise taxes, sales taxes, impact fees and/or any other taxes or fees traditionally used to pay for or finance such infrastructure by cities, counties, state or federal governments or their related subsidiaries. The project or expansion must have been completed no more than twelve months prior to the beginning of the Application Acceptance Period or have been approved and is projected to be completed within twelve months from the beginning of the Application Acceptance Period. An Application is eligible for points for the items described in the subclauses of this clause:

- New paved roadway (may include paving an existing non-paved road but excludes overlays or other limited improvements) or expansion of existing paved roadways by at least one lane (excluding very limited improvements such as new turn lanes or restriping), in which a portion of the new road or expansion is within one half mile of the Development Site;
- New water service line (or new extension) of at least 500 feet, in which a portion of the new line is within one half mile of the Development Site;
- New wastewater service line (or new extension) of at least 500 feet, in which a portion of the new line is within one half mile of the Development Site;
- Construction of a new law enforcement or emergency services station within one mile of the Development Site that has a service area that includes the Development Site; and
- Construction of a new hospital or expansion of an existing hospital's capacity by at least 25% within a five mile radius of the Development Site and ambulance service to and

from the hospital is available at the Development Site. Capacity is defined as total number of beds, total number of rooms or total square footage of the hospital.

Opportunity Index: the Department may refer to locations qualifying for points under this scoring item as high opportunity areas in some materials.

- For Developments located in an Urban Area, if the proposed Development Site is located within a Census Tract that has a poverty rate below 15% for Individuals (or 35% for Developments in Regions 11 and 13), an Application may qualify to receive points upon meeting the additional requirements in the following clauses of this subparagraph. The Department will base poverty rate on data from the five year American Community Survey.
 - The Development Site is located in a Census Tract with income in the top quartile of median household income for the county or MSA as applicable, and the Development Site is in the attendance zone of an elementary school that has a Met Standard rating and has achieved a 77 or greater on index 1 of the performance index, related to student achievement;
 - The Development Site is located in a Census Tract with income in the second quartile of median household income for the county or MSA as applicable, and the Development Site is in the attendance zone of an elementary school that has a Met Standard rating, has achieved a 77 or greater on index 1 of the performance index, related to student achievement, and has earned at least one distinction designation by Texas Education Agency;

- The Development Site is located in a Census Tract with income in the second quartile of median household income for the county or MSA as applicable, and the Development Site is in the attendance zone of an elementary school that has a Met Standard rating and has achieved a 77 or greater on index 1 of the performance index, related to student achievement;
 - The Development Site is located in a Census Tract with income in the top quartile of median household income for the county or MSA as applicable; or
 - The Development Site is located in a Census Tract with income in the top two quartiles of median household income for the county or MSA as applicable.
- For Developments located in a Rural Area, an Application may qualify to receive points based on median income of the area and/or proximity to the essential community assets as reflected in the following clauses of this subparagraph if the Development Site is located within a Census Tract that has a poverty rate below 15% for Individuals (35% for regions 11 and 13) or within a Census Tract with income in the top or second quartile of median household income for the county or MSA as applicable or within the attendance zone of an elementary school that has a Met Standard rating and has achieved a 77 or greater on index 1 of the performance index, related to student achievement.
 - The Development Site is located within the attendance zone of an elementary, middle, or high school that has achieved the performance standards. (Note that if the school is more than 2 miles from the Development Site, free transportation must be provided by the school district in order to qualify for points. For purposes of this subparagraph only, any school, regardless of the number of grades served,

can count towards points; however, schools without ratings, unless paired with another appropriately rated school will not be considered.);

- The Development Site is within 1.5 linear miles of a center that is licensed by the Department of Family and Protective Services specifically to provide a school-age program;
- The Development Site is located within 1.5 linear miles of a full service grocery store;
- The Development Site is located within 1.5 linear miles of a center that is licensed by the Department of Family and Protective Services to provide a childcare program for infants, toddlers, and/or pre-kindergarten, at a minimum;
- The Development Site is located within 1.5 linear miles of a senior center; and/or
- Development Site is located within 1.5 linear miles of a health related facility.
- An elementary school attendance zone for the Development Site does not include schools with district-wide possibility of enrollment or no defined attendance zones, sometimes known as magnet schools. However, in districts with district-wide enrollment an Applicant may use the rating of the closest elementary schools that may possibly be attended by the tenants. The applicable school rating will be the accountability rating assigned by the Texas Education Agency. School ratings will be determined by the school number, so that in the case where a new school is formed or named or consolidated with another school but is considered to have the same number that rating will be used. A school that has never been rated by the Texas Education Agency will use the district rating. If a school is configured

to serve grades that do not align with the Texas Education Agency's conventions for defining elementary schools (typically grades K-5 or K-6), the school will be considered to have the lower of the ratings of the schools that would be combined to meet those conventions.

Utah

Community Revitalization Plan must be evidenced by a written document which establishes an active partnership between local government(s) and community-based organizations and which commits each signatory to specific and measurable goals, actions and timetables to foster, among other things, the construction or rehabilitation of affordable housing.

Community Revitalization Plan (CRP): A CRP seeks to create communities of opportunity in neighborhoods by stimulating the reinvestment of human and economic capital and economically empowering low-income residents. A CRP also seeks to create partnerships among federal and local governments, and neighborhood residents.

Concerted Community Revitalization Plan (CCRP): A CCRP must be evidenced by a written document which establishes an active partnership between local government(s) and community-based organizations and which commits each signatory to specific and measurable goals, actions and timetables to foster, among other things, the construction or rehabilitation of affordable housing. Is a published document, approved and adopted by a governing body, by ordinance, resolution, or other legal action, and targets funds or tax incentives to specific geographic areas for either of the following:

1. economic development, including economic related initiatives; or

2. commercial/retail development, including infrastructure and community facility improvement.

Vermont

None.

Virginia

Both 9% and 4% applications are scored and required to meet minimum scores.

Revitalization area means any area for which the chief executive officer (or the equivalent) of the local jurisdiction in which the development is to be located certifies as follows: (i) either (1) the area is blighted, deteriorated, deteriorating or, if not rehabilitated, likely to deteriorate by reason that the buildings, improvements or other facilities in such area are subject to one or more of the following conditions- dilapidation, obsolescence, overcrowding, inadequate ventilation, light or sanitation, excessive land coverage, deleterious land use, or faulty or inadequate design, quality or condition, or (2) the industrial, commercial or other economic development of such area will benefit the city or county but such area lacks the housing needed to induce manufacturing, industrial, commercial, governmental, educational, entertainment, community development, healthcare or nonprofit enterprises or undertakings to locate or remain in such area; and (ii) private enterprise and investment are not reasonably expected, without assistance, to produce the construction or rehabilitation of decent, safe and sanitary housing and supporting facilities that will meet the needs of low and moderate income persons and families in such area and will induce other persons and families to live within such area and thereby create a

desirable economic mix of residents in such area. The area within a redevelopment project, conservation project, or rehabilitation district established by the city or county or within a qualified Census Tract shall be deemed a revitalization area without any such certification. Any such revitalization area must either (a) have established boundaries at least a year old at the time applications are submitted and include discussions from the locality of the type of developments that will be encouraged, the potential sources of funding, and services to be offered in the area; or (b) be subject to a plan using Hope VI funds from HUD. A comprehensive plan does not qualify as certification of a revitalization area.

Washington

(2016) The bond cap available exceeds the expected demand. Therefore, the allocation criteria below act as a minimum threshold requirement. A minimum point under the Bond/Tax Credit Program must met in order to apply for the bond and tax credit financing. 9% applications and Bond applications have different scoring criteria with some overlaps.

A Community Revitalization Plan must:

- Be a published document, approved and adopted by a governing body, by ordinance, resolution, or other legal action; and
- Target funds or tax incentives to specific geographic areas for either:
 - Economic development, including economic related initiatives
 - Commercial/retail development, including infrastructure and community facility improvement.

The “Opportunity Index” combines measures of five key elements of neighborhood opportunity and positive life outcomes: education, economic health, housing and neighborhood quality, mobility and transportation, and health and environment. The level of opportunity score (very low, low, moderate, high, very high) is determined by sorting all Census Tracts into quintiles based on their index scores. Areas of opportunity that experience greater proportions of growth may experience an increased risk of displacement. Projects located in a Census Tract that is rated High or Very High on the Comprehensive Opportunity Index as defined by the Puget Sound Regional Council will be awarded points. For more information, see <https://www.psrc.org/opportunity-mapping>.

West Virginia

High-Opportunity Location:

- a. General Housing Stability - Owner-Occupied Units as a Percentage of Total Occupied Housing Units.
- b. General Housing Stability - Percentage of Households whose Occupants per Room.
- c. Poverty/Public Assistance - Population Below the Poverty Level as a Percentage of the Total Population.
- d. Poverty/Public Assistance - Households Receiving Food Stamps as a Percentage of Total Households.
- e. Labor Market Engagement - Unemployment Rate of the Total Population 20 to 64 Years of Age.

- f. Labor Market Engagement - Population 25 Years of Age and Older with an Educational Attainment of a bachelor's degree or Higher as a Percentage of the Total Population 25 Years of Age and Older.
- g. School Performance – West Virginia's School Accountability System Grade.

Wisconsin

None.

Wyoming

Until "Community Revitalization Plan" (CRP) has been formally defined by the U.S. Department of Housing and Urban Development or the Internal Revenue Service, a Developer may provide a letter from the local jurisdiction, or the state, that the project sits in a CRP area.

Appendix C - Number of Projects by Year and Credit Type

Appendix C-1: Number of Tax Credit Developments, 2005-2007 and 2016-2018

State	2005		2006		2007		2016		2017		2018	
	4%	9%	4%	9%	4%	9%	4%	9%	4%	9%	4%	9%
AK		4		2		2	1	3	1	6	2	4
AL	1	20	2	45	6	36	2	10	5	18		20
AR	6	15	2	19	3	17	2	13	2	13		10
AZ	6	16	3	15	1	15	6	13	6	13	2	14
CA	111	69	112	66	108	65	183	79	100	65	76	66
CO	3	16	5	21	11	10	12	13	12	12	8	16
CT		8	2	9		6	11	7	14	6	7	6
DE	1	7		4		3	1	4	1	3	2	4
FL	27	27	17	17	18	23	12	31	15	29	9	33
GA	6	7	11	8	5		18	25	59	32		36
HI	1	2		2	4	2	8	2	4	10	3	2
IA	1	21	2	23		18	1	11	6	12	3	15
ID		2		4	1	5	1	11	4	6		6
IL	7	53	3	75	12	20	21	23	7	20	6	19
IN	5	24	2	27		21	8	16	15	6	3	17
KS	2	28	4	22	5	21	3	18	1	9	2	25
KY		20	4	28	4	24	12	26	10	15		18
LA	7	5	23	44	10	15	9	19	6	24	16	18
MA	1	12	7	19	2	19	6	17	5	7		
MD	9	16	6	14	13	14	18	20				20
ME	7	5	4	7		3	1	5		6		5
MI	24	42	11	26	28	30	14	41	7	27		27
MN	20	19	6	20	11	13	15	15	19	11	10	7
MO	6	28	2	19	30	7	5	31	6	29	2	23
MS	4	8	5	50	6	32	1	14		14		15
MT		6		11	3	4	6	2	1	4	2	6
NC	20	31	7	25	2	39	14	46	40	31	13	38
ND		14	1	6	2	5		3		4	1	5
NE		5		20		11	4	11		14		12
NH	4	9	7	7	2	4	2	6		4		7
NJ	1	17	2	11		16	24		22	29	26	21
NM	3	5		10		7	2	5	5	5		6
NV	3	9	1	8	4	8	6	8	5	13	4	4
NY	22	52	15	40	22	49		30		37		
OH	15	46	8	42	24	39	8	42	14	33	13	36
OK	5	14	2	14	5	13	3	21	6	20	3	24
OR	11	13	4	13	24	13	7	10		8	1	8
PA	6	33		32	4	18	8	39	14	39	8	
RI	2	6		5	1	7	3	6	4	3		3
SC	8	24	1	22	17	16	22	20	2	17	1	21
SD		11		5		6		6		6	1	9
TN	5	28	4	27	5	16	15	21	14	23	31	21
TX	25	71	29	71	39	93	42	65	30	72	51	75
UT	1	12	5	13	5	10		13		13		18
VA	14	32	8	29	3	33	11	17	23	32	32	43
VT	16	6	1	5	7	10	1	6	6	5		5
WA	21	36	23	30	26	30	5	46	6	30	17	20

WI	2	25	6	23	7	27		28		23	9	24
WV	2	10	1	2			1	10	1	12		11
WY		3		8		3		4		6		3

Sources: HUD LIHTC Project Database and state allocation data.

Appendix D - State Locational Priorities

Appendix D-1: State Priorities for High-Opportunity Neighborhoods, 2005 and 2016

State	2005		2016	
	4% Credit & 9% Credit	9% Credit	4% Credit & 9% Credit	9% Credit
Alabama				Project located in a Census Tract where the median family income is equal or above the following percentages of the county's annual median family Income: 10% to less than 100% (1 point), 100% or more (2 points).
Alaska	State priority: provide meaningful training and employment opportunities for Alaskans.		Applicants must certify in the application package that the housing being constructed or rehabilitated will not promote an undue concentration of poverty in any given area. Priority: provide meaningful training and employment opportunities for Alaskans. Projects located in areas reported by the Alaska Department of Labor (using unemployment as a criterion) (maximum 15 points).	
Arizona Arkansas California		Balanced communities (9 points).		
Colorado Connecticut	Priority locations: Urban Regional Centers, Urban Neighborhood Conservation Areas, Urban Growth Areas, and Rural Community Centers.		All applications must meet at least one of the following criteria in order to be eligible to apply: enhance housing mobility and choice across	

Delaware	Area supports a large number of employment opportunities, Close to or in a town center; Site located in economically mixed community as defined by Census Data (1 point for each, maximum 10 points).		income levels and promote vibrant, mixed-income neighborhoods through rental opportunities; support adaptive reuse of historic and other existing structures for use as residential housing; develop housing in urban communities to people most likely attracted to working and/or living in urban environments; increase housing density in village centers. Points for promoting balanced housing opportunities (maximum 10 points).	
Florida				Areas of Opportunity: 30% boost.
Georgia		Adjacent residential development (2 points): site is adjacent to or directly across a street from stable, occupied residential development. Desirable and undesirable activities/characteristics (10 points): employment centers.	Strategic goals: increasing access to thriving communities through outreach and development in areas of opportunity.	Stable communities (maximum 8 points): less than 5% below Poverty level; designated middle or upper income level, less than 15% below poverty level; designated middle or upper income level; Georgia Department of Public Health Stable Communities. HERA authorizes state allocating agencies to designate certain areas not located in a QCT or DDA for up to a 30% basis boost (multifamily projects within areas that qualify for at least 2 points

Hawaii	Project location and market demand (6 points): some factors: project is located in a county's urban core/district (preference) versus rural district; employment opportunities, recreational facilities, shopping facilities, medical facilities located in the immediate vicinity of the project site.		under Stable Communities). Project location and market demand (6 points). Located in a County's urban core (4 points). Located in a master planned community (2 points). Located in a rural district in proximity to employment opportunities and medical and educational facilities (1 point).
Idaho	Developments located outside of a DDA (10 points).	Developments located within the stated distances from goods, services, or major employer (maximum 9 points).	
Illinois	Project location (maximum 8 points): live near work (maximum 3 points).	Consideration: Opportunity Area and Proximate Opportunity Area. Preliminary Project Assessment includes Jobs and Economic Viability, Social and Demographic Indicators, and Affordable Rental Concentrations.	Discretionary boost to projects located in Opportunity Areas. Priority community targeting (10 points): Opportunity Area; Community Revitalization Efforts. Jobs to population ratio (2 points).
Indiana		Promote Place-Based Initiatives: promote developments that build upon a community's existing assets, take advantage of its available resources, promote quality of life, and fit into the community's overall plan. Desirable sites (maximum 10 points): location efficient projects, TOD, opportunity index.	

<p>Iowa</p>		<p>Promotes neighborhood stabilization (8 points). (TEB only) Job quantity and quality (135 points). (TEB only) County demographics (60 points).</p>	
<p>Kansas</p>		<p>Housing needs priority: any development in a market area that is experiencing job growth and economic development where tax credit housing can have an impact and documented with letters from employers/city officials/economic development representatives/government officials, newspaper articles or studies.</p>	<p>Iowa Opportunity Index Census Tracts (3 points). Developments that address the priority housing needs (15 points for each priority need).</p>
<p>Kentucky</p>	<p>Project is not located in a QCT (10 points).</p>	<p>Letter of support: the local jurisdiction's level of participation in developing the scope of the project, and how the project will meet an identified need in the community as defined in a current local revitalization plan, or how the project will address a critical community need through the creation of new affordable housing in areas outside of a QCT, in an effort to deconcentrate poverty and affirmatively further fair housing choice. Community Revitalization Plan</p>	<p>Competitive urban set-aside (area of opportunity) (7%).</p>

Louisiana		Geographic diversity: project is located in Census Tract in which the median income of the Census Tract exceeds 120% of the area median income (30 points).	or Areas of Opportunity (15 points). Quality schools (15 points). Geographic diversity: a de-concentration project is located in Census Tract in which the median income of the Census Tract exceeds: 120% of the area median income for the Parish; 150% of the area median income for the Parish (maximum 12 points). Housing priorities: contribute to economically diverse communities. An Application for a project located in a Service Center Community (5 points).	
Maine				Project is located in a municipality with an area median household income of \$40,000 or more (2 points). Project is located within 5 miles of a significant place of employment (2 points).
Maryland	New construction and priority funding areas – smart growth. Other investment in the community (maximum 5 points).		General occupancy projects in “Community of Opportunity” or in a geographic area defined by applicable law as a community of opportunity for affordable family housing or identified as such by an order or consent decree entered by a federal or State court of competent jurisdiction or by a settlement agreement (16 points). Defined Planning Areas (maximum 4 points). Responds to substantial economic development opportunities that have the opportunity to create new jobs (bonus 10 points).	

Massachusetts	Sustainable development principles.	Consistency with the ten Sustainable Development principles described (28 points): projects that can demonstrate consistency with any one of the following three principles: 1) Expand housing opportunities, 2) Restore and enhance the environment, 3) Increase job opportunities; in combination with one of the following principles: 1) redevelop first, 2) concentrate development, 3) provide transportation choice (20 points); additional points for consistency with any of the remaining principles.	Sustainable development principles. Priority: projects that create new affordable housing units, in particular units suitable for families in locations with job growth potential and locations that constitute areas of opportunity; projects that are consistent with the ten sustainable development principles; projects that are part of comprehensive neighborhood improvement plans or initiatives, including projects in the federal Choice Communities pipeline; projects located in communities or neighborhoods with expanding social and/or educational opportunities, expanding employment opportunities or significant revitalization and investment activity.	Location in an Area of Opportunity (14 points).
Michigan		Locality/Neighborhood (5 points): Empowerment Zone; Enterprise; Renaissance Zone; Core; Cool Cities Neighborhood; Renewal Community; Federally recognized American Indian reservations.		
Minnesota	Areas of Opportunity: economic integration (9 points); access to higher performing schools (4 points), workforce housing communities (6 points).		Project location (10 points): the proposed housing is located in one of the top ten job or population growth counties.	

Mississippi

Missouri

**Montana
Nebraska**

Nevada

**New
Hampshire
New Jersey**

New Mexico

Housing priorities: Opportunity Areas.

High opportunity area (10 points).

Development located in an Economic Development Certified Community or in a CBDG entitlement community (2 points).

Economic development certified community (2 points).

Projects located within a smart growth area (maximum 10 points).
Projects located within a school renaissance zone (2 points).

Projects located within a ready to grow area and any of a transit village, an urban transit hub, a Main Street Designated District or a Designated Center, or a redevelopment project within a ready to grow area (5 points).
A project that is fully located within a school district wherein 66% or more of the students are either proficient or advanced proficient on the NJ ASK 4 in 9 math and language arts based on data available from the New Jersey Department of Education (2 points).
A project that is fully located within a municipality with public and private sector jobs that total at least 95% of the housing units (2 points).

**New York
(State)**

**North
Carolina**

Neighborhood characteristics (maximum 40 Points): trend and direction of real estate development and area economic health. Concentration requirement: projects cannot be in areas of minority and low-income concentration. The Agency may make an exception for projects in economically distressed areas which have community revitalization plans with public funds committed to support the effort.

**North Dakota
Ohio**

Housing opportunity projects (maximum 3 points): scored to the extent the project is in close proximity to public transportation, is located in a community with a low incidence of crime, is served by high performing schools and/or is located outside of a QCT. Neighborhood characteristics (maximum 18 Points): structures within a 1/2 mile are well maintained or the site qualifies as a Redevelopment Project. Concentration requirement: projects cannot be in areas of minority and low-income concentration (measured by comparing the percentage of minority and low-income households in the site's Census Tract with the community overall). The Agency may make an exception for projects in economically distressed areas which have community revitalization plans with public funds committed to support the effort.

Exceptional developments (maximum 10 points): evaluation factors include community investment, local development priority, economic development, education and opportunity,

Oklahoma

healthcare, workforce, local initiatives.

State development priorities (maximum 20 points):

developments located in a county showing net new stable job growth (5 points);

developments located in a Census Tract where the median family income is 160% or more of the county's current median family income (5 points); developments located within a half mile of significant real estate development and investment.

Family housing priorities (maximum 10 points):

developments located within the boundary lines of an elementary school, junior high or middle school, high school, K-12 charter school or alternative school accessible to the resident population and rated "B" or better by the Ohio Department of Education (5 points); developments sited in an area of moderate to high opportunity, defined by reference to the Opportunity Index (5 points).

Non-urban housing priorities (maximum 5 points):

developments located in a non-QCT.

Oregon

State housing objective: support development that provides for a balance of jobs and affordable housing within a community to reduce the need to commute long distances between home and work, thereby minimizing personal commuting costs as well as the public and societal costs of expanding the transportation infrastructure.
State affordable housing solutions criteria: project location in relation to employment opportunities; achievement of a jobs/housing balance.

Location preferences (maximum 40 points):
Opportunity Areas

Pennsylvania

Coordination with other housing and community and economic development programs (10 points): demonstrate further coordination between other housing and community and economic development programs and other state or local governmental agencies.

Areas of Opportunity: reserve credits, at a minimum, three developments.
Areas of Opportunity (maximum 18 points).
School performance standards (maximum 2 points).
Significant funding commitments and coordination with other housing and community and economic development programs (5 points).
State has a statement on Fair Housing about siting: increasing the supply of affordable housing in communities that have traditionally had a lack of such housing.

Strong Economy and Workforce Development (4 points): development is within 1 mile to employment opportunities.

Rhode Island

**South
Carolina
South Dakota**

Tennessee Tennessee Growth Policy Act
(14 points).

Texas

Development location
(maximum 4 points): the
development is located in a
Census Tract which has a
median family income that is
higher than the median family
income for the county in which
the Census Tract is located; the
proposed development will
serve families with children
and is proposed to be located in
an elementary school
attendance zone of an
elementary school that has an
academic rating of
“Exemplary” or “Recognized,”
or comparable rating if the
rating system changes; the
proposed development will
expand affordable housing
opportunities for low income
families with children outside
of poverty areas.

Tennessee Growth Policy Act:
(5 points).

Area of Opportunity (20
points).

Tiebreakers: applications
scoring higher on the
Opportunity Index;
applications proposed to be
located in a Census Tract with
the lowest poverty rate; the
application with the highest
average rating for the
elementary, middle, and high
school designated for
attendance by the Development
Site, or the closest.
Opportunity Index (7 points).
Educational excellence (5
points).

**Utah
Vermont
Virginia**

Any proposed elderly
development located in a
Census Tract that has less than
a 10% poverty rate with no
other elderly tax credit units in
such Census Tract (25 points).
Any proposed family

Washington

West Virginia

Wisconsin

Location (40 points):
developments in infill locations
or demonstrating linkages with
services, transportation and
employment located in the
surrounding
neighborhood/community.

Wyoming

development located in a
Census Tract that has less than
a 10% poverty rate with no
other family tax credit units in
such Census Tract (25 points).
High and very high opportunity
areas (1 point).

Job centers (1 point).

High-opportunity area
(maximum 90 points).

Employment centers (10
points).

Sources: State Qualified Allocation Plan, tax-exempt bond, and other related documents.

Appendix D-2: State Priorities for Access to Amenities, 2005 and 2016

State	2005			2016		
	4% Credit & 9% Credit	9% Credit	T	4% & 9% Credit	9% Credit	T
Alabama		Services located within the specified distance of the site (maximum 4 points): grocery store, public transportation, hospital/doctor office, elementary school, daycare/after school, pharmacy/drug store, public library, convenience store, bank/credit union, post office, dept. of human resources/ public health, public athletic fields, public swimming pools, movie theater, church, municipal park.	X		Services located within 2 miles of the site: grocery store, pharmacy or drug store, convenience store, bank or credit union, and hospital or doctor office (2 points).	
Alaska						
Arizona					Service enriched location (maximum 17.5 points). TOD (maximum 35 points).	X
Arkansas		Site visit: the site location will be evaluated for accessibility, proximity to services appropriate to the type of housing proposed; and environmental issues (10 points).	X		The site location will be evaluated for accessibility and proximity to services appropriate to the type of housing proposed (e.g., grocery stores, schools, medical facilities, and public transportation). (10 points)	X
California	(TEB only) Site amenities (maximum 10 points).	Site amenities (maximum 15 points): transit, school, medical clinic, grocery store, park, library.	X	(TEB only) Site amenities (maximum 10 points).	Site amenities (maximum 15 points): transit, school, medical clinic, grocery store, park, library.	X

Colorado	(TEB only) Site amenities (maximum 10 points).	Projects to be located in a community that has an identified community housing priority (e.g., supports a local, regional, or state plan; a neighborhood plan or some other community-sponsored need assessment; master plan; etc.) or to be located at an existing or planned TOD site (5 points).	X	
Connecticut	Location and housing needs/characteristics (maximum 75 points): superior site - access to public transportation, grocery stores and community recreational facilities (5 points).	X All applications must meet at least one of the following criteria in order to be eligible to apply: enhance housing mobility and choice across income levels and promote vibrant, mixed-income neighborhoods through rental opportunities; support local efforts to develop appropriate urban infill housing and neighborhood amenities to make better use of limited urban land; develop housing as part of mixed use and transit-oriented development within walking distance to public transportation facilities; access to parks and recreational opportunities, including trails, greenways, community gardens and waterways, for affordable and mixed-income housing.	Project is located in a Priority Funding Area: boundaries that intersect a 1/2 mile buffer surrounding existing or planned mass-transit stations (1 point). TOD or neighborhood conservation Area/rural community center (4 points)	X

Delaware	Walking distance to retail facilities; medical center within five miles; bus line within walking distance; adjacent to major road arteries, Within 1 mile of entertainment venues, <i>i.e.</i> , movie theaters, restaurants, etc.; close to or in a town center; within walking distance to schools (family developments only) (1 point for each, maximum 10 points).	X	Access to services (maximum 7 points). Access to transit (maximum 3 points).	X
Florida Georgia		X	Desirable and Undesirable Activities/Characteristics (10 points): retails, banks, grocery stores, recreational facilities, medical facilities, etc. Community Transportation Options (2 points).	Desirable and undesirable activities/characteristics (13 points): retails, banks, grocery stores, recreational facilities, medical facilities, etc. Community transportation options (5 points). Develop a Family property which is located in the attendance zone of a high performing school (2 points). Proposing a site in an area with access to local jobs and where employees have significant commute distances (2 points). Project location and market demand. (6 points) Located in a County's urban core (4 points). Project may earn two additional points for
Hawaii			Project location and market demand (6 points): some factors: employment opportunities, recreational facilities, shopping facilities, medical facilities	X

	located in the immediate vicinity of the project site.			availability of a mass transit station/stop within 1/2 mile (2 points).	
Idaho				Developments located within the stated distances from goods, services, or major employer (maximum 9 points).	
Illinois	Surrounding site amenities (maximum 5 points).	X		Transportation (4 points): TOD, Mass Transit or Demand Responsive Transit, and car sharing. Neighborhood assets (5 points): grocery stores, education, recreation, health services, and social services).	X
Indiana				Desirable sites (maximum 10 points): location efficient projects, TOD, opportunity index.	X
Iowa	Projects entirely located in: the attendance district of a Section 1113(3)(A) Elementary School (10 points). Projects located near services: public transportation, schools, pharmacies, medical Services, grocery Store, day care (not on-site), library (maximum 10 points).	X		Location near services (24 points): grocery store, schools, medical services, public library, workforce training, park, transportation.	X
Kansas Kentucky				Availability of public transportation (15 points). Proximity to important	

Louisiana		Development provides transportation for residents to Local Industry (20 points).	X	destinations (schools, retail, etc.) (10 points). Neighborhood features (maximum 10 points).		X
Maine		Letter from the State Planning Office supporting the project as promoting the principles of smart growth and minimizing the effects of sprawl (1 point).		Housing priorities: incorporate smart growth principles. Project incorporates the principles of smart growth (10 points).		X
Maryland Massachusetts	Sustainable development principles.	Consistency with the ten Sustainable development principles described (28 points): projects that can demonstrate consistency with any one of the following three principles: 1) Expand housing opportunities, 2) Restore and enhance the environment, 3) Increase job opportunities; in combination with one of the following principles: 1) redevelop first, 2) concentrate development, 3) provide transportation choice (20 points); additional points for consistency with any of the remaining principles.	X	TOD (maximum 8 points). Sustainable development principles. Priority: projects that create new affordable housing units, in particular units suitable for families in locations with job growth potential and locations that constitute areas of opportunity; projects that are consistent with the ten sustainable development principles; projects that are part of comprehensive neighborhood improvement plans or initiatives, including projects in the federal Choice Communities pipeline; projects located in communities or neighborhoods with expanding social and/or educational opportunities, expanding employment	Proximity to transit (6 points).	X

Michigan		Walkable community features (8 points).	X	opportunities or significant revitalization and investment activity. Proximity to transportation (5 points). Site amenities based on Walk Score (20 points).	
Minnesota	Areas of Opportunity: location efficiency (9 points).		X		
Mississippi		Development amenities (10 points).			High opportunity area (10 points).
Missouri		Project location: effort should be made to locate sites that are convenient to services and in neighborhoods that include a socioeconomic mix of households.		Housing priorities: TOD. Consideration: proximity to appropriate amenities and services.	X
Montana	Developments located in a given area in regard to services to tenant (<i>i.e.</i> , schools, medical services, shopping, transportation) (3 points).		X	Project location (maximum 100 points): grocery store, public school, bank, senior center, laundromat, park, public library, post office, medical service, shopping, or gas station.	
Nebraska	Senior development: The development is located on a suitable site that is within reasonable walking distance of basic services or has adequate access to public transportation.		X	Senior development: located on a suitable site that is within reasonable walking distance of basic services or has adequate access to public transportation.	X
Nevada					The site is within 1/4 mile of at least three of the following: grocery, pharmacy, bank, school, day care, parks, community centers, medical facilities,

**New
Hampshire
New Jersey**

Projects located within a smart growth area (maximum 10 points).
Projects located within one-half mile of the positive land uses (1 point each): primary/elementary school, day care center, food store, community center or faith-based organization; public transportation; park.

X

library, place of worship, post office (2 points).
The site is within 1/4 mile of a local transit route or school bus stop (1 point).

Projects located within a TOD where at least 5% of the tax credit units are large family units (5 points).
Projects located within 9 a ready to grow area and any of a transit village, an urban transit hub, a Main Street Designated District or a Designated Center, or a redevelopment project within a ready to grow area (5 points).
Projects located within one-half mile of the positive land uses (2 points each, max. 6 points): primary/elementary school, day care center, food store, community center or faith-based organization; public transportation; park, etc.
A project that is fully located within 1/2 mile of public transportation (2 points).

X

New Mexico

Locational efficiency (2 points): projects located in proximity and connected to services and public transportation.

X

New York (State)		Project location (maximum of 5 points): the project location is suitable for the intended low income tenant population. Depending on the intended population (elderly, families with children etc.), this criterion requires the evaluation of the proximity of schools, medical and recreational facilities, employment opportunities, appropriate social services, mass transit, etc.	X	Housing opportunity projects (maximum 3 points): scored to the extent the project is in close proximity to public transportation, is located in a community with a low incidence of crime, is served by high performing schools and/or is located outside of a QCT.	X
North Carolina	Surrounding land uses and amenities (maximum 65 Points): availability, quality and proximity of services, amenities and features. Site suitability (maximum 35 Points): access to mass transit.		X	Amenities (maximum 27 points).	
North Dakota Ohio					Positive land uses (maximum 10 points): retail, services, and public facilities. X
Oklahoma Oregon		Selection criteria: context of affordable housing in the community, proximity to services and amenities appropriate to the tenant population, access to transportation, etc.	X		Location efficiency (maximum 40 points).
Pennsylvania		Neighborhood characteristics (maximum 15 points): 5 points for each	X	TOD (2 points). Walkability (2 points).	X

Rhode Island

desirable characteristic noted for the development site and neighborhood: public transportation, senior center, grocery store, retail stores, pharmacies, parks/recreational facilities, places of worship, schools, and hospitals/health care facilities.

Marketability and housing needs criteria: proposed location is appropriate for the target population in terms of environment, quality, proximity to services, and attractiveness of the site and its surroundings.

Site (maximum 3 points):
general site suitability.

Larger community context and engagement (6 points): development is within 1/2 mile of recreation, culture and/or entertainment opportunities.
Good homes, public infrastructure, and transportation (maximum 8 points).

X

South Carolina

Positive site characteristics: preference by distance - full-service grocery store/convenience store, pharmacy, restaurant, fire station, police station, hospital / health department doctor's office (general practitioners only), public library, public schools, public park/playgrounds.

Strong economy and workforce development (4 points): development is within 1/2 mile of a business that sells fresh produce and food items year round.
Positive site characteristics (4 points): preference by distance - full-service grocery store/convenience store, pharmacy, restaurant, fire station, police station, hospital / health department doctor's office (general practitioners only), bank, public library, public schools, public park/playgrounds.

South Dakota

Projects located in close proximity of community services (maximum 20 points): 5 points will be awarded for each item: grocery/retail store, hospitals/medical clinics, schools/senior center (as applicable), and special service offices

Project location: projects located in close proximity of community services (maximum 20 points): grocery/retail store, hospitals/medical clinics, schools/senior center (as applicable), and special service offices (5 points each).

**Tennessee
Texas**

(TEB only) Proximity to Community Services / Amenities (up to 12 points).

Site characteristics - proximity of site to amenities (maximum 4 points): grocery store or supermarket, pharmacy, convenience store/mini-market, department or retail merchandise store, bank/credit union, restaurant, indoor public recreation facilities, outdoor public recreation facilities, hospital/medical clinic, doctor's offices, public schools/senior center.

Mandatory community assets.

Proximity to important services (maximum 8 points).

Utah

Project location (maximum 400 points): within 1/3 of a mile of FrontRunner or TRAX stop (100 points). Project characteristics (maximum 760 points): within 1/3 mile to a public park that has been designated as green space for public use by a governmental entity or deed restriction (20 points); for senior housing, within 1/3

X

Vermont			mile of senior center (20 points); for projects with 3+ bedrooms, within 1/3 mile of a public school (20 points). Secondary criteria: projects served by public transportation.	X
Virginia	Any development located within 1/2 mile of a commuter rail, light rail or subway station or 1/4 mile of one or more public bus lines or other public transportation usable by development occupants (10 points).	X	Any development located within 1/2 mile of an existing commuter rail, light rail or subway station or 1/4 mile of one or more existing public bus stops (10 points).	X
Washington			Location efficient projects (2 points for 9% applications, 3 points for TEB applications): community, retail or service facilities.	TOD (1 point). X
West Virginia				
Wisconsin	Location (40 points): developments in infill locations or demonstrating linkages with services, transportation and employment located in the surrounding neighborhood/community.	X	Public transportation (5 points).	X
Wyoming	Being within a proximity distance of appropriate services needed by the residents occupying the units (maximum 25 points).		Proximity distance of appropriate services needed by the residents occupying the units (maximum 50 points).	

Source: State Qualified Allocation Plan, tax-exempt bond, and other related documents.

Note: T = Transit element.

Appendix D-3: State Priorities for Approval by the Community

State	2005		2016	
	4% & 9%	9%	4% & 9%	9%
Alabama	While a lack of expressed support does not mean that the project is necessarily opposed by the community, consideration is given to projects which are able to demonstrate support from the communities they will ultimately serve. The agency recognizes that having community support can also reduce the NIMBY issues that may accompany an affordable housing project.		While a lack of expressed support does not mean that the project is necessarily opposed by the community, consideration is given to projects which are able to demonstrate support from the communities they will ultimately serve. The Agency recognizes that having community support can also reduce the NIMBY issues that may accompany an affordable housing project.	
Alaska	Community Support for the project as evidenced by written letters of support from the local government, community council(s), and non-profit organizations located in the project area whose clients will likely benefit from the project. (maximum 5 Points).		The project must demonstrate acceptable community support which must be evidenced by written letters of support from the local government, community council(s), etc.	
Arizona	Acknowledgement and consent from local government.		Acknowledgement and consent from local government	
Arkansas	Letter from highest elected local official supporting proposed development. Applicant must submit evidence that it has provided notification of the application to the highest elected official		Letter from highest elected local official supporting proposed development. Applicant must submit evidence that it has provided notification of the application to the highest elected official	

California	in the jurisdiction where the development is or will be located. Basic requirement: local approvals. (TEB) Local government support.		in the jurisdiction where the development is or will be located. Basic requirement: local approvals. (TEB) Local government support.	
Colorado				
Connecticut				Signed resident participation agreement (3 points).
Delaware	Local government support (3 points). Community outreach (maximum 5 points): developments in which the sponsor is actively involved in community outreach prior to submitting its application.		Points for community compatibility (maximum 10 points).	
Florida				
Georgia	Requirement for local government support and community engagement.	Local government support (3 points): local government adopts a resolution of support for the proposed project.	State goals: partnering across Georgia to grow and achieve local visions for strong communities; fostering inclusive communities free of barriers to individuals underserved by existing housing programs. Requirement for local government support and community engagement.	
Hawaii				
Idaho				
Illinois		Community support (3 points)	Local support is required: letter of support or certification of consistency with the Consolidated Plan.	
Indiana	Projects that receive a resolution of support from the			

	local governing body of the local political subdivision where the project will be located. (10 points)			
Iowa Kansas	Community support: applications will not be considered without a resolution from the local governing body stating that it is aware of and approves the housing development.	Site locations will be evaluated for community acceptance, neighborhood consistency, and site usability, accessibility and marketability (20 points). Non-point Criteria: Jurisdictional comments of city, county, state or federal representatives; Comments of neighborhood groups and organizations.	Community support: applications will not be considered without a resolution from the local governing body stating that it is aware of and approves the housing development.	Site locations will be further evaluated for community acceptance, neighborhood consistency, and site usability, accessibility and marketability (20 points). Non-point criteria: jurisdictional comments of city, county, state or federal representatives; Comments of neighborhood groups and organizations that are knowledgeable about the area.
Kentucky	Letter of support from the chief executive officer (or the equivalent).		Letter of support: the local jurisdiction's level of participation in developing the scope of the project, and how the project will meet an identified need in the community as defined in a current local revitalization plan, or how the project will address a critical community need through the creation of new affordable housing in areas outside of a QCT, in an effort to deconcentrate poverty and affirmatively further fair housing choice.	
Louisiana		The local government has adopted a resolution or a letter of support (20 points).		
Maine				

Maryland	Local government support and contribution required.			
Massachusetts	Threshold: evidence of local support.	Official local support (6 points).	Threshold: evidence of local support	Official local support (6 points).
Michigan				
Minnesota				
Mississippi		Community support (5 points).	Notice to the community (newspaper and signage)	Local authority support (5 points).
Missouri	Local needs: the project must address local housing needs and priorities, as documented in the state or local Consolidated Plan. A current certification of consistency from the appropriate local governmental entity must be included as part of the application.	Local government support considered.	Review consideration: community impact (elected official and community support).	
Montana	Community support (10 points).		Community input (40 points).	
Nebraska		Local support (1 point).		
Nevada				
New Hampshire		Local support (5 points).		
New Jersey				
New Mexico	Threshold: local jurisdiction support		Threshold: local jurisdiction support	
New York (State)	Housing needs characteristics (maximum of 5 points): The project has support from state or local officials or community groups.			
North Carolina				
North Dakota	Threshold: local support letter from a city-governing body (Commission/Council)		Threshold: local support letter from a city-governing body (Commission/Council)	

Ohio		Local government support (15 points). Other local support (12 points).	
Oklahoma	Threshold: resolution of local support		Threshold: Resolution of Local Support
Oregon		Selection criteria: community/neighborhood support.	
Pennsylvania	Need and marketability (20 points): the market study/needs assessment must address local community support.		In the event that an Application has been delayed or faces substantial cost burdens due to some good cause beyond the control and dominion of the Applicant, especially in the event there is a NIMBY or legal challenge to siting of an otherwise viable project, the Agency may provide a preference to fund the Applicant for an alternative viable project which meets similar goals and housing targets in an alternative location
Rhode Island		Marketability and housing needs criteria: letters of local support. Community impact criteria: local support.	Larger community context and engagement (6 points): developer has participated in meaningful public engagement process. Letters of positive support from the City Manager, Mayor or County Administrator for the development of affordable housing within their communities (1 point).
South Carolina			
South Dakota			
Tennessee			

Texas	(TEB only) Development support / opposition (12 points).	Quantifiable community participation (24 points). The level of community support from state elected officials (14 points).	Development support/opposition (24 points).	Local government support (17 points). Quantifiable community participation (9 points). Community support from state representative (8 points). Input from community organizations (4 points).
Utah				
Vermont				
Virginia	Local support letter (50 points).		Lack of a local support letter (-25 points).	
Washington				NIMBY exception policy.
West Virginia				
Wisconsin	Local support (27 points).		Community notification and support (8 Points). Support or contributions from local sources (maximum 35 points). Revitalization area or reduction of barriers in community (maximum 5 Points).	
Wyoming	Support or contributions from local sources (maximum 65 points). Revitalization area or reduction of barriers on community (maximum 20 points).			

Sources: State Qualified Allocation Plan, tax-exempt bond, and other related documents.

Appendix D-4: State Priorities for Furthering Investment in Blighted Neighborhoods

State	2005		2016	
	4% & 9%	9%	4% & 9%	9%
Alabama		QCT/Revitalization Plan (2 points): projects located in qualified Census Tracts, the development of which contributes to a concerted community revitalization plan.	Tiebreaker: priority will be given to the project which is located in a QCT and is supported by its respective governmental entities approved Revitalization plan.	The market study must demonstrate an adequate market for the proposed units and that the proposed project would not adversely impact any existing projects or create excessive concentration of multifamily units. If a tie(s) still remains, priority will be given to the project which is located in a QCT and is supported by its respective governmental entities approved Revitalization plan.
Alaska	Project is located in a QCT and is considered to contribute to a community revitalization plan (5 points).		Project is located in a QCT and is considered to contribute to a community revitalization plan (1 point).	
Arizona		Project location (15 points): project located within a geographic area or parcel of property for which a specific housing or an economic development objective has been established by the local, federal or state government. These may include the following: Federal Empowerment Zones or Federal Enterprise Communities, Redevelopment Areas, Established HUD Neighborhood Revitalization Strategy Areas, Established Colonias, geographic		QCT or DDA (1 point). Community Revitalization (1 point).

Arkansas	<p>areas or parcels of property that are established by the Local Government as part of a comprehensive affordable housing plan.</p> <p>Project location (10 points): project is located within a QCT or DDA, or outside of an MSA.</p> <p>Development is located in the following low-income counties designated in the State Consolidated Plan (15 points).</p> <p>Development is located in a QCT or a DDA (15 points).</p> <p>Special priority will be given to developments located in QCTs, which contributes to a concerted community revitalization plan (3 points).</p>	<p>Located in the following low-income counties designated in the most recent State Consolidated Plan (15 points).</p> <p>Located in a QCT or a DDA (5 points).</p> <p>Economic development incentive: there exists a shortage of affordable housing in certain communities in Arkansas that are home to existing and expanding poultry processing operations (5 points).</p> <p>Community Revitalization Plan: development that is located in a QCT if it contributes to a concerted community revitalization plan (3 points).</p> <p>Revitalization area project (2 points).</p>
California	<p>(TEB only) Projects located in a Community Revitalization Area: (maximum 15 points).</p> <p>Project area poverty rate (maximum 5 points).</p> <p>Neighborhood Revitalization (9 points).</p> <p>Tiebreaker: 2nd, to fund an application for a project located in a QCT or a federally designated Renewal Community, Empowerment Zone, or Enterprise Community that has demonstrated that it will contribute to a concerted neighborhood revitalization plan, as evidenced by a score of at least</p>	<p>(TEB only) Located in Community Revitalization Areas, including QCTs (5 points).</p> <p>(TEB only) Project area poverty rate (maximum 5 points).</p> <p>Median family income (maximum 5 points).</p> <p>(TEB only) Unemployment rate (maximum 10 points).</p>

		8 points, or a project not located in such an area that received 9 points under section 10325(c)(6) or (7) of the regulations.	
Colorado	Developments located in a QCT, the development of which contributes to a community revitalization plan (1 point). Rehabilitation developments in an area that is part of a community revitalization plan (! point). Rehabilitation of blighted buildings or locally or federally designated historic structures (5 points).		Located in a QCT that contribute to a Community Revitalization Plan that is an important part of a broader or comprehensive program of neighborhood improvement, and which have the capability of fundamentally changing the character of a neighborhood (1 point).
Connecticut	Priority locations: Urban Regional Centers, Urban Neighborhood Conservation Areas, Urban Growth Areas, and Rural Community Centers.	Location and housing needs characteristics (maximum 75 points): high rent and low-income communities (5 points); part of a formal plan for redevelopment (NRZ + QCT) (12.5 points).	Located in a QCT (1 point).
Delaware	Site located in economically mixed community (1 point). Community Revitalization Plan (2 points): awarded if the development is clearly identified and is included in an approved Community Revitalization Plan. QCT (3 points): developments that are located within a QCT.		Located within a Community Revitalization Plan (2 points). Located in an QCT (1 point).
Florida			(TEB only) Restrictions on locating in Limited Development Areas.
Georgia	State priority: promote the revitalization of urban and	Neighborhood redevelopment (maximum 11 points):	Revitalization/redevelopment plans (maximum 10 points):

	downtown areas through renovation, re-building and/or new construction in infill areas.	development located in a QCT or a DDA (3 points); the development site is located in a federal or state enterprise community, an empowerment zone or Renewal Community (2 points); projects located within the city limits of a community designated as a Georgia Better Hometown or Georgia Mainstreet Community (1 point); there is an adopted redevelopment plan/ Community Revitalization Plan formulated by the community based non-profit or the Local Government, that clearly targets the specific neighborhood in which the project is located (3 points).	applications proposing to develop housing that is in a QCT and that contributes to a written Community Revitalization Plan for a specific neighborhood (3 points); develop housing that contributes to a concerted community revitalization plan for a specific neighborhood (2 points); Concerted Revitalization Efforts multiplier (4 points).
Hawaii		Project is located in a QCT (2 points).	Project is located in a QCT which contributes to a concerted community revitalization plan. For example: site is located in an Enterprise Community, Empowerment Zone, or part of a County redevelopment plan (2 points).
Idaho	Developments which are located in Urban Renewal Neighborhoods where the renewal program addresses housing. (10 points). Developments located in a QCT in which the development contributes to a concerted community revitalization plan (10 points).		Rehabilitation developments that include the use of existing housing as part of a community revitalization plan (1 point). Developments located within a QCT in which the development contributes to a concerted community revitalization plan (1 point).

Illinois	<p>Illinois targeted program and areas (maximum 3 points): areas targeted by the Governor’s Team Illinois program; and general units of local government funded under the Community Revitalization Pilot program.</p> <p>Community impact (2 points): projects whose application demonstrates that the project is part of a larger revitalization or redevelopment plan.</p>	<p>Priority community targeting (10 points): opportunity area or community revitalization efforts. First Tiebreaker: projects which are in a QCT and the development of which contributes to a concerted community revitalization plan.</p>
Indiana	<p>Projects in a DDA (3 points). Developments that contribute to the housing and revitalization needs of a community and/or further the community’s housing goals (3 points).</p>	<p>State goals: support and encourage developments that - are an important part of a broader or comprehensive neighborhood improvement, and which have the capability of fundamentally changing the character of a neighborhood through measurable community impact; substantially upgrade and preserve existing low income housing and are a part of a published community revitalization plan.</p> <p>Promotes neighborhood stabilization (8 points).</p> <p>Local redevelopment plan (9 points).</p> <p>Federally assisted revitalization award (5 points)</p>
Iowa	<p>Projects that are entirely located within a QCT and can demonstrate that they contribute to a concerted community revitalization plan. (20 points)</p>	

Kansas

A property is located in a QCT or a DDA (10 points).
A property is located in a county of the State with a median income less than the statewide non-metro average. (10 points).
Development involves the use of housing as part of a community revitalization plan. (10 points).

A property is located in a QCT or a DDA (10 points).
A property is located in a county of the State with a median income less than the statewide non-metro average (10 points).
Development involves the use of housing as part of a community revitalization plan (10 points).

Kentucky

Tiebreaker: county of lower median income.
Project located in a distressed Appalachian county or in a county with a median income that is below the statewide nonmetropolitan median income (20 points).

Restricted the creation of new affordable housing units in QCTs. Developments that propose the creation of new units in QCTs to undergo a thorough review and justification process prior to accepting an application for funding.
Community Revitalization Plan or Areas of Opportunity (15 points).

Louisiana

Project QCR/DDA/RD target area (10 points).
Project is an economic development project (100 points).
Project located in an Enterprise Community or a Renewal Community (30 points).

Project Located in QCT or DDA (2 points).

Maine

A project that is part of a community revitalization plan (3 points). Projects that are part of a community revitalization plan and are located in a QCT will be given preference over such Projects that are not located in a QCT.

Project is located within the boundaries of a clearly defined area targeted for revitalization in a Community Revitalization Plan and the project is part of or contributes to the revitalization goals and efforts specified in the Community Revitalization Plan concerning the rehabilitation or

				development of housing in the targeted area (2 points).
Maryland	Vision for affordable rental housing: revitalizing neighborhoods and targeting growth areas. New construction and priority funding areas – smart growth. QCT/DDA, Rehabilitation and Revitalization Plans (10 points). Other investment in the Community (maximum 5 points).		Project in a QCT or DDA that contributes to a concerted community revitalization plan (16 points). Defined Planning Areas (maximum 4 points).	
Massachusetts	Sustainable Development principles.	Inclusion in a comprehensive neighborhood revitalization effort (6 points). Conformance with the QCT preference (6 points). Consistency with the ten Sustainable Development principles described (maximum 28 points): demonstrate consistency with any one of the following three principles: 1) Expand housing opportunities, 2) Restore and enhance the environment, 3) Increase job opportunities; in combination of one of the following principles: 1) Redevelop first, 2) Concentrate development, 3) Provide transportation choice. DHCD will award an additional point for consistency with any of the remaining principles.	Sustainable development principles. Priority: projects that create new affordable housing units, in particular units suitable for families in locations with job growth potential and locations that constitute areas of opportunity; projects that are consistent with the ten sustainable development principles; projects that are part of comprehensive neighborhood improvement plans or initiatives, including projects in the federal Choice Communities pipeline; projects located in communities or neighborhoods with expanding social and/or educational opportunities, expanding employment opportunities or significant revitalization and investment activity.	Inclusion in a comprehensive neighborhood revitalization effort (6 points). Projects located in QCTs (3 points).
Michigan		Location in central city (5 points).	Priority: strategic investment - these situations may include, but	

<p>Minnesota</p>	<p>QCT/Community revitalization & tribal equivalent areas (1 point).</p>	<p>Locality/neighborhood (5 points): Empowerment Zone; Enterprise; Renaissance Zone; Core; Cool Cities Neighborhood; Renewal Community; Federally recognized American Indian reservations.</p> <p>Community Revitalization (10 points).</p>	<p>are not limited to, applications that demonstrate transformative neighborhood revitalization, and/or unique financial funding and leveraging opportunities, and/or the opportunity to promote significant job growth in proximity to such housing. The strategic investment category has been created to attempt to address these circumstances.</p> <p>Central cities developments (10 points).</p> <p>Neighborhood Revitalization Plan/Investment Activity Areas (10 points).</p> <p>QCT/Community Revitalization (1 point).</p>	
<p>Mississippi</p>		<p>The development is located in a QCT and contributes to a concerted revitalization plan of the community in which it will be located (2 points).</p> <p>The development is located in a county where housing with selected conditions (such as poor conditions, overcrowding, high housing cost) (5 points).</p>		<p>Contributes to a Concerted Revitalization Plan (5 points).</p> <p>New construction or rehabilitation of blight (10 points).</p> <p>Tiebreaker: a development to be located in a QCT shall take precedence over one that is not.</p>
<p>Missouri</p>		<p>Project location consideration: Is it located in a low income county, defined as a county whose median income is below 80% of state's non-metropolitan area median income? If the development is located in a qualified Census Tract, does the</p>	<p>Housing priorities: workforce housing (eligible for 30% boost in eligible basis). Developments in counties with a median income less than the statewide median income are eligible for the basis increase.</p> <p>Housing priorities:</p>	

		development contribute to a concerted community revitalization plan?	redevelopment plan. Consideration: located in a QCT that will contribute to a concerted community revitalization plan. Consideration: located in a community with demonstrated new employment opportunities and a proven need for workforce housing. Consideration: community impact (catalytic effect). QCT or Community Revitalization Plan (10 points).
Montana	Developments located in a community identified as distressed or hard-to-develop areas (2 points). Developments located in an area with a high concentration of substandard units as identified by local organized housing entities (2 points).		
Nebraska		Developments in QCT (3 points). Tiebreaker: project which is located in a QCT and contributes to a concerted community revitalized plan.	Proposed development located in a QCT (1 point). Development located in an Economic Development Certified Community as designated by the Nebraska Department of Economic Development or in a CBDG entitlement community (2 points).
Nevada	Developments in QCT (1 point).	Project is located in a QCT and contributes to a comprehensive community revitalization plan and other redevelopment areas (2 points).	Projects located in an area covered by a State or local revitalization plan/strategy (3 points). The project's capacity to serve as a stimulus for other development in the vicinity or to provide a

**New
Hampshire**

Neighborhood or community improvement: projects which are located in formally designated community revitalization areas, such as HUD Enterprise Zones, Main Street programs, designated blighted areas, or otherwise targeted areas (10 points); projects approved for points in a which are also in QCT's (3 points).
Projects located in a QCT (15 points).

New Jersey

needed residential population that may support nearby local businesses in the area and thus promote a more vibrant neighborhood environment (1 point).

Projects that fall into one of these three categories: projects located within a Community Center Area; Walk Score of 40 or higher; projects which are located in formally designated community revitalization areas (10 points).

Projects approved for points in part above that are also in QCTs (3 points).

Projects located in QCTs (15 points).

Projects located within a ready to grow area and any of a transit village, an urban transit hub, a Main Street Designated District or a Designated Center, or a redevelopment project within a ready to grow area (5 points).

New Mexico Projects located in a DDA or a QCT (5 points).
Projects located in QCT, the development of which contributes to a Concerted Community Revitalization Plan (5 points).
Projects located in Priority Geographic Areas or Specifically Designated Target Areas (15 points).

QCT/Concerted Community Revitalization Plan (5 points).

New York (State)	The project is located in a QCT and the development of the project contributes to a concerted community revitalization plan (maximum of 10 points).	Community impact/revitalization (maximum of 15 points): the project proposes the use or reuse of existing buildings, in-fill new construction, and/or the demolition and replacement of buildings having a blighting impact on a community and the rehabilitation of which is impracticable and is part of a neighborhood specific revitalization plan or is complementary to an ongoing neighborhood specific planning and revitalization effort (5 points); the project clearly advances specific housing objectives of a regional economic development council strategic plan applicable to the area in which the project is located (5 points).
North Carolina	Neighborhood characteristics (maximum 40 points): trend and direction of real estate development and area economic health; physical condition of buildings and improvements. Community Revitalization Plans maximum 10 points).	
North Dakota	Community revitalization project (5 points).	Community revitalization project (5 points).
Ohio	Located in a QCT and contributes to a local revitalization plan (3 points).	Exceptional developments (maximum 10 points): evaluation factors include community investment, local development priority, economic development,

<p>Oklahoma</p>	<p>Development location and housing characteristics (maximum 10 points, 5 points each): development in a QCT or DDA; development in an Empowerment Zone, Enterprise Zone, or Enterprise Communities.</p>		<p>education and opportunity, healthcare, workforce, local initiatives. Development location and housing characteristics (maximum 10 points, 5 points each): development in a QCT with plan; Development in a DDA; Development in an Enterprise Zone/Communities.</p>
<p>Oregon</p>	<p>Selection criteria: project located in a QCT; project creates housing in communities that are part of neighborhood preservation, community revitalization, or redevelopment effort.</p>		<p>Location preferences (maximum 40 points): vulnerable gentrification areas.</p>
<p>Pennsylvania</p>	<p>Community Revitalization Plan (5 points): for developments contributing to an existing community revitalization plan. Coordination with other housing and community and economic development programs (10 points). Need to demonstrate further coordination between other housing and community and economic development programs and other state or local governmental agencies.</p>	<p>Community revitalization/mixed Income: reserve credits to, at a minimum, three developments. Community Revitalization Plan (5 points). Significant funding commitments and coordination with other housing and community and economic development programs (5 points).</p>	
<p>Rhode Island</p>	<p>State priority: A need for a concentration of resources to combine affordable housing and community development and stimulate a reversal of disinvestment in Rhode Island's urban areas.</p>	<p>State statement: reinvesting in urban neighborhoods where housing may be substandard and blight is common and the housing is part of an overall neighborhood revitalization strategy.</p>	<p>Larger community context and engagement (6 points): developments in an area targeted for investment or reinvestment. Community: a development that includes rehabilitation of vacant, foreclosed and/or blighted</p>

South Carolina

Marketability and housing needs criteria: information on other planned development/revitalization activity.

Housing development types criteria: Priority will be given to projects involving the substantial rehabilitation of deteriorated residential properties. Priority will also be given to projects involving new construction in conjunction with demolition of blighted structures or where few rehabilitation alternatives exist.

Community Impact criteria: Consideration will be given to projects which address the State's housing needs, Rhode Island Housing's programmatic policies and objectives and which enhance neighborhood revitalization and housing opportunities in local communities (geographic location and neighborhood revitalization projects).

Positive Site Characteristics: Infill sites with proposed new construction in a neglected and/or distressed neighborhood that has the potential to help stabilize and/or reverse the trend of declining neighborhood values within the incorporated limits of a municipality.

properties or infill development on vacant neighborhood lots (5 points).

Positive site characteristics: infill sites with proposed new construction in a neglected and/or distressed neighborhood that has the potential to help stabilize and/or reverse the trend of declining neighborhood values within the incorporated limits of a municipality.
Tiebreaker: QCT with plan.

South Dakota	Projects within QCTs, which contribute to a concerted community revitalization plan that is documented at the time of application (75 points).	Concerted Community Revitalization Plans: Projects that contribute to a Concerted Community Revitalization Plan and that are located within a QCT (30 points).	
Tennessee	Developments located in identified areas of affordable housing need (maximum 10 points): developments located completely and entirely in a QCT or a DDA and/or covered by an approved community revitalization plan. (TEB only) Meeting housing needs (maximum 50 points): developments located in counties where the annual median income is less than 80% of the state median (25 points); developments located wholly and completely in a QCT or a DDA (5 points).	Developments involving the use of existing housing as part of a community revitalization plan (1 point). (TEB only) Developments located wholly and completely in a QCT or DDA (4 points).	No more than one eligible development located in a QCT and contributing to/covered by a Community Revitalization Plan.
Texas	Development includes the use of existing housing as part of a Community Revitalization Plan (7 points). Development location (maximum 4 points): a geographical area which is an Economically Distressed Area; a Colonia; or a DDA; a designated state or federal empowerment/enterprise zone, urban enterprise community, or urban enhanced enterprise community; a city or county-sponsored area or zone where a city or county has,	Underserved areas (2 points).	Concerted Revitalization Plan (6 points).

		through a local government initiative, specifically encouraged or channeled growth, neighborhood preservation, or redevelopment.	
Utah		Community Revitalization Area (maximum 500 points). Project Location (maximum 600 points): project is located in a DDA or a QCT (200 points).	Project location (maximum 400 points): project is located in a DDA (200 points). Project characteristics (maximum 760 points): projects that involve the use of existing housing as part of a Community Revitalization Plan (100 points).
Vermont		State Consolidated Plan priorities / other priorities: project proposes the removal of blight.	State Consolidated Plan priorities / other priorities: project proposes the removal of blight.
Virginia	Part of the local government's plan for revitalization of the area (25 points). Located in a DDA or is in an Enterprise Zone or a Housing Revitalization Zone designated by the state (5 points).		Any proposed development that is to be located in a revitalization area (10 points).
Washington		State Preferences: for the purposes of ranking projects and allocating credit dollar amounts, the Commission will give preference to projects that serve the lowest income tenants, that are obligated to serve low-income tenants for the longest periods, and that are located in QCTs and the development of which will contribute to a concerted community revitalization plan. Targeted areas (7 points): DDA,	Community Revitalization Plan (1 point for 9% applications, 3 points for TEB applications).

West Virginia	<p>QCT, QCT with Community Revitalization Plan.</p> <p>Located in areas with median family incomes (maximum 40 points) 5 points for \$57,976 and \$62,600; 40 points for \$25,600 and \$30,225.</p> <p>Preference for Community Revitalization projects in QCTs (40 points).</p>	<p>Preference for community revitalization properties located in QCTs (maximum 40 points).</p>
Wisconsin Wyoming	<p>Lower-income areas (15 points). Community Revitalization in QCTs (maximum 25 points). Revitalization area or reduction of barriers on community (maximum 20 points).</p>	<p>Lower-income areas (5 points). Community revitalization in QCTs (maximum 5 points). Revitalization area or reduction of barriers in community (maximum 5 Points).</p>

Sources: State Qualified Allocation Plan, tax-exempt bond, and other related documents.

Appendix D-5: State Priorities for Avoiding Concentrations of Affordable Housing

State	2005		2016	
	4% Credit & 9% Credit	9% Credit	4% Credit & 9% Credit	9% Credit
Alabama	The market study must demonstrate an adequate market for the proposed units and that the proposed project would not adversely impact any existing projects or create excessive concentration of multifamily units.	Point deductions for project location with previously funded projects are cumulative to a maximum of 6 points.	Not consider any application if the proposed project is located within a 2-mile radius of a project approved during the last two cycles that has not placed in service and is 90% or more occupied at the time of application.	
Alaska	Number of similar properties located in the area (maximum 5 points).		The tie-will be broken in favor of the project whose community has gone the longest without a GOAL (Greater Opportunities for Affordable Living) program funded development.	
Arizona		City, town or county not receiving an allocation of tax credits in the past (20 points).		
Arkansas				Development is located in one of the counties in which a tax credit award has not been made in the past 3 years.
California				
Colorado				
Connecticut				
Delaware	No other low income housing in immediate area (within 3 block area), No market rate rental housing in immediate (within 3 block area) (maximum 10 points, 1 point each).			
Florida				

Georgia		Previous projects within a local government (4 points).		Development site is not within a 1-mile radius of a Georgia Housing Credit development that has received an award in the last four 4 competitive funding cycles (2 points).
Hawaii				
Idaho	Developments located in cities where no other development has a Low- Income Housing Tax Credit Reservation, Commitment, or Allocation. (10 points) Developments located in counties where no other development has a Low- Income Housing Tax Credit Reservation, Commitment or Allocation. (10 points)			
Illinois		Project site and market evaluation (maximum 15 points): The Authority may take into account such factors as the frequency of allocations in the past three calendar years.	Preliminary project Assessment includes jobs and economic viability, social and demographic indicators, and affordable rental concentrations.	
Indiana			Census tract without active tax credit developments (3 points). Second tiebreaker: priority will be given to the development located in a community that has not received tax credits within the past three years.	
Iowa				Underserved city (8 points).
Kansas		Developments located in communities that have not previously received housing tax credits. (15 points)		
Kentucky				

Louisiana	Federal housing agency coordination.	Federal housing agency coordination.	
Maine			
Maryland		Bonus points (10 points) projects represents an equitable regional or geographic distribution of resources, ensuring that unintended consequences of scoring do not systemically and practically prevent a given region from receiving appropriate resources.	
Massachusetts	Location in a community with less than 10% subsidized stock (6 points).		
Michigan	Locality/neighborhood (5 points): county in which a total of fewer than 100 units have been allocated tax.		
Minnesota		Second tie breaker: priority will be given to a project located in a city that has not received tax credits in the last two years.	
Mississippi			ZIP code concentration (5 points). Over concentration (-5 points).
Missouri		Consideration: proposed development shall not be located where the total of publicly subsidized housing units equal more than 20% of all units in the Census Tract where the development will be located. And not in areas with recently allocated housing subsidies.	

Montana			Additional consideration: The geographical distribution of Housing Credit Projects	
Nebraska				Projects in towns with no other previously approved affordable non-age restricted housing (10 points).
Nevada				
New Hampshire				
New Jersey				
New Mexico				
New York (State)		Project location (maximum 5 points): the project fosters the geographic dispersion of low income housing, by siting low income units in an area with few such units.	Community impact/revitalization (maximum of 15 points): limited or no subsidized affordable housing production and an unmet demand for affordable housing in the past 10 years (5 points). While the rehabilitation set-aside is not subject to any regional set-aside, the Agency will consider the geographic distribution of this resource and will attempt to avoid a concentration of awards in any one area of the state.	
North Carolina	Neighborhood characteristics (maximum 40 points): concentration of affordable housing.			
North Dakota				
Ohio		Tiebreaker: projects located in submarkets that contain the fewest number of projects awarded credits in 2005 from this pool will receive preference.		Senior Housing Priorities (Maximum 10 points): Developments located in a local municipality without affordable (income-restricted) housing for senior households aged 55 and older (5 points). Development Location and Housing Characteristics (maximum 10 points, 5 points
Oklahoma				

			each); Points will be awarded to propose Developments in a City or Town in which no 9% Low-Income Housing Tax Credit Awards have been made in the two year period preceding this Application's date of consideration.
Oregon			Equitably Served Geography (maximum 20 points)
Pennsylvania Rhode Island	Satisfaction of State housing needs criteria: production of new units is considered the creation of additional affordable housing stock not currently existing in the community.		Community: a development which is located within a community with less than 10% affordable housing as defined by state law.
South Carolina	Detrimental development characteristics: applications proposing developments within one (1) mile of existing Authority funded developments.		Detrimental development characteristics: applications proposing developments within 1 mile of existing Authority funded developments in last 2 years.
South Dakota	Local housing needs (150 points): all communities, with two or more low income housing projects under construction or in the process of rent-up may receive zero points in this category.		Local housing needs (150 points): all communities, with two or more low income housing projects under construction or in the process of rent-up may receive zero points in this category.
Tennessee Texas	Development location (maximum 4 points): the development is located in a Census Tract in which there are no other existing developments	One Mile Three Year rule.	Tiebreakers: applications proposed to be located the greatest linear distance from the nearest Housing Tax Credit assisted development.

<p>Utah</p>	<p>supported by housing tax credits. Project location (maximum 600 points): project is located in a “non-participating area” - first project in county (100 points) or first project in community (100 points).</p>	<p>Project Location (maximum 400 points): Project is located in a “non-participating area” - first housing credit restricted project in county, or first housing credit restricted project in municipality (100 points).</p>
<p>Vermont Virginia</p>		<p>Any proposed elderly development located in a Census Tract that has less than a 10% poverty rate with no other elderly tax credit units in such Census Tract (25 points). Any proposed family development located in a Census Tract that has less than a 10% poverty rate with no other family tax credit units in such Census Tract (25 points).</p>
<p>Washington</p>		<p>Geographic dispersion policy: if in any one year, projects in any one county are allocated 50% or more of the credit allocated in that county’s Geographic Credit Pool, then in the following year, the first 50% of the credit available in the Credit Pool must be awarded outside of that county, but inside the Geographic Credit Pool, before any projects proposed in that county will be considered.</p>
<p>West Virginia</p>	<p>Located in areas with LIHTC program unit production as a</p>	<p>LIHTC unit production as a percentage of the renter-</p>

**Wisconsin
Wyoming**

percentage of renter-occupied housing units (maximum 40 points): 13.03% and 14.88% (5 points); 0.00% and 1.86% (40 points).

occupied housing units (maximum 60 points).

In an effort to equitably distribute funding throughout the state, negative points (up to 500 points) will be assessed based on the number of affordable units awarded funding in the last four years compared to the population of the city where the proposed project will be located.
Avoiding concentration of low income households (28 Points).

Sources: State Qualified Allocation Plan, tax-exempt bond, and other related documents.

Appendix D-6: State Set-Asides and Policies for Preservation

State	2005		2016		Changes in Set-Asides for Preservation
	Set-Asides	Preservation Policy	Set-Asides	Preservation Policy	
Alabama		Rehabilitation of existing multifamily residential rental housing (5 points). HUD and USDA RD distressed properties (4 points).	CHDO set-aside - 15%	Rehabilitation of a project with an existing AHFA HOME loan (4 points). Rehabilitation of existing buildings that provides sufficient evidence that the project qualifies for the Alabama Historic Rehabilitation Tax Credit or Federal Historic Tax Credit (1 point). Rehabilitation of existing multifamily residential rental housing, replacement of multifamily housing or replacement of previously existing multifamily housing (1 point).	-2
Alaska	USDA rural development Section 515 projects - 10%				0
Arizona	HOPE VI - 11% Acquisition/rehabilitation, urban Acquisition/rehabilitation, rural Special needs populations - 8% Senior set-aside - 9% Tribal land - 8% Rural council of governments - one for each	Historic preservation (25 points). Tiebreaker criteria: rehabilitation projects (4 points out of 12).	Supportive housing set-aside - 2 projects Balance of state set-aside - 2 projects Tribal set-aside - 1 project Section 811 set-aside - 64 units State special project set-aside - 1 project	Affordable housing preservation (15 points). Historic preservation (1 point).	1

	rural region Non-profit set-aside -20% Rural set-aside - 20%			
Arkansas				
California	Rural set-aside - 20% Small development set-aside - 2% Homeless assistance set-aside - 5% Special Needs/SRO set-aside - 2% RHS set-aside - 14% At-risk set-aside - 5% Supplemental set-aside - 3% Maximum %s: Large family - 65%, Special needs - 5%, SRO - 10%, At-risk - 5%, Seniors - 15% Geographic set-asides	Rural set-aside - 20% At-risk set-aside - 10% Special needs/SRO set-aside - 4% Supplemental set-aside - 3% Maximum %s: Large family - 65%, Special needs - 25%, SRO - 15%, At-risk - 15%, Seniors - 15% Geographic set-asides	Historic Preservation (1 point).	0
Colorado		Rehabilitation of blighted buildings or locally or federally designated historic structures (5 points). Preservation projects (15 points).	Rehabilitation of blighted buildings or locally or federally designated historic structures (15 points). Preservation projects (15 points).	-1
Connecticut		Special Class I: qualified new construction or rehabilitation that is part of a comprehensive plan to replace and/or rehabilitate public housing units.	Substantial rehabilitation (5 points). Moderate rehabilitation (2 points).	0
Delaware			Preservation/rehabilitation pool - 45%	-2
		Preservation/Rehabilitation set-aside - 45% New housing creation set-aside - 45%		

Florida	Non-profit - 12% Geographic set-asides		New construction, rehabilitation, acquisition and rehabilitation, redevelopment, or acquisition and redevelopment set-aside - 85%. Preservation or acquisition and preservation set-aside - 25%.	Preservation or acquisition and preservation set-aside - 25%.	-2
Georgia	Rural set-aside - 30%	Adaptive reuse, historic preservation and brownfield / greyfield redevelopment (6 points). Preservation of existing affordable housing (10 points).	Geographic set-asides Rural set-aside - 35% Flexible set-aside - 65%	Historic preservation (maximum 2 points). Preservation priority (7 points). Rehabilitating a property in the Flexible Pool that gets 4 points under Stable Communities or in the Rural Pool that gets three 3 points under Stable Communities (3 points). Rehabilitating a property that gets 2 points under Revitalization/Redevelopment Plans (3 points). Historic nature (1 point).	-1
Hawaii					
Idaho	Rural development set-aside - 10% Non-profit set-aside - 25% Special housing need Set-Aside - 15%	Developments which preserve existing low-income units (10 points).	USDA rural development set-aside - 10% Preservation set-aside - 10% Special housing need Set-Aside - 15%	Historic nature (1 point). Preservation set-aside - 10% Rehabilitation Developments that include the use of existing housing as part of a community revitalization plan (1 point).	-1 -1
Illinois	Geographic set-asides Non-profit set-aside - 15% Preservation set-aside -	Historic significance (1 point).	Geographic set-asides	Historic significance (1 point).	2

	11% Special needs set-aside - 11% Elderly set-aside - 16% Small project set-aside - 7% Public housing set-aside - 11%	Preservation set-aside - 11%.			
Indiana	Large city set-aside - 15% Small city set-aside - 15% Rural set-aside - 10% Preservation set-aside - 15% Special housing need - 10% Lowest income - 5%	Preservation set-aside - 15%. Preservation of existing affordable housing (3 points). Historic nature (2 points).	Qualified not-for-profit set-aside - 15% Stellar community designation set-aside - 10% Elderly set-aside - 10% Large city set-aside - 10% Small city set-aside - 10% Rural set-aside - 10% Preservation set-aside - 15% Housing First set-aside - 10% General set-aside - 10%	Preservation set-aside - 15% Infill new construction (maximum 8 points): Existing structures that will be rehabilitated. Preservation of existing affordable housing (6 points).	0
Iowa	Preservation set-aside - 20% Affordable assisted living set-aside - 10% Service enriched set-aside - 30%	Preservation set-aside - 20%. Entire Projects that are locally, state or federally designated historic structures or entire Projects that provide for the rehabilitation of abandoned or unsafe buildings that are considered a “public nuisance” (30 pints). Projects that are subsidized Preservation Projects (15 points).	Homeless demonstration set-aside Preservation set-aside - 10% Senior set-aside - 15% Rural set-aside - 15%	Projects with historical significance (10 points). Preservation set-aside - 10%.	2

Kansas	<p>Development provides rehabilitation of existing, structurally sound, energy efficient, low-income housing or building (20 points).</p> <p>Development preserves existing low-income housing that would be subject to foreclosure or default if tax credits were not available (10 points).</p>	<p>Development preserves existing affordable housing that would be subject to foreclosure or default if tax credits were not available as indicated by deteriorating physical condition, high vacancy rate or poor financial performance (10 points).</p> <p>Development provides rehabilitation of existing, structurally sound, energy efficient, affordable housing (20 points).</p>	0		
Kentucky	<p>Competitive urban set-aside - 50%</p> <p>Competitive rural set-aside - 50%</p> <p>Non-profit set-aside (overall) - 15%</p> <p>RHS Section 515 program set-aside (overall) - 4%</p>	<p>Preservation (excluding acquisition only projects) of 15 other existing housing stock (15 points).</p> <p>Project involves the acquisition and rehabilitation of a project to prevent foreclosure and/or loss of the project for use by low-income households (15 points).</p>	<p>Competitive urban set-aside (area of opportunity) - 7%</p> <p>Competitive urban set-aside (no preference) - 7%</p> <p>Competitive urban set-aside (existing/acquisition rehabilitation projects) - 15%</p> <p>Competitive urban set-aside (new construction) - 15%</p> <p>Competitive urban set-aside (existing/acquisition rehabilitation projects) - 7%</p> <p>Competitive urban set-aside (rural development) - 7%</p> <p>Non-profit supportive housing set-aside - 19%</p> <p>Community impact set-aside - 11%</p>	<p>Historic adaptive reuse set-aside - 8%</p> <p>Competitive urban set-aside (existing/acquisition rehabilitation projects) - 15%</p> <p>Competitive urban set-aside (existing/acquisition rehabilitation projects) - 7%</p> <p>For non-new construction and non-adaptive reuse projects: preservation of existing affordable housing (20 points); projects at financial or physical risks (60 points).</p>	-1

			Historic adaptive reuse set-aside - 7%		
Louisiana	Qualified non-profit/CHDO set-aside - 15% Revitalization set-aside - 27% Public housing authority set-aside- 27% Rural development set-aside - 27% Economic development project set-aside - 4% Geographic set-asides.	Revitalization set-aside - 27%. Redevelopment project (25 points). Project receives Historic Tax Credits or involves substantial rehabilitation (25 points). Project is an abandoned project (50 points).		Targeted project type: redevelopment project (maximum 6 points), non-scattered site rehabilitation project (maximum 8 points), scattered site rehabilitation or infill project (maximum 10 points), preservation priority project (10 points).	0
Maine	Non-profit set-aside - 15% Rural set-aside - 11% SRO and housing for homeless set-aside - 13%	A project involving rehabilitation of existing rental housing stock that also provides protection against displacement and substantial increases in housing costs attributable to the rehabilitation (3 points).	Preservation set-aside - 10% Replacement housing in Lewiston set-aside - 20% Housing for homeless set-aside - 13%	Preservation set-aside - 10% Set-aside for Replacement Housing in Lewiston - 20%	-2
Maryland				Preservation of existing affordable housing (maximum 2 points). Preservation set-aside - 30%	-1
Massachusetts	Production set-aside - 65% Preservation set-aside - 35% HOPE VI set-aside - 10%	Preservation set-aside - 35%.	Production set-aside - 50% Preservation set-aside - 30% HOPE VI set-aside (including non-profit set-aside) - 20%	Preservation set-aside - 30%	1
Michigan	Rural set-aside - 10% Distressed areas set-aside - 30% Elderly set-aside - 10% Preservation set-aside -	Distressed areas set-aside - 30%. Preservation set-aside - 30%.	Preservation set-aside - 25% Permanent supportive housing set-aside - 25% Open set-aside - 25% Strategic investment set-	Preservation set-aside - 25% Historic projects: 30% basis boost. Historic rehabilitation projects (5 points).	-2

	30%		aside - 10%	RHS Section 515	
	Small projects - 10%		Undesignated - 15%	developments (5 points).	
	Special needs -15%			Existing HUD Section 236	
	General - 40%			property (5 points).	
Minnesota	Geographic set-asides.		Rural development/small projects set-aside	Replacement/redevelopment of public housing (5 points).	
			Geographic set-asides.	Rehab-only preservation (5 points).	
Mississippi		Preservation or Hope VI development (5 points).		Preservation (30 points).	-2
Missouri	Rural development financed developments set-aside - 2%	Special identified needs within the State: preservation of existing affordable housing.	Geographic set-asides.	Acquisition/rehabilitation (maximum 25 points).	-1
	Disaster Area		Special needs set-aside - 10% units	Preservation priority.	-1
	Geographic set-side.		Preservation priority		
			Mentor/Portege priority		
Montana	Preservation set-aside - 20%	Preservation set-aside - 20%.	50% AMI priority	Preservation of or increase in housing stock (50 points).	1
	Small project set-aside - 20%	Proposes the preservation of existing federally assisted housing stock or increases the affordable housing stock through the use of either the Rural Development 515 program, HOME program, the Community Development Block Grant program or the FHLB Affordable Housing Program (2 points).	Small rural project set-aside - 20%	Preservation of affordable housing projects (20 points).	
	Large project set-aside - 25%	Preservation of affordable housing projects (2 points).			

Nebraska	Geographic set-asides		Geographic set-asides	Preservation (maximum 2 points).	-1
Nevada	USDA rural development set-aside - 10% Geographic set-asides.	Preference points for acquisition/rehab, conversion or change of use projects (10 points). Property involves the acquisition and rehabilitation of an at-risk property listed in the National Housing Trust Publication (2 points).	USDA rural development set-aside - 10% Set-aside/preference for projects which have not yet been placed in service which were awarded credits within the past two years - 2.5% Northern Nevada expansion set-aside - 10%	Historic characters (3 points). Project includes the preservation of existing LIHTC units (5 points). Project includes the acquisition/rehabilitation of a foreclosed, vacant, or abandoned building, or the reuse/conversion of an existing non-residential building (4 points). Any USDA-RD preservation project with a letter of support from the USDA-RD office (5 points). Project includes the acquisition/rehabilitation of an existing multi-family or scattered-site project that will preserve existing or add new affordable housing (5 points).	-1
New Hampshire		Preserve and renovate existing housing (2 points).		Preservation project initiative. Preservation or restoration of a historic building (5 points).	-1
New Jersey	Family set-aside - 31%: Senior set-aside - 15% Special needs set-aside - 8% Final set-aside - 11%: HOPE VI/Choice	Preservation set-aside. Rehabilitation of historic buildings (2 points). Adaptive re-use of a non-residential building (2 points).	Family set-aside - 50%: HOPE VI/Choice Neighborhood set-aside Preservation set-aside Senior set-aside - 20% Supportive housing set-aside - 25%	Preservation set-aside. Rehabilitation of historic buildings, projects which involve the adaptive re-use of a non-residential building or Brownfields Projects (6 points).	0

New Mexico	Neighborhood set-aside & Preservation set-aside	Rehabilitation projects (15 points). Preservation of affordable housing (15 points).		Rehabilitation projects (15 points). Projects with historic significance (5 points). The project includes the preservation and/or adaptive reuse of the historic nature of the project's existing structure, structures or site, for example, by including the rehabilitation of certified historic structures (15 points).	0
New York (State)					-2
North Carolina	Rehabilitation of existing housing set-aside - 20% HOME/CHDO set-aside - 15% Geographic set-asides	Rehabilitation of existing housing set-aside - 20%.	Rehabilitation of existing housing set-aside - 10% Redevelopment set-aside - 2 projects USDA rural development set-aside - 3% HOME/CHDO set-aside - 15% Geographic set-asides	Rehabilitation of existing housing set-aside - 10%. Redevelopment set-aside - 2 projects.	1
North Dakota	Indian reservation set-aside Preservation set-aside	Preservation set-aside. Property rehabilitation (maximum 13 points).	Indian reservation set-aside	Preserve existing properties (maximum 12 points).	1
Ohio	Senior set-aside - 18% Rural development set-aside - 10% Preservation set-aside - 25% Permanent supportive housing set-aside - 5% Geographic set-asides.	Preservation set-aside - 25%. Historic building (2 points).	Family set-aside - 16% Senior set-aside - 18% Non-urban set-aside - 20% Preservation set-aside - 28% Permanent supportive housing set-aside - 16% Single family infill set-aside - 6%	Preservation set-aside - 28%.	0

Oklahoma	Non-profit set-aside - 20% General set-aside - 30% Rural development (USDA/RD) set-aside - 10% Other rural set-aside - 15% Elderly set-aside - 15% Discretionary - 15%	Acquisition/rehabilitation set-aside - 35% Preservation of affordable housing units from pre-1990 (5 points).	Non-profit set-aside - 15% New Construction set-aside - 50% Acquisition/Rehabilitation set-aside - 35%	Acquisition/rehabilitation set-aside - 35% Preservation of 15 year old affordable housing (5 points). Historic nature (maximum 10 points).	0
Oregon	Preservation set-aside - 25% USDA rural development funded rural and/or farm worker projects set-aside - 15%	Preservation set-aside - 25%.	Preservation set-aside - 35%	Preservation set-aside - 35%.	-1
Pennsylvania	Non-profit set-aside - 30% Preservation set-aside - 20% Geographic set-asides	Preservation set-aside - 20%	Urban set-aside: 47.5% Suburban/rural set-aside: 47.5% Additional: 5% In each set-side: General occupancy: minimum 3 projects Senior occupancy 62+ with services: minimum 2 projects Preservation developments: minimum 3 projects Supportive housing: minimum 2 projects Strategic investment: minimum 3 projects Community revitalization/mixed income (urban set-aside): minimum 3 projects Areas of opportunity (suburban/rural set-asides): minimum 3 projects	In each geographic set-side: Preservation developments: minimum 3 projects; Community revitalization/mixed income (urban set-aside): minimum 3 projects; Areas of opportunity (suburban/rural set-asides): minimum 3 projects.	0

Rhode Island		Housing development types: priority will be given to projects involving the substantial rehabilitation of deteriorated residential properties.		Large community context and engagement (maximum 6 points): development includes preservation of structures with historic designation or structures located within a federal or state historic district.	1
South Carolina			Rural housing set-aside (2 points) Rehabilitation set-aside (2.5 points) Non-profit set-aside (4 points) Underserved set-aside (2.5 points)	Rehabilitation set-aside (2.5 points). Preservation of an existing development previously assisted with tax credits in which the initial 15 year compliance period has expired (1 point). Site considered as having historic character (1 point).	-2
South Dakota	Rehabilitation and/or acquisition and rehabilitation projects - 60% New construction projects - 40%	Rehabilitation and/or acquisition and rehabilitation projects - 60%.	Passive house set-aside - 5%	A rehabilitation project that remodels existing rental buildings to like new or uses existing buildings and converts them to new rental units (50 points). A rehabilitation project that uses buildings of historic nature (20 points).	1
Tennessee	Public housing authority set-aside - 10% Small development set-aside - 10% Urban set-aside: 72% Rural set-aside 28%		Rental Assistance Demonstration set-aside - 30% Preservation set-aside - 22.5% QCT/Community Revitalization Plan set-aside - 1 project Rural set-aside - 2 projects	Preservation set-aside - 22.5%. Developments involving substantial preservation or rehabilitation (10 points). Developments involving moderate preservation or rehabilitation (8 points). Developments involving limited preservation or	-2

			Choice Neighborhoods Initiative	rehabilitation (6 points). Historic nature (1 point). Adaptive reuse/conversion (treated as new construction). Historic preservation (5 points). Historic characters (3 points).	-1
Texas	Geographic set-asides At-risk set-aside - 15%		USDA set-aside - 5%		
Utah	Credits-to-Own set-aside - 5% Rural/Targeted areas set-aside - 10% Small project set-aside - 10%	Rehabilitation set-aside - 25%. Preservation set-aside - 25%.	At-risk set-aside - 15% Non-metro areas and small project set-asides - 25% Government and non-profit homeownership set-aside - 5% General pool - 60%		2
	New construction set-aside - 50% Rehabilitation set-aside - 25% Preservation set-aside - 25%				
Vermont		Top tier priorities: project provides rehabilitation, including lead-based paint abatement, accessibility modifications, and energy efficiency upgrades; or infill new construction in housing markets. Second tier priorities: projects exhibiting a unique design, such as a creative rehabilitation of a historic structure of statewide significance. Preference must be given for the acquisition and rehabilitation of existing	Senior set-aside: 25%	Top tier priorities: project provides rehabilitation, including lead-based paint abatement, accessibility modifications, and energy efficiency upgrades; or infill new construction in housing markets. Second tier priorities: projects exhibiting a unique design, such as a creative rehabilitation of a historic structure of statewide significance. Preference must be given for the acquisition and rehabilitation of existing	0

Virginia	Non-profit set-aside - 15% Local housing authority set-aside - 15% Geographic set-asides.	federally subsidized projects, where the preservation of a project's existing affordability is at risk.	Non-profit set-aside - 15% Local housing authority set-aside - 15% New Construction set-aside - 15% Geographic set-asides	federally subsidized projects, where the preservation of a project's existing affordability is at risk.	0
Washington	HOPE VI set-aside Rural housing set-aside Rural development set-aside	Preservation of federally assisted low-income housing (10 points). Historic property (5 points).	Preservation and recapitalization in metro and non-metro set-asides – 25%	Preservation and recapitalization in metro and non-metro set-asides – 25%. Historic buildings (5 points). Properties at risk of market conversion (6 points).	-1
West Virginia	Rural development preservation - 15% Rural development new construction - 25% HUD preservation or new construction - 20% New supply small - 27.5%	Rural development preservation - 15%. HUD preservation or new construction - 20%.	Rural development preservation - 20% Rural development new construction - 15% HUD preservation or new construction - 25% New supply small - 25%	Rural development preservation - 20%. HUD preservation or new construction - 25%. Historic nature (20 points).	-1
Wisconsin	General set-aside - 40% Preservation set-aside - 35% Rural set-aside - 10%	Preservation set-aside - 35%.	General set-aside - 43% Preservation set-aside - 20% Rural set-aside - 10% Supportive housing set-aside - 10% High impact project reserve - 7%	Preservation set-aside - 20%.	1
Wyoming	HOME program set-aside		Small rural project set-aside - 39% Open allocation - 51%		0

Sources: State Qualified Allocation Plan, tax-exempt bond, and other related documents.

Appendix E - Note on Improvements Made to HUD LIHTC Database

This note outlines improvements made to Low-Income Housing Tax Credit (LIHTC) Project Database from the Department of Housing and Urban Development (HUD). HUD data from June 2020 with projects placed in service through 2016 are used. Although HUD has been actively updating this database, this database suffers from a number of data quality issues (Gold et al., 2018). Data are organized at the property level, but there are duplicated records. There are missing data in many key fields, especially during the 1990s.⁷⁰ In addition, data typically lag 3 to 4 years and data in recent years may be incomplete (Gold et al., 2018). The database previously does not hold projects that are no longer active until the 2020 refresh. To improve coverage and accuracy of HUD’s LIHTC Database, several improvements are made:

- 1) Merging information from National Housing Preservation Database (NHPD): NHPD is published by the Public and Affordable Housing Research Corporation and the National Low Income Housing Coalition.⁷¹ NHPD contains deduplicated project-level information on various assisted housing programs. NHPD also tracks older projects that is no longer active.⁷² The database lists tax credit projects as “active”, “inconclusive”, or “inactive.” HUD data are merged with NHPD to add non-duplicated “inactive” projects and update key variables: credit type, address/coordinates, year of allocation, built year (for placed-in-service year), numbers of total and low-income units.

⁷⁰ For HUD LIHTC Database’s coverage information, refer to <https://lihtc.huduser.gov/missing.pdf>. June 2020 version covers LIHTC projects placed in service through 2018 (with limited coverages in 2017 and 2018.)

⁷¹ NHPD can be assessed at <https://preservationdatabase.org> (Public and Affordable Housing Research Corporation & National Low Income Housing Coalition, 2020). March 2020 version of the National Housing Preservation Database is used.

⁷² A project is “active” means that it is still within the 30-year period of affordability since 1990 (the affordability period is 15 years before that year). A project is “inactive” if the property drops out of the affordability period, or rarely, faces a foreclosure (Keightley, 2017). Then this project may be no longer tracked by HUD.

- 2) Updating information from state datasets: Some states publish awards and/or active developments. Updates made by using state information are summarized in Appendix E-1.
- 3) Searching property and assessor data: Missing built year (for placed-in-service year) is traced through public datasets (*e.g.*, Zillow, apartmnets.com, and Zumper). If the initial built year is around placed-in-service year, this project is then considered as a new construction. Otherwise, this project is a rehabilitation project. If a project is listed as both rehabilitation and new construction in the same year, it is considered as a new construction project for this study.

In addition to new data sources, some missing values are derived as follows:

- 1) Removing duplicates: Duplicated records are removed by project name, address, and other allocation information. If a project receives additional credit with the same credit type in a following allocation cycle, a later record is removed. Many duplicates are found among records added through HUD's tenant data collection effort.
- 2) Updating tax credit type: Use project name to check if it contains "9%" or "4%." If a project uses both credit types, it is considered as a 9% deal for this study. Tax Credit Exchange Program (TCEP) projects are not included in this study.⁷³
- 3) Updating year of allocation: State ID numbers are used to estimate allocation year.
- 4) Updating placed-in-service year: Apply allocation year +2 if placed-in-service year is missing but a project can be identified through available data sources.

⁷³ Part of the American Recovery and Reinvestment Act of 2009, TCEP provides ability for agencies to exchange certain allocations for cash from the U.S. Department of the Treasury.

5) Geocoding addresses: Street addresses are geocoded using Google Map API. All coordinates are spatially joined to 2010 Census Tract boundaries.

Despite all efforts to improve data quality, project information may still be incomplete in the early years. The coverage of projects included in this study is presented in Appendix E-2 and E-3. Final sample includes new and rehabilitated projects placed in service through 2016. A project is required to have the following fields filled: credit type (9% tax credit deal or 4% tax credit deal), construction type (new or rehabilitated), year of allocation, number of units or low-income units, and geographic coordinates or address.

Appendix E-1: Project Database Updates by State and Year of Allocation

State	Updated 9% Projects	Updated 4% Projects
AK	1987-2015	1987-2015
AR	1999-2015	
CA	1987-2015	1987-2015
CO	1987-2015	1987-2015
CT	1987-2015	1987-2015
DE	1987-2015	1987-2015
FL	1987-2015	1987-2015
GA	1996-2015	
IA	1987-2015	1987-2015
IL	1987-2015	1987-2015
IN	1990-2015	2000-2015
KS	1987-2015	1994-2015
KY	1987-2015	2002-2015
LA	2006-2015	
MD	1987-2015	1987-2015
MI	1987-2015	1987-2015
MN	1987-2015	1987-2015
MO	1997-2015	2004-2015
MS	1987-2015	1987-2015
NE	1987-2015	1987-2015
NH	2008-2015	2008-2015
NJ	2002-2015	2010-2015
NM	2001-2015	2001-2015
NYS	2011-2015	1994-2015
NYC	1987-2015	1987-2015
OH	1989-2015	1989-2015
OR	1987-2015	1989-2015
PA	1987-2015	1989-2015
TX	1990-2015	1997-2015
WI	1987-2015	
WV	1990-2015	1990-2015

Appendix E-2: Data Coverage Comparison by State

State	Original HUD Data	Updated HUD Data	Study Sample
AK	111	109	102
AL	803	815	804
AR	649	678	623
AZ	460	460	456
CA	3,987	4,006	3,954
CO	584	592	592
CT	354	361	337
DC	200	193	178
DE	156	164	159
FL	1,187	1,430	1,338
GA	1,338	1,203	1,170
HI	102	106	98
IA	678	682	673
ID	251	254	253
IL	1,358	1,363	1,205
IN	986	1,087	1,030
KS	636	646	635
KY	795	857	807
LA	1,041	1,053	1,030
MA	900	917	739
MD	744	763	718
ME	304	304	300
MI	1,466	1,483	1,466
MN	1,073	1,058	968
MO	1,788	1,762	1,531
MS	819	807	778
MT	240	245	230
NC	2,412	2,211	2,195
ND	186	189	176
NE	509	528	509
NH	233	231	218
NJ	1,205	822	777
NM	237	292	267
NV	290	324	298
NY	3,204	3,561	3,428
OH	1,866	1,929	1,839
OK	452	538	500
OR	694	680	666
PA	1,693	1,779	1,718
RI	173	199	181
SC	750	773	748
SD	280	278	273
TN	987	1,078	1,026
TX	2,110	1,894	1,892

UT	436	450	398
VA	1,016	1,049	1,042
VT	294	303	300
WA	1,199	1,146	1,124
WI	1,125	1,142	1,124
WV	307	317	283
WY	108	110	98

Sources: HUD LIHTC Project database with additional data sources.

Note: Study sample includes active and inactive developments placed in service through 2016. HUD = Department of Housing and Urban development.

Appendix E-3: Data Coverage Comparison by Placed-in-Service Year

Year	Original HUD Data	Updated HUD Data	Study Sample
1987	753	666	573
1988	1,659	1,588	1,521
1989	1,602	1,602	1,520
1990	1,303	1,641	1,449
1991	1,404	1,588	1,461
1992	1,356	1,432	1,344
1993	1,422	1,503	1,424
1994	1,450	1,467	1,360
1995	1,629	1,646	1,591
1996	1,491	1,529	1,493
1997	1,413	1,427	1,407
1998	1,382	1,424	1,396
1999	1,604	1,657	1,626
2000	1,415	1,460	1,435
2001	1,512	1,567	1,524
2002	1,461	1,526	1,493
2003	1,652	1,748	1,703
2004	1,664	1,703	1,671
2005	1,705	1,747	1,715
2006	1,694	1,799	1,769
2007	1,720	1,797	1,768
2008	1,499	1,647	1,602
2009	1,198	1,345	1,309
2010	1,200	1,310	1,282
2011	1,603	1,697	1,671
2012	1,501	1,382	1,342
2013	1,243	1,342	1,287
2014	991	1,162	1,107
2015	1,009	1,245	1,173
2016	1,011	1,262	1,238
Missing	2,118	312	-

Sources: HUD LIHTC Project database with additional data sources.

Note: Study sample includes active and inactive developments placed in service through 2016. HUD = Department of Housing and Urban development.

Appendix F - Note on Neighborhood Opportunity Indicators

This note provides detailed descriptions of neighborhood opportunity indicators. These variables try to capture neighborhood opportunities in education, employment, the environment, transportation, and general economic advantage. There are four indicators from the Affirmatively Furthering Fair Housing (AFFH) data from the Department of Housing and Urban Development (HUD): the school proficiency index, the environmental health index, the job proximity index, the low transportation cost index, and the transit trips index. I apply HUD's method in calculating a low-wage proximity index using data from the Longitudinal Employer-Household Dynamics. I also add three additional measures from the American Community Survey (ACS) 2014-2018 five-year estimates: the poverty rate, whether located in a high-poverty neighborhood, and whether located in a minority-concentrated neighborhood.

HUD AFFH school proficiency index: HUD's school proficiency index uses school-level data on the performance of 4th-grade students on state exams. This index describes the education quality of elementary schools nearby a neighborhood.⁷⁴ The school proficiency index is a function of the percent of 4th-grade students proficient in reading (*r*) and math (*m*) on state test scores for up to three schools within 3 miles of the block-group centroid or three closest schools within 1.5 miles. HUD matches each block group centroid to its school attendance zone from Maponics School Attendance Zone Database. In cases with multiple matches, the average is calculated based on school enrollment weights. A weighted average proficiency score for each block group is calculated as follows:

⁷⁴ Data sources compiled by HUD include Great Schools (proficiency data, 2013-14 or more recent) and Common Core of Data (school addresses and enrollment, 2013-14).

$$School_i = \sum_{n=1}^3 \left(\frac{s_i}{\sum^n s_i} \right) \times \left[\frac{1}{2} \times r_i + \frac{1}{2} \times m_i \right]$$

where i represents the block group, s the 4th-grade school enrollment, r reading scores, and m math scores. Values for each block group are then percentile ranked within each state so that they range from 0 to 100, with higher values indicating higher scores. I aggregate the HUD index to the tract level by averaging the percentile ranking for each block group within a tract, weighting by the population under 18 in each block group. The higher the score, the higher the quality of the schools in a neighborhood.

HUD AFFH environmental health index: HUD uses National Air Toxics Assessment data from 2011 to construct its environmental health index. The index captures potential exposure to harmful toxins at a neighborhood level. The index includes estimates of carcinogenic (c), respiratory (r), and neurological (n) air quality hazards. The index is calculated as follows:

$$EnvHealth_i = \left[\left(\frac{c_i - \mu_c}{\sigma_c} \right) + \left(\frac{r_i - \mu_r}{\sigma_r} \right) + \left(\frac{n_i - \mu_n}{\sigma_n} \right) \right] \times -1$$

where i indexes the Census Tract. The index sums the Z-scores for each toxic exposure in a tract, where means of the three hazards (μ_c, μ_r, μ_n) and the corresponding standard errors ($\sigma_c, \sigma_r, \sigma_n$) are estimated over the national distribution. Values are inverted and then percentile ranked nationally. The higher values of the index correspond to fewer air quality hazards.

HUD AFFH jobs proximity index and low-wage jobs proximity index: HUD's original index quantifies the accessibility of a neighborhood to all job locations within a Core-Based Statistical Area (CBSA), with larger employment centers weighted more heavily. This index is derived from a gravity model, where the accessibility (A_i) of a block-group is a sum of the distance to all job locations. The distance from any single job location is positively weighted by

the size of employment and is inversely weighted by the labor supply to that location. The formula is as follows”

$$A_i = \frac{\sum_{j=1}^n \frac{E_j}{d_{i,j}^2}}{\sum_{j=1}^n \frac{L_j}{d_{i,j}^2}}$$

where i indexes a given residential block-group, and j indexes n block groups within a CBSA. Distance, d , is between block-groups i and j , with distances less than 1 mile set equal to 1. E represents the number of jobs in block-group j , and L is the number of workers in block-group j . The underlying data source is the Longitudinal Employer-Household Dynamics 2015. I aggregate the HUD index to the tract level by averaging the percentile ranking for each block group within a tract, weighting by the population between 18 and 64 in each block group. The higher the index value, the better the access to employment opportunities for residents in a neighborhood.

I also create the accessibility index for low-wage jobs and low-wage workers at tract-level using the Longitudinal Employer-Household Dynamics. Earnings of \$3,333 per month or less (\$40,000 or less, annually) are considered low-wage jobs and workers. I then create the percentile ranking for each tract within a CBSA. The higher the index value, the better the access to low-wage employment for low-income residents in a neighborhood.

HUD AFFH low transportation cost index: HUD’s index estimates the transportation costs for a family that is a 3-person single-parent family with income at 50% of the median income for renters for the region. The estimates are drawn directly from the 2008-2012 Location Affordability Index data, which combines five different federal data sources and the Illinois state

odometer readings. Values are inverted so that higher numbers represent lower costs and percentile ranked nationally with values ranging from 0 to 100.

HUD AFFH transit trips index: HUD’s index is based on estimates of transit trips taken by a 3-person single-parent family with income at 50% of the median income for renters for the region. The estimates come from the Location Affordability Index. Values are percentile ranked nationally, with values ranging from 0 to 100. The higher the value, the more likely a renter in that neighborhood utilizes public transit. The index controls for income such that a higher index value reflects better access to public transit.

Poverty rate: The neighborhood poverty rate from the ACS captures the share of individuals whose income in the past 12 months is below the federal poverty level in a Census Tract.

Located in a high-poverty neighborhood: This variable indicates whether a household is located in a neighborhood with a poverty rate greater than 30%.

Located in a minority-concentrated neighborhood: This variable indicates whether a household is located in a neighborhood with high minority concentration. HUD defines a “minority-concentrated” neighborhood as a Census Tract where the percentage of minority persons is at least 20 percentage points higher than the housing market area as a whole (U.S. Department of Housing and Urban Development, 2016). HUD further defines a housing market area as a CBSA or a County.

Appendix G - Regression Results for Neighborhood Opportunity Indicators

Appendix G-1: Access to Opportunity for Tax Credit Units and Other Types of Renters

	Poverty Rate	In High-Poverty Neighborhood	In Minority Concentrated Neighborhood	School Proficiency Index	Environmental Health Index	Jobs Proximity Index	Low-Wage Jobs Proximity Index	Low Transportation Cost Index	Transit Trips Index
LIHTC 4% Unit	6.250*** (0.175)	14.30*** (0.538)	19.41*** (0.678)	-9.309*** (0.386)	-2.575*** (0.213)	0.304 (0.413)	-1.881*** (0.457)	2.112*** (0.187)	1.491*** (0.286)
LIHTC 9% Unit	6.337*** (0.147)	15.68*** (0.453)	18.16*** (0.580)	-8.293*** (0.328)	-1.921*** (0.180)	3.392*** (0.348)	-1.803*** (0.391)	2.099*** (0.158)	1.307*** (0.245)
Public Housing	13.64*** (0.175)	34.77*** (0.537)	30.90*** (0.694)	-11.79*** (0.388)	-5.305*** (0.213)	7.692*** (0.413)	-3.523*** (0.468)	5.189*** (0.187)	6.659*** (0.292)
HCV	5.500*** (0.113)	12.10*** (0.349)	21.59*** (0.442)	-10.86*** (0.252)	-1.738*** (0.138)	-2.950*** (0.268)	-0.714* (0.298)	1.468*** (0.122)	2.092*** (0.186)
Poor Renter	6.210*** (0.0792)	13.71*** (0.244)	17.85*** (0.313)	-8.165*** (0.176)	-1.059*** (0.0966)	-3.841*** (0.187)	-2.162*** (0.211)	-0.126 (0.0849)	0.885*** (0.132)
Constant	17.10*** (0.0275)	13.94*** (0.0847)	27.86*** (0.108)	49.52*** (0.0611)	42.77*** (0.0336)	55.41*** (0.0651)	47.24*** (0.0727)	58.39*** (0.0295)	58.67*** (0.0455)
Tracts	72,222	72,222	72,222	72,222	72,222	72,222	72,222	72,222	72,222
Adjusted R²	0.166	0.116	0.130	0.142	0.749	0.033	0.024	0.815	0.605
State x CBSA FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Sources: Updated HUD LIHTC Project Database, Picture of Subsidized Households (2017), Census (2010), American Community Survey (2014-2018), National Geospatial Data Asset (2020), and Affirmatively Furthering Fair Housing dataset (2020).

Note: Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Omitted category: non-poor renters. HCV = Housing Choice Voucher, CBSA = Core-Based Statistical Area, FE = Fixed Effect, HUD = Department of Housing and Urban Development, LIHTC = Low-Income Housing Tax Credit.

Appendix G-2: Access to Opportunity for Newly Constructed Tax Credit Units and Other Types of Renters

	Poverty Rate	In High-Poverty Neighborhood	In Minority Concentrated Neighborhood	School Proficiency Index	Environmental Health Index	Jobs Proximity Index	Low-Wage Jobs Proximity Index	Low Transportation Cost Index	Transit Trips Index
New LIHTC 4% Unit	4.149*** (0.244)	9.986*** (0.750)	15.52*** (0.952)	-7.346*** (0.542)	-1.409*** (0.300)	-0.540 (0.580)	-0.829 (0.642)	0.300 (0.264)	-1.185** (0.402)
New LIHTC 9% Unit	5.036*** (0.179)	12.85*** (0.548)	15.66*** (0.705)	-6.739*** (0.399)	-0.831*** (0.219)	2.060*** (0.424)	-0.889 (0.476)	0.683*** (0.192)	-0.777** (0.298)
Public Housing	13.64*** (0.175)	34.77*** (0.537)	30.90*** (0.694)	-11.79*** (0.388)	-5.305*** (0.213)	7.692*** (0.413)	-3.530*** (0.470)	5.189*** (0.187)	6.666*** (0.294)
HCV	5.500*** (0.113)	12.10*** (0.349)	21.59*** (0.442)	-10.86*** (0.252)	-1.738*** (0.138)	-2.950*** (0.268)	-0.715* (0.300)	1.468*** (0.122)	2.101*** (0.188)
Poor Renter	6.210*** (0.0792)	13.71*** (0.244)	17.85*** (0.313)	-8.165*** (0.176)	-1.059*** (0.0966)	-3.841*** (0.187)	-2.158*** (0.212)	-0.126 (0.0849)	0.882*** (0.133)
Constant	17.10*** (0.0275)	13.94*** (0.0847)	27.86*** (0.108)	49.52*** (0.0611)	42.77*** (0.0336)	55.41*** (0.0651)	47.24*** (0.0731)	58.39*** (0.0295)	58.62*** (0.0457)
Tracts	72,222	72,222	72,222	72,222	72,222	72,222	72,222	72,222	72,222
Adjusted R²	0.166	0.116	0.126	0.142	0.749	0.033	0.023	0.815	0.604
State x CBSA FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Sources: Updated HUD LIHTC Project Database, Picture of Subsidized Households (2017), Census (2010), American Community Survey (2014-2018), National Geospatial Data Asset (2020), and Affirmatively Furthering Fair Housing dataset (2020).

Note: Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Omitted category: non-poor renters. HCV = Housing Choice Voucher, CBSA = Core-Based Statistical Area, FE = Fixed Effect, HUD = Department of Housing and Urban Development, LIHTC = Low-Income Housing Tax Credit.

Appendix G-3: Access to Opportunity for Tax Credit Units Placed in Service during 2010s

	Poverty Rate	In High-Poverty Neighborhood	In Minority Concentrated Neighborhood	School Proficiency Index	Environmental Health Index	Jobs Proximity Index	Low-Wage Jobs Proximity Index	Low Transportation Cost Index	Transit Trips Index
LIHTC 4% Unit	7.890*** (0.352)	17.89*** (1.072)	20.92*** (1.310)	-10.79*** (0.771)	-3.299*** (0.429)	0.676 (0.830)	-4.32*** (0.885)	2.109*** (0.377)	2.569*** (0.553)
LIHTC 9% Unit	6.002*** (0.297)	14.95*** (0.905)	16.21*** (1.106)	-7.81*** (0.655)	-1.695*** (0.362)	3.113*** (0.702)	-0.746 (0.747)	1.760*** (0.318)	0.667 (0.467)
Constant	17.07*** (0.029)	14.17*** (0.089)	27.86*** (0.109)	49.65*** (0.065)	41.43*** (0.036)	55.49*** (0.069)	47.22*** (0.074)	60.55*** (0.031)	58.72*** (0.046)

Sources: Updated HUD LIHTC Project Database, *Picture of Subsidized Households (2017)*, *Census (2010)*, *American Community Survey (2014-2018)*, *National Geospatial Data Asset (2020)*, and *Affirmatively Furthering Fair Housing dataset (2020)*.

Note: Abridged results. Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Omitted category in regressions: non-poor renters. Omitted categories in the presentation: Public Housing Residents, Housing Choice Vouchers, and Poor Renters. HUD = Department of Housing and Urban Development, LIHTC = Low-Income Housing Tax Credit.

References

- Acolin, A., & Wachter, S. (2017). Opportunity and Housing Access. *Cityscape*, 19(1), 135–150.
- Adkins, A., Sanderford, A., & Pivo, G. (2017). How Location Efficient Is LIHTC? Measuring and Explaining State-Level Achievement. *Housing Policy Debate*, 27(3), 335–355.
<https://doi.org/10.1080/10511482.2016.1245208>
- Allison, P. (2009). *Fixed Effects Regression Models*. SAGE Publications.
<https://doi.org/10.4135/9781412993869>
- Allison, P., Williams, R., & Moral-Benito, E. (2017). Maximum Likelihood for Cross-lagged Panel Models with Fixed Effects: *Socius*. <https://doi.org/10.1177/2378023117710578>
- Ash, M., & Fetter, T. R. (2004). Who Lives on the Wrong Side of the Environmental Tracks? Evidence from the EPA's Risk-Screening Environmental Indicators Model. *Social Science Quarterly*, 85(2), 441–462.
- Ballard, M. J. (2003). Profiting from Poverty: The Competition between For-Profit and Nonprofit Developers for Low-Income Housing Tax Credits. *Hastings Law Journal*, 55(1), 211–244.
- Baum-Snow, N., & Marion, J. (2009). The Effects of Low Income Housing Tax Credit Developments on Neighborhoods. *Journal of Public Economics*, 93(5–6).
<https://doi.org/10.1016/j.jpubeco.2009.01.001>
- Beauregard, R. A. (1990). Trajectories of Neighborhood Change: The Case of Gentrification. *Environment and Planning A: Economy and Space*, 22(7), 855–874.
<https://doi.org/10.1068/a220855>

- Been, V., Ellen, I. G., & O'Regan, K. (2019). Supply Skepticism: Housing Supply and Affordability. *Housing Policy Debate*, 29(1), 25–40.
<https://doi.org/10.1080/10511482.2018.1476899>
- Biden For President. (2020). *THE BIDEN PLAN FOR INVESTING IN OUR COMMUNITIES THROUGH HOUSING*. <https://joebiden.com/housing/>
- Blumenberg, E., & Ong, P. (2001). Cars, Buses, and Jobs: Welfare Participants and Employment Access in Los Angeles. *Transportation Research Record*, 1756(1), 22–31.
<https://doi.org/10.3141/1756-03>
- Blumenberg, E., & Pierce, G. (2014). A Driving Factor in Mobility? Transportation's Role in Connecting Subsidized Housing and Employment Outcomes in the Moving to Opportunity (MTO) Program. *Journal of the American Planning Association*, 80(1), 52–66. <https://doi.org/10.1080/01944363.2014.935267>
- Blumenberg, E., Pierce, G., & Smart, M. (2015). Transportation Access, Residential Location, and Economic Opportunity. *Cityscape*, 17(2), 89–112.
- Buron, L., Nolden, S., Heintzi, K., & Stewart, J. (2000). *Assessment of the Economic and Social Characteristics of LIHTC Residents and Neighborhoods: Final Report*.
<https://www.huduser.gov/portal/publications/affhsg/lihtc.html>
- California Tax Credit Allocation Committee. (2003). *California Tax Credit Allocation Committee Regulations Implementing the Federal and State Low Income Housing Tax Credit Laws*. <https://www.treasurer.ca.gov/ctcac/programreg/2003/20030605/clean.pdf>

- California Tax Credit Allocation Committee. (2017). *California Tax Credit Allocation Committee Regulations Implementing the Federal and State Low Income Housing Tax Credit Laws*. <https://www.treasurer.ca.gov/ctcac/programreg/2017/20171213/clean.pdf>
- Chetty, R., Hendren, N., & Katz, L. F. (2016). The Effects of Exposure to Better Neighborhoods on Children: New Evidence from the Moving to Opportunity Experiment. *American Economic Review*, *106*(4), 855–902. <https://doi.org/10.1257/aer.20150572>
- Clampet-Lundquist, S., Edin, K., Kling, J. R., & Duncan, G. J. (2011). Moving Teenagers Out of High-Risk Neighborhoods: How Girls Fare Better than Boys. *American Journal of Sociology*, *116*(4), 1154–1189. <https://doi.org/10.1086/657352>
- Cohen, M., & Pettit, K. L. S. (2019). *Guide to Measuring Neighborhood Change to Understand and Prevent Displacement*. National Neighborhood Indicators Partnership, The Urban Institute. https://www.urban.org/sites/default/files/publication/100135/guide_to_measuring_neighborhood_change_to_understand_and_prevent_displacement.pdf
- Collinson, R., Ellen, I. G., & Ludwig, J. (2016). Low-Income Housing Policy. In R. A. Moffitt (Ed.), *Economics of Means-Tested Transfer Programs in the United States: Vol. II*. The University of Chicago Press. <http://www.press.uchicago.edu/ucp/books/book/chicago/E/bo24347989.html>
- Condrón, D. J., & Roscigno, V. J. (2003). Disparities within: Unequal Spending and Achievement in an Urban School District. *Sociology of Education*, *76*(1), 18–36. <https://doi.org/10.2307/3090259>

- Cooper, J. (2010). *Multifamily Rental Housing, Financing with Tax-Exempt Bonds*. Orrick, Herrington & Sutcliffe LLP. <https://www.orrick.com/Insights/2010/06/Multifamily-Rental-Housing-Financing-With-Tax-Exempt-Bonds>
- Cummings, J. L., & DiPasquale, D. (1999). The Low-Income Housing Tax Credit An Analysis of the First Ten Years. *Housing Policy Debate*, 10(2), 251–307.
<https://doi.org/10.1080/10511482.1999.9521332>
- Davison, G., Legacy, C., Liu, E., & Darcy, M. (2016). The Factors Driving the Escalation of Community Opposition to Affordable Housing Development. *Urban Policy and Research*, 34(4), 386–400. <https://doi.org/10.1080/08111146.2015.1118377>
- Dawkins, C. (2013). The Spatial Pattern of Low Income Housing Tax Credit Properties: Implications for Fair Housing and Poverty Deconcentration Policies. *Journal of the American Planning Association*, 79(3), 222–234.
<https://doi.org/10.1080/01944363.2014.895635>
- Dawkins, C., Jeon, J. S., & Pendall, R. (2015). Transportation Access, Rental Vouchers, and Neighborhood Satisfaction: Evidence From the Moving to Opportunity Experiment. *Housing Policy Debate*, 25(3), 497–530. <https://doi.org/10.1080/10511482.2014.986662>
- Deng, L. (2009). *Assessing Changes in Neighborhoods Hosting the Low-Income Housing Tax Credit Projects* (Number 8; Center for Local, State, and Urban Policy Working Paper Series). University of Michigan.
<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.183.8756&rep=rep1&type=pdf>

- Deng, L. (2011). Low-Income Housing Tax Credit Developments and Neighborhood Change: A Case Study of Miami-Dade County. *Housing Studies*, 26(6), 867–895.
<https://doi.org/10.1080/02673037.2011.593130>
- Diamond, R., & McQuade, T. (2016). *Who Wants Affordable Housing in their Backyard? An Equilibrium Analysis of Low Income Property Development* (Working Paper No. 22204). National Bureau of Economic Research. <https://doi.org/10.3386/w22204>
- Ellen, I. G., Horn, K. M., Kuai, Y., Pazuniak, R., & Williams, M. D. (2015). *Effect of QAP Incentives on the Location of LIHTC Properties*. U.S. Department of Housing and Urban Development. https://www.huduser.gov/portal/publications/mdrt/QAP_Incentives.html
- Ellen, I. G., Horn, K. M., & Kuai, Y. (2018). Gateway to Opportunity? Disparities in Neighborhood Conditions Among Low-Income Housing Tax Credit Residents. *Housing Policy Debate*, 28(4), 572–591. <https://doi.org/10.1080/10511482.2017.1413584>
- Ellen, I. G., Horn, K. M., & O'Regan, K. M. (2016). Poverty concentration and the Low Income Housing Tax Credit: Effects of siting and tenant composition. *Journal of Housing Economics*, 34, 49–59. <https://doi.org/10.1016/j.jhe.2016.08.001>
- Ellen, I. G., O'Regan, K., & Voicu, I. (2009). Siting, spillovers, and segregation: A reexamination of the low income housing tax credit program. *Housing Markets and the Economy: Risk, Regulation, and Policy*, 233–267.
- Ellen, I. G., Schwartz, A. E., Voicu, I., & Schill, M. H. (2007). Does federally subsidized rental housing depress neighborhood property values? *Journal of Policy Analysis and Management*, 26(2), 257–280. <https://doi.org/10.1002/pam.20247>

- Ellen, I. G., & Turner, M. A. (1997). Does neighborhood matter? Assessing recent evidence. *Housing Policy Debate*, 8(4), 833–866. <https://doi.org/10.1080/10511482.1997.9521280>
- Eriksen, M. D. (2009). The market price of Low-Income Housing Tax Credits. *Journal of Urban Economics*, 66(2), 141–149. <https://doi.org/10.1016/j.jue.2009.06.001>
- Eriksen, M. D., & Rosenthal, S. S. (2010). Crowd out effects of place-based subsidized rental housing: New evidence from the LIHTC program. *Journal of Public Economics*, 94(11), 953–966. <https://doi.org/10.1016/j.jpubeco.2010.07.002>
- Fallon, K. F., & Price, C. R. (2020). Evaluating Exposure to Crime Among LIHTC Building Types and Characteristics in Ohio. *Housing Policy Debate*, 0(0), 1–17. <https://doi.org/10.1080/10511482.2020.1839938>
- Freddie Mac Multifamily & National Housing Trust. (2018). *Opportunity Incentives in LIHTC Qualified Allocation Plans* (Spotlight on Underserved Markets). Freddie Mac Multifamily. https://mf.freddiemac.com/docs/Opportunity_Incentives_in_LIHTC_Qualified_Allocation_Plans.pdf
- Freedman, M., & McGavock, T. (2015). Low-Income Housing Development, Poverty Concentration, and Neighborhood Inequality. *Journal of Policy Analysis and Management*, 34(4), 805–834. <https://doi.org/10.1002/pam.21856>
- Freedman, M., & Owens, E. G. (2011). Low-income housing development and crime. *Journal of Urban Economics*, 70(2), 115–131. <https://doi.org/10.1016/j.jue.2011.04.001>
- Freeman, L. (2004). *Siting Affordable Housing: Location and Neighborhood Trends of Low Income Housing Tax Credit Developments in the 1990s*. Brookings Institution.

- <https://www.brookings.edu/research/siting-affordable-housing-location-and-neighborhood-trends-of-low-income-housing-tax-credit-developments-in-the-1990s/>
- Freeman, L., & Botein, H. (2002). Subsidized Housing and Neighborhood Impacts: A Theoretical Discussion and Review of the Evidence. *Journal of Planning Literature*, 16(3), 359–378. <https://doi.org/10.1177/08854120222093419>
- Galster, G. C. (2008). Quantifying the Effect of Neighbourhood on Individuals: Challenges, Alternative Approaches, and Promising Directions. *Schmollers Jahrbuch*, 128(1), 7–48.
- Galster, G. C. (2012). The Mechanism(s) of Neighbourhood Effects: Theory, Evidence, and Policy Implications. In M. van Ham, D. Manley, N. Bailey, L. Simpson, & D. Maclellan (Eds.), *Neighbourhood Effects Research: New Perspectives* (pp. 23–56). Springer Netherlands. https://doi.org/10.1007/978-94-007-2309-2_2
- Galster, G. C., & Santiago, A. M. (2006). What's the 'Hood Got to Do with It? Parental Perceptions about How Neighborhood Mechanisms Affect Their Children. *Journal of Urban Affairs*, 28(3), 201–226. <https://doi.org/10.1111/j.1467-9906.2006.00289.x>
- Galster, G. C., & Sharkey, P. (2017). Spatial Foundations of Inequality: A Conceptual Model and Empirical Overview. *RSF: The Russell Sage Foundation Journal of the Social Sciences*, 3(2), 1–33. <https://doi.org/10.7758/rsf.2017.3.2.01>
- Galster, G. C., Tatian, P. A., Santiago, A. M., Pettit, K. L., & Smith, R. E. (Eds.). (2003). *Why not in my backyard?* (1st Edition). CUPR/Transaction.
- Gephart, M. A. (1997). Neighborhoods and Communities as Contexts for Development. In J. Brooks-Gunn, G. J. Duncan, & J. L. Aber (Eds.), *Neighborhood Poverty: Volume I Context and Consequences for Children*. Russell Sage Foundation.

- Gold, A., Gerken, M., Hedman, C., & Scally, C. P. (2018). *Technical Documentation for “The Low-Income Housing Tax Credit: Past Achievements, Future Challenges.”* Urban Institute.
https://www.urban.org/sites/default/files/publication/98759/lihtc_technical_documentation_finalized_0.pdf
- Grengs, J. (2001). Does Public Transit Counteract the Segregation of Carless Households? Measuring Spatial Patterns of Accessibility. *Transportation Research Record: Journal of the Transportation Research Board*, 1753(1), 3–10. <https://doi.org/10.3141/1753-01>
- Grengs, J. (2005). The abandoned social goals of public transit in the neoliberal city of the USA. *City*, 9(1), 51–66. <https://doi.org/10.1080/13604810500050161>
- Grengs, J. (2010). Job accessibility and the modal mismatch in Detroit. *Journal of Transport Geography*, 18(1), 42–54. <https://doi.org/10.1016/j.jtrangeo.2009.01.012>
- Haberle, M., Gayles, E., & Tegeler, P. (2012). *Accessing Opportunity: Affirmative Marketing and Tenant Selection in the LIHTC and Other Housing Programs*. Poverty and Race Research Action Council. <https://www.prrac.org/pdf/affirmativemarketing.pdf>
- Hamilton, J. T. (1995). Testing for Environmental Racism: Prejudice, Profits, Political Power? *Journal of Policy Analysis and Management*, 14(1), 107–132.
<https://doi.org/10.2307/3325435>
- Hollar, M., & Usowski, K. (2007). Low-Income Housing Tax Credit Qualified Census Tracts. *Cityscape*, 9(3), 153–159.

- Horn, K. M., & O'Regan, K. M. (2011). The low income housing tax credit and racial segregation. *Housing Policy Debate*, 21(3), 443–473.
<https://doi.org/10.1080/10511482.2011.591536>
- Horn, K. M., Ellen, I. G., & Schwartz, A. E. (2014). Do Housing Choice Voucher holders live near good schools? *Journal of Housing Economics*, 23, 28–40.
<https://doi.org/10.1016/j.jhe.2013.11.005>
- Housing and Economic Recovery Act, Pub. L. No. 110–289, IRC §42(d)(5)(B)(v) (2008).
- Hynes, H. P., & Lopez, R. P. (2008). *Urban Health: Readings in the Social, Built, and Physical Environments of U.S. Cities*. Jones & Bartlett Learning. <https://www.amazon.com/Urban-Health-Readings-Physical-Environments/dp/0763752452>
- Ihlanfeldt, K. R., & Sjoquist, D. L. (1991). The Effect of Job Access on Black and White Youth Employment: A Cross-sectional Analysis. *Urban Studies*, 28(2), 255–265.
<https://doi.org/10.1080/00420989120080231>
- Infranca, J. (2011). *An Overview of Affirmative Marketing and Implications for the Westchester Fair Housing Settlement*. Furman Center for Real Estate and Urban Policy, New York University. <https://furmancenter.org/research/publication/overview-of-affirmative-marketing-and-implications-for-the-westchester-fair>
- Internal Revenue Service. (2019). *Rev. Proc. 2019-44*.
- Jargowsky, P. A., & El Komi, M. (2009). *Before or after the Bell? School Context and Neighborhood Effects on Student Achievement*. Working Paper 28. National Center for Analysis of Longitudinal Data in Education Research. <https://eric.ed.gov/?id=ED509690>

- Jarrett, R. L. (1997). Bringing Families Back In: Neighborhood Effects on Child Development. In J. Brooks-Gunn, G. J. Duncan, & J. L. Aber (Eds.), *Neighborhood Poverty: Volume II Policy Implications in Studying Neighborhoods*. Russell Sage Foundation.
- Jencks, C., & Mayer, S. E. (1990). *The Social Consequences of Growing Up in a Poor Neighborhood: A Review*. Center for Urban Affairs and Policy Research, Northwestern University.
- Kain, J. F. (1968). Housing Segregation, Negro Employment, and Metropolitan Decentralization. *The Quarterly Journal of Economics*, 82(2), 175–197. <https://doi.org/10.2307/1885893>
- Katz, B., Turner, M. A., Brown, K. D., Cunningham, M., & Sawyer, N. (2003). *Rethinking local affordable housing strategies: Lessons from 70 years of policy and practice*. The Brookings Institution Center on Urban and Metropolitan Policy, The Urban Institute.
- Keightley, M. P. (2017). *An Introduction to the Low-Income Housing Tax Credit*. Congressional Research Service.
- Khadduri, J. (2013). *Creating balance in the locations of LIHTC developments: The role of qualified allocation plans*. Poverty and Race Research Action Council. http://www.prrac.org/pdf/Balance_in_the_Locations_of_LIHTC_Developments.pdf
- Khadduri, J., & Wilkins, C. (2008). *Designing Subsidized Rental Housing Programs: What Have We Learned?* (pp. 161–190). Joint Center for Housing Studies, Harvard University.
- Kleit, R. G., & Galvez, M. (2011). The Location Choices of Public Housing Residents Displaced by Redevelopment: Market Constraints, Personal Preferences, or Social Information? *Journal of Urban Affairs*, 33(4), 375–407. <https://doi.org/10.1111/j.1467-9906.2011.00557.x>

- Lang, B. J. (2012). Location incentives in the low-income housing tax credit: Are qualified census tracts necessary? *Journal of Housing Economics*, 21(2), 142–150.
<https://doi.org/10.1016/j.jhe.2012.04.002>
- Lang, B. J. (2015). Input distortions in the Low-Income Housing Tax Credit: Evidence from building size. *Regional Science and Urban Economics*, 52, 119–128.
<https://doi.org/10.1016/j.regsciurbeco.2015.03.003>
- Lankford, H., Loeb, S., & Wyckoff, J. (2002). Teacher Sorting and the Plight of Urban Schools: A Descriptive Analysis. *Educational Evaluation and Policy Analysis*, 24(1), 37–62.
<https://doi.org/10.3102/01623737024001037>
- Lens, M. C. (2014). Employment Accessibility Among Housing Subsidy Recipients. *Housing Policy Debate*, 24(4), 671–691. <https://doi.org/10.1080/10511482.2014.905966>
- Lens, M. C., Ellen, I. G., & O'Regan, K. (2011). Do Vouchers Help Low-Income Households Live in Safer Neighborhoods? Evidence on the Housing Choice Voucher Program. *Cityscape*, 13(3), 135–159.
- Lens, M. C., & Gabbe, C. J. (2017). Employment proximity and outcomes for Moving to Opportunity families. *Journal of Urban Affairs*, 39(4), 547–562.
<https://doi.org/10.1080/07352166.2016.1255528>
- Lens, M. C., & Reina, V. (2016). Preserving Neighborhood Opportunity: Where Federal Housing Subsidies Expire. *Housing Policy Debate*, 26(4–5), 714–732.
<https://doi.org/10.1080/10511482.2016.1195422>

- Leszczensky, L., & Wolbring, T. (2019). How to Deal With Reverse Causality Using Panel Data? Recommendations for Researchers Based on a Simulation Study. *Sociological Methods & Research*, 0049124119882473. <https://doi.org/10.1177/0049124119882473>
- Lung–Amam, W. S., Knaap, E., Dawkins, C., & Knaap, G. (2018). Opportunity for Whom? The Diverse Definitions of Neighborhood Opportunity in Baltimore. *City & Community*, 17(3), 636–657. <https://doi.org/10.1111/cico.12318>
- McClure, K. (2006). The low-income housing tax credit program goes mainstream and moves to the suburbs. *Housing Policy Debate*, 17(3), 419–446. <https://doi.org/10.1080/10511482.2006.9521576>
- McClure, K. (2010). The Prospects for Guiding Housing Choice Voucher Households to High-Opportunity Neighborhoods. *Cityscape*, 12.
- McClure, K., & Johnson, B. (2015). Housing Programs Fail to Deliver on Neighborhood Quality, Reexamined. *Housing Policy Debate*, 25(3), 463–496. <https://doi.org/10.1080/10511482.2014.944201>
- McClure, K., Williamson, A. R., Han, H.-S., & Weiss, B. (2020). The LIHTC Program, Racially/Ethnically Concentrated Areas of Poverty, and High-Opportunity Neighborhoods. *Texas A&M Journal of Property Law*, 6(2), 89–112. <https://doi.org/10.37419/JPL.V6.I2.1>
- Morenoff, J. D., Sampson, R. J., & Raudenbush, S. W. (2001). Neighborhood Inequality, Collective Efficacy, and the Spatial Dynamics of Urban Violence*. *Criminology*, 39(3), 517–558. <https://doi.org/10.1111/j.1745-9125.2001.tb00932.x>

National Housing Conference. (2017, April 12). How the 4 Percent Tax Credit Program Works.

Nexus - The NHC Housing Policy Guide. <https://nhc.org/policy-guide/low-income-housing-tax-credit-the-basics/how-the-4-percent-tax-credit-program-works/>

Nguyen, M. T. (2005). Does Affordable Housing Detrimentially Affect Property Values? A

Review of the Literature. *Journal of Planning Literature*, 20(1), 15–26.

<https://doi.org/10.1177/0885412205277069>

Novogradac & Company LLP. (2017). *State LIHTC Program Descriptions*.

<https://www.novoco.com/resource-centers/affordable-housing-tax-credits/application-allocation/state-lihtc-program-descriptions>

Novogradac, M. (2019, December 2). *More States Facing Shortage in Private Activity Bonds for*

Rental Housing. <https://www.novoco.com/periodicals/articles/more-states-facing-shortage-private-activity-bonds-rental-housing>

Office of the Federal Register, National Archives and Records Administration. (2010). *Federal*

Register Volume 75, Issue 59. <https://www.govinfo.gov/app/details/FR-2010-03-29/summary>

Olsen, E. O. (2003). *Fundamental Housing Policy Reform* (SSRN Scholarly Paper ID 475164).

Social Science Research Network. <https://papers.ssrn.com/abstract=475164>

Ong, P. M., & Houston, D. (2002). Transit, Employment and Women on Welfare. *Urban*

Geography, 23(4), 344–364. <https://doi.org/10.2747/0272-3638.23.4.344>

O'Regan, K. (2017). Increasing Opportunity in LIHTC. *Increasing Opportunity in LIHTC*.

https://www.huduser.gov/portal/pdredge/pdr_edge_frm_asst_sec_050415.html

- O'Regan, K. M., & Horn, K. M. (2013). What Can We Learn About the Low-Income Housing Tax Credit Program by Looking at the Tenants? *Housing Policy Debate*, 23(3), 597–613.
<https://doi.org/10.1080/10511482.2013.772909>
- Orfield, M. (2005). Racial Integration and Community Revitalization: Applying the Fair Housing Act to the Low Income Housing Tax Credit. *Vanderbilt Law Review*, 58(6), 1747.
- Pendall, R. (2000). Local Land Use Regulation and the Chain of Exclusion. *Journal of the American Planning Association*, 66(2), 125–142.
<https://doi.org/10.1080/01944360008976094>
- Pfeiffer, D. (2009). *The opportunity illusion: Subsidized housing and failing schools in California*. <https://www.civilrightsproject.ucla.edu/research/metro-and-regional-inequalities/housing/the-opportunity-illusion-subsidized-housing-and-failing-schools-in-california>
- Popkin, S. J., Harris, L. E., & Cunningham, M. K. (2002). *Families in Transition: A Qualitative Analysis of the MTO Experience*. U.S. Department of Housing and Urban Development Office of Policy Development and Research.
<https://www.huduser.gov/publications/pdf/mtoqualf.pdf>
- Public and Affordable Housing Research Corporation & National Low Income Housing Coalition. (2020). *National Housing Preservation Database*.
<https://preservationdatabase.org>
- Quercia, R. G., & Galster, G. C. (2000). Threshold Effects and Neighborhood Change. *Journal of Planning Education and Research*, 20(2), 146–162.
<https://doi.org/10.1177/0739456X0002000202>

- Reid, C. 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), 645–669. <https://doi.org/10.1080/10511482.2019.1582549>
- Reid, C. K., & Kneebone, E. (2021). *The Complexity of Financing Low-Income Housing Tax Credit Housing in the United States* (The Cost of Building Housing Research Series). Turner Center for Housing Innovation at University of California at Berkeley. <https://turnercenter.berkeley.edu/research-and-policy/lihtc-complexity/>
- Rohe, W. M., & Freeman, L. (2001). Assisted Housing and Residential Segregation: The Role of Race and Ethnicity in the Siting of Assisted Housing Developments. *Journal of the American Planning Association*, 67(3), 279–292. <https://doi.org/10.1080/01944360108976236>
- Roisman, F. W. (1998). Mandates Unsatisfied: The Low Income Housing Tax Credit Program and the Civil Rights Laws. *University of Miami Law Review*, 52(4), 1011.
- Rothenberg, J., Galster, G. C., Butler, R. V., & Pitkin, J. R. (1991). *The Maze of Urban Housing Markets: Theory, Evidence, and Policy* (1st Edition). University of Chicago Press.
- Rothstein, R. (2017). *The Color of Law: A Forgotten History of How Our Government Segregated America* (1st Edition). Liveright.
- Sanbonmatsu, L., Ludwig, J., Katz, L. F., Gennetian, L. A., Duncan, G. J., Kessler, R. C., Adam, E., McDade, T. W., & Stacy Tessler Lindau. (2011). *Moving to Opportunity for Fair Housing Demonstration Program—Final Impacts Evaluation*. US Department of Housing & Urban Development, PD&R. <http://www.huduser.org/portal/publications/pubasst/MTOFHD.html>

- Scally, C. P., Gold, A., Hedman, C., Gerken, M., & DuBois, N. (2018). *The Low-Income Housing Tax Credit: Past Achievements, Future Challenges*. Urban Institute.
<https://www.urban.org/research/publication/low-income-housing-tax-credit-past-achievements-future-challenges>
- Scally, C. P., & Tighe, J. R. (2015). Democracy in Action?: NIMBY as Impediment to Equitable Affordable Housing Siting. *Housing Studies*, *30*(5), 749–769.
<https://doi.org/10.1080/02673037.2015.1013093>
- Schell, L. M., & Denham, M. (2003). Environmental Pollution in Urban Environments and Human Biology. *Annual Review of Anthropology*, *32*, 111–134.
- Schill, M. H., Ellen, I. G., Schwartz, A. E., & Voicu, I. (2002). Revitalizing inner-city neighborhoods: New York city’s Ten-Year Plan. *Housing Policy Debate*, *13*(3), 529–566.
<https://doi.org/10.1080/10511482.2002.9521454>
- Schwartz, A. (2016). The Low-Income Housing Tax Credit, Community Development, and Fair Housing: A Response to Orfield et al. *Housing Policy Debate*, *26*(2), 276–283.
<https://doi.org/10.1080/10511482.2016.1126469>
- Shamsuddin, S., & Cross, H. (2020). Balancing act: The effects of race and poverty on LIHTC development in Boston. *Housing Studies*, *35*(7), 1269–1284.
<https://doi.org/10.1080/02673037.2019.1657072>
- Sharkey, P., & Faber, J. W. (2014). Where, When, Why, and For Whom Do Residential Contexts Matter? Moving Away from the Dichotomous Understanding of Neighborhood Effects. *Annual Review of Sociology*, *40*(1), 559–579. <https://doi.org/10.1146/annurev-soc-071913-043350>

- Shelburne, M. (2016, January 1). *Important Aspects of the 2016 Difficult Development Areas and Qualified Census Tracts*. Novogradac & Co. LLP.
<https://www.novoco.com/periodicals/articles/important-aspects-2016-difficult-development-areas-and-qualified-census-tracts>
- Shen, Q. (1998). Location characteristics of inner-city neighborhoods and employment accessibility of low-wage workers. *Environment and Planning B: Planning and Design*, 25(3), 345–365. <https://doi.org/10.1068/b250345>
- Shen, Q. (2001). A Spatial Analysis of Job Openings and Access in a U.S. Metropolitan Area. *Journal of the American Planning Association*, 67(1), 53–68.
<https://doi.org/10.1080/01944360108976355>
- Smart, M. J., & Klein, N. J. (2018). Complicating the Story of Location Affordability. *Housing Policy Debate*, 28(3), 393–410. <https://doi.org/10.1080/10511482.2017.1371784>
- Steil, J., & Kelly, N. (2019). The Fairest of Them All: Analyzing Affirmatively Furthering Fair Housing Compliance. *Housing Policy Debate*, 29(1), 85–105.
<https://doi.org/10.1080/10511482.2018.1469527>
- Sullivan, L., & Anderson, M. (2017, May 9). *Affordable Housing Program Costs More, Shelters Fewer*. National Public Radio (NPR).
<http://www.npr.org/2017/05/09/527046451/affordable-housing-program-costs-more-shelters-less>
- Taris, T. (2000). Chapter 4 Issues in Discrete-time Panel Analysis. In *A Primer in Longitudinal Data Analysis*. SAGE Publications Ltd. <https://doi.org/10.4135/9781849208512>

- Texas Department of Housing and Community Affairs. (2016). *State of Texas Low Income Housing Plan and Annual Report 2015*. <https://www.tdhca.state.tx.us/housing-center/docs/15-SLIHP.pdf>
- Tighe, J. R. (2012). How Race and Class Stereotyping Shapes Attitudes Toward Affordable Housing. *Housing Studies*, 27(7), 962–983.
<https://doi.org/10.1080/02673037.2012.725831>
- Tighe, J. R., Hatch, M. E., & Mead, J. (2017). Source of Income Discrimination and Fair Housing Policy. *Journal of Planning Literature*, 32(1), 3–15.
<https://doi.org/10.1177/0885412216670603>
- Tillyer, M. S., & Walter, R. J. (2019). Low-Income Housing and Crime: The Influence of Housing Development and Neighborhood Characteristics. *Crime & Delinquency*, 65(7), 969–993. <https://doi.org/10.1177/0011128718794185>
- Tisdale, W. R. (1999). Fair Housing Strategies for the Future: A Balanced Approach. *Cityscape*, 4(3), 147–160.
- U.S. Department of Housing and Urban Development. (2015). *Picture of Subsidized Households*. <https://www.huduser.gov/portal/datasets/assthsg.html>
- U.S. Department of Housing and Urban Development. (2016). *Rental Assistance Demonstration (RAD) Notice Regarding Fair Housing and Civil Rights Requirements and Relocation Requirements Applicable to RAD First Component—Public Housing Conversions*. https://www.hud.gov/sites/documents/16-17HSGN_16-17PIHN.PDF
- U.S. Department of Housing and Urban Development. (2018). *Understanding Whom the LIHTC Program Serves: Tenants in LIHTC Units as of December 31, 2015*. U.S. Department of

- Housing and Urban Development, Office of Policy Development and Research.
<https://www.huduser.gov/portal/sites/default/files/pdf/LIHTC-TenantReport-2015.pdf>
- U.S. Department of Housing and Urban Development. (2019). *Affirmatively Furthering Fair Housing (AFFH) Data Documentation*.
- U.S. Department of Housing and Urban Development. (2020). *Low-Income Housing Tax Credit Database*. <http://lihtc.huduser.gov/>
- van Os, J. (2004). Does the urban environment cause psychosis? *The British Journal of Psychiatry*, 184(4), 287–288. <https://doi.org/10.1192/bjp.184.4.287>
- Walter, R. J., Wang, R., & Jones, S. (2018). Comparing Opportunity Metrics and Locational Outcomes in the Low-Income Housing Tax Credit Program. *Journal of Planning Education and Research*, 38(4), 449–462. <https://doi.org/10.1177/0739456X17711224>
- Weinberg, B. A., Reagan, P. B., & Yankow, J. J. (2004). Do Neighborhoods Affect Hours Worked? Evidence from Longitudinal Data. *Journal of Labor Economics*, 22(4), 891–924. <https://doi.org/10.1086/423158>
- Welch, T. F. (2013). Equity in transport: The distribution of transit access and connectivity among affordable housing units. *Transport Policy*, 30, 283–293.
<https://doi.org/10.1016/j.tranpol.2013.09.020>
- Winkler, A., Varn, J., & Lee, S. (2019). *Using LIHTC to Expand Access to Opportunity*. Bipartisan Policy Center. <https://bipartisanpolicy.org/blog/using-lihtc-to-expand-access-to-opportunity/>

Woo, A., & Joh, K. (2015). Beyond anecdotal evidence: Do subsidized housing developments increase neighborhood crime? *Applied Geography*, *64*, 87–96.

<https://doi.org/10.1016/j.apgeog.2015.09.004>

Zandt, S. S. V., & Mhatre, P. C. (2013). The Effect of Housing Choice Voucher Households on Neighborhood Crime: Longitudinal Evidence From Dallas. *Poverty & Public Policy*, *5*(3), 229–249. <https://doi.org/10.1002/pop4.36>

Zenou, Y. (2013). Spatial versus social mismatch. *Journal of Urban Economics*, *74*, 113–132. <https://doi.org/10.1016/j.jue.2012.11.002>