

## The Low-Income Housing Tax Credit: An Analysis of the First Ten Years

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### *Abstract*

The Low-Income Housing Tax Credit (LIHTC) has been the *de facto* federal rental housing production program since its creation in the Tax Reform Act of 1986. In this article, using a detailed database on 2,554 LIHTC projects, we analyze the costs of building these projects, where they are built, their financial viability, whom they serve, who finances them, and the size of the subsidies provided to them.

The LIHTC is a flexible program that has built different types of housing in various markets. While LIHTC projects serve low- and moderate-income households, their rents are beyond the reach of many poor households without additional subsidy. Revenues just cover costs for many LIHTC projects. Over time, considerably more of each tax-credit dollar has ended up in the projects, and returns to equity investors have dropped significantly, perhaps reflecting an increased understanding of project risks. We estimate that LIHTC projects developed by nonprofits are 20.3 percent more expensive than those developed by for-profits.

**Keywords:** Low-income housing; Multifamily; Tax policy

### **Introduction**

The Low-Income Housing Tax Credit (LIHTC) has been the major federal program for producing affordable rental housing since its creation as part of the Tax Reform Act of 1986 (TRA).<sup>1</sup> The LIHTC represents a partnership among a variety of public and private sector actors. The basic premise of the LIHTC is to offer federal tax credits to private investors in return for their providing equity for the development of affordable rental housing. The program is administered by state (or, in a few cases, local) housing policy makers who set goals for the program, review projects proposed by for-profit

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<sup>1</sup> A major feature of the TRA was the elimination of much of the favorable tax treatment of real estate. The LIHTC was created in the final hours of the TRA debate when lawmakers realized that, at a time when other federal production programs were being suspended, there were no tax incentives left for affordable rental housing. The LIHTC was viewed as a very targeted tax incentive for building rental housing for low- and moderate-income households. See Case (1991).

and nonprofit developers, monitor the reasonableness of project costs, and take responsibility for ensuring that projects stay in compliance and that approved projects receive only the tax credits necessary to make the project work. The Internal Revenue Service (IRS) is responsible for monitoring compliance and state performance.

By bringing these various actors together, the LIHTC program is designed to bring the efficiency and discipline of the private market to the building of affordable rental housing. Investor participation is expected to add further oversight to the program, since return to the investors is dependent on the project's staying in compliance. By allocating the tax credits through the states, the program provides the flexibility to build housing that meets local market needs. While the LIHTC program may not have been designed to reach the poorest renter households, it is effectively the only federal production program. As a result, there may be considerable pressure from housing advocates and state and local policy makers to use the program to serve lower-income tenants.

While all participants share the goal of producing financially viable projects with revenues covering costs, government officials and advocates for the poor often have policy goals that may be viewed by private participants as bringing too much additional risk, a view presented by many of the investors we interviewed (Cummings and DiPasquale 1998a). For example, states may target populations with special needs or may favor the provision of social services as part of a project, both of which can increase management risks. They may want to serve lower-income tenants who pay lower rents; target underserved areas, which may increase development costs; or favor nonprofit developers (who may bring less experience and less financial capital to a project than larger for-profit developers) to increase community participation or to achieve broader community development goals. Clearly, there can be real tension between the policy goals for LIHTC projects and financial viability. To succeed, the program and its participants must meet policy goals while ensuring the investment quality demanded by private market participants.

Despite the critical role of the LIHTC in providing affordable rental housing over the past decade, there is very little detailed historical information on the characteristics and performance of the program's rental housing developments. In this article, we provide an analysis based on detailed data on 2,554 LIHTC projects, covering the entire history of the program, which we collected from four syndicators of tax credit equity. This article builds on our initial report on these data (Cummings and DiPasquale 1998a), in which we provided an in-depth description of the LIHTC projects in this sample.

Our data provide a unique opportunity to shed light on five key areas: total development costs (TDC), sources of financing for TDC, operating income and expenses, returns to equity and debt investors, and total subsidies provided. TDC per unit varies widely across projects. Location, in terms of region of the country and whether within or outside metropolitan areas, has a significant impact on TDC per unit. Controlling for location and a variety of project characteristics, we find that LIHTC projects developed by nonprofits are 20.3 percent more expensive than those developed by for-profit developers. LIHTC projects are often tightly run, with revenues just covering costs for many projects; 22.5 percent of the projects had negative cash flows in 1995.

We find convincing evidence that, over time, considerably more of each tax credit dollar provided by the federal government ends up being used for housing rather than for fees and administrative expenses. Controlling for a variety of project characteristics, returns to equity investors are higher for rehabilitation projects and projects developed by nonprofits, perhaps reflecting the greater risks associated with rehabilitation versus new construction and with developers who generally have less of a track record than for-profit developers. In addition, returns to equity investors have dropped significantly over the history of the program, reflecting, at least in part, the decline in the perception of risks associated with affordable rental housing.

The involvement of state and local governments as well as nonprofit developers has a significant impact on the structure of financing and the extent of the subsidies provided. In some local markets, private banks provide the majority of first mortgages on LIHTC transactions, while in others, state and local governments provide virtually all first mortgages. We find that these projects serve low-income households but remain out of reach for very poor renters. Serving lower-income households requires rental subsidies in addition to the LIHTC capital subsidy. In this article, we estimate the total subsidy provided for LIHTC projects and find that these projects are very heavily subsidized, with substantial subsidies coming from sources other than the LIHTC. On average, subsidies from government and private sources account for 68 percent of TDC; 66 percent of the subsidies come from the flow of tax credits. Our subsidy estimates are underestimates because they do not include tenant-based rental subsidies, such as Section 8, or some project-based subsidies. Even so, these estimates suggest that the total subsidies are quite substantial. This evidence suggests that while the tax-credit program has become more efficient over time, with more of every federal tax credit dollar going to build housing, the overall program design can be expensive in terms of the total amount of subsidy required.

In the next section, we provide a brief overview of data used in this article. We then consider six questions that are essential to analyzing the extent to which the LIHTC program meets desired housing policy goals:

1. How much do the “bricks and mortar” cost?
2. What local housing opportunities does the program provide?
3. Are the projects built under the program financially viable over the long term?
4. What income groups can the program serve?
5. Who is providing financing for LIHTC projects?
6. What is the total cost to society of the LIHTC program?

### **Overview of the City Research data**

Our sample contains 2,554 LIHTC projects, representing 150,570 units, acquired by four syndicators (Boston Capital Partners, Inc.; Boston Financial; Enterprise Social Investment Corporation [ESIC]; and the National Equity Fund, Inc. [NEF]) from 1987 to 1996, or about 25 to 27 percent of the units generated during this period, although there is no accurate account of how many tax-credit projects and units have been built.<sup>2</sup> Each of the four syndicators has a national portfolio and has been active in the tax credit market throughout the LIHTC program’s history.

Our study complements two other recent LIHTC studies. In 1996, the U.S. Department of Housing and Urban Development (HUD) funded an Abt Associates inventory of all LIHTC projects built between 1992 and 1994; the firm also collected data on a substantial number of projects built prior to 1992. The data collected include basic project characteristics and project location by census tract but

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<sup>2</sup> The calculation is based on estimates by Abt Associates (1996) and Wallace (1998). Abt Associates (1996) estimates that 500,000 units were completed from 1987 to 1994, which suggests about 600,000 finished through 1996. Wallace (1998) estimates that 553,000 units were built through 1996. The National Council of State Housing Agencies (NCSHA), which represents the agencies that administer the allocation of tax credits, estimates that tax credits were allocated for more than 800,000 units through 1995 (NCSHA 1996, 61). Ernst & Young (1997, I) reports that the credit “has created almost 900,000 apartments.” The Abt and Wallace estimates suggest that NCSHA’s estimates are overstated by about 45 percent.

provide no financial data.<sup>3</sup> The U.S. General Accounting Office (GAO) released a study of the LIHTC in 1997 that focused on state oversight and IRS compliance.<sup>4</sup> The GAO collected data similar to ours for a sample of 423 projects built between 1992 and 1994; its data include information on tenants, which we do not have. It also collected limited information on all projects built between 1992 and 1994. The data presented in this article are unique in that we have detailed data on a large sample covering the entire history of the program. These data include the only information collected to date on income and expenses and provide many details on funding sources.

Table 1 summarizes some basic characteristics of the projects and units in our data sample and compares our sample to the inventory constructed by Abt Associates (1996). Cummings and DiPasquale (1998a) provide more detailed comparisons between our sample and the Abt and GAO inventories. These comparisons suggest that our sample is quite representative of the overall program. For 1992 to 1994, our sample represents 24 percent of the projects and 34 percent of the units in the Abt inventory.<sup>5</sup> The Northeast seems to be overrepresented and the Midwest seems to be underrepresented in our sample when compared with the Abt inventory. In both our sample and the Abt inventory, the South has the largest share of projects and units. One reason for the predominance of the South is the significance in the LIHTC program of the Section 515 Rural Rental Housing program, which originally was administered by the Farmers Home Administration (FmHA) and is now administered by the Rural Housing Service (RHS). The program usually provided 1-percent mortgages on LIHTC projects for 50-year terms. Section 515 financing was used extensively in the early years of the program but has since dropped off sharply. Since 1995, the Section 515 new construction program has been dramatically reduced.

Just under one-third of the projects in our sample were developed by nonprofits (that is, either by nonprofit developers or by for-profit

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<sup>3</sup> The HUD/Abt data are available on the Internet at [www.huduser.org](http://www.huduser.org).

<sup>4</sup> Other studies of the LIHTC include Ernst & Young (1997), prepared for the NCSHA and designed as a response to the GAO study; ICF (1991); and Abt Associates (1993), a HUD-sponsored study of 12 tax-credit projects.

<sup>5</sup> Because there is no accurate accounting of projects and units built since the program began, it is difficult to know with certainty how representative our sample is. For the 1992–94 period, Abt Associates (1996) found 3,987 projects with 168,046 units completed; U.S. GAO (1997) counted 4,121 projects comprised of 172,151 units. Because of data limitations in our sample, we identify the date the syndicators acquired the projects, not the date the project was placed in service, which is the date used by the GAO and by Abt Associates.

*Table 1. Project Characteristics: Comparing the City Research Sample with the Abt Inventory*

	City Research (1987–96)		Abt (1992–94)	
	Projects	Units	Projects	Units
Number of observations	2,554	150,570	3,987	168,046
Region				
Northeast	22.3%	19.8%	13.7%	12.9%
Midwest	22.8%	20.4%	32.5%	27.0%
South	39.3%	43.4%	39.1%	41.6%
West	15.6%	16.4%	14.7%	18.7%
Section 515–financed	38.3%	21.2%	34.5%	25.7%
Nonprofit developer	31.2%	27.4%	20.3%	23.2%
New construction	68.0%	64.5%	65.9%	60.7%
Project size (units)				
5 to 36	47.9%	20.0%	NA	NA
37 to 50	18.8%	14.0%	NA	NA
51 to 99	17.1%	20.3%	12.6%	NA
100+	16.2%	45.8%	9.8%	NA
Number of buildings				
1	25.7%	21.5%	NA	NA
2–9	54.0%	40.6%	NA	NA
10–49	19.0%	34.7%	NA	NA
50+	1.3%	3.2%	NA	NA
Number of bedrooms				
Efficiency	NA	7.4%	NA	5.5%
1	NA	32.9%	NA	39.8%
2	NA	40.0%	NA	38.5%
3+	NA	19.8%	NA	16.1%
Location				
Central city	42.9%	48.2%	49.1%	54.4%
Suburban	24.4%	31.6%	21.0%	26.1%
Nonmetropolitan	32.7%	20.2%	29.9%	19.5%

*Source:* Abt figures from Abt (1996).

*Note:* NA = Not available or not applicable.

developers working with nonprofit partners). In each state, 10 percent of annual tax credit allocations must be set aside for nonprofit developers (states may choose to have higher set-aside minimums, and many do). In our data, before 1991, 20 percent of all projects were developed by nonprofits; since 1991, that figure has risen to 36 percent. About two-thirds of the projects and units are new construction. A larger fraction of projects in our sample were developed by nonprofits and are new construction than in the Abt inventory.

The projects in our data range in size from 5 to 589 units; the mean for our sample is 59 units per project.<sup>6</sup> Most of the units have one or two bedrooms, although 7 percent are efficiencies (versus 3 percent in the nation's rental stock). Efficiency units typically serve special-needs populations and the elderly and are often an important part of local housing policies. Clearly, however, many of the units in our sample are serving families, with one-fifth of the units having three or more bedrooms.

Using addresses for our projects, we were able to identify the census tracts for many of them.<sup>7</sup> About two-thirds of the projects are in metropolitan areas. The percentage of projects built in central cities has been increasing, from 32 percent in 1987 to 56 percent in 1996,<sup>8</sup> in part due to the decline of the largely rural Section 515 program. As shown in table 1, our sample has fewer central city projects and more suburban and nonmetropolitan projects than the Abt inventory. Suburban projects can provide unique opportunities for lower-income households to live in suburban communities. Alternatively, central-city projects can provide important new investment as part of a redevelopment strategy for declining inner-city neighborhoods.<sup>9</sup>

### **Costs of bricks and mortar**

As with any housing production program, policy makers are concerned that development costs for LIHTC projects be reasonable. For the LIHTC program, states are charged with monitoring development costs. Our data reinforce the GAO's findings of wide variations in per-unit development costs.

In our data, we have no explicit measure of total development costs (TDC), but we can calculate TDC as the sum of all permanent

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<sup>6</sup> Section 515 projects are considerably smaller; on average, Section 515 projects have 33 units and non-Section 515 projects have 75 units.

<sup>7</sup> We geocoded 83 percent of the projects in our sample, representing 78 percent of the units.

<sup>8</sup> "Central city" is defined as the main city or cities of a metropolitan area (e.g., the cities of Minneapolis and St. Paul, MN). "Suburban" is within a metropolitan area but not in a central city. "Nonmetropolitan" is located outside of a metropolitan area and is largely but not exclusively rural.

<sup>9</sup> Keyes et al. (1996) posit that the vast majority of central-city low-income housing is produced by nonprofits. However, our data do not support this claim. While nonprofits in our data definitely concentrate in central cities (with 86 percent of both their projects and units in central cities), for-profit developers are also very active in central cities. For-profits develop one-third of the projects and nearly one-half of the units in central cities in our sample; this is fairly consistent over time.

financing, equity, and grants. Specifically, we calculate TDC as the sum of the following:

1. The *net equity* paid directly to the project by the investor in exchange for tax credits
2. The *first mortgage*, including all mortgages that have the first lien on the property, whether market-rate conventional mortgages or subsidized mortgages from the public sector
3. The *gap financing*, which we define as any remaining financing, comprising all other mortgages, soft financing, and grants

In-kind donations such as land are not included in these data. We use net equity rather than gross equity to calculate TDC because we are interested in the total costs of the development, excluding the costs of raising the equity. Later in this article we consider the difference between gross and net equity as a measure of the costs of raising tax-credit equity; these costs include syndication fees and legal and accounting expenses associated with pooling projects into an equity fund. While we believe that our calculation of TDC is quite accurate, a disadvantage of our approach is that it does not provide a breakdown of the uses of funds (e.g., acquisition, hard costs, soft costs, amenities). Unfortunately, our data do not provide sufficient information on the uses of funds.<sup>10</sup>

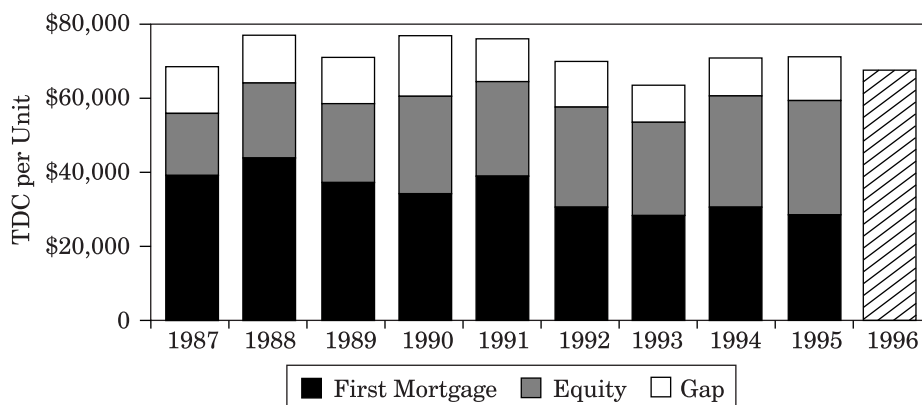
The average TDC for the 2,365 projects for which we have financing data is \$65,307 per unit.<sup>11</sup> When we eliminate the 968 Section 515 projects, average TDC overall for the 1,397 projects for which we have financing data rises to \$70,226 per unit.<sup>12</sup> On average, for non-Section 515 units, 46 percent of TDC is covered by LIHTC equity, 38 percent by first mortgages, and 16 percent by gap financing. Figure 1 shows the TDC per unit over time for non-Section 515

<sup>10</sup> Our TDC figures also may include costs and units used for commercial space. Commercial space is not always accurately identified in our data.

<sup>11</sup> The TDC per-unit calculation is unit based rather than project based. That is, we calculate the average cost per unit across the 138,591 units for which we have adequate financial data, rather than the average cost per unit across the 2,365 projects containing these units. The unit-based cost measures are 5 percent lower on average than the project-based cost measures, a result of the variations in project size because per-unit costs tend to decline as project size increases.

<sup>12</sup> We often eliminate Section 515 projects from TDC analysis because these projects have cost structures that are significantly different from other projects, and because Section 515 financing has been cut considerably and is no longer a significant source of financing for the LIHTC program. For more information on Section 515 projects, see Cummings and DiPasquale (1998a).

Figure 1. Section 515 TDC per Unit by Year



Notes: Data on components for 1996 are incomplete. N = 1,397 projects; 107,068 units. All dollar figures are in 1996 dollars.

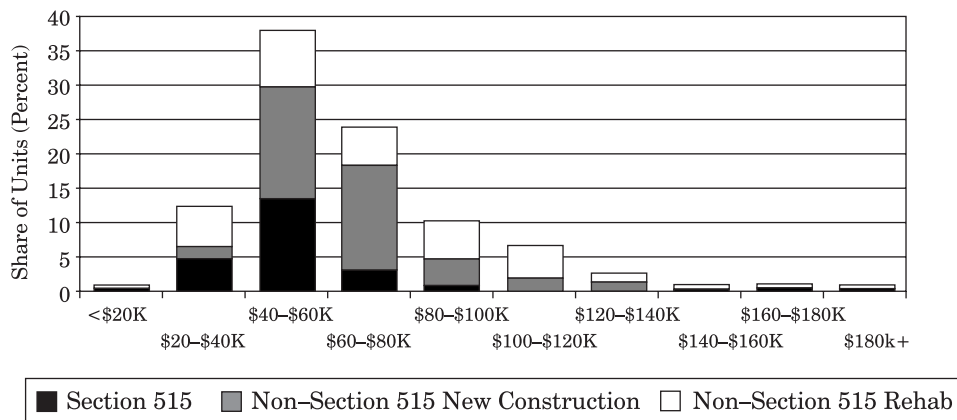
units by sources of financing. While there is no clear pattern in TDC over time, the share of TDC paid by the first mortgage has declined from 57 percent in 1987 to 39 percent in 1995. By contrast, the percentage of TDC covered by tax-credit equity has increased every year since the program’s inception, nearly doubling from 25 percent in 1987 to 43 percent in 1995. (For most Section 515 units, first mortgages and tax-credit equity alone were sufficient to cover TDC: On average, for Section 515, the first mortgage covers 79 percent of TDC, LIHTC equity covers 19 percent, and gap financing covers only 3 percent.)

There is wide variation in per-unit TDC. As shown in figure 2, TDC per unit is between \$40,000 and \$60,000 for 40 percent of the units, but per-unit costs range from close to \$10,000 to more than \$250,000 (for 243 units in six projects), and exceed \$100,000 for 11 percent of the units. Rehabilitated units can be relatively inexpensive or quite expensive. Three-quarters of the non-Section 515 units costing less than \$40,000 and 38 percent of those costing more than \$120,000 are rehabs.<sup>13</sup>

Projects developed by nonprofit developers tend to have higher costs per unit on average. For central-city projects, average TDC per unit is \$90,268 for units developed by nonprofits compared with \$63,778

<sup>13</sup> Our data do not permit us to accurately distinguish between moderate and substantial rehabilitation.

Figure 2. Distribution of Units by TDC per Unit



for units developed by for-profit developers. For projects with 36 or fewer units, average TDC per unit for for-profit developers is about 50 percent of the average TDC for nonprofit developers (\$53,854 versus \$107,839). For projects with more than 100 units, TDC per unit for for-profit developers is 88 percent of the average TDC per unit for nonprofit developers. However, in our data, only 9.9 percent of projects developed by nonprofits have more than 100 units; 46.1 percent of nonprofit projects have 36 or fewer units.

The IRS regulations require that states award the minimum tax credits necessary to make a project feasible and mandate that states consider the “reasonableness” of development costs. Projects with high per-unit costs raise questions about how well states are monitoring costs. Asking states to ensure that development costs are “reasonable” is a vague charge. U.S. GAO (1997, 5–10) indicates that there are few meaningful standards for costs and that states vary widely in their efforts to control costs. The GAO found that some allocation decisions were made without complete information and/or certification of key data, and that several states did not fulfill compliance monitoring requirements in 1995 (U.S. GAO 1997, 5).

What accounts for the wide variation in costs? We expect project location, project size, type of construction, type of developer, unit size, and project amenities to be important determinants of TDC. Our data permit exploration of most of these factors. However, a major weakness in our data is its lack of information on project amenities such as community centers, parking structures, or swimming pools,

all of which can add considerably to TDC.<sup>14</sup> Even with this deficiency, the data shed considerable light on the determinants of TDC.

We expect that TDC will vary across regions of the country because of variations in construction costs due to differences in the costs of land, labor, and materials. Costs also may vary across regions because of differences in availability and terms for private financing and public subsidies. We expect that TDC will vary within a region as well. Land and labor costs may be considerably lower for rural projects than for suburban or central-city projects within the same region. Central-city projects may be more costly than suburban ones because of higher land costs or because central-city sites may be located in more densely developed areas, increasing development costs. Within a city, there may be variations in TDC from neighborhood to neighborhood. For example, in poorer neighborhoods with high crime rates development sites may require more security, which adds to the cost of development. Rehabilitation of existing structures in poor neighborhoods also may be more expensive because the buildings are often older and may be more likely to have fallen into disrepair as a result of underinvestment. Finally, because projects in our data were developed over a 10-year period, and financial costs (e.g., interest rates) vary over time, TDC may be expected to vary over time.<sup>15</sup>

Regression 1 in table 2 shows that, together, project year, region of the country, location in or outside of a metropolitan area, and neighborhood characteristics explain 33.7 percent of the differences in TDC in our sample. All the variables are statistically significant. There are significant regional differences in project costs. The Northeast is the most expensive, while the South is by far the least expensive. The negative coefficients for suburban and nonmetropolitan locations indicate that central-city projects (the omitted category) are the most expensive. Evaluating regression 1 at the means indicates that moving a project from the central city to the suburbs decreases cost by 7.9 percent. Moving from the central city to a rural area decreases cost by 22.9 percent.

In regression 1, we control for two neighborhood characteristics. “Qualified census tract” (QCT) and “difficult development area” (DDA) are two designations that can qualify projects for a 30 per-

<sup>14</sup> The amount of credits that a project may receive is based on the type of development, the percentage of low-income units involved, and the “eligible basis,” or the total development costs meeting approval. Many amenities, particularly in mixed-income developments, can be included in the eligible basis.

<sup>15</sup> We already have accounted for inflation by converting all amounts into real 1996 dollars.

*Table 2. Regression Results of Location, Section 515, and Neighborhood Characteristics on Real TDC per Unit*

Dependent Variable: Real TDC per Unit	Regression 1	Regression 2	Regression 3	Regression 4
<b>Location</b>				
Suburban	-5,683.23* (2,208.46)	-3,323.68 (2,298.66)	-1,810.76 (2,191.26)	-2,217.26 (2,332.95)
Nonmetropolitan	-16,413.04* (2,026.30)	-7,297.59* (2,434.26)	-7,932.24* (2,204.91)	-5,213.66* (2,310.33)
<b>Region</b>				
Midwest	-27,132.27* (2,855.87)	-27,756.87* (2,883.14)	-29,797.37* (2,948.54)	-26,919.94* (3,252.74)
South	-31,659.19* (2,706.16)	-31,290.71* (2,714.29)	-29,587.97* (2,966.45)	-28,669.57* (3,299.56)
West	-20,480.09* (3,587.47)	-20,804.10* (3,572.44)	-20,261.61* (3,513.56)	-16,196.25* (3,494.88)
Qualified census tract	5,709.55* (2,297.77)	5,406.13* (2,313.17)	4,595.67* (2,279.51)	4,683.24* (2,447.89)
Difficult development area	15,173.45* (3,359.42)	14,797.45* (3,335.38)	11,537.38* (3,096.53)	8,809.04* (2,840.73)
Acquisition year <sup>a</sup>	677.86* (312.52)	274.23 (331.57)	-747.69* (294.56)	-1,056.91* (303.71)
Section 515		-12,869.74* (1,593.55)	-28,534.48* (2,281.32)	-23,823.04* (2,449.89)
New construction			15,662.88* (2,160.90)	12,209.24* (2,083.53)
<b>Project size (units)</b>				
37-50			-5,151.45* (1,496.35)	-4,015.91* (1,493.23)
51-100			-14,029.07* (2,215.32)	-12,794.73* (2,040.92)
101+			-22,340.87* (2,586.53)	-20,532.43* (2,707.62)
Nonprofit developer			12,881.68* (2,774.30)	15,044.11* (3,040.92)
Bedrooms				6,190.06* (1,020.40)
Constant	83,873.60* (4,033.48)	87,591.50* (4,235.41)	99,629.72* (4,429.10)	88,023.54* (5,203.88)
R <sup>2</sup>	0.3367	0.3507	0.468	0.4966
Observations	108,267	108,267	100,732	81,689

Note: OLS estimates using Huber corrections for group effects. Standard errors are in parentheses.

<sup>a</sup>Acquisition year of the project has been recoded so that 1985 = 1.

\* $p < 0.05$ .

cent increase in the “eligible basis” used to calculate the tax-credit amount generated for the project.<sup>16</sup> A QCT is any census tract in which at least half of the households have incomes of less than 60 percent of the area median gross income. About 30 percent of the projects in our sample are located in QCTs. HUD defines a DDA as any area having high construction, land, and utility costs relative to the area’s median gross income. The signs on QCTs and DDAs in regression 1 are positive, as expected, and statistically significant, indicating that TDC is higher in QCTs and DDAs.

To see if the location and region results are driven by the presence of Section 515 projects, we control for them in regression 2. The results are similar to those in regression 1, although coefficients on suburban location and project year are not statistically significant. The South is still by far the least expensive area. This may be due in part to the fact that the South tends to have larger projects with more units, and hence per-unit costs are lower, but regional differences in building and labor costs undoubtedly play a role.

Although location clearly has a significant impact on costs, other project characteristics may explain some of the variation in TDC. In regression 3, we add controls for construction type, project size, and developer type. The coefficient on new construction is positive and statistically significant, indicating that, on average, new construction projects are more expensive per unit than rehabilitation projects. As expected, TDC per unit declines as project size increases. Fixed costs associated with building a new structure such as digging a foundation are spread across more units, bringing down the per-unit TDC.

We expect the track record of the developer to influence TDC. Developers with extensive experience and those who build a large number of projects may have long-term relationships with suppliers that provide volume discounts. They also may have invested significant time and money to understand the local permitting and regulatory process, resulting in fewer project delays, which can decrease project costs. Many larger developers also have realized efficiency gains by successfully expanding the number of services offered to include those of developer, builder, and property manager.

The only developer characteristic available in our data is whether the developer is a for-profit or nonprofit. Nonprofit developers are often small with little capital, which may mean that they produce fewer projects that tend to be small when compared with the activi-

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<sup>16</sup> These designations were not part of the original TRA but were added as amendments in 1989 in an attempt to encourage affordable housing development in areas Congress felt were underserved.

ties of for-profit developers.<sup>17</sup> Thin capitalization also may mean that organizations have higher predevelopment costs. Walker (1993) finds that smaller nonprofits need to spend more time and money on fundraising and other predevelopment activities such as market research and marketing. In addition, lacking liquid financial resources, they are unable to quickly seize opportunities as properties become available (Walker 1993, 389–90). Because nonprofit developers tend to build fewer units and have less of a track record, we expect that their projects will be more expensive. The results in regression 3 confirm this view; the coefficient on nonprofit is positive and statistically significant.

Evaluating regression 3 at the means indicates that, controlling for acquisition year, location, region, Section 515 financing, construction type, project size, QCT, and DDA, units produced by nonprofit developers are 20.3 percent costlier than those produced by for-profit developers. Nonprofit developers whom we interviewed suggested that nonprofit TDC was higher because nonprofits build larger units.<sup>18</sup> Our models thus far have not controlled for unit size, which could clearly have an impact on TDC. Our data also do not provide information on square feet per unit. However, we do know the number of bedrooms for many of our projects; in fact, we have number of bedrooms for 75.4 percent of the units in regressions 1 and 2 and for 81.1 percent of the units in regression 3. In regression 4 in table 2, we add number of bedrooms. As expected, increasing the number of bedrooms increases TDC and the result is statistically significant. This model explains 50 percent of the differences in our sample TDCs. Evaluating regression 4 at the means indicates that adding a bedroom to the average LIHTC unit increases TDC by almost 10 percent. Our results do not support the claim that nonprofit TDC is higher because nonprofit developers build larger units as measured by number of bedrooms. Including a control for number of bedrooms actually increases TDC for nonprofits to 25.0 percent more than TDC for for-profit developers, holding the other variables in the regression constant.

In our data, the estimated increase in TDC per unit for nonprofit developers is large and statistically significant across a variety of

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<sup>17</sup> Walker (1993) notes that the majority of nonprofit developers are small (e.g., community development corporations typically produce fewer than 10 units per year), with a few large organizations producing a large portion of nonprofit units. He argues that obstacles facing many nonprofit developers trying to increase production include undercapitalization, limited technical capacity (in part due to thin operating margins), and time-consuming complex financing (Walker 1993, 406).

<sup>18</sup> In our data, the portion of large units as measured by number of bedrooms is similar between nonprofit and for-profit developers; 21 percent of nonprofit units and 18 percent of for-profit units have three or more bedrooms.

specifications. In contrast, a recent GAO report (U.S. GAO 1999) analyzing data on LIHTC projects concludes that there is no statistically significant difference between TDC per unit for nonprofit and for-profit developers. The results in U.S. GAO (1999) are based on detailed information on 423 LIHTC projects. These projects are a random sample, based on the size of the project, drawn from an inventory conducted by the GAO of all LIHTC projects placed in service between 1992 and 1994. Conceptually, the specification of the model estimated in U.S. GAO (1999) is quite similar to that estimated in regression 4 in table 2.<sup>19</sup> While there are some differences between our data and that used by the GAO that could account for some of the variation in our results, it seems unlikely that these differences would account for all of the variation, given how robust our nonprofit result is to changes in model specification.<sup>20</sup>

Because the GAO sample includes all projects with more than 300 units and thus oversamples large projects, we examined the impact of nonprofit developers on per-unit TDC for large projects. In results not reported here, we estimate regression 4 in table 2 separately for all projects with 36 or fewer units, 37 to 50 units, 51 to 100 units, and more than 100 units. The size of the coefficient on nonprofit developer decreases as the size of projects in the sample increases and becomes small and statistically insignificant for projects with 100 or more units. These results suggest that the GAO es-

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<sup>19</sup> The model in U.S. GAO (1999, 28) explains TDC per unit using metropolitan location (urban, suburban, or rural), region of the country, new construction, nonprofit developer, building type (e.g., high rise, garden), elderly or family use, eligibility for additional credits (located in a QCT or DDA), and located in an economically distressed area (census tract with a poverty rate greater than 20 percent, unemployment rate greater than 9.45 percent, and 70 percent or more of households with incomes less than 80 percent of median).

In results not reported here, we have estimated specifications to match more closely the specification in U.S. GAO (1999), given the constraints in our data. For example, we do not have square feet but use number of bedrooms as a proxy; we use our data on QCT and DDA to mimic the GAO use of a dummy variable for eligibility for additional tax credits. In other analyses, we also add the census tract poverty rate, redefine our four census region variables to match the GAO's reconfiguration of the nine census regions, eliminate size-of-project variables, and drop the dummy variable for Section 515. In all cases, the nonprofit coefficient remained large and statistically significant.

<sup>20</sup> Unfortunately, we do not have information on who occupies a unit so our model does not include GAO's family or elderly variable, although GAO did not find this variable statistically significant. Nor do we have information on building type, although we found that number of units per building is statistically insignificant. GAO's data on metropolitan location (central city, suburb, and rural) was reported by the state allocation agency. We found in our data that there were substantial differences between self-reported location and those obtained by using census definitions. Their use of self-reported locations may explain why this location variable is not statistically significant in the GAO results.

timates could be driven by the oversampling of large projects. The evidence that per-unit TDCs for nonprofit and for-profit developers are similar for larger projects is consistent with the notion that there are efficiency gains associated with larger, more experienced developers. We expect that larger nonprofit projects are being produced by larger, more experienced nonprofit developers and that these developers thus are more like large for-profit developers. Without access to the data used by the GAO, it is difficult to do more to explain the divergence between our results and theirs.<sup>21</sup>

We cannot control for some factors, given our data, that may account for some of the difference between nonprofit and for-profit TDC per unit. Some nonprofit developers have argued that their rehabilitation of existing housing is more extensive than that of for-profit developers; in our data we cannot measure the extent of the rehabilitation.<sup>22</sup> In some cases, projects receiving government subsidies are required to pay prevailing wage rates under the Davis-Bacon Act, which would increase TDC. To the extent that nonprofit projects are more likely to accept subsidies that require prevailing wage rates, this could account for some of the cost differential.

In addition, nonprofit developers may be more likely than for-profit ones to provide support services that may be included in TDC. We do not have good data on whether support services are provided and the extent to which they are included in development costs. (Generally, these are considered operating expenses and therefore not included in TDC, although space for the provision of these services would be included in TDC.) However, U.S. GAO (1997) reports that for projects completed from 1992 to 1994, only 1 percent served special-needs populations. That rate may well have increased, but it is unlikely that these services could account for all of this cost difference between nonprofit and for-profit developers. Some specialists have suggested that nonprofits may face stiffer reserve requirements, adding to their projects' TDC. Unfortunately, we do not have sufficient data on capital reserves to test this view.

Even with these caveats, the evidence presented here seems to indicate that TDC per unit is higher for nonprofit developers. In reviewing LIHTC applications, states often give priority to nonprofit developers because they usually bring important community support and commitment to a project. In addition, nonprofits can be impor-

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<sup>21</sup> We have requested access to the data that produced the GAO result but they had not yet been released as this article went to press.

<sup>22</sup> In our data, rehabilitation of existing structures represents 25 percent of units produced by for-profit developers and 65 percent of the units produced by nonprofit developers.

tant players in community development strategies and this broader mission often leads them to tackle more difficult projects. These are clearly valuable assets. The evidence presented in this section suggests that this value must be compared with the increased development costs that, on average, come with nonprofit developers.

### **What is the role of LIHTC housing in local housing markets?**

Because housing markets are local in nature, only by examining local markets can we see the real impact of projects built under the LIHTC program. Our data permit a unique opportunity to examine the role of LIHTC projects in local housing markets. For 19 metropolitan areas, we can examine the diverse roles played by LIHTC housing, how LIHTC projects compare with the overall rental market in those areas, and how they compete in the marketplace.<sup>23</sup> We address three general issues.

1. Where within local markets is the program providing housing opportunities? We examine neighborhood characteristics within the metropolitan area, including levels of residential construction and neighborhood racial and income characteristics.
2. What is being produced by the program and how viable are the projects? Specifically, we compare unit size, TDCs, vacancies, rents, and cash flow.
3. Is the program serving the poor? While we unfortunately do not have data on tenant incomes, we can explore affordability issues by comparing project rents with the income distribution of renters in the local market.

#### *Where is the program providing housing opportunities?*

Given the variation in local market conditions and the flexibility provided to the states by the LIHTC program, it is not surprising that there is significant variation in LIHTC projects across metropolitan areas.<sup>24</sup> The program's flexibility means that it could be used to provide affordable housing for low- and moderate-income

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<sup>23</sup> In order to ensure that our analysis is not biased by one or two anomalies, we consider metropolitan areas only where the sample has at least 15 LIHTC projects. Within that list of areas, analyses of individual variables (e.g., number of bedrooms) are reported only where there are at least 10 LIHTC projects in the metropolitan area with corresponding data.

<sup>24</sup> Cummings and DiPasquale (1998a) provide detailed information on metropolitan area comparisons.

households in higher-income neighborhoods or better quality housing in low-income neighborhoods.<sup>25</sup>

*Neighborhoods.* In many neighborhoods in our data, LIHTC projects represent the only new residential construction in recent years. Ten percent of our LIHTC projects were built in census tracts where there was no new residential construction of any kind in the five years preceding the 1990 census. Some 27 percent of the LIHTC projects in central cities are in tracts that had no new construction of *rental* housing in the previous five years.

In some central-city tracts, LIHTC units are an especially important addition because those tracts simply lack rental housing. Overall, in 13 percent of the 1,820 tracts where LIHTC projects in our sample were built, tax-credit units represented more than 20 percent of the rental housing stock in 1990. For many cities, even in neighborhoods where there is residential construction activity, LIHTC projects are a significant addition to a neighborhood's rental housing stock. In Cincinnati; Detroit; Fort Worth, TX; and Kansas City, KS/MO, LIHTC units in our sample represented more than 20 percent of the 1990 rental housing stock in nearly one-third of each city's census tracts.

*Race and income.* On average, the census tracts that house the LIHTC projects in our sample are 59 percent white, 25 percent black, and 13 percent Hispanic. This average masks the fact that a significant portion of the projects in the sample is located in racially homogeneous neighborhoods. More than 30 percent of the projects in our sample are in neighborhoods where at least 90 percent of the population is white. However, nearly 18 percent of the sample's projects are in neighborhoods with a population that is at least 90 percent nonwhite. Another 30 percent of our projects are in racially integrated neighborhoods.<sup>26</sup> In central cities, the racial concentration is even more striking: about 39 percent of the central-city neighborhoods in our sample are at least 90 percent nonwhite, and 51 percent are at least 80 percent nonwhite.

Newman and Schnare (1997) found that privately owned, subsidized rental housing, including LIHTC housing, is concentrated in

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<sup>25</sup> States could set as a goal for the LIHTC program the provision of housing for poor households in suburban jurisdictions that may offer better public schools, lower crime rates, and greater access to suburban employment opportunities. This goal is the centerpiece of HUD's Moving to Opportunity program and the Gautreaux experiment in Chicago.

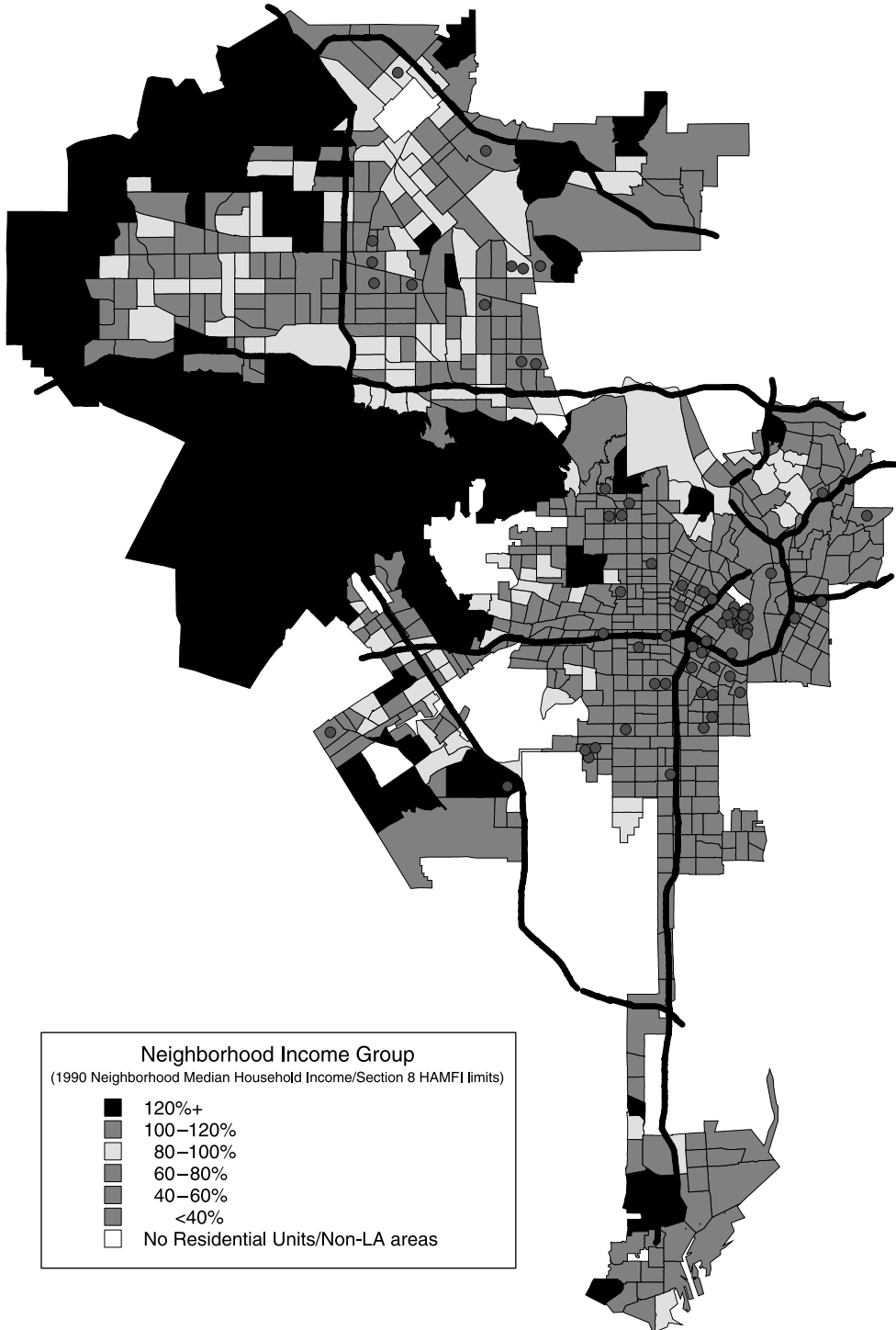
<sup>26</sup> Such neighborhoods are defined as those that have a population that is between 10 percent and 50 percent black (Ellen 1996).

low-income neighborhoods. Our data support their conclusion. Virtually all of the LIHTC projects in our sample were built in low- and moderate-income neighborhoods; about 20 percent were built in neighborhoods with median household incomes below 40 percent of the area median income. The map in figure 3 uses Los Angeles to illustrate the concentration of our LIHTC projects in poorer neighborhoods. This map shows the 1990 median household income for tracts in the city of Los Angeles as a percent of the 1990 HUD-adjusted Section 8 median family income (HAMFI) limits, which are the income limits used for Section 8 and related programs. We can see that the lowest-income tracts are concentrated in the downtown area with higher-income tracts at the periphery, a pattern repeated in all of our metropolitan areas. This pattern must be interpreted with caution, however, because in many central cities census tracts are not homogeneous; a single tract may have a wide range of household incomes and neighborhood amenities. The circles on the map represent LIHTC projects, which are clearly concentrated in low-income neighborhoods.

As shown in table 3, nearly half of the Los Angeles projects are located in neighborhoods with median incomes at or below 40 percent of the HAMFI limits for the metropolitan area. (In 1990 dollars, this represents households with an income below \$16,600, which roughly corresponds to the 10th percentile of actual household income in the city of Los Angeles.) Another 39.4 percent of the projects are in neighborhoods with median incomes between 40 and 60 percent of the area median. Still, several projects are located in higher-income neighborhoods, mostly near the city borders. In Los Angeles, these projects are scattered across neighborhoods and are less concentrated than the projects in the poorer neighborhoods near the center of the city. (One tract in Los Angeles has nine of our LIHTC projects.) Los Angeles has one project in a census tract in the Westchester area, which has a median income of \$63,500.

Table 3 also presents summary statistics of five other cities for comparison; it is striking how similar these metropolitan areas are in the extent to which the LIHTC projects are serving low-income neighborhoods. The portion of projects in tracts with incomes less than 60 percent of the area median income ranges from 60 percent in Boston to 89.6 percent in Chicago. Very few projects in any of these cities are located in neighborhoods with median incomes at or above the HAMFI limits. It should be noted that some of these cities have very few tracts with median incomes at or above the HAMFI limits. In the city of Boston, for example, only four of the city's 165 census tracts have median incomes at or above the HAMFI limit; in the city of Chicago, only 41 of 867 tracts have median incomes at or above the area median income limit.

Figure 3. Los Angeles LIHTC Projects by Neighborhood



*Table 3. Distribution of Projects by Neighborhood Income Group*

	1990 Neighborhood Median Household Income/HUD Section 8 Median Limits							Total Number of Projects
	<40%	40 to 60%	60 to 80%	80 to 100%	100 to 120%	120% +		
Boston, MA	30.0	30.0	40.0	0.0	0.0	0.0	20	
Chicago, IL	64.6	25.0	6.3	4.2	0.0	0.0	48	
Brooklyn, NY	24.0	57.3	12.0	5.3	1.3	0.0	75	
Manhattan-Bronx, NY	51.8	36.9	5.0	3.5	1.4	1.4	141	
Los Angeles, CA	45.1	39.4	9.9	4.2	0.0	1.4	71	
Philadelphia, PA	55.6	33.3	7.4	3.7	0.0	0.0	27	

*Sources:* Neighborhood Median Household Income is census tract income from 1990 Census of Population and Housing Summary Tape File 1C. 1990 HUD-adjusted Section 8 Median Family Income limits are from HUD.

The evidence provided in table 3 suggests that in major central cities the LIHTC program is used much more often to provide better housing in poor neighborhoods than to provide affordable housing in higher-income neighborhoods. This may be because of explicit policy goals to site affordable rental housing in poorer neighborhoods, or because land in higher-income urban areas is scarce or prohibitively expensive, or a combination of both factors. Suburban projects are much more likely to be located in higher-income neighborhoods, providing affordable housing opportunities for low-income households. Suburban projects represent 24 percent of all projects and 36 percent of metropolitan projects in the sample. In our data, 37.8 percent of suburban LIHTC projects are located in neighborhoods with incomes at or above the area median; only 9.4 percent of central-city LIHTC projects are located in these higher-income neighborhoods.

### *Are LIHTC projects financially viable?*

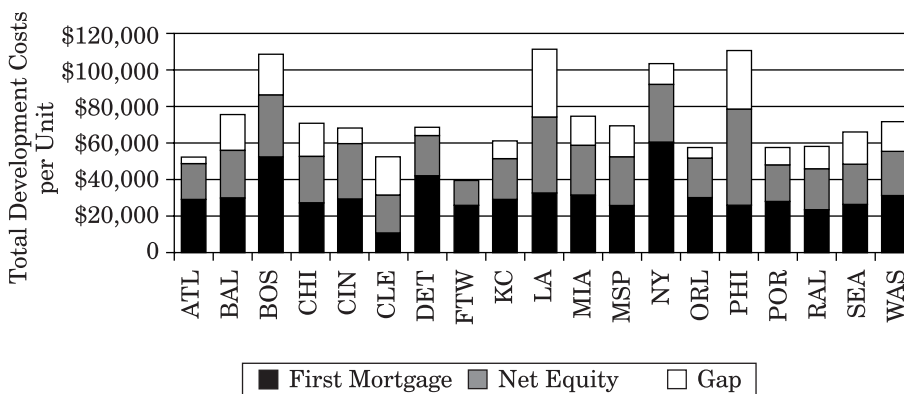
*Unit type and TDC.* Not surprisingly, there is wide variation in the types and costs of units provided across metropolitan areas.<sup>27</sup> The flexibility provided to the states by the LIHTC program allows for a wide range of housing policies and goals, and therefore a wide range of types of projects. For example, in Los Angeles, state and local officials have favored single-room occupancy (SRO) projects, which often serve as transitional housing for the homeless; 50 percent of the LIHTC units in the Los Angeles metropolitan area are efficiencies (compared with 16 percent efficiencies for the overall rental stock in the Los Angeles metropolitan area). As we saw on the map, these projects are overwhelmingly built in low-income, central-city neighborhoods.

In other markets, units for larger families are the focus of the LIHTC program. In Cincinnati, 58 percent of LIHTC units have three bedrooms or more (compared with 17 percent of the metropolitan area's rental housing stock). In metropolitan Philadelphia, 42 percent of the LIHTC units have three or more bedrooms, compared with 22 percent in the rental stock. Clearly, these cities are emphasizing housing families.

Figure 4 illustrates how TDC varies widely across metropolitan areas. Average TDC per unit ranges from \$36,700 in Fort Worth–Arlington, TX, to \$110,000 in Los Angeles. The high-cost areas of California and the Northeast have the highest average TDC per unit, with units in the Boston, New York, Philadelphia, and Los Angeles metropolitan areas all averaging more than \$100,000. Figure 4

<sup>27</sup> See Cummings and DiPasquale (1998a) for more detailed data on unit types across metropolitan areas.

Figure 4. Total Development Costs per Unit by Metropolitan Area

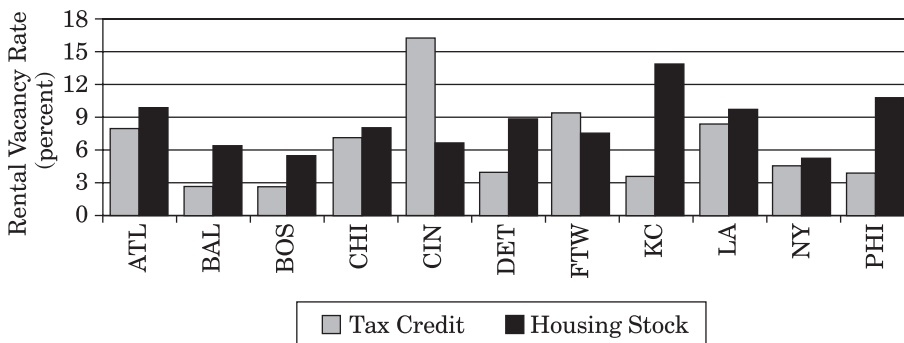


Notes: We consider metropolitan areas only where the sample has at least 15 LIHTC projects. N = 42,514 units. All dollar figures are in 1996 dollars.

also illustrates the wide variation in the size of first mortgages and the uses of gap financing.

*Vacancies and rents.* In 1995, the overall vacancy rate for the 87,623 units in the 1,624 projects for which we have vacancy data was 5.8 percent, well below the national rental vacancy rate of 7.6 percent. Figure 5 shows that in almost all of the metropolitan areas presented, LIHTC vacancy rates are considerably lower than corresponding rates for the metropolitan market. LIHTC projects clearly are faring well in many markets, such as Philadelphia and Kansas City, KS/MO, where LIHTC vacancy rates are quite low despite an overall soft rental market. In Cincinnati, however, the av-

Figure 5. 1995 Vacancy Rates by Metropolitan Area



Source: 1995 Housing Vacancy Survey, U.S. Bureau of the Census.  
 Notes: Figures are for rental units only. N = 360 projects; 21,539 units.

erage LIHTC vacancy rate is a very high 16.4 percent, while the market vacancy rate is only 6.6 percent. Cincinnati focuses on large units. It seems that developers and/or the state LIHTC allocation agency may have misjudged this market.

All participants in LIHTC projects are concerned with whether sufficient demand exists for these units at rent levels that cover costs. The LIHTC program sets maximum rents for units earning tax credits. The maximum rent is 30 percent of the maximum income that can qualify for a tax credit unit. This maximum income is set at 60 or 50 percent of the HAMFI limits for the area. If property owners choose 60 percent of area median as the maximum, then at least 40 percent of the units must be occupied by households with incomes at or below this level; if owners choose 50 percent of area median as the maximum income, then 20 percent of the units must be occupied by households at or below this income level.

To assess the market for their units, developers consider rent levels and vacancy rates in comparable buildings. The median contract rent of the 120,419 units in the sample with rent data was \$436 in 1996 dollars.<sup>28</sup> U.S. GAO (1997) estimated rents for tax credit units from 1992 to 1994 at \$453, or about \$480 in 1996 dollars. On average, rents for units in our sample are 9 percent lower than the average rent for the nation (1995 American Housing Survey).<sup>29</sup>

In table 4 we compare LIHTC rents in our sample for two-bedroom units with fair market rents (FMRs) for two-bedroom units, defined by HUD as the rent representing the 40th percentile of the distribution of rents paid by recent movers.<sup>30</sup> The median two-bedroom LIHTC rent in our sample is below the FMR in all cities except Baltimore and Boston. In Baltimore, Boston, Chicago, and Kansas City,

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<sup>28</sup> LIHTC rents are the most current unit rents available (most from 1992 to 1996, with more than half from 1995), inflated to 1996 dollars using the applicable metropolitan or regional Bureau of Labor Statistics rent index.

<sup>29</sup> The 1995 national median rent for recent movers in 1996 dollars was \$480. Recent movers are defined as households that moved in the five years prior to the survey. In using census data, we focus on rents paid by recent movers because we assume that recent leases reflect market transactions. As length of tenancy increases, rents may not be adjusted to keep up with market conditions. Because renters tend to move frequently, recent movers tend to capture the majority of the rental market; in the 1995 American Housing Survey, 76 percent of renters moved in the previous five years.

<sup>30</sup> FMRs were changed from the 45th percentile of the rent distribution to the 40th in 1995. We use 1995 FMRs; all rents are inflated to 1996 dollars using metropolitan residential rent Consumer Price Indexes (CPIs) for all urban consumers from the Bureau of Labor Statistics. Cummings and DiPasquale (1998a) provide detailed comparisons across metropolitan areas of LIHTC rents and average market rents based on 1990 census data.

Table 4. LIHTC and Fair Market Median Rents for Two-Bedroom Units

Metropolitan Area	LIHTC Rent (\$)	Fair Market Rent (FMR)(\\$)	LIHTC Rent as a percent of FMR
Atlanta, GA	557	622	90
Baltimore, MD	679	603	113
Boston, MA	850	808	105
Chicago, IL	622	709	88
Cincinnati, OH	243	494	49
Cleveland, OH	303	515	59
Detroit, MI	547	568	96
Fort Worth, TX	435	534	81
Kansas City, KS/MO	441	492	90
Los Angeles, CA	530	862	62
Miami, FL	489	766	64
Minneapolis–St. Paul, MN	518	617	84
New York, NY	434	821	53
Orlando, FL	477	633	75
Philadelphia, PA	429	683	63
Portland, OR	542	576	94
Raleigh, NC	396	550	72
Seattle, WA	540	679	79
Washington, DC	598	853	70

Source: FMRs from Office of Policy Development and Research, HUD.

Notes: City Research rents are for two-bedroom units only. N = 13,337 units. FMRs are 1995 FMRs calculated at 40th percentile. All figures inflated to 1996 dollars using metropolitan residential rent Consumer Price Indexes for all urban consumers from the Bureau of Labor Statistics.

more than 30 percent of LIHTC units in our sample have rents that exceed the area FMR.

What accounts for the rather high rents we see for some units in our sample? First, the LIHTC rents in our sample include some market-rate units, which we could not identify in our data. The data suggest that 83 percent of the projects in our sample are 100 percent affordable (have only “qualified” units) and that only

4 percent of the units overall are market rate.<sup>31</sup> More important, LIHTC units are often much newer than other multifamily units nearby and may come with more amenities than those provided by existing units. As we have shown, in many areas LIHTC projects are the only new construction in the neighborhood. In addition, these high rents may be due to the presence of other subsidies in the development. The rents for units in our sample reflect total rent paid including all subsidies. The LIHTC rent limits are based on the tenant rent payment only; the total contract rent is made up of the tenant payment and rental subsidies and may exceed the maximum allowable tax-credit rent. For a tenant with a Section 8 certificate or voucher, the LIHTC rent limit applies only to the portion of rent paid by the tenant and does not include the certificate or voucher. There is an important distinction between Section 8 certificates and vouchers. If the tenant has a Section 8 certificate, then the total rent paid including the tenant portion and the certificate cannot exceed the FMR under Section 8 rules. However, if the tenant has a Section 8 voucher, the tenant can elect to pay more than the FMR by paying more than 30 percent of his or her income in rent. In addition, if there is a project-based Section 8 contract in areas designated as high cost by HUD, such as Boston, rent maximums can be set as high as 120 percent of FMRs. U.S. GAO (1997) estimates that for projects placed in service between 1992 and 1994, 39 percent of LIHTC households received additional rental assistance. For 25 percent of these households, the total rent paid on the unit exceeded the maximum LIHTC rent (U.S. GAO 1997, 45).

*Cash flow.* How do rents compare with operating costs? We use operating revenue and expense data for 1995, the most recent data available, to examine how projects have performed.<sup>32</sup> As shown in figure 6, 1995 operating revenues exceed operating expenses for 78 percent of the projects.<sup>33</sup> Almost 83 percent of the projects developed by for-profit firms had positive cash flows, while only 60 percent of those developed by nonprofits had positive cash flows. While the vast majority of projects had strong cash flows, a significant minority appears to have had cash flow problems. For 10 percent of

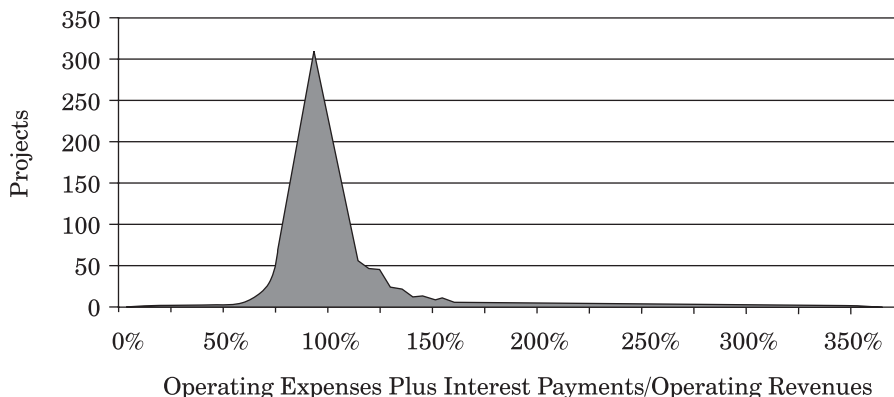
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<sup>31</sup> U.S. GAO (1997) estimated that 88 percent of its projects and 95 percent of its units qualified from 1992 to 1994.

<sup>32</sup> We include in this analysis only those projects that almost certainly have been fully leased by excluding projects acquired by the syndicators after 1993, ensuring at least two years for construction and leasing. In addition, we inspected vacancy and rent history for all projects whose operating expenses exceeded their revenues, to ensure that long delays in construction were not influencing the result.

<sup>33</sup> Operating expenses are defined as maintenance, taxes, insurance, and interest actually paid on debt, but do not include reserve or principal mortgage payments. Operating revenues are defined as effective gross rents including subsidies, interest income, and other income.

Figure 6. Distribution of Expense-to-Revenue Ratios

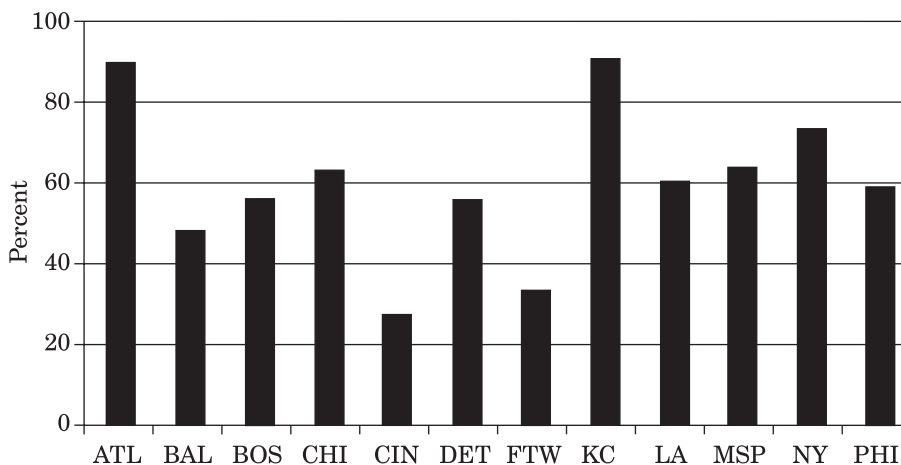


Note: N = 1,671 projects.

the projects, operating expenses equaled or exceeded 115 percent of revenues.

Figure 7 shows the percentage of projects in each metropolitan area with positive cash flows. The portion of projects with positive cash flows across the metropolitan areas varies from 91 percent in Kansas City to 27 percent in Cincinnati. The mean expense-to-revenue ratio in Kansas City was 0.86 while the mean expense-to-revenue

Figure 7. Percent of Projects with Positive Cash Flow by Metropolitan Area (Operating Revenue Greater than Operating Expenses Plus Interest Payments)



Note: N = 370 projects.

ratio in Cincinnati was 1.19. Although Kansas City's overall vacancy rate is quite high, as shown in figure 5, indicating a soft rental market, the LIHTC project rents and vacancy rates are rather low. Clearly, LIHTC developers in Kansas City have effectively targeted a segment of the rental market. In contrast, in Cincinnati, LIHTC rents and vacancy rates are quite high relative to the overall rental markets and only 27 percent of the LIHTC projects are running in the black, suggesting that this market was misjudged. In Boston, 56 percent of the LIHTC projects had a negative cash flow. Boston's mean expense-to-revenue ratio was 1.11. This is somewhat surprising, given Boston's LIHTC rents, which are higher than comparable city and metropolitan rents, and the relatively low vacancy rates for Boston's LIHTC projects.

LIHTC projects often are tightly run, with operating revenues just covering operating expenses. Increasingly, strong incentives exist to keep net income near zero, as many soft loans are structured to require payment only if cash flow is positive. In Los Angeles, for example, only 60 percent of the LIHTC projects had positive cash flows. This may not be surprising, given Los Angeles's focus on SROs, which may have higher expenses and higher turnover rates than other types of projects. In addition, cuts in local subsidies may have adversely affected these projects. While participation by state and local governments clearly bring important benefits to these projects, relying on these subsidies can be risky if their availability changes with shifts in budgets or political climate.

Despite incentives to keep net income close to zero, no project can continue indefinitely with expenses exceeding revenues. Syndicators and investors indicate that as projects increasingly are structured to provide no positive cash flow, funding reserves becomes very important. Because we are only 11 years into the program, there is no evidence on how these projects will fare when they need substantial capital infusions for renovations or systems replacement. How well these projects clear such hurdles will be a major determinant of long-term viability.

### *Which income groups does the program serve?*

Because the LIHTC program has been the *de facto* federal housing production program for more than a decade, the program has been used, at times in very creative ways, to meet a variety of goals. While the legislation creating the LIHTC is not explicit about which households the program is meant to target, it clearly was not designed to produce housing that is affordable to the very poor, at least not without considerable additional subsidies. The income limits under the LIHTC program of 50 and 60 percent of area median income result in rents that are beyond the means of many poor

households. Wallace (1991, 223) showed that 31 percent of subsidized renter households had incomes below 20 percent of area median income. The difficulty in reaching the poorest households is not unique to the LIHTC program. Various federal production programs that preceded the LIHTC and also focused on providing affordable housing by subsidizing development of privately owned rental housing also had difficulty meeting the housing needs of the poorest households without additional subsidy.

While our data do not include information on tenants, rent data can be used to estimate the income levels of households served by units in our sample. Following Stegman (1991), we examine the extent to which the federal government's affordable housing program meets the needs of the nation's households. Assuming that 30 percent of household income is paid in rent, the income for a household paying the median rent of \$436 in our sample would be \$17,440 (in 1996 dollars). Using the 1990 Public Use Microdata Sample (PUMS) of the census, we find that median household income for the nation is \$37,216 (in 1996 dollars).

The median rent paid on our sample of tax credit units therefore implies a household income that is about 48 percent of the national median household income. This may, in fact, overstate the incomes of tenants in our sample because the median rent figure includes some unknown portion of additional tenant subsidies, and some households in our sample may be paying more than 30 percent of their income in rent. Even so, our estimate of 48 percent of national median household income is certainly within the LIHTC program limits.

Further comparisons of the rents in our LIHTC database to the income distribution of households in 1990 reinforces the point that LIHTC units do not reach the very poor without substantial additional subsidies. In 1990, based on PUMS data, 53 percent of *renter* households in the nation were eligible for LIHTC units by having incomes at or below 60 percent of the applicable area median income, as determined by the program (using 1990 incomes inflated to 1996 dollars). Of those qualifying renters, 33 percent had incomes that could make it possible for them to pay the median rent of \$436 without spending more than 30 percent of their incomes.

The medians do not tell us much about the distribution of either rents or incomes. In our sample, 75 percent of rents are at or below \$543, a rent implying an income of \$21,707 if the household spends 30 percent of its income on rent. Of qualifying renter households, 17 percent could afford this rent without additional subsidies. At the bottom of our rent distribution, the 1st percentile, the rent is \$203 per month. This rent level is quite low, and clearly well below

the maximum levels allowed in the LIHTC program. Still, over one-third of the nation's renter households (36 percent) in 1990 could not afford even that rent.

The LIHTC program, like other federal housing programs, is dependent on the federal definition of the applicable area median incomes for setting rent and income limits. The maximum incomes in the LIHTC program are based on the Section 8 HAMFI limits, adjusted for household size, not on the actual area median household income.<sup>34</sup> Congress has authorized HUD to adjust Section 8 median income limits from actual income figures to reflect, among other things, the relative costs of housing with respect to income. In most areas, this means that HAMFI limits are higher than actual income figures.

The benefit of the adjusted Section 8 figures is that income and rent limits are higher, permitting properties to generate more income. These higher limits can be essential to the financial viability of a project. A disadvantage is that this adjustment widens the gap between the poorest renter households in the area and the renter households that realistically can be housed by the program. The HAMFI limit for a household of four for the nation is estimated at \$41,600 in 1996, 98 percent of actual median income for a four-person household. However, this income reflects all households, both renters and homeowners. Average income for renters is considerably lower than that for homeowners. According to the 1990 PUMS, the median income of renter four-person households was \$30,874 (in 1996 dollars). The HAMFI limit, therefore, is 135 percent of the actual renter median income. Using HAMFI limits rather than actual area incomes permits LIHTC rents to be set higher than what is implied by actual renter income.

In table 5, we present the incomes implied by the median rent in our sample, assuming a household size of four, and assuming that 30 percent of household income is spent on rent. We also present actual area median income for all households (owners and renters) and for renters only from the 1990 census, and HAMFI limits for 19 metropolitan areas, all adjusted for a household size of four persons. As shown in the fifth column of the table, HAMFI limits are higher than actual median incomes in many of these metropolitan areas. The divergence between HAMFI limits and renter medians is quite dramatic across all metropolitan areas. In Chicago; Cleveland; Detroit; Miami; Minneapolis/St. Paul, MN; and Washington, DC, the HAMFI limits are more than 200 percent of the actual median

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<sup>34</sup> While Section 8 incomes are applied by metropolitan area or county, for this illustration we use HUD's estimate of the national Section 8 median.

Table 5. Comparison of Median Incomes and Median Income Limits, Adjusted to Households of Four Persons

	Calculated Incomes from City Research Rents	Area Median Incomes (AMI)		HAMFI Limits	HAMFI as a Percent of All AMI	HAMFI as a Percent of Renter AMI	City Research Incomes as a Percent of Section 8 Median Incomes
		Renters					
		All Households	Renters				
Atlanta, GA	\$23,995	\$48,000	\$26,400	\$52,100	109	197	46
Baltimore, MD	23,763	48,731	30,000	52,400	108	175	45
Boston, MA	34,400	57,770	36,000	56,500	98	157	61
Chicago, IL	24,519	46,772	25,000	54,100	116	216	45
Cincinnati, OH	21,512	42,900	24,468	46,700	109	191	46
Cleveland, OH	12,759	42,348	20,000	44,600	105	223	29
Detroit, MI	24,687	48,085	23,000	50,100	104	218	49
Fort Worth, TX	19,543	42,200	26,000	47,500	113	183	41
Kansas City, KS/MO	18,752	48,500	27,432	43,600	90	159	43
Los Angeles, CA	20,589	43,509	26,400	51,300	118	194	40
Miami, FL	21,418	35,600	21,830	44,600	125	204	48
Minneapolis-St. Paul, MN	22,093	49,836	26,860	54,600	110	203	40
New York, NY	19,362	42,500	29,000	49,000	115	169	40
Orlando, FL	21,432	40,995	27,300	41,900	102	153	51
Philadelphia, PA	19,561	47,430	25,300	49,300	104	195	40
Portland, OR	22,299	42,000	26,460	44,400	106	168	50
Raleigh, NC	17,888	47,500	30,600	50,700	107	166	35
Seattle, WA	22,904	48,990	31,000	52,800	108	170	43
Washington, DC	28,208	42,000	28,000	68,300	163	244	41

Sources: City Research incomes calculated by dividing City Research rents by 30 percent. Area median incomes from Public Use Microdata Sample (PUMS) of the 1990 Census. HUD data provided to authors by HUD.

Notes: HAMFI is HUD-adjusted Section 8 median family income limits. HAMFI was calculated as two times very low income limit for households of four for 1996. Very low income limit is defined as 50 percent of HAMFI. All dollar figures are in 1996 dollars.

income for renter households. The last column shows that the estimated incomes for a household occupying an LIHTC unit with the median rent in our sample range from 29 percent of HAMFI limits in Cleveland to 61 percent in Boston.

The illustration of affordability of LIHTC units presented in table 5 clearly shows a tension in setting national housing policy. The HAMFI limits are an important part of the eligibility criteria for privately owned subsidized housing. Basing Section 8 income limits on the income distribution of all households rather than on renter households pushes all programs that depend on these definitions, including the LIHTC program, toward higher-income renters. Permitting increases in Section 8 income limits above actual income levels results in rents that make many projects financially viable, particularly in areas with high housing costs, but also results in rents that require higher incomes, greater additional subsidies, or higher rent burdens on households.

### **Who is financing LIHTC projects?**

As discussed in the introduction, the LIHTC program is structured to combine the efficiencies of the private market with the public policy goals of government participants. An important aim of the program is to leverage public financing sources with private dollars. Even though LIHTC rents are often out of reach of the poorest households, the previous section illustrates that LIHTC projects are often dependent on additional subsidies to be financially viable. To reach lower-income families, the program would need even greater subsidies.

The production of LIHTC housing depends on four key actors: the developer; the lender, who provides market rate and subsidized debt; the ultimate investor, who puts up the equity in exchange for the tax credits; and the tax-credit syndicator, who acts as a broker between the developer and the investors. Each financial participant, in effect, wants its contribution to be the last piece in the transaction. The federal government requires that states allocate the minimum amount of tax credits necessary to make a project viable. State and local governments want to use the smallest subsidies possible to make a project viable, so that their subsidy dollars can build more projects. Private lenders want more government subsidies in the transaction because, since the first mortgage holder has the first lien, the presence of subsidy decreases the lender's risk of loss if the borrower defaults on the mortgage (DiPasquale and Cummings 1992, 91–92).

As shown below, our data provide some information on syndicators and extensive information on lenders and investors. The only information our data provide on developers is whether they are for-profit or nonprofit; we use these data throughout this article.

### *Syndicators*

Syndicators pool several projects into one tax-credit equity fund and market the credits to investors, who buy a portion of the fund, thus spreading investor risk across the fund's various projects. Syndicators also provide underwriting, legal, and accounting services required to syndicate the tax credits; structure investments to meet individual investor needs; monitor projects for the investors; and sometimes fund reserves for fund-level legal and administrative costs.

Our data do not permit us to isolate the fees paid to syndicators. However, we do know the gross equity raised and the net equity, which is the equity that actually ends up in the project. The difference between net and gross equity represents syndication fees, overhead, fund-level reserve funds, legal and asset management fees, bridge loan interest, and other miscellaneous costs. In our data, the mean ratio of net equity to gross equity is 0.71 and has remained fairly steady over time. While there has not been much change in the ratio of net equity to gross equity, there may have been significant changes in where the difference between the two has gone. For example, our interviews with investors and syndicators suggest that, over time, more investors have extended the time over which they pay in their equity, which has increased the amount of bridge loan interest paid. While our data do not permit us to track bridge loan interest, an increase in bridge loan interest, holding the net equity to gross equity ratio constant, would mean a decrease in other fees, which suggests that syndicator fees have declined over time.

### *Lenders*

LIHTC projects rely heavily on debt financing from private and government lenders. Debt financing includes first mortgage loans and gap financing, which includes all other mortgages and soft loans. In addition, we include grants in gap financing.

*First mortgage loans.* Private-sector lenders are an important source of financing for LIHTC projects. In our sample, private banks provide about 40 percent of non-Section 515 first mort-

gages.<sup>35</sup> State governments provide 26 percent, local governments 19 percent, and nonprofit organizations 9 percent. For-profit developers are much more likely to use private lenders for first mortgages than are nonprofit developers; private lenders provide 51 percent of the first mortgages on non-Section 515 projects developed by for-profits but only 30 percent of the first mortgages on non-Section 515 projects developed by nonprofits.

First mortgages from state and local governments can be similar to those from private lenders with respect to term, interest rate, and payment schedules, or they may be subsidized mortgages with below-market interest rates or soft loans that are more like grants. In some cases, payments on loans from state and local governments may be forgiven if the project is in trouble. However, since grants are excluded from the eligible basis for determining tax credits, it is often important to ensure that soft loans are counted as loans and not grants.<sup>36</sup> Our sample data do not provide enough information in a sufficient number of cases to distinguish between hard and soft first mortgages.

Although private lenders are a primary source for first mortgages, their first mortgages cover, on average, a smaller portion of TDC than government lenders, with the banks' loan-to-TDC ratio<sup>37</sup> averaging 40 percent, local governments' 50 percent, and state governments' 43 percent. Loan-to-TDC ratios for nonprofit lenders are lower, averaging 28 percent. In addition, the loan-to-TDC ratios for private-bank first mortgages have declined over time (from 56.1 percent in 1987 to 34 percent by 1996). This is puzzling because our sample offers no evidence that banks are lending on riskier (in terms of location) projects over time. During the same time, the average loan-to-TDC ratio for state and local governments has held steady at about 45 percent.

Interest rates on these mortgages vary across lenders as well. Rates on private-lender first mortgages in our data average about 180 basis points (bps) above state government rates and 561 bps above lo-

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<sup>35</sup> Since the RHS provides first mortgages on Section 515 projects, this analysis is limited to non-Section 515 projects.

<sup>36</sup> Section 42 of the Internal Revenue Code states clearly that federal subsidies must be subtracted from the eligible basis, although there have been recent regulations making some exceptions. The LIHTC code is less specific on state and local subsidies, although Guggenheim (1994, 36) specifies that nonfederal grants are deducted from the eligible basis while nonfederal loans may be included.

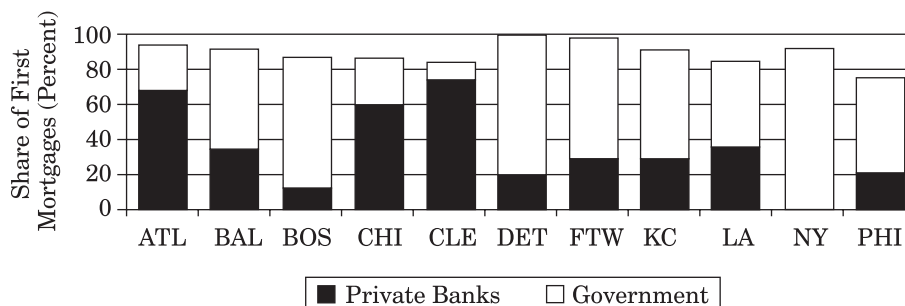
<sup>37</sup> These ratios are loan-to-TDC, not loan-to-value (LTV), a standard measure that was not available in our data. LTV is based on appraised market value of the building, which can be lower than TDC for affordable rental housing projects.

cal government rates. In 1996, the private-lender rate in our data was 104 bps above the rate on 30-year treasuries. This relationship has changed considerably over time. In the early years, the average rate on mortgages from private banks hovered around the 30-year treasury rate. These low rates may reflect the considerable amount of LIHTC project lending done through the community lending or Community Reinvestment Act (CRA) branches of banks, which sometimes provide concessionary rates. The spread over treasuries has increased in recent years, perhaps due to a decrease in the availability of concessionary financing or the mainstreaming of some LIHTC mortgage lending into commercial lending divisions of banks.

Not surprisingly, the roles of different types of lenders vary widely across local markets, as shown in figure 8. In Cleveland, Atlanta, and Chicago, private lenders play a major role in first mortgage lending for tax-credit projects in our sample, providing 81, 67, and 60 percent of the mortgages, respectively. In New York, private banks provide no first mortgages, and in Boston they provide only 8.3 percent of the mortgages. In New York City, the city provides virtually all LIHTC mortgages, with rates averaging 1.2 percent, a very significant subsidy. In the Boston metropolitan area, two-thirds of the mortgages are provided by the state, at an average rate of 8.7 percent; in many cases, the rates are very close to market rates.

The portion of TDC covered by the first mortgage likewise varies across local markets, as illustrated earlier in figure 4. Combining the information in figures 4 and 8, however, suggests the differences in mortgage size for different lenders. In Cleveland, 81 percent of the LIHTC projects have mortgages from private banks, but those mortgages cover only an average of 13 percent of TDC. In At-

Figure 8. First Mortgage Lenders by Metropolitan Area



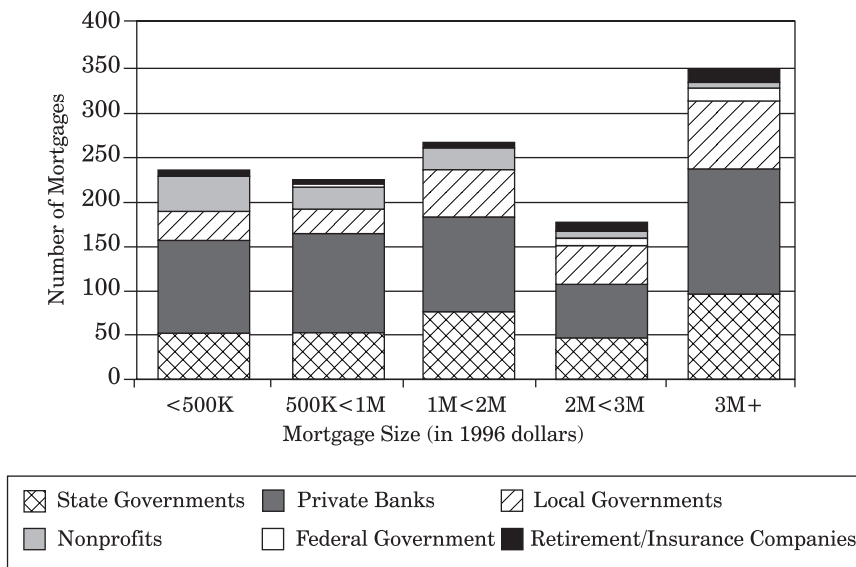
Note: N = 471 mortgages.

lanta, two-thirds of the mortgages come from banks; they cover 54 percent of TDC, on average. First mortgages from the city of New York cover 55 percent of TDC, on average.

It is often unclear whether government lending is filling a void left by private lenders or government and private lenders are competing for the same business. In New York City, for example, local policy makers decided that the city would provide mortgages on LIHTC transactions, eliminating private lenders from the tax-credit market. In other cities, there is no government institutional or financial capacity to lend on rental housing and hence private lenders dominate the market. In the majority of markets we have examined, there appears to be a mix of private and government lending.

Market participants indicate that it is more difficult to obtain conventional mortgage debt for smaller projects because lender fees are based on mortgage size and larger loans are more profitable (see Cummings and DiPasquale 1998b). Figure 9, however, illustrates that private banks are leading lenders for mortgages of all sizes. They are responsible for nearly half of all mortgages of less than \$1 million, and 40 percent of the mortgages of \$3 million or more. State and local governments have the largest share of all mortgages over \$1 million. Of course, our data provide no information on proj-

Figure 9. First Mortgage Size by Lender Type



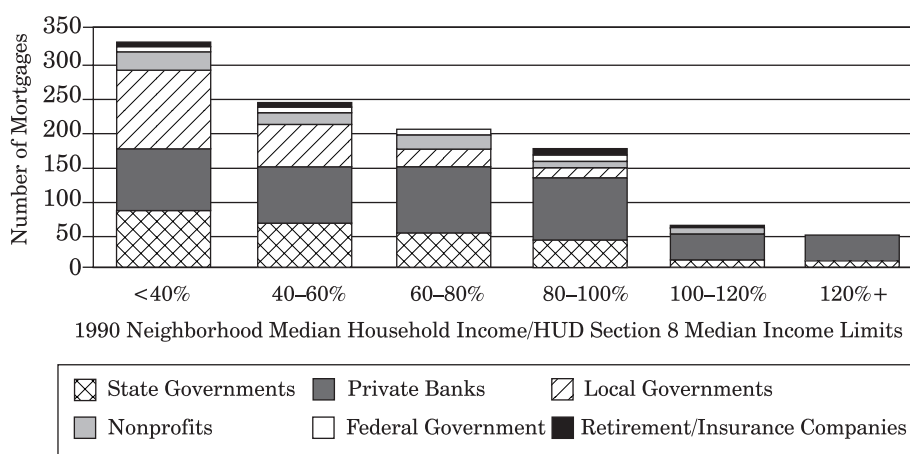
Notes: Federal Government includes Federal Home Loan Bank, Fannie Mae, and other non-Section 515 federal sources. N = 1,257 mortgages.

ects that were abandoned because conventional mortgages were not available.

There has long been concern that lenders are hesitant to make loans on properties located in low-income neighborhoods. As shown in figure 10, private banks are a significant source of first mortgages in all neighborhoods, regardless of income. In the poorest neighborhoods (with median income less than 40 percent of HAMFI), banks provide one-quarter of first mortgages, states provide one-quarter, and local governments provide 37 percent. Private banks are clearly the dominant provider of mortgages for LIHTC projects in higher-income neighborhoods. Again, we have no information on the distribution of projects by neighborhood that were not built because of lack of mortgage financing.

*Gap financing.* Forty percent of the projects in our sample have gap financing, often critical to a project’s economic viability.<sup>38</sup> State and local governments are the source for nearly 70 percent of the loans

Figure 10. Non-Section 515 First Mortgage Lenders by Neighborhood Income Group



Sources: Neighborhood income level is the ratio of the 1990 neighborhood median household income, from 1990 Census of Population and Housing Summary Tape File 3A, to the 1990 HUD-adjusted Section 8 median family income (HAMFI) limits for the metropolitan area or nonmetropolitan county.

Notes: Federal government includes Federal Home Loan Bank, Fannie Mae, and other non-Section 515 federal sources. N = 1,041 mortgages.

<sup>38</sup> For the 60 percent of projects without gap financing, tax-credit equity and a first mortgage stand alone to provide the financing for the project. Of these projects, 63 percent have Section 515 financing.

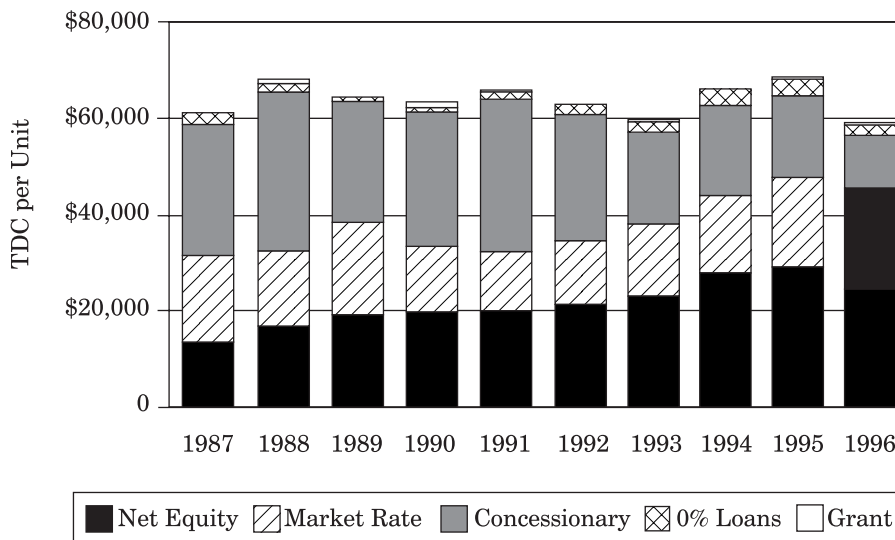
and grants included in gap financing. Nonprofits provide 11 percent of the loans and grants in gap financing, while private banks fund 5 percent, although, on average, bank loans tend to be about twice the size of loans from nonprofits. Rates on non-first mortgage loans vary considerably, from 0 to 15 percent. Of the 2,554 projects in our data, only 85 projects are identified as having grants. However, 261 projects had 0 percent loans, which in many cases are very much like grants; there is often a presumption that 0 percent loans will not be repaid.

*Importance of concessionary financing.* We make a distinction between gap financing and concessionary financing. Gap financing is any financing beyond the tax credit equity and the first mortgage. Concessionary financing is any financing with a below-market interest rate. As discussed above, many first mortgages, especially among those provided by state and local governments, have below-market interest rates. Because market rates may vary across local markets, we cannot know with certainty when a mortgage carries a concessionary rate. We use the rate on 30-year constant maturity treasuries (CMT) as a conservative measure of market interest rates. Rates below the CMT rate are assumed concessionary while those above the CMT rate are categorized as market-rate loans.

Using this definition, 64 percent of all the first mortgages in our sample carry a below-market interest rate; 2 percent have a 0 percent interest rate. For non-Section 515 first mortgages, 38 percent have below-market interest rates. Of the gap financing, 64 percent carry below-market interest rates and 23 percent have a 0 percent interest rate. Figure 11 revisits TDCs for all of our projects, including Section 515 projects. This time, we show the portions of TDC financed by market-rate loans, concessionary financing, 0 percent interest rate loans and grants, and LIHTC equity. On average, 26 percent of TDC is covered by market-rate financing; 40 percent by below-market financing, 0 percent interest loans, and grants; and the remaining 34 percent is covered by LIHTC equity. The portion of TDC covered by market-rate financing has been growing slowly since the early 1990s. Grants and all concessionary financing combined peaked at 52 percent of TDC in 1991 and have been declining steadily since, representing 30 percent of TDC by 1995.

Figure 12 compares the types of financing used for different kinds of projects. The first set of bars compares units with and without Section 515 financing. On average, non-Section 515 units cost 43 percent more than Section 515 units. For Section 515 projects, the low TDC per unit coupled with the deep discount of Section 515 mortgages results in projects funded virtually entirely by net equity (19 percent) and concessionary financing (79 percent).

Figure 11. Total Development Costs by Financing Type

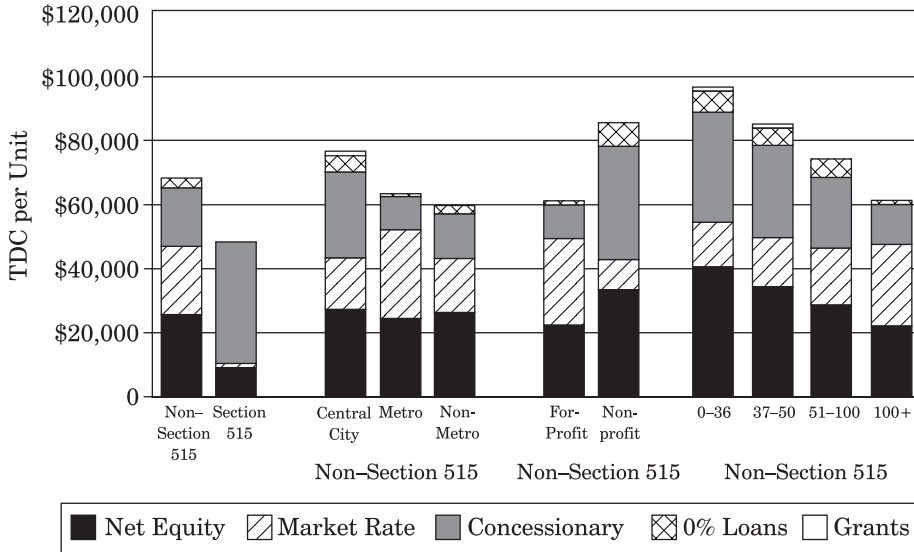


Notes: All dollar figures are in 1996 dollars. N = 2,089 projects; 120,125 units.

Non-Section 515 projects exhibit significant differences in types of financing as well. As shown in the second set of bars, suburban projects use virtually no soft loans or grants and have little concessionary financing. In contrast, central-city projects use relatively little market-rate financing. In central cities, concessionary financing and grants make up a significant portion of TDC—about 43 percent of TDC, compared with 17 percent in the suburbs and 28 percent outside of metropolitan areas. Figure 12 also illustrates the importance of concessionary loans and 0 percent loans for projects developed by nonprofits and for smaller projects.

Finally, we find considerable variation in types of financing used across metropolitan areas. Figure 13 demonstrates that below-market loans dominate in most cities. In Chicago, concessionary loans and 0 percent loans are very important; and in New York, concessionary loans from the city dominate the financing of LIHTC projects. Figure 8 illustrated that most of the LIHTC projects in Cleveland have first mortgages from private banks, but we noted that the amount of TDC covered by those mortgages is very small. As a result, market-rate mortgages are a small fraction of TDC in Cleveland, as shown in figure 13. Market-rate financing is clearly very important in some markets, such as Atlanta, Boston, and Washington, DC. These results are consistent with the wide variation that we found in the roles of private and public lenders across local markets.

Figure 12. Total Development Costs for Each Financing Type by Project Type



Notes: All dollar figures are in 1996 dollars. N = 2,237 for projects and 130,761 units for Section 515 and Non-Section 515; 1,061 projects and 77,544 units for location; 1,239 projects and 94,533 units for developer type; and 1,269 projects and 99,238 units for project size.

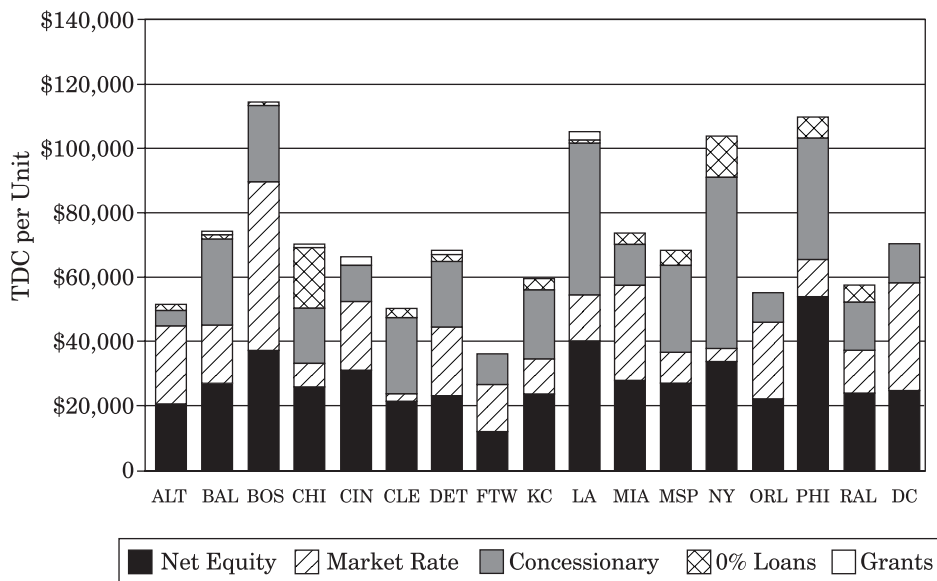
### Investors

In proposing the LIHTC as part of the Tax Reform Act of 1986, congressional members cited the need for “using tax incentives to attract private capital to low-income housing development and rehabilitation; [because] . . . absent some incentives, investment in low-income housing is a fundamentally uneconomic activity.”<sup>39</sup> Because of rent limits, LIHTC projects would not be expected to generate market rates of return without the stream of tax credits. Private investor participation also was expected to add a layer of oversight. Because the return to investors in tax credits is dependent on the project staying in compliance, investors have an incentive to ensure that the development continues to meet requirements.<sup>40</sup>

<sup>39</sup> Senator George Mitchell’s entire statement can be found in the Congressional Record (1986, pp. 14,918).

<sup>40</sup> The LIHTC program was structured to include the retroactive recapture of tax credits in the case of noncompliance as an incentive to investor oversight. U.S. GAO (1997) reports that IRS compliance oversight has been inadequate to date. IRS admitted that it has not been able to estimate the extent of taxpayer noncompliance because it has not completed sufficient tax credit audits. In addition, the GAO found that the IRS tax credit audit program design itself is methodologically flawed (U.S. GAO 1997, 108–11). Improved IRS compliance oversight and enforcement are major recommendations of the GAO report.

Figure 13. Total Development Costs for Each Financing Type by Metropolitan Area



Notes: All dollar figures are in 1996 dollars. N = 594 projects and 39,514 units.

The past decade has seen significant changes in the type of investors participating in the LIHTC market. Before 1992, a substantial portion of project equity was raised through retail funds sold through brokers to individual investors. In part because of changes in passive loss rules for individual investors, and spurred by growing experience with the LIHTC program, corporate involvement became more important beginning in 1992 and now dominates the market. In recent years, particularly with the permanence of the LIHTC established in 1993, more investors have entered the market, significantly increasing the competition for LIHTC transactions. While there are no formal statistics on the number of corporations that have participated in this market, interviews with investors and syndicators suggest that 100 to 200 corporations have made LIHTC investments.<sup>41</sup>

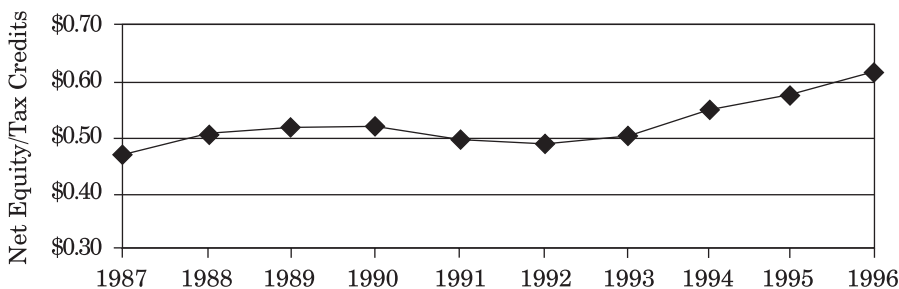
How efficient is the LIHTC program in raising equity for rental housing? The industry defines the price per tax-credit dollar as the net equity (portion of total equity that ends up in the project) divided by the total tax credits (10-year sum). This price indicates the

<sup>41</sup> Cummings and DiPasquale (1998a) report the results from a written survey of 50 corporate investors and in-depth follow-up interviews with 23 survey respondents.

portion of each tax-credit dollar spent by the federal government that actually ends up in housing, which is one measure of efficiency. Based on 2,272 projects, the price per tax credit in our sample averaged \$0.52.<sup>42</sup> This standard industry calculation of price does not discount either the net equity pay-in or the stream of tax-credit dollars. (The average “price” rises to more than \$0.70 if we use the present value of the flow of the tax credits.<sup>43</sup>) As shown in figure 14, price has risen from \$0.47 in 1987 to \$0.62 in 1996, with a dramatic increase after 1993. U.S. GAO (1997) found prices to be \$0.45 in 1987 and \$0.60 in 1996. In our survey of LIHTC investors, many indicated that 1997 prices approached \$0.70. These higher prices likely reflect, at least in part, a significant increase in competition among investors for tax credits. The rise in prices does seem to indicate a substantial increase in program efficiency over time. Some investors we interviewed were cautious about concluding that this price increase primarily represents efficiency gains, because it also may simply reflect longer pay-in times for equity, and that those differences in pay-in time are reflected in the total net equity price. While our data do not permit evaluation of trends in these pay-in schedules, the price increase seems too large to reflect only differences in pay-in schedules.

*Internal rates of return (IRR).* Investors need information on risks and returns to weigh participation in the market. Virtually no information is publicly available on risks and returns to equity investors

Figure 14. Price of Tax Credits by Year



Note: N = 2,272 projects.

<sup>42</sup> We have excluded projects with historic tax credits through the federal program designed to encourage rehabilitation of historic structures. Historic tax credits may be combined with LIHTC, but the result is a complicated financing structure that is difficult to compare with other LIHTC transactions.

<sup>43</sup> We assume that total net equity is paid in the first year and calculate price by dividing net equity by the present value of the 10-year stream of tax credits, using a discount rate of 6.7 percent, the average interest rate on U.S. Treasury securities with a 10-year constant maturity for the period of 1992 to 1994.

in LIHTC projects or to investors in other rental housing developments. A unique feature of our database is the substantial information it contains on project performance, including income statements and balance sheets. While it is still too early to fully assess the performance of LIHTC investments, because tax-credit benefits flow across 10 years and the project compliance period may extend to 30 to 40 years, these data provide a useful base for evaluating project performance to date.

The IRR is the standard industry measure of the return to investors. Our sample permits calculation of IRRs and examination of IRR trends over the history of the program. It is important to note that while syndicators and investors calculate IRRs at the fund level (IRR to investors in a fund representing a group of projects), IRRs in this study are calculated at the project level to maintain the project as the unit of analysis throughout.<sup>44</sup> Our calculations are based on a series of assumptions outlined below and do not reflect the actual IRRs to investors generated by these projects, nor do they exactly duplicate the various ways individual investors calculate potential IRRs when considering projects. While our interviews with syndicators and investors have indicated that our IRR calculations and findings are reasonable, there are no published data on LIHTC IRRs to compare with our results, and actual IRR calculations are closely guarded by syndicators and investors.

We consider two pay-in schedules: 100 percent of investment made initially, and an eight-year pay-in made in eight equal installments. For the latter schedule, payments are discounted to the initial period using an 8 percent discount rate (our assumed rate on bridge financing), and the IRR then is calculated based on the discounted equity investment and the discounted flow of benefits to the investor. Interviews with investors and syndicators indicated that longer pay-in periods were becoming very common in the mid-1990s. Using these two pay-in schedules generates good benchmarks for a reasonable range of returns, given standard practices in the marketplace. A shorter pay-in of equity will significantly decrease IRR, and a longer pay-in will significantly increase IRR. We assume an annual stream of benefits for 15 years, with the flow of tax credits to the investor for only the first 10 years (a longer stream of benefits will, of course, increase the IRR). The annual stream of benefits is calculated using the equation

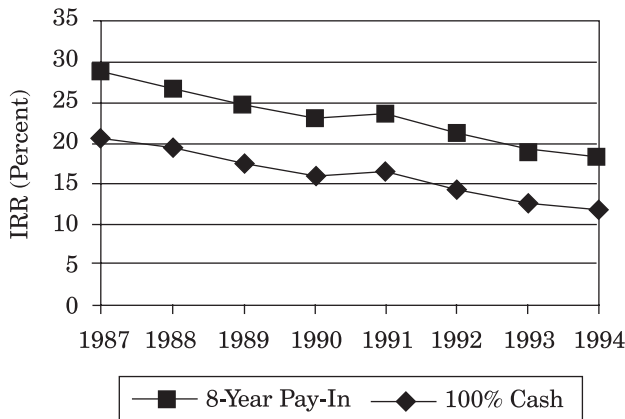
$$[ \text{Losses} \times \text{Tax rate} ] + \text{Flow of tax credits.} \quad (1)$$

<sup>44</sup> The distinction between project-level and fund-level IRRs is important. Investors in funds care only about the fund-level IRR. The syndicators can provide a blended IRR by grouping projects with varying IRRs into one pool—offsetting a project offering high returns with a more complicated project (perhaps providing community development or social service benefits) with a lower IRR.

*Losses equal total operating income minus total operating expense minus total financial expenses minus depreciation.*<sup>45</sup> A 40 percent tax rate is assumed. Operating income and expenses are based on actual 1995 data. Operating expenses are assumed to grow at 3 percent per year and operating revenue at 2 percent per year, the standard industry assumptions. We assume no residual value at the end of the investment, which is a standard assumption used in the industry; if there is a residual value, these return calculations understate actual returns.

As shown in figure 15, assuming 100 percent of the investment is paid initially, the average IRR peaked at 20.5 percent in 1987, and declined steadily through 1994 to an average of 11.8 percent. With an eight-year pay-in, the average IRR fell from 28.7 percent in 1987 to 18.2 percent in 1994.<sup>46</sup> These declines appear to reflect the pro-

Figure 15. IRRs by Year



Note: N = 1,577 projects.

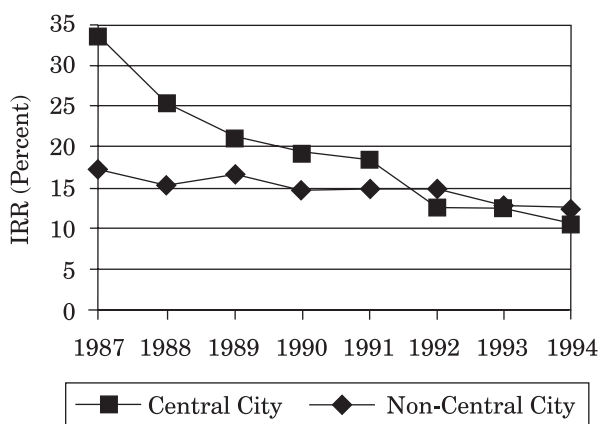
<sup>45</sup> If the investor reports a loss on the K-1 tax form, then the benefits calculation inside the brackets is equal to the loss times the tax rate. If the investor shows a profit on the K-1 form, then we calculated the benefits amount inside the brackets as equal to the profit times one minus the tax rate to account for the after-tax profit.

<sup>46</sup> As a comparison, we looked at returns to investors in equity REITs (real estate investment trusts). An equity REIT is a real estate company or trust in which shareholders own equity shares in a pool of properties. The National Association of Real Estate Investment Trusts (NAREIT) publishes annual data on total returns to investors in equity REITs. These returns have varied widely in the 1990s, ranging from -15 percent in 1990 to 35 percent in 1996. In 1994, NAREIT began tracking returns on equity REITs by property type. Total returns on apartment REITs were 2.2 percent in 1994, 12.3 percent in 1995, and 28.9 percent in 1996 (authors' calculations based on data supplied to the authors by NAREIT).

gram’s increasing efficiency over time. As more tax-credit projects have been developed, investors know more about these investments, which is likely to have decreased the perception of risks associated with them. In addition, important changes have taken place over the course of the program. One change has been the shift from public offerings of tax syndications to individual investors toward private placements with corporations. Additionally, over time, banks have become major investors in the LIHTC; these investors often are motivated more by CRA requirements than by the returns on the investments. These changes also have helped to reduce the cost of raising the capital.<sup>47</sup>

As shown in figure 16, in the program’s early years, IRRs on central-city projects were considerably higher than those for all projects in the sample. From 1987 to 1991, the gap narrowed from 12.9 to 2.1 percentage points, on average. From 1992 through 1994, the average IRR on central-city projects is quite close to the average for all projects. This declining gap may reflect a decreased perception of risk associated with central-city projects relative to other LIHTC projects. Similarly, in 1988, IRRs on nonprofit projects aver-

Figure 16. IRRs Using a 100 Percent Pay-In



Note: N = 1,342 projects.

<sup>47</sup> U.S. GAO (1997) reports that major investment syndicators and allocating agency officials attribute increased program efficiency in part to these changing investor characteristics and syndication structures. In addition, they point to equity funds developed by states and localities that add to the competition; the fact that tax-credit properties are relatively more attractive to corporations than to individuals because corporations are often exempt from passive investment loss rules that limit individual investors’ deductions; and “growth in the economy and in corporate profitability [that] has increased the taxable income that could be sheltered by tax credits” (U.S. GAO 1997, 90–91).

aged 33 percent, or 17 percentage points above those for for-profit projects. By 1992, this gap in IRRs virtually vanished, suggesting a decrease in the perception of risk associated with nonprofit developments or perhaps a change in the mix of projects done by for-profit and nonprofit developers. We further explore this finding in the discussion that follows.

In order to identify the determinants of differences in IRRs across projects, we estimated regressions with IRR as the dependent variable and various project characteristics, location, and the year the project was acquired by the syndicator as independent variables. As shown in the first regression in table 6, the acquisition year has a negative and statistically significant impact on IRR, meaning the newer the project the lower the IRR, suggesting that the perception of risk has declined over time. The estimates suggest that IRRs have declined 1.4 percentage points per year, which is consistent with the trend shown in figure 15. New construction projects have lower IRRs, perhaps reflecting the increased risk associated with rehabilitating an existing structure. Project size has no impact on IRRs. Section 515 projects generate higher returns to equity investors and the impact is statistically significant. Controlling for acquisition year and other project characteristics, projects developed by nonprofits generate higher returns to equity investors, suggesting that for comparable projects nonprofit developers are perceived as riskier than for-profit ones. There is little difference in IRRs among projects in the Northeast, Midwest, and South; however, projects in the West generate IRRs that are 2.8 percentage points lower than projects in the Northeast. Locations in the suburbs and outside metropolitan areas have IRRs that are lower than those for central-city projects, but the sizes of the coefficients are small and are not statistically significant. Similarly, the coefficients on QCT and DDA are small and statistically insignificant.

The results on location are somewhat surprising, given that we would expect location to be an important determinant of risk. To explore location further, in regression 2 we added the portion of the population of the census tract that is below poverty. Poverty has a positive and statistically significant impact on IRRs; a one standard deviation increase in neighborhood poverty increases IRRs by one percentage point. This result suggests that neighborhood characteristics may be more important in determining risk than region or central city versus non-central city locations.

### **What are the total costs in subsidies for LIHTC housing?**

All levels of government—federal, state, and local—actively participate in the LIHTC program in many areas of the country. The fed-

Table 6. IRR Regressions

Dependent Variable: IRR	Regression 1	Regression 2
<b>Location</b>		
Suburban	-0.0135 (0.0083)	-0.0093 (0.0084)
Nonmetropolitan	-0.0104 (0.0098)	-0.0107 (0.0097)
<b>Region</b>		
Midwest	-0.0046 (0.0076)	-0.0035 (0.0075)
South	-0.0056 (0.0070)	-0.0080 (0.0071)
West	-0.0284* (0.0085)	-0.0304* (0.0085)
Qualified census tract	0.0091 (0.0069)	-0.0058 (0.0089)
Difficult development area	0.0044 (0.0077)	0.0052 (0.0077)
Poverty		0.0669* (0.0251)
Acquisition year	-0.0146* (0.0012)	-0.0149* (0.0012)
New construction	-0.0264* (0.0065)	-0.0244* (0.0065)
Nonprofit developer	0.0464* (0.0080)	0.0442* (0.0081)
Section 515	0.0230* (0.0087)	0.0202* (0.0087)
<b>Project size (units)</b>		
37-50	-0.0071 (0.0060)	-0.0060 (0.0060)
51-100	0.0074 (0.0073)	0.0079 (0.0072)
101+	-0.0079 (0.0087)	-0.0068 (0.0087)
Constant	29.3675* (2.3068)	29.9402* (2.3111)
Adjusted R <sup>2</sup>	0.2300	0.2338
Observations (projects)	1,243	1,243

Note: Standard errors are in parentheses.

\* $p < 0.05$ .

eral government provides substantial subsidy through the tax credit. In addition, LIHTC projects, like all investments in multi-family and commercial real estate, receive favorable federal tax benefits. Through the Rural Housing Service's Section 515 program, the federal government also has been a major provider of first mortgages at deeply subsidized interest rates. In addition, the federal government provides tenant- and project-based assistance through Section 8.

State and local governments, as we saw, are significant providers of first mortgages for LIHTC projects, usually at subsidized rates. State and local governments also provide significant levels of subsidy through below-market first mortgages and gap financing that may take the form of subsidized debt, soft debt, and grants. State and local subsidies often may be funded by federal subsidies such as Community Development Block Grant or HOME funds. Finally, private banks, nonprofit organizations, and retirement and insurance companies together provide 29 percent of first mortgages and 17 percent of gap financing across all of our projects. More than 60 percent of these loans from nonprofit organizations are below market, and about 20 percent of the loans from private banks are below market.

### *Federal tax subsidies*

The 2,397 projects in our sample for which we have information on federal tax credits generate a total of \$5.32 billion in tax credits to investors (in nominal dollars). Because the tax credits are distributed over 10 years, this represents \$532 million in tax credits issued each year.

Table 7 builds an estimate of total subsidies per LIHTC unit in our sample. This table includes only the 2,145 projects for which we have accurate information on tax credits and interest rates. The first column shows the net present value (NPV) of the tax credits, which averages \$28,910 per unit for this subsample.<sup>48</sup> Across metropolitan areas, there is wide variation in tax credits per unit. For example, Philadelphia projects generate \$77,405 in tax credits, on average, which is 3.5 times more than the tax credits per unit in Cleveland projects.<sup>49</sup>

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<sup>48</sup> We calculate the NPV of the 10-year stream of the annual tax credit payments using the GAO's annual discount rate of 6.7 percent, and then convert to 1996 dollars using the CPI.

<sup>49</sup> U.S. GAO (1997) showed a wide range in state allocation of credits: For the years 1992 to 1994, state tax-credit allocations per unit ranged from a high of \$67,220 in California to \$10,120 in Mississippi (in undiscounted, nominal dollars).

Table 7. Estimated Total Subsidies Per LIHTC Unit

	Subsidies				Units	
	Tax Benefits	Financing	TDC	Subsidy/ TDC(%)		
	NPV of Tax Credits	NPV of Subsidies from Grants and Concessory Loans	Total			
All Projects	\$28,910	\$14,635	\$43,545	\$64,059	68.0	124,061
With Section 515	13,043	31,579	44,622	48,680	91.7	31,148
Without Section 515	34,229	9,104	43,333	69,215	62.6	92,913
Without Section 515						
By Location						
Central City	36,609	15,375	51,984	76,221	68.2	42,676
Suburban	31,923	3,104	35,027	63,522	55.1	25,044
Nonmetropolitan	33,092	6,271	39,363	59,581	66.1	5,035
By Metropolitan Area						
Atlanta, GA	28,886	1,859	30,745	53,126	57.9	2,670
Baltimore, MD	33,220	11,704	44,924	72,715	61.8	2,111
Boston, MA	43,514	7,603	51,117	117,498	43.5	1,347
Chicago, IL	35,628	16,586	52,214	71,069	73.5	2,321
Cincinnati, OH	33,385	7,449	40,834	66,993	61.0	1,163
Cleveland, OH	22,113	10,647	32,760	50,874	64.4	1,392
Detroit, MI	30,636	4,824	35,460	68,880	51.5	1,431
Kansas City, KS/MO	37,037	8,334	45,372	65,134	69.7	1,630
Los Angeles, CA	52,003	21,336	73,339	104,410	70.2	3,231
Miami, FL	34,454	6,224	40,678	73,585	55.3	1,383
Minneapolis-St. Paul, MN	35,940	17,324	53,263	75,054	71.0	1,809
New York, NY	47,516	39,388	86,904	104,591	83.1	8,115
Philadelphia, PA	77,405	19,551	96,956	110,025	88.1	798
Washington, DC	31,215	6,314	37,529	69,740	53.8	2,075

Notes: This table is based on a subset of our data for which we have accurate information on tax credits and interest rates. We consider metropolitan areas only where the sample has at least 15 LIHTC projects. For these calculations we assume that all projects are held for 20 years. Section 515 loans are assumed to have 50-year terms; all other loans are assumed to have 20-year terms. Grants are assumed to be paid in full in the initial period. Loans with 0 percent interest are considered loans, not grants. Annual subsidies from concessionary loans are calculated based on the difference between the loan rate and the 30-year CMT. NPVs are calculated using a discount rate of 6.7 percent. All dollar figures are in 1996 dollars.

### *Concessionary financing*

The federal government provides substantial subsidies for Section 515 projects by offering below-market interest rates on first mortgages. For Section 515 projects in our data, the average interest rate on a first mortgage is 1.2 percent. To estimate the size of this subsidy in our sample, we compare the interest rate on a Section 515 mortgage with the rate on 30-year CMT for the year the project was purchased by the syndicator. The 30-year CMT rate is a very conservative estimate of market interest rates.<sup>50</sup> By using this rate we are likely to understate the level of subsidy. On average, the Section 515 rate is 677 basis points below the CMT. Taking the spread between the Section 515 rate and the CMT times the outstanding mortgage amount, we calculate a subsidy implied by the rate discount.<sup>51</sup> We then calculate the NPV of the subsidy stream using a 6.7 percent discount rate and convert to 1996 dollars. Assuming a mortgage term of 50 years for the Section 515 projects in our data (the typical Section 515 mortgage term), and that the mortgages are not prepaid, the total subsidy from the Section 515 mortgage averages \$38,944 per unit, a substantial subsidy given that TDC per unit averages \$48,680 for these projects. In table 7, we assume that the mortgage is prepaid in year 20 when the property is sold. The average subsidy from the Section 515 mortgage in this case falls to \$31,000 (the remaining \$590 per unit comes from additional concessionary financing).

We perform similar calculations for the concessionary financing from state and local governments, private banks, nonprofits, and other lenders. We assume a mortgage term of 20 years (again, a conservative estimate since many LIHTC mortgages are for 30 or more years), and treat loans with 0 percent interest rates as loans rather than grants, resulting in a smaller subsidy. Using this definition, 41 percent of the non-Section 515 first mortgages have concessionary rates. In addition, 86 percent of non-first mortgages have concessionary rates. We then add grant values to the NPV of the concessionary loans to get total financing subsidies. The value of these subsidies ranges from \$40 per unit to nearly \$100,000 per unit.

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<sup>50</sup> Comparing the 30-year CMT with the average contract rate on apartment mortgages provided by the American Council of Life Insurers (ACLI), we find, on average, the ACLI rate is 113 bps above the CMT between 1988 and 1996. The spread ranges from a low of 70 bps in 1988 to a high of 140 bps in 1991 and 1993.

<sup>51</sup> We assume a fixed payment, self-amortizing mortgage with annual payments. We calculate the interest in each period assuming an interest rate equal to the CMT and the actual interest rate. The difference is the annual subsidy.

*Total costs to society*

In table 7, we summarize the various subsidies provided to LIHTC projects by federal, state, and local governments and by private organizations. The costs to the federal government for these tax credit units are the NPVs of the tax credits. The cost to government to actually bring these units on line includes the cost of subsidized financing. Again, we are conservative in our assumptions in calculating the subsidies: We assume that all projects are held for 20 years, treat loans with 0 percent interest rates as loans rather than as grants, and use the CMT as a measure of market-rate interest levels.

Even with these conservative assumptions, the data provided in table 7 show that the total costs to society of providing affordable rental housing through the LIHTC program are quite high. The evidence presented in table 7 indicates that, including the tax credits and subsidies from concessionary financing and grants, the projects in our sample receive a total of \$43,545 per unit in subsidies, on average, which represents 68 percent of average TDC per unit. The federal government provides 66 percent of these subsidies through tax credits. Subsidies for Section 515 projects represent a larger portion of TDC than for non-Section 515 projects. Section 515 projects receive significantly less in tax credits (29 percent of total subsidies) but more in loan subsidies because of the deep discount on Section 515 mortgages. Across central-city, suburban, and rural locations, non-Section 515 projects receive similar tax credits per unit. Central-city projects, however, receive significantly more in subsidized loans and grants, bringing the total subsidy to \$51,984, on average. The average central-city subsidy is more than 30 percent higher than the average subsidy on rural units and 48 percent higher than the average suburban unit subsidy.

Subsidies vary widely across local markets. Our estimated subsidies per unit are more than 80 percent of TDC per unit in New York and Philadelphia. In Atlanta, Chicago, Kansas City, and Philadelphia, the NPV of the tax credits per unit represents more than 50 percent of the TDC per unit. The importance of subsidized loans and grants varies widely from \$1,859 per unit or 3 percent of TDC in Atlanta to \$39,388 per unit or 38 percent of TDC in New York City. The first mortgages alone provided by the city of New York carry substantial subsidies averaging nearly \$36,000 per unit. In contrast, first mortgages provided by state and local government lenders in Boston bring much more modest subsidies of \$5,000 per unit.

The total subsidies provided range from \$30,745 in Atlanta to \$96,956 in Philadelphia. These subsidies seem quite large, especially given that these estimates do not include many tenant- or

project-based Section 8 subsidies. The size of the subsidy may well reflect local housing policy. The large subsidies in Los Angeles, for example, may reflect the high costs of providing SROs for special-needs populations.

The figures in table 7 do not include all subsidies used to bring LIHTC units into the marketplace. These excluded subsidies can be large. In many cases, the rents required to make LIHTC projects viable are higher than the rents affordable to the target population. As a result, many projects rely heavily on tenant-based and additional project-based subsidies. Our data do not permit us to identify tenant-based and certain project-based subsidies such as Section 8. However, U.S. GAO (1997) indicates that the 152,658 households in its study received \$299 million in rental subsidies annually, which averages to roughly \$1,500 per household.<sup>52</sup> The vast majority of tenant-based rental subsidies are short-term (e.g., one year) commitments but are renewable. To get an idea of the potential size of this subsidy, assume that residents of LIHTC projects receive \$1,500 per year in rental subsidy for the life of the project (assumed to be 20 years in this calculation). The present discounted value of these annual rental subsidies is substantial, roughly \$18,200 per unit or 28 percent of average TDC per unit. If we add this subsidy to the amounts in table 7, the average subsidy per unit reaches 96 percent of TDC.

In addition, investors in LIHTC projects, like other real estate investors, receive benefits in the form of favorable treatment for federal income tax purposes. As discussed earlier in this article, an important component of the return to equity investors in real estate is the deduction of depreciation from taxable income. Our data permit the calculation of the value of this deduction to investors in the LIHTC projects in our sample. On average, the value of the depreciation deduction in the reduction of income taxes paid is \$8,900 per unit, or 14 percent of TDC, after taking into account the capital gains tax paid on depreciation recaptured when the property is sold in year 20.<sup>53</sup> We did not include this calculation of the depreciation benefit in table 7 because the rationale for the depreciation deduction is to permit investors to realize the real costs associated with a

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<sup>52</sup> According to U.S. GAO (1997), roughly 40 percent of households in its study actually received rent-based subsidies. Therefore, the average annual subsidy to each of the households that received rental subsidies is \$3,750.

<sup>53</sup> We assume a corporate tax rate of 40 percent and that the investor holds the property for 20 years. We assume that all depreciation taken is recaptured at sale. The value of the depreciation deduction is the present discounted value of the reduction in tax due to depreciation over the 20 years the property is held minus the present value of the capital gains tax paid on the depreciation recaptured at sale.

structure wearing out over time.<sup>54</sup> However, because a building's tax life (e.g., 27.5 years) is generally considerably shorter than its economic life, some portion of the depreciation benefit may be viewed as a subsidy.

These subsidy calculations raise an important issue concerning the efficiency of the LIHTC program. Our price calculations in the previous section indicate that, over time, more of every tax-credit dollar provided by the federal government ends up in the project, which we interpret as evidence that the tax-credit program is becoming more efficient. The subsidy calculations in table 7 and above are estimates of the *total cost to society* of LIHTC projects, including all sources of subsidies. While we find increased efficiency in getting more of every tax-credit dollar into the project, the overall structure of the LIHTC program, with its dependence on many sources and types of subsidy, can make it expensive. The fact that the program requires deep subsidies to provide housing that serves low-income households—but certainly not the poorest of the poor—is not a failure of the program *per se*. But because it is the major federal housing production vehicle, it is important for policy makers to recognize the full costs of delivering affordable units through the LIHTC program.

## Conclusion

The LIHTC program has been the *de facto* federal production program for affordable housing since its inception in 1987. Has it been successful? Measuring success requires comparing outcomes with goals. Because it brings so many players to the table, the program has many goals, some of which are in conflict.

The LIHTC program certainly has generated units—roughly 550,000 to 600,000 units were put in place in its first 10 years. The program has produced a wide variety of housing types and served a broad range of populations, suggesting that the flexibility in the program's design to permit state and local governments to pursue their own policy goals is working.

Our data suggest that the program has been used most often to provide better housing in poor neighborhoods rather than housing opportunities for poor households in higher-income neighborhoods. A significant portion of projects in our sample are in neighborhoods

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<sup>54</sup> The unique feature of depreciation is that the deduction does not match an actual cash expenditure. However, the physical decline in the structure over time represents a real cost to the investor.

that are quite racially concentrated—more than 30 percent of the projects are in neighborhoods with a population that is at least 90 percent white, and nearly 18 percent are in neighborhoods with a population that is at least 90 percent nonwhite. Some policy makers use the LIHTC program to encourage new investment in deteriorating or struggling neighborhoods. Our data show that in many of the neighborhoods where LIHTC projects are built, LIHTC units represent the only new residential construction in recent years.

LIHTC projects can be expensive. For our sample, TDC per unit averages \$65,307, but 11 percent of the units in the sample have per unit TDC that exceeds \$100,000. State and local officials often favor nonprofit developers because they bring community support and commitment to projects. These are clearly valuable attributes, but nonprofits generally bring additional costs. Controlling for project size, unit type, and location, units developed by nonprofit sponsors, on average, cost 20.3 percent more than for-profit units in our sample.

While our data suggest that LIHTC projects serve low- and moderate-income households, these projects generally do not serve the poorest households. Pegging income limits for the LIHTC program to HUD-adjusted Section 8 income limits pushes the LIHTC program toward higher-income renters who generate higher rents, which enhances financial viability but excludes very poor tenants.

All participants in the LIHTC program are concerned with the financial viability of projects. While the majority of projects in our sample were financially sound in 1995, 16 percent of the projects had operating expenses greater than 105 percent of operating revenues. In some markets, LIHTC vacancy rates exceed market rates, suggesting that developers or state agencies may have misjudged the market. Many of the projects in our sample are dependent on additional subsidies to be financially viable.

A major goal of the LIHTC program was to attract the private sector to the building of affordable housing in order to leverage scarce subsidy dollars, which the program certainly has done. Private banks have been a significant source of debt financing, and the number of investors participating in the program has increased steadily. We find strong evidence that the growth of the program and the increased competition from developers and investors has led to increased efficiency in raising LIHTC equity. Over time, more of each tax credit dollar has gone directly into the projects. In addition, returns to investors have decreased over time, especially for central-city projects, perhaps indicating decreased perception of risk for these projects.

The LIHTC program's total costs to society, however, are quite high. We estimate an average per-unit subsidy of \$43,545, which we know is an underestimate because it does not include tenant-based and some project-based subsidies. Tax credits represent two-thirds of the total subsidies per unit. Subsidies are considerably higher in central cities and in some of the larger metropolitan areas.

Going forward, the LIHTC program may face some difficult challenges. The program is only 11 years old, which means that most of its housing has not yet required major capital for renovation or system replacement. The ability to meet these needs over time will determine the long-term financial viability of these projects and depends critically on funding reserves. From a policy perspective, the issue of maintaining affordability over time also must be considered. The oldest units built under the LIHTC program are required to remain affordable for 15 years and many projects now require 30 years of affordability. In 5 to 10 years, many units could convert to market-rate units, creating a problem similar to the expiring-use problem of the late 1980s. While many LIHTC projects have provisions granting nonprofit organizations the right of first refusal to purchase the buildings at expiration, these organizations still will have to find the funds to purchase and maintain the buildings. The substantial subsidies beyond the tax credit required to make many of these projects work may become more scarce over time. In addition, because the LIHTC program is virtually the only housing production program left, pressure on state and local officials to reach lower-income households may increase. Without substantial additional subsidy, this goal is difficult to achieve while still meeting the requirements of the private sector participants.

Given the important role of the LIHTC program in the provision of affordable rental housing, an increased effort to collect data that would permit ongoing analysis of the program is needed. At this point, 13 years after it began, we lack some basic facts on the program, such as the total number of units produced. The analysis in this article suggests that more information is required in several areas: on tenant profiles, to shed more light on who is served by the program; on project characteristics, such as unit size in square feet, project amenities, and tenant support services, to provide a better understanding of development costs; and on financial variables, such as operating reserves and the use of project- and tenant-based subsidies, to provide a more in-depth examination of financial viability. Public information on project characteristics, costs, financial viability, and returns to the investors are essential to the development of an efficient program and an assessment of the extent to which the program is achieving its goals.

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