Unlocking Opportunity: The Remarkable Success of the Baltimore Regional Housing Partnership

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Abstract: Existing research shows that the neighborhood where a child grows up has a causal effect on their later economic prospects. Yet in many cities, low-income nonwhite families with children often live in the lowest opportunity neighborhoods. Over the past few decades, a number of housing mobility programs using vouchers to assist families in making moves to higher-resourced communities have shown considerable success toward increasing neighborhood opportunity, garnering significant policy support. As public housing policy is increasingly influenced by Housing Mobility Programs (HMPs), we study the HMP that has generated the largest improvements in neighborhood characteristics. Participants in the Baltimore Regional Housing Partnership (BRHP) reside in neighborhoods with schools performing 40 percentile points higher on state tests than poor Black residents of Baltimore City – ten times the difference between experimental and control groups in Moving to Opportunity. Oaxaca-Blinder decompositions attribute the majority of the BRHP's success to its regional design, which allows participants to access all opportunity neighborhoods in metropolitan Baltimore. The BRHP breaks strong neighborhood sorting by income and race. BRHP households live in neighborhoods with socioeconomic status comparable to the highest income Black households and live in more racially-integrated neighborhoods than Black households at any income level. BRHP improvements in neighborhood characteristics are durable.

Keywords: Housing Choice Voucher program, housing mobility program, opportunity neighborhood, racial inequality, rental housing supply, rental housing demand
JEL Classification Codes: I38, J15, K15, R21, R23, R31

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1 Introduction

Three decades of research point to a near consensus: over and above family background, the neighborhood where a child grows up independently and causally predicts their later economic prospects (Wilson (1987), Chetty et al. (2016), Chyn et al. (2025), Chetty et al. (2026)). While racial segregation has decreased in some areas of the country with low proportions of black residents, in many cities, racial segregation persists, and economic segregation grows. Thus, this means that low-income nonwhite families with children often live in the lowest opportunity neighborhoods. While this unequal geography of opportunity is a difficult problem to overcome, a number of housing programs–housing mobility programs using vouchers to assist families in making moves to higher-resourced communities– have shown considerable success.

To understand why programs are needed, it is helpful to observe the relationship between neighborhood resources and household racial composition. Consider the distribution of poor residents in a city by their neighborhoods' ranking in terms of socioeconomic status (SES), where 0 represents high poverty, low income, and low educational attainment and 100 represents the opposite. The blue bars in Figure 1 show the concentration of Baltimore's poor Black residents in tracts with the lowest ranking of neighborhood SES. In contrast, the red bars show that the poor white residents of Baltimore are uniformly distributed across neighborhood SES.

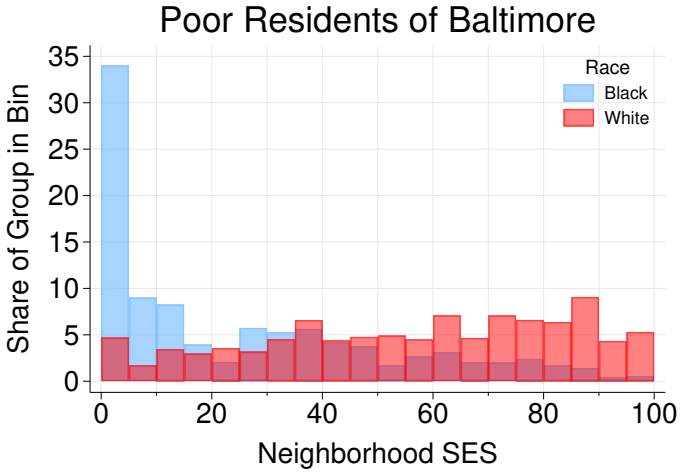


Figure 1: Concentrated Poverty in Baltimore

Note: This figure shows data from the Baltimore-Columbia-Towson Core-Based Statistical Area (CBSA) in the 2015-2019 American Community Survey (ACS). See Section 2 for details on the construction of the neighborhood SES ranking of Census tracts.

If neighborhoods affect their residents, then the racial distribution of concentrated poverty displayed in Figure 1 provides an example of the level of residential inequality Black households in Baltimore face, and motivates in part the importance of housing policies to expand housing and neighborhood choice.[1] This racial segregation could play an important part in maintaining the

[1]Given the link between race and concentrated poverty, in many cases we will refer interchangeably to "concentrated poverty" and "residential segregation by race." For evidence of long-run neighborhood effects on children

durable racial inequality in the US since the 1960s, as measured by large differences in intergenerational mobility and constant racial gaps in wealth and earnings (Chetty et al. (2020), Davis and Mazumder (2020), Aliprantis et al. (2025), Derenoncourt et al. (2024), Bayer and Charles (2018)).

But how can we even begin to address the racial segregation shown in Figure 1? Housing Mobility Programs (HMPs) were originally created with the goal of doing just this, by helping some households in the left-most bar in Figure 1 to move to more racially integrated, higher SES neighborhoods. HMPs have received bipartisan support as a way to promote economic mobility and address racial inequality in neighborhood access (Lubell et al. (2025), Polikoff (2006)). The design of public housing policy has increasingly adopted ideas from HMPs; Section 3 presents a short history of HMPs and their influence on policy.

This paper studies a recent successful housing mobility program designed to increase residential opportunities for low-income Black families in Baltimore. The first contribution of this paper is to document the contemporary success of the Baltimore Regional Housing Partnership (BRHP), which is difficult to overstate, relative to many other programs. For example, in 2019, families moved from census tracts that averaged 30 percent poverty to tracts that averaged 5 percent poverty. In terms of the neighborhood poverty rates experienced by non-Hispanic white Americans, this represents moves from the 5th to 77th percentile neighborhood. BRHP participants also reside in tracts zoned to schools that on average perform 40 percentile points higher on state tests than those of poor Black residents of Baltimore City. This is 10 times the difference in mean school quality between the experimental and control groups in the Moving to Opportunity experiment (Sanbonmatsu et al. (2006)).[2]

The second contribution of this paper is to offer insights into how the supply side of the rental market affects HMP success. There is already considerable evidence on how the demand side of the rental market influences the success of HMPs like the BRHP. A key finding of the recent CMTO experiment, for example, is that households will move to opportunity neighborhoods when given housing search assistance, financial resources and psychological support (Bergman et al. (2024)). This finding aligns with extensive research on the demand side of the HCV program, including prominent studies on the BRHP itself. This literature documents the benefits of pre-search counseling (Darrah and DeLuca (2014), DeLuca and Rosenblatt (2017)), housing search assistance (Bergman et al. (2020), Cordes et al. (2019)), post-move support (Cunningham et al. (2010), DeLuca and Rosenblatt (2017)), and extended search times (Ellen et al. (2024), Eriksen

see Chetty et al. (2016), Chyn et al. (2025), Chyn (2018), Altonji and Mansfield (2018), and Aliprantis and Tauber (2026); for evidence of neighborhood effects on adults' labor market outcomes see Aliprantis and Richter (2020), Bayer et al. (2008), Hellerstein et al. (2011), and Schmutte (2015). Relevant recent literature reviews include Chyn and Katz (2021) and Graham (2018).

[2]These changes in school performance open the possibility of large improvements in participants' education outcomes based on previous evidence from integrating schools and busing Black students to higher-performing schools. Improved education outcomes in turn suggests improved labor market outcomes in adulthood. For the former points see Johnson (2019), Setren (2025), Bergman (2018), Reber (2010), and Guryan (2004). On the latter point see Nielsen (2026) and Thompson (2026). Finally, note evidence from Boston's METCO program that accepting bused students into a school has no effect on incumbent students (Setren (2025b); Angrist and Lang (2004)) and that court ordered desegregation similarly had null effects on white students (Anstreicher et al. (2023)).

and Ross (2013)).

Yet, while insights into the demand side of the market are clearly important for the design of public policy, the supply side likely holds equally-valuable insights and has received considerably less attention.[3] Consider that in many segregated cities like Baltimore, the supply of rental units in opportunity neighborhoods is overwhelmingly located outside the central city/county. Does it matter, then, whether HMPs are implemented by a single Public Housing Authority (PHA) within a given city or whether a program is regionally administered?

We show that the regional design of the BRHP, which allows its participants to access all neighborhoods in its metropolitan area, is critical to the program's success. Residential outcomes would be quite different if the BRHP was implemented to support the moves of Baltimore City families within only Baltimore City. In Oaxaca-Blinder decompositions, between half and three-quarters of the BRHP's success can be attributed to its regional administration, which allows participants to utilize vouchers across PHA jurisdictions.

Our results indicate that attention to regional design features offers an important lens for interpreting previous HMPs and for designing future policy. Previous HMPs varied considerably with regard to whether they were administered regionally. Gautreaux and the BRHP supported moves outside their city's central county, while MTO was generally restricted to each city's central county.[4] Notably, these HMPs were implemented while unconstrained Black households were moving away from their cities' central counties (Bartik and Mast (2026)). For contemporary policy design, encouraging regional cooperation and portability would likely improve the residential outcomes in HUD's ongoing Community Choice Demonstration and the HCV program more generally (Lubell et al. (2025); Garboden (2024); Aliprantis et al. (2024b); Yang et al. (2025)).

The third contribution of this paper is to provide evidence on neighborhood sorting by income, race, and voucher status. Sorting across the racial composition of neighborhoods accounts for enormous differences in the neighborhood characteristics of Black and white households, even those with similarly high levels of income and wealth (Logan (2011), Aliprantis et al. (2024a)). We have much to learn about the relative importance of the key mechanisms that drive this sorting (see Krysan and Crowder (2017); DeLuca and Jang-Trettien (2020)).[5]

We show that the BRHP manages to successfully break typical patterns of neighborhood sorting by income and race among low-income black households (even those receiving vouchers). BRHP households live in neighborhoods with socioeconomic status similar to that of the highest income Black households and in more racially-integrated neighborhoods than Black households at any level of income. We also show that BRHP moves are durable in the sense that participants' subsequent

[3] One exception has been research on policies to recruit landlords, whether directly (Cossyleon et al. (2020)) or through policies like Small Area Fair Market Rents (Collinson and Ganong (2018); Aliprantis et al. (2022); Dastrup et al. (2019); Reina et al. (2019); Kwon et al. (2025); Ellen et al. (2025)) or source of income discrimination laws (Ellen et al. (2023), Phillips (2017)).

[4] Via the jurisdiction of each implementing PHA; see the discussion of porting in Feins et al. (1996).

[5] Aliprantis et al. (2024a) document these sorting patterns; Bayer et al. (2025), Davis et al. (2024), Caetano and Maheshri (2023), Caetano and Maheshri (2025), and Couture et al. (2025) provide evidence on the strength of homophily. Sethi and Somanathan (2004) and Bayer et al. (2014) explore patterns of sorting that homophily may support under various paths of income inequality.

(second) moves are mostly to neighborhoods with similar SES and racial composition as initial lease-ups.

2 Data

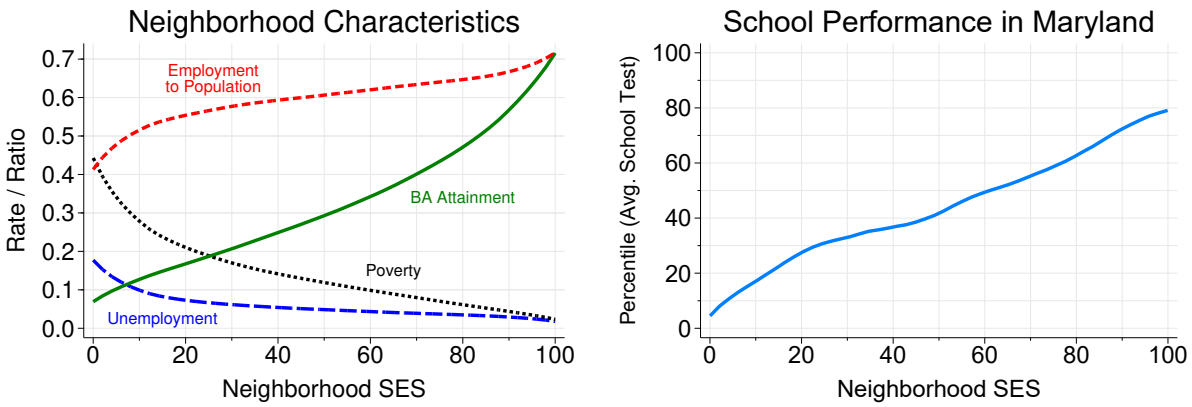
The Baltimore Regional Housing Partnership (BRHP) Through an agreement with the BRHP, we received de-identified administrative records on all families participating in the BRHP between 2014 and 2024. This analysis is over the years 2014 to 2024 and is focused on the Census tract of residence of BRHP voucher holders in a given year. Depending on the question at hand, we alternatively characterize the program in terms of BRHP vouchers or the total number of BRHP participants in a tract. Figure 3 shows that the BRHP more than doubled in size between 2014 and 2024.

Neighborhoods: Tracts We study neighborhoods using the definition of *Census tracts*. We first characterize Census tracts in terms of *Neighborhood SES*, a national ranking of the socioeconomic status (SES) of Census tracts' residents. Neighborhood SES ranks tracts on a scale of 0 (lowest) to 100 (highest) in terms of poverty rate, high school diploma attainment rate, BA attainment rate, the employment to population ratio, the unemployment rate, and the share of households with children under 18 that are headed by a single-parent.[6] We construct Neighborhood SES using the American Community Survey (ACS) 5-year estimates downloaded from the National Historical Geographic Information System (NHGIS, Manson et al. (2024)). Figure 2a shows how several of the component characteristics are related to neighborhood SES in the 2019-2023 vintage of the ACS.

We often focus our analysis on the year 2017. One reason is strong secular trends over the time frame of our study. There has been a massive decline in concentrated poverty since the initial year we study, 2014. This coincides with a massive decrease in the overall poverty rate, COVID-19 affecting both Census data collection and society, and the US Census Bureau changing the way it measures race in a way that complicates consistent comparisons across this discontinuity (Aliprantis and Van Riper (2025), Arias et al. (2025)). Finally, focusing on 2017 allows for merging contemporaneous data sets without any lags, as discussed below and illustrated in Table 3.

We also use the ACS for other tract-level information such as rents, poverty rates, total population, and racial composition. We measure residents' distance to City Hall using the population-weighted centroid of their tract (in 2010 or 2020) provided by the US Census Bureau and City Hall coordinates from Google Maps. For many tracts in Baltimore the ACS does not report estimates for the median 2-bedroom rent, typically due to small sample sizes in those tracts. Thus for these tracts we will impute rents using the predicted value from a regression of median rent on neighborhood SES, median home value, the rental share of housing units, and the share of

[6] See Aliprantis et al. (2024b) for a more detailed discussion of the construction of this ranking and for a comparison of the strengths and weaknesses of this ranking with those from the Childhood Opportunity Index (COI, diversitydatakids.org (2021)) and the Opportunity Atlas (OA, Chetty et al. (2026)). Throughout the paper we use standard inference techniques with neighborhood SES, but it should be kept in mind that correct inference on rankings is non-standard (Mogstad et al. (2023)).



(a) United States

(b) Maryland

Figure 2: Neighborhood SES and Neighborhood Characteristics at the Tract Level

Note: These figures show data from the 2019-2023 American Community Survey (ACS) and the Maryland State Department of Education (MSDE). Neighborhood SES ranks tracts nationally on a scale of 0 (lowest) to 100 (highest) in terms of poverty rate, high school diploma attainment rate, BA attainment rate, the employment to population ratio, the unemployment rate, and the share of households with children under 18 that are headed by a single-parent. School performance is measured using elementary schools' average academic performance in Mathematics and English on 2022 Maryland state tests, converted to a percentile ranking among schools in the state of Maryland. Attendance boundary zones are used to calculate the average of schools zoned to each tract.

Black residents interacted with neighborhood SES. We use Core-Based Statistical Areas (CBSAs) whenever discussing statistics at the level of a city.

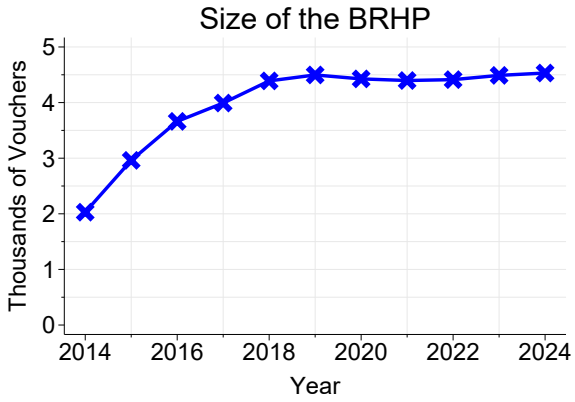


Figure 3: The Growth of the BRHP

Schools: Maryland State Department of Education (MSDE) We characterize neighborhoods in terms of the educational achievement in local public elementary schools using data for 2022-2024 from the Maryland School Report Card published by the Maryland State Department of Education (MSDE (2024)). For each elementary school we record the Average Performance Level in English Language Arts and the Average Performance Level in Math. We then take the mean of the two scores and calculate the percentile rank of this measure over all elementary schools in

the state of Maryland. Individual elementary schools are mapped to 2020 Census tracts using a BRHP-provided crosswalk. When a tract is zoned to multiple schools the tract's test score is the area-weighted average of schools in the tract.

Schools: Stanford Education Data Archive (SEDA) We also characterize neighborhoods in terms of the educational achievement of local public elementary schools using a national assessment via data from the Stanford Education Data Archive (SEDA, Reardon et al. (2024)). We use the SEDA data sparingly due to the low match rate between schools and tracts when using our BRHP-provided shapefile of 2022 elementary school attendance boundaries and the US Census Bureau's 2010 TIGER/Line tract boundary files obtained from the NHGIS (Manson et al. (2024)). We note that districts change attendance boundaries frequently (Monarrez (2023)) and that the contemporary shapefiles from the National Center for Education Statistics' School Attendance Boundary Survey (SABS) contain limited information for Baltimore. When using the SEDA data set, we measure school performance as the school-level pooled mean test-based achievement over the 2008-09 through 2018-19 school years for all students. This mean is pooled across Math & Reading Language Arts and is estimated via Ordinary Least Squares (OL), on the Grade-Cohort Scale (GCS).[7]

Housing Choice Vouchers: The Picture of Subsidized Households (POSH) We use data on the Housing Choice Voucher (HCV) Program in Baltimore from the US Department of Housing and Urban Development's (HUD's) Picture of Subsidized Households (POSH, HUD (2021)). We calculate the number of non-BRHP vouchers in a tract as the number of vouchers in the POSH minus the number of BRHP vouchers. We typically make comparisons between BRHP and non-BRHP vouchers, but will make comparisons between BRHP and overall HCV vouchers when necessary for the sake of disclosure avoidance.

Note that we calculate the number of voucher households with a Black head at the tract level using a variable that is suppressed in the POSH when it relates to less than 11 households. When checked against PHA-level data where all Black-headed voucher households are reported, this suppression results in very few missing observations. For example, in the 2017 POSH 99.8 percent of Black voucher households in Baltimore are found in the non-suppressed tract-level data.

Crime: Gun Violence Archive (GVA) We use data on gun homicides from the Gun Violence Archive (GVA) over the years 2013 to 2018. In 2023 79 percent of murders in the US were committed with a gun (Gramlich (2025)). We geocode the homicides to tracts and districts.

Merging Data Sets across Years We index years to 5-year ACS estimates in a non-uniform way due to differences in timing and measures across data sets. Appendix C provides the full details.

[7]This score is scaled to equal four at the average of national 4th grade test scores on the National Assessment of Educational Progress (NAEP), and one unit in this metric is equal to the average per-grade increase in scores between 4th and 8th grade.

3 The History of HMPs and the BRHP

3.1 Housing Mobility Programs

The first HMP in the United States was created in 1976 as part of the consent decree resolving *Dorothy Gautreaux v. Chicago Housing Authority (CHA)*. Initiated in 1966, *Gautreaux v. CHA* went to the Supreme Court before it was decided that if schools cannot be constitutionally segregated by race, neither can public housing (Polikoff (2006)). Participants in the Gautreaux HMP were offered housing units that were located either in city (majority Black) neighborhoods expecting investments and an upward economic trajectory or else in suburban (majority white) tracts that were many miles away from the city, had better performing schools, higher income residents, and better labor market outcomes. Gautreaux provided substantial evidence that HMPs can both integrate program participants into suburban neighborhoods and offer a promising policy for combating intergenerational poverty (Rubinowitz and Rosenbaum (2000), Keels et al. (2005), Rosenbaum (1995), Chyn et al. (2025)).

Moving to Opportunity (MTO) was a subsequent set of HMPs inspired by the positive results of Gautreaux. MTO was a once-in-a-generation policy experiment conducted in five cities by the US Department of Housing and Urban Development (HUD) starting in the mid-1990s. Public housing residents participating in MTO lived in some of the poorest neighborhoods in the US and were given housing vouchers restricted for use in neighborhoods with poverty rates below the national median (10 percent). This change in design away from race toward poverty was informed by research, sparked by the work of sociologist William Julius Wilson, that focused attention on the roles of concentrated poverty and neighborhood effects in maintaining racial inequality in the post Civil Rights era.[8] MTO generated smaller effects on neighborhood quality change than Gautreaux, and there has been much discussion about whether this was the result of MTO's stronger experimental design or weaker neighborhood treatment (Ludwig et al. (2008), Clampet-Lundquist and Massey (2008), Aliprantis (2017)).[9] In recent years attention has focused primarily on the long-run effects of HMPs and similar programs on participating children (Chetty et al. (2016), Chyn et al. (2025), Chyn (2018)).

Prompted in part by the research showing the long-run benefits of lower poverty neighborhoods on kids (Chetty et al. (2016)), HMPs have proliferated across the US since Gautreaux and MTO (Tegeler et al. (2005), Mumphery et al. (2022), Verma et al. (2025)), with two of the most prominent examples being the Baltimore Regional Housing Partnership (BRHP) and the Creating Moves to Opportunity (CMTO) experiment in Seattle. A key contribution of research on HMPs has been to identify factors aiding successful moves to opportunity neighborhoods, which can help other housing agencies and departments figure out what they might do to increase the residential choices of their

[8] Wilson (1987) did not posit that discrimination was irrelevant because the US had suddenly become post-racial, but rather highlighted the recent emergence of mechanisms like deindustrialization and patterns of neighborhood sorting that not only concentrated poverty but also would be capable of maintaining racial inequality even in the absence of widespread racial discrimination.

[9] See also de Souza Briggs et al. (2010), Kling et al. (2007), Sanbonmatsu et al. (2006), Aliprantis and Richter (2020), and Pinto (2022).

voucher holders (Scott et al. (2013)). These lessons from HMPs are influencing the evolution of public housing policy. HUD's ongoing eight-city Community Choice Demonstration–inspired by the success of previous HMPs– is one example of HMPs' influence on the Housing Choice Voucher (HCV) Program (Lubell et al. (2023), HUD (2020)), as are several other pieces of legislation aimed to help families move to higher opportunity areas through supplemental resources and landlord supports like the Family Stability and Opportunity Vouchers Act of 2019 (S 3083) and 2023 (S 1257 and HR 3776) and the Choice in Affordable Housing Act of 2021/2025 (S 1820).

3.2 The Baltimore Regional Housing Partnership

The Baltimore Regional Housing Partnership (BRHP) was borne out of a 1995 class action lawsuit, *Thompson v. HUD*, claiming that public policy in Baltimore had actively supported residential segregation by race.[10] A partial settlement in 1996 led to the creation of the Baltimore HMP, which was administered between 2003 and 2014 by a private contractor, Metropolitan Baltimore Quadel (MBQ). Since 2013 the Baltimore HMP has been administered by the BRHP, a 501(c)(3) non-profit organization. We use *BRHP* to refer to the Baltimore HMP under the administration of the BRHP.[11]

The initial design of the BHMP was to assist eligible families in moving to private market housing in low-poverty, nonsegregated neighborhoods in the Baltimore metropolitan area; eligible families were current and former public housing residents and families on the waiting list for public housing or housing vouchers (DeLuca and Rosenblatt (2017), Engdahl (2009)). Initially, for the first year vouchers were only eligible for use in opportunity-designated neighborhoods, or those with less than 30 percent non-white residents, less than 10 percent of residents living in poverty, and where less than 5 percent of all housing units being public housing or HUD-assisted complexes (DeLuca and Rosenblatt (2017), Engdahl (2009), Rhodes et al. (2025)).

Three features of the BRHP are different than the initial design of the BHMP (DeLuca and Groccia (2024)). After the final case settlement in 2012, eligibility criteria were broadened from those engaged with the Housing Authority of Baltimore City (HABC) to include families residing in highly segregated neighborhoods in Baltimore City, or those in which Black residents comprise 75 percent or more of the population. Likewise, in 2012 the requirement of an initial one-year lease in eligible neighborhoods was extended to two years. Finally, in 2015, the criteria for a tract to be designated as an opportunity neighborhood was changed to be dependent entirely on information on Census and school data, with no direct consideration for race.

Key features of the BRHP have remained constant since the BHMP (DeLuca and Groccia (2024)). The BRHP, like the BHMP before it, provides an array of services to assist tenants in leasing up in low-poverty neighborhoods, including pre- and post-move counseling, as well as landlord outreach and relationship building. Through counseling, the program provides families

[10] A similar lawsuit led to the creation of the Gautreaux HMP in Chicago (Polikoff (2006)); there is evidence of such practices throughout the US (Rothstein (2017)). The BRHP website brhp.org/about/history has more details.

[11] MBQ was under contract to BRHP for administration of the program in 2013 and 2014 and BRHP began direct administration in 2015.

with a range of services, including financial literacy workshops, landlord-tenant mediation, one-on-one meetings to discuss move readiness (e.g. credit score review), neighborhood tours, and workshops relating to educational and employment opportunities in their new neighborhoods.

Most closely related to this paper is DeLuca and Rosenblatt (2017)'s study of residential outcomes of the Baltimore HMP. DeLuca and Rosenblatt (2017) find that BHMP participants moved to neighborhoods that were significantly less poor and had much lower shares of Black residents. They also find that BHMP families moved to neighborhoods whose schools had much higher rates of test proficiency, teacher quality, and lower rates of poverty. In-depth interviews with BHMP families suggest that, although financial assistance and housing search services were important features of the program, the emotional support and respect families received from BHMP counselors also contributed to their successful experiences (DeLuca and Rosenblatt (2017), DeLuca and Groccia (2024)). These results, along with other findings on the importance of landlord recruitment, helped inform the design of the CMTO program (Bergman et al. (2024)).

Initial moves in the BHMP had durable effects on neighborhood characteristics like the poverty rate and share Black. DeLuca and Rosenblatt (2017) note that this durability is similar to that found in Gautreaux and considerably higher than that found in MTO. Like Darrah and DeLuca (2014), DeLuca and Rosenblatt (2017) emphasize that when thinking about what shapes families' long-term neighborhood preferences and locations, the experience of living in higher opportunity neighborhoods is a key factor.

The analysis in this paper complements that in DeLuca and Rosenblatt (2017) focused on the years 2002 to 2012 by providing an analysis of the Baltimore HMP under the administration of the BRHP over the past decade after the program more than doubled in size (Figure 3); comparisons with more demographic groups and other HMPs; an analysis focusing on the supply side of the rental market; and an analysis of neighborhood sorting that is informed by recent findings in the literature.

4 Residential Outcomes in the BRHP

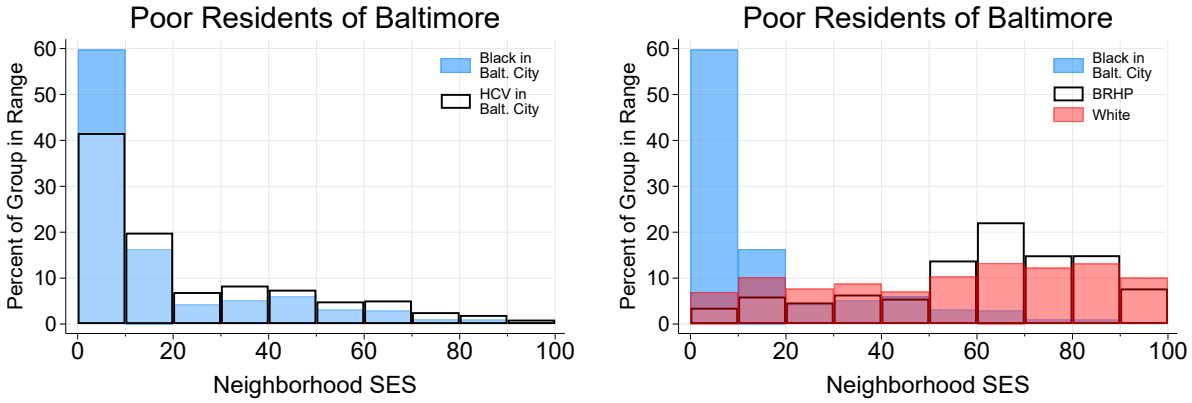
4.1 Compared with Poor Black Residents of Baltimore City

While there is no control group in the BRHP program, we can compare the residential outcomes of the BRHP households to two other groups: poor Black residents of Baltimore City, the central county of the Baltimore metropolitan area; Black HCV holders in Baltimore City. The BRHP's participants are also poor, originally reside in Baltimore City, and are primarily Black.

Like Figure 1 in the Introduction, the blue bars in Figure 4a show the concentration of Baltimore City's poor Black residents in tracts with the lowest ranking of neighborhood SES. The left-most blue bar shows that among the poor Black residents of Baltimore City, 60 percent are concentrated in tracts ranked in the lowest decile of SES nationwide. Including the next blue bar to the right, this rises to 76 percent of Baltimore City's poor Black residents living in tracts ranked in the bottom quintile nationwide. The empty bars outlined in black in Figure 4a show that HCV households in

Baltimore City are able to lease up in slightly higher SES neighborhoods than poor Black residents. The left-most bar shows that just over 40 percent of HCV households reside in neighborhoods ranked in the lowest 10 percent of SES.

Whereas HCV households realize some improvements relative to the concentrated poverty of poor Black residents in Baltimore City, BRHP participants are able to break free from this concentrated poverty completely. Figure 4b again shows Baltimore City's poor Black residents in blue, but now the empty bars outlined in Black represent BRHP households. We see that very few BRHP participants reside in the lowest decile of neighborhood SES, with the left-most blue bar now under 5 percent. In contrast, the most common neighborhood SES ranking for the BRHP is between the 60th and 70th percentile. Large shares of BRHP participants are found in all neighborhood types above the 50th percentile, with low shares found in neighborhoods below the 50th percentile. For comparison, the red bars in Figure 4b show that BRHP participants reside in neighborhoods whose SES resembles that of the poor white residents of Baltimore (the entire metro area). Appendix Figure 2 shows the same comparison for non-poor white residents of Baltimore.



(a) In Baltimore City Alone

(b) In the Baltimore Metro Area

Figure 4: Comparing BRHP Participants with Poor Residents of Baltimore

Note: These figures show the distributions of poor residents in Baltimore in 2022. BRHP participants are measured using BRHP data from 2022, Housing Choice Voucher (HCV) households are measured using data from HUD's 2022 Picture of Subsidized Households (POSH), and residents of the Baltimore metropolitan area are measured using the 2019-2023 American Community Survey (ACS). Neighborhood SES ranks tracts on a scale of 0 (lowest) to 100 (highest) in terms of poverty rate, high school diploma attainment rate, BA attainment rate, the employment to population ratio, the unemployment rate, and the share of households with children under 18 that are single-headed.

Table 1 presents a more formal statistical analysis comparing the means of these distributions. There is a 37 percentile point difference in both neighborhood SES and school performance between BRHP voucher holders who reside in any county and non-BRHP voucher holders who are Black and reside in Baltimore City. The differences are even larger when BRHP participants, again residing anywhere in the Baltimore metro, are compared with poor Black residents of Baltimore City. This gap represents 45 percentile points for neighborhood SES and 40 percentile points on school performance. Appendix B expands on Table 1, showing results for the components of

neighborhood SES, additional neighborhood characteristics, and additional demographic groups.

Table 1: Residential Outcomes of BRHP and Comparison Groups in Baltimore

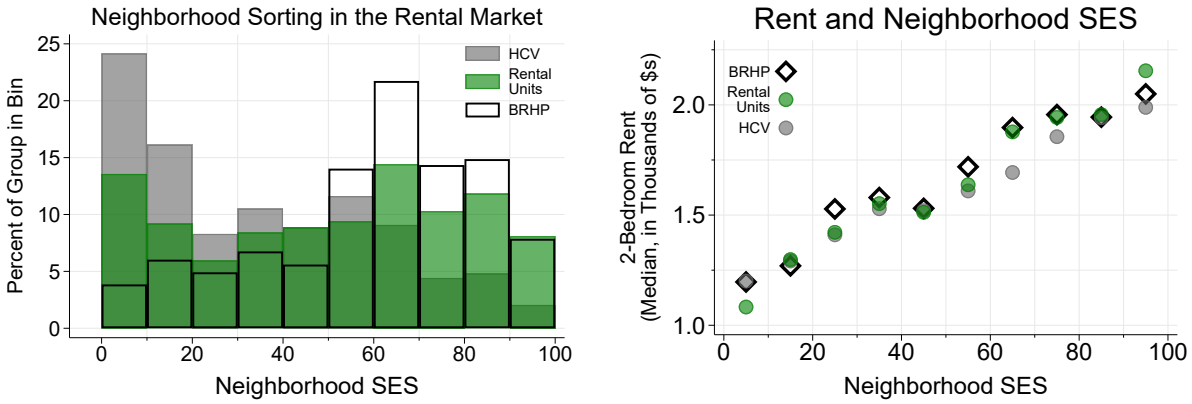
	Vouchers			Poor Residents		
Outcome	BRHP	Black + Non-BRHP	Diff.	BRHP	Black + Non-BRHP	Diff.
Neighborhoods						
Socioeconomic Status	60	23	37	60	15	45
(National Ranking from 0 to 100)	(25)	(22)	[0.00]	(24)	(20)	[0.00]
Schools						
Academic Performance	49	12	37	49	10	40
(Percentile in State)	(22)	(14)	[0.00]	(22)	(12)	[0.00]

Note: All comparisons are made for 2022. BRHP vouchers holders or BRHP poor residents comprise BRHP participants anywhere in the Baltimore metropolitan area. Non-BRHP vouchers comprise Black voucher holders residing in Baltimore City who are not BRHP participants. Non-BRHP poor residents comprise Black poor residents of Baltimore City who are not BRHP participants. Neighborhood SES ranks tracts on a scale of 0 (lowest) to 100 (highest) in terms of poverty rate, high school diploma attainment rate, BA attainment rate, the employment to population ratio, the unemployment rate, and the share of households with children under 18 that are single-headed. School performance is measured using elementary schools' average academic performance in Mathematics and English on 2022 Maryland state tests, converted to a percentile ranking among schools in the state of Maryland. Standard errors are shown in parentheses ( ) and p-values of two-sample t-tests are shown in brackets [ ].

The magnitiude of the BRHP results are put into context by looking at the residential locations of participants in the HCV program as a whole. Participants in the HCV program typically live in neighborhoods with only slightly higher SES than other poor households (Ellen (2020), Eriksen and Ross (2013)). Likewise, schools near voucher holders have lower performing students than schools near other poor households (Horn et al. (2014)), and voucher holders do not access lower-crime neighborhoods than other poor households (Lens (2013)).

4.2 Compared with the Overall Rental Market

Another way of measuring the BRHP's success is to compare the locations of BRHP households to the location of rental units in Baltimore. Figure 5a shows that BRHP voucher holders are leased-up in neighborhoods with higher SES than the overall distribution of rental units. The distribution of all rental units in the market is shown by the green bars; the median SES is 54. The distribution of BRHP vouchers is shown by the white bars with a black outline; the median SES is 62. The distribution of HCV units is also shown by the gray bars for comparison; this distribution has a high concentration in the lowest SES neighborhoods, with nearly a quarter of HCV units in the lowest decile of neighborhood SES. The median HCV unit is in a tract with neighborhood SES of 33.



(a) Neighborhood SES

(b) Rent

Figure 5: Comparing BRHP with the HCV Program and the Rental Market

Note: These figures show the distributions of households and rental units in Baltimore in 2022. BRHP households are measured using BRHP data from 2022, Housing Choice Voucher (HCV) households are measured using data from HUD's 2022 Picture of Subsidized Households (POSH), and rental units are measured using the 2019-2023 American Community Survey (ACS). Neighborhood SES ranks tracts on a scale of 0 (lowest) to 100 (highest) in terms of poverty rate, high school diploma attainment rate, BA attainment rate, the employment to population ratio, the unemployment rate, and the share of households with children under 18 that are single-headed. When not directly reported in the ACS, median 2-bedroom rent in a tract is imputed as described in Section 2.

The success of the BRHP is also achieved while program participants lease up in tracts that are comparable in rent to the overall rental market, especially at high levels of neighborhood SES. Figure 5b shows the mean rent in tracts by group and deciles of neighborhood SES for units leased up in the HCV program, the BRHP, and in the overall rental market. The hollow diamonds outlined in black show the means for the BRHP; note that in the 5th, 7th, 8th, and 9th deciles of neighborhood SES the BRHP markers are filled by the green dots representing the overall rental market. This indicates that at these levels of SES BRHP households are leasing up in tracts that are typical for the overall rental market. There are some small differences in the tract-level rents between the BRHP and the overall market; sometimes the BRHP pays more (the 6th decile) and sometimes the BRHP pays less (the 10th decile). Overall, though, the BRHP and rental distributions look very similar.

4.3 Compared with other Housing Mobility Programs

In addition to comparing the neighborhood locations of BRHP participants with current residents of Baltimore, we can also compare BRHP residential outcomes to those achieved in other previous housing mobility programs (HMPs). We first compare residential outcomes across HMPs by using neighborhood poverty rates. While raw poverty rates could be useful in some cases, HMPs are often focused far in the tail of the distribution of neighborhoods in a way that can make raw comparisons difficult to interpret. For example, an increase in neighborhood poverty from 5 to 30 percent poverty might be expected to represent a very different change in neighborhood con-

ditions than an increase from 75 to 100 percent. While both changes are 25 percentage points in terms of the raw poverty rate, the first change represents moves from the highest to lowest poverty neighborhoods compared to moves within the very highest tail-end poor neighborhoods. Typically scholars consider 30 percent or higher to be "high" poverty. For this reason we use a neighborhood poverty ranking that is based on the tract-level poverty rate experienced by the non-Hispanic white population in the US in the nearest year to the HMP in question.[12]

Figure 6 illustrates the changes in the neighborhood poverty ranking experienced among BRHP participants alongside those of some previous HMPs. These results demonstrate that among prominent HMPs, the BRHP represents a significantly larger change in neighborhood quality than other programs. The left-most bar for each HMP shows the baseline mean for participants and the right-most bar shows the mean of participants' initial lease-ups. The red lines for Gautreaux indicate that, on average, suburban movers went from tracts at the 2nd percentile of poverty to the 69th percentile. In MTO, the green lines show that experimental movers went from a baseline mean at the 1st percentile to initial lease-ups at the 28th percentile. The black lines show that those who moved in the BRHP in 2019 typically increased from the 5th to the 77th percentile of neighborhood poverty ranking. And the blue lines show that CMTO supported its typical participant in moving from the 23rd percentile to the 41st percentile of the neighborhood poverty ranking.[13]

Table 2 presents the changes in the academic performance of the schools attended or zoned to participants in previous HMPs. The key result for Baltimore is that large gaps in school performance open up across Baltimore City and other counties in the Baltimore CBSA. Poor Black residents of Baltimore counties outside Baltimore City are zoned to schools performing near the median of schools in the state, at the 48th percentile. However, the average poor Black resident of Baltimore City is zoned to one of the lowest-performing schools in the state, at the 10th percentile. In terms of grade level, by the 4th grade this difference represents test score performance at grade 4.1 versus at grade 2.0.

Table 2 is also helpful in interpreting differences in the effects of previous HMPs. Gautreaux had significantly larger long-run effects on children's adult incomes than MTO (Chyn et al. (2025)). One explanation for this difference is that Gautreaux had a larger effect on children's socio-economic integration than did MTO (Aliprantis et al. (2024b), Aliprantis (2017)). An alternative explanation is that Gautreaux and MTO had similar effects on participating children's socioeconomic integration, but different effects on their racial integration (Chyn et al. (2025)).

[12]The raw poverty rates used in this analysis and their relationship to the neighborhood poverty ranking are provided in Appendix H.

[13]CMTO families experienced smaller changes in neighborhood characteristics in part because Seattle has more affordable housing in low-poverty areas, and also because the families in the CMTO program are a more diverse group by race and SES and as such have access to a wider range of neighborhoods through family networks, which differs on average from the households in Gautreaux, MTO and BRHP, many of whom grew up in public housing in racially and economically isolated neighborhoods.

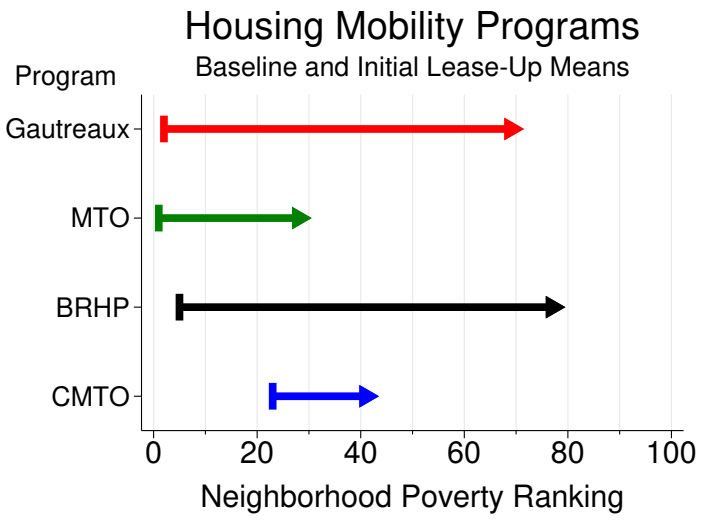


Figure 6: Baseline / Initial Lease-Up Tracts in HMPs

Note: See the main text for variable definitions and Appendix H for full details on variable construction.

Table 2: Academic Performance in HMP Participants' Schools

	Average School Performance	
Group	Percentile	Grade Level
Gautreaux in 1990		
Suburban	64	
City	2	
MTO in 2001		
Experimental	19	
Control	15	
BRHP in 2022 or 2017		
BRHP (All)	49	4.4
BRHP (1st Lease-Up)	50	4.8
Baltimore Suburb		
Poor Black	48	4.0
Baltimore City		
Poor Black	10	2.0
CMTO in 2019		
Treatment	54	
Control	41	

Note: Gautreaux results are based on data from Rubinowitz and Rosenbaum (2000) and Yong (1992); see Appendix D.2 for details. MTO results are from Table 2, Panel C of Sanbonmatsu et al. (2006). BRHP and Baltimore results are for 2021 tract of residence mapped to 2021-2023 percentile test scores and 2017 tract of residence mapped to 2008-09 through 2018-19 grade-level test scores. CMTO results are based off of the Kirwan Ed Subscore results presented in Appendix Table 7, Panel A of Bergman et al. (2024); see Appendix D.3 for details.

The changes in schools displayed in Table 2 are evidence that Gautreaux had a much larger effect on its participants' socioeconomic integration than did MTO (see Rosenbaum et al. (2009)). Suburban schools had considerably higher 11th grade test scores than city schools in Gautreaux, performing at the 64th percentile versus 2nd percentile of the state, respectively.[14] The experimental and control groups in MTO attended schools, respectively, at the 19th and 15th percentiles of their states (Sanbonmatsu et al. (2006)).[15] Additional evidence indicates that during the time Gautreaux families were moving, suburban schools performed much better than city schools. For example, high school graduation rates in suburban versus city schools were 86 versus 33 percent,

[14]See Appendix D.2 for details of this calculation based on data from Gautreaux as reported in Rubinowitz and Rosenbaum (2000) and from the state of Illinois as reported in Yong (1992).

[15]Throughout the paper we are careful to compare compliers with compliers; note here that the MTO results are for the entire experimental group.

respectively (Rubinowitz and Rosenbaum (2000)). Likewise, the test score results in Table 2 are consistent with the changes in school districts observed in the two HMPs. By definition, all suburban movers in Gautreaux changed school districts. In Baltimore and Chicago, respectively, MTO only induced 8 and 6 percent of experimental voucher recipients to move to a new school district (Orr et al. (2003), Exhibit 6.4).

5 The Regional Design of the BRHP

The *R* in BRHP stands for *Regional* and indicates that the BRHP is designed to allow participants to reside in all neighborhoods of the larger Baltimore metro area, not just the neighborhoods falling under the jurisdiction of one PHA, like Baltimore City. Figure 7 illustrates why this issue is a concern in cities like Baltimore. The light blue bars in Figure 7 show the concentration of Baltimore's poor Black residents in the metro's central county, Baltimore City, in tracts with the lowest ranking of neighborhood SES. In contrast, the red bars show that the poor white residents of Baltimore are uniformly distributed across neighborhood SES.

The comparison between the light and dark blue bars is critical for understanding why regional administration of the program is so important. The left-most combined light and dark blue bars indicate that the Baltimore metro area has 36 thousand poor Black residents residing in neighborhoods ranked in the bottom five percent of SES. The tiny dark blue sliver on the left-most bars indicates that of these 36 thousand residents, only 500 reside outside of Baltimore City. The concentration of poverty in Baltimore City was an important factor motivating the regional design of the BRHP (powell (2005)).[16]

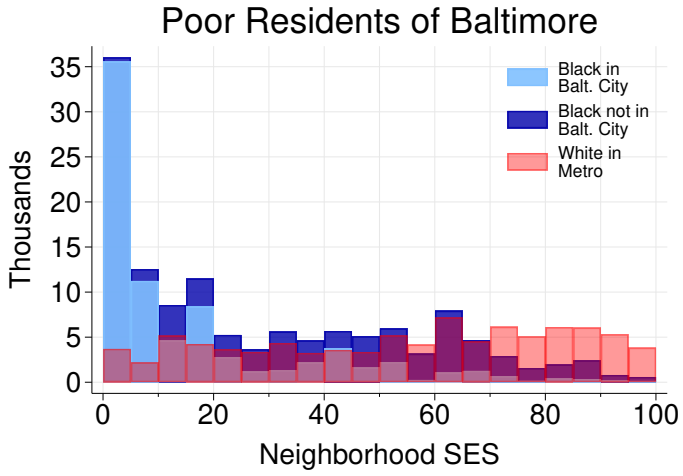


Figure 7: Concentrated Poverty in Baltimore

Note: This figure shows data from the Baltimore-Columbia-Towson Core-Based Statistical Area (CBSA) in the 2019-2023 American Community Survey (ACS). See the main text for details on the construction of the neighborhood SES ranking of Census tracts.

[16]There have been legal and policy debates since the time of the Civil Rights Movement about the importance of regional remedies to residential segregation (Adams (2025), Dimond (2005)).

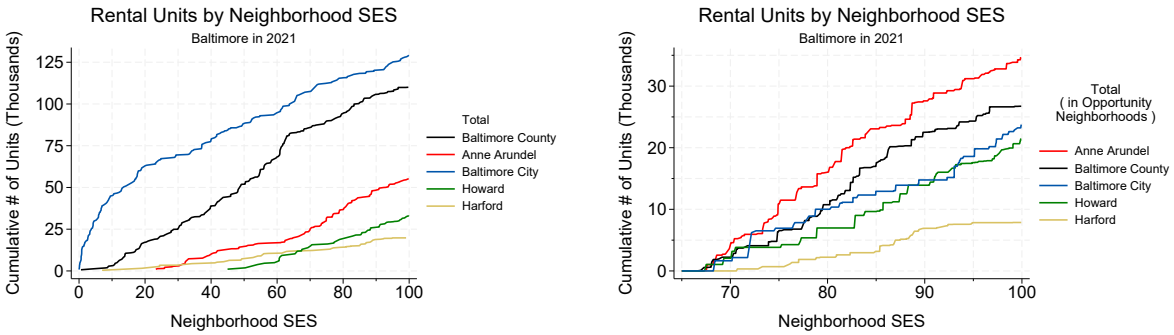
The regional design of the BRHP is similar to that of Gautreaux but not to that of MTO. While in theory MTO movers could have leased up anywhere, in practice they did not. The MTO program struggled with many of the same limitations as encountered with the HCV program more generally. For example, it was still legal to discriminate on the basis of income in all of the MTO cities, and most households did not have personalized assistance to work with landlords to overcome some of this. And because MTO was not regionally administered, any family that wanted to move out of a city had to go through the porting process, which can be burdensome for families and PHAs on both receiving and sending ends (Edin et al. (2012)). The brief discussion of porting in the MTO program manual indicates that it was not a priority of the program's design (Feins et al. (1996)).

How much has the regional approach of the BRHP contributed to its success? To quantify the importance of the BRHP's regional design for its overall success, we provide a geographic characterization of the rental market in Baltimore before performing a statistical decomposition of the BRHP's success.

5.1 Most of Baltimore's Opportunity Tracts Are Outside Its Central County

The supply of rental units is skewed towards Baltimore's central county, Baltimore City. Figure 8a shows the cumulative number of rental housing units over neighborhood SES by county (in the 2019-2023 ACS). The top-right points of each line indicate the total number of rental units in each county. The blue line shows that Baltimore City, the metro's central county, has the most rental units, with only Baltimore County (the black line) having a comparable number of units. Most counties outside of Baltimore City only have rental units in the top half of neighborhood SES.

The supply of rental units *in opportunity neighborhoods* is strongly skewed toward counties outside of Baltimore City. Figure 8b focuses on rental units in Baltimore that are in the top third of neighborhood SES, a cutoff sometimes used to define tracts as opportunity neighborhoods that we adopt here. Despite Baltimore City having the highest number of rental units overall, Anne Arundel County and Baltimore County have the most rental units in opportunity neighborhoods. Additionally, Howard County has a similar level of opportunity neighborhoods as Baltimore City, despite Howard County having about 1/5 of the rental units overall as Baltimore City.

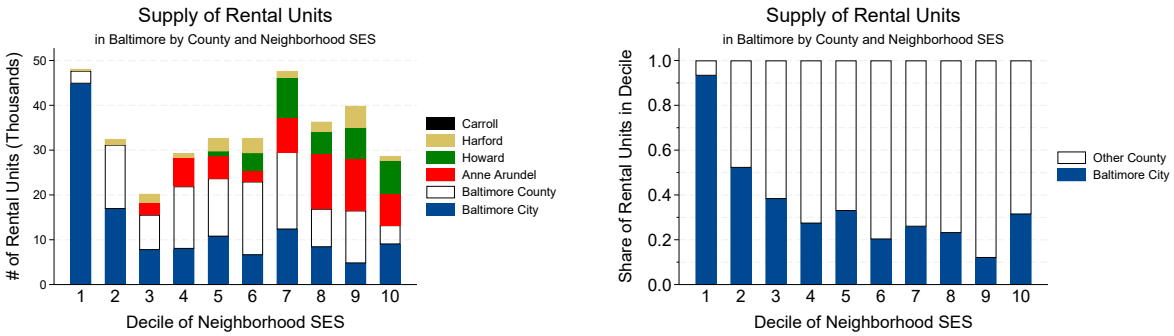


(a) Number of Units, Any Neighborhood SES

(b) Number of Units, Neighborhood SES ≥ 66.6

Figure 8: Rental Units in Baltimore, by Neighborhood SES and County

Another way to see that the supply of opportunity neighborhoods is highest outside of Baltimore City is shown in Figure 9, which displays the number and share of rental units by decile of neighborhood SES and county. In the bottom half of neighborhood SES (deciles 5 and lower), most rental units are either in Baltimore City or Baltimore County. In the top half of neighborhood SES (deciles 6 and higher), the relative share of rental units in Baltimore City or Baltimore County starts to shrink as the relative share in Anne Arundel, Howard, and Harford Counties grows. Only about one fifth of rental units in opportunity neighborhoods (deciles 7 to 10) are in Baltimore City.



(a) Number

(b) Share

Figure 9: Rental Units in Baltimore, by Neighborhood SES and County

5.2 Most of the BRHP's Success Is Due to Moves Across Counties

One technique for quantifying the relative importance of suburban moves for the BRHP's improvement in neighborhood SES is to decompose that improvement into moves between versus within counties. We do this by conducting a Oaxaca-Blinder decomposition that compares the neighborhood SES of BRHP households with that of Black HCV voucher holders, both when residing anywhere in the Baltimore metro. Where Y_i measures the neighborhood SES of household

i and counties in Baltimore are indexed by $c \in \mathcal{B}$, we estimate the regressions

$$Y_i^{BRHP} = \sum_{c \in \mathcal{B}} \beta^{c,BRHP} \mathbf{1}\{i \in \text{ County } c\} + \varepsilon_i$$
$$Y_i^{HCV} = \sum_{c \in \mathcal{B}} \beta^{c,HCV} \mathbf{1}\{i \in \text{ County } c\} + \varepsilon_i$$

and compute the share of each group in each county as $Pr(BRHP \in c)$ and $Pr(HCV \in c)$. We compute the difference from between-county moves as

$$\Delta_{bw}^{BRHP,HCV} = \sum_{c \in \mathcal{B}} \beta^{c,BRHP}(Pr(BRHP \in c) - Pr(HCV \in c))$$

and the differences in within-county sorting as $\beta^{c,BRHP} - \beta^{c,HCV}$. We also repeat this exercise comparing BRHP participants with Black poor residents of Baltimore.

Table 3 reports the between-county results from the Oaxaca-Blinder decomposition. The first row shows that BRHP voucher holders reside in tracts that are on average 28 percentile points higher than Black HCV holders. Likewise, BRHP participants reside in tracts that are on average 35 percentile points higher than Black poor residents of Baltimore. The second row shows that the Oaxaca-Blinder exercise attributes 70 percent of the difference with Black HCV holders due to cross-county mobility and 66 percent of the difference with Black poor residents. These results suggest that the HCV program improves the neighborhood SES of poor Black residents in Baltimore by 7 percentile points, with the BRHP improving neighborhood SES by a further 32 percentile points. These results are of a similar magnitude to the simulation exercises conducted in Aliprantis et al. (2024b) to assess the differences in success from HMPs administered at the CBSA level versus HMPs administered within counties.

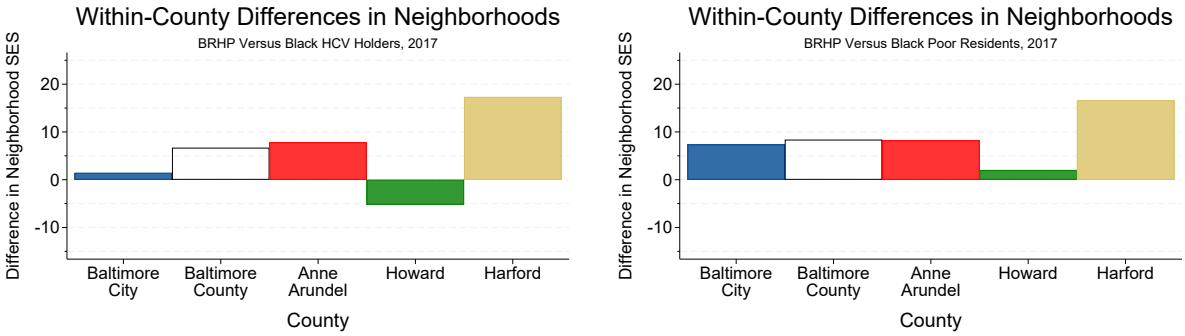
Table 3: BRHP Success from Regional Mobility

Term	Black HCV	Black Poor
BRHP Success: $\overline{Y}^{BRHP} - \overline{Y}^{Group}$	32	39
Due to Regional Mobility: $\Delta_{bw}^{BRHP,Group}/(\overline{Y}^{BRHP} - \overline{Y}^{Group})$	0.70	0.66

Note: This table reports results for 2017.

Figure 10 shows the within-county differences in neighborhood sorting due to the BRHP. Figure 10a shows that the BRHP results in little improvement within Baltimore City relative to the HCV program. Relative to the HCV program, the BRHP results in considerably higher neighborhood SES in Baltimore County, Anne Arundel County, and Harford County, but considerably lower SES in Howard County. Figure 10b helps to interpret the findings just presented. The BRHP does result in improvements within all counties relative to Black poor residents of those counties. Combined

with the results in Figure 10a, this indicates that the HCV program helps participants move to higher SES neighborhoods in Baltimore City and Howard County. The remaining differences in other counties between Black poor residents and Black HCV holders look relatively similar.



(a) BRHP v. Black HCV Holders, by County

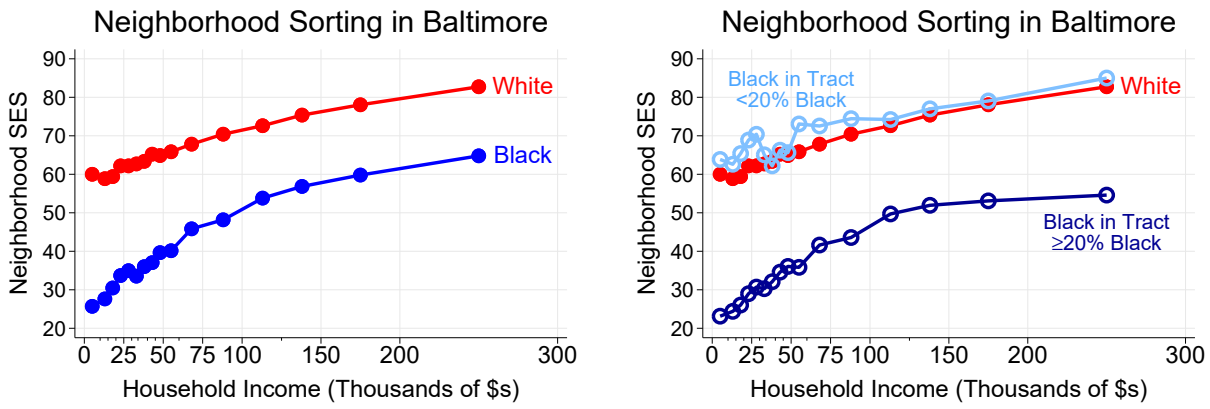
(b) BRHP v. Black Poor Residents, by County

Figure 10: BRHP Success within Counties

6 Sorting over Neighborhood Racial Composition

6.1 Descriptive Patterns in the Data

Families moving through the BRHP are moving against a backdrop of significant residential segregation. In particular, the metro area is characterized by strong neighborhood sorting by income *and* race. This means that there are large differences in the neighborhood characteristics of Black and white households, even when they have similar levels of income (Logan (2011)) and wealth (Aliprantis et al. (2024a)). Consider Figure 11a, which displays data from the 2015-2019 ACS, and begin by focusing on the left tail of the income distribution in Baltimore. For households with annual incomes between 15 and 20 thousand dollars, shown as the third dots from the left, the mean neighborhood SES for Black and white households, respectively shown in blue and red, is 30.5 versus 59.4. This translates into mean neighborhood poverty rates of 22.1 versus 10.4 percent and unemployment rates of 9.6 versus 4.9 percent. Now consider the right tail of the income distribution. For households with annual incomes between 150 and 200 thousand dollars, shown as the second dots from the right, the mean neighborhood SES for Black and white households, respectively shown in blue and red, is 59.8 versus 78.1. This translates into mean neighborhood poverty rates of 10.0 versus 5.9 percent and unemployment rates of 5.6 versus 3.8 percent.



(a) Sorting by Income and Race

(b) Sorting by Income, Race, and Racial Composition

Figure 11: Neighborhood Sorting by Income and Race in Baltimore

Note: These figures show tract-level data from the 2015-2019 American Community Survey (ACS), with income measured in terms of 2019 dollars. See Section 2 for a discussion of the neighborhood SES variable providing a 0 to 100 ranking the socioeconomic status of tracts' residents based on the entire population of the US.

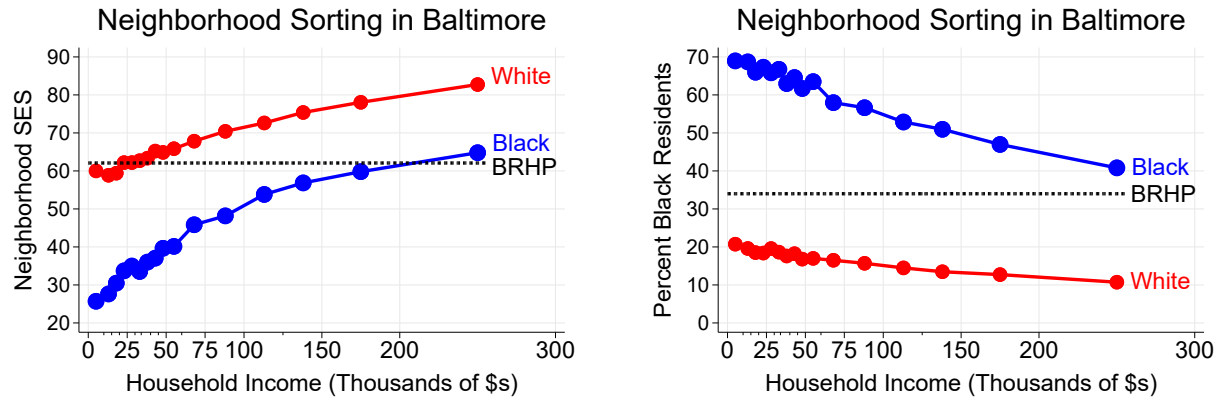
Sorting over neighborhood racial composition undergirds these massive differences in the neighborhood characteristics of Black and white households (Aliprantis et al. (2024a)). The light blue hollow dots in Figure 11b show that when Black households sort into neighborhoods where less than 20 percent of residents are Black, they sort into neighborhoods with SES levels that are identical to the neighborhoods of their white counterparts with similar incomes. What drives the gap is that when Black households sort into neighborhoods where at least 20 percent of residents are Black, they sort into neighborhoods with much lower SES than their white counterparts with similar incomes. This last pattern is shown in the dark blue hollow dots in the figure.

The BRHP disrupts the standard pattern of neighborhood sorting by income and race. BRHP households sort into neighborhoods with SES comparable to the highest income Black households and sort into more racially-integrated neighborhoods than Black households at any income level. The dashed black line in Figure 12a shows that BRHP households, which had mean income of $23,000 in 2017, reside in neighborhoods with an average SES of 62.1, which is comparable to the neighborhood SES of Black households with incomes of $150,000 per year or more, whose mean SES is 61.9.

Sorting over the racial composition of neighborhoods is shown in Figure 12b. At all income levels there is a large difference between the racial composition of Black and white households.[17] For households with annual incomes between $15,000 and 20,0000$ dollars, shown as the third dot from the left, the mean neighborhood of Black and white households, respectively shown in blue and red, has 66.0 versus 18.5 percent Black residents. Now consider the right tail of the income distribution. For households with annual incomes between 150 and 200 thousand dollars, shown as

[17] Like the patterns for SES, these patterns for sorting across neighborhood racial composition in Baltimore are typical of cities in the US (Aliprantis et al. (2024a)). Couture et al. (2025) find patterns of sorting across the racial composition of venues that are also stable across income.

the second dot from the right, the mean neighborhood of Black and white households, respectively shown in blue and red, has 47.0 versus 12.7 percent Black residents. The dashed line shows that for BRHP households, the mean neighborhood is 34.0 percent Black, below the Black share of even the highest income Black households.



(a) Sorting over Neighborhood SES

(b) Sorting over Racial Composition

Figure 12: Neighborhood Sorting of BRHP Households

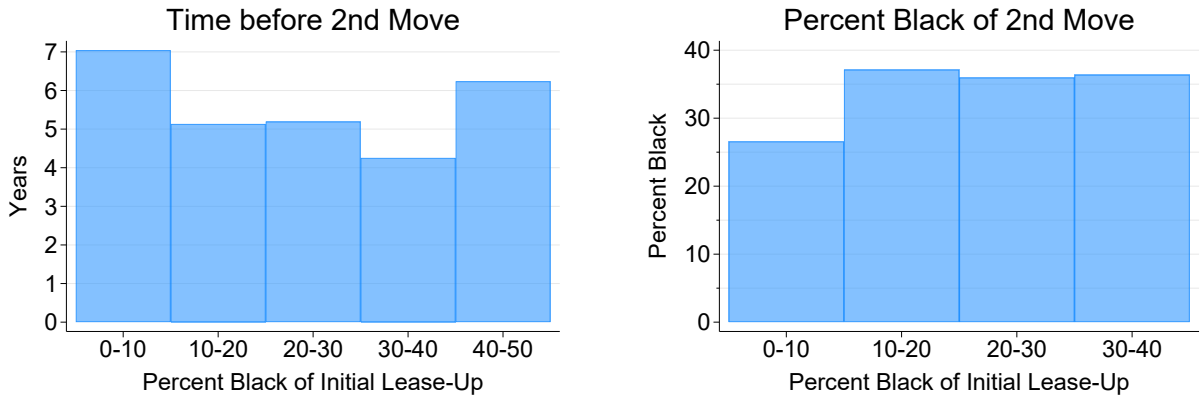
Note: These figures show tract-level data from the 2015-2019 American Community Survey (ACS), with income measured in terms of 2019 dollars. See Section 2 for a discussion of the neighborhood SES variable providing a 0 to 100 ranking the socioeconomic status of tracts' residents based on the entire population of the US.

Appendix G provides additional results. Appendix Figure 6 shows that BRHP households sort into similar levels of neighborhood SES as high-income Black households at all levels of racial composition. Moreover, the difference in neighborhood SES between BRHP and standard HCV voucher households is highest in neighborhoods with a high Black share (either 30-50 or 50-100 percent Black). Appendix Figure 7 shows that BRHP households sort into more racially integrated neighborhoods with 10-30 percent Black residents much more often than either Black residents that are poor or households making at least $150,000. For each of these three groups, though, only a small share (around 10 percent) reside in neighborhoods where less than 10 percent of residents are Black.

6.2 The Durability of BRHP Neighborhoods over Time

Looking at neighborhoods over time can provide complementary evidence to the results just presented. This is of particular interest in the case of HMPs, where one might observe a regression to the mean in the sense that initial lease-ups are typically in much higher opportunity neighborhoods than subsequent lease-ups (CITE William Clark paper in Demography); see Appendix H for details. Here we focus on second or greater lease-ups conditional on the neighborhood characteristics of the households' initial lease-ups. Figure 13 characterizes the second moves of BRHP participants conditional on the racial composition of their initial lease-up tract for initial lease ups in 2014-2016. Figure 13a shows the time until those second moves and Figure 13b shows the Black share

of those second moves. If BRHP participants were moving to avoid white hostility, then we would expect that those who initially moved into neighborhoods with the lowest Black share, 0-10 percent, would be the first to move out and would move to new neighborhoods with a higher Black share. Instead, those who initially moved into neighborhoods with the lowest Black share are the slowest to undertake a second move (Figure 13a). And when they do so, they move to neighborhoods with the lowest Black share (Figure 13b).



(a) Time until Second Move

(b) Black Share of Second Move

Figure 13: Second Moves in the BRHP

Note: The left panel shows the median number of years before moves from initial lease-up locations, conditional on the percent of Black residents in the initial lease-up tract, for BRHP households with initial lease-ups in 2014-2017. The right panel shows the average share of Black residents in the tracts of second lease-ups, conditional on the percent of Black residents in the initial lease-up tract, for BRHP households with initial lease-ups in 2014-2016.

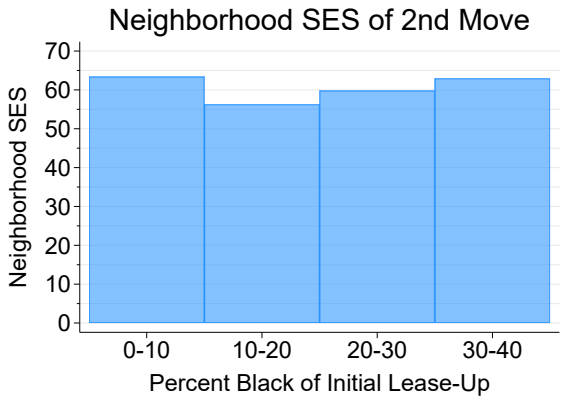


Figure 14: Second Move in the BRHP

Note: This figure shows the average neighborhood SES in the tracts of second lease-ups, conditional on the percent of Black residents in the initial lease-up tract, for BRHP households with initial lease-ups in 2014-2016.

These results could be interpreted in many ways. They could be driven by preference heterogeneity among BRHP households; they are also consistent with sorting over racial composition

playing a limited role in the neighborhoods of BRHP households relative to other factors. The longer time before second move of those initially in the lowest Black-share neighborhoods is also consistent with preferences shifting after having experienced significant benefits from living in such neighborhoods, such as higher quality schools, safety and more green space (Darrah and DeLuca (2014)).

Figure 14 highlights the durability of BRHP improvements in neighborhood characteristics. The second moves of all BRHP households are to high-SES tracts, regardless of the racial composition of the initial lease-up's neighborhood.

7 Conclusion

Concentrated poverty resulting from residential segregation remains durable in many American cities. This paper studied one policy capable of addressing concentrated poverty, the Baltimore Regional Housing Partnership (BRHP), which is a housing mobility program intended to increase residential opportunities for low-income Black families in Baltimore. We documented striking contemporary success of the BRHP; program participants live in neighborhoods with schools that perform 40 percentile points higher on state tests relative to a comparison group of poor Black residents in Baltimore City. It has previously been documented that features of the BRHP mainly focused on the demand side of the rental market are important for this success, such as pre-search counseling (Bergman et al. (2024), Darrah and DeLuca (2014), DeLuca and Rosenblatt (2017)), housing search assistance (Bergman et al. (2020), Cordes et al. (2019)), post-move support (Cunningham et al. (2010), DeLuca and Rosenblatt (2017)), local payment standards (Collinson and Ganong (2018), Aliprantis et al. (2022), Ellen et al. (2025)), and extended search times (Ellen et al. (2024), Eriksen and Ross (2013)). We found that another key to the success of the BRHP is a design feature that mainly addresses the supply side of the rental market. The regional design of the BRHP means that it is not administered at the level of a single Public Housing Authority (PHA), allowing households to realistically access all rental units in the metro area rather than just those within a single PHA's jurisdiction. Importantly, the regional design appears essential to the ability of families to reach higher-performing school districts, which has implications beyond Baltimore, as many metropolitan areas are characterized by segregated central cities.

We also found that BRHP households do not follow the strong patterns of neighborhood sorting by income and race found in metropolitan Baltimore and across the US. BRHP households live in neighborhoods with socioeconomic status comparable to that of the highest income Black households and with racial integration higher than that of Black households at any level of income. Both of these patterns are maintained across BRHP households' second or greater moves, suggesting durability among the higher end of comparable housing mobility programs.

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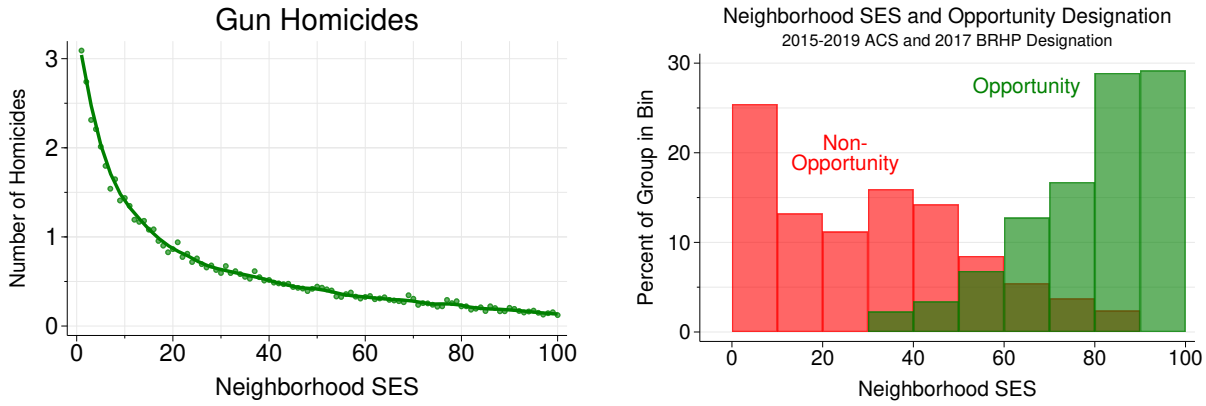
Appendix to "Unlocking Opportunity"

Dionissi Aliprantis Stefanie DeLuca

A Appendix: Neighborhood SES and Additional Neighborhood Characteristics



(a) US

(b) Baltimore

Figure 1: Neighborhood Characteristics and Neighborhood SES

Note: The left panel shows the tract-level average number of gun homicides within each percentile of neighborhood SES where SES is calculated using the 2014-2018 American Community Survey and gun homicides are measured using data from the Gun Violence Archive (GVA) over 2013-2018.

B Appendix: More Neighborhood Characteristics

Table 1: Residential Outcomes of BRHP Participants and Poor Black Residents in Baltimore, 2022

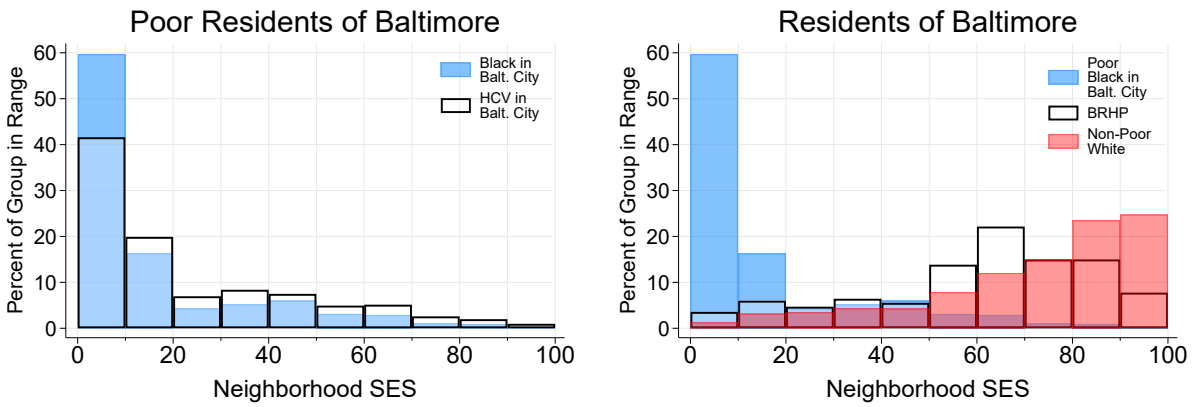
	Baltimore		Baltimore not in Baltimore City	Baltimore City
Neighborhood Characteristic	BRHP Participants	Poor Black Residents	Poor Black Residents	Poor Black Residents
Poverty Rate	0.10	0.23	0.14	0.30
Share Black	0.37	0.64	0.41	0.79
BA Attainment Rate	0.45	0.27	0.37	0.21
HS Attainment Rate	0.93	0.86	0.91	0.83
Employment to Population Ratio	0.65	0.56	0.64	0.51
Unemployment Rate	0.05	0.09	0.06	0.10
Share of HHs w Children Single-Headed	0.36	0.58	0.39	0.70
Neighborhood SES	60	28	47	15
School Performance	49	25	48	10

Note: All comparisons are made for 2022. Neighborhood SES ranks tracts on a scale of 0 (lowest) to 100 (highest) in terms of poverty rate, high school diploma attainment rate, BA attainment rate, the employment to population ratio, the unemployment rate, and the share of households with children under 18 that are single-headed. School performance is measured using elementary schools' average academic performance in Mathematics and English/Language Arts on 2022 Maryland state tests, converted to a percentile ranking among schools in the state of Maryland. Standard errors are shown in parentheses ( ) and p-values of two-sample t-tests are shown in brackets [ ].

Table 2: Residential Outcomes of BRHP Participants and Poor Black Residents in Baltimore, 2017

	Baltimore		Baltimore not in Baltimore City	Baltimore City
Neighborhood Characteristic	BRHP Participants	Poor Black Residents	Poor Black Residents	Poor Black Residents
Poverty Rate	0.10	0.26	0.13	0.32
Share Black	0.34	0.71	0.45	0.82
BA Attainment Rate	0.43	0.21	0.32	0.17
HS Attainment Rate	0.89	0.82	0.87	0.79
Employment to Population Ratio	0.65	0.54	0.64	0.49
Unemployment Rate	0.05	0.11	0.06	0.13
Share of HHs w Children Single-Headed	0.37	0.64	0.41	0.73
Neighborhood SES	62	23	48	13
School Performance	4.3	2.6	3.8	2.0

Note: All comparisons are made for 2017. Neighborhood SES ranks tracts on a scale of 0 (lowest) to 100 (highest) in terms of poverty rate, high school diploma attainment rate, BA attainment rate, the employment to population ratio, the unemployment rate, and the share of households with children under 18 that are single-headed. Academic performance is measured using the Stanford Education Data Archive (Reardon et al. (2024))'s school-level pooled mean test-based achievement in 4th grade over the 2008-09 through 2018-19 school years. This mean is pooled across Math & Reading Language Arts and is estimated via Ordinary Least Squares (OL), on the Grade-Cohort Scale (GCS). This score is scaled to equal 4 at the average of national 4th grade test scores on the National Assessment of Educational Progress (NAEP), and 1 unit in this metric is equal to the average per-grade increase in scores between 4th and 8th grade. Standard errors are shown in parentheses ( ) and p-values of two-sample t-tests are shown in brackets [ ].



(a) In Baltimore City Alone

(b) In the Baltimore Metro Area

Figure 2: Comparing BRHP Participants with Poor Residents of Baltimore

Note: These figures show the distributions of residents in Baltimore in 2022. BRHP participants are measured using BRHP data from 2022, Housing Choice Voucher (HCV) households are measured using data from HUD's 2022 Picture of Subsidized Households (POSH), and residents of the Baltimore metropolitan area are measured using the 2019-2023 American Community Survey (ACS). Neighborhood SES ranks tracts on a scale of 0 (lowest) to 100 (highest) in terms of poverty rate, high school diploma attainment rate, BA attainment rate, the employment to population ratio, the unemployment rate, and the share of households with children under 18 that are single-headed.

C Appendix: Data Merges

Appendix Table 3 summarizes the way that we merge ACS data sets with other data sets. For the years 2014 through 2021 we use the 5-year ACS estimates centered at the year in question. For example, if we were to link ACS estimates to BRHP data from 2015, we would use the 2013-2017 5-year estimates. For the years 2022 through 2024 we use the 2019-2023 ACS estimates to characterize neighborhoods, as this was the most recent ACS available at the time of the analysis.

Linking the ACS to the POSH also requires non-uniform indexing. One notable detail about the POSH is that the 2014-2021 data sets are mapped to 2010 tract boundaries and the 2022-2024 data sets are mapped to 2020 tract boundaries. Thus analyses using the 2018 to 2021 waves of the POSH use tract-level information from the 2015-2019 ACS, which is not centered to the POSH data, but is the the last wave of the ACS mapped to 2010 tract boundaries.

Table 3: Wave of American Community Survey (ACS) Used in Analysis, by Year

Year of	ACS Merge Includes:			
BRHP Data	ACS Alone	MSDE	SEDA	POSH
2014	2012-2016			2012-2016
2015	2013-2017			2013-2017
2016	2014-2018			2014-2018
2017	2015-2019		2015-2019	2015-2019
2018	2016-2020			**2015-2019**$^{+}$
2019	2017-2021			**2015-2019**$^{+}$
2020	2018-2022			**2015-2019**$^{+}$
2021	2019-2023			**2015-2019**$^{+}$
2022	**2019-2023***	**2019-2023***		**2019-2023***
2023	**2019-2023***	**2019-2023***		**2019-2023***
2024	**2019-2023***	**2019-2023***		**2019-2023***

Note: Reason if BRHP data are merged to ACS estimates where the year of the BRHP data is **not the center year** of the 5-year ACS estimates:

*: Most recent ACS

$^{+}$: POSH wave delineated to 2010 tract boundaries

D Appendix: School Performance

Test scores do not reflect the entirety of education. Education has many goals aside from the skills measured by test scores, and we know that teachers, peers, and interventions can affect important outcomes without affecting test scores (Jackson (2018), Heckman et al. (2013)). Nevertheless, test scores are highly predictive of future success (Friedman et al. (2025)) and can fully explain racial differences in labor market outcomes (Nielsen (2025), Neal and Johnson (1996)). Black and white children in the US today continue to attend separate schools that are unequal in terms of their performance on test scores (Aliprantis and Jayaram (2023)), while we have evidence that integrating schools and busing Black students to higher-performing schools improves their educational and labor market outcomes (Guryan (2004), Reber (2010), Bergman (2018), Johnson (2019), Setren (2025)) with no effect on incumbent students (Angrist and Lang (2004)).

The HCV program is not a strong force against inequality of educational opportunity. HCV households live near lower performing schools than non-voucher poor households (Horn et al. (2014)), and information seems to be a key contributor to this fact (Ellen et al. (2016), Bergman et al. (2020), Deluca and Rosenblatt (2010)).[18]

D.1 School Performance in the BRHP

Here we more fully characterize the changes in schools induced by the BRHP in terms of the test scores of the schools attended by program participants. The BRHP has been a strong force for equality of educational opportunity, having massive effects on the academic performance of schools accessible to program participants.[19] School quality was a point of emphasis brought up by participants in the qualitative interviews in DeLuca and Rosenblatt (2017)'s study on the BRHP's predecessor from 2002 to 2012.

D.2 School Performance in Gautreaux

D.2.1 The Illinois Goal Assessment Program (IGAP) 11th Grade Reading Test

Rubinowitz and Rosenbaum (2000) state on page 162:

> The state of Illinois annually collects and publishes mean eleventh-grade reading scores, mean ACT scores, and mean graduation rates from all high schools in the state. This information provides a way to compare the schools the Gautreaux students attended. A reading test is administered to all eleventh-grade students in the state of Illinois, with scores ranging from 1 to 500. The state average for 1990 was 250. The suburban schools had significantly higher reading scores than the city schools in 1990 (259 in suburban schools versus 198 in city schools).

[18] There is evidence from New York City that public housing improves educational outcomes (Han and Schwartz (2025)).

[19] Here we focus on the average academic achievement in the school to which tracts are zoned. We note that this does not necessarily represent the school attended by program participants, as in earlier waves of the program it appears that a non-trivial share of children who moved remained in their original schools (DeLuca et al. (2016)).

We convert the raw scores listed above into percentiles using data on the 1991 school-level distribution of Illinois Goal Assessment Program (IGAP) 11th grade Reading tests reported in Table 2 of Yong (1992). This calculation imposes two assumptions, that (i) the test under discussion is the IGAP test; and (ii) that the school-level distribution of 1990 IGAP Reading tests is normally distributed. The 11th grade Reading distribution in Table 2 of Yong (1992) is left skewed but consistent with a normal distribution. Under these assumptions, we calculate the standard deviation of the school-level distribution of 1990 IGAP Reading tests using the 25th, 50th, and 75th percentiles of the 1991 school-level distribution of IGAP Reading tests reported in Table 2 of Yong (1992). We calculate that 0.6745 standard deviations of the distribution is

$$\frac{(p^{75} - p^{50}) + (p^{50} - p^{25})}{2} = \frac{(271 - 256) + (256 - 238)}{2} = 16.5,$$

so that one standard deviation is $\frac{16.5}{0.6745} = 24.5$. Thus the z-score of suburban schools is $\frac{259-250}{24.5} = 0.37$, which is the 64th percentile of the standard normal distribution. The z-score of the city schools is $\frac{198-250}{24.5} = -2.12$, which is the 2nd percentile of the standard normal distribution.

D.2.2 The American College Testing (ACT) Exam

Rubinowitz and Rosenbaum (2000) state on page 162:

> The ACT is the college admissions test most often taken in Illinois, since it is required by the state colleges and universities. A perfect ACT score is 36. The national average in 1990 was 20.6, and the Illinois state average was 20.9. As with the reading test scores, mean ACT scores from city schools were significantly lower than those from suburban schools in 1990 (suburban schools, 21.5 versus city schools, 16.1). While these scores only represent the achievement of a fraction of students, they are an important groups

Table 4 in Woodruff and Ziomek (2004) lists the standard deviation of the *individual* distribution of the 1991 ACT as 4.6. Making similar assumptions as above, this allows us to calculate the percentile of the *individual* distribution corresponding to the school-level means. These are the 55th and 15th percentiles. Under the expectation that the *individual*-level distribution of test scores exhibits more variation than the *school*-level distribution of test scores, then the school means will map further in the right and left tails of the school-level distribution, likely closer to the IGAP results discussed just above.

D.3 School Performance in CMTO

In Appendix Table 7, Panel A of Bergman et al. (2024) reports changes in school performance of program participants using the education subscore of the (Kirwan) Child Opportunity Index. This subscore is created in two broad steps. First, information on many variables is ordered along a single dimension. These variables measure various features of a Census tract's early childhood education, elementary education, secondary and postsecondary education, and educational and social resources

(Noelke et al. (2020), Appendix 1.1). Second, this 1-dimensional ordering is standardized to the z-score of a standard normal distribution (Noelke et al. (2020), p 14). Thus, as reported in Appendix Table 7, Panel A of Bergman et al. (2024), the percentile of the CMTO control mean's z-score of –0.24 is 0.40517 and of the treatment mean's z-score of 0.11 is 0.54380.

E The Supply of Opportunity Neighborhoods by Racial Composition

To study the joint distribution of racial composition and neighborhood SES, we define four types of neighborhoods in terms of their racial composition: little Black presence (0-10 percent Black), significant Black presence (10-30 percent Black), mixed-race (30-50 percent Black), and majority Black (50-100 percent Black). We then divide the largest Core-Based Statistical Areas (CBSAs), or cities, of the US in terms of their mixed-race opportunity neighborhoods as either *no supply*, *low supply*, or *high supply*.[20]

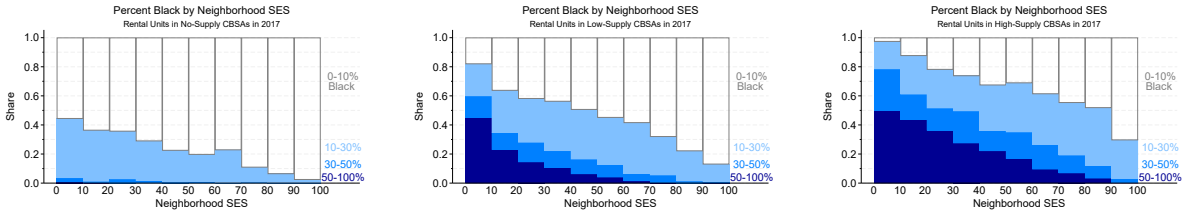
Appendix Figure 3 characterizes the supply of mixed-race opportunity neighborhoods in cities across the US. Figure 3a shows that in *no supply cities* (like Seattle and Portland) there simply are not any neighborhoods above the 70th percentile of SES that are more than 30 percent Black. In these cities, only about 10 percent of rental units in neighborhoods ranked in the top 30 percent of SES even have 10-30 percent Black residents. The vast majority of opportunity neighborhoods in no supply cities have little Black presence (0-10 percent Black).

As we move to the right to Figure 3b, we see that *low supply cities* (like Boston and Cleveland) do have opportunity neighborhoods that are mixed-race, but such neighborhoods represent a very small share of opportunity neighborhoods. Compared to no supply cities, a larger share of rental units above the 70th percentile of SES are in neighborhoods with a significant Black presence (10-30 percent Black).

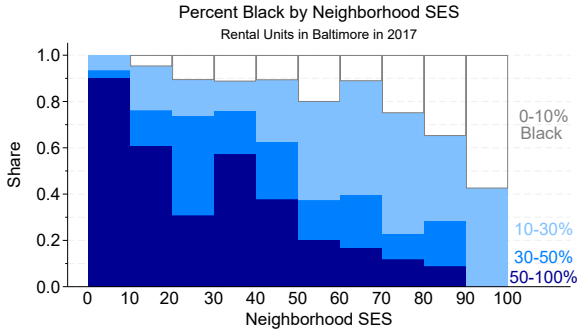
Continuing to Figure 3c, we see the blue bars shifting right, indicating that *high supply cities* (like DC and Atlanta) have a larger share of opportunity neighborhoods with a significant Black presence (10-30 percent Black), that are mixed race (30-50 percent Black), or that are majority Black (50-100 percent Black). Majority-Black opportunity neighborhoods are exceptionally rare (Figures 3a-3c). Thus while there are many applications where it would make sense to focus on majority-Black tracts (Bartik and Mast (2025), Lens (2024)), our interest in opportunity neighborhoods means that this analysis will be focused on neighborhoods where 10 to 50 percent of residents are Black.

Figure 3d indicates that Baltimore is a city with a high supply of mixed-race opportunity neighborhoods. The majority of opportunity neighborhoods have at least a significant Black presence, or are at least 10 percent Black. This stands in stark contrast to the opportunity neighborhoods in no supply cities (Figures 3a) and low supply cities (Figures 3b). Furthermore, there is a relatively high supply of both mixed-race and majority-Black neighborhoods, even if these collectively represent less than 20 percent of opportunity neighborhoods.

[20] With the exception of New York City, we follow the groupings of CBSAs in Aliprantis et al. (2024a).



(a) No-Supply CBSAs (b) Low-Supply CBSAs (c) High-Supply CBSAs



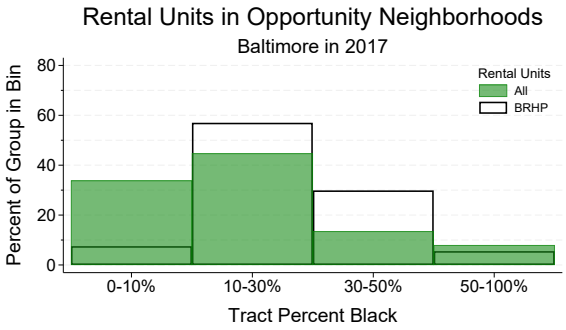
(d) Baltimore

Figure 3: Racial Composition of Neighborhoods by SES, by City Type

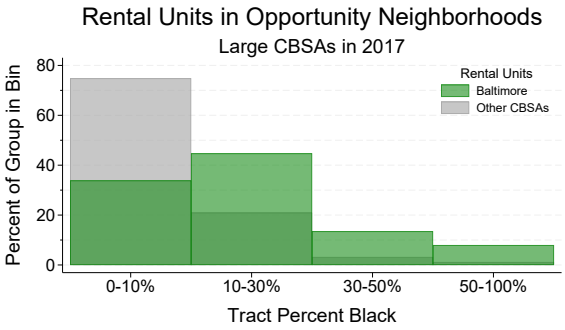
Note: We follow the groupings of cities (CBSAs) in Aliprantis et al. (2024a) with the exception of re-classifying New York City. *No supply* cities comprise Phoenix, Riverside, Seattle, San Diego, Denver, San Antonio, Portland, Sacramento, Austin, San Jose, Providence, Salt Lake City, Tucson, and Tulsa. *Low supply* metros comprise Los Angeles, Chicago, Dallas, Houston, Miami, Philadelphia, Boston, San Francisco, Detroit, Minneapolis, Tampa Bay, St. Louis, Orlando, Pittsburgh, Las Vegas, Cincinnati, Kansas City, Columbus, Cleveland, Indianapolis, Nashville, Milwaukee, Jacksonville, Oklahoma City, Louisville, Birmingham, Buffalo, Rochester, and Grand Rapids. *High supply* cities comprise New York City, DC, Atlanta, Charlotte, Virginia Beach, Memphis, Raleigh, Richmond, and New Orleans.

Another lens onto the importance of sorting over the racial composition of neighborhoods is offered in Appendix Figure 4. Relative to the stock of rental units in opportunity neighborhoods (SES $\geq$ 66.7), BRHP participants are concentrated in those neighborhoods with a non-trivial Black share. Figure 4a shows that about a third of rental units in opportunity neighborhoods in Baltimore have limited Black presence. However, less than 10 percent of BRHP vouchers are located in such neighborhoods.

The concentration of BRHP participants relative to the rental market in opportunity neighborhoods matters for other HMPs because opportunity neighborhoods with a high Black share will tend to be in lower supply in most cities. Relative to Baltimore, in other large CBSAs a far higher share of opportunity neighborhoods have limited Black presence. The left-most bars in Figure 4b shows that while about one third of opportunity neighborhoods in Baltimore have a limited Black presence, this is true for three quarters of opportunity neighborhoods in other large CBSAs.



(a) Neighborhood Sorting by Neighborhood Type



(b) Rental Supply by Neighborhood Type

Figure 4: Neighborhood Sorting and Rental Supply

F More Oaxaca-Blinder Decompositions

It is difficult to measure time trends in concentrated poverty over the time period studied in this paper because of changes in the way the US Census Bureau attaches racial labels to individuals starting with the 2020 Census. This change has made it difficult to discern changes in neighborhood conditions from changes in labels to an identically distributed population (Aliprantis and Van Riper (2025)). With this caveat in mind, Figure 5 presents the share of BRHP success due to regional mobility estimated via a Oaxaca-Blinder decomposition for each year. The labeling issue will first appear in our estimates in 2018 (ie, the 2016-2020 wave of the ACS). We see a decline in the success of the BRHP attributable to its regional design. As noted in Aliprantis and Van Riper (2025), concentrated poverty also fell dramatically during this time period, and we cannot be sure how much of this fall is due to measurement versus changes in neighborhoods. Nevertheless, even at its lowest levels from 2020-onward, the Oaxaca-Blinder estimates attribute half of the success of the BRHP to its regional design. If the decline in Figure 5 is driven by the overall decline in poverty and an associated decline in concentrated poverty, then this is suggestive that a regional design is most important in cities with the highest levels of concentrated poverty.

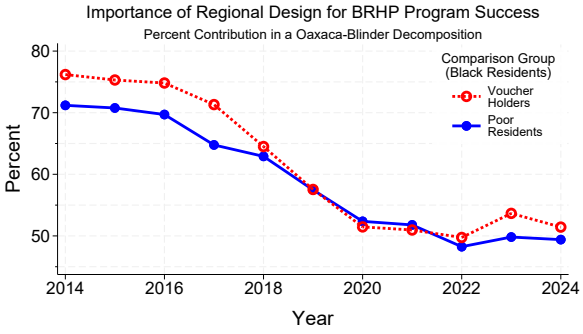
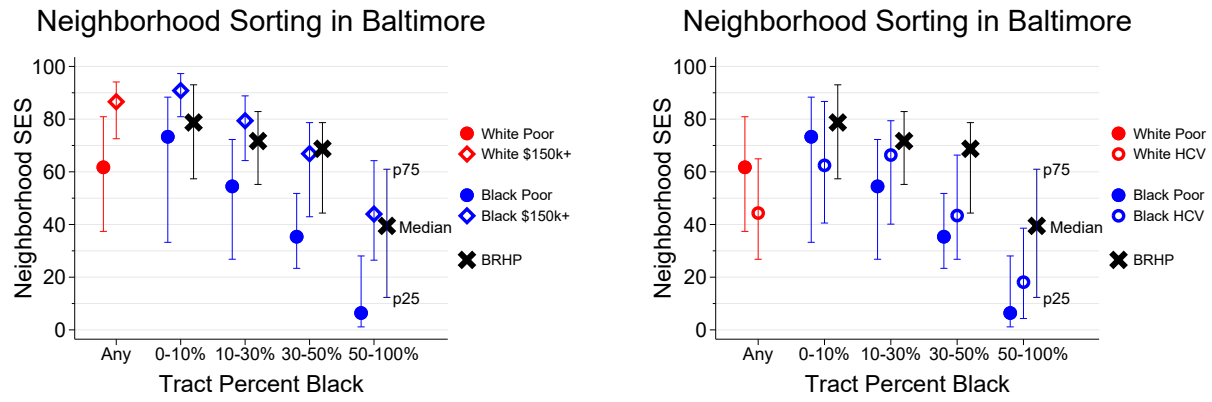


Figure 5: Oaxaca-Blinder Decomposition Results by Year

G Additional Results on Sorting over Racial Composition

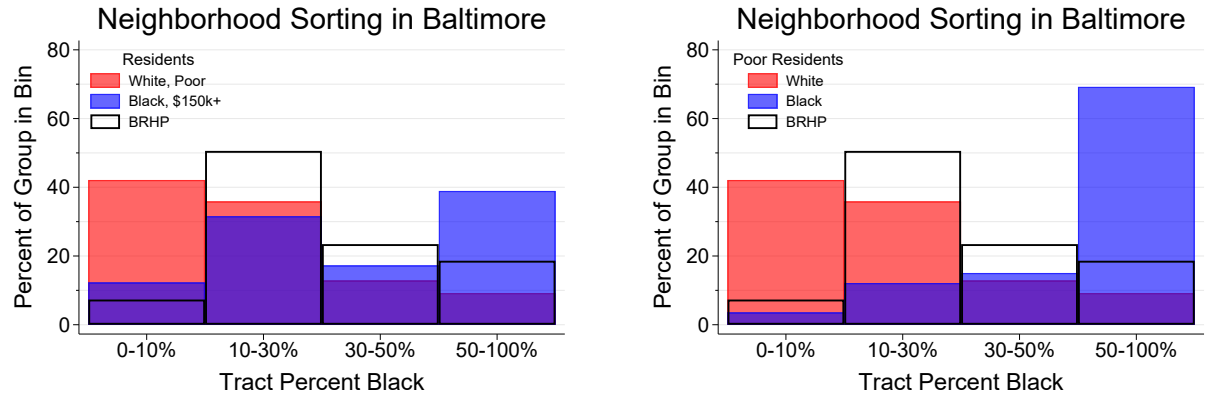


(a) Comparison with High-Income Black Households

(b) Comparison with Black HCV Households

Figure 6: Sorting over Neighborhood SES and Racial Composition in Baltimore

Note: This figure displays data from the 2015-2019 American Community Survey (ACS), the 2017 Picture of Subsidized Households (POSH) published by the United States Department of Housing and Urban Development (HUD), and 2017 data from the Baltimore Regional Housing Partnership (BRHP).



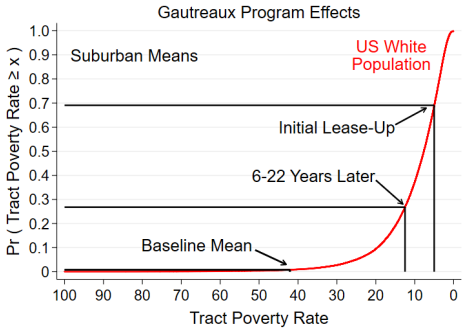
(a) Comparison with High-Income Black Households

(b) Comparison with Poor Black Households

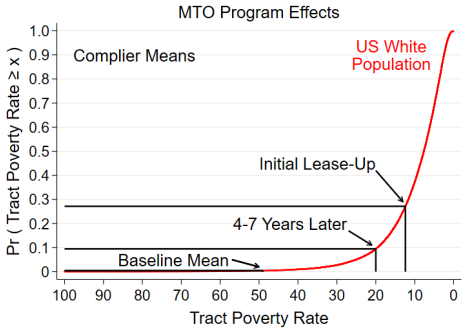
Figure 7: Sorting over Neighborhood Racial Composition in Baltimore

Note: This figure displays data from the 2015-2019 American Community Survey (ACS), the 2017 Picture of Subsidized Households (POSH) published by the United States Department of Housing and Urban Development (HUD), and 2017 data from the Baltimore Regional Housing Partnership (BRHP).

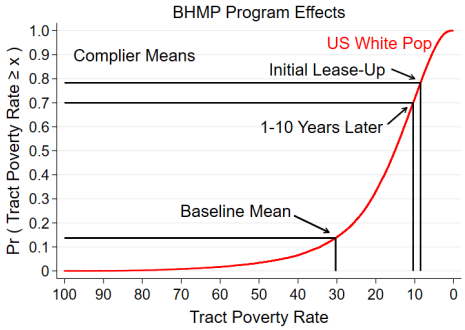
H Additional Results from Housing Mobility Programs



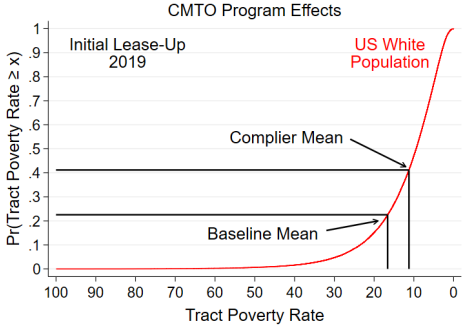
(a) Gautreax



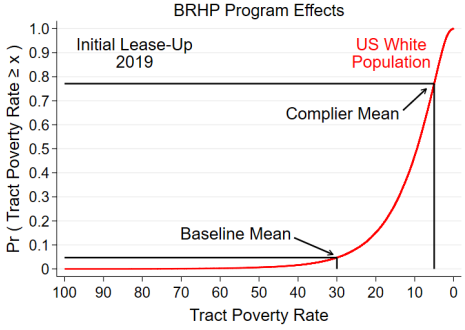
(b) Moving to Opportunity



(c) Baltimore Housing Mobility Program



(d) Creating Moves to Opportunity (CMTO)



(e) Baltimore Regional Housing Partnership (BRHP)

Figure 8: Residential Outcomes of Movers in Housing Mobility Programs

Note: See Appendix Table 4 for the raw numbers used in these figures. Panel (a) shows mean neighborhood poverty rates in Table 1 of Keels et al. (2005) in terms of the 2000 Census distribution of the US non-Hispanic white population. Panel (b) shows mean tract poverty rates in the 2000 Census from Orr et al. (2003), with baseline poverty rates taken from Exhibit 2.7, complier mean in initial lease-up location taken from Exhibit 2.3, and complier mean 4-7 years after randomization taken from Exhibit 2.5. Panel (c) shows mean neighborhood poverty rates in the 2005-2009 American Community Survey from DeLuca and Rosenblatt (2017), with complier locations at baseline and after initial lease-up taken from Table 2 and suburban mean 1-10 years later taken from Table 4. Panels (d) and (e) display the tract-level non-poverty for the United States' population of non-Hispanic whites in the 2014-2018 American Community Survey/NHGIS. Panel (d) shows the baseline mean and treatment group complier mean for CMTO participants in April 2019, where the complier mean is calculated as the control mean plus the treatment on the treated (TOT) effect taken from Bergman et al. (2020). Panel (e) shows the pre-program and post-move means of BRHP program participants in 2019. This figure is reproduced from Aliprantis et al. (2024).

Table 4: Residential Outcomes of Various Housing Mobility Programs

	Tract-Level Poverty Rates			
	Baseline Mean	Follow-Up Location	Complier Lease-Up	Source / Data Vintage
Gautreaux				
Raw	42.16	12.49	4.96	Keels et al. (2005), Table 1
Percentile	2	27	69	2000 US Census
MTO				
Raw	49.1	20.0	10.8	Orr et al. (2003), Exhibits 2.7, 2.3, and 2.5
Percentile	1	10	28	2000 US Census
BHMP				
Raw	30.3	10.4	8.4	DeLuca and Rosenblatt (2017), Tables 2 and 4
Percentile	14	70	78	2005-2009 ACS
CMTO				
Raw	16.6		11.2	Bergman et al. (2020), See Table Note
Percentile	23		41	2014-2018 ACS
BRHP				
Raw	30		5	Aliprantis et al. (2024)
Percentile	5		77	2014-2018 ACS

Note: See the note to Appendix Figure 8. For the CMTO complier mean calculation we use from Bergman et al. (2020) that 60.0% of families in the treatment group live in high-opportunity areas, compared with 19.1% in the control group (Page 3); the control mean poverty rate reported in Appendix Table 7, Panel A was 0.1468; and the treatment mean poverty rate reported in Appendix Table 7, Panel A was 0.1327. So the complier mean poverty rate is calculated as 0.1468-(0.1468-0.1327)/(0.600-0.191) = 0.112.

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