

## Abstract

**Problem, research strategy, and findings:** Conventional wisdom in the affordable housing industry and among affordable developers holds that subsidy layering is a source of disproportionately increased legal expenses in LIHTC deals. In this paper, I discuss the available literature on subsidy layering with the LIHTC program (last contributed to in 2000) and that literature's relationship to the LIHTC program's growth and development, before evaluating the 728 (nationwide) available Qualified Allocation Plans to establish the Georgia LIHTC program's suitability as a representative case study. To investigate the layering-expenses relationship claim, I study both the national LIHTC database and a new database of twelve years' of LIHTC applications in Georgia to empirically test the relationship between layers of additional subsidy and project costs. The lower-quality national data shows no statistically significant relationship is present between subsidy layers and total LIHTC allocation, while the higher-quality (if geographically limited) Georgia data shows a relationship between subsidy layers and legal costs is present, but one with a very small effect size -- less than one-third of a standard deviation.

**Takeaway for Practice:** The available data suggests that developers considering adding subsidy layers may not need to be overly concerned with the risk of increased legal expenses, while affordable housing practitioners looking to lower LIHTC deal costs may want to focus elsewhere than a deal's layers of subsidy.

**Keywords:** Low Income Housing Tax Credit, LIHTC, subsidy layering, legal expenses, affordable housing

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## Contesting Conventional Wisdom: The Link Between Subsidy Layering and Legal Expenses in the LIHTC Program

The Low-Income Housing Tax Credit (LIHTC) is the largest supply-side affordable housing subsidy in the nation. With \$7.8 billion in budget authorization in 2016 and a thirty-year history of bipartisan support, recession resilience, and practical success, it is a popular topic for scholarly research in the housing field (Gramlich, 2016). The program's lengthy, sometimes dramatic policy history and wide implementation has facilitated a great wealth of literature covering a variety of subtopics. One of the less-studied subtopics is the relationship between subsidy layering and legal costs in the LIHTC program, the subject this study explores. Subsidy layering (the introduction of additional sources of funds on top of the LIHTC) in general is a response to a financing gap, in which the developer must combine multiple forms of affordable housing subsidy in order to make a project financially feasible, and is a common feature of

much affordable housing construction. Due to the small number and great age of the few LIHTC-subsidy layering studies available, their chronological relationships to the policy history of the LIHTC program and its development are important to consider to contextualize the studies' findings and recommendations, as well as the nature of the present research gap given the program's many changes since the most recently published study.

In this study, I use two connected data sources -- the national LIHTC placed-in-service database and a Georgia-specific LIHTC application database -- to pursue the question of whether the available data supports the presence of a relationship between subsidy layering and transaction costs (in the form of legal expenditures) in Low-Income Housing Tax Credit projects. I find that the national dataset does not support the presence of a statistically significant relationship between subsidy layers and legal expenses, and that while the higher-quality Georgia dataset does support the presence of such a relationship, it is very small in its effect size. These results suggest that, although further study of this issue is needed, the industry's "conventional wisdom" that additional layers of subsidies disproportionately increase the complication and legal expenses of a LIHTC deal seems to be unfounded.

First, I review the LIHTC program, its history, and its most frequently researched subtopics. Then, I discuss what literature already exists related to the question of the LIHTC program and subsidy layering, followed by a brief summary of major sources of layering for LIHTC projects. I then review the Georgia QAP and its Housing Finance Agency (HFA)'s suitability to act as a case study for the LIHTC program in general. Next, I discuss the specifics of the two datasets I employed, my methodology, and my results, before discussing the implications of those results in the conclusion section.

### **The LIHTC Program and Subsidy Layering**

The Low-Income Housing Tax Credit was created by the 1986 Cranston-Gonzales Tax Reform Act (often referred to simply as "TRA 86") (Novogradac, 2016b). As Hays (2012, 231) puts it, "the 1986 Act had eliminated the ability of individual investors to claim 'passive losses'

(i.e., the depreciation of the value of assets) as a deduction against regular income. Since passive losses had been a major financial prop for previous housing construction programs, there was great concern that investment in such programs would drop... LIHTC was enacted as a substitute for the loss of these tax breaks.” Indeed, some of the LIHTC creation process’s policy actors have observed that the program “wasn’t the driving force [of TRA 86]. The driving force was to end tax shelters, create lower rates and there were major issues with foreign taxes... [t]he credit was a big issue for people in housing or tax shelters, but that’s it” (Stanhope, 2016).

This initial disinterest also translated into weak support for the proposed LIHTC program. Despite “fl[y]ing under the national radar” as a program, LIHTC did manage to stir up resistance – largely in the same policy circles it would later dominate (Stanhope, 2016). The Joint Committee on Taxation was against the idea, believing that the LIHTC program would simply serve as another tax shelter in a slightly altered form and let millionaires continue avoiding paying their “fair share.” Simultaneously, affordable housing advocates feared the loss of the existing affordable-housing tax shelter system, a main source of funding, and predicted the bill might end the nonprofit development industry (Stanhope, 2016). Indeed, after limping along with another one-year renewal in 1990 (in that year’s Omnibus Budget Reconciliation Act), the LIHTC program finally lost budget authority, and its future was extremely unclear (GovTrack, 2016c).

Within this context of uncertain sustainability and housing-advocate hostility comes the first of the four extant articles on subsidy layering and LIHTC. Unsurprisingly, Stegman (1991) decries the LIHTC program as an example of the “growing inefficiencies in the production of low-income housing,” what he terms the “excessive costs of creative finance.” In what would later be termed a “seminal work” (Quercia, Rohe, & Levy, 2000), Stegman characterizes this early version of the LIHTC program as a “last resort” affordable housing finance program, plagued by high transaction costs (both in terms of production oversight and the inefficiencies

inherent to the low credit prices of the time) and insufficient monitoring. He pejoratively terms the subsidy layering made necessary by those low prices “creative finance,” and cites that layering as evidence for the unsuitability of the LIHTC program as a policy – the idea being, that federal supply-side subsidies should instead be direct or near-direct. He further describes the concept of subsidy layering as an “ad hoc, costly, and potentially dangerous” response to a “pathological set of market conditions” for affordable housing brought about by the 1980s waves of devolved government and homelessness (Stegman, 1991, 358). Indeed, many of the complaints he cites against the LIHTC model – that it is inefficient, indirect, and has high transaction costs both financially and in person-hours – continue to be echoed to this day by many LIHTC critics (Rosenbaum, 2014; Valdez, 2016), and he even touches on regulatory misalignments and the tension between subsidy programs within the capital stack, each eager to “be the last with the least” (Stegman, 1991, 365). Stegman’s particular contribution comes in framing the LIHTC program itself as evidence of a larger over-reliance on creative financing (subsidy layering) approaches in the face of a hostile affordable housing funding environment. At the same time, some of his criticisms (such as the initial lack of basis boosts for high-cost areas and the inefficiencies of low credit pricing) have since been corrected, the number of subsidy sources in a normal project has decreased substantially from the average of five he observed (Stegman, 1991, 362), and his prediction of widespread year-15 conversion of affordable properties to market rate has largely been disproven (Schwartz & Melandez, 2008; Khadduri et al., 2012). While the continued (if reduced) reliance of LIHTC projects on gap financing (and therefore sometimes subsidy layering) (Machack, 2014) seems routine after thirty years of operation, at the time the identification of this connection was quite innovative, and has contributed to the discussion of the LIHTC program and housing finance generally ever since (Schwartz, 2014).

As time wore on, ground-level advocates such as Local Initiatives Support Council President Paul Grogan, who advocated the LIHTC program as “the most successful federal housing

program in history,” spent much of 1991 and 1992 drawing media attention to LIHTC’s successes, leading to positive pieces in major papers including the *New York Times*, *Wall Street Journal*, and many others (Erickson, 2006). After this positive press and the 1992 election, which resulted in a Democratic President and Congress, LIHTC was finally made permanent through 1993’s Omnibus Budget Reconciliation Act (GovTrack, 2016d). After a rocky half-decade, LIHTC was here to stay, and the jump in the body of literature in the eight years before and after it was made permanent is significant (per a Google Scholar search, 60 versus 380 LIHTC-centered articles).

In contrast to Stegman’s (1991) more theoretical piece criticizing some of the policy underpinnings of the LIHTC program, the other subsidy-layering study of this early period is brief and implementation-oriented. Hykan (1994, 4) addresses the causes of financing gaps, such as high development costs in a project area, acknowledges the complexities of LIHTC finance, and outlines some of the “novel financing techniques” (a more generous term that is nonetheless reminiscent of Stegman’s derisive “creative finance”) employed to close the gap, as well as the major players, their motivations, and strategies to resolve conflict and gather enough sources of funding in order to complete the deal. This brief article is important as the first known instance of a research product intended to assist practitioners (as is now the case with a significant portion of the LIHTC literature being generated, particularly outside of formal journals).

With the hurdle of permanence finally cleared, financial and political support for the LIHTC program rapidly consolidated. Credit prices rose in response to the new certainty of LIHTC as a long-term investment option, which increased program efficiency. LIHTC operated normally for the next several years, and when it was next modified in 2000, its power was only increased. Not only did 2001’s Consolidated Appropriations Act directly increase the per-capita allocation amount from \$1.25 to \$1.75 over two years, it also tied the per-capita allocation to inflation, which has resulted in the program’s current \$2.35-per-person allocation (Govtrack, 2016e;

Novogradac, 2016a). This expansion speaks to the confidence and prestige the LIHTC program cultivated in the decade since it had been originally scheduled to sunset.

2000 also saw the two latest works on subsidy layering with LIHTC. The first is McClure's (2000) practical analysis of LIHTC developments in Missouri to understand the subsidy layering profiles of properties from the first ten years of the program. This study is significant not only because it is the first piece in the body of LIHTC subsidy layering literature to study actual completed projects, but also because it examines properties ranging in time from the earliest, founding years through significantly after the LIHTC program's establishment, with most of its major programmatic tweaks accomplished and its implementers familiar and efficient with its operation. McClure sought to address some of the key criticisms of the LIHTC, complaints that largely persist to this day: that the program is unnecessarily complex and funnels subsidy not directly to low-income persons, but rather to developers (a point that McClure cites as being from Stegman [1991]). McClure (2000) found that the primary cause of the high level of subsidy layering observed – an average of 22% of funding in each project – was equity investors finding investing in LIHTC properties *themselves* (as opposed to the credits) unappealing. This circumstance meant, he argued, that syndication proceeds (the value that 'selling' LIHTC credits brings) replace part of the *debt* that would normally be required for a multifamily project (missing due to the worse debt coverage and loan-to-value ratios of affordable properties) and also weaken the equity-gathering capacity of the project without themselves offsetting the loss. While LIHTC's capacity to generate syndication proceeds has improved with its credit pricing, the fundamental mismatch persists and is an important insight into the causes of subsidy layering in LIHTC projects. Also interesting in this piece is McClure's observation that about a third of projects had two layers of subsidy, and another third three layers – substantially reduced from the five-layer average of Stegman's (1991) sample.

The second LIHTC subsidy layering article from 2000, and the most recent such study in the literature, is that of Quercia, Rohe, and Levy (2000). Another study of operating projects, this

review of sources of financial viability for 36 nonprofit-developed LIHTC properties is even more clearly grounded in Stegman's (1991) piece, terming it "seminal" and framing the new study as "extend[ing] Stegman's work by examining the impacts of creative finance over time" (Quercia et al., 2000, 943). Contrary to Stegman's gloomy outlook on creative finance, however, the authors found that the same complex funding structures that complicated, delayed, and cost-inflated LIHTC projects during their initial deal-making experienced both drawbacks (like complicated reporting requirements and difficulty in changing policies) and benefits (such as long-term relationships between organizations, improved community acceptance of the property, and enhanced technical skills of nonprofit developers' staff) in the long term. One limitation of this study is its sole focus on nonprofit affordable housing developers, which produce deals with greater subsidy layering than for-profit-developed projects (see Hebert, Heintz, Baron, Kay, & Wallace, 1993). However, the article still offers a number of insights, "rais[ing] the question of whether it is possible to develop a coherent national housing policy that relies on creative finance, not by default, but by design," and asking whether LIHTC can serve as that policy (Quercia et al., 2000, 945). The authors also make the point that "no one has examined the transaction costs in low-income housing developments financed by the traditional federal government-centered model relative to those relying on creative finance" up to that point, nor afterwards as far as the literature available reveals (Quercia et al., 2000, 946). In the course of their work, the authors argue that those high short-term transaction costs are worthwhile in that they yield the long-term benefits mentioned above, and recommendation that national housing policy be explicitly designed with the necessity of creative finance in mind, rather than merely allowing insufficient federal funding to make such subsidy layering de facto housing policy.

For the majority of the 2000s, there were few major developments in LIHTC's legislative history and no research into subsidy layering in LIHTC, perhaps in part due to the thinner debt coverage ratios many state Housing Finance Agencies (HFAs) pursued (making greater leveraging and commercial gap funding sources more acceptable) (Hart, 2016). However, when

the housing bubble burst in 2007 and the rest of the economy crashed along with it, the future of the LIHTC program was left in serious jeopardy. Initially, the federal government attempted to use the LIHTC program to mitigate the disorder housing markets had fallen into, by including provisions within HERA (Housing and Economic Recovery Act of 2008) to expedite project approval, streamline LIHTC mortgage insuring, and loosen certain technical restrictions, as well as increasing LIHTC's budget authority in 2008 and 2009 by 10% and setting a 9% floor for competitive credits (previously close to 7.5%) (GovTrack, 2016g). Unfortunately, despite the confidence in LIHTC these changes suggest, the program itself struggled, to the point of a number of deals approved in 2007 falling through due to developers' inability to sell the credits awarded (Joint Center, 2009), and many in the industry feared the LIHTC program had suffered a fatal blow (Wood, 2009). However, contrary to the panicked predictions of some experts, once freefall was arrested and larger economic markets began to inch towards normality, the LIHTC program eventually self-corrected as well – as is to be expected for a policy with such a market-driven design.

The most significant change to the LIHTC program since HERA came not from the legislature, but rather the judicial branch, in *Texas Department of Housing and Community Affairs v The Inclusive Communities Project, Inc.* (576 No. 13-1371, June 25<sup>th</sup>, 2015). In this case, the Supreme Court ruled that disparate impact claims are cognizable under the Fair Housing Act of 1968, meaning plaintiffs may sue state allocation agencies if they feel the agency's allocation of LIHTC credits produces a disparate impact on a protected population. This heightened scrutiny level is strengthened by HUD's new Affirmatively Further Fair Housing (AFFH) Tool, which gives interested parties a user-friendly, standardized graphical interface to track relevant Census data and create maps to more easily argue a disparate impact case. Unsurprisingly, this has resulted in a variety of new resources and studies, from federal guidance (IRS, 2016a; IRS, 2016b; Garcia-Diaz, 2016) to theoretical explorations (Seicshnaydre, 2017; McArdle, 2015; Connelly, 2016) to practical guides on how LIHTC should

operate in light of these new factors (Eagle, 2017; Miller, Li, Li, & Zheng, 2016; Kao & Immergluck, 2016).

Despite its origins as an ill-liked stopgap consequence of a tenuously related objective, the Low-Income Housing Tax Credit program has grown to be the largest supply-side affordable housing program in the nation and “the sun that all the other [affordable housing] programs revolve[] around,” housing more than 13.3 million Americans over its thirty years (Novogradac, 2016b). The wealth of research the program has accrued further attests to its significance: a Google Scholar search on “LIHTC” returns over 3,000 results, while nearly every major social-science database offers several dozen more. This makes the relative paucity of subsidy-layering studies even more jarring. Clearly, this is a significant gap in the literature, particularly given the changes that the Great Recession and LIHTC’s foundering therein wrought on many HFAs’ allocation approaches.

While not directly relevant to the LIHTC, there are a few studies on other affordable housing programs that shed some light on the issue of subsidy layering as a gap financing approach. One such study is Hebert, Heintz, Baron, Kay, and Wallace’s (1993) report on nonprofit housing development; in it, the authors discussed the role of subsidy layering (often a necessity for tight-margined nonprofit operations) in increasing both the administrative costs in completing the “deal” and the risk of project default. Referencing the above report, Koebel’s (1998) book on nonprofit housing echoed these findings through a variety of both survey and case studies by various authors. Likewise, Siglin’s (2008) much more recent survey of the intersection of FHA, HUD, and LIHTC programs echoed a near laundry-list of complaints on timeline mismatch, administrative costs, and technical incongruities. The issue of subsidy layering is one that has gotten more official attention within HUD-governed programs such as HOME and Project-Based Vouchers (PBVs). HOME receives regular updates to its policies on subsidy layering and underwriting, including a requirement that the participating jurisdiction re-underwrite any deal including LIHTC, regardless of the state Housing Finance Agency’s existing

underwriting efforts (HUD, 2015). PBVs have received even more scrutiny, with their already-mandatory Subsidy Layering Review being the subject of both law and internal policy (Reardon, 2010). The PBV rules also make passing mention of the LIHTC program, but both HOME and PBV regulations are sensibly focused on their own programs, leaving articles primarily focused on subsidy layering as a component of LIHTC development to remain scarce. Nor are the difficulties and complexities of subsidy layering between LIHTC and other programs lost on HUD's experts: in the original handbook on combining HOME and LIHTC, HUD (1997, 2, 6, 8, 9) writers describe several deviations from standard rules required to overcome program conflicts and even the much-updated 161-page guidebook issued in 2013 at one point states that "in some instances, in order to comply with the requirements of both programs, it may not be possible to designate a single unit as both HOME- and LIHTC-assisted" (HUD, 2013, 117). Similarly, numerous practitioners have complained of the difficulty and cost of chasing additional subsidies to close the financing gap, and their complicated and sometimes contradictory requirements (Machak, 2014; Siglin, 2008). It is within this context that I undertook the subsequent study of subsidy layering within the LIHTC program, both nationally and in Georgia.

### **Why Study Georgia's LIHTC Experience?**

While HUD does make available a large database of LIHTC properties across the nation, it does not contain the kinds of detailed financial information, such as development budgets, legal costs, and so forth, that are necessary to empirically study the cost impacts of subsidy layering on LIHTC deals. Therefore, to further pursue this question, I went in search of additional data and found Georgia's LIHTC application archive. Georgia's Department of Community Affairs is unique for being the only HFA in the nation to make full Excel files of its prior LIHTC applications publicly available through the internet; these applications are a rich trove of highly detailed project-level financial data spanning the universe of the past twelve years of LIHTC application activity. While a few studies have examined Georgia's LIHTC program previously (Rushing et al., 2015; Sweaney et al., 2006), they have been limited in their

interest examining program impacts within Georgia rather than using Georgia as a case study to examine the LIHTC program nationally. Indeed, Georgia’s LIHTC program on the whole acts as an exemplary case study, suitable for generalization, in three dimensions: its excellent data availability compared to other HFAs, its thorough QAP process and document, and its forward-thinking policy inclusions.

Georgia’s superior data reliability is outlined above -- it offers 758 Excel files complete with sources and uses statements, pro formas, and more for each proposed LIHTC deal for the last twelve years. But rich data are not all Georgia has to offer LIHTC scholars as a case study. To ascertain the relative quality of Georgia’s QAP and the presence of literature-based policy recommendations across QAPs over time, I downloaded the extensive collection of QAPs available from industry website Novogradac & Company, which I then supplemented with careful inspection of each HFA’s website and additional web searches to compile a set of 728 QAP documents from the year 2000 through 2017 for each of the 59 HFAs (58 active HFAs, plus American Samoa) for whom one or more QAPs were available, resulting in 788 state-years of content. As part of this collection process, I also noted the update pattern of the QAPs and the years of QAPs, years of award allocations, and any previous applications available on each HFA’s website. I then employed a specialized program to generate a page length report for each QAP’s PDF document (Table 1).

Table 1. Georgia’s QAP Statistics

	<b>Georgia's Result; Rank of 59</b>	<b>Search Terms</b>
Timeliness: Annual QAP Update	Yes; 42% of HFAs	N/A
Thoroughness: Average Length	105 pages; 5th	N/A
Thoroughness: Competitive Points <sup>a</sup>	Yes; 89% of HFAs	"point"
Transparency: Number of QAPs on own site	1996-2017; 3rd	N/A
Transparency: Years of awards on own site	1997-2016; 22nd	N/A
Transparency: Detailed applications on own site	Only two HFAs, Georgia (12 years) & Texas (8 years), have detailed applications	N/A

a. Note that only QAPs that provided the scoring criteria or clearly referenced them (such as in a named appendix) were included. This figure is for all observed state-years of QAPs.

This analysis revealed that Georgia generates updated QAPs annually, ensuring that the newest results of policy studies are incorporated rapidly and that developers have sharply limited opportunities to unfairly benefit from any “loopholes” that may emerge over time (Hart, 2016), a practice that only 42% of HFAs maintain. Its QAPs are long and highly detailed; at an average of 105 pages, Georgia’s QAP ranks fifth in the nation for length, and is part of the 89% of state-years of QAPs that include detailed competitive points systems to guide developers’ choices. Georgia’s QAP process is also detailed and thorough, with the third-highest number of historical QAPs hosted on its own site (22), accompanied by twenty years of awards results (22nd nationally). All of this, paired with its openness to developer comment and its unique status as one of only two HFAs nationally to offer past applications, means Georgia’s QAPs are timely, thorough, and transparently developed.

For the next stage of my analysis, I used Adobe Acrobat Pro to create a searchable index file from the collected QAP PDF files to be able to efficiently analyze them. I used targeted search terms to find the policies, detailed in Table 2.

Table 2. Georgia’s QAP Policy Elements

	<b>Year GA Adopted; Rank (HFAs with Rank)</b>	<b>Search Terms</b>	<b>Supporting Citations</b>
Poverty De-concentration: High-Amenity Areas	2000; 1st (6)	"amenit", "grocer", "shop", "opportunity", "retail"	Khadduri & Rodda, 2004; Muralidhara, 2006; Khadduri et al, 2006; Khadduri, 2013; Lubell, 2013; Vogelsmeier, 2015; Rushing et al, 2015; National Housing Trust, 2015; Skuzinski et al, 2016; Neville, 2017
Poverty De-concentration: No Local Approval Requirement <sup>a</sup>	2012; 27th (1)	"local government support", "local support", "community support", "letter of support"	Bookbinder et al, 2008; Ellen et al, 2015; Garcia-Diaz, 2016; Spotts, 2016
Poverty De-concentration: Affordable Housing De-concentration	2002; 6th (9)	"concentration", "distribut", "proximity", "distance", "previous"	Bookbinder et al, 2008; Khadduri, 2013; Ellen et al, 2015

Poverty De-concentration: Mixed-Income Development	2000; 1st (5)	"mixed", "market rate"	Spotts, 2016; Smith, 2016
Quality Siting: Location Efficiency / Transit-Oriented Development	2000; 1st (4)	"public transit", "transp", "transit"	TXDCA, 2010; Oppenheimer, 2015; Nedwick and Burnett, 2015; Spotts, 2016; Adkins et al, 2017
Quality Siting: Neighborhood Revitalization <sup>b</sup>	2000; 1st (6)	"revitaliz"	Khadduri & Rodda, 2004; Khadduri, 2013; Spotts, 2016
Accessibility: Affirmative Marketing	2006; 26th (2)	"affirmative", "marketing"	Bookbinder et al, 2008; Haberle, Gayles, and Tegeler, 2012
Accessibility: Supportive Housing	2000; 1st (11)	"supportive", "homeless", "special needs"	Gold, Klugar, & Schwartz, 2006; Bishop & Ng, 2013; Wingren, 2016; Clary, 2017
Long-Term Investment: Green Building	2000; 1st (8)	"green", "energy eff", "sustainab"	Tassos, 2007; Shear, 2008; Spotts, 2016; Madisen et al, 2016
Long-Term Investment: Preservation of / Extended Affordability <sup>c</sup>	2000; 1st (11)	"extended", "preserv"	Nelson & Sorce, 2013; National Housing Trust, 2015; Williams, 2015; Criswell and Guin, 2017
<p>a. Due to difficulty of proving what isn't there, if a phrase appeared in the most recent QAP, the HFA was assumed to have failed this metric. Note that I also included the term "resolution" when confirming the lack of a requirement.</p> <p>b. The original text of the law requires that preference be given to any project that "contributes to a concerted community revitalization plan" (26 U.S.C. § 42). Accordingly, I only considered HFAs to meet this metric if they required something beyond just 'a plan' – that it be an independent plan, that it be a locally-approved plan, that it be in an already-designated zone, etc.</p> <p>c. The original text of the law requires that preference be given to "projects obligated to serve qualified tenants for the longest periods" (26 U.S.C. § 42). Accordingly, I only considered HFAs to meet this metric if they offered specific incentives, above and beyond this general precept, for longer affordability (such as point schedules), and/or if they explicitly incent preserving existing affordable housing (such as through set-asides, competitive points, etc).</p>			

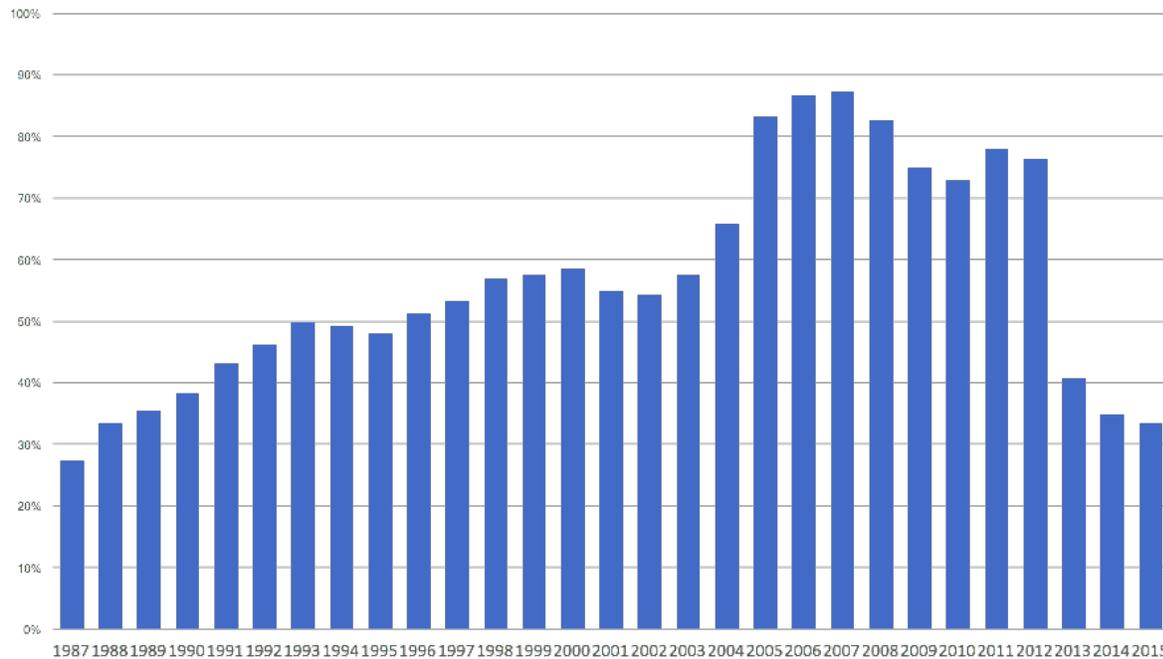
In completing this analysis, I found that not only are the process and specifications of Georgia's QAP among the top tier of HFAs nationwide, its contents are also forward-thinking and in general highly compliant with key research-based recommendations. Georgia was one of the first recorded HFAs to include seven of the ten key policy elements identified by the literature, by providing incentives for: high-amenity areas, mixed-income development, location-efficient/transit-oriented development, substantive neighborhood revitalization, supportive housing, green/sustainable building practices, and preservation of affordable housing for the longest possible time. For the remaining three initiatives, Georgia was either an early mover (affordable housing de-concentration), or in the middle of the pack (removing a local approval requirement and requiring affirmative marketing, 27th place each). Given the high quality of Georgia's QAP process and document as demonstrated by these QAP analyses, Georgia

serves as a good case study to suggest the nation-wide relationship of subsidy layering and legal costs.

### **Data and Methodology: Two Datasets, One Question**

This paper relies on two separate but related data sources: the national LIHTC database, and a Georgia-specific application database. The national LIHTC database is a resource provided by HUD, available at <https://lihtc.huduser.gov/> and spanning 1987 through 2015. This database features a universe of 43,092 properties that have been placed in service, with 96 fields of ownership, locational, and project information for each. However, its data are notoriously incomplete; only 54% of properties include the allocation amount of the project, with absences skewed towards older allocation years (see Figure 1) when the program was unfamiliar to the Housing Finance Agencies implementing it and reporting standards were not yet firmly established. Additionally, 7% of properties lacked allocation year information. Even for the subset with both year and allocation information, many of the other fields suffer from other gaps and inaccuracies, making any rigorous analysis of this dataset potentially perilous. However, the richness of even limited subsets of this dataset make it worthwhile for its potential to suggest relationships and trends that merit further exploration.

Figure 1. Histogram of the Percent of Allocation Information Present per Year



This paper’s research question depends heavily on allocation and other financial mechanisms; observations without an allocation amount could not be used. However, as the histogram above shows, the absences are non-random, following a clear annual pattern. In order to mitigate this issue, I used two extracts of the data: one from 1996 – 2012 (allocation present in more than 50% of observations) and a stricter 2005 – 2012 period (completeness above 70%). In order to further prepare the data, I renamed and recoded the relevant fields to be more intuitive and in some cases to simplify the information present (such as collapsing categories with very few observations). Most notably, I restricted the Layers categorical variable to 0, 1, and 2 due to the very small population of properties with more than two layers; these were collapsed into the “2” category. I inflation-adjusted all dollar amounts to reflect 2016 dollar values and calculated the amount of LIHTC dollars going to each unit of a project as LIHTCDol\_Unit.

The dependent variable for this dataset was LIHTCDol\_Unit (ranging from \$9.84 to \$745,847.60), as an approximation of the total project costs (White and England-Joseph, 1997), which additional subsidy layers should increase. To prevent project characteristics from skewing the results, I also included location (rural/urban), construction type (new construction/other),

population targeted (family/other), developers' nonprofit status (yes/no) and the year as control variables. Finally, I performed the Breusch-Pagan/Cook-Weisberg Test for Heteroscedasticity, and corrected for it with robust standard errors. My results were as follows. While I initially tested the full period of usable data (1996 – 2012), I found that Layers were insignificant and the earlier years did not meaningfully improve the predictive power of the model. Therefore, I proceeded to analyze just the period from 2005 – 2012 (Table 3).

Table 3. Regression Results for National LIHTC, 2005 – 2012

<b>LIHTCDol_Unit</b>	<b>Beta</b>	<b>Robust Std. Err.</b>	<b>t</b>	<b>Sig.</b>	<b>[95% Conf. Interval]</b>
Rural	3120.53	1059.667	2.94	0.003	1043.327, 5197.732
Type	-7021.993	526.5168	-13.34	0.000	-8054.093, -5989.893
Target	295.1938	257.7694	1.15	0.252	-210.0962, 800.4839
Nonprofit	60.17769	490.7035	0.12	0.902	-901.7191, 1022.075
Layers: 1	932.5629	624.056	1.49	0.135	-290.737, 2155.863
Layers: 2	381.5295	966.7377	0.39	0.693	-1513.509, 2276.568
Year: 2006	1150.902	504.4768	2.28	0.023	162.0057, 2139.797
Year: 2007	1402.514	683.9933	2.05	0.040	61.72214, 2743.305
Year: 2008	3843.665	718.4517	5.35	0.000	2435.327, 5252.003
Year: 2009	4843.634	628.161	7.71	0.000	3612.287, 6074.981
Year: 2010	6005.427	654.6036	9.17	0.000	4722.246, 7288.608
Year: 2011	5252.946	1059.905	4.96	0.000	3175.277, 7330.614
Year: 2012	9108.171	1697.272	5.37	0.000	5781.11, 12435.23
Constant	12107.05	444.0292	27.27	0.000	11236.65, 12977.45

Layers were still insignificant in this iteration of the model, which has a meager  $R^2$  of 0.0341 – indicating that the factors selected are not, in fact, predictive of the LIHTC expenditure per unit as conventional wisdom would hold. Combined, these facts suggested a discrepancy between the data found here and the developer view of additional subsidy layers as disproportionately increasing costs; however, there were clear limitations to this dataset as discussed above, and the dependent variable was only a weak proxy for the increased legal costs predicted by anecdote. Therefore, I explored a richer (if more geographically limited) dataset to further investigate this question: the Georgia LIHTC application archive.

As mentioned above, Georgia’s Department of Community Affairs is unique for being the only HFA in the nation with full Excel files of prior applications publicly available through the internet. At the time of writing found at [http://www.dca.ga.gov/housing/HousingDevelopment/programs/OAH\\_GORACoreApps.asp](http://www.dca.ga.gov/housing/HousingDevelopment/programs/OAH_GORACoreApps.asp), these documents span from 2005 to 2016 and represent both successful and unsuccessful applications for funding, a population of 758 total applications. These applications include detailed project information, such as development entities, project specifications, sources and uses of funding, pro formas, and more. From these files, I constructed a database of LIHTC applications in Georgia for the past 12 years. From the legal costs and development budgets, I constructed the dependent variable PerLegalTot, the fraction that legal costs represent of the total development budget, which ranged from 0.2% to 5.8% of all expenses. After coding the categorical variables, I selected an initial set of possible independent variables that the data itself and/or the literature on LIHTC financing suggested might be relevant to the total development budget or its legal costs, as shown in Table 4, as well as the key Layers variable of interest, discussed at length in the previous literature review. I then performed descriptive statistics on these potential variables to determine which appeared to have meaningful differences of legal fees between categories.

Table 4: Control Variables Considered to Potentially Impact Legal Expenses

Variable	Definition	Reason	Support
QCT_DDA	QCT/DDA status is a statutorily-defined quality (by HUD) based on need	This status makes projects eligible for a “basis boost” (increase in maximum credits awarded) of up to 30%, based on area cost and/or need.	White & England-Joseph, 1997; Lang, 2012; HUD, 2017
Rural	Rural or Urban location as defined by the USDA	Rural areas tend to have both lower construction costs and to have policy-based set-asides.	Gustafson & Walker, 2002; Mitchell & McKinzie, 2009
Type	Construction type: New Construction or Other (includes adaptive reuse, rehabilitation, and acquisition-rehabilitation)	Deals involving existing structures -- especially if there is to be an ownership change -- are significantly more complicated and require additional legal expertise.	White & England-Joseph, 1997; McClure, 2017
Nonprofit	Developer is a nonprofit (or is working closely with a nonprofit partner)	Nonprofit developers have historically had to rely on more creative (and complicated) financing approaches.	England-Joseph, 1999; McClure, 2000

Award	Whether or not an application received an allocation (award)	I wanted to be certain that there was not something systematically deficient about the financials of projects that did not receive awards.	LIHTC's design means only the best deals receive funding awards.
Num_Units	The number of units in a property	Larger properties require more expensive construction methods.	Azoff, 2009; Braunstein, 2016
PerMarketRate	Percent of market-rate units out of all units in the property	The presence of market rate units might complicate the project's development or change its placement.	HUD, 2003
Target	The population targeted by the proposed development: Family, Housing For Older Persons, or Other	Housing developed for different populations may require different and/or more amenities, and may also affect location and therefore cost.	White & England-Joseph, 1997; Gustafson & Walker, 2002; Newman & Schnare, 1997
DevExperience	Developer experience, as measured through the total number of applications submitted	More experienced developers might have standing agreements and/or in-house lawyers, lowering costs.	Developer experience is a common QAP threshold factor.
Year	The year of application	This variable reflects both programmatic changes within Georgia's administration of LIHTC and larger market changes, such as the crash	Hart, 2016; Joint Center, 2009

Based on the descriptive statistics, I believed that year, nonprofit, location, construction type, number of units, population targeted, and layers were likely to be the most relevant. Out of an abundance of caution, I also included developer experience and award status in the final model, since their potential to matter was theoretically strong and could have a large effect on the results if significant. I again tested for heteroscedasticity and corrected it via robust standard errors. The results of this analysis are in Table 5 below.

Table 5. Regression Results for Georgia LIHTC, 2005 – 2016

PerLegalTot	Beta	Robust Std. Err.	t	Sig.	[95% Conf. Interval]
Rural	-0.0014317	0.0006108	-2.34	0.019	-0.0026308, -0.0002327
Type	0.0008384	0.0006163	1.36	0.174	-0.0003716, 0.0020484
Target: HFOP	-0.0015342	0.0004378	-3.5	0.000	-0.0023937, -0.0006747
Target: Other	0.0012882	0.0007533	1.71	0.088	-0.0001906, 0.002767
Nonprofit	0.0006473	0.0004737	1.37	0.172	-0.0002826, 0.0015772
Num_Units	-0.0000406	8.42E-06	-4.82	0.000	-0.0000572, -0.0000241
Layers: 1	0.0015175	0.0004614	3.29	0.001	0.0006116, 0.0024234
Layers: 2	0.0016816	0.0008111	2.07	0.038	0.0000893, 0.0032739
Year: 2006	-0.0004166	0.0010083	-0.41	0.680	-0.002396, 0.0015628

Year: 2007	0.0009375	0.0012941	0.72	0.469	-0.001603, 0.003478
Year: 2008	0.000693	0.0010062	0.69	0.491	-0.0012823, 0.0026684
Year: 2009	-0.0001841	0.0010244	-0.18	0.857	-0.0021952, 0.001827
Year: 2010	0.0006552	0.0009933	0.66	0.510	-0.0012948, 0.0026052
Year: 2011	0.0027067	0.0010879	2.49	0.013	0.0005709, 0.0048426
Year: 2012	0.0013746	0.001104	1.25	0.213	-0.0007927, 0.003542
Year: 2013	-0.000913	0.0009769	-0.93	0.350	-0.0028309, 0.0010049
Year: 2014	-0.000876	0.0010657	-0.82	0.411	-0.0029682, 0.0012162
Year: 2015	-0.0014873	0.0010058	-1.48	0.140	-0.003462, 0.0004873
Year: 2016	-0.00155	0.0009594	-1.62	0.107	-0.0034335, 0.0003334
DevExperience	-0.0000155	0.0000233	-0.66	0.507	-0.0000612, 0.0000303
AwardStatus	0.0004339	0.0004149	1.05	0.296	-0.0003807, 0.0012485
Constant	0.0166088	0.0013349	12.44	0.000	0.013988, 0.0192295

These results revealed several notable differences compared to those from the roughly similar national LIHTC regression (2005-2012). Immediately noticeable was the improved explanatory power of the Georgia model, with an  $R^2$  of 0.1475 (versus the national's 0.0341), which while not exceptional was still suitable for a small population with high variance (Moksony, 1990; Gould, 2003; Ford, 2015). Type became insignificant and Rural became less significant, while one of the targeting options (Housing for Older Persons, as compared to Family) became significant and Nonprofit status became much less insignificant (0.172, versus the national's 0.902). None of the Year results were significant, suggesting the higher-quality data avoided the quality-based noise driving Year significance in the national dataset. DevExperience and AwardStatus (only available in the Georgia dataset) were confirmed as not being significant, as expected, while Num\_Units was highly significant, suggesting that the unreliability of this field (which drives the dependent variable LIHTCDol\_Unit) in the national dataset may be contributing to that model's poor explanatory power.

Most importantly, Layers showed considerable statistical significance, in stark contrast to the national model and more in line with anecdote-based expectations. However, while the significance was high, the effect size was not. For the 2005-2012 national dataset, the LIHTCDol\_Unit dependent variable ranged from \$13.61 to \$745,847.60 with a standard

deviation of \$24,361.23. For the 2005-2016 Georgia dataset, the PerLegalTot dependent variable ranged from 0.00203 to 0.0581796 with a standard deviation of 0.0058593. This means that the effect size (\$932.56 for one layer, \$381.53 for two or more) suggested by the national dataset was 0.038 and 0.016 standard deviations, respectively. The Georgia effect size (0.0015 for one layer, 0.0017 for two or more), by contrast, was 0.26 and 0.29 standard deviations, respectively. This is a much more significant effect in terms of the layers themselves, especially when compared to the national dataset, but ultimately, adding one layer only resulted in a 0.15 percentage point increase in legal fees as a percentage of the total budget, and the impact of an additional layer beyond the first was only 0.02 percentage points. Clearly, the standard narrative on the subsidy layering-legal cost relationship and the data disagree.

### **Limitations, Conclusions, and Opportunities for Future Research**

There are certainly limitations to the claims that can be made based on the data employed here. While analysis of Georgia's QAPs shows that it is an excellent case-study HFA from within the LIHTC realm, it is entirely possible that there are other factors, such as economic position or state laws, that make Georgia non-representative for LIHTC's operation across the nation. The Georgia model's relatively meager  $R^2$  may also reflect some cost-explaining factor not detectable with existing data, such as changes in construction costs over time or between building sites, which even commercial data sources do not closely track (Grant, 2014; Gordian, 2017). Simultaneously, the low quality of the data available in the national LIHTC database required the use of a very small subset of observations (ultimately, only 20% of the whole), and the database's tendency towards errors and nonrandom omissions weaken its ability to shed light on patterns in LIHTC practice. While the consonance of findings between the national-level analysis and that of Georgia allay these concerns somewhat, suggesting that the two datasets are indeed pointing in the same general direction, the strength of the claim of Georgia's representational capacity must remain mitigated nonetheless.

Future studies could use the eight years of applications that Texas makes available to build a LIHTC application database parallel to the one I have constructed for Georgia in order to perform similar analyses. Texas has a QAP that, while not updated annually, is fairly long (average of 69 pages), detailed (has explicit points), highly accessible (19 years of QAP and 18 of allocations on the HFA site), and policy-forward, with first or second-place rankings for all policy criterion other than Local Government Support (still required). Texas's HFA has also been the focus of a landmark Supreme Court case (*Texas Department of Housing and Community Affairs vs The Inclusive Communities Project Inc*, 2015) that found disparate impact claims cognizable under the Fair Housing Act of 1968 and challenged HFAs to rethink their QAP inclusions. These factors mean that Texas might be a particularly intriguing case to explore, particularly when contrasted and compared with Georgia's results for the same period. Ideally, future researchers might be able to gain access to even better data sources, such as LIHTC applications in states that do not currently make them available and/or completed project financials, in order to get an even more reliable picture of the nation-wide relationship between subsidy layering and legal expenditures for LIHTC deals. Finally, the national database could be cleaned and its missing and inaccurate fields corrected, making national-level analyses significantly more reliable than they currently can be.

Nevertheless, this current study does offer some potentially important insights to the field of LIHTC scholarship. The national data suggests that there may be no statistical relationship at all between subsidy layering and the total costs of a project. The Georgia data refine this finding and show that, in accordance with the conventional wisdom of affordable housing developers and the affordable housing industry, there is a positive relationship between layers and legal expenses -- increasing the layers of subsidy does increase the amount of legal expenditures on a LIHTC deal, all else being equal. However, these findings also show that the absolute amount of the increase is very small, particularly when moving from one to more-than-one layer atop the constant LIHTC substrate. This suggests the complication of subsidy layering described is at

least not bearing itself out in the legal fees and costs deals require, and the precise amount of these costs vary mostly for unrelated reasons, such as the population targeted, the rural nature of the property, and other factors -- a finding that is harmonious with the national-level data's lack of support for a layers-cost relationship. When the datasets are combined, this research suggests that developers worried about rising legal expenses may wish to look elsewhere than subsidy layering to rein them in, and that, other hesitations about "creative financing" aside, the legal complication component of the argument against subsidy layering does not seem to have a strong foundation in the data.

## References

- 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>
- Albright, L., Derickson, E. S., & Massey, D. S. (2013). Do affordable housing projects harm suburban communities? Crime, property values, and taxes in Mount Laurel, NJ: affordable housing projects. *City & Community*, 12(2), 89–112. <https://doi.org/10.1111/cico.12015>
- Aurand, A., Emmanuel, D., Crowley, S., Errico, E., Leong, G. M., & Rodrigues, K. (2016). *The affordable housing GAP analysis 2016*. National Low Income Housing Coalition. Retrieved from [http://nlihc.org/sites/default/files/Gap-Report\\_print.pdf](http://nlihc.org/sites/default/files/Gap-Report_print.pdf)
- Azoff, R. (2009, July 1). Multifamily developers turn to wood-frame construction to cut costs. *Multifamily Executive*. Retrieved from [http://www.multifamilyexecutive.com/design-development/construction/multifamily-developers-turn-to-wood-frame-construction-to-cut-costs\\_o](http://www.multifamilyexecutive.com/design-development/construction/multifamily-developers-turn-to-wood-frame-construction-to-cut-costs_o)
- Baber, J. (2014). Thank you sir, may I have another: The issue of the unsustainability of low income housing tax credits and proposed solutions. *University of Baltimore Journal of Land and Development*, 4(1), 39–57.
- Baum-Snow, N., & Marion, J. (2009). The effects of low income housing tax credit developments on neighborhoods. *Journal of Public Economics*, 93(5–6), 654–666.  
<https://doi.org/10.1016/j.jpubeco.2009.01.001>
- Beard, H., & Carnahan, B. (2011). Living in affordable housing and duration of tenure: Do older adults stay in low-income housing tax credit projects as they age? *Journal of Housing For the Elderly*, 25(2), 142–158. <https://doi.org/10.1080/02763893.2011.571089>
- Becker. (2015). *Best practices to reduce the cost of affordable housing*. University of Minnesota Center for Urban and Regional Affairs; Housing Justice Center.

- Bishop, C., & Ng, K. (2013). *Working with state housing agencies to improve survivors' access to and retention of lihtc housing* (p. 77). National Housing Law Project.
- Blanco, A. G., Kim, J., Ray, A., Stewart, C., & Chung, H. (2015). Affordability after subsidies: Understanding the trajectories of former assisted housing in Florida. *Housing Policy Debate*, 25(2), 374–394. <https://doi.org/10.1080/10511482.2014.941902>
- Bookbinder, S., Buchanan, A., Daniel, T., Hooks, J., Parker, S., & Tegeler, P. (2008). *Building opportunity: Civil rights best practices in the Low Income Housing Tax Credit Program*. Poverty & Race Research Action Council. Retrieved from <http://www.prrac.org/pdf/2008-Best-Practices-final.pdf>
- Boston, T. D. (2005). Environment matters: the effect of mixed-income revitalization on the socio-economic status of public housing residents: A case study of Atlanta. *Working Paper*.
- Braunstein, L. (2016, November 16). Increased use of wood, reduced parking may reduce multifamily construction costs. *Urban Land*. Retrieved from <https://urbanland.uli.org/economy-markets-trends/increased-use-wood-reduced-parking-may-reduce-multifamily-construction-costs/>
- Bray, T., Galvan, A., & Mokuria, S. (2012). *The QAP as policy lever* (p. 24). The Institute for Urban Policy Research at The University of Texas at Dallas.
- Brophy, P., & Smith, R. (1997). Mixed-income housing: Factors for success. *Cityscape*, 3(2).
- Brueggeman, W. B., & Fisher, J. D. (2011). *Real estate finance and investments* (14th ed). New York: McGraw-Hill Irwin.
- Burman, L. (1992). *The cost-effectiveness of the low-income housing tax credit compared with housing vouchers* (CBO Staff Memorandum). Congressional Budget Office.
- Capps, K. (2016, April 4). How the federal government plans to stop the “worst-case” housing crisis. *CityLab*. Retrieved from <http://www.citylab.com/housing/2016/04/hud-launches-the-national-housing-trust-fund-to-support-extremely-low-income-renters/476817/>

- Case, K. E. (1991). Investors, developers, and supply-side subsidies: How much is enough? *Housing Policy Debate*, 2(2), 341–356.
- CBO. (2015). *Federal housing assistance for low-income households*. Congressional Budget Office. Retrieved from <https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/reports/50782-lowincomehousing-onecolumn.pdf>
- CBPP. (2017, March 1). Policy basics: Project-based vouchers. Center on Budget and Policy Priorities. Retrieved from <http://www.cbpp.org/research/housing/policy-basics-project-based-vouchers>
- Chicago. (2015, 13). 2015 ARO enhancements: Summary. City of Chicago. Retrieved from [https://www.cityofchicago.org/content/dam/city/depts/dcd/general/housing/ARO\\_Enhancements\\_Summary.pdf](https://www.cityofchicago.org/content/dam/city/depts/dcd/general/housing/ARO_Enhancements_Summary.pdf)
- Clary, A. (2017). *Federal and state collaboration to improve health through housing* (p. 21). National Academy for State Health Policy.
- Collinson, R., Ellen, I. G., & Ludwig, J. (2015). *Low-income housing policy* (No. w21071). Cambridge, MA: National Bureau of Economic Research. <https://doi.org/10.3386/w21071>
- Connolly, B. (2016). Promise unfulfilled? Zoning, disparate impact, and affirmatively furthering fair housing. *The Urban Lawyer*, 48(4), 785–837.
- Cook, J., Mitchell, D., & McCarthy, B. (2007). *Cost/benefit analysis of the Missouri Low-Income Housing Tax Credit program*. Missouri Housing Development Commission.
- Criswell, B., & Guin, A. (2017, May 15). Why preserving affordable housing can be more important than building it. *International Center for Appropriate and Sustainable Technology*. Retrieved from <http://www.icastusa.org/why-preserving-affordable-housing-is-more-important-than-building-it/>
- CTCAC. (2014). *Release of the 2014 California affordable housing cost study*. California Tax Credit Allocation Committee. Retrieved from [http://www.housingfinance.com/finance/california-releases-affordable-housing-cost-study\\_o](http://www.housingfinance.com/finance/california-releases-affordable-housing-cost-study_o)

- Cummings, J., & DiPasquale, D. (1999). The Low Income Housing Tax Credit: An analysis of the first ten years. *Housing Policy Debate*, 10(2), 251–307.
- Danforth, J. (2006). *Faith and politics: How the “moral values” debate divides america and how to move forward together*. New York: Viking.
- Danter. (2016). How are LIHTC rents determined. Retrieved from <http://www.danter.com/taxcredit/rents>
- 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>
- DCA. (2017). Qualified Allocation Plans, policy guides, application manuals and related documents. Retrieved from <http://www.dca.state.ga.us/housing/HousingDevelopment/programs/OAHplansGuidesManuals.asp>
- Deng, L. (2005). The cost-effectiveness of the low-income housing tax credit relative to vouchers: Evidence from six metropolitan areas. *Housing Policy Debate*, 16(3–4), 469–511. <https://doi.org/10.1080/10511482.2005.9521553>
- Deng, L. (2007). Comparing the effects of Housing Vouchers and Low-Income Housing Tax Credits on neighborhood integration and school quality. *Journal of Planning Education & Research*, 27(1), 20–35. <https://doi.org/10.1177/0739456X07301467>
- Deng, L. (2011a). Building affordable housing in cities after abandonment: The case of Low-Income Housing Tax Credit development. *CLOSUP Working Paper Series*, 31.
- Deng, L. (2011b). 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>
- Deng, L. (2011c). The external neighborhood effects of Low-Income Housing Tax Credit projects built by three sectors. *Journal of Urban Affairs*, 33(2), 143–166. <https://doi.org/10.1111/j.1467-9906.2010.00536.x>

- Desai, M., Dharmapala, D., & Singhal, M. (2008). *Tax incentives for affordable housing: The Low Income Housing Tax Credit* (No. w14149). Cambridge, MA: National Bureau of Economic Research. <https://doi.org/10.3386/w14149>
- Di, W., & Murdoch, J. C. (2013). The impact of the Low Income Housing Tax Credit program on local schools. *Journal of Housing Economics*, 22(4), 308–320. <https://doi.org/10.1016/j.jhe.2013.10.002>
- Dillman, K.-N., Horn, K. M., & Verrilli, A. (2017). The what, where, and when of place-based housing policy's neighborhood effects. *Housing Policy Debate*, 27(2), 282–305. <https://doi.org/10.1080/10511482.2016.1172103>
- DiPasquale, D., Fricke, D., & Garcia-Diaz, D. (2003). Comparing the costs of federal housing assistance programs. In *Economic Policy Review*, (Vol. 9 (2)). Retrieved from <https://pdfs.semanticscholar.org/9b92/d1564ab7645e631bcd60650b8ad4b829e697.pdf>
- Eagle, S. (2017). Conflation, intractability and affordable housing. *Fordham Urban Law Journal*, 44.
- Edmiston, K. (2015). *Low-Income Housing Tax Credit developments and neighborhood property conditions*. Federal Reserve Bank of Kansas City.
- 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.
- Ellen, I. G., Horn, K., & O'Regan, K. (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., 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>
- England-Joseph, J. (1999). *Reasons for cost differences in housing built by for-profit and nonprofit developers* (No. GAO/RCED-99-60). Government Accountability Office. Retrieved from <http://www.gao.gov/assets/230/226964.pdf>

- 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. (2017). Difficult Development Areas and the supply of subsidized housing. *Regional Science and Urban Economics*, 64, 68–80.
- Eriksen, M. D., & Rosenthal, S. S. (2007). *Crowd out, stigma, and the effect of place-based subsidized rental housing*. Syracuse University Department of Economics and Center for Policy Research.
- Erickson, David. 2006. "Community Capitalism: How Housing Advocates, the Private Sector, and Government Forged New Low-Income Housing Policy, 1968–1996." *Berkeley Program on Housing and Urban Policy Working Paper*, # W04-006. July 7. <http://escholarship.org/uc/item/4db7m9x7>
- Finkel, M., Hanson, C., Hilton, R., Lam, K., & Vandawalker, M. (2006). *Multifamily properties: Opting in, opting out and remaining affordable*. U.S. Department of Housing and Urban Development.
- Ford, C. (2015, October 17). Is r-squared useless? [University]. Retrieved from <http://data.library.virginia.edu/is-r-squared-useless/>
- Freedman, M., & McGavock, T. (2015). Low-income housing development, poverty concentration, and neighborhood inequality: Low-income housing development. *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(2–3), 115–131. <https://doi.org/10.1016/j.jue.2011.04.001>
- Freeman, L., & Rohe, W. (2000). Subsidized housing and neighborhood racial transition: An empirical investigation. *Housing Policy Debate*, 11(1), 67–89. <https://doi.org/10.1080/10511482.2000.9521363>
- Funderburg, R., & MacDonald, H. (2010). Neighbourhood valuation effects from new construction of Low-income Housing Tax Credit projects in Iowa: A natural experiment. *Urban Studies*, 47(8), 1745–1771. <https://doi.org/10.1177/0042098009356122>

- Furman Center. (2012). *What can we learn about the Low-Income Housing Tax Credit program by looking at the tenants*. Furman Center for Real Estate & Urban Policy at New York University.
- GAO. (2001). *Federal housing programs: What they cost and what they provide*. General Accounting Office. Retrieved from <http://www.gao.gov/assets/100/90783.pdf>
- GAO. (2004). *More accessible hud data could help efforts to preserve housing for low-income tenants* (Report to the Committee on Financial Services, House of Representatives No. GAO-04-20). General Accounting Office. Retrieved from <http://gao.gov/assets/250/241215.pdf>
- Garcia-Diaz, D. (2016). *Low-Income Housing Tax Credit: Some agency practices raise concerns and IRS could improve noncompliance reporting and data collection*. Government Accountability Office. Retrieved from <http://www.gao.gov/assets/680/677056.pdf>
- Garcia-Diaz, D. (2017). *Low-Income Housing Tax Credit: The role of syndicators*. Government Accountability Office.
- Gittlin, M., Greene, M., Matthews, K., & Wells, W. (2016). *2016 QAP analysis green building criteria in Low-Income Housing Tax Credit programs* (pp. 1-26). Global Green USA.
- Gold, S., Klugar, K., & Schwartz, M. (2006, Winter). Making tax credits work for the disabled. *Shelterforce*.
- Gordian, R. (2017). 2017 Construction Cost Indexes-April [Commercial]. Retrieved from <https://www.rsmeans.com/products/books/2017-cost-data-books/2017-construction-cost-indexes-april.aspx>
- Gotham, K. F. (2013). Dilemmas of disaster zones: Tax incentives and business reinvestment in the gulf coast after hurricanes Katrina and Rita. *City & Community*, 12(4), 291–308. <https://doi.org/10.1111/cico.12048>
- Gotham, K. F. (2014). Mechanisms of mutation: Policy mobilities and the Gulf Opportunity (GO) Zone. *Urban Geography*, 35(8), 1171–1195. <https://doi.org/10.1080/02723638.2014.960166>
- Gould, W. (2003, May 15). Re: st: R-squared in panel data models. Retrieved from <https://www.stata.com/statalist/archive/2003-05/msg00336.html>

GovTrack. (2016i). H.R. 1 (111th): American Recovery and Reinvestment Act of 2009. Retrieved from <https://www.govtrack.us/congress/bills/111/hr1>

GovTrack. (2016h). H.R. 1424 (110th): Paul Wellstone Mental Health and Addiction Equity Act of 2007. Retrieved from <https://www.govtrack.us/congress/bills/110/hr1424/text>

GovTrack. (2016j). H.R. 2029 (114th): Consolidated Appropriations Act, 2016. Retrieved from <https://www.govtrack.us/congress/bills/114/hr2029>

GovTrack. (2016d). H.R. 2264 (103rd): Omnibus Budget Reconciliation Act of 1993. Retrieved from <https://www.govtrack.us/congress/bills/103/hr2264>

GovTrack. (2016g). H.R. 3221 (110th): Housing and Economic Recovery Act of 2008. Retrieved from <https://www.govtrack.us/congress/bills/110/hr3221>

GovTrack. (2016b). H.R. 3299 (101st): Omnibus Budget Reconciliation Act of 1989. Retrieved from <https://www.govtrack.us/congress/bills/101/hr3299>

GovTrack. (2016a). H.R. 3838 (99th): Tax Reform Act of 1986. Retrieved from <https://www.govtrack.us/congress/bills/99/hr3838>

GovTrack. (2016f). H.R. 4440 (109th): Gulf Opportunity Zone Act of 2005. Retrieved from <https://www.govtrack.us/congress/bills/109/hr4440>

GovTrack. (2016e). H.R. 4577 (106th): Consolidated Appropriations Act, 2001. Retrieved from <https://www.govtrack.us/congress/bills/106/hr4577>

GovTrack. (2016c). H.R. 5835 (101st): Omnibus Budget Reconciliation Act of 1990. Retrieved from <https://www.govtrack.us/congress/bills/101/hr5835>

Gramlich, E. (2014). HOME Investment Partnerships Program. National Low Income Housing Coalition. Retrieved from <http://nlihc.org/sites/default/files/2014AG-241.pdf>

Gramlich, E. (2016). Low Income Housing Tax Credits. National Low Income Housing Coalition. Retrieved from [http://nlihc.org/sites/default/files/2016AG\\_Chapter\\_5-9.pdf](http://nlihc.org/sites/default/files/2016AG_Chapter_5-9.pdf)

- Grant, P. (2014, December 23). Construction Costs Rising as Economy Improves. *The Wall Street Journal*. Retrieved from <https://blogs.wsj.com/developments/2014/12/23/construction-costs-rising-as-economy-improves/>
- Gustafson, J., & Walker, C. (2002). *Analysis of state Qualified Allocation Plans for the Low-Income Housing Tax Credit Program*. U.S. Department of Housing and Urban Development.
- Haberle, M., Gayles, E., & Tegeler, P. (2012). *Accessing opportunity: Affirmative marketing and tenant selection in the LIHTC and other housing programs* (pp. 1-46). Poverty & Race Research Action Council.
- Hart, L. (2016, August 17). In-person interview with Laurel Hart, Director of Housing Finance at the Georgia Department of Community Affairs.
- Hays, R. A. (2012). *The federal government and urban housing* (3rd ed). Albany, NY: State University of New York Press.
- Hebert, S., Heintz, K., Baron, C., Kay, N., & Wallace, J. (1993). *Nonprofit housing: Costs and funding final report* (No. HC-5889). U.S. Department of Housing and Urban Development. Retrieved from <https://www.huduser.gov/portal/Publications/pdf/HUD-006291.pdf>
- 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>
- Hornick, E. (2010). Stimulus created jobs, controversy, backlash. *CNN*. Retrieved from <http://www.cnn.com/2010/POLITICS/02/17/economic.stimulus.2010/>
- Horowitz, C. (1992). Time to let the Low-Income Housing Tax Credit program expire. *The Heritage Foundation*. Retrieved from <http://www.heritage.org/research/reports/1992/06/time-to-let-the-low-income-housing-tax-credit--program-expire>
- HUD. (1997). *Using HOME with Low-Income Housing Tax Credits*. U.S. Department of Housing and Urban Development.

- HUD. (2003). *Mixed-income housing and the HOME program*. U.S. Department of Housing and Urban Development. Retrieved from [https://portal.hud.gov/hudportal/documents/huddoc?id=19790\\_200315.pdf](https://portal.hud.gov/hudportal/documents/huddoc?id=19790_200315.pdf)
- HUD. (2013). *HOME and the Low-Income Housing Tax Credit guidebook* (Community Planning and Development) (pp. 1–163). U.S. Department of Housing and Urban Development. Retrieved from <http://www1.nyc.gov/assets/hpd/downloads/pdf/LIHTC/HOME-LowIncomeHousing-Tax-CreditGuidebook.pdf>
- HUD. (2015a). Housing Trust Fund. In *Federal Register* (Vol. 80 (20), pp. 5200–44). Retrieved from [https://www.novoco.com/sites/default/files/atoms/files/fedreg\\_013015.pdf](https://www.novoco.com/sites/default/files/atoms/files/fedreg_013015.pdf)
- HUD. (2015b, March 5). Comparison of Housing Trust Fund and the HOME Investment Partnership Program. Retrieved from <https://www.hudexchange.info/resources/documents/Comparison-Chart-HTF-vs-HOME.pdf>
- HUD. (2015c, November). HOME maximum per-unit subsidy limits. Retrieved from <https://www.hudexchange.info/resource/2315/home-per-unit-subsidy/>
- HUD. (2015d, December 22). Requirements for the development and implementation of HOME underwriting and subsidy layering guidelines. HUD. Retrieved from <http://www.afv.pr.gov/wp-content/uploads/2016/07/Annex-W-10-Notice-CPD-15-11-HOME-Underwriting-and-Subsidy-Layering-Guidelines.pdf>
- HUD. (2016a). *Fiscal year 2017 congressional justifications* (pp. 1–626). U.S. Department of Housing and Urban Development. Retrieved from [https://portal.hud.gov/hudportal/documents/huddoc?id=FY\\_2017\\_CJs\\_Combined.pdf](https://portal.hud.gov/hudportal/documents/huddoc?id=FY_2017_CJs_Combined.pdf)
- HUD. (2016b). HOME Investment Partnership Program 2016 summary statement and initiatives. Retrieved from <https://portal.hud.gov/hudportal/documents/huddoc?id=30-FY16CJ-HCAssistance.pdf>
- HUD. (2016c). Housing Trust Fund federal register allocation notice. In *Federal Register*. Retrieved from [http://www.novoco.com/sites/default/files/atoms/files/htf\\_allocation\\_notice\\_050416.pdf](http://www.novoco.com/sites/default/files/atoms/files/htf_allocation_notice_050416.pdf)

- HUD. (2016d). Low-Income Housing Tax Credits. HUDUser. Retrieved from [www.huduser.gov/portal/datasets/lihtc](http://www.huduser.gov/portal/datasets/lihtc)
- HUD. (2016e). National Housing Trust Fund factsheet. Retrieved from <http://www.hudexchange.info/resources/documents/National-Housing-Fund-Trust-Factsheet.pdf>
- HUD. (2016f, April 27). HTF allocation plans, 4-27-16 Transcript. Retrieved from <https://www.hudexchange.info/course-content/2016-htf-allocation-plans/2016-HTF-Allocation-Plans-Transcript-2016-04-27.pdf>
- HUD. (2016g, August 25). Allocating costs and identifying HOME-assisted units in multi-unit projects. Retrieved from <https://www.hudexchange.info/resources/documents/Notice-CPD-16-15-Allocating-Eligible-Costs-and-Identifying-HOME-Assisted-Units-in-Multi-Unit-HOME-Rental-and-Homeownership-Development-Projects.pdf>
- HUD. (2017). Qualified Census Tracts and Difficult Development Areas. Retrieved from <https://www.huduser.gov/portal/datasets/qct.html>
- Hykan, W. (1994). Plugging the gap: The role of subordinate financing in Low-Income Housing Tax Credit transactions. *Journal of Affordable Housing and Community Development Law*, 4(Spring), 4–7.
- Immergluck, D., Carpenter, A., & Lueders, A. (2016). *Declines in low-cost rented housing units in eight large southeastern cities*. Federal Reserve Bank of Atlanta. Retrieved from <https://www.frbatlanta.org/-/media/Documents/community-development/publications/discussion-papers/2016/03-housing-declines-in-low-cost-rented-housing-units-in-eight-large-southeastern-cities-2016-05-10.pdf>
- IRS. (2016a). Notice 2016-77. Internal Revenue Service. Retrieved from <https://www.irs.gov/pub/irs-drop/n-16-77.pdf>
- IRS. (2016b). Revision rule 2016-29. Internal Revenue Service. Retrieved from <https://www.novoco.com/sites/default/files/atoms/files/rr-16-29.pdf>

- Jacobs, D. (2007). *The Low-Income Housing Tax Credit and childhood lead poisoning prevention* (1-49). Centers for Disease Control and Prevention.
- Johnson, A. (2006, June 1). Combining affordable housing programs – pitfalls and minefields. *Affordable Housing Finance*. Retrieved from [http://www.housingfinance.com/news/combining-affordable-housing-programs-pitfalls-and-minefields\\_o](http://www.housingfinance.com/news/combining-affordable-housing-programs-pitfalls-and-minefields_o)
- Johnson, M. (2014, May). *Poverty deconcentration priorities in low-income housing policy: A content analysis of Low-Income Housing Tax Credit (LIHTC) Qualified Allocation Plans*. Virginia Commonwealth University, Richmond, Virginia.
- Joint Center. (2009). The disruption of the Low-Income Housing Tax Credit program: Causes, consequences, responses, and proposed correctives. *What Works Collaborative of the Joint Center for Housing Studies at Harvard University*.
- Jouzaitis, C. (1995, December 20). Axing a tax credit for the poor--is it revenge? *The Chicago Tribune*. Retrieved from [http://articles.chicagotribune.com/1995-12-20/news/9512200201\\_1\\_tax-credit-state-housing-agencies-archer](http://articles.chicagotribune.com/1995-12-20/news/9512200201_1_tax-credit-state-housing-agencies-archer)
- Kao, M., & Immergluck, D. (2016). *AFFH metrics for affordable housing programs: An approach to assessing the spatial distribution of housing subsidies in large jurisdictions in the assessment of fair housing*. Georgia Institute of Technology.
- Kaye, T. (1993). Sheltering social policy in the tax code: The Low-Income Housing Credit. *Villanova Law Review*, 38(4), 871–931.
- Keightley, M. (2013). *An introduction to the Low-Income Housing Tax Credit*. Congressional Research Service. Retrieved from <https://fas.org/sgp/crs/misc/RS22389.pdf>
- Khadduri, J. (2013). *Creating balance in the locations of LIHTC developments*. Poverty & Race Research Action Council. Retrieved from [http://www.prrac.org/pdf/Balance\\_in\\_the\\_Locations\\_of\\_LIHTC\\_Developments.pdf](http://www.prrac.org/pdf/Balance_in_the_Locations_of_LIHTC_Developments.pdf)
- Khadduri, J., Burnett, K., & Rodda, D. (2003). *Targeting housing production subsidies* (pp. 1-111). HUD PD&R.

- Khadduri, J., Buron, L., & Climaco, C. (2006). *Are states using the Low Income Housing Tax Credit to enable families with children to live in low poverty and racially integrated neighborhoods?* Poverty & Race Research Action Council.
- Khadduri, J., Climaco, C., Burnett, K., Gould, L., & Elving, L. (2012). *What happens to Low-Income Housing Tax Credit properties at year 15 and beyond?* U.S. Department of Housing and Urban Development.
- Khadduri, J., & Rodda, D. (2004). *Making the best use of your LIHTC dollars: a planning paper for state policy makers.* U.S. Department of Housing and Urban Development.
- Kleit, R. G. (2005). HOPE VI new communities: Neighborhood relationships in mixed-income housing. *Environment and Planning A*, 37(8), 1413–1441. <https://doi.org/10.1068/a3796>
- Koebel, C. T. (Ed.). (1998). The torturous path of nonprofit development. In *Shelter and society: theory, research, and policy for nonprofit housing* (pp. 220–230). Albany: State University of New York Press.
- Lang, B. (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. (2014). *Housing density and the Low-Income Housing Tax Credit.* Xavier University Department of Economics.
- 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>
- Lens, M. C. (2014). The impact of Housing Vouchers on crime in US cities and suburbs. *Urban Studies*, 51(6), 1274–1289. <https://doi.org/10.1177/0042098013497407>
- Leung, R. (2015). *A primer on Qualified Allocation Plans: linking public health & affordable housing* (p. 28). ChangeLab Solutions.

- Levy, D., McDade, Z., & Dumlao, K. (2010). *Effects from living in mixed-income communities for low-income families*. Urban Institute.
- Ling, D., & Smith, M. (1991). Low Income Housing Tax Credits: Does targeting limit their use to high income counties? *Journal of Housing Economics*, 1, 218–234.
- Lubell, J. (2013). *Reviewing state housing policy with a child-centered lens: Opportunities for engagement and intervention*. Center for Housing Policy.
- Machak, L. (2014, September 18). Gap financing growing concern for advocates. *Affordable Housing Finance*. Retrieved from [http://www.housingfinance.com/finance/gap-financing-growing-concern-for-advocates\\_o](http://www.housingfinance.com/finance/gap-financing-growing-concern-for-advocates_o)
- Malpezzi, S., & Vandell, K. (2002). Does the low-income housing tax credit increase the supply of housing? *Journal of Housing Economics*, 11(4), 360–380. [https://doi.org/10.1016/S1051-1377\(02\)00123-7](https://doi.org/10.1016/S1051-1377(02)00123-7)
- McArdle, A. (2015). *Winfield V. City of New York: Testing the limits of disparate-impact liability after Texas Department of Housing and Community Affairs V. The Inclusive Communities Project, Inc.* *Journal of Affordable Housing and Community Development Law*, 287.
- McClure, K. (1990). Low and Moderate Income Housing Tax Credits: Calculating their value. *Journal of the American Planning Association*, 56(3), 363–369. <https://doi.org/10.1080/01944369008975780>
- McClure, K. (2000). The Low-Income Housing Tax Credit as an aid to housing finance: How well has it worked? *Housing Policy Debate*, 11(1), 91–114. <https://doi.org/10.1080/10511482.2000.9521364>
- 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). Are Low-Income Housing Tax Credit developments locating where there is a shortage of affordable units? *Housing Policy Debate*, 20(2), 153–171. <https://doi.org/10.1080/10511481003738260>

- McClure, K. (2017, August). *Reform of the Low-Income Housing Tax Credit program*. Congressional Testimony presented at the America's Affordable Housing Crisis: Challenges and Solutions, Washington D.C.
- 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>
- Meléndez, E., Schwartz, A. F., & Montrichard, A. de. (2008). Year 15 and preservation of tax-credit housing for low-income households: An assessment of risk. *Housing Studies*, 23(1), 67–87.  
<https://doi.org/10.1080/02673030701730714>
- Miller, M., Li, J., Li, Z., & Zheng, Y. (2016). *The evaluation of the Low Income Housing Tax Credit exploration of allocation in Connecticut, Florida, Maryland, Mississippi and Wisconsin*. Cornell University.
- Mitchell, D., & McKenzie, R. (2009). Analysis of the economic effects of Low Income Housing Tax Credits. *Journal of Business & Economics Research*, 7(8), 61–9.
- Moksony, F. (1990). Small is beautiful. The use and interpretation of R2 in social research. *Szociológiai Szemle*, (Special issue), 130–138.
- Muralidhara, S. (2006). Deficiencies of the Low-Income Housing Tax Credit in targeting the lowest-income households and in promoting concentrated poverty and segregation. *Law and Inequality: A Journal of Theory and Practice*, 24(2), 353–376.
- National Association of Home Builders. (2010). *The economic impact of Low Income Housing Tax Credit development along transit corridors in metro Denver*. National Association of Home Builders.
- National Development Council. (2006). *Real estate finance*.
- National Housing Trust. (2015). *Preservation and opportunity neighborhoods in the Low Income Housing Tax Credit* (p. 35). National Housing Trust.

- Nedwick, T., & Burnett, K. (2015). How can the LIHTC program most effectively be used to provide affordable rental housing near transit? *Cityscape*, 17(2), 113–39.
- Nelson, M., & Sorce, E. (2013). *Supporting permanently affordable housing in the Low-Income Housing Tax Credit program: An analysis of state Qualified Allocation Plans*. National Community Land Trust Network. Retrieved from [http://www.uno.edu/cola/planning-and-urban-studies/docs/NelsonSorceNCLTN\\_LIHTC\\_Final2013.pdf](http://www.uno.edu/cola/planning-and-urban-studies/docs/NelsonSorceNCLTN_LIHTC_Final2013.pdf)
- Neville, B. (2017, May). *Affordable housing in high opportunity areas: An examination of effective Qualified Allocation Plans*. Ball State University, Muncie, Indiana.
- Newman, S. J., & Schnare, A. B. (1997). "... And a suitable living environment": The failure of housing programs to deliver on neighborhood quality. *Housing Policy Debate*, 8(4), 703–741. <https://doi.org/10.1080/10511482.1997.9521275>
- NHC. (2014). Housing affordability challenges in Georgia. National Housing Conference. Retrieved from <http://www2.nhc.org/Georgia.pdf>
- NHLP. (2016). *Overview of the Low Income Housing Tax Credit program*. National Housing Law Project. Retrieved from <https://nhlp.org/lihtcoverview>.
- NLIHC. (2016). National Housing Trust Fund: National Low Income Housing Coalition. National Low Income Housing Coalition. Retrieved from <http://nlihc.org/issues/nhtf>.
- Novogradac, M. (2011). *Low Income Housing Tax Credit: Assessment of program performance & comparison to other federal affordable rental housing subsidies*. Novogradac & Company. Retrieved from [https://www.novoco.com/sites/default/files/atoms/files/novogradac\\_hag\\_study\\_2011\\_graphics.pdf](https://www.novoco.com/sites/default/files/atoms/files/novogradac_hag_study_2011_graphics.pdf)
- Novogradac, M. (2016a, May 2). Washington wire: Cantwell 50 percent LIHTC increase echoes 2000 legislation. *Novogradac & Company Certified Public Accountants*. Retrieved from <https://www.novoco.com/periodicals/articles/washington-wire-cantwell-50-percent-lihtc-increase-echoes-2000-legislation>

- Novogradac, M. (2016b, October 21). LIHTC celebrates three decades of bipartisan support, success. *Novogradac & Company Certified Public Accountants*. Retrieved from <https://www.novoco.com/notes-from-novogradac/lihtc-celebrates-three-decades-bipartisan-support-success>
- Novogradac, M. (2017). National Housing Trust Fund. *HUD Resource Center*. Retrieved from <https://www.novoco.com/resource-centers/housing-and-urban-development/hud-basics/related-programs/national-housing-trust-fund>
- NYC. (2017, July 19). Notice of adoption of rules governing the schedule of contribution amounts to the Mandatory Inclusionary Housing Affordable Housing Fund. City of New York. Retrieved from <https://rules.cityofnewyork.us/content/final-rule-governing-schedule-contribution-amounts-mandatory-inclusionary-housing-affordable>
- Oakley, D. (2008). Locational patterns of Low-Income Housing Tax Credit developments: A sociospatial analysis of four metropolitan areas. *Urban Affairs Review*, 43(5), 599–628. <https://doi.org/10.1177/1078087407309432>
- Olsen, E. (2009). The cost-effectiveness of alternative methods of delivering housing subsidies. In *Thirty-First Annual APPAM Research Conference*. Thirty-First Annual APPAM Research Conference. Retrieved from <http://economics.virginia.edu/sites/economics.virginia.edu/files/CESurvey2009.pdf>
- Oppenheimer, S. (2015). *Building opportunity II: Civil rights best practices in the Low Income Housing Tax Credit Program (2015 update)*. Poverty & Race Research Action Council. Retrieved from <http://www.prrac.org/pdf/BuildingOpportunityII.pdf>
- 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), 1745–1804.
- Orfield, M., Stancil, W., Luce, T., & Myott, E. (2015). High costs and segregation in subsidized housing policy. *Housing Policy Debate*, 25(3), 574–607. <https://doi.org/10.1080/10511482.2014.963641>

- PRRAC. (2015). *Annotated bibliography on the Low Income Housing Tax Credit 2009-2014*. Poverty & Race Research Action Council.
- Quercia, R., Rohe, W., & Levy, D. (2000). A new look at creative finance. *Housing Policy Debate*, 11(4), 943–72.
- Ray, A., Kim, J., Nguyen, D., & Choi, J. (2015). *Opting in, opting out a decade later*. U.S. Department of Housing and Urban Development.
- Reardon, M. (2010, July 23). HUD issues new subsidy layering guidelines for project-based vouchers. *Affordable Housing Law Alert*. Retrieved from <https://www.nixonpeabody.com/en/ideas/articles/2010/07/23/hud-issues-new-subsidy-layering-guidelines-for-project-based-vouchers>
- Reddy, F. (2016, July 29). Study: Building affordable housing not easy in Atlanta, beyond. *Curbed Atlanta*. Retrieved from <http://atlanta.curbed.com/2016/7/29/12325470/study-building-affordable-housing-atlanta>
- Rieth, M. (2015). Segregation under the guise of the Fair Housing Act: Affirmatively furthering segregative (and expensive) housing developments. *Law & Inequality: A Journal of Theory and Practice*, 33(1), 37.
- Rodriguez, B. (2009). Combining LIHTC and NMTC. *Perspectives on Affordable Housing & Community Development*, (8), 3–4.
- Rosenbaum, J. (2014, March 12). Under the microscope: Questioning Low-Income Housing Tax Credit's impact and future. *St. Louis Public Radio*. Retrieved from <http://news.stlpublicradio.org/post/under-microscope-questioning-low-income-housing-tax-credits-impact-and-future#stream/0>
- Rushing, M., Dills, J. E., & Fuller, E. (2015). *A health impact assessment of the 2015 Qualified Allocation Plan for Low-Income Housing Tax Credits in Georgia*. Georgia Healthy Policy Center.

- Scally, C. P. (2007, October). *States, housing and innovation: The role of state housing finance agencies*. Rutgers The State University of New Jersey - New Brunswick, New Brunswick, New Jersey.
- Schubert, M., & Thresher, A. (1996). Lessons from the field: Three case studies of mixed-income housing development. *Great Cities Institute Working Paper*.
- Schuetz, J., & Talle, L. (2001). *The effects of syndicators and risk management on equity pricing of the Low Income Housing Tax Credit*. Massachusetts Institute of Technology.
- Schwartz, A. F. (2014). *Housing policy in the United States* (Third Edition). New York: Routledge.
- Schwartz, A., & Meléndez, E. (2008). After year 15: Challenges to the preservation of housing financed with Low-Income Housing Tax Credits. *Housing Policy Debate*, 19(2), 261–294.  
<https://doi.org/10.1080/10511482.2008.9521636>
- Seiscshnaydre, S. (2017). Disparate impact and the limits of local discretion after Inclusive Communities. *George Mason Law Review*, 24(3).
- Shear, W. (2008). *Green affordable housing: HUD has made progress in promoting green building, but expanding efforts could help reduce energy costs and benefit tenants* (pp. 1-68). Government Accountability Office.
- Siglin, B. (2008). Obstacles encountered when combining FHA and other HUD programs with Tax Credits. *Journal of Affordable Housing and Community Development Law*, 18(1), 81–112.
- Skuzinski, T., Jones, M., Zhang, Y., & McCoy, A. (2016). *Do Qualified Allocation Plans influence developers' LIHTC Siting Decisions: the case of access to high-performing schools*. Virginia Institute of Technology.
- Smith, D., Allen, C., King, K., Maffei, M., Pratt-Otto, S., & Trehubenko, T. (2002). *The Low Income Housing Tax Credit effectiveness and efficiency*. Recapitalization Advisors, Inc.
- Smith, M. T., & Williamson, A. R. (2008). The Low Income Housing Tax Credit and inner-city revitalization. *Housing and Society*, 35(1), 129–142.  
<https://doi.org/10.1080/08882746.2008.11430639>

- Smith, R. (2016). A seat at the table: Changing the governing structure of Low Income Housing Tax Credit program administration to reflect civil rights values and fair housing. *Columbia Journal of Race and Law*, 193–211.
- Solem, J. (1987). Housing provisions of the 1986 tax reform act: Can the states make them work? *National Tax Journal*, 40(2), 419–429.
- Spotts, M. (2016). *Giving due credit: Balancing priorities in state Low-Income Housing Tax Credit allocation policies*. Enterprise Community Partners. Retrieved from <https://www.enterprisecommunity.org/download?fid=10956&nid=14428>
- Standaert, D. (2006). *The absence of minority concentration assessments in the Low Income Housing Tax Credit: An empirical data case study of Durham, North Carolina* (Practicing Planner). American Planning Association.
- Stanhope, B. (2016). Tax shelters, floor fights, deals, negative reactions: Remembering the dawn of the LIHTC. *Novogradac Journal of Tax Credits*, 7(10). Retrieved from <https://www.novoco.com/periodicals/articles/tax-shelters-floor-fights-deals-negative-reactions-remembering-dawn-lihtc>
- Stearns, J. (1988). The Low-Income Housing Tax Credit: A poor solution to the housing crisis. *Yale Law & Policy Review*, 6(1), 203–228.
- Stegman, M. (1991). The excessive costs of creative finance: Growing inefficiencies in the production of low-income housing. *Housing Policy Debate*, 2(2), 357–373.
- Sweaney, A., Dorfman, J., Atilas, J., Kriesel, W., Rodgers, T., & Tinsley, K. (2006). *The economic impact of Low-Income Housing Tax Credits in Georgia* (pp. 1–32). Georgia Affordable Housing Coalition. Retrieved from <http://www.gahcoalition.org/content/articles/157/LIHTC%20Final%20report%20060206.pdf>
- Tassos, J. (2007). *How states are using the Low-Income Housing Tax Credit to advance healthy, efficient and environmentally sound homes* (pp. 1-68). Enterprise Community Partners.
- Tegeler, P., Korman, H., Reece, J., & Haberle, M. (2011). *Opportunity and location in federally subsidized housing programs*. Poverty & Race Research Action Council.

- TXDHCA. (2010). *What the research shows: What other states are doing to link housing and transportation* (p. 10). Texas Department of Housing and Community Affairs.
- Valdez, R. (2016, November 19). How Trump might drain the Low Income Housing Tax Credit swamp. *Forbes*. Retrieved from <https://www.forbes.com/sites/rogervaldez/2016/11/29/ideas-for-trump-to-drain-the-low-income-housing-tax-credit-swamp/#43326eb613fb>
- Vogelsmeier, B. (2015). The push for tax credit reform: Where states are falling short. *Agora Journal of Urban Planning and Design*, 6–94.
- White, J., & England-Joseph, J. (1997). *Tax credits: Opportunities to improve oversight of the low-income housing program* (No. RCED-97-55). General Accounting Office.
- Wilkins, C., Brennan, M., Deora, A., Heegaard, A., Lee, A., & Lubell, J. (2015). Comparing the life-cycle costs of new construction and acquisition-rehab of affordable multifamily rental housing. *Housing Policy Debate*, 25(4), 684–714. <https://doi.org/10.1080/10511482.2014.1003141>
- Williams, S. (2015). *Preserving multifamily workforce and affordable housing: New approaches for investing in a vital national asset*. Urban Land Institute. Retrieved from <http://uli.org/wp-content/uploads/ULI-Documents/Preserving-Multifamily-Workforce-and-Affordable-Housing.pdf>
- Williamson, A. R. (2011). Can they afford the rent? Resident cost burden in Low Income Housing Tax Credit developments. *Urban Affairs Review*, 47(6), 775–799. <https://doi.org/10.1177/1078087411417078>
- Williamson, A. R., Smith, M. T., & Strambi-Kramer, M. (2009). Housing Choice Vouchers, the Low-Income Housing Tax Credit, and the federal poverty deconcentration goal. *Urban Affairs Review*, 45(1), 119–132. <https://doi.org/10.1177/1078087409336529>
- Wingren, E. (2016). *2016 LIHTC policies promoting supportive housing & recommendations for 2017- 2018*. Corporation for Supportive Housing.
- Woda. (2017, 06). Stanton Oaks in Atlanta was named winner of the award for preservation of existing affordable rental housing in the 2017 Novogradac Developments of Distinction.

Retrieved from <http://www.wodagroup.com/2017/09/06/novogradac-names-stanton-oaks-in-atlanta-a-development-of-distinction/>

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>

Woo, A., Joh, K., & Van Zandt, S. (2015). Unpacking the impacts of the Low-Income Housing Tax Credit program on nearby property values. *Urban Studies*.

<https://doi.org/10.1177/0042098015593448>

Woo, A., Joh, K., & Van Zandt, S. (2016). Impacts of the Low-Income Housing Tax Credit program on neighborhood housing turnover. *Urban Affairs Review*, 52(2), 247–279.

<https://doi.org/10.1177/1078087414561824>

Wood, C. (2009, August 10). Finding shelter. *Multifamily Executive*. Retrieved from

[http://www.multifamilyexecutive.com/design-development/finding-shelter\\_o](http://www.multifamilyexecutive.com/design-development/finding-shelter_o)

Zielenbach, S., Voith, R., & Mariano, M. (2010). Estimating the local economic impacts of HOPE VI.

*Housing Policy Debate*, 20(3), 485–522. <https://doi.org/10.1080/10511481003788794>