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How Low Income Neighborhoods Change: Entry, Exit, and Enhancement

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I. Introduction

The 1990s were a decade of economic improvement for low-income neighborhoods. The number of high-poverty neighborhoods declined (Jargowsky, 2003), and the number of low-income neighborhoods experiencing a gain in average income greatly exceeded those experiencing a decline (Ellen and O'Regan, 2008). For many neighborhoods, the gains were sizable. But while this general pattern has been documented, there has been limited research on *how* these neighborhoods changed, through what channels, and with what consequences. In the absence of this research, some have at least implicitly assumed that these changes followed a pattern of classic gentrification – that is, neighborhoods changed because higher income, usually white, households moved into low-income, minority neighborhoods and displaced the original (lower income) residents, spurring racial transition in the process. This conventional story typically paints such neighborhood change as undesirable, focusing as it does on the involuntary displacement of original, vulnerable residents.

In this paper, we examine how well this story captures the experience of low- income neighborhoods that improved economically in the 1990s. By using the internal Census version of the American Housing Survey to study patterns of change in low-income neighborhoods in metropolitan areas, we aim to add some stylized facts to the discussion of displacement, neighborhood change and gentrification.

Specifically, we have three research questions focused on neighborhoods that gain economically. First, do we indeed find evidence of displacement, particularly among those with fewest resources? Second, what are the sources of neighborhood income change? Are the sole sources of change selective entry and exit, or does incumbent upgrading also play a role? And finally, what other changes accompany neighborhood income gains? Do conditions and quality of life in the

neighborhoods change as neighborhoods gain income? Do the associated demographic changes result in racial transition? More bluntly, do gaining neighborhoods become increasingly white as they gain income? To shed light on these questions, we compare patterns of entry, exit, incumbent upgrading and other neighborhood changes in low-income neighborhoods that gained economically to those in other (non-gaining) low-income neighborhoods.

In brief, our empirical findings suggest a different, and perhaps less negative, picture of low-income neighborhood gains in the 1990s than is commonly painted. We find no evidence of heightened displacement (proxied by exit rates), even among the most vulnerable, original residents, and even in the neighborhoods experiencing the largest gains. We do find that the entrance of higher income households was an important source of income gains, but we also find some evidence that original residents experienced gains in income. As for other changes, we find that original residents remaining in gaining neighborhoods report greater increases in their satisfaction with the neighborhood than those remaining in other low-income neighborhoods. Finally, we do not find heightened racial transition in gaining tracts. Rather, in the 1990s, gaining neighborhoods were able to avoid the losses of white households that non-gaining tracts experienced, and were thereby more racially stable. Of course, each of these findings is based on averages; some individual neighborhoods naturally followed a different course.

II. Literature Review

Most of the existing research on neighborhood economic change has been qualitative case studies of particular urban neighborhoods which are limited in their ability to provide a comprehensive picture of improving neighborhoods. The few quantitative studies undertaken typically use aggregate, census tract level data to study the prevalence of net neighborhood changes and to examine which

types of neighborhoods tend to gain. Very few studies actually examine the residential moves that underlie neighborhood change.

Exit Decisions and Displacement

The community development literature has long recognized that successful efforts to improve neighborhood conditions may not, in fact, benefit the original residents of the neighborhood, who may eventually be 'pushed out' by higher income households and the increased cost of housing. Displacement has been a particular concern in discussions of gentrifying neighborhoods (Schill and Nathan 1983). Yet, the little systematic evidence that does exist uncovers no evidence of higher turnover rates (or displacement) of the poor resulting from neighborhood economic changes (Vigdor 2002; Freeman and Braconi 2004; and Freeman 2005). These studies have some limits, however. Generally, they rely on very large geographic areas in measuring gentrification – thus one would expect their results to be attenuated. While Freeman (2005) is able to match households to census tracts, his analysis - like the others above - is restricted to the early 1990s, a time when the economy was relatively flat. At least in New York City, housing prices did not start their upward trajectory in most neighborhoods until around 1996 (Been et al., 2005).

One recent paper is able to address these issues. McKinnish, Walsh and White (2008) use confidential census data, which identifies the census tracts of the households in the 1990 and 2000 census. They find no evidence of displacement of non-white households and indeed they find evidence that a disproportionate number of black householders with no college education remain in gaining low-income neighborhoods. This is perhaps not surprising. At the same time that housing prices may increase in economically gaining neighborhoods, improvements in neighborhood

conditions and services could make a neighborhood more inviting. By this reasoning, we might expect to see *fewer* households leaving neighborhoods that experience economic gains.

Selective Entry and Sources of Income Gains

Most discussions of neighborhood change assume that gains are driven by the entry of wealthier households, and not by any improvement on the part of indigenous residents. Indeed, the terms gentrification, revitalization, and economic succession or change are often used interchangeably. Yet surprisingly little is known about neighborhood entry (and retention) decisions and the role that they play in driving neighborhood economic change. Researchers have focused far more on exit decisions, and on measuring displacement.

There are a few exceptions. Crowder and South (2005) find that the rate of movement from higher-income to low-income neighborhoods increased for high-income (white) households during the 1980s and 1990s, a pattern they link to gentrification. Freeman (2005) compares the characteristics of PSID households moving into gentrifying neighborhoods with those moving into non-gentrifying, low-income neighborhoods. He finds that households moving into gentrifying neighborhoods are less likely to be poor and more likely to be white and college graduates, as compared to households moving into non-gentrifying, poor neighborhoods. He undertakes bivariate analysis only, so it is not clear whether these relationships would hold after controlling for other demographic characteristics, such as tenure status.

Finally, McKinnish, Walsh and White (2008) find that during the 1990s, white college graduates –who presumably have higher incomes, are more likely to move into gaining, low-income neighborhoods than they are to low-income neighborhoods that did not gain. Indeed, they argue that

this in-migration of white college graduates is a distinguishing feature of gaining, low-income neighborhoods, implying that the in-migration drives the gain.

There is very little work that examines the possible contribution of income gains among original (and staying) households. In Clay's (1979) study of 105 neighborhoods in 30 American cities, he explicitly distinguishes between incumbent upgrading and gentrification. He finds that nearly half of improving neighborhoods in his sample were categorized as having done so through incumbent upgrading, suggesting such upgrading could be an important source of income gains. Furthermore, it is possible that both could contribute to change in the very same neighborhoods. McKinnish, Walsh, and White (2008) offer some support of this possibility. Using a synthetic cohort analysis, they find suggestive evidence that black households with high school degrees living and staying in gaining, low-income neighborhoods experienced large increases in average income during the 1990s.

Demographic Changes in Upgrading Neighborhoods and Racial Transition

Several studies offer evidence of demographic shifts accompanying neighborhood change. Crowder and South (2005), Freeman (2005), and McKinnish, Walsh and White (2008) all find that entrants to gaining neighborhoods are more likely to be college graduates, and white, than those entering non gaining neighborhoods. This is consistent with the pattern of racial transition that is often implicitly part of gentrification debates (Kirkland 2008; Massey 2002).

Other research, however, suggests that the racial composition of higher income entrants to gentrifying neighborhoods may be more varied. Bostic and Martin (2003) examine gaining neighborhoods during the 1970s and 1980s and find evidence that newly entering black homeowners played an important role in driving change, at least in the 1970s. In their case studies of four cities

undergoing sizable gentrification, Kennedy and Leonard (2001) provide more recent evidence that higher income entrants to such neighborhoods are not all white. In each of their cities, higher-income white households are a critical part of the story, but so too are particular groups of higher-income minority entrants, with the groups varying by city.

In examining the extent of racial transition in gaining neighborhoods, the literature focuses nearly exclusively on the racial composition of the inmovers. But, whether racial transition occurs depends not only on the racial composition of the households moving into a neighborhood but also on the racial mix of those moving out. Thus, in our analysis, we consider the racial composition of both inmovers and outmovers.

III. Data

We rely on two sources of data for this work: longitudinal, housing unit/household level data from the American Housing Survey (AHS) and census tract data from the decennial census data. We link these two data sets using the confidential internal version of the AHS, which identifies the census tract of each housing unit. (The publicly available version of the AHS only identifies the metropolitan area and the 'zone' in which a housing unit is located, which includes a minimum of 100,000 people.)

The American Housing Survey

The national AHS data follows a nationally representative sample of housing units from 1985 through 2005. It surveys approximately 55,000 housing units every two years. While the AHS is a longitudinal survey of housing units, it also provides fairly detailed data on the occupants living in the

unit at the time of the survey. We linked housing units across survey years from 1989 through 2001, permitting us to examine occupancy changes over the 1990s.[1]

While we cannot follow occupants who leave a unit, nor observe the neighborhoods from which new occupants arrive, we can identify when a new household moves into a unit and when original occupants leave. In fact, we are able to observe such turnover sequentially over six consecutive two-year survey windows. We know the income (and other characteristics) of households and can also observe changes in the characteristics of households who remain in a unit for at least two years. With the internal version of the AHS, we have census tract identifiers for each housing unit, which we use to link to decennial census data. This linked AHS provides far more insight into residential turnover and neighborhood change than the decennial Census, which is limited to ten-year horizons and is not a panel. Moreover, the public use version of the decennial census does not reveal the census tract in which individual households are located.[2]

Neighborhood change database

Unfortunately, census tract definitions and boundaries are not constant over time. To avoid confusing changes driven by shifts in geographic definitions with actual residential changes, we rely on the Neighborhood Change Database (NCDB), which uses constant census tract definitions. Constructed by Geolytics, in partnership with the Urban Institute, this data set links decennial census tract data from 1990 to census tracts as they were defined in the 2000 Census. This permits us to examine how the economic fortunes of neighborhoods changed over the decade, with constant geographic units of analysis.

[1] Due to several years with large data omissions for the AHS variable identifying whether households remain in a unit, we have constructed our own means of identifying continuing households (relying on reported move-in date, birthdates of respondents, etc.)

[2] Further, the most detailed geographic information on household mobility provided in the decennial census is whether a household moved into its current housing unit within the previous year, three years or five years.

We eliminate from our sample census tracts that are very small (populations less than 200) and those with primarily institutionalized populations. Given our focus on economic gain, we only include tracts for which income is available for both 1990 and 2000. Finally, we limit the sample to census tracts that are within metropolitan areas.

Low-income neighborhoods and economic gain

Researchers use a wide range of measures to capture a neighborhood's economic status; our measure relies on a census tract's average household income.[3] In order to account for the cost of living in the area in which neighborhoods are located, we utilize a relative measure of income: the ratio of average household income in the tract to that of the metropolitan area, following several other studies in the literature (Fogarty, 1977; Brueckner and Rosenthal, 2008; Rosenthal, 2008; and Ellen and O'Regan. 2008). We then create quintiles of neighborhoods based on their relative income ratio in 1990, from the lowest ratio to the highest. We consider the bottom two quintiles to be 'low-income' neighborhoods, and we limit our sample to housing units located in such low-income tracts.[4] The upper-bound cutoff for these neighborhoods is a relative income ratio of 0.85, or 85% of the household income in the metropolitan area.

We measure change in a neighborhood's economic status based on the percentage point change in a neighborhood's relative income ratio over the decade. Neighborhoods that experience any increase in their relative income ratio are considered to have gained in that decade. (We replicate all of our analyses on a subset of these neighborhoods that experience a large gain, defined as a five percentage point increase in their relative income).

[3] We chose average rather than median household income because we are dealing with normalized tract boundaries, median incomes are themselves a result of a series of interpolations. It also permits us to calculate average MSA incomes with constant MSA definitions (based on county data).
[4] While we present results for these bottom two quintiles together, we have replicated our analyses on the lowest income quintile of neighborhoods separately, and results are qualitatively the same.

Samples and confidential data

Gaining access to the internal version of the AHS brings with it limits on disclosure. The Census Bureau is required to protect the confidentiality of respondent data. In reviewing data for release, Census officials pay particular attention to small cells (which can jeopardize confidentiality) and 'implicit samples,' which are created through small modifications in reported samples. These implicit samples, arising from small changes between releases of data, may create risk of identification via resulting small cells.

As such, there are omissions in some of the tables in this paper. Some descriptive variables are suppressed, for example. Some numbers are rounded (percentages, and incomes). In addition, it is not always possible to show the multiple versions of the analyses we conduct, though we can report whether the patterns are consistent.

The primary sample from which we draw data is an unbalanced panel of housing units from 1991 to 2001. This unbalanced panel is used in several analyses, although we primarily report on what happened between 1993 and 1995 for units in the 1995 cross-section of units. In addition, in some instances it is particularly helpful to follow a balanced panel, following the same units over time. In creating a balanced panel, not only must a unit be in the sample the entire time period, but also all of its relevant data must be available in each survey period. Unfortunately, this second requirement can lead to a considerable loss in sample size. To minimize the loss in sample, we have created two balanced panels, one that covers the first half of the decade 1991-1995 (of particular interest for examining entry), and a second from 1995-2001. (When both samples overlap, we are permitted to release only one sample, 1995-2001.)

Overall, our various samples include housing units in over 240 metropolitan areas. In a typical sample year, our data include more than 10,000 households residing in low-income tracts. Slightly less than half of these housing units are located in neighborhoods that experienced gains in relative income from 1990 to 2000.

Descriptive statistics on low-income neighborhoods

Table 1A provides 1990 descriptive characteristics of all low-income census tracts in metropolitan areas based on the NCDB data, weighted by tract population.[5] We can see in this table that there were some baseline differences between the low-income neighborhoods that subsequently experienced gains in income over the decade and those that did not. Average household income in tracts that gained was initially lower, poverty rates were slightly higher, and the share of the population that is white was slightly lower. Gaining tracts also had slightly higher vacancy rates, and a slightly older housing stock.[6] These differences hold, and indeed are slightly larger when comparing neighborhoods that experienced large gains and those that did not. These differences also hold when we focus solely on the very low-income neighborhoods in the lowest income quintile (not broken out separately in Table 1A).[7] In sum, the low-income neighborhoods that gained in the 1990s generally started off with lower mean incomes and higher shares of minority residents.

Table 1B provides some suggestive evidence about differences in the changes that occurred in these two types of low-income neighborhoods during the 1990s. The table shows that along with the gains in relative income that define them, gaining neighborhoods experienced gains in absolute

[5] We have also created a comparable table for our sample of low-income neighborhoods with AHS units (weighted by the number of AHS units in the tract), and the general findings are extremely similar. Given the similarity and Census restrictions on releases, for ease we present the version of the table that uses publicly available data.
[6] These starting characteristics are consistent with several factors that Rosenthal (2008) finds are correlated with neighborhood change.
[7] This is consistent with our prior work, which relied on slightly different definitions of low income and a slightly different sample (Ellen and O'Regan, 2008).

income, while non-gaining neighborhoods did not. Gaining neighborhoods also enjoyed improvements in other measures of socioeconomic status. While all neighborhoods experienced a slight increase in the share of households that are college graduates (and the share holding professional jobs), the increase was larger in gaining neighborhoods.[8] Similarly, homeownership rates increased in gaining neighborhoods, while declining slightly in non-gaining neighborhoods.

Significantly, we find no evidence that gaining neighborhoods experienced more residential upheaval. The share of residents living in their housing units at least five years is remarkably stable over the decade (indeed, it has increased ever so slightly in gaining neighborhoods).[9] The next sections examine the micro-household decisions to exit and enter neighborhoods to see if these patterns hold and to learn more about underlying changes.

IV. Exit rates and displacement

As noted above, the chief concern about economic gain in neighborhoods is displacement of original residents. To explore the extent of displacement, we use the AHS data to calculate exit/turnover rates, or the share of households who leave their housing units over a survey window.[10] The term displacement of course connotes not just exit, but exit for a particular reason – increased costs of housing or eviction/demolition. Unfortunately, we are unable to directly observe displacement within these data. We focus on exit rates as our best proxy for displacement. Table 2 presents unit exit rates for each two-year survey window in the 1990s. For this table we rely on the

[8] This is consistent with our comparisons of entrants and exiters, stayers and exiters using AHS data, table 4 and 5.
[9] It is worth noting that this is not an actual measure of turnover; indeed, since the size of the housing stock can and does change in neighborhoods, this measure conflates turnover with growth.
[10] Of course, these are unit exit rates, not neighborhood exit rates. Some households who exit a unit may relocate within the same neighborhoods. Freeman (2005) provides some evidence that a smaller proportion of households, particularly poor households, may remain in gentrifying tracts compared to non gentrifying, once they exit their unit.

two balanced panels of housing units, which we can follow over time.[11] Additional analyses with alternative sampling frames show the same results.

The top panel of Table 2 shows exit rates for all units, in low-income neighborhoods that experienced gains in income and in those that did not. A consistent story emerges: units located in gaining neighborhoods were slightly *less* likely to be vacated than units in non-gaining neighborhoods. There is no suggestion here of higher exit rates, or displacement.

The concern with displacement is less about overall exits, however, but rather departures by those who may be less able to weather the financial stress of remaining in improving neighborhoods, such as renters and poor households. The next two panels of Table 2 consider these populations separately. Specifically, they show the share of all rental units and the share of all units initially occupied by poor households that were vacated during the specified two-year period. Looking at renters first, the overall pattern is of little difference across neighborhood types.[12] When replicating this analysis for tracts experiencing large gains, we find that exit rates from rental units were consistently lower in tracts experiencing large gains over the decade than exit rates in other tracts.

For the poor, the pattern is quite similar. Over each two-year period, units initially occupied by poor households in gaining neighborhoods were slightly less likely to be vacated than such units in non-gaining neighborhoods. (The difference was larger when comparing tracts that experienced large gains and those that did not). There is simply no evidence of displacement in these overall exit rates.

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[11] Because we need two years of data on a unit in order to identify an exit (one year in which the occupant is in the sample, and another year in which the occupant is gone), one method for analyzing exit rates would be to create a series of panels, over each two year period. However, this raises disclosure issues at the Census.. Alternatively, we can use one panel for the entire decade, and avoid most disclosure issues. However, that means that we need complete data for a unit for the entire decade for its inclusion. That approach limits our sample more than necessary. Instead, we have created two balanced panels of housing units, 1991-1995, and then 1995 to 2001.

[12] For confidentiality reasons, all non owner occupied units are included as rental units in Table 2, including units for which no cash rent is paid. We have conducted this analysis on units with cash rents and the same general pattern holds – very similar exit rates overall all. In two time periods, rental exit rates are very slightly higher in gaining neighborhoods, but in the other years they are lower.

The exit rates presented in Table 2 include departures of all residents, even those residents who were themselves new to their housing unit two years ago. To focus more narrowly on the original residents, we follow three cohorts of original residents of low-income neighborhoods (one for 1991, another for 1993 and a third that starts in 1995) and recalculate exit rates *for each of these groups* over the six years.

Table 3 reports bi-annual and cumulative exit rates for these cohorts, by neighborhood type. Our story does not change. Units in neighborhoods that experienced gains in income over the decade were slightly less likely to be vacated by their original occupants than those in non-gaining neighborhoods, in each year and for each cohort. We also calculate the cumulative exit rates in Table 3 for the subset of tracts that experienced large gains in neighborhood income and find the same results.

As we previously noted, concern about displacement centers on the poor and on renters. However, when we disaggregate the 1991 cohort in Table 3 by the poverty status of the original household, we still find that cumulative exit rates for poor households were slightly lower in gaining tracts than in non-gaining tracts. Similarly, when looking specifically at rental units, we again find lower turnover rates. Indeed, the only group of original residents who had a slightly higher exit rate in gaining neighborhoods as compared to non-gaining neighborhoods is the homeowners, a group who at least potentially stand to gain from increased home values in these neighborhoods.

We also estimate multivariate exit models. Even after controlling for minority status, poverty, age, and presence of children, we still find that on average there is no statistically significant difference in the probability of exit from housing units in gaining and non-gaining tracts. We find no evidence of elevated exit rates in gaining neighborhoods among renters and poor households.

Significantly, the absence of displacement is not explained by stable rents. When examining rents for rental units between 1991 and 2001, we find that over the decade, rents in gaining neighborhoods increased significantly more than in non-gaining neighborhoods. That is, living in gaining neighborhoods became more expensive for renters, on average, during the 1990s.[13]

So we are left with a more challenging puzzle. As average incomes rose in many low income areas, rents rose too, and yet we see no evidence that original residents – even renters and poor households – exited these communities at elevated rates. One possible explanation is that original residents' incomes also rose, fully offsetting increases in rent. However, analysis of rent burdens shows this did not occur – rent burdens increased more in gaining neighborhoods. A second possible explanation is that as a neighborhood's average income increases, associated neighborhood services improve too, and residents are willing to pay more to enjoy this improved environment. We explore this possibility in Section VI.

V. Sources of Neighborhood Income change

Our second key question concerns the underlying sources of neighborhood income change. For a neighborhood's income to increase, at least one of three things must be true – new entrants to the neighborhood must have incomes higher than the neighborhood average (selective entry), households exiting the neighborhood must have incomes below the average (selective exit), and/or those remaining in the neighborhood must experience gains in income (incumbent upgrading). While the literature on gentrification has focused almost solely on the first as the source of gain, we will consider all three.[14]

[13] This is also borne out when looking at rent burdens.

[14] To capture all new entrants to these neighborhoods, including those entering new units, when analyzing entry decisions, we primarily focus on the unbalanced panel of all housing units – existing and new units, rather than our balanced panel.

Selective Entry: Do Entrants Have Higher Incomes?

We begin by focusing on new entrants to low-income neighborhoods – and how they compare to the households already there. Table 4, Panels A and B, use 1995 survey data to describe the households who moved into housing units between 1993 and 1995 (new entrants) in neighborhoods that experienced a gain in income during the 1990s and in neighborhoods that did not. We then compare these entrants to the households who resided in these neighborhoods as of 1993 (original residents) in both types of neighborhoods.[15] Because the characteristics of households who reside in owner-occupied units differ noticeably from those in rental units, we present results separately by tenure status.[16] We adjust incomes of all households to 1990 dollars. Panel A of Table 4 shows that in both types of neighborhoods, homeowners moving into their units between 1993 and 1995 had higher incomes, on average than those homeowners who resided in these neighborhoods in 1993. The mean household income of new entrants moving into gaining neighborhoods was only slightly higher than that of new entrants moving into non-gaining tracts. However, because average household incomes were lower in gaining tracts to start, the difference in income between entrants and original residents was much larger in gaining neighborhoods.[17] For example, the difference between the mean income of entrants and original residents was $1,900 in non-gaining neighborhoods, compared to $5,300 in gaining neighborhoods. (This pattern holds for all of the years we analyze, but the differences were particularly large during the first half of the decade.)

A weakness of these comparisons is that they are averages of all new entrants and all existing residents, in all gaining or all non-gaining tracts. Whether the income of an entering household

[15] We selected 1995 because it is the mid-point of the decade and because separate analysis revealed that gaining neighborhoods began to experience real (and relative) gains around 1993. We have replicated this work for 1993, 1997 and 1999 and the patterns are highly similar. We note the few instances where they differ.

[16] Moreover, the higher turnover of renters means that while the typical census tract has more homeowners than renters, new entrants (and those leaving tracts) are heavily weighted by renters. Simple comparisons of aggregated average incomes can be misleading.

[17] The same pattern is found when examining median income, although the differences are more pronounced. Differences are also more pronounced for neighborhoods experiencing large gains.

contributes to income gains in the tract it enters depends on the income of the entering household relative to income of that particular tract. Thus, Panel A of Table 4 also reports the ratio of a household's income to the mean income of the tract it enters (as reported in the 1990 census), labeled 'mean household/tract income.'[18] This measure reveals that while there was essentially no difference in this ratio for original homeowners across neighborhood types, homeowners entering gaining neighborhoods had incomes that were on average 25 percent above the neighborhood average, compared to 15 percent higher in non-gaining tracts.[19] All measures of income appear to confirm the stereotypical story of gentrification, with higher-income homeowners moving in and raising the average income in the neighborhood.

Panel B of Table 4 presents similar data for the considerably larger group of new entrants, renters. For both neighborhood types, new entrants to rental units had incomes that were very similar to those of renters already in the neighborhood, indeed generally slightly lower. And there appears no difference across neighborhood types in the size of these small differences. This suggests that newly arriving renters did not contribute to the increase in income experienced by our gaining neighborhoods.

Selective Exit: Do Exiters have Lower Incomes?

While our analysis above found little evidence of displacement, natural mobility rates are high enough that many households did in fact leave gaining neighborhoods during the 1990s. Here, we question whether the households who left typically had incomes that were lower than the neighborhood average and thereby contributed to an increase in mean neighborhood income.

[18] This is an imperfect measure. While a tract's average income is changing over time, we are relying on a constant measure for our numerator. Our AHS data suggest that real income did not exceed 1990 income until 1997, so this relative measure of income may be most useful prior to 1997.

[19] Interestingly, owners staying in gaining neighborhoods also have incomes much higher than average, something we return to.

To answer this question, Table 5 summarizes an analysis similar to Table 4, comparing the incomes of households who exited their neighborhoods between 1993 and 1995 to the incomes of the original residents, by neighborhood type. Panel A again focuses on owners. Across neighborhood types, we see that owners exiting gaining neighborhoods had incomes that were considerably lower than owners exiting non gaining tracts. As pointed out previously, owner incomes in gaining neighborhoods were lower to start, but this does not account for much of the difference. In gaining neighborhoods, we find that departing homeowners had lower incomes on average than the original owners in those tracts, thereby contributing to a rise in neighborhood income. In non-gaining neighborhoods, the opposite was true: exiting homeowners had higher incomes on average than the original homeowners, hence lowering the neighborhood's average income. This pattern holds up until the 1997-1999 period. Thus, selective exit of homeowners appears to have contributed to neighborhood change.[20] By contrast, in Panel B, we find no evidence of selective exit among renters. Across both types of neighborhoods, households exiting rental units had slightly higher incomes than the average rental household.[21]

Incumbent upgrading

As previously noted, increases in neighborhood income need not come only through turnover. Residents who remain in the neighborhood may experience increases in income, also contributing to change.[22] Table 6 uses our balanced panel of housing units to directly compare the income of a household living in a housing unit in 1991 to the income of the household living in that same unit in

[20] This is consistent with several interpretations –including a greater retention of higher income owners in neighborhoods that are improving, or a differential loss of lower income owners perhaps as property values (and possibly property taxes) increase.

[21] AHS data suggests that higher income renters appear more mobile across the board, with higher exit rates than the poor or near poor, whether in low income neighborhoods or not.

[22] Note that this incumbent upgrading may arise from selective retention of households who, after experiencing gains in their income that might enable them to move elsewhere, choose to remain in neighborhoods that are otherwise experiencing gains.

1995 (adjusting to 1990 dollars). We divide units into four categories, based on whether they experienced turnover between 1991 and 1995, and whether they were rental or owner-occupied in 1991. (We have repeated this analysis for 1991-1999.)

Examining the incomes of homeowners who remained in their housing units over these four years, we find some evidence of incumbent upgrading. As shown in the 'stayer' columns of Table 6, the homeowners who stayed in gaining neighborhoods experienced larger increases in real income than households who stayed in non-gaining neighborhoods. Indeed, after adjusting for inflation, owners in non-gaining neighborhoods actually experienced a loss in real income. Renters who stayed in gaining neighborhoods also experienced larger increases than renters who stayed in non-gaining neighborhoods. This incumbent upgrading occurred primarily during the first part of the decade. When we extend the time period to our 1991-1999 panel, we find a similar pattern numerically but the differences for renters are not significant.[23]

Finally, it is worth noting that looking at units that experienced turnover, we find significantly higher income gains for both owners and renters, although they are much larger for owners. Over the full decade, differences are only significant for owners.[24]

New Construction and Income gains

The above analysis focused solely on units that existed throughout 1991 to 1999, ignoring additions to the housing stock. Yet over the course of a decade, new units are added in most neighborhoods. More relevant here, we find that such new construction was more common in

[23] While the large decline in sample size contributes to the lack of significance, we also find no significant differences in incumbent gain from 1995-1999.

[24] Our earlier analysis, which finds no significant differences for renters, only considers two-year windows – and considers entrants and exiters separately - and therefore misses a small cumulative effect of income gains associated with rental units that turned over in gaining neighborhoods.

neighborhoods that experienced income gains.[25] In 2000, according to NCDB data, more than 10 percent of housing units in gaining tracts were constructed in the past ten years, compared to just seven percent in non gaining tracts.[26] Moreover, the AHS shows marked differences across our neighborhood types in the characteristics of households moving into units newly constructed between 1991 and 1999. Owners that move into newly constructed units in gaining neighborhoods have much higher incomes than owners that move into new construction in non-gaining neighborhoods.[27] So, in addition to higher rates of housing stock growth to accommodate new entrants, newly constructed units in gaining neighborhoods differentially attract higher income households.

VI. Associated Neighborhood Changes

Our final inquiry concerns the other changes that are associated with neighborhood income gains. First, we examine changes in neighborhood satisfaction; second, we consider patterns of racial transition.

Neighborhood Satisfaction: Did Neighborhoods Improve?

In section IV above, we report a set of analyses that consistently fail to uncover any evidence of displacement, despite increases in rents. One possible explanation is that as a neighborhood's average income increases, associated neighborhood services might improve, and there could be an increase in residents' satisfaction with the neighborhood. (Note that many critics of gentrification assume the opposite – they assume that residents living in economically changing communities are unhappy with the changes that unfold.)

[25] Greater construction activity may also help explain the absence of higher exit rates in gaining tracts.
[26] See Table 7.
[27] Owners are the overwhelming share of new construction in our sample

We use AHS data on reported neighborhood satisfaction to test this possibility. We find that satisfaction levels among renters in the low-income neighborhoods that gained increased significantly more over the decade than satisfaction levels among renters in other low- income neighborhoods. Perhaps more relevant, we find even larger increases in reported satisfaction among rental households who stayed in place in gaining neighborhoods compared to those that stayed in place in non-gaining tracts.[28] The AHS also asks households about their satisfaction with shopping in their neighborhoods. Again, we find significantly larger increases in reported satisfaction with local shopping among households who stayed in place in gaining neighborhoods; by contrast, we find that households who stayed in place in non-gaining neighborhoods actually report lower satisfaction levels at the end of the decade than they did at the start. It is possible that this heightened satisfaction played a role in retaining renter households, as neighborhood improvements compensated to some extent for increases in rent.[29]

Racial Transition

Table 1B shows that on average, low-income neighborhoods became less white during the 1990s, even those that experienced income gains over the decade. Quite contrary to the stereotypical story of gentrification, that is, low-income gaining neighborhoods did not 'become more white,' at least not on average. However, this table considers averages across all neighborhoods of each type, over the full decade. We employ the internal AHS data to shed additional light on racial changes, within neighborhoods. We begin by examining racial transition at the unit level for all housing units

[28] Satisfaction declined for homeowners who stayed in both neighborhood types, but the decline was significantly smaller in gaining neighborhoods.
[29] It is worth noting that while significant, the differences were small in magnitude.

undergoing a change in occupancy.[30] We categorize these units by the race of the household occupying that unit in 1991, and the race of the occupant in 1999. We find that on average, units in gaining neighborhoods were *less* likely to experience racial transition than those in non-gaining neighborhoods. We also find that when racial transition does occur in gaining neighborhoods, in absolute terms, it is less likely to be from minority to white than from white to minority. Specifically, the share of housing units in gaining neighborhoods that began the decade occupied by minority households and ended occupied by white households was smaller than the share of units experiencing the reverse racial transition -- going from an original household that is white to one that is minority.

Given this pattern, any perceptions of greater racial transition in gaining neighborhoods are incorrect on average. One possible explanation is that these perceptions are based on outdated patterns and have not been updated. Another explanation may lie in observers' focus on the racial composition of new entrants to gaining neighborhoods. Table 7 compares the racial composition of original households in gaining tracts to those of entering households in gaining and non-gaining tracts, owners in the top panel and renters below. We do see that those entering gaining tracts are more likely to be white than those entering non-gaining tracts, 73 versus 62 percent for homeowners, and 51 versus 48 percent for renters. More importantly, in gaining tracts, new entrants are more likely to be white than are the existing population, although only slightly for renters. To observers, in other words, the new residents moving into the neighborhood might certainly 'look more white.' However, the residents who left these neighborhoods over the same two-year period were also more likely to be white than original residents, shown in the final column. While 51 percent of new renters are white, 54 percent who left were white. Indeed, both owners and renters leaving units in gaining tracts were more likely to be white than those entering[31], which explains why the net effect of turnover was a decline in the

[30] This is conceptually similar to Table 6.
[31] Exact percentages for homeowners are awaiting release from the Census.

white population, even in gaining tracts. White residents simply appear to have been more mobile in low income neighborhoods.[32]

VII. Conclusion

This paper uses a unique data source to provide new evidence on residential changes in low-income neighborhoods nationally during the 1990s. We think five stylized facts are worth highlighting. First, we find no evidence of heightened exit rates for renters or for poor households, even among original residents. This holds true regardless of the time period or the length of elapsed time. It also holds true for both the neighborhoods that experienced the largest economic gains economically and those that began the decade with the lowest incomes. The only evidence of heightened exit is for original homeowners, in gaining neighborhoods. This type of selective exit has not been the focus in the gentrification discussion and the normative implications are surely less certain.[33]

Second, we find that selective entry and exit among homeowners are key drivers of neighborhood change. We find much smaller, and typically statistically insignificant differences between the incomes of new renters moving into neighborhoods and the incomes of those moving out.

Third, shedding light on a largely unexamined aspect of neighborhood change, we find some evidence that incumbent upgrading occurred differentially in gaining neighborhoods. We find evidence that households staying in place experienced larger increases in income in gaining neighborhoods than in non-gaining neighborhoods; whether this arises from differential retention or endogenous increases in income is not clear. Such upgrading is not a large contributor to changes in

[32] Indeed, in separate analysis, we find that white households are simply more mobile, period.
[33] Of course, displacement is not simply about exiting a unit, it is about why the exit occurs. Unfortunately, we are not able to identify households after they leave a unit, to assess if a larger share of households exiting gaining tracts do so because of increased rents or eviction from their unit.

the neighborhood's average income, although it might be an important component of the neighborhood change process.

Fourth, we find that neighborhood satisfaction differentially increased in gaining neighborhoods, at least among renters. This may be the important 'pull' to counter the increased costs of residing in these neighborhoods. However, larger amounts of new construction in gaining neighborhoods may have relieved some pressure on rents, and provided a new housing stock that differentially received the highest income new residents. These last factors may have contributed to the lack of heightened turnover (at least on average) in gaining neighborhoods.

Finally, we find no evidence that the populations in gaining neighborhoods became more white in the course of change. While new entrants to such gaining neighborhoods were more likely to be white than those entering non-gaining neighborhoods, they were in fact less likely to be white than those leaving these neighborhoods. The stereotypical story of white in-movers and minority out movers, perhaps based more in the history of white flight, is not found in the average experience. Such neighborhoods did maintain a greater share of whites than other low-income neighborhoods, but they did not actually gain white residents, as the stylized story of gentrification suggests.

In short, the picture our analyses paint of gentrification is one in which original residents are much less harmed than is typically assumed. They do not appear to be displaced in the course of change, they experience modest gains in income during the process, and they are more satisfied with their neighborhoods in the wake of the change. To be sure, some individual residents are undoubtedly hurt by neighborhood change; but in aggregate, the consequences of neighborhood change – at least as it occurred in the 1990s, do not appear to be as dire as many assume.

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Table 1A Neighborhood Descriptions 1990 Low Income Neighborhoods (1989 dollars)

	All Neighborhoods	Non Gaining	Gaining Neighborhoods
Mean Household Income	$26,936	$28,194	$25,572
Mean Tract/MSA Income Ratio	0.65	0.68	0.63
Poverty Rate	22.6%	20.2%	25.2%
% White	62.2%	63.1%	61.4%
% Black	25.7%	25.4%	26.1%
% Hispanic	15.6%	14.4%	16.8%
% Foreign Born	11.8%	12.1%	11.6%
% College Graduate	12.6%	13.4%	11.7%
% Professional	13.3%	13.8%	12.8%
% Under 18	25.8%	25.0%	26.6%
% Married with Kids	29.4%	29.5%	29.3%
% Female Headed Households with Kids	19.1%	18.4%	19.8%
% Home Owners	46.7%	46.0%	47.5%
Vacancy Rate	9.8%	9.2%	10.4%
% Old Housing	39.4%	37.6%	41.4%
% Living in same house 5 years ago	50.2%	49.4%	51.2%
Sample Size	20301	10566	9735

Census tract data, NCDB database.

Table 1B Change in characteristics of low income tracts, 1990-2000*

	All	Non Gain	Gain
Mean Household Income	$2,561	-$739	$6,141
Mean Tract/MSA Inc Ratio	0.01	-0.07	0.09
Changes in Percentages (measured in percentage points)			
Poverty Rate	-0.40%	2.54%	-3.57%
% White	-5.71%	-7.65%	-3.60%
% Black	2.06%	3.36%	0.66%
% Hispanic	5.18%	6.09%	4.20%
% Foreign Born	4.05%	4.58%	3.47%
% Coll Grad	2.38%	1.06%	3.83%
% Professional	1.87%	1.09%	2.71%
% Under 18	0.50%	1.10%	-0.13%
% Married with Kids	-1.39%	-1.93%	-0.82%
% Fem Head HH	1.05%	2.50%	-0.51%
Homeownership rate	0.26%	-1.20%	1.84%
Vacancy Rate	-0.73%	-0.76%	-0.71%
% Old Housing (built before 1939)	-3.49%	-3.14%	-3.86%
% of Households who Live in Same House 5 yrs Prior	0.18%	-0.03%	0.41%

Numbers in table represent difference between indicator in 1990 and in 2000 (e.g., poverty rate in 2000- poverty rate in 1990), so percentages in table actually show percentage point changes in indicators.

Table 2 **Exit rates: share of units exited over two year interval**

	Non Gain	Gain
91-93	27%	25%
93-95	29%	27%
95-97	25%	24%
97-99	24%	22%
99-01	22%	19%

Only Renters*

	Non Gain	Gain
91-93	41%	39%
93-95	42%	41%
95-97	36%	36%
97-99	33%	32%
99-01	30%	28%

Only Poor Households*

	Non Gain	Gain
91-93	30%	27%
93-95	29%	29%
95-97	28%	25%
97-99	27%	26%
99-01	29%	22%

*calculated out of the share of units originally
occupied by a renter/poor household)

American Housing Survey, internal version.

Table 3 **Cohort Exit rates, low income neighborhoods**

	Annual Percent		Cumulative Percent	
1991 Cohort	Non Gain	Gain	Non Gain	Gain
91-93	27%	25%	27%	25%
93-95	23%	21%	44%	41%
95-97	14%	13%	52%	49%
1993 Cohort				
93-95	29%	27%	29%	27%
95-97	18%	17%	42%	40%
97-99	13%	11%	49%	46%
1995 Cohort				
95-97	25%	24%	25%	24%
97-99	17%	16%	38%	36%
99-01	13%	11%	46%	43%

American Housing Survey, internal version.

Table 4 Original Residents versus New Entrants (1993-1995)

Panel A: Owners

	Non Gaining		Gaining	
	Original Residents	New Entrant	Original Residents	New Entrant
Income				
Median Household Income	$25,800	$27,500	$22,500	$29,100
Mean Household Income	$31,800	$33,700	29,600	$34,900
Mean Hshold/Tract Income Ratio	1.07	1.15	1.08	1.25

Panel B: Renters

	Non Gaining		Gaining	
	Original Residents	New Entrant	Original Residents	New Entrant
Income				
Median Household Income	$16,300	$16,200	$14,400	$15,800
Mean Household Income	$20,000	$19,100	$19,600	$18,900
Mean Hshold/Tract Income Ratio	0.70	0.67	0.77	0.74

Original residents are those residing in tracts in 1993; 1993 income in 1990 dollars
New entrants move into units between 1993 and 1995; 1995 income in 1990 dollars.

Table 5 Original Residents versus Exiters **(1993 to 1995)**

Panel A: Owners

	Non Gaining		Gaining	
	Original Residents	Exiter	Original Residents	Exiter
Income				
Median Household Income	$25,800	$26,700	$22,500	$20,600
Mean Household Income	$31,800	$32,200	29,600	$25,600
Mean Hshld/Tract Income Ratio	1.07	1.07	1.08	0.94

Panel B: Renters

	Non Gaining		Gaining	
	Original Residents	Exiter	Original Residents	Exiter
Income				
Median Household Income	$16,300	$17,000	$14,400	$15,100
Mean Household Income	$20,000	$20,300	$19,600	$20,200
Mean Hshld/Tract Income Ratio	0.70	0.71	0.77	0.78

Original residents are those residing in tracts in 1993; 1993 income in 1990 dollars
Exiters are those original residents who exited units between 1993 and 1995; 1993 income in 1990 dollars.

Table 6 Sources of neighborhood income gain –Turnover and Stayer upgrading

	Gaining vs. Non Gain			
	Owner		Renter	
	Turnover	Stayer	Turnover	Stayer
Change (91-95)	$8,100**	$2,500**	$2,200**	$2,000*

** significant at .05. *significant at .10.

Table 7 Racial composition of Homeowners and Renters: new entrants, exiters and those remaining in gaining and non gaining tracts, 1993- 1995

Panel A: Owners

	Non Gain				Gain			
	Original Resident	New Entrant	Stayer	Exiter	Original Resident	New Entrant	Stayer	Exiter
Race								
% Nonhispanic White	71	62	69	71< Exiter*	70	73	69	73< Exiter*
% Minority	29	38	31	29>Exiter*	30	27	31	27> Exiter*

Panel B: Renters

	Non Gain				Gain			
	Original Resident	New Entrant	Stayer	Exiter	Original Resident	New Entrant	Stayer	Exiter
Race								
% Nonhispanic White	53	48	50	55	50	51	45	54
% Minority	47	52	50	45	50	49	55	46

*Actual percentage has not yet been released by Census.