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in the Fourth District**

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## Low-Income-Rental-Housing Programs in the Fourth District

Francisca G.-C. Richter and Mark S. Sniderman  
with Matthew Klesta and Frank Manzo

In the aftermath of the Great Recession, many policy analysts are rethinking national housing policies, including affordable housing programs. We review the literature to compare the largest tenant-based (housing choice voucher or HCV) and place-based (low-income-housing tax credit or LIHTC) programs with respect to cost efficiency and access to better quality neighborhoods. We also provide an overview of low-income-rental-housing policy trends and perform a rough comparison of neighborhood quality across programs and counties, focusing on four main urban counties in the Fourth Federal Reserve District (Cuyahoga, Hamilton, and Franklin in Ohio, and Allegheny in Pennsylvania). We find that in spite of relatively stable real rents, affordability in the Ohio counties declined between 2005 and 2009 due to a drop in real incomes. We find that in Allegheny County during 2006-2009, neighborhood quality was comparable for rental units available through each of the two housing programs. We also find evidence that neighborhoods with LIHTC investments placed in service by 2000 in Allegheny County improved their quality by 2006-2009 relative to comparable neighborhoods, but we do not find similar evidence for the Ohio counties. Lacking tenant-level data on LIHTC renters, it is hard to explain these regional differences. Finally, we note that richer data reporting on various aspects of HCV and LIHTC would improve the ability of program administrators and policymakers to design, coordinate, and evaluate programs based on efficiency and effectiveness.

Key words: foreclosure, housing prices, neighborhood effects.

JEL codes: H23, R20, R30.

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# 1 Introduction

The mortgage and economic crisis of the late 2000s has redirected attention to the rental market and the federal policies that support access to it by low-income households. Home-ownership rates are currently below pre-crisis levels while rental vacancies have decreased, reflecting a spike in rental demand. At the same time, concerns over the size of the federal budget deficit are prompting policy makers to reassess the cost-effectiveness of many federally funded programs. This context presents an opportunity to revisit our national policy on low-income rental housing with the goal of making it more cost-effective and targeted so that as many eligible households as possible can access good quality housing and neighborhoods.

The “shortage of affordable housing” is an expression often used to describe the housing affordability issues that low income households face. At the individual level, a unit is considered affordable to a tenant if she can afford its rent plus utilities with 30% or less of her income. At the regional level, affordability is typically described as the percent of renter households with incomes above the amount needed to afford the 40<sup>th</sup> percentile rent with 30% or less of their income<sup>1</sup>. Affordability rates in a region may change for a variety of reasons, including relative changes in income, rent, population, and housing stock. For example, an increase in the stock of low rent units relative to the low income population, either through the production and rehabilitation of rental units, or through the natural filtering-down of higher rent units, will increase affordability rates. Production and rehab programs are perhaps the policies that come to mind when affordability issues are described in terms of a shortage of affordable housing. The Low Income Housing Tax Credit program (LIHTC) operated by the Treasury Department is the largest production program seeking to increase the stock of low rent units. On the other hand, income and rent supplements that lower the rent-to-income ratio of low income renters also increase affordability. HUD’s Housing Choice Voucher program (HCV), which sends payments directly to landlords, exemplifies a policy that reduces the share of income spent on rent below a certain threshold<sup>2</sup>.

For completeness, we should note that land use regulations can also influence the growth of low income housing stock, particularly in tight markets. Feldman (2002) argues that rather than a shortage in affordable housing, we are facing a “very low income” problem ex-

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<sup>1</sup>HUD defines the local Fair Market Rent (FMR), as the 40th percentile of gross rents for typical, non-substandard rental units occupied by recent movers in a local housing market.

<sup>2</sup>Some states sponsor rental assistance programs as well. The Pennsylvania Rental Rebate program amounts to an increase in renter’s income that also increases affordability. The program benefits low income seniors and people with disabilities with annual incomes not higher than \$15,000.

acerbated by land-use regulations. Glaeser and Gyourko (2003) analyze the effect of zoning on the supply of affordable housing and find evidence for it. They argue that the affordable housing debate should be broadened to include zoning reform and not just subsidized construction programs.

This paper focuses on the HCV and LIHTC programs. Nationwide, there are slightly over 2 million households served by Housing Choice Vouchers (HCV), the largest tenant-based program in place, and over 2 million low-income units whose construction and maintenance has been subsidized by the Low-Income Housing Tax Credit (LIHTC), the largest place-based housing program. Furthermore, the number of HCVs has remained virtually constant since the early 2000s while LIHTC unit production almost doubled throughout the decade.

For over three decades, research studies have tended to favor tenant-based as opposed to place-based housing assistance programs on the grounds of economic efficiency, namely, the ability to cover more families in need per public dollar invested. A counter argument against evaluating programs on pure efficiency grounds can be made, however, based on spillover benefits to neighborhoods that could come from the prudent geographic targeting of housing production and rehabilitation projects, and due to the fact that special needs populations might be better served through place-based construction projects. The reasonableness of making a head-to-head comparison of these two approaches is further complicated by the fact that in practice many housing choice vouchers are being used by tenants in LIHTC units<sup>3</sup>. This raises the possibility that a combination of the two programs might lead to greater social welfare than either program could on its own.

A benevolent social planner would chose a combination of place-based and people-based programs to maximize overall social welfare. The optimal allocation of resources between both programs would account for the welfare increases that accrue directly to the housing tenants, as well as the increases associated with externalities to the community in which the tenants locate. The social planner would have to determine the efficiency of each program (e.g., units created per dollar of cost), the degree of welfare improvement associated with people's moves to other locations, and whether it is possible to generate externalities from place-based programs. It seems reasonable to think that the optimal mix of programs might differ by location, depending on the characteristics of the population, the nature of the housing choices already available, and the ability to generate positive externalities through

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<sup>3</sup>O'Regan and Horn (2012) find that 54 percent of LIHTC households in one (unspecified) state have some form of rental assistance and that about half of those households are using housing choice vouchers.

comprehensive economic development strategies. This is a complex problem to solve, both in theory and certainly in practice. But our basic point is that there are likely to be considerable benefits to communities that are able to coordinate these programs in some fashion, as opposed to having them operate in isolation to one another<sup>4</sup>.

We approach the analysis of rental housing markets in the 4<sup>th</sup> District with the following questions:

- In what ways have housing affordability patterns changed since the onset of the recent housing market crisis?
- How are the HCV and LIHTC programs performing relative to the central goals of housing policy - population coverage and access to quality units and neighborhoods?
- What regionally relevant affordable housing policy considerations can be derived from the literature and data analysis?

## 2 Affordability

In this section, we analyze changes in affordability following the housing crisis for four urban counties in the Fourth District: Cuyahoga, Hamilton, and Franklin in Ohio, and Allegheny in Western Pennsylvania. We can look at the actual distribution of gross rent as a percent of household income for a sample of the population in the 2005 and 2011 records of the American Community Survey's Public Use Microdata Sample (ACS PUMS). That survey defines gross rent as the contract rent plus the estimated average monthly cost of utilities and fuels if these are paid for by the renter. It does not take into account possible voucher use. The empirical distributions of gross rent as a share of income are presented in figure 1. Notice that we are not comparing the same group of individuals across two years. Rather, the 2005 and 2011 distributions should reflect the changes in tenure choice that have taken place during this period, as more moderate and middle income families are reluctant or un-

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<sup>4</sup>The benevolent social planner is of course, an abstract concept used to derive the resource allocations that maximize consumer welfare. In the actual marketplace, we observe that some coordination among programs does occur, and efforts are being made to achieve further coordination as part of the housing recovery efforts. The Housing and Economic Recovery Act of 2008 included reforms to Section 8 Tenant- and Project-Based Voucher programs, some of which were related to their use in LIHTC properties(Federal Register, 2012). Since then, HUD has proposed rules to implement the HERA provisions and called for public comments on the language. Comments on the proposals from many housing organizations involved with the LIHTC and HCV programs indicated support for the use of vouchers in LIHTC units that would benefit extremely low-income and special needs users.

able to become homeowners.

A common feature across all Ohio counties and the nation is that more than half of all renter households face “unaffordable” gross rents in the sense that these rents are above 30% of their income. Between 2005 and 2011, in the Ohio counties and for the national sample, the rent-to-income ratio has increased for almost the entire distribution, but more so for the less affordable half of the distribution. Among those that cannot afford their rental home, conditions are worse for Cuyahoga households. In Allegheny, however, affordability has remained virtually unchanged, and as of 2011, it is the most affordable county among the four studied. It is worth noting that in spite of having weak housing markets, Cuyahoga and Hamilton have the highest percent of households for which gross rent exceeds income (about 13% in 2011), which is 3 to 4 percentage points higher relative to the national, Franklin, and Allegheny samples.

Using the same data set, we turn to examine changes in rent (figure 2) and income (figure 3) in our District, and their effect on affordability during this time period. Renter household income and rent for 2005 and 2011 are expressed in 2011 dollars. Compared to the U.S., real gross rents are significantly lower in the Midwestern counties, consistent with this being a weak market region. Franklin county is the exception, at least for the bottom quartile of the distribution, in which rents are equal or even higher than the nation’s. In real terms, rents have not increased in 2011 as compared to 2005. And in Cuyahoga county they even exhibit a slight decrease, which, all else equal, would tend to increase affordability. However, as figure 3 shows, real incomes of renter households have declined during this period for Cuyahoga more so than for any other county or the nation as a whole. As with rents, the Midwestern counties have real incomes below those of the nation throughout the entire distribution, but Cuyahoga and Hamilton renter incomes are the lowest. So even if real rents experienced a small decline in these Ohio counties, the drop in real income was enough to offset any gains in affordability and furthermore, worsen conditions, particularly for the lower income renters.

### **3 Program Evaluation**

Most of the recent policy and economic literature around low income rental housing has centered on the two largest programs in the nation, HCV and LIHTC, evaluating and comparing them in terms of cost efficiency, coverage, and product quality (of units and neighborhoods). This section presents an overview of both programs and research findings regarding their

ability to meet such goals.

LIHTC is the largest place based program in the country, with 1,754,545 (2,235,000) housing units placed in service between 1987 and 2009 (2010). Comparably, the number of HCVs reported in 2009 were 2,074,111. Eligibility criteria and subsidy amount are specified as follows:

- HCV: Family income may not exceed 50% of the median income for the county or metropolitan area in which the family chooses to live. By law, a Public Housing Authority must provide 75 percent of its vouchers to applicants whose incomes do not exceed 30% of the area median income. The subsidy amount depends on family income and the Fair Market Rent (FMR). HUD establishes the FMR as the 40<sup>th</sup> percentile of gross rents for typical, non-substandard rental units occupied by recent movers in a local housing market, adjusted by household size. With some exceptions, households are allowed to rent units at not more than slightly above the FMR and pay about 30% of their income towards rent and utilities. The subsidy covers the difference.
- LIHTC: Either 20% of the units must be reserved for households with initial, qualifying incomes at or below 50% of the area median income (AMI) or 40% of units must go to households with initial, qualifying incomes at or below 60% AMI. In reality, over 90% of the households living in LIHTC units meet the 'below 60% AMI income' requirement and it is estimated that over 40% of households receive other type of rental assistance such as place or tenant based vouchers (O'Regan and Horn (2012)). Rent ceilings for LIHTC units are determined as the highest rent that a '60% AMI income' household would be able to afford with 30% of their income net of utilities.

Figure 4 shows the cumulative number of LIHTC units placed in service by the end of each year between 2000 and 2009 (top) and the LIHTC to HCV ratio (bottom). It is interesting to note the wide variation in trends across regions. Allegheny has held the smallest number of LIHTC units, both in absolute terms and relative to the number of HCV vouchers. Franklin, at the opposite end, has the most LIHTC units relative to vouchers.

In the next two subsections, we review the literature on how adequately these two programs meet their goals, in terms of population coverage, cost effectiveness, and access to better quality neighborhoods. In doing so, we note that in addition to a literature that is specific to these two programs, there is a more general literature comparing people-based and place-based policy interventions (see Partridge et al. (2012) for a review). Briefly, the issue is that in the standard spatial equilibrium model, people and firms move to areas with



the highest expected utility and productivity. Consequently, geographically-oriented policy interventions are thought to slow welfare-enhancing resource flows. However, empirically, it seems that resource adjustments are extremely slow and often at odds in other ways with model predictions. These observations open the door for considering place based policies as second best options.

### 3.1 Coverage and Cost Effectiveness

Programs currently in place are non-entitlement, meaning that they are not automatically available to those who meet the eligibility criteria. According to Sard and Fischer (2012), only 25% of *eligible* low income renters received federal rental assistance in 2009. This finding illustrates why, in a time of federal budget constraints, cost effective programs are vital for expanding coverage among eligible households. Studies comparing LIHTC and HCV overwhelmingly favor vouchers in terms of cost comparisons or effectiveness (Olsen, 2009), although some argue that a cost-benefit analysis would be needed to uncover the overall value of LIHTC.

Deng (2005) compares the present value of government subsidies under HCV and LIHTC in a 20 year period assuming each program helps the same low-income families live in equally-sized units. This comparison assumes the product (quality of housing and neighborhood) is the same under either policy. Since voucher payments depend on tenants' income and rent, she calculates the dollar amount needed to provide vouchers to a set of households with incomes similar to those exhibited by households living in LIHTC projects. Issues regarding changes in prices, supply, and demand of housing are not taken into account. So cost comparisons across programs at the project level are given by the ratio of the present value of LIHTC subsidies to the present value of estimated HCV subsidies. Deng estimates that it is less costly to provide housing through vouchers than LIHTC investments for most of the projects across tight and soft housing markets alike. She finds that the average LIHTC-to-HCV ratio across all projects studied is 1.75 in New York and 1.40 in Cleveland. On the one hand, Cleveland's soft housing market, with relatively low rents, ought to contribute to widening the gap in program costs in favor of vouchers. Yet at the same time, Cleveland's LIHTC projects in the study tended to house very low income households for which a voucher subsidy would have been rather high.

Cost-effectiveness analyses of place versus tenant based programs are reviewed by Olsen (2009). Here, the cost effectiveness of a project (such as a LIHTC building) is defined

as the ratio of the present value of total costs and rents to the present value of market rents throughout the project's life cycle. This concept can also be applied to vouchers, where the cost of a unit of housing (including rent) exceeds the market rent of the unit involved by the cost of administering the program. Olsen (2009) points to a study by the U.S. Government Accountability Office (2002) as one that provides a comparative analysis of the programs in terms of their cost effectiveness<sup>5</sup>. The authors find all place based programs including LIHTC to be less cost effective than the voucher program. In metropolitan areas, LIHTC units cost 19% more compared to vouchers for one and two bedroom apartments, and 44% more in non-metro areas assuming a 3% rate of annual rent inflation. For 3 bedroom units, the excess cost goes down to 4% in metro and 36% in non-metro areas. One of the criticisms of the study is that the comparison across programs did not account for differences in quality of units, and thus underestimated the value of LIHTC housing. Invited comments to the study by the National Council of State Housing Agencies (U.S. Government Accountability Office, 2002, Appendix VII) state that LIHTC properties provide support services and amenities not usually available to voucher users, and are often anchors for the revitalization of low income communities. The comments also support combining vouchers with LIHTC subsidies as they are sometimes crucial to the development of the project.

More recent studies have focused on identifying inefficiencies and unintended consequences of each program that can be addressed to some extent to improve coverage and quality. Burge (2011) estimates that only one-third of the LIHTC programs' cost goes to low-income households in the form of rent savings and that project developers and owners significantly benefit with the program. This is referred to as a leaky policy by Green (2011). As such, LIHTC units are said to crowd out private supply of similar units offered at market rents (Eriksen and Rosenthal (2010); Malpezzi and Vandell (2002)). An additional government-subsidized unit is estimated to increase the total supply in the market only by between 0.35 and 0.52 units (Sinai and Waldfogel, 2005). Baum-Snow and Marion (2009) find that while LIHTC units crowd out nearby new rental construction in gentrifying areas, they do not displace new construction but rather induce higher housing values in stable or declining areas. And in places where there are more eligible families per existing government-financed units there is less crowd-out (Sinai and Waldfogel, 2005).

With respect to HCV, a study by the U.S. Government Accountability Office (2012)

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<sup>5</sup>A policy paper based on this study and by the same authors was published the following year (Di Pasquale et al., 2003).

identified inefficiencies in program administration that, if addressed, could reduce the need for new appropriations, cut expenditures, or increase the number of households assisted. Collinson and Ganong (2013) found that increases in the county rent ceiling led to increases in rents even when the rental unit quality remained unchanged. This suggests that potential gains in quality for tenants due to a general increase in the subsidy are undermined by gains in landlord rents. Jacob and Ludwig (2012) find a negative, although relatively small effect of housing assistance on the labor supply (4% reduction in labor force participation). So even if tenant-based programs are more cost efficient than place-based, Quigley (2008) argues that eligibility criteria for voucher use would have to be tightened to make possible a more broad and equitable housing assistance policy<sup>6</sup>.

The viability of a cost-effective expansion of housing voucher programs has been addressed with research and policy-based arguments. Quigley (2011), for instance, proposes financing a universal voucher program through the IRS with administration by HUD. This program would be viable with the elimination of capital gains exclusion to owner-occupants when they sell their homes and a reduction in the limits on deductibility of interest payments for high-income homeowners. Concerns about a possible shortage of units available that would meet HUD's requirements to be voucher eligible are addressed by Rosenthal (2011) who estimates that rental housing filters down at an average real annual rate of 2 percent<sup>7</sup>. Eriksen (2009) suggests that expanding current depreciation allowances entitled through the tax code to all owners of rental housing may be another source of affordable rental housing and a better alternative to the LIHTC program. His estimates suggest that this policy could be 40% more cost effective in increasing the nation's supply of affordable rental housing. Furthermore, it is argued, an increase in the supply of vouchers per se is likely to encourage landlords to repair existing housing, and thus, increase the stock of housing available to low income families (Currie, 2006, Chapter 4).

The referred literature suggests that both LIHTC and HCV programs can become more cost effective and that complementarity versus substitutability of services provided matters when considering an efficient allocation of resources among each type of program. The degree of substitutability of LIHTC units with vouchers is less likely if LIHTC projects offer services for special needs populations or larger households (needing 3 or more bedroom units), or if they are combined with amenities such as good academic and recreation services in places

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<sup>6</sup>In 2006, the average cutoff income was about \$52,000 for a family of four, compared to an average cutoff income of \$25,000 for food stamps and of \$37,000 for the Earned Income Tax Credit (Quigley, 2008).

<sup>7</sup>Estimates are based on a repeat income model on 1985-2009 panel data.

that previously lacked these amenities.

### 3.2 Access to Better Quality Neighborhoods

In theory, both programs have the potential to expand low income households' access to better quality neighborhoods. HCV reduces the income restrictions of tenants looking to live in safer neighborhoods with better schools. Likewise, mixed-income developments can be built with LIHTC credits in high quality neighborhoods or in conjunction with other services in order to revitalize an otherwise low quality neighborhood. Notable examples for each policy are given by the Gautreaux Housing Mobility Program and by the redevelopment of Atlanta's East Lake Community, respectively. In Gautreaux, movers that were quasi-randomly assigned to suburbs, featuring less segregation and better schools than those of cities, were more likely to be employed, to complete high school, and had higher wages than city movers (Rosenbaum, 1995). LIHTC-funded East Lake Redevelopment in Atlanta turned a dangerous and impoverished community into one that was safe, mixed-income, and with access to a high quality school. Furthermore, a study by Boston (2005) finds that outcomes improved on average even for residents that did not return to the community after redevelopment.

However, more often than not, units with HCV or LIHTC subsidies are located in low income, low quality neighborhoods with few signs of revitalization. The Moving to Opportunity Demonstration (MTO), for instance, induced voucher movers to relocate in neighborhoods that were less poor (by program condition) and less violent, but similar to their previous neighborhoods in terms of school quality and attainment, employment rates, and rates of single-headed households (Aliprantis, 2012). Findings from MTO raise concerns regarding the effectiveness of the voucher program as families living in poverty-concentrated neighborhoods often face high unobserved costs of moving to considerably better quality neighborhoods. Collinson and Ganong (2013) shed light on ways to change the current voucher program to induce better quality moves. They use zip code level data from a 2011 HUD demonstration in Dallas, Texas, which implemented zip-code level as opposed to metro-level rent ceilings. In doing so, voucher holders faced differential incentives to move within the metro area. The researchers find that this policy change has resulted so far in moves to substantially better quality neighborhoods. Noticeably, the biggest improvements in the quality measure are due to voucher holders moving to areas with lower crime rates.

Deng (2007) looks at the school quality accessible to users of Housing Vouchers and LIHTC for six MSAs. She finds that HCV and LIHTC family units are predominantly located

in low-school-quality areas. Particularly in Cleveland, she finds that a considerable portion of the LIHTC units are clustered around extremely low-quality schools. And only in one out of the six MSAs (New York) is the school quality accessible to voucher families as good as the school quality accessible to other renters.

In an effort to inform voucher administrators and users on neighborhood choice, HUD recently created a Housing Choice Voucher Marketing Opportunity Index (McClure, 2011). This index ( $I_{2000}$ ) combines economic and education variables from the Census 2000 and other measures such as concentrated poverty and commute times<sup>8</sup>. McClure (2011) finds that the tracts that meet the minimum conditions to be deemed an opportunity neighborhood are about 40 percent of all tracts. These tracts contain about 21 percent of the nation's stock of units offered at rents at or below the FMR.

Figure 5 shows frequency distributions of  $I_{2000}$  for HCV holders and LIHTC units weighted by the concentration of units in each census tract. Tract location of units are from a Picture of Subsidized Households and the LIHTC Database, both from HUD. Figures are for HCV in use during 2000, 2005 and 2009 (top panel) as well as LIHTC low-income units *added* in the periods [1995, 2000], (2000, 2005], (2005, 2009] (bottom panel). Assuming  $I_{2000}$  characterizes neighborhood conditions through the next 10 years, we can see that LIHTC units built between 1995 and 2000 are for the most part in neighborhoods with an index below 50 in Cuyahoga, Hamilton and Allegheny. Franklin, the county with the highest LIHTC units, shows units placed in higher quality neighborhoods up until 2005. In general, very few developments have been placed in service in the later time period. Voucher holders also concentrate in lower quality neighborhoods but, compared to LIHTC users, they access better neighborhoods at higher rates.

Unfortunately, the indices do not inform us on the safety of the neighborhood, a consideration that would naturally be at the top of the list of potential movers. Lens et al. (2011) use census tract level crime data for 91 U.S. cities in 2000 and an additional smaller set

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<sup>8</sup>If a neighborhood has a level of poverty below 10% and HCV households occupy less than 4% of the housing stock, then the neighborhood (tract) is considered an opportunity neighborhood ( $NQ_1$ ). This is a binary variable that takes the value of 40 if all conditions are met and 0 otherwise. A second index ( $NQ_2$ ) compiles other economic and demographic indicators adding 10 points for each threshold met. Variables considered here are rates of unemployment (below 5%), high school dropouts (below 15% of all adults), assisted project-based housing (less than 5% of the housing stock), minorities (less than 20% of the population), workers have short commutes to work (over 75%), and poverty has to be declining. Depending on the criteria met, this indicator can range from 0 to 60. The combined quality index is defined as  $I_{2000} = NQ_1 + NQ_2$ , and it ranges from 0 (lowest) to 100 (highest).

of 7 cities spanning from 1998 to 2008 (Cleveland is represented in both data sets). They find that in 2000, residents of public housing and LIHTC units lived in significantly higher crime and violent crime rate neighborhoods than voucher holders, which in turn, lived in neighborhoods with crime rates similar to poor renters in general. Using the 7 city set, they find that crime rates dropped over the 10-year period for both 1998 and 2008 locations suggesting that improvements in neighborhood safety had less to do with recent moves than with pre-1998 moves. Freedman and Owens (2011), on the other hand, find a negative effect of the LIHTC program on violent crime -yet no effect on property crimes- based on a county level analysis. They conclude that LIHTC programs can generate important positive externalities in distressed communities. Our own estimates of exposure to violence in the city of Cleveland show that LIHTC developments placed in service by 2004 are in census tracts that at the time had low violent crime rates relative to tracts with at least 20% poverty rates (987 and 1923 crimes per 100000 people respectively). However, by 2011 violent crime rates in those same tracts have almost equalized (1859 and 2053 violent crimes per 100000 people respectively)<sup>9</sup>.

While the HUD index includes a rich set of variables to reflect neighborhood quality and opportunity, it has not been updated from its 2000 measure. Thus, we build an alternative index that, although much simpler, is able to measure changes in quality through time and provides a relative measure of quality across counties. With this index we explore the possibility that LIHTC projects are built in neighborhoods that have high chances of revitalizing either due to the specific project and support services or due to other investments taking place in the neighborhood. Our index is a linear combination of rates of unemployment, poverty, high school graduation, and bachelor's degrees transformed to its percentile value. The index coefficients are derived from a principal component analysis of the 2006-2009 ACS data on all four counties and are applied to 2000 and 2006-09 data<sup>10</sup>. We take 2000 as a baseline year and look at how neighborhood quality of LIHTC housing changed in 2006-2009 relative to other census tracts of similar baseline quality in 2000 but that did not have a LIHTC investment. Specifically, for each county, comparison tracts are those with 2000 quality levels ranging from 0 to twice the quality level of tracts with LIHTC units. The neighborhood quality measure for LIHTC housing is obtained as the average quality of the tracts in which LIHTC is placed, weighted by the number of low income units in each tract.

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<sup>9</sup>Data on crime for the city of Cleveland was obtained from NEO CANDO system, Center on Urban Poverty and Social Change, MSASS, Case Western Reserve University (<http://neocando.case.edu>.)

<sup>10</sup>The first component explains 71% of the variation in the 2006-2009 data and applying these coefficients to 2000 data leads to almost identical quality rankings than those that would have been obtained by using the first principal component derived from the 2000 data.

As figure 6 shows, only in Allegheny does there seem to be an improvement in neighborhood quality for LIHTC units worth noting and high relative to the comparison neighborhoods. In the Ohio counties, quality levels remain between the 10<sup>th</sup> and 16<sup>th</sup> percentile, which is representative of average poverty rates of 36% and unemployment rates of about 18%. In Allegheny, LIHTC users experience, on average, a quality index around the 32<sup>th</sup> percentile which corresponds to a poverty rates of 22% and an unemployment rate of about 11%. However, it is also worth noting that neighborhood quality of subsidized households in 2000 was considerably lower in Cuyahoga and Hamilton as compared to Allegheny, suggesting that revitalization efforts may be more challenging in the Ohio counties. Figure 7 shows that voucher holders experience on average higher quality neighborhoods than LIHTC households in Cuyahoga, Hamilton, and Franklin, but quality differences are much smaller and levels are much higher for Allegheny.

## 4 Policy Considerations

Faced with a weak housing market, our region's affordability issues have more to do with low incomes than with high rents or the undersupply of housing. In spite of real rents remaining relatively stable between 2005 and 2011, affordability rates declined in the Ohio counties (Cuyahoga, Hamilton, and Franklin) driven by a decline in real incomes. These conditions would seem to favor the expansion of tenant-based subsidies over construction programs and to question the ongoing conversion of tenant-based to place-based vouchers for use in LIHTC units<sup>11</sup>. However, these same conditions suggest that crowding-out of private construction by LIHTC is less of a concern here than in stronger markets (Baum-Snow and Marion, 2009). When both, place- and tenant-based programs provide access to similar units and services, the literature argues that resources are more efficiently used via tenant-based programs. But the degree of substitutability of LIHTC units with vouchers is less likely if LIHTC projects offer services for special needs populations or larger households, or if they are combined with amenities such as good academic and recreation services in places that previously lacked these amenities. Consequently, an all voucher system may not be desirable. Unfortunately, to our knowledge, the allocation of tax credits and appropriations for rental housing programs are not coordinated to achieve a deliberately calculated balance between both programs. Furthermore, publicly available LIHTC data does not yet provide much information on LIHTCs specialized uses and tenants, which could help inform the allocation of resources among the

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<sup>11</sup>O'Regan and Horn (2012) report that 46% of all LIHTC households receive some other form of rental assistance. More specifically, between 23 – 26% of LIHTC households use vouchers.

different programs<sup>12</sup>.

We can make some general inferences about the neighborhood quality of rental units available through each of the two housing programs. We find that results differ considerably between Allegheny, PA and the three Ohio counties studied. In Allegheny, the quality of neighborhoods with LIHTC developments in place as of 2000 has improved more than that of other similar neighborhoods by the second half of the decade. According to 2006-2009 data for Allegheny, the neighborhood quality that LIHTC and HCV users face is very similar. On the other hand, in Franklin, Cuyahoga, and Hamilton, LIHTC developments are placed in neighborhoods of much lower quality by 2000 and we find no evidence of revitalization. And on average, voucher holders access better quality neighborhoods than LIHTC users in these Ohio counties. Lacking data on LIHTC residents, it is hard to draw any conclusions as to why this may be the case. Data on demographic characteristics, income, subsidy use, and disabilities of LIHTC households would help clarify to what extent LIHTC units can or cannot be compared to HCV housing in terms of the populations they serve and the needs they meet<sup>13</sup>. At the same time, it would be worth reviewing the eligibility criteria stated in the Qualified Allocation Plans by each state to make sure that this criteria is aligned with the goals of neighborhood quality and revitalization, access to a safe environment and good schools.

Finally, it is important to weigh in Feldman (2002)'s reference to the "very low-income" component of the problem, particularly in our region that has an excess supply of moderate income housing, yet at the same time grapples with a decline in renters' real income. A region's investment in its human capital ought to lead to a stronger and more robust labor market, that in turn should provide better housing and quality of life outcomes for the least well off in our society. Housing policy has its own, independent role to play in the process of human capital development. As our analysis suggests, housing policies may operate, under certain circumstances, in ways that place households in neighborhoods with better schools. However, such outcomes are by no means guaranteed under either housing program.

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<sup>12</sup>We see that in Ohio and Pennsylvania, LIHTC tends to house families and the elderly while HCVs are mainly used by families and people with disabilities. In PA, LIHTC units are more typically of 1 and 2 bedrooms while HCV more commonly provide access to 2 and 3 bedrooms units.

<sup>13</sup>The aforementioned data on HCV tenants are available at the census tract level of aggregation in HUD's Picture of Subsidized Households.



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## Distribution of Gross Rent to Income Ratio 2005 (blue) and 2011 (red)

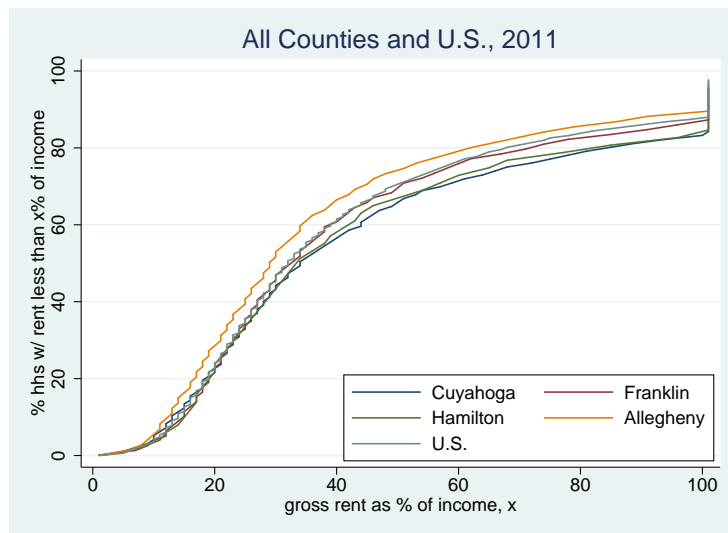
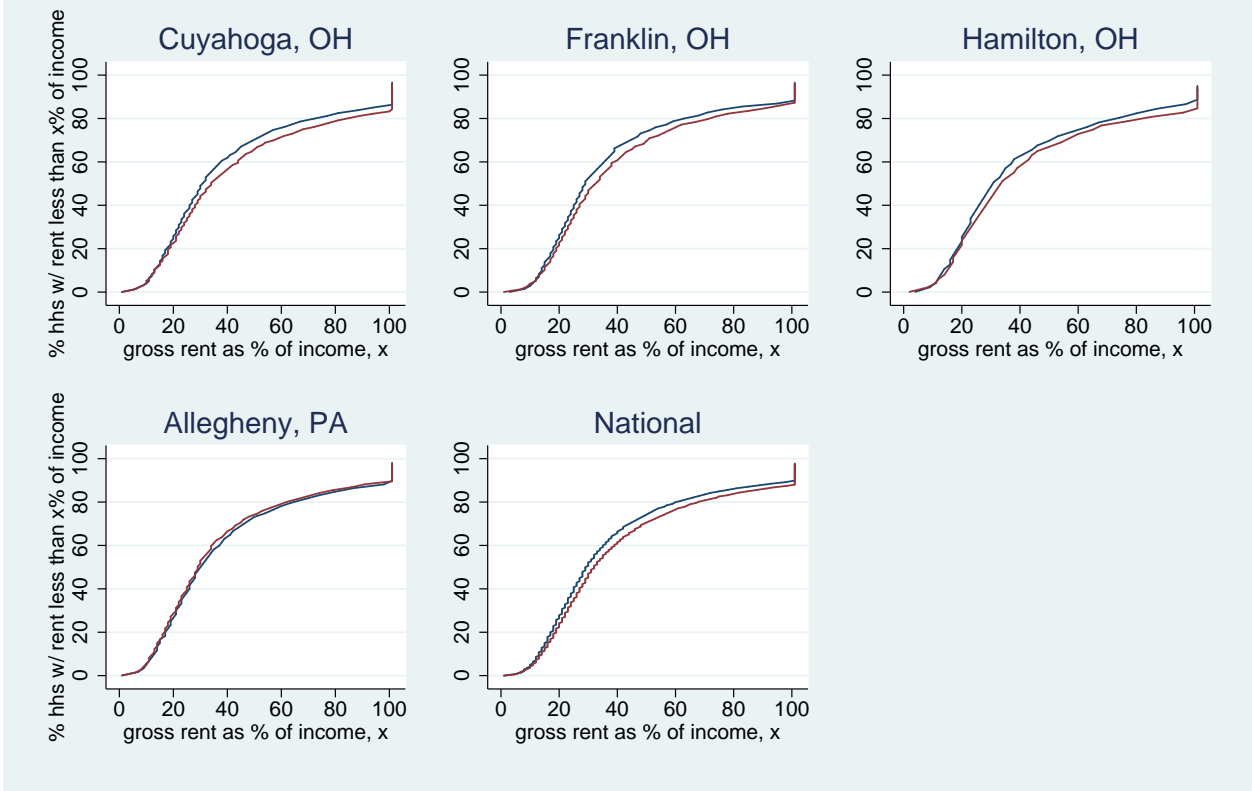


Figure 1: Distribution of Gross Rent as a Percent of Household Income by County and the U.S. Data from the 2005, 2011 American Community Survey PUMS.

## Distribution of Real Gross Rents in \$1000 2005 (blue) and 2011 (red)

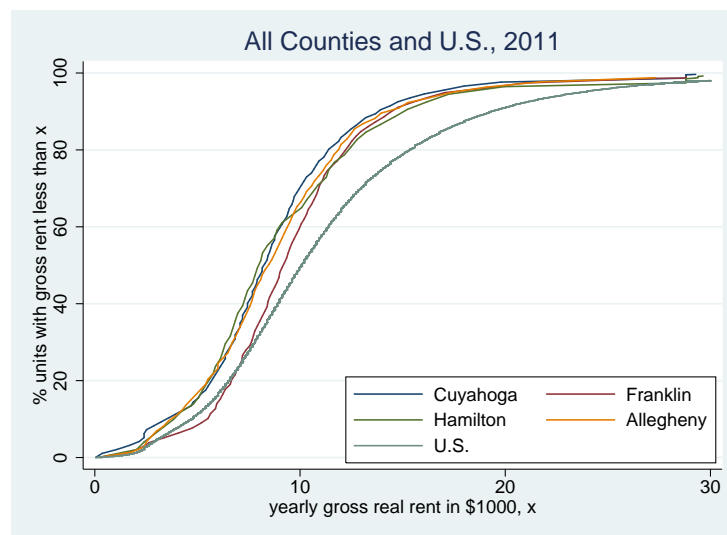
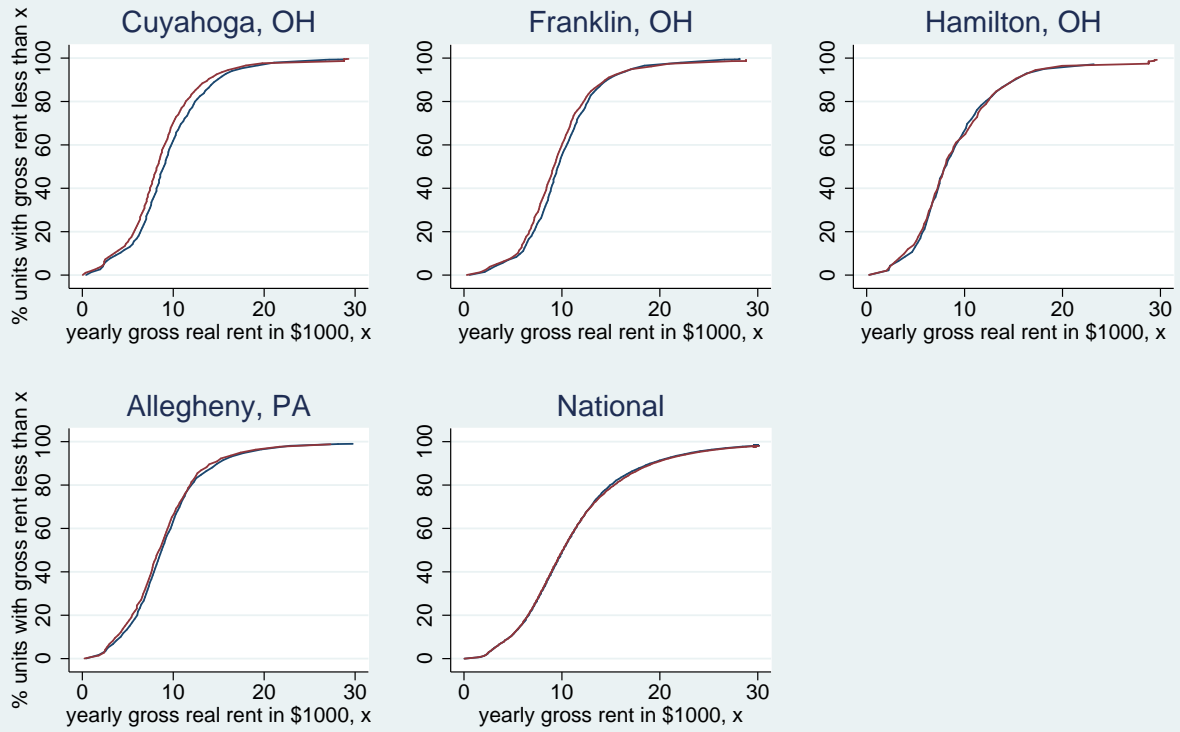


Figure 2: Distribution of Real Gross Annual Rent by County and the U.S. Data from the 2005, 2011 American Community Survey PUMS.

## Distribution of Real Renter Income in 2011 Thousands of \$ 2005 (blue) and 2011 (red)

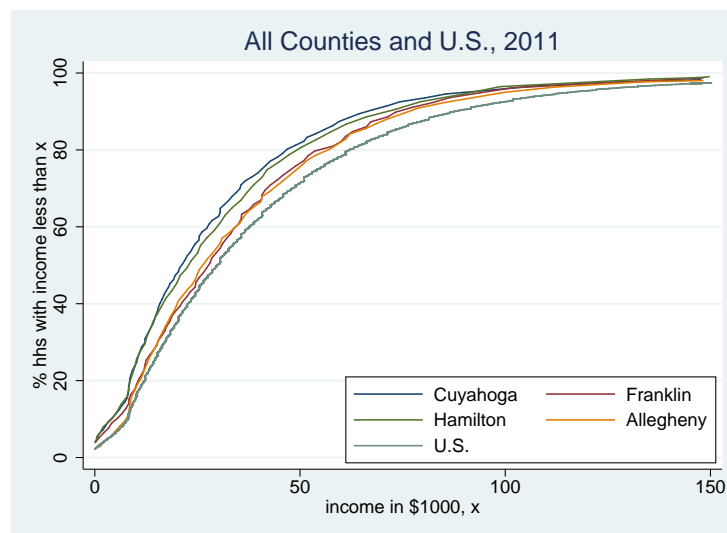
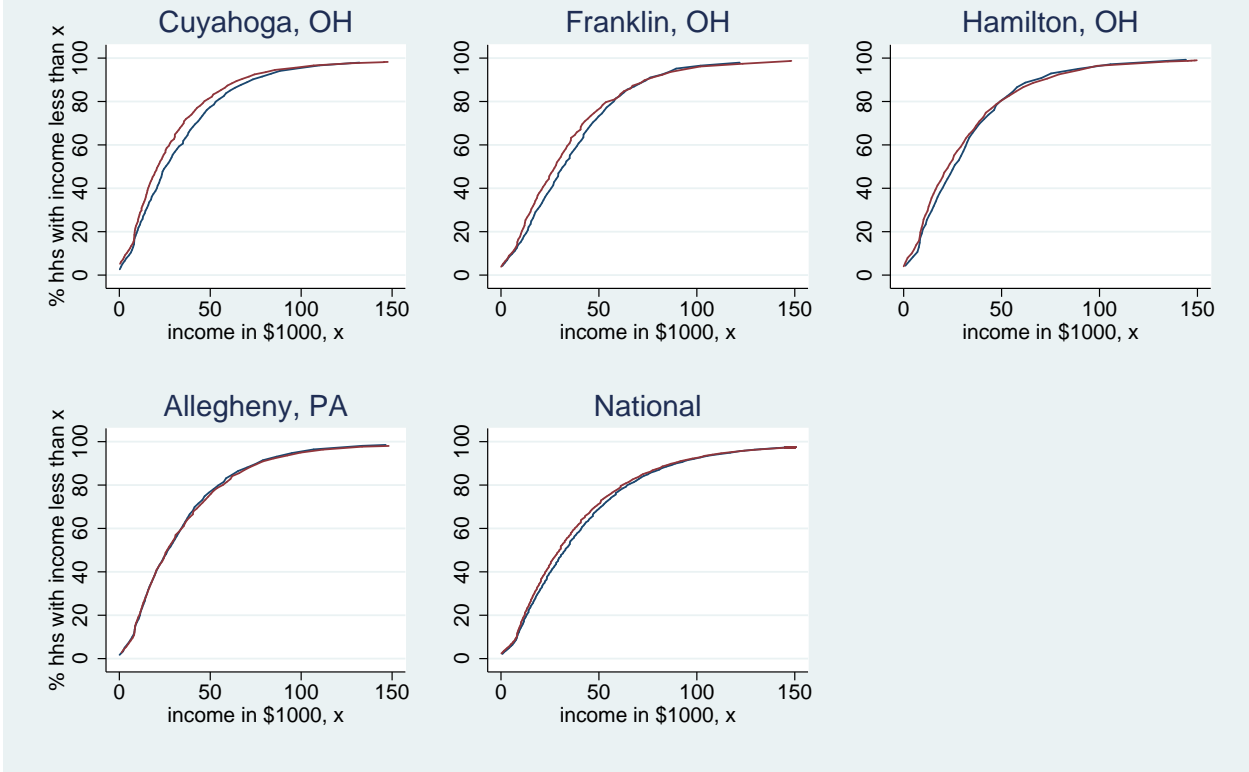


Figure 3: Distribution of Real Annual Renter Household Income by County and the U.S. Data from the 2005, 2011 American Community Survey PUMS.

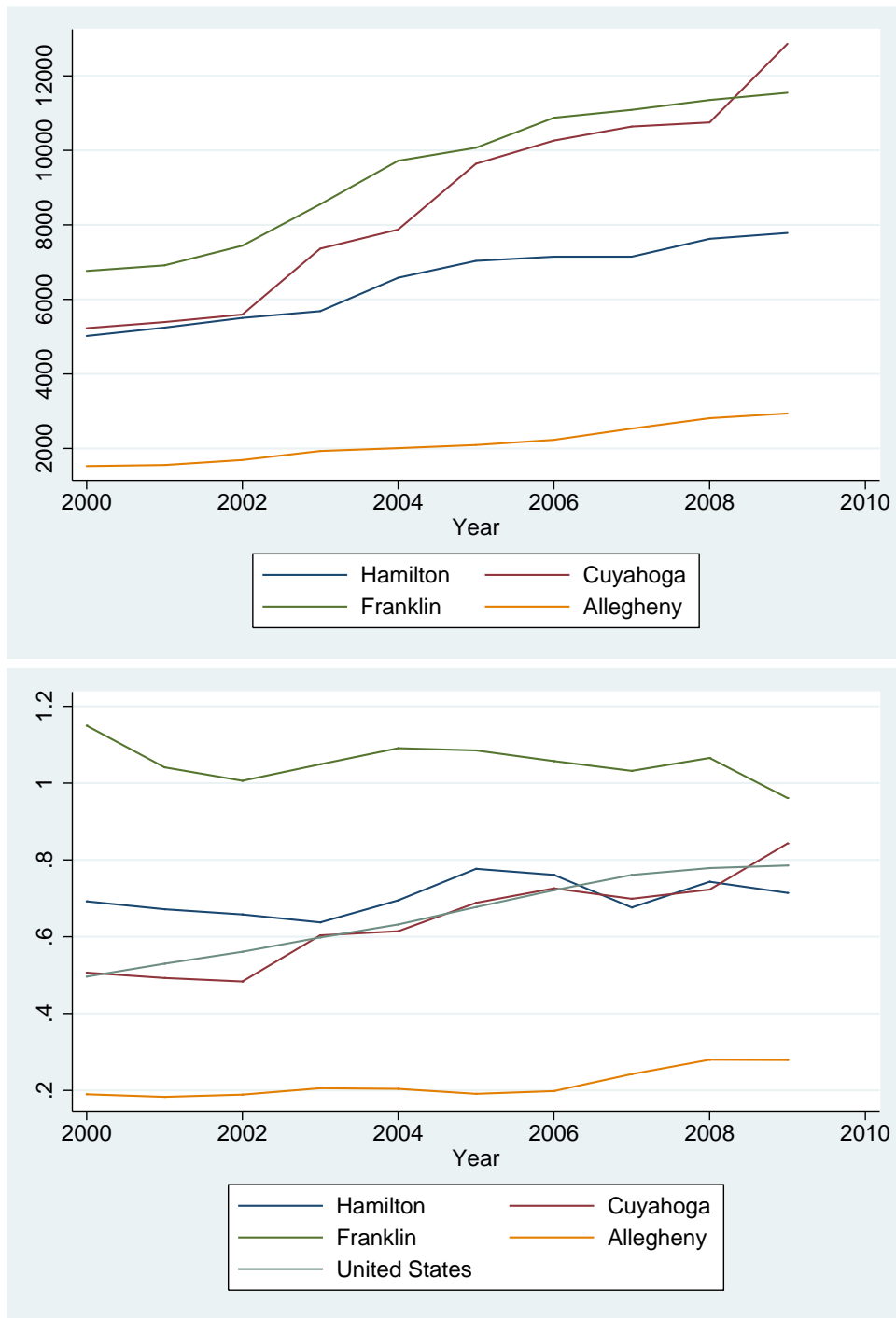


Figure 4: Growth of LIHTC in total number of units (top) and relative to Housing Choice Vouchers (bottom). Values are linearly interpolated for HCVs in 2001-2003. Data are from a Picture of Subsidized Households and the LIHTC Database, both from HUD.

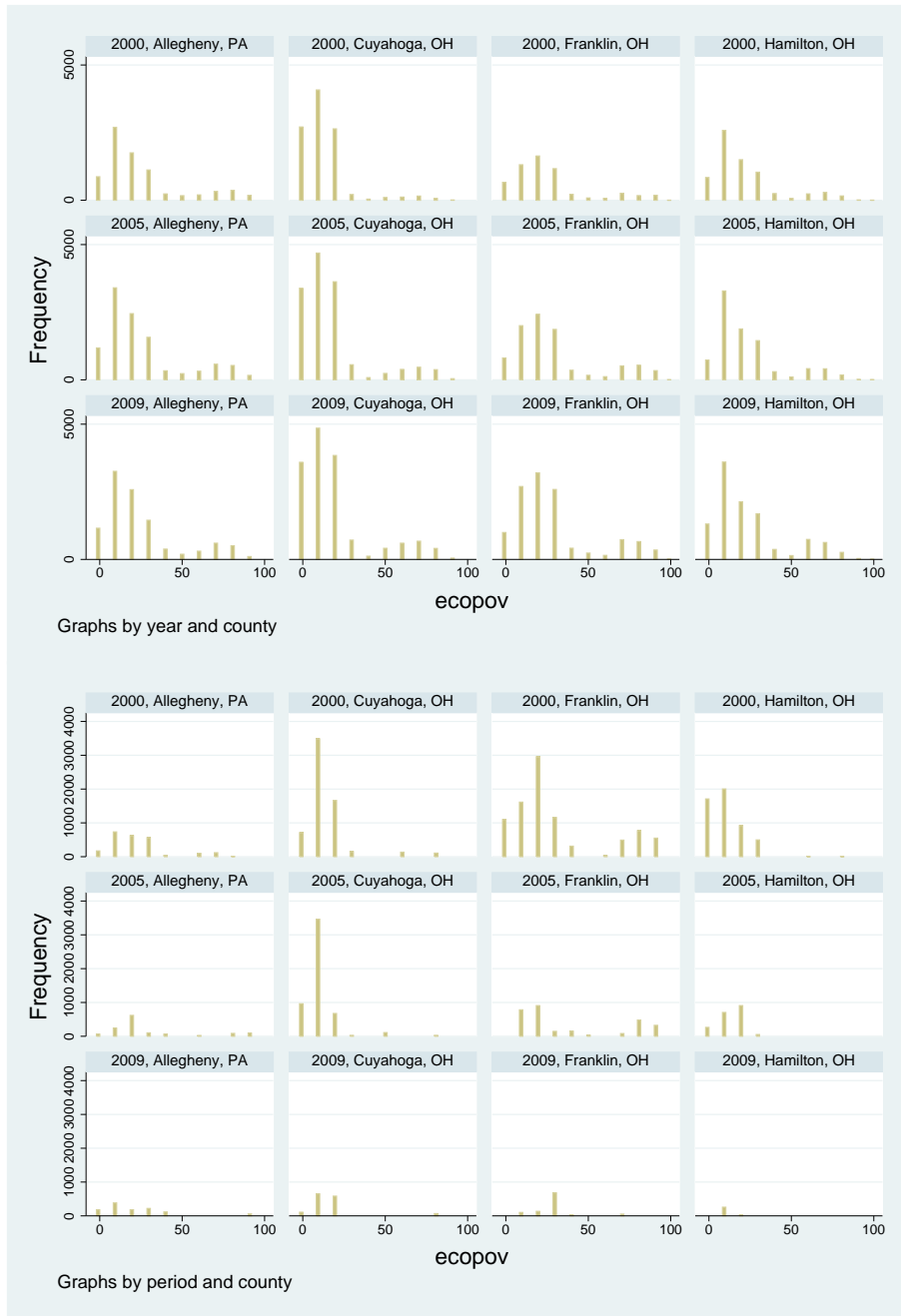


Figure 5: Frequency Distributions of Neighborhood Quality for HCV Holders (top) and LIHTC Units Added (bottom). Neighborhood quality is from the Housing Choice Voucher Marketing Opportunity Index by HUD and tract location of units are from a Picture of Subsidized Households and the LIHTC Database from HUD. Figures are for HCV in use during 2000, 2005 and 2009 and LIHTC low-income units *added* in the periods [1995, 2000], (2000, 2005], (2005, 2009].



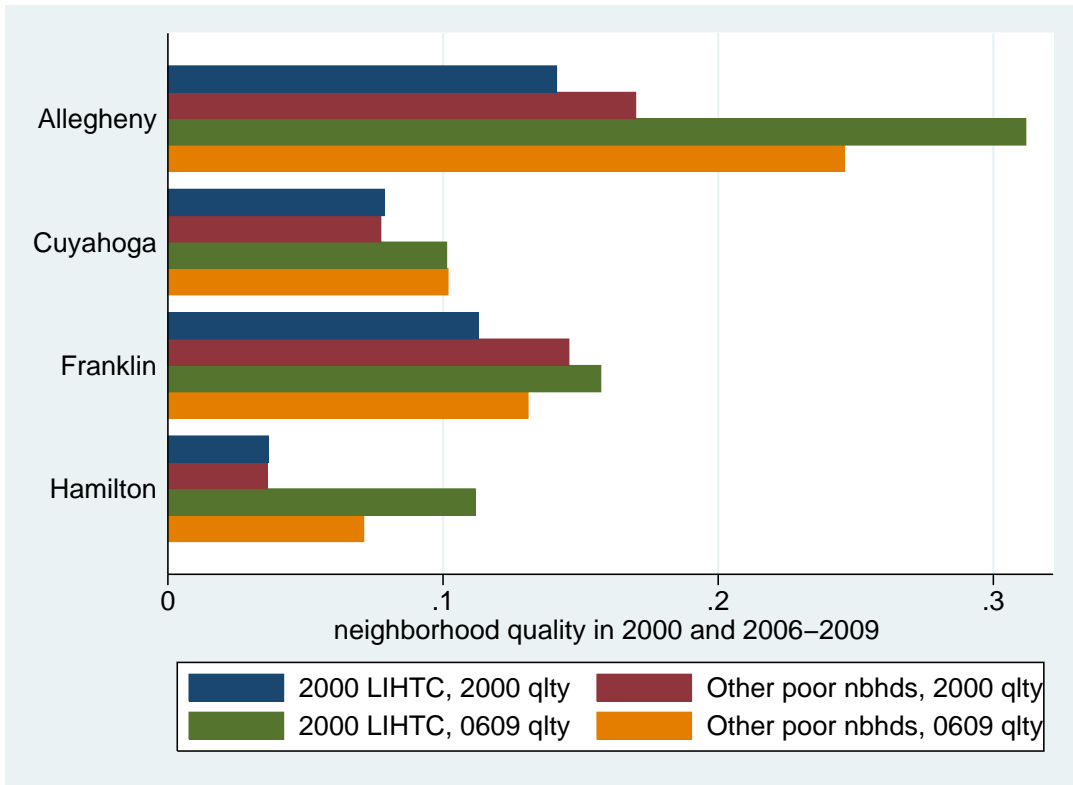


Figure 6: Changes in Average Neighborhood Quality for LIHTC Units Placed in Service by 2000 and for Census Tracts of Similar Quality at the Beginning of the Period. Index is a linear combination of unemployment, poverty, high school and college graduation rates transformed to its percentile value. Comparison tracts are those with 2000 quality levels ranging from 0 to twice the average quality level of tracts with LIHTC units in 2000. Tract location of units are from a Picture of Subsidized Households and the LIHTC Database from HUD. Index components are from ACS.

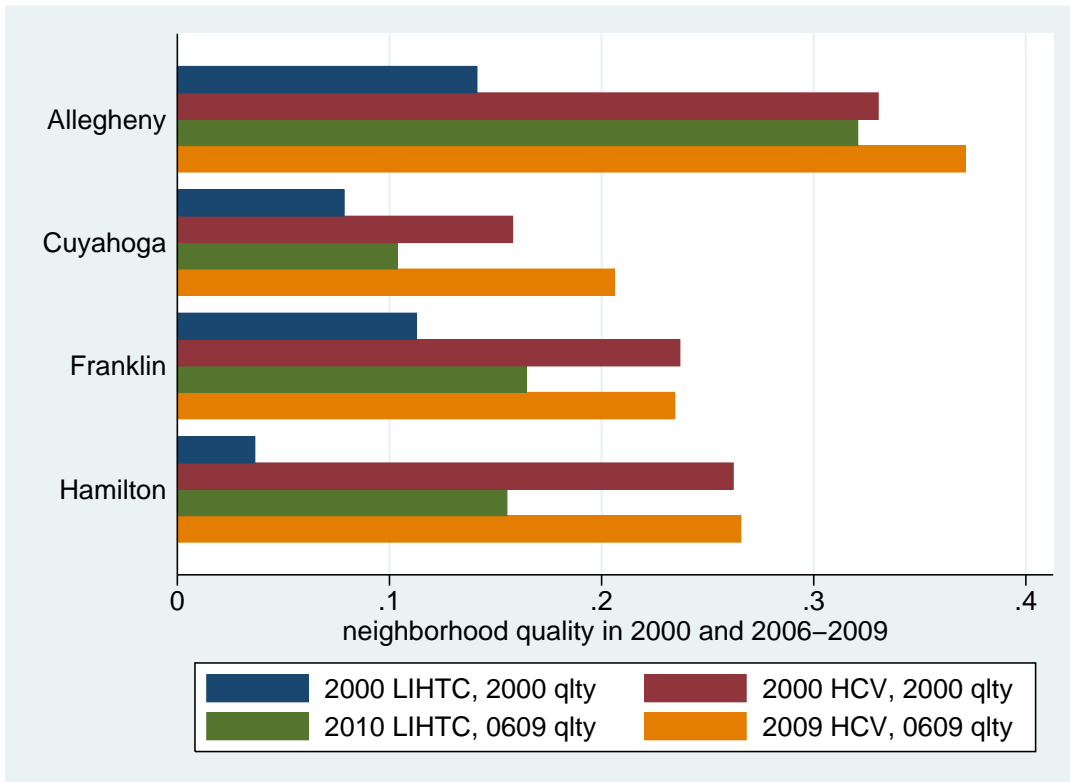


Figure 7: Changes in Average Neighborhood Quality for LIHTC and HCV Units between 2000 and the 2006-2009 Period. Index is a linear combination of unemployment, poverty, high school and college graduation rates transformed to its percentile value. Tract location of units are from a Picture of Subsidized Households and the LIHTC Database from HUD. Index components are from ACS.