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INVESTABLE TAX CREDITS:
THE CASE OF THE LOW INCOME HOUSING TAX CREDIT

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Working Paper 14149
<http://www.nber.org/papers/w14149>

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
June 2008

We thank Bill Apgar, Lily Batchelder, Rob Dietz, Tom Holtmann, Christopher Marquis, Tom Neubig, Michael Novogradac, Richard Peiser, Michael Schler, Abby Sigal, Alvin Warren, David Weisbach and participants in the NBER Economics of Tax Expenditure Conference for helpful discussions. We are grateful to Ben Feigenberg, Jill Gentry, Adam Hallowell and Ealy Ko for providing excellent research assistance and to the Harvard University Taubman Center for State and Local Government, the Harvard Real Estate Academic Initiative, and the Fitzgerald Gubernatorial Fund for Maine for generous research support. The views expressed herein are those of the author(s) and do not necessarily reflect the views of the National Bureau of Economic Research.

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NBER Working Paper No. 14149
June 2008
JEL No. H2,H76,R31,R51

ABSTRACT

The Low Income Housing Tax Credit (LIHTC) represents a novel tax expenditure program that employs "investable" tax credits to spur production of low-income rental housing. While it has grown into the largest source of new affordable housing in the U.S. and its structure is now being replicated in other programs, the LIHTC has also drawn skepticism and calls for its repeal. This paper outlines a conceptual framework for exploring the conditions under which investable tax credits may be the most effective mechanism to deliver a production subsidy and discusses the desirability of employing investable tax credits in other policy domains. Estimates of tax expenditures under this program are provided and efficiency costs, distributional issues, and the likely effects of reforms to tax provisions such as the AMT are considered.

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I. Introduction

The Low Income Housing Tax Credit (LIHTC) program provides for the majority of new affordable housing units built in the U.S. and has resulted in the production of 1.5 million low-income housing units since its inception in 1986. The LIHTC represents a radical departure from the structure of previous supply-side housing programs, which relied on direct provision or subsidization of low-income housing. In addition to its interest as a critical federal housing program, the LIHTC is of interest as an example of a novel type of tax expenditure program that is spreading to other policy domains. Under the LIHTC program, the government allocates tax credits to developers of low-income housing who then sell the credits, often via intermediaries, to investors in exchange for equity financing. Credits are subsequently claimed by investors on their tax returns. As a consequence, the tax beneficiary is an investor, rather than the provider or the targeted beneficiary of the subsidized service. We refer to this class of credits as “investable tax credits.”

Figure 1 illustrates the rapid growth in tax expenditures for this program. Annual tax expenditures on the LIHTC program were estimated at \$4.3 billion in 2004 and are projected to increase by almost 20% in real terms by 2011 (JCT, various years).¹ Expenditures on the LIHTC program relative to other federal housing programs are shown in Figure 2. While tax expenditures on the LIHTC are only about a third of outlays on Section 8 vouchers, the program is large relative to other federal supply-side programs. In addition, several of these other programs (such as the Section 8 project based program) are no longer active (Rice and Sard, 2007). The LIHTC is currently the largest and fastest growing federal program for the production of affordable rental housing.

Other programs with a similar structure have been introduced by the federal government. Under the New Market Tax Credits (NMTC) program, for example, the federal government allocates tax credits to designated Community Development Entities (CDEs). The CDE then sells these credits to investors in exchange for equity finance which is used by the CDE to provide investments in low-income communities. The program was initiated in 2000 and has allocated \$12.1 billion in tax credits as of 2007 (GAO 2007). Recent legislation has also

¹ Expenditure growth in the early years of the program primarily reflects lags between credit allocation and claiming; later expenditure growth reflects expansions in annual credit allocations.

proposed the creation of a Homeowner's Tax Credit, modeled after the LIHTC, for the construction or rehabilitation of non-rental affordable housing.²

The unusual form of the LIHTC and similar credits leads to several questions: Why is the program structured in this way? More generally, when might a subsidy optimally take this form? Given the growth of the LIHTC, the reliance on this program to deliver incremental low-income housing, and the replication of the LIHTC structure in other programs, it is useful to articulate the conditions under which a system such as the LIHTC may be optimal. Previous work (e.g., Malpezzi and Vandell (2002), Sinai and Waldfogel (2005), Baum-Snow and Marion (2007) and Eriksen and Rosenthal (2007)) has considered several effects of the LIHTC without rationalizing its curious structure. The absence of a clear rationale has also led to the call, for example from Weisbach (2006), for the removal of the LIHTC and its replacement with a demand-based voucher system.

The LIHTC has three differentiating characteristics relative to other policies oriented toward affordable housing. First, the LIHTC is a supply-side program. As the supply-side nature of the LIHTC remedy has featured prominently in calls for its repeal, it is useful to review some evidence on the degree to which demand-side rather than supply-side programs are optimal. Second, the LIHTC is a supply-side remedy administered through the tax code. Conditional on a supply side solution, the conditions under which a tax expenditure program such as the LIHTC can be the optimal way to deliver benefits are outlined. Finally, the most novel aspect of the LIHTC – the fact that the beneficiary of the tax benefits need not be the provider of the service – is shown to be important under certain conditions.

We argue that, particularly conditional on choosing a supply-side housing intervention, the LIHTC has a number of advantageous features and can be rationalized as a tax-based production subsidy. Unbundling the tax benefits is required to ensure a level playing field among different providers of the desired service. The absence of investability would shift production away from potentially efficient nonprofit developers and for-profit developers with little or no tax liability. In short, the investable nature of the credits undoes the bias toward providers with taxable income. The intuition of nondiscriminatory tax-based production

² In addition, 16 states have enacted state LIHTC programs to supplement the federal LIHTC program. Most of these programs have a similar structure to the federal program.

subsidies allows the LIHTC to be reconciled with similar programs in the rest of the tax code. As such, the investable nature of the LIHTC allows it to function as the leasing market does for the wide class of investment incentives in the tax code. Investability also provides the government with a mechanism to enforce *ex post* compliance and encourages delegated monitoring by investors rather than the state alone. Finally, investable tax credits provide predictable expenditures and may create unusual political coalitions to support their use.

The remainder of the paper is structured as follows. We first provide an overview of the structure and mechanics of the LIHTC. We then outline a conceptual framework for thinking about the distinguishing features of the program. We also explore the potential of extending investable tax credits to other programs. The empirical sections of the paper provide estimates of the magnitude of LIHTC tax expenditures and then explore efficiency costs of the program, distributional issues, and the implications of tax reform proposals in the context of our framework.

II. An Overview of the Low Income Housing Tax Credit

The Tax Reform Act of 1986 (TRA86) included several provisions that reduced the profitability of investment in rental housing. The LIHTC program was devised as part of TRA86 to preserve incentives for the provision of affordable rental housing. Under this program, the Internal Revenue Service allocates non-refundable tax credits to housing agencies run by the state governments, which then award the credits to selected housing projects proposed by developers. Federal law sets basic requirements for projects applying for LIHTC funds to ensure that they make a strong commitment to provide low-income housing. However, state housing agencies hold most of the power in selecting program recipients, both through their individual plans for ranking programs and through a significant amount of additional discretion. Developers, in turn, sell the credits to investors in exchange for equity financing used to support the housing project. Investors may be individuals, corporations or financial institutions and their return is limited to their tax benefits. Intermediaries, also known as syndicators, create the market in these tax credits. The flow of credits is depicted in simplified form in Figure 3, based on GAO (1997).³

³ For other overviews of the program, see Burman (2005) and US Treasury (2008).

There are two types of credits allocated under the program. The first type of credit (“9% credit”) is allocated to projects that are newly constructed and receive no other federal subsidies. The federal government allocates these credits to states in proportion to population. Initial allocations were \$1.25 per capita. This amount was increased (in nominal terms) to \$1.50 in 2002, \$1.75 in 2003, and indexed for inflation thereafter. These allocations are subject to a small state minimum, which was \$2.275 million in 2007 and is also indexed for inflation. Recent proposals have advocated a further increase to \$3.70 per capita (HR 2681). If a project is financed with private-activity tax-exempt bonds, it is eligible for the second type of credit (“4% credit”); these credits are only capped indirectly through state private activity bond caps.

One dollar of allocated credit entitles the claimant to a dollar tax credit *each* year for a ten year period. The federal government also sets several guidelines with which projects must comply in order to be eligible for LIHTC funding. Most importantly, a certain share of units must be rent restricted and be occupied by low income households. These conditions must, in most cases, be met for a minimum of 30 years.⁴ Conditional on meeting these guidelines, state housing agencies have broad discretionary powers in setting criteria for the credit allocation process. These criteria are generally set out in state Qualified Action Plans (QAPs). The normal allocation process can be overridden or bypassed; indeed, a GAO study found that 17 out of 20 studied QAPs contained such override provisions (GAO, 1997). Olsen (2003) estimates that on average, \$3 is requested for every available \$1 indicating periods of substantial excess demand for LIH credits. As a result, many states have forced developers to meet requirements that are stricter than the federal guidelines in order to be eligible for LIH credits.⁵

Tax credits are then awarded to chosen projects. The amount of tax credits a given project receives is determined by the qualified basis of the project. This is the product of two factors: the first reflects the development costs of the project, and the second reflects the share of the project that is reserved as low-income.⁶ This method approximates a per-low-income unit

⁴ In particular, projects must meet either a 20-50 rule (at least 20% of the units in the development must be rent-restricted and occupied by households with income at or below 50% of the area median income) or a 40-60 rule (at least 40% of the units in the development must be rent-restricted and occupied by households with income at or below 60% of the area median income).

⁵ States may, for example, require developers to meet stricter rent requirements or remain in compliance for a longer period than the federal guidelines mandate.

⁶ More specifically, the qualified basis is the product of the eligible basis, the amount of all applicable depreciable development costs, and the applicable fraction. The eligible basis includes most depreciable costs but excludes such costs as the acquisition costs of land and permanent financing costs. The project may be eligible for a “basis boost”

subsidy, adjusted for development costs. Projects which are newly constructed and receive no federal subsidies other than the LIHTC receive an amount of credits such that the present value of credits over a 10 year period will be equal to 70% of the qualified basis. All other projects receive credits such that the present value will be equal to 30% of the qualified basis.⁷ On average, one third of the total financing of a typical project is provided through the proceeds of the sale of tax credits.

Once state housing agencies award credits to projects, the tax credits become available to the developer. The developer may either use the tax credits to reduce its own tax bills, if it is a for-profit developer, or sell the credits to investors. Investors who buy the credits provide the developers with equity which is used to support the construction and creation of the low-income housing. The deal is often structured as a limited partnership between investors and developers. Investors, the limited partners in the partnership, generally do not expect income from the equity but instead view the tax credits as their return.

III. Rationalizing Investable Tax Credits

The somewhat Byzantine process of delivering a government subsidy embodied in Figure 3 has raised many criticisms of the program. Weisbach (2006), for example, views the unusual nature of the subsidy with skepticism and has called for the removal of the LIHTC and its replacement with a demand-based voucher system. The active role of intermediaries and the varying “prices” of the credits, discussed below, have also led to concerns about the efficiency of the program. In order to rationalize the nature of the LIHTC, this section considers the three differentiating characteristics of the LIHTC – that it operates on the supply margin, that it is implemented through the tax code, and that it is an investable tax credit – in turn and their economic and political justifications. Finally, extensions of the LIHTC to other policy domains are considered.

of 30% if it is located in a HUD designated high cost area. The applicable fraction is either the fraction of units or the fraction of floor space (whichever is lower) reserved as low-income units. A potential concern with this method is that the subsidy amount is set *ex ante* without a mechanism to adjust the subsidy *ex post* for changes in operating costs or area median income; please see Usowski and Hollar (2008) for further discussion.

⁷ Technically, the eligible basis is multiplied by an “applicable percentage” that is meant to produce a credit allocation equivalent to the present values given above. This leads to applicable percentages of approximately 9% and 4% respectively. In practice, the percentages are set by the Treasury monthly and fluctuate with interest rates. If the amount of credits required to attract enough equity finance to fill the financial deficit is less than this calculated amount, the project receives the lower amount.

III. A. Supply-side vs. demand-side mechanisms in the low-income housing arena

There is an ongoing debate about whether subsidies for low-income housing should be provided through supply-side or demand-side programs. For instance, Weisbach (2006) begins with the premise - based on a number of studies by HUD and others - that demand-side interventions (in particular, the provision of rent vouchers for low-income households) are more efficient in terms of cost than are supply-side policies designed to increase the supply of low-income housing. Weisbach considers various merits of supply side programs but concludes that while arguments for a program such as the LIHTC may exist in theory, the available evidence suggests that such rationales are weak in the case of the LIHTC. Consequently, he advocates that the LIHTC be replaced by rent vouchers.

The premise that rent vouchers are intrinsically a more efficient policy instrument, while supported by various HUD studies, appears to be at variance with the scholarly literature on the impact of rent vouchers. For instance, Susin (2002) analyzes the impact of rent vouchers on rent paid by low-income households in the US, and finds that they result in substantial increases in rent. This is consistent with a low elasticity of supply of low-income housing, and implies that a substantial portion of the benefits flow to landlords rather than to low-income households. Moreover, the rent voucher program only covers a relatively small fraction of people with low incomes. Thus, while recipients of vouchers are better off on balance despite the rent increases, there is a larger population of low-income non-recipients who face higher rents without receiving any government assistance.⁸ Susin calculates that as a result the low-income population as a whole is made substantially worse off by the rent voucher program. Gibbons and Manning (2006) also find a large effect of rent subsidies on rents, using data from the United Kingdom. In contrast, supply-side housing policies not only benefit those low-income families that obtain the new housing, but also may potentially benefit the wider low-income population through lower market rents. This of course depends on the responsiveness of the housing stock (e.g. Sinai and Waldfoegel, 2005).⁹

⁸ This transfer of benefits between beneficiaries and non-beneficiaries reflects the dynamic emphasized in Coate, Johnson and Zeckhauser (1994).

⁹ Sinai and Waldfoegel (2005) estimate crowd out of up to two-thirds from government subsidized housing generally, but they do not focus on the LIHTC program specifically. Malpezzi and Vandell (2002) estimate full crowd out from the LIHTC program, but the estimates are not precise; Eriksen and Rosenthal (2007) estimate crowd out of one-third.

Given the complexity of the LIHTC program, there may be some question as to whether it has any substantial impact. Baum-Snow and Marion (2007) analyze the effects of LIHTC-funded housing developments on a variety of outcomes. Their empirical strategy exploits a discontinuity in the LIHTC program. Specifically, a census tract qualifies for discontinuously higher funding (a 30% increase in the tax credit) if more than 50% of its households have incomes below a certain threshold (60% of Area Median Gross Income). Baum-Snow and Marion (2007) use a regression discontinuity design that compares census tracts above and below this discontinuity. They find a large impact of LIHTC funding on the supply of housing – the 30% increase in the tax credit above the threshold results in an increase in the supply of low-income housing of approximately 67% of the mean (6 housing units relative to a mean of 9 per tract). They also find that LIHTC-funded housing makes housing in general more affordable (by depressing median household values) and slows the process of gentrification (lowering median incomes in the affected tracts). Of course, the latter types of outcomes have ambiguous welfare consequences; however, this careful empirical design provides strong evidence that the LIHTC has large effects on the supply of low-income housing.¹⁰

The relative merits of supply-side programs and vouchers are a subject of ongoing debate. Deng (2006) computes the costs associated with LIHTC-funded developments and vouchers in six US metropolitan areas, and finds that vouchers are generally less costly. However, there is considerable heterogeneity in the relative costs, depending on housing market conditions in the metropolitan area, the type of housing, and various other factors. Supply side remedies may thus be preferred for particular targeted groups or in certain geographic areas. Certain groups, such as large households, single non-elderly persons, and the elderly, statistically have a lower chance of success in using their vouchers (Finkel and Buron, 2001). There may also be markets in which the LIHTC is less costly than vouchers (DiPasquale, *et al.* 2003). LIHTC-funded developments may achieve better outcomes along other dimensions, such as neighborhood integration and school quality (Deng, 2007). At the very least, it does not seem that the superior efficiency of vouchers can be taken as given.

III. B. Direct subsidization vs. tax-based subsidization

¹⁰ In particular, this evidence leaves open the question of whether new construction is the most efficient means of getting housing assistance to low-income households.

Conditional on using a supply side program, why employ tax-based subsidization rather than direct subsidization? In order to consider this question, it is useful to provide some notation to understand the conditions for their equivalence and the conditions under which a tax-based subsidization may provide some benefits relative to direct subsidization.

Consider a firm that produces low-income housing. Let x be the amount it spends on construction and $h(x)$ be its production function (where $h'(x) > 0$, $h''(x) < 0$). Suppose that low-income housing is defined as housing for which the rent is no greater than some fixed amount r (defined in per-housing-unit terms).¹¹ The firm's profits can then be expressed as:

$$\pi = (1 - t_f)(rh(x) - x) \quad (1)$$

where t_f is the tax rate the firm faces. If the firm is organized as a corporation, this would be the corporate tax rate; if it is a pass-through entity, it would be the personal tax rate faced by the owner(s). In the absence of a government subsidy, the firm would set:

$$h'(x) = \frac{1}{r} \quad (2)$$

This determines the amount of housing the firm produces in equilibrium.

The equilibrium level of provision may be inadequate from a social perspective for a variety of reasons. For example, additional low-income housing may generate positive externalities or prevent negative externalities. The production of low-income housing may be hampered, or its costs raised, by (presumably inefficient) regulatory barriers created by the NIMBYism of local communities.¹² There may also be social welfare gains from the redistributive nature of the program. For these various reasons and perhaps many others, governments may wish to subsidize the production of low-income housing. This subsection presents an extremely simple framework to illustrate the effects of such subsidies, and in particular to demonstrate the equivalence (under certain conditions) of direct production subsidies and tax-based subsidies.

¹¹ It is assumed in what follows that the firm always charges a rent of exactly r (as does the nonprofit developer modeled below); this abstracts from the potentially anomalous observation that rents are sometimes below the permitted maximum for low-income housing.

¹² The production function defined above can be interpreted as implicitly incorporating these types of costs.

Suppose first that the government decides to subsidize the firm's production of housing through the payment to the firm of a subsidy of s per unit of housing.¹³ Assume that the subsidy is not taxable (or equivalently that s is defined in net-of-tax terms). Then, the firm chooses x to maximize:

$$\pi = (1 - t_f)(rh(x) - x) + sh(x) \quad (3)$$

and sets:

$$h'(x) = \frac{1 - t_f}{(1 - t_f)r + s} \quad (4)$$

which unambiguously implies a higher value of x than with no subsidy.

Alternatively, suppose that the government decides to subsidize the firm's production of housing through a nonrefundable tax credit of c per unit of housing.¹⁴ Under these conditions, the firm chooses x to maximize:

$$\pi = (1 - t_f)(rh(x) - x) + ch(x) \quad (5)$$

subject to the constraint:

$$t_f(rh(x) - x) \geq ch(x) \quad (6)$$

In this case, the firm sets:

$$h'(x) = \frac{1 - t_f + \lambda t_f}{(1 - t_f + \lambda t_f)r + (1 - \lambda)c} \quad (7)$$

Inspection of equations 4 and 7 makes it clear that the same amount of housing will be provided if the constraint is not binding ($\lambda = 0$) and the per unit credit is equal to the subsidy, that is $c = s$. Of course, removing the constraint from the optimization problem altogether will also

¹³ This formulation makes a number of simplifying assumptions. First, the subsidy provided by the LIHTC is claimed over a 10-year period following the completion of the project. Thus, the subsidies s and c should be interpreted as the present values of streams of subsidies received over time (and similarly the rent r should be viewed as the present value of a stream of returns). Second, as discussed earlier, the total amount of credits available under the LIHTC is capped. The analysis here does not take into account this overall constraint on the availability of credits. However, this should not affect the comparison between direct and tax-based subsidies, as a direct subsidy program could also be capped in a symmetric manner. Finally, the formulation here assumes that the subsidy and the tax credit take the form of per-unit payments that depend on the number of low-income housing units constructed. The actual LIHTC rules are more complicated, but as described in Section II above, can be approximated as a per-low-income unit subsidy.

¹⁴ As with the subsidy (and as seems natural) the credit itself is not taxable.

result in the same solution, provided that $c = s$. In economic terms, the equivalence of direct subsidization and tax-based subsidization depends on the presence of a sufficient tax liability or on the refundability of the tax credit. In practice, tax credits are typically nonrefundable.¹⁵

Given that direct subsidies and tax-based subsidies can be designed in ways that render them economically equivalent, what should determine which of these instruments to use? In particular, under what conditions might the LIHTC be preferred as a policy instrument to direct subsidies? This question relates to a long-standing debate among tax scholars about the relative merits of direct subsidies and tax expenditures. The concept of tax expenditures was originally introduced by Stanley Surrey and others as part of a critique of tax-based subsidy provisions, founded on the idea that they represent undesirable departures from an ideal Haig-Simons income base. Since Surrey's famous critique, tax scholars have developed a number of lines of argument in defense of tax-based subsidies that are germane for the LIHTC.¹⁶

First, the likelihood of regulatory capture may vary across the use of direct or tax-based subsidies (e.g. Zelinsky, 1993; Dharmapala, 1999). In particular, it is argued that the generalist Congressional committees that have jurisdiction over the tax code, and hence over tax expenditures (House Ways and Means and Senate Finance) are subject to lobbying by a wider variety of interest groups and thus less vulnerable to capture by any one group, than are the specialist committees (and their associated agencies) that oversee direct spending programs. According to this view, subsidies are less likely to be inefficiently large if they are directed through the tax system rather than in the form of direct subsidies.¹⁷

Second, the comparative institutional capacities of tax administrators and other administrators may dictate that tax-based subsidies are preferred. In particular, Weisbach and Nussim (2004) argue that the Surrey critique of tax expenditures focuses only on the complexity

¹⁵ The typical arguments advanced against refundability relate to administrative and compliance issues. Some of these objections stem from the tax system's experience with fraud and error in the case of the EITC. An increase in the number of tax filers induced by refundability may increase administrative costs. The fear that refundability would generate new tax avoidance opportunities (or increase the revenue costs of existing shelters) is also often expressed. It is also sometimes argued that it is a civic duty of taxpayers to pay some (nonnegative) tax. For more on the debate surrounding the refundability of tax credits, see Batchelder, Goldberg and Orszag (2006).

¹⁶ Most famously, Bittker (1969) pointed out that Surrey's critique rests on the acceptance of a broad notion of the income tax base, a notion that is itself highly contested. This point, however, is less relevant here than the arguments described in the text, as it is difficult to maintain that the various types of income sheltered by the LIHTC should not as a general matter form part of the taxable income base.

¹⁷ Of course, in the case of the LIHTC these risks of regulatory capture at the federal level have to be considered relative to the risks of regulatory capture of the state housing agencies that play an important role in the LIHTC.

of the tax code, rather than on the complexity of government programs as a whole. Broadening the tax base by eliminating tax expenditures would simplify the tax code, but would entail greater complexity and potentially higher costs when these programs are reconstituted as direct spending programs. Thus, they argue that those subsidy programs for which the tax administration has a strong institutional advantage (e.g. those programs requiring income measurement, such as the EITC) should be channeled through the tax system.

These political economy and institutional capacity arguments may help explain why subsidies for low-income housing may best be delivered through the tax system. The tax committees of Congress may be argued to be less subject to capture by developers or low-income housing advocates than are specialist committees focusing on housing issues. Weisbach (2006, p. 1857) also suggests that the IRS may be a more credible enforcer of the legal requirements imposed on housing to be LIHTC-qualified. This may be, for instance, because IRS officials are not self-selected for their interest in housing issues or because the IRS is able to impose more effective punishments for noncompliance. There are also other reasons why the IRS may prove to be an efficient administrator of the LIHTC. For instance, given that nonprofit providers are a significant element of the low-income housing setting (as discussed below), the IRS may have an advantage in the monitoring of nonprofit status as this forms part of its routine activities.

Finally, the ability of tax credits to be made investable results in several advantages in enforcing compliance with program guidelines. This provides additional rationales for preferring non-refundable tax-based subsidies to direct subsidization or refundable credits. We discuss the investability of LIH credits in detail in Section III.D.

III. C. Tax Credits versus Deductions

Having established that tax-based subsidization may be desirable, it is worth briefly examining why the LIHTC employs a credit rather than a deduction. Indeed, the charitable deduction is deemed to be sufficient for many other socially desirable goods, such as cultural activities and the provision of soup kitchens. Moreover, nonprofit developers figure largely in the LIHTC landscape, begging the question as to why a deduction is not sufficient. In this subsection, we sketch a simple framework that introduces a nonprofit firm thereby addressing this and related questions.

Assume a nonprofit developer that produces low-income housing using a production function $\alpha h(x)$, where x is the amount of spending on construction and $\alpha > 0$ is a parameter that represents the productivity of the nonprofit relative to for-profit producers of low-income housing. Note that there are a variety of reasons why productivity may differ across the two organizational forms. For instance, the nonprofit may be a more efficient provider of low-income housing (i.e. $\alpha > 1$) if its nonprofit status serves as a signal of quality, or if it can more credibly commit to undertaking costly ongoing activities such as the maintenance of the housing units over time. Alternatively, the for-profit may be more efficient ($\alpha < 1$) if it is more subject to market discipline or has access to superior technology.

The nonprofit receives tax-deductible donations from a representative donor with a wealth endowment ω who faces a marginal tax rate t_d . The donor donates d for each unit of housing that the nonprofit constructs (i.e. gives a total donation of $d\alpha h(x)$). The donor's preferences are assumed to be quasi-linear in private consumption and utility from the donation. The motivation for the donation is assumed to be driven only by "warm-glow" preferences, so that the total quantity of housing produced does not enter the donor's utility function. This last assumption is purely for convenience; the main points made below would be similar in a setting with both warm-glow and purely altruistic preferences. However, the warm-glow approach abstracts from the issue of the crowding-out of donations by government subsidies. Crowding-out is an important issue, but its effects are symmetric for direct subsidies and tax-based subsidies, and so can be ignored here.

The donor's utility-maximization problem can be expressed as follows:

$$\text{Max}_d (1 - t_d)(\omega - d\alpha h(x)) + u(d\alpha h(x)) \quad (8)$$

In the interests of simplicity, it is assumed that the utility function from donations is:

$$u(d\alpha h(x)) = \beta \ln(d\alpha h(x)) \quad (9)$$

where β is a preference parameter that captures the donor's inclination towards donating to low-income housing (relative to personal consumption). The solution to the donor's problem is:

$$d = \frac{\beta}{1 - t_d} \quad (10)$$

i.e. the per-unit donation is increasing in β and in the donor's marginal tax rate.¹⁸

The nonprofit organization is assumed to maximize the amount of low-income housing it provides, taking the donor's donation (as defined in Equation (10)) and the per-unit rent r as given, subject to a "nondistribution" constraint (that it spend all of the available revenue). In particular, the nonprofit maximizes $ah(x)$ subject to the constraint that:

$$x = (r + d)ah(x) \quad (11)$$

where d is given by Equation (10). Thus, the nonprofit's program is:

$$\text{Max}_x ah(x) + \gamma[(r + \beta/(1 - t_d))ah(x) - x] \quad (12)$$

where γ is the Lagrangean multiplier. The amount of housing constructed by the nonprofit can be characterized by the equation:

$$ah'(x) = \frac{\gamma}{1 + \gamma \left(r + \frac{\beta}{1 - t_d} \right)} \quad (13)$$

This equilibrium level of provision by the nonprofit is influenced by a tax subsidy that operates through the deductibility of the donation (thus, the higher the donor's marginal tax rate, the more housing is provided).

Why is the incentive to provide low-income housing structured as a credit rather than the deduction that is embodied in the above program? One possibility is that the nonpecuniary benefits from contributing to low-income housing are low relative to the corresponding benefits for contributions to museums or theaters, for which the deduction alone is generally considered a sufficient incentive for donations. In terms of Equation (13), it may be the case that $\beta = 0$ for many potential donors, even though the social benefits from spending on low-income housing are arguably substantial. In these circumstances, it may be optimal to subsidize the financing of low-income housing beyond the usual charitable deduction. Said another way, reducing the tax price by using a deduction based system has the benefit of capitalizing on latent, non-pecuniary benefits of these activities. The absence of such benefits for socially-worthwhile activities can lead to the preferred use of credits rather than deductions. In this circumstance, the provision of

¹⁸ The quasi-linearity assumption rules out income effects, so the latter represents a pure substitution effect.

low-income housing may have a variety of characteristics that fail to provide these non-pecuniary benefits.¹⁹

It is important to note that a sufficiently high β can obviate the need for a credit-type subsidy. A refundable tax credit of c per unit granted to the nonprofit would change Equation (12) to:

$$\alpha h'(x) = \frac{\gamma}{1 + \gamma \left(r + c + \frac{\beta}{1 - t_d} \right)} \quad (14)$$

Consider the extreme case where donors derive no nonpecuniary benefits from low-income housing ($\beta = 0$). Then, the nonprofit relies only on rental income and the tax credit to finance its activities. The resulting level of housing provision (setting $\beta = 0$ in Equation (14)) is equal to the level that would be provided if there were no tax credit, but instead donors' β was:

$$\beta = (1 - t_d)c \quad (15)$$

This equivalence highlights the idea that both tax deductions and tax credits work in the same direction, and that the use of credits can be justified if there are grounds for believing that the levels of provision induced by deductions alone are suboptimal from a social standpoint.

III. D. Production Efficiency and the Investable Nature of the LIHTC

The most distinctive element of the LIHTC is the investable nature of the tax credits, a feature of the LIHTC that has been replicated in other programs, such as the New Market Tax Credit program. In order to consider the logic of investable tax credits, it is useful to revisit the nature of the equivalences established above. The equivalence of direct subsidies and refundable tax credits can be demonstrated as easily for nonprofits as in the case of for-profit firms. A subsidy of s per unit changes Equation (14) to:

$$\alpha h'(x) = \frac{\gamma}{1 + \gamma \left(r + s + \frac{\beta}{1 - t_d} \right)} \quad (16)$$

¹⁹ For instance, donors may derive more pleasure from having a new wing of a museum or a new theater named after them than from having a new low-income housing development named after them.

while a refundable tax credit of c per unit changes Equation (13) to the expression in Equation (14) above; Equations (14) and (16) are of course identical if $s = c$.

As discussed above, governments are generally reluctant to permit refundable tax credits, a reluctance that may be particularly accentuated in the case of entities that are tax-exempt. The nonrefundable tax credits that are typical would of course be worthless to the nonprofit organization, and hence the equivalence between direct subsidies and tax credits breaks down.

A tax credit that is valuable only to for-profit producers with sufficient tax liability can create a production inefficiency in the construction of low-income housing. We illustrate this point with a simple comparison of a nonprofit and for-profit developer. Suppose that $\alpha > 1$ so that nonprofits are more efficient producers of low-income housing. In this scenario it will generally be the case that society will not be producing a given quantity of low-income housing at the minimum feasible cost. In particular, the putatively less efficient for-profits will produce a larger fraction of output than would be the case in the absence of the tax credit. Of course, even in this scenario the nonprofit would still receive a subsidy due to its tax-exempt status and the deductibility of donations made to it. However, it can be argued that since the latter subsidies are common to all nonprofits and are well-established features of public policy, the relevant “level playing field” should be defined taking those subsidies as given.²⁰

In addition to the nonrefundable tax credit being worthless to the nonprofit, it may not be as valuable to the for-profit firm as a direct subsidy if the for-profit firm does not have a sufficient tax liability to fully utilize the credit. In short, heterogeneity in taxable status gives rise to implicit preferences for production provision under a tax-based subsidy. Both of these distortions to the choice of the efficient provision of affordable housing can be addressed by making the tax credit investable.

In this setup, the developer can sell the right to claim the tax credit of c per housing unit to another party for a price of ρc that is determined in the market. Of course, if the market prices

²⁰ The issue of establishing a level playing field for nonprofits and for-profits has been debated in the context of the Unrelated Business Income Tax (UBIT) imposed on the for-profit activities of nonprofit organizations. For instance, Knoll (2007) argues that in certain circumstances nonprofits’ tax-exempt status does not provide them with an advantage over for-profits in undertaking a given activity; as income from any alternative activity by the nonprofit is also tax-exempt, the benefits of tax-exemption are reflected in both its returns and its opportunity costs, leaving its decisions unaffected.

the credits fairly and the buyers have sufficient tax liability, then $\rho = 1$. The for-profit firm would then maximize:

$$\pi = (1 - t_f)(rh(x) - x) + \rho ch(x) \quad (17)$$

and set:

$$h'(x) = \frac{1 - t_f}{(1 - t_f)r + \rho c} \quad (18)$$

The nonprofit would now set:

$$\alpha h'(x) = \frac{\gamma}{1 + \gamma \left(r + \rho c + \frac{\beta}{1 - t_d} \right)} \quad (19)$$

Thus, even if the government is reluctant for other reasons to make the tax credit refundable, the direct and tax-based subsidies are still equivalent as long as the tax credit is tradable and sells at an actuarially fair price.

In practice, equivalence may be violated when prices for these credits deviate from the actuarially fair value (i.e. $\rho \neq 1$). Deviations from actuarially fair values occur with some frequency and are discussed in Section V below. For example, when the LIHTC was first introduced, there was uncertainty about the rules of the system and about how long it would last. The monitoring costs associated with ensuring that the developers are in compliance, and the discounting of the risk of developer noncompliance may also contribute to a value of $\rho < 1$.

Demand for tax credits may also fluctuate with the level of aggregate profits in the economy, or the taxable situations of investors who may come to specialize in this market. Of course, investable credits have less of this type of risk than non-investable credits which would be exposed to the specific tax positions of the providers of affordable housing alone. It is notable that periods of reduced aggregate profits are also precisely when the provision of incremental low-income housing may be particularly valuable.

It is also possible that in some circumstances, $\rho > 1$. For instance, for certain financial institutions, investment in low-income housing can serve to satisfy some of their obligations under the Community Reinvestment Act (CRA). The CRA requires banks and other depository institutions to provide credit throughout their local communities, including in low income areas.

CRA evaluations are subjective and based on a diffuse set of metrics that are deliberately not quantified. The record of the financial institution is reviewed and taken into account when regulators evaluate applications for deposit facilities or during mergers. As such, there are no specific, quantifiable linkages between LIHTC purchases and CRA ratings though it is widely acknowledged that LIHTC can count toward the hardest standard for banks, the investment of resources into their low-income communities. The interaction with the CRA opens up the possibility that entities may be willing to bid the price of tax credits above their actuarially fair value as they can jointly realize tax advantages and fulfill CRA obligations.²¹

The incentive for firms with CRA obligations to invest in tax credits parallels the decision of a donor to invest in a nonprofit provider of low income housing. This can be seen by conceptualizing the situation in terms of the tax price of contributions to the provision of low-income housing. When $\rho = 1$, the tax price of contributions is zero, so investors who reap the tax benefits need not have any intrinsic concern for low-income housing. When $\rho > 1$, the investors are effectively sacrificing some personal consumption in order to contribute to the provision of low-income housing. In this respect, they resemble donors to the nonprofit (who bear a tax cost of $(1 - t_d)$). This creates the possibility that regulatory mechanisms may be used to induce larger contributions. For instance, financial institutions seeking to satisfy their CRA obligations may be willing to pay a price $\rho > 1$. Strengthening these regulatory obligations could thus potentially generate greater, and possibly inefficiently high, development of low-income housing. Indeed, it is even possible that stronger CRA obligations might make financial institutions willing to donate to nonprofit developers, even if there is only a tax deduction (rather than a tax credit). Such mechanisms for increasing the funding for the supply of low-income housing should however be balanced against possible inefficiencies stemming from any expansion of CRA obligations.

To summarize, investable tax credits neutralize the bias toward for-profit providers inherent in a non-refundable tax credit and this feature is particularly critical if the dominant organizational form for delivering the production is nonprofit. Such a market can also improve

²¹ Marquis and Guthrie (2007) discuss the interactions between the CRA and the LIHTC at length. They cite Federal Reserve analyses of bank mergers that highlight LIHTC investments as ways of satisfying CRA requirements. Marquis and Guthrie go on to argue that states design their LIHTC programs, in part, to help banks address CRA guidelines in order to foster merger activity.

productive efficiency if there is heterogeneity among for-profit providers and more efficient providers do not have sufficient tax liability to utilize the full value of the credits.

In this sense, the provision of investable tax credits under the LIHTC is closely analogous to the widespread use of leasing as a means of transferring tax benefits (such as depreciation allowances) among firms. The leasing market allows firms facing relatively low marginal tax rates to benefit from investment incentives by allow a firm facing a high marginal tax rate to be the legal owner of a piece of equipment. While the leasing market continues to provide this function today, concerns over abuses have limited more expansive efforts in the leasing domain. Specifically, Congress' experiment with "safe harbor" leasing removed most obstacles for the transfer of tax benefits through leasing arrangements as part of the Economic Recovery Tax Act (ERTA) of 1981 (see Warren and Auerbach (1982)). This provision proved to be short-lived because of perceived abuses but the leasing market continues to serve this function. Investable tax credits accomplish the same separation of the legal tax beneficiary from the agent undertaking the targeted activity that leasing does. This analogy also makes clear that transferability of tax benefits is not a unique feature of the LIHTC, and has important precedents elsewhere in the tax system.

A second advantage of investable tax credits is that they provide a mechanism for the developer to receive up front financing for the project while maintaining the ability for the government to enforce program guidelines after the project is built through the threat of recapture of credits from investors. This structure may therefore be preferable to direct subsidies or refundable credits which allocate the entire subsidy to the developer prior to project completion.

Finally, the investable nature of the program allows for the creation of delegated monitors to ensure compliance with housing agency and IRS requirements. Without the investable feature of the program, housing agencies and the IRS would be exclusively monitoring compliance of the many project. With investable tax credits, monitoring is largely undertaken by the investors and their agents (often accounting firms) as their entire economic return for their investment is

contingent on compliance. If there are differential monitoring capabilities, this delegation of monitoring can be an important dimension to the desirability of the LIHTC.²²

III. E. Investable tax credits and political and budgetary dynamics

Finally, there may be political and budgetary reasons to favor investable tax credits over economically equivalent direct subsidy programs. If political dynamics result in an inefficiently low level of provision of affordable housing (for example, if advocates of such programs are insufficiently politically powerful), then investable tax credits create a broader political coalition that might support the program. The program creates tax benefits for investors and intermediaries in the syndication process who have no intrinsic interest in low-income housing or related issues. This creates a much wider constituency for the program than would be the case for an economically equivalent program of direct subsidies for low-income housing.²³ This may explain why developers, intermediaries *and* housing advocates – not by any means a natural political coalition - are fans of the program.²⁴

A final, and notable, feature of the LIHTC and other investable tax credits is the predictability it provides for expenditures. The cap on 9% credits is not a typical feature of tax credits and does not appear to be necessary to achieve the advantages outlined above: the 4% credits are not directly capped. There may be political advantages to capped credits, since there is then no budgetary uncertainty associated with the amount of resources committed by government to low-income housing. This is a significant advantage over an uncapped credit or a tax deduction. However, there remains some uncertainty over the actual provision of housing, as lower prices of credits may dictate that fewer housing units are constructed.

III. F. Extending the logic of investable tax credits

How could investable tax credits be employed in other public programs and when are they most appropriate? While some of these explorations are fanciful, they serve to identify the

²² Thanks to Michael Novogradac for highlighting this point to us.

²³ There is perhaps an analogy here with Ferejohn's (1986) account of the Food Stamp program, which argues that the program was enacted as the result of a (seemingly unnatural) coalition between rural legislators with farming constituencies and urban legislators representing the urban poor. Such coalition building also represents the transfer of benefits from beneficiaries to non-beneficiaries examined in Coate, Johnson and Zeckhauser (1994).

²⁴ The LIHTC also can create odd political coalitions in other policy dimensions. For example, LIHTC advocates suggested that the initial proposal for dividend exemption in 2003 would depress the market for tax credits and opposed the proposal on that basis.

distinctive features of the LIHTC and to illuminate which extensions may prove more or less fruitful.

The food stamps program could, in theory, be restructured as follows. The government would determine the aggregate value of tax credits to be provided to fund the provision of food to low-income households. These credits would then be allocated among grocery stores and relevant nonprofit organizations (such as those running soup kitchens) who would submit their plans for the provision of such services. The stores and nonprofits would then provide food to needy families and finance these activities by selling the tax credits to investors.

Why would this system make sense or not make sense? On the one hand, it could raise the aggregate amount provided to the poor due to an increase in political support for such programs from investors in these credits. Alternatively, the purchase of these credits may capitalize on warm-glow preferences for the provision of food to low-income households resulting in the price of credits exceeding their actuarially fair value. Such credits would also maintain neutrality between corporate-owned stores, noncorporate-owned stores and nonprofit providers. In effect, any organization could provide the service of food provision to low-income households. IRS officials may also be more credible enforcers of the program rules than officials at the Department of Agriculture, who are more likely to be captured by farming interests, and relevant income information may also be more easily marshaled. On the other hand, administrative costs may be substantially higher under such a system and the launch of such a program could be accompanied by uncertainty and high transaction costs that would reduce the price of these tax credits.

The food stamp analogy is strained, in part, because the *production* of this public service is not terribly complicated.²⁵ In other settings where production is critical, the virtues of investable tax credits are more likely to resonate. For example, many jurisdictions seeking to increase levels of domestic film production have promulgated investable tax credits. Other settings where production of certain goods may be deemed to be underprovided (e.g. vaccines, infrastructure provision, job training programs) for various reasons may be more suitable. For vaccines, the NIH, major universities, pharmaceutical companies, and biotechnology startups

²⁵ In addition, food stamps and other welfare programs may cases in which the government wishes to ensure that all individuals meeting particular eligibility criteria receive benefits. This could, in theory, be achieved under an uncapped investable credit structure.

without profits could all compete for allocations of credits, sell the credits, and undertake research funded by their sale. As investable tax credits become more widely accepted, several of their drawbacks (notably, risk perceptions and transactions costs that reduce the price of credits) would also presumably dissipate.

IV. LIHTC Tax Expenditure Estimates

As discussed above, the LIHTC differs from most other tax expenditures in that a large share of total expenditure is capped and determined by annual per capita credit allocations. It should therefore be possible to estimate and project tax expenditures under this program with a reasonably high degree of accuracy. To assess the validity of this approach, it is useful to compare estimates of tax expenditure from credit allocations with estimates from credits claimed on individual and corporate returns. The limitations in calculating expenditures from tax return data and the potential sources of leakage between credits allocated and credits claimed are also discussed.

IV. A. Estimates from Credits Allocated

Figure 4 provides expenditure estimates based on credits allocated. All credits allocated by the federal government are assumed to be claimed by investors over the ten year period immediately following project completion, with a two year lag between credit allocation and project completion. Annual credits claimed are then adjusted to 2004 dollars. This method will result in underestimates of total tax expenditures since it only accounts for credits subject to the per-capita cap.

Implied expenditures increase rapidly over the first decade as the program reaches steady state. Expenditures then decline slightly as the real value of credits allocated falls over time and increase as annual per capita allocations are increased. Expenditure estimates are substantially higher than JCT estimates in the early years of the program but conform closely to JCT estimates over the recent period. This likely reflects the fact that many of the initially allocated tax credits were left unused (GAO, 1997). Lags between federal allocation and credit claiming may also have been longer than average in the early years of the program.

IV. B. Estimates from Tax Return Data

A second measure of LIHTC tax expenditure comes from credits claimed by individuals and corporations on their tax returns. There are at least three reasons why information on credits claimed from tax return data may not accurately reflect actual annual tax expenditure on the LIH program.²⁶ First, the line item for the current year LIHTC is included as part of the tentative credit calculation form for the general business tax credit (Form 3800). Taxpayers may not be eligible to claim the full amount of the tentative credit; for example, credits are nonrefundable and cannot be used to offset AMT liability.²⁷ Although the total amount of general business tax credit claimed is available on the tax return, it is difficult to determine the exact amount of LIH credit claimed for these taxpayers. Second, LIH credits can in some cases be carried forward or carried back. In these cases, they are included as single line items that include the sum of all general business credit carryforwards or carrybacks. Finally, an individual does not need to file Form 3800 if she is not claiming any other general business credits and has no carryforwards or carrybacks. The allowable LIH credits are then entered in the “other credits” line item on the 1040 form. While the first factor may cause these estimates to represent an overestimate, the final two factors may result in underestimates of total LIH credits claimed from the Form 3800 line item.

Given these caveats, estimates of LIHTC tax expenditure based on publicly available individual and corporate tax return data are presented in Figure 5.²⁸ The individual data come from public use samples of individual federal tax returns.²⁹ Information on LIH credit claiming is available from 1987-2002. The corporate data come from Table 21 of the SOI Corporation Complete Report which itemizes components of the general business tax credit.

The estimates in Figure 5 are lower than estimates from credits allocated in the early years of the program but the two estimates are fairly close in the most recent years. Again, this is likely a result of initial credits remaining either unused or claimed with a substantial lag. The tax return estimates are similar to the JCT estimates in magnitude and also indicate dramatic growth in the program over time and a substantial shift from individual to corporate investors. In

²⁶ We are grateful to Tom Holtmann at JCT for several helpful discussions on these issues.

²⁷ The credits included in the general business tax credit are then subject to a stacking order that determines which credits are claimed first.

²⁸ We hope to supplement these data with tabulations from SOI in the future.

²⁹ Please see <http://www.irs.gov/pub/irs-soi/weber.pdf> for sampling details.

2002, the last year for which we have individual data, implied tax expenditure on the program was almost \$4 billion. Less than 10% of this expenditure was from claims by individual investors.

The gap between tentative and allowable LIH credits seems likely to be small for two reasons. First, investors must actively purchase credits and would not do so unless they expected to claim the full value. Second, while it is possible that investors could unexpectedly become ineligible to claim the full value, there is a secondary market for credits which allows investors to sell credits they cannot claim.³⁰ A similar argument applies to carryforwards and carrybacks: such claims would arise if investors are not able to claim the full annual allocation in a given year.

One imperfect estimate of the magnitude of these biases is to examine what share of tentative credit dollars are “claimed” by investors with AMT liability.³¹ Using the individual public use files for 1987-2002, we find that less than 10% of all individual credit dollars are from AMT payers. The possibility remains that individuals are ineligible to claim the full value of credits for other reasons, and the corporate AMT “claim” share may be quite different than the share for individuals. In addition, some credits claimed by individual investors may not appear on Form 3800. We unfortunately do not have the necessary data to quantify the magnitude of these biases.

Expenditure estimates from credits allocated and credits claimed may also differ if there is true leakage in the system. There are at least four reasons why credits allocated by the federal government might remain unclaimed: 1) credits are left unallocated by individual states; 2) projects go out of compliance; 3) investors become ineligible to claim credits; and 4) eligible investors fail to claim credits. It is difficult to obtain precise estimates of leakages from each of these sources; however, the available evidence suggests that such leakages are likely to be small. If state housing agencies do not use allocated credits within two years, they revert to the national pool and are redistributed, on top of the baseline allocations, to states which have used all of their previous funds. If projects go out of compliance, the IRS can, in theory, disallow the

³⁰ There are some conditions placed on investors who wish to sell their interests in LIHTC properties. In particular, the investor must purchase a “recapture bond” which guarantees payment to the Treasury in the event of tax credit recapture due to noncompliance.

³¹ Since the LIHTC cannot be used to offset AMT liability, these tentative credits are presumably not actually claimed by investors.

claiming of credits and even cancel previously claimed credits retroactively. As we discuss below, this does not appear to occur frequently in practice. Investors who become unexpectedly ineligible to claim credits can sell them on the secondary market. Finally, investors may “leave money on the table” by failing to claim credits for which they are eligible. Since investors must actively purchase LIH credits, low takeup seems unlikely.

V. Pricing and Economic Efficiency

As suggested by the discussion above, there are a number of factors which influence the effectiveness of investable credits. First, there may be deviations of the price of the credits from their actuarial fair value. In the case of the LIHTC, the price at which credits are sold has increased substantially over the life of the program. Ernst and Young (2005) calculate the equity price simply as housing credit equity divided by housing credits. By this measure, median credit prices have increased from approximately 45 cents in the early years of the program to over 85 cents for projects placed into service in 2005 (Ernst and Young, 2005). Anecdotal evidence suggests that the very low initial pricing was primarily the result of uncertainty about the program. Cummings and DiPasquale (1999) find similar patterns in their surveyed properties.

Calculating the price in this way implicitly assumes that investors are realizing the full nominal value of credits received. In practice, however, investors realize the credits over a 10 year period. To obtain a “true” price, which reflects the equity per effective credit dollar, the stream of tax credits should be discounted. Discounting credits appropriately substantially increases the implied equity price: Cummings and DiPasquale (1999) estimate that the average credit price over their sample period (1987-1996) increases from 52 cents to more than 70 cents if the present value of the stream of credits (using a discount rate of 6.7%) is used in the price calculations. Current average credit prices approach or exceed one when the stream of tax credits is discounted appropriately.³²

Historic prices below actuarially fair values may have reflected additional compensation for the risk of default: projects may fail to remain in compliance over the full lifetime of the credits. If a property is found to be in noncompliance, the investor forfeits future tax credit claims and must repay 1/3 of previously claimed credits with interest. Thus, prices below

³² Many participants employ an after-tax yield to measure pricing more accurately to catch the temporal aspects of the credits. Participants then use comparisons between these yields and municipal bonds to benchmark appropriate pricing. When yields are lower than municipal bonds, most participants believe that CRA incentives are operative.

actuarially fair values need not necessarily imply an inefficiency in the provision of low-income housing: this may simply imply that investors discount for the risk of default or the associated cost of monitoring. These costs are not unique to the LIHTC program, and would presumably be borne in some other form in a different program design. The current, apparently negligible risk premium is consistent with evidence indicating that the *ex post* probability of punishment appears low. Ernst and Young (2005) find that only 0.4% of surveyed properties had been audited and faced a loss of tax benefits in the form of recapture or disallowance of future claims. While the average risk of noncompliance may be small, risk may help to explain cross-sectional variation in credit prices. Using data from LIHTC transactions in California, Eriksen (2007) finds that projects with characteristics correlated with an increased risk of noncompliance are associated with lower tax credit prices. This suggests that states may be able to use credit prices as an effective *ex ante* screening device when choosing how to allocate credits across proposed projects.

The low probability of punishment may arise from low noncompliance or ineffective monitoring. The IRS is largely dependent on monitoring by state housing agencies, and a GAO review found a number of potential problems in state oversight procedures (GAO, 1997).³³ Ineffective monitoring should lower the risk premium but will result in tax expenditure on projects that do not meet desired policy objectives. However, unless the government opts for direct provision of low income housing, this type of noncompliance issue may be common to any form of production subsidy. Conditional on a given level of monitoring, the penalties and therefore compliance may be higher under the LIHTC structure than under a traditional subsidy.

As discussed above, prices of credits that exceed actuarial fair values may reflect the fact investors may derive additional benefits from credits, since investments in low-income housing projects can be used to meet CRA requirements. As a result, some investors may be willing to pay more than the face value of credits. A 2003 report estimated that 43% of LIH investors were financial institutions subject to CRA requirements (Ernst and Young, 2003). Thus, prices that exceed actuarial fair values do not necessarily imply anything about the value of the tax shelter provided by the credit.

³³ The problems discussed in the GAO report include both inadequacies in *ex post* monitoring as well as violations of federal guidelines in credit allocation procedures.

More generally, credit prices may experience short term fluctuations as a result of supply and demand shocks. Credit prices appear to have fallen in 2007 and 2008, for example, as a result of large reductions in demand. These reductions appear to reflect the fact that several financial institutions and government-sponsored enterprises (GSEs) that represented a sizable fraction of the buyers have reduced their demand for tax credits given their changing taxable status as well as a general decrease in liquidity in the market.

In addition to variability in the prices of credits, it is important to note that not all of the equity finance received through the sale of credits goes into housing projects; there are a number of transactions costs associated with most LIHTC projects. Indeed, the GAO estimates, for example, that syndication costs may consume 10-27% of equity invested in low-income housing credit projects (GAO, 1997). Consistent with this finding, Cummings and DiPasquale (1997) find that the average ratio of net equity to gross equity in their data is 0.71. Syndication costs appear to be declining over time as the market has become more competitive.

The pricing of credits away from actuarial fair value and these sizable transactions costs likely represent transfers to and from investors and syndicators rather than economic efficiency losses. It is important to distinguish between the two, although both will be a source of policy concern if the goal is to evaluate the effectiveness of the LIHTC relative to other low income housing programs. In particular, deviations of prices from actuarially fair values represent efficiency losses if they represent risks associated with the novelty of the program or mispricings of risk (the fear of loss of tax benefits is artificially inflated). Otherwise, they are merely transfers. In this sense, any efforts by the government to reduce such mispricings or this perceived novelty through the strengthening of this market are efficiency enhancing.

Finally, housing created under the LIHTC program may simply crowd out other low income housing. We do not believe this issue is unique to the structure of the LIHTC program and have therefore focused primarily on credit pricing and costs that are specific to the program. It is also important to note that many projects constructed with LIH credits also benefit from additional supply side subsidies, such as tax exempt bond financing and Section 515 rural housing loans. In addition, a substantial share of residents in these housing projects are

recipients of Section 8 vouchers or other forms of rental assistance.³⁴ Therefore, while the LIHTC program is credited with great success in the production of affordable housing, it is not clear that the program would be successful in meeting project goals were it to exist in isolation.

VI. Distribution of LIHTC Tax Expenditure

Determining the true economic incidence of the LIHTC program is quite challenging for several reasons. Credit allocation formulas reflect a range of factors, including development costs and other received subsidies. In addition, states often allocate credits to developers willing to serve particular target populations or meet affordability guidelines that are stricter than federal requirements. Finally, most LIH projects receive additional federal supply and demand side subsidies, making it difficult to isolate the effects of the LIHTC. We focus instead on examining the distribution of three groups affected by the program: providers of low income housing, investors in LIH credits, and low income households who benefit from the program. We relate the findings back to the conceptual framework outlined in Section III.

VI. A. Distribution of Providers

As discussed above, an advantage of the “investable” feature of the LIHTC program is that it levels the playing field between for-profit and nonprofit developers. Federal law requires states to reserve 10% of LIHTC funds for projects with nonprofit developers, but this requirement does not appear to be binding in practice. Figure 6 illustrates the share of LIHTC funded projects developed by nonprofit developers by year placed into service. This share increased rapidly in the early years of the program, peaked at over 35% in 1998 and has since declined slightly to 25% in 2003. Some states do have additional nonprofit set-asides or favor nonprofits in their QAPs (Gustafson and Walker, 2002), but it is unlikely that these provisions alone can explain the observed levels of participation of nonprofits in this market.

VI. B. Distribution of Credit Claimants

VI. B. 1. Individuals

A surprising feature of individual LIHTC investors is that they are small: Between 1987 and 2002, the average credit among claimers was slightly more than \$3,000. The number of

³⁴ See Cummings and DiPasquale (1999) for estimates of the total development costs of housing produced under the LIHTC program and Deng (2006) for comparisons with the voucher program..

claimants has remained fairly constant over time, but the credit claimed per return has declined substantially, as shown in Figure 7. Among claimers, the average credit per return almost halved between 1995 and 2002, declining from \$4,100 to \$2,100 in real terms. This implies both an overall shift toward corporate investors and a shift towards smaller investments among remaining individual investors.

To examine the distribution of individual claimants, an approximation of cash income can be constructed from the public use data files.³⁵ Figure 8 plots the share of the annual value of credits claimed by individuals by income category between 1999 and 2002. There are two features to note. First, the distribution is hump-shaped in each year. This is not surprising: low income individuals may not have tax liability to offset, and high income individuals are more likely to be subject to the AMT. Second, the distribution of credits claimed shifts noticeably down the income distribution between 2000 and 2001. In particular, the share of credit value claimed by those in the 100-250 K income category declines and appears to shift to the two income categories that are immediately below.³⁶ These findings suggest that the AMT may have significant effects on the distribution of credit claimants and may help to explain both the overall shift toward corporate investors as well as the move toward lower-income, smaller individual investors.³⁷

VI. B. 2. Corporations

Tabulations by income category are not available in the published corporate reports. The reports do tabulate claims by sector, which is perhaps a more interesting categorization for corporate claimants. Table 1 illustrates the share of annual credit value claimed by various sectors in 2000 and 2004. We include data from the five sectors in the SOI classification that

³⁵ In particular, we use the following definition for income: Cash Income = AGI - S&L tax refunds + IRA deduction + student loan interest deduction + alimony paid deduction + tuition & fees deduction + HSA deduction + 1/2 of self-employment tax + penalty on early withdrawal of saving + self-employed health insurance deduction + MSA deduction + Keogh deduction + tax-exempt interest + non-taxable SS benefits - min(Other Income, 0). Not all components are available in all years, so we construct a measure as close as possible to the above definition in each year.

³⁶ The change in distribution of individual investors could be more precisely attributed to the AMT by comparing changes in the distribution across states with high versus low shares of AMT taxpayers. This is unfortunately not possible in the public use files since the state of residence is not available for those with AGI greater than \$200,000.

³⁷ Individual investments in LIH credits are also limited by passive loss limitations. Thanks to Rob Dietz for highlighting this point to us.

account for the largest shares of credit value claimed as well as data for the real estate and rental and leasing sector.

The majority of corporate credits are claimed by corporations in two sectors: “finance and insurance” and “management of companies (holding companies).” These two sectors have also accounted for a larger share of LIH credit dollars claimed over time. Together, corporations in these sectors claimed 65% of corporate credit dollars in 2000 and 83% in 2004. There is nothing in the structure of the LIHTC program alone that suggests that claiming of credits should be so concentrated across sectors. These findings strongly suggest that corporations in these sectors derive additional benefits from investments in low income housing.

Finally, it is interesting to note that the real estate sector accounts for a negligible share of credits claimed. In part, this suggests that the separation of the provision of the service from the tax beneficiary allowed by investable tax credits has been important.

VI. C. Distribution of Beneficiaries

Overall, it appears that the program is successful in providing affordable housing to households with below average incomes, but it may not benefit the very lowest income. This is not surprising, since the income limits for rent-restricted units are 50-60% of area median income, although the additional use of vouchers or other rent subsidies may help to make the units affordable for lower income households. A survey of properties placed into service between 1992-1994 indicates that three quarters of households in LIHTC properties had income below 50% of the area median and forty percent had income below 30% of the area median income (GAO, 1999). Thirty nine percent of resident households received direct rental assistance, and their average income was 25% of the area median (GAO, 1999). Similar patterns have been observed in other surveys of LIHTC properties (Ernst and Young, 1997). We do not attempt to examine the effects of the program on other (non-resident) low income households.

VII. Effects of Tax Reform Proposals: The LIHTC and the AMT

The LIHTC is unlikely to be affected by most reforms to the income tax code. An exception is the Alternative Minimum Tax. Since LIH credits cannot be used to offset AMT liability, these credits are not attractive to investors who are subject to the AMT or who are concerned about facing the AMT over the lifetime of the credits. A number of housing

advocates have argued strongly to allow LIH credits to be used to offset individual and corporate AMT liability.

Since credit allocations are fixed, the AMT should not affect tax expenditure on the program. However, the AMT may affect the distribution of investors, which could affect the effectiveness of the program in producing low-income housing as well as the types of projects built under the program. The primary effect of projected AMT expansions will likely be to further reduce the role of individual investors relative to corporates. Projects with corporate investors tend to have lower syndication costs (Ernst and Young, 1997) and are likely to be more effective at *ex post* monitoring than a diffuse group of small individual investors, resulting in a reduction of risk and higher credit prices. Both factors should increase the amount of equity financing available for low-income housing. The changing distribution of investors may also influence the types of projects that are financed under the program. A report by the National Association of Home Builders, for example, argued that individual investors tend to prefer smaller projects and may be more likely to prefer rural projects as well as projects catering toward special needs populations (NAHB, 2005). To the extent that this is a concern, state housing agencies could increase the points allocated to projects that serve such populations in their allocation plans.

The AMT can also result in short run fluctuations in credit prices through its effects on demand for credits. The AMT is most relevant for individual investors, who now comprise a very small share of credit dollars. Any reductions in individual demand are therefore unlikely to have substantial price effects. However, there can be effects on the corporate side as well if credit holdings are sufficiently concentrated. For example, Fannie Mae, one of the largest LIH credit holders, recently announced that it may be subject to the AMT. This has depressed its demand for credits and may have contributed to the overall decline in credit prices in 2007-2008.

Recent legislation (S. 2666) has proposed several reforms to the LIHTC program itself, including allowing LIH credits to be used to offset individual and corporate AMT liability. Given the strong overall shift toward corporate investors, as well as the increasing market role of financial institutions subject to CRA requirements, it seems unlikely that the provision will result in a substantial shift back toward individual investors. To the extent that investments in credits are concentrated among GSEs and large corporate investors, the reform may help to smooth the

short run fluctuations in credit prices that may otherwise occur if these organizations become subject to the AMT. The proposal does not increase aggregate per-capita allocations on the program but does have several provisions that effectively expand the per-project allowable subsidy under the program. Selected provisions are summarized in Table 2.

VIII. Conclusion

Upon initial inspection, the LIHTC and investable tax credits more generally appear to be highly curious and typically provoke skepticism. Nonetheless, the LIHTC program has become the primary federal program subsidizing the development of low income housing and appears to have broad support among policymakers, low income housing advocates, developers and institutional investors. Recent and proposed reforms to the program have been in the direction of further expansion, and the structure of the LIHTC has been replicated in other related federal and state programs.

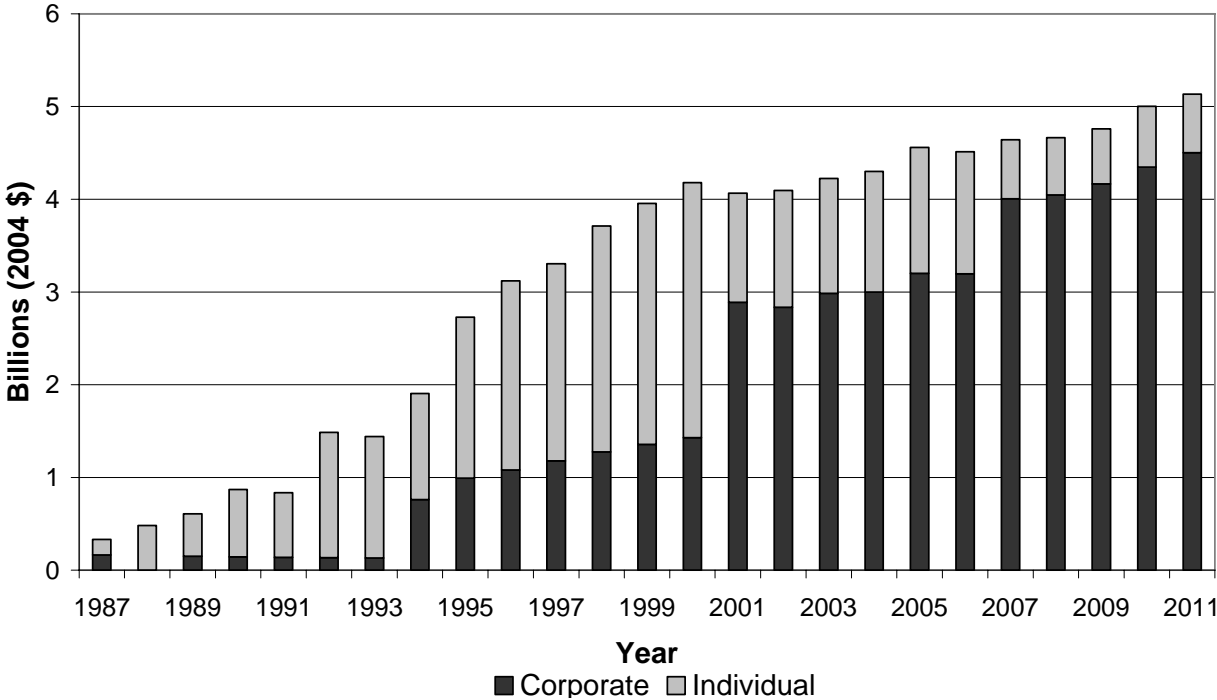
This paper provides the conditions under which the curious structure of this program may be preferred. Investable tax credits provide for political and economic benefits that analogous programs cannot provide. Specifically, the LIHTC may prevent regulatory capture, capitalizes on the institutional capacity of the IRS, and builds a broader political coalition for low-income housing. The investable nature of the credit also allows for the neutralization of any production bias created by a tax-based subsidy. Comparable devices to achieve this neutrality – either refundable tax credits or an untrammelled leasing market – have proven politically unpopular and operationally complicated. As such, investable tax credits provide the same virtues as these devices but in a more politically tenable manner. Investable tax credits may also improve *ex post* compliance by providing a punishment mechanism for projects that fail to comply and by encouraging delegated monitoring by investors. Extending investable tax credits to other domains promises to provide these benefits in other settings characterized by these concerns.

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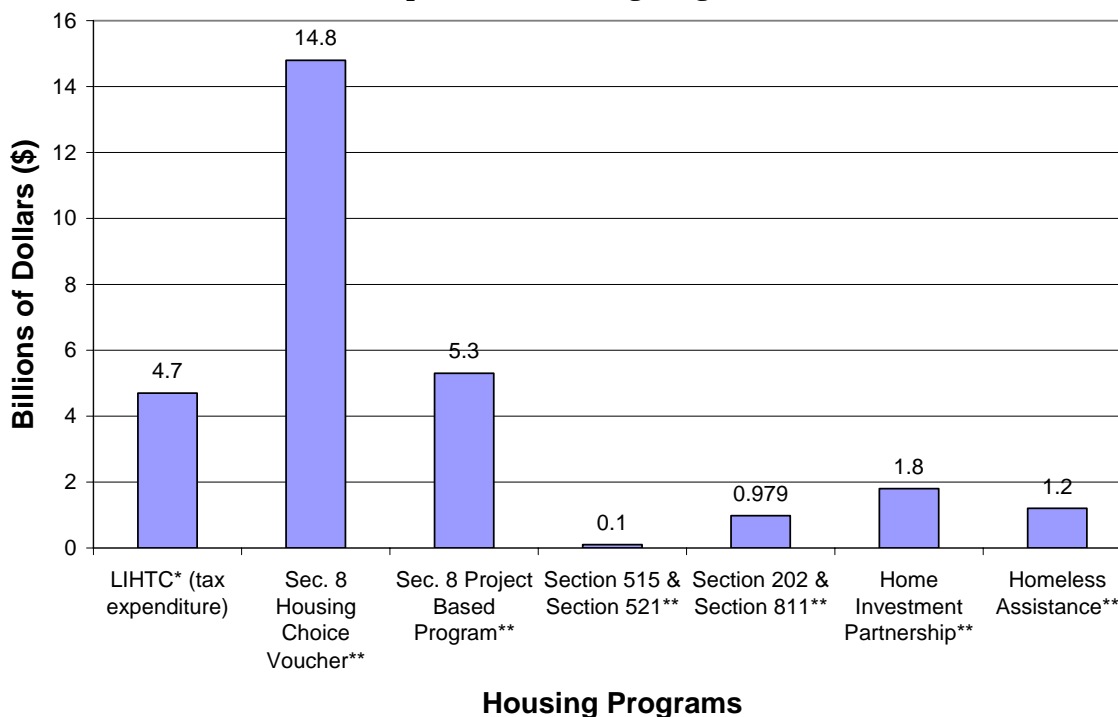
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Figure 1
JCT Estimates of LIHTC Tax Expenditure



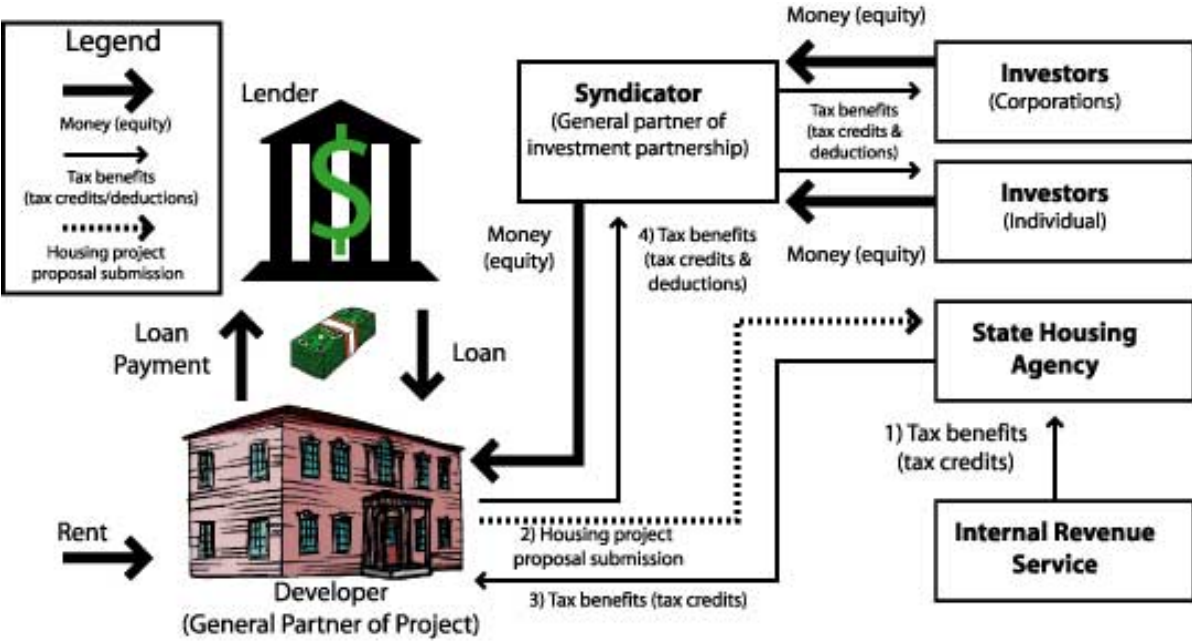
Notes: Data Source: JCT, “Estimates of Tax Expenditures,” various years. Figures for a given year are taken from the report immediately preceding that year. All figures are in 2004 dollars. Starting from 2008, estimates are based on a -0.3 annual CPI changes which reflects the average for 2005-2007. The apparent one-year shift from individual to corporate claimants from 2000 to 2001 reflects a change in the method of estimation rather than a true change in the distribution of claimants.

Figure 2
Comparison of Housing Programs (2005)



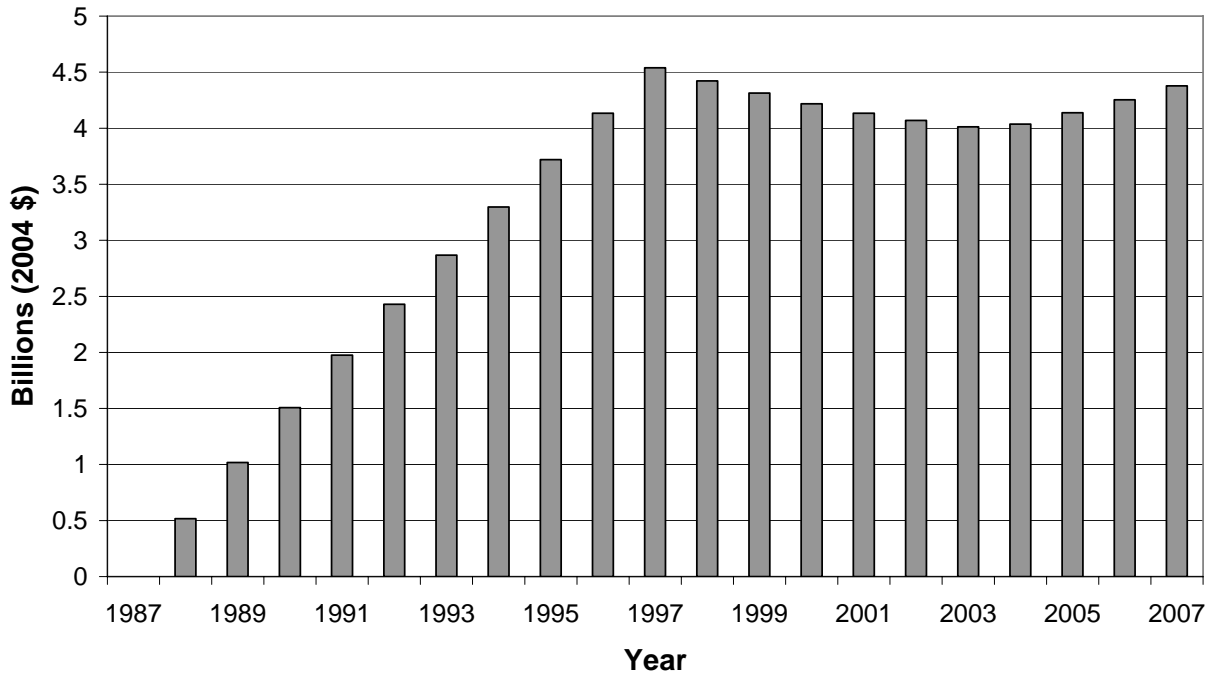
Notes: * Data for LIHTC tax expenditure are from JCT. ** Data on remaining programs come from Rice and Sard (2007). Budget Authority rather than outlays. Funding estimates for these programs are based on budget authority rather than expenditure. The Section 8 Housing Choice Voucher program provides vouchers to low-income tenants. The Section 8 Project Based program subsidizes affordable rental housing. Section 515 and Section 521 provides low-interest loans to encourage the production of affordable rental housing in rural areas. Section 202 and Section 811 provide subsidies to developers of affordable rental housing for the elderly and those with disabilities; Section 811 also includes tenant-based rental assistance for the disabled. The HOME Investment partnership provides a variety of subsidies (both project and tenant based) for rental and non-rental affordable housing. Homeless assistance refers to a number of programs that provide housing assistance to the homeless. See Rice and Sard (2007) for further details.

Figure 3
Mechanics of LIHTC Allocation



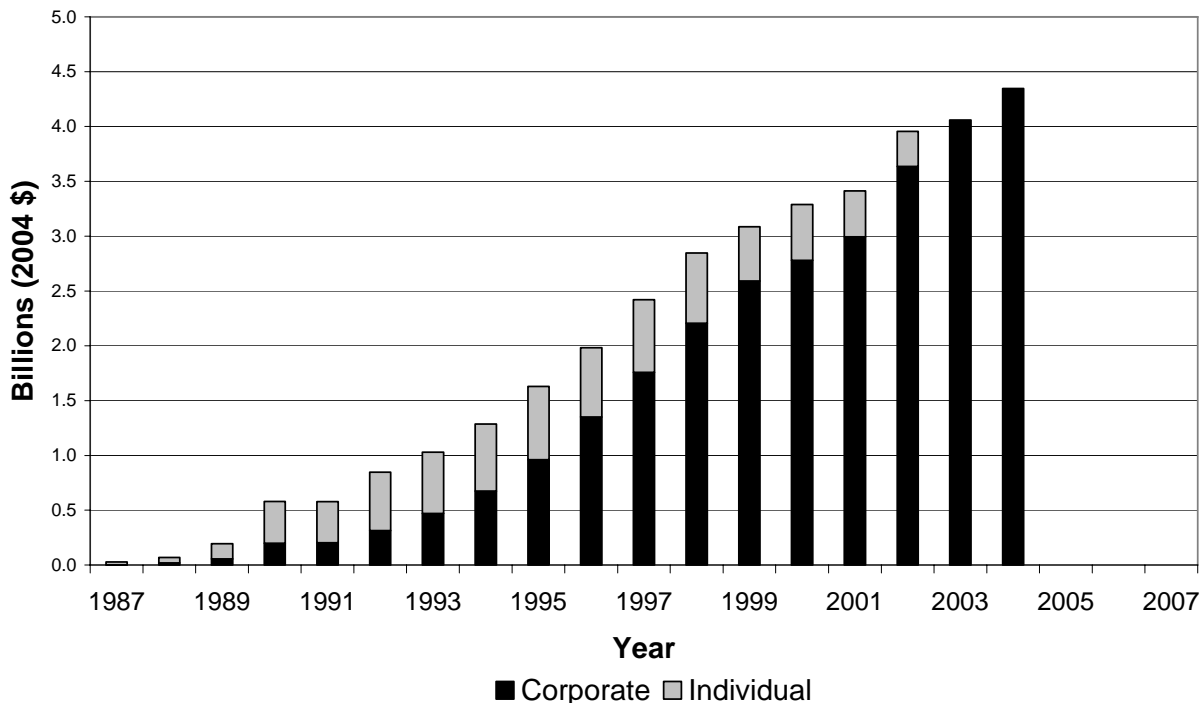
Notes: Source: Adapted from U.S. General Accounting Office, Tax Credits.

Figure 4
Tax Expenditure Estimates from Credits Allocated



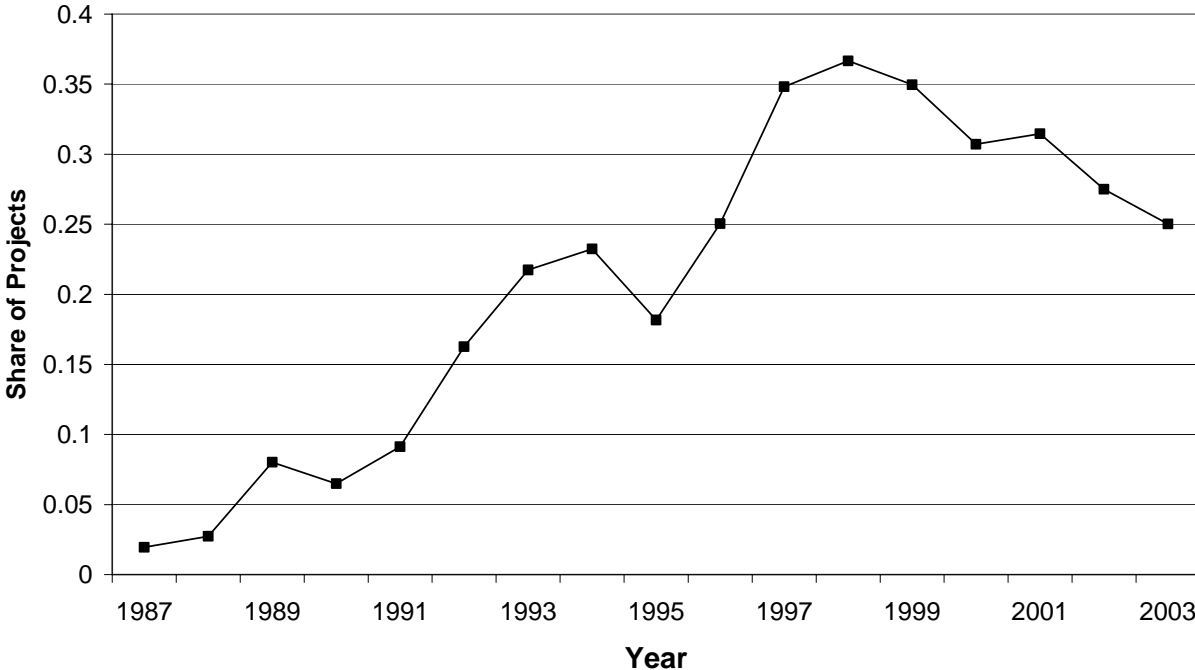
Notes: Figures are calculated from annual per capita credits allocated and population figures, and assume all credits are claimed over the 10 year period following project completion. The figures are based on federal allocation guidelines and do not incorporate state-specific minimum allocations. We allow a two year lag between allocation and project completion.

Figure 5
Tax Expenditure Estimates from Tax Return Data
 (Note: Individual data is from 1987-2002)



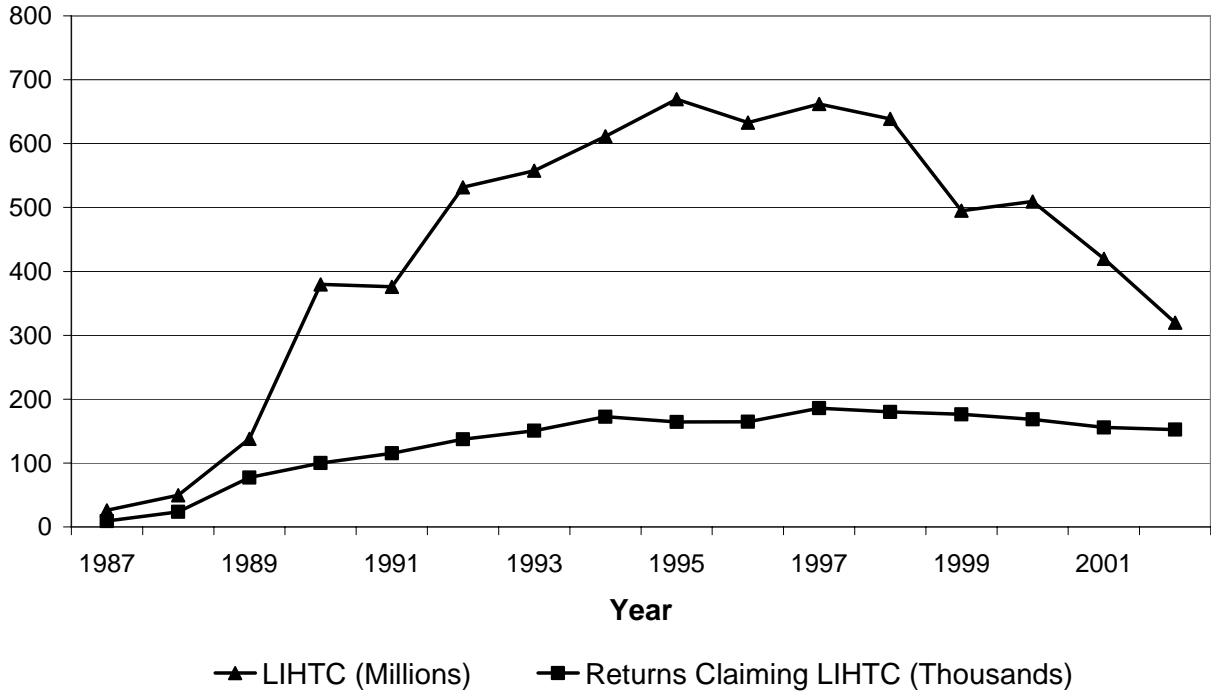
Notes: Figures are taken from the tentative credit calculation of the general business tax credit (Form 3800). Individual data are from the public use individual federal tax return sample and corporate data are from the SOI Corporation Complete Report.

Figure 6
Share of Projects Completed by a Not-for-Profit Developer



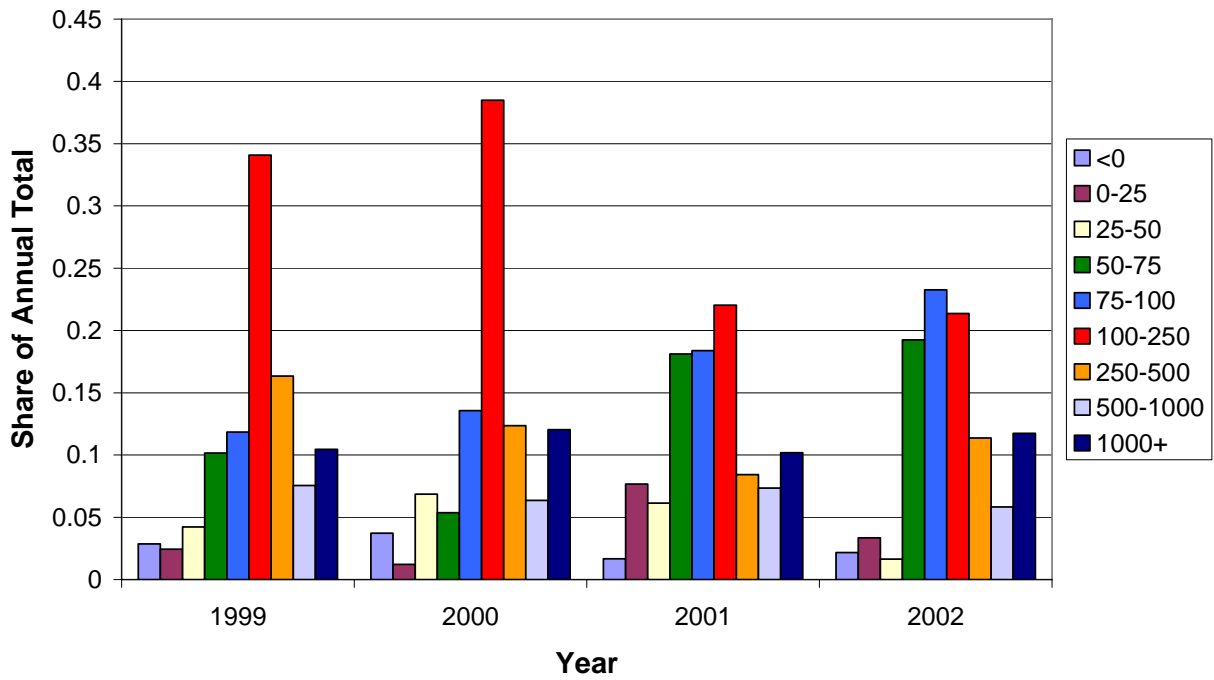
Notes: Source: HUD LIHTC database. Year refers to year placed in service.

Figure 7
LIHTC Claimed by Individual Investors



Notes: Source: Public use sample of individual tax returns (1987-2002). LIHTC claimed is calculated from the LIHTC line item in the tentative general business tax credit calculation.

Figure 8
Distribution of Claimants by Income



Notes: Source: Public use sample of individual tax returns (1987-2002). LIHTC claimed is calculated from the LIHTC line item in the tentative general business tax credit calculation. Income refers to an approximation of cash income (please see text for details).

Table 1
Distribution of Corporate Claimants by Selected Sectors

	Share of Annual Value of Corporate Credits Claimed	
	2000	2004
Finance and Insurance	33.4	40.9
Management of Companies (Holding Companies)	31.5	42.1
Utilities	9.61	3.81
Manufacturing	14.7	6.24
Information	5.43	5.02
Real estate and rental and leasing	1.02	0.27

Notes: Source: Public Table 21 of the Corporation Complete Report. LIHTC claimed is calculated from the LIHTC line item in the tentative general business tax credit calculation. Table includes the five sectors that account for the largest shares of credits claimed as well as the real estate sector.

Table 2
Summary of Selected Provisions of the Affordable Housing Investment Act of 2008
(S. 2666)

	Current Law	Proposed Reform
Program title	Low-Income Housing Tax Credit	Affordable Housing Tax Credit
Credits used against AMT?	No	Yes
Credit percentage rate	Fluctuates with federal borrowing costs	Fixed at 9% and 4%
	Varies with the type of project; projects that receive other federal subsidies are eligible for the lower rate	Allow projects with certain subsidies, such as Section 515 grants, to be eligible for the 9% rate
Basis boost	Available to projects in HUD designated high cost areas	Allows states discretion in providing basis boost to projects that meet state needs; allow the basis boost for HOME-assisted properties
Selling interest in LIHTC property	Requires posting a bond to ensure payment in the event of credit recapture by the IRS	Eliminates the bond requirement and replaces it with a longer statute of limitations on recapture and additional filing requirements in the event of recapture

Notes: Proposed reform provisions taken from the bill as it was introduced on February 25, 2008. Much of this material is based on a summary of the provisions of S. 2666 prepared by Novogradac and Company (see http://www.novoco.com/low_income_housing/legislation/2008/s_2666_provisions.pdf)