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Impacts of Transporting Students to Public Schools of Choice

In the 1970s, court orders to integrate schools led many US cities to bus students far from home. Though court-mandated busing has disappeared, many urban districts now have voluntary school choice programs that allow students to attend schools outside of their neighborhoods when space permits. In many of these systems, students are assigned to seats using school-matching algorithms that take account of applicant preferences and school priorities, randomizing seats when schools are over-subscribed. Choice systems aim to decouple school assignment from residential segregation, and ideally increase both integration and student achievement. At the same time, school transportation in large urban districts is increasingly expensive, so districts face a trade-off.

In [Still Worth the Trip? School Busing Effects in Boston and New York](#) (NBER Working Paper 30308) Joshua Angrist, Guthrie Gray-Lobe, Clémence Idoux, and Parag Pathak ask whether school choice programs in Boston and New York City boost integration and learning, especially for minority students.

They find that school choice helps integrate schools. About 40 percent of the students in their sample attend schools in which their peers were more than 90 percent Black or

Black New York applicants, nonneighborhood enrollment results in a roughly 9 percentage point reduction in the share of Black peers and a 5 point increase in Hispanic peers. Effects

Nonneighborhood enrollment in New York and Boston boosts integration but has little effect on scholastic achievement or college attendance.

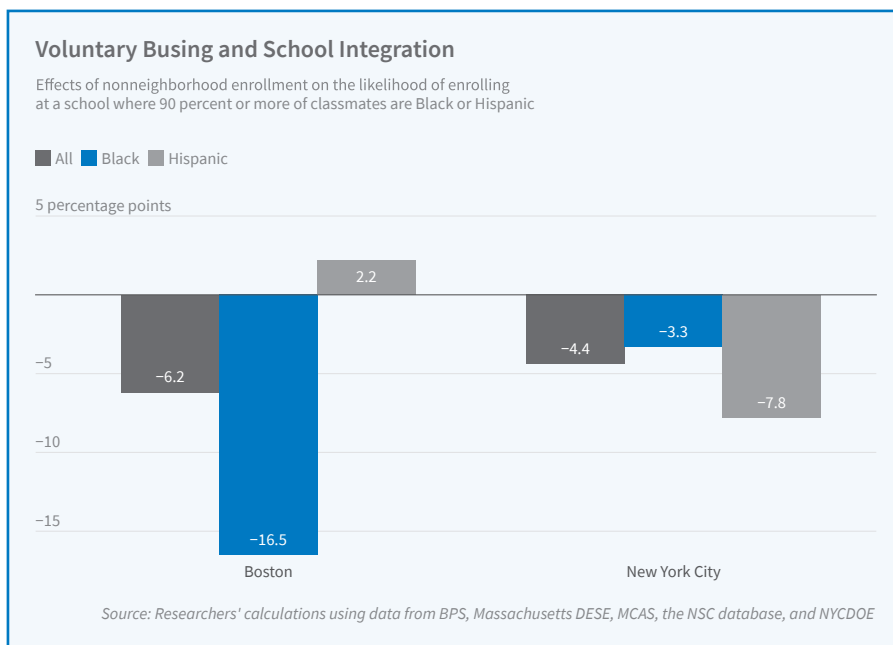
Hispanic, a measure of “minority isolation.”

Nonneighborhood school enrollment decreases the probability of attending a minority-isolated school. In Boston, nonneighborhood school attendance reduces the probability that a Black student attends a minority-isolated school by 17 percentage points. Among

on minority isolation in New York are smaller.

Despite the gains in integration, attending more-integrated schools is *not* associated with better achievement as measured by standardized tests or college attendance. Test scores for Boston and New York students who attend nonneighborhood schools are not significantly different from those of students who attend neighborhood schools. Results are similar when school travel is measured in terms of commute time. An extra 20 minutes of travel does not increase the likelihood of college attendance, and may even decrease it for Black students in Boston and Hispanic students in New York.

Data on Boston students cover all applicants for 6th and 9th grade seats in the centralized



middle and high school matches for the school years beginning in 2002 through 2013. Test scores from the Massachusetts Comprehensive Assessment System, a standardized exam taken by all public school students in the state, are used to measure achievement using baseline scores from 4th and 7th to 8th grades for middle and high school student applicants, respectively. For New York, data are available on applicants to 9th grade public high school programs from fall 2012 to fall 2016. SAT scores on tests taken in 11th grade are used as achievement measures.

In Boston, the centralized match excludes students who attended publicly funded charter schools and one of three public, selective-

enrollment exam schools. In New York, the centralized school match sample excludes charter schools and specialized exam high schools. In both cities, demographic controls include race, subsidized lunch status, sex, special education status, and language proficiency.

In general, those applying to attend schools outside of their neighborhoods have demographic characteristics broadly similar to those of students attending neighborhood schools. Applicants for districtwide choice have lower baseline test scores than average, in part because the samples exclude students applying only to charter and highly selective schools.

The researchers compare the observed outcomes with a counterfactual setting in

which all students attend neighborhood schools. In this scenario, minority isolation rises by 10 percentage points for Black Boston students and by 4 percentage points for Black New York students. Hispanic students are estimated to see minimal changes in minority isolation or same-race exposure under neighborhood assignment. These changes would be accompanied by travel time reductions of about 13 minutes for Black Boston middle- and high-schoolers and 17 minutes for Black New York high-schoolers, and by reduced outlays on transportation, which they estimate at roughly \$1,000 per transported student in Boston and \$1,300 in New York City.

—Linda Gorman

Which Asset Classes Provide Inflation Hedges?

Nominal fixed-income securities such as bonds do not protect investors against unexpected inflation. In addition to inflation eroding the purchasing power of payouts, bond prices also fall when interest rates rise, which typically occurs during inflationary periods. In contrast, investors often consider real assets like stocks, real estate, and commodities to be effective inflation hedges. Real estate and commodity prices, which enter the price level directly or indirectly, should track inflation to some degree. Stocks are claims to real cash flows, which should keep pace with inflation if firms can pass higher input costs forward to consumers.

In [Getting to the Core: Inflation Risks within and across Asset Classes](#) (NBER Working Paper 30169), [Xiang](#)

[Fang](#), [Yang Liu](#), and [Nikolai Roussanov](#) find that while real estate, commodities, and stocks provide protection against energy inflation, they do not hedge against core inflation, which excludes energy and food prices, and is sub-

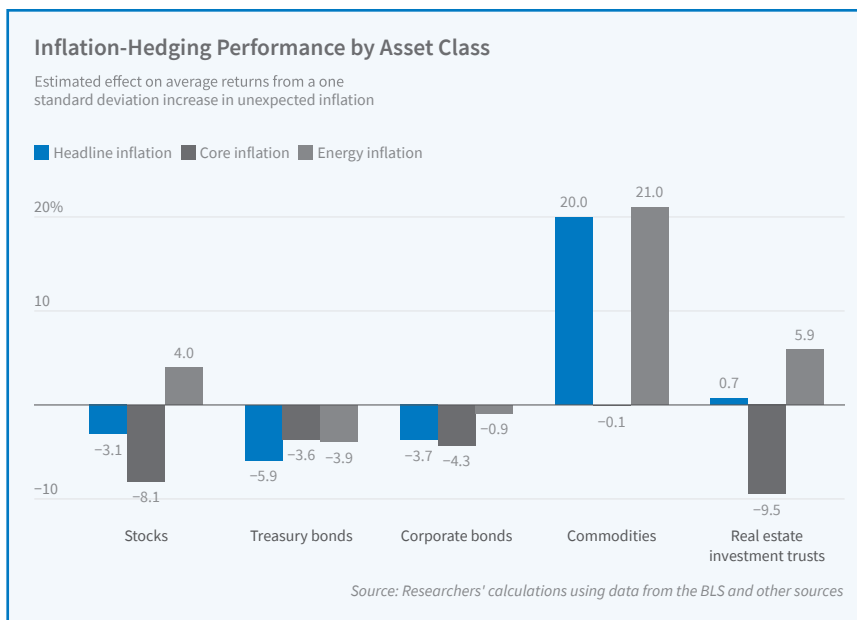
stantially less volatile but much more persistent than food and energy inflation.

The researchers analyze average returns

for each asset class, they calculate the return associated with a one standard deviation increase in unexpected headline, core, or energy inflation.

A one standard deviation increase in headline inflation is associated with a -3.1 percent return to US common stocks, on average. Stocks decline by 8.1 percent, however, when core inflation increases by one standard deviation after accounting for unexpected energy inflation, which is associated with positive stock returns. Treasury, corporate, and agency bonds display negative returns in response to all three types of inflation. While REITs, currencies, and commodities all offer a hedge against energy inflation, commodities fare best against a rise in core inflation.

In light of the comovement pattern of asset returns and the various components of unexpected inflation, the researchers conclude



stantially less volatile but much more persistent than food and energy inflation. The researchers analyze average returns across eight major asset classes over the period 1963 to 2019. They consider Treasury, corporate, and agency bonds, domestic and international stocks, real estate investment trusts (REITs), commodity futures, and curren-

that the cost of hedging against headline and energy inflation is about zero. However, investors demand compensation, in the form of expected excess returns, of about 1 percent per year for holding an asset with one additional unit of negative exposure, or “beta,” to core inflation. The estimated expected excess return for bearing core inflation risk is consistent within and across asset classes.

An increase in headline inflation is associated with reduced GDP, consumption, and dividend payments in the next quarter. This effect is driven entirely by core, rather than energy, inflation. For stocks, core inflation is associated with reduced firm cash flows as well as an increase in discount rates. Both factors negatively affect stock prices.

The researchers conclude by noting that

before 1999, an increase in headline inflation was associated with negative returns on both stocks and Treasury bonds. However, after 1999, the negative effect on bond returns remains, but the effect of headline inflation on stocks becomes positive, largely as a result of energy inflation becoming positively correlated with stock returns in the later period.

—Aaron Metheny

Growing Political Polarization in Executive Suites

Corporate leadership teams have become less politically diverse over the past decade according to [The Political Polarization of Corporate America](#) (NBER Working Paper 30183). Vyacheslav Fos, Elisabeth Kempf, and Margarita Tsoutsoura find an increasing tendency for executives to team up with people who share their political affiliation, and an increasing share of Republican executives overall, in a study of senior corporate leadership at companies headquartered in nine populous states.

The researchers compare voter registration records between 2008 and 2020 with data on the top five executives, based on earnings, at roughly 60 percent of the firms in the S&P 1500. They limit their analysis to this subset because detailed historical voter registration data were only available from nine states: California, Colorado, Illinois, Massachusetts, North Carolina, New Jersey, New York, Ohio, and Texas. They define partisanship based on the extent to which a single party affiliation prevails among members of a leadership team.

The analysis suggests that the average partisanship of an executive team increased by 7.7 percentage points over the 12-year study period. The average team also became more gender diverse over the same period—a trend that might have been expected to lead to more disparate political views. The researchers

acknowledge that they cannot determine the extent to which increased partisanship results directly from people wanting to live and work

matching is more prevalent in the telecommunications, entertainment, finance, real estate, and energy sectors than in other industries.

The last 12 years have seen an increase in both all-Republican and all-Democratic executive teams.

among those who think like themselves or indirectly from the characteristics of the firm

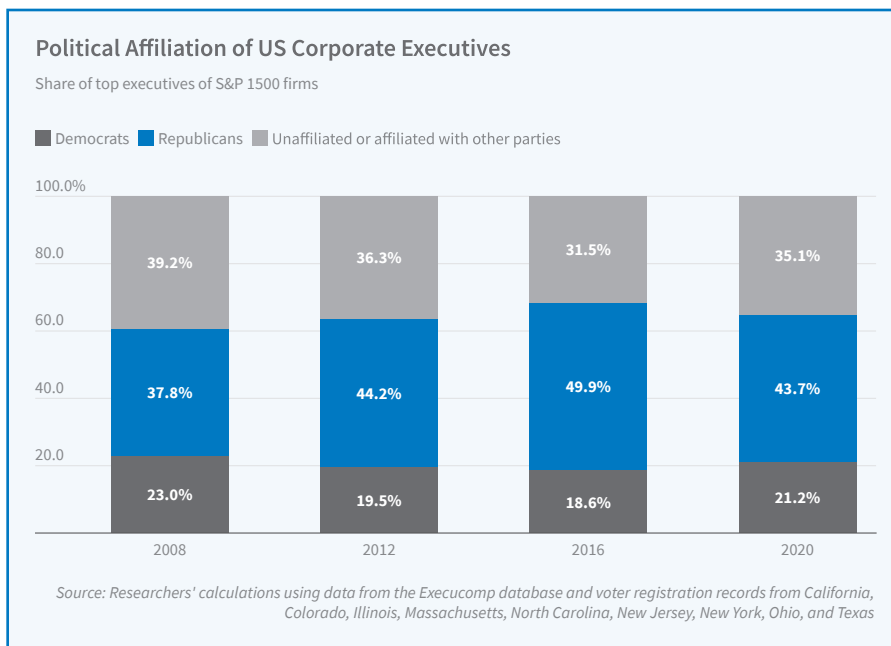
The increase in assortative matching among executives is more than twice as large as would

be expected on the basis of voter registration trends where they reside.

Executives affiliated with both parties are driving polarization, as reflected in an increase over the study period both in all-Republican and in all-Democratic executive teams. But the Republican Party made greater gains, increasing from 63 percent of executives in 2008 to 75 percent in 2016, before

declining to 68 percent in 2020.

Executives whose party affiliations are in the minority of their executive team have a 3.2 percentage point higher probability of leaving their firm than those in the majority in a given year. That represents nearly a quarter of the unconditional turnover probability of 13.4 percent during the sample period. CEOs misaligned with the rest of the executive team are



or the location of its headquarters.

Sixty-one percent of the increase in partisanship is attributed to a greater inclination of executives to match with those who share their political views, known as assortative matching. The remaining 39 percent resulted from the overall executive population becoming more politically homogeneous, with an uptick in the share of registered Republicans. Assortative

also 27 percent more likely to be fired than their better-aligned peers.

The effect of board homogeneity on firm performance is difficult to assess on a priori grounds. A more homogeneous board may be less likely to deadlock over decisions, but it

may also be more susceptible to costly group-think. The stock market reaction to the departures of executives who diversify their teams is consistent with the latter view. The researchers estimate that cumulative abnormal returns are 1.7 percent lower in the wake of a misaligned

executive's departure than when an aligned executive leaves. They associate the departure of a misaligned executive with an average \$238 million loss to shareholders of the affected company.

— Steve Maas

Trends in Exposure to Air Pollution from Power Plants

Air pollution from electric power plants declined substantially between 2000 and 2018, and reductions in pollution exposure were broadly similar across various ethnic, income, and racial groups, Danae Hernandez-Cortes, Kyle C. Meng, and Paige E. Weber note in *Decomposing Trends in US Air Pollution Disparities from Electricity* (NBER Working Paper 30198). The study focuses on exposure to particulate matter that is released when burning fossil fuels. PM_{2.5} concentration measures the airborne level of particulates that are no more than 2.5 micrometers in diameter, or about 3 percent of the width of a human hair.

The researchers use Environmental Protection Agency data on almost 1,750 power plants to create a comprehensive record of production quantities and fuel inputs as well as air pollution emissions. Their dataset also includes smokestack characteristics such as stack height, temperature, velocity, and diameter, all of which are important for determining how air pollution travels. They use a pollution transport model to characterize pollution dispersal across space from each power plant, along with American Community Survey data to determine how the emissions from each plant affect pollution exposure for individuals in various ethnic, income, and racial groups.

Air pollution concentrations from electric power plants dropped by 89 percent, from 2.4 to 0.30 micrograms per cubic meter

Fuel substitution from coal to natural gas, coupled with local air pollution regulations, led to sharply lower particulate pollution from power generation in 2018 than in 2000.

(μ/m^3) per person, between 2000 and 2018. The national average ambient PM_{2.5} concentration level from all pollution sources fell during the same period by 39 percent, from 13.5 to 8.2 μ/m^3 . Power plants accounted for 18 percent of all ambient PM_{2.5} concentrations in 2000, but only 4 percent in 2018.

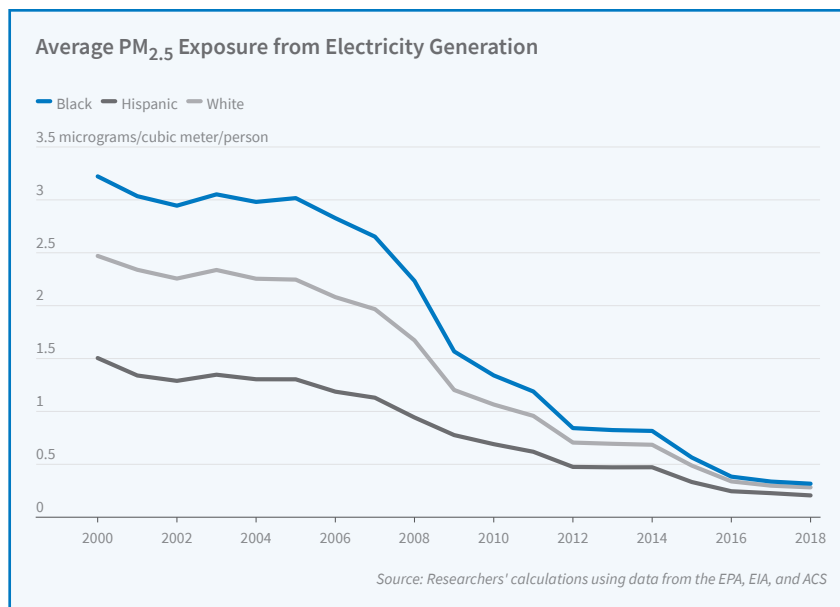
The reduction in exposure to air pollution associated with electric power gen-

eration between Blacks and Whites declined from 0.75 to 0.036 μ/m^3 per person — a 95 percent decline. The average White experienced a concentration 1.07 μ/m^3 higher than the average Hispanic in 2000, but that disparity fell to 0.07 μ/m^3 by 2018.

The large disparities in exposure across different population subgroups at the start of the study period reflect the locations of electricity generation plants and where different population subgroups live. PM_{2.5} concentrations from electric power plants were highest across southern states, which have larger Black populations. The next highest concentrations were in the Midwest, with a higher White population share. PM_{2.5} concentrations were lower in southwestern and western states, which have large Hispanic populations.

The researchers suggest that more than half of the particulate emission reductions from power plants during the period of study are attributable to a shift from coal to natural gas combustion for electricity generation. Most of the remainder was due to reduced emission intensity for a given fuel mix, often associated with air pollution policies such as the Clean Air Act.

— Brett M. Rhyme



eration was similar across racial, income, and ethnic groups: 90 percent for Blacks, 89 percent for Whites, and 86 percent for Hispanics. The dispersion across groups in exposure to PM_{2.5} concentration also dropped sharply. Over the 18 years the study considers, the gap in average PM_{2.5} exposure

Measuring Poverty Using Household Outlays

Measuring poverty is a long-standing challenge. The official US poverty rate is based on households' before-tax-and-transfer income. Alternative measures, derived from household expenditures, have been proposed as more-informative indicators of well-being among disadvantaged households.

In *The Supplemental Poverty Measure: A New Method for Measuring Poverty* (NBER Working Paper 30056), John Fitzgerald and Robert A. Moffitt develop a new metric for identifying poor households. They use information on all household outlays — which they alternatively term expenditures — reported in the Consumer Expenditure Survey to construct the Supplemental Expenditure Poverty Measure (SEPM). This measure considers not just spending on goods and services, but also outlays such as contributions to retirement accounts, loan payments, and savings — resources that could have been used to buy the minimum necessities, such as food, clothing and housing, that are needed to avoid being classified as poor. Some households classified as poor under standard definitions could, by incurring more credit card debt or dropping their contributions to retirement plans, raise their outlays by enough to rise above the poverty line.

The researchers compare their new measure to the Census Bureau's Supplemental Poverty Measure (SPM), an after-tax poverty measurement based on income data reported in the Current Population Survey. They calculate what they term a "net" SEPM poverty series that mimics the SPM series, which adjusts for in-kind transfers, various costs of working, and significant out-of-pocket medical costs, but uses net outlays instead of net income. The two track each other closely over

time. The average SEPM and SPM rates for the period 2017–19 are 13.3 and 13.0 percent, respectively. Both typically exceed official poverty rates published by the Census Bureau, which are defined quite differently and do not

A new measure of poverty derived using all household outlays tracks existing aggregate poverty measures well while also providing new information on poverty rates among population subgroups.

deduct any costs from income.

However, the SEPM and SPM diverge during this period when measuring the poorest of the poor. Households in deep poverty and near poverty are those with annual income and spending below 50 and 150 percent of the poverty line, or about \$13,000 and \$39,000. The average SPM deep-poverty rate was 4.4 percent, 3.3 percentage points greater than the

based metric.

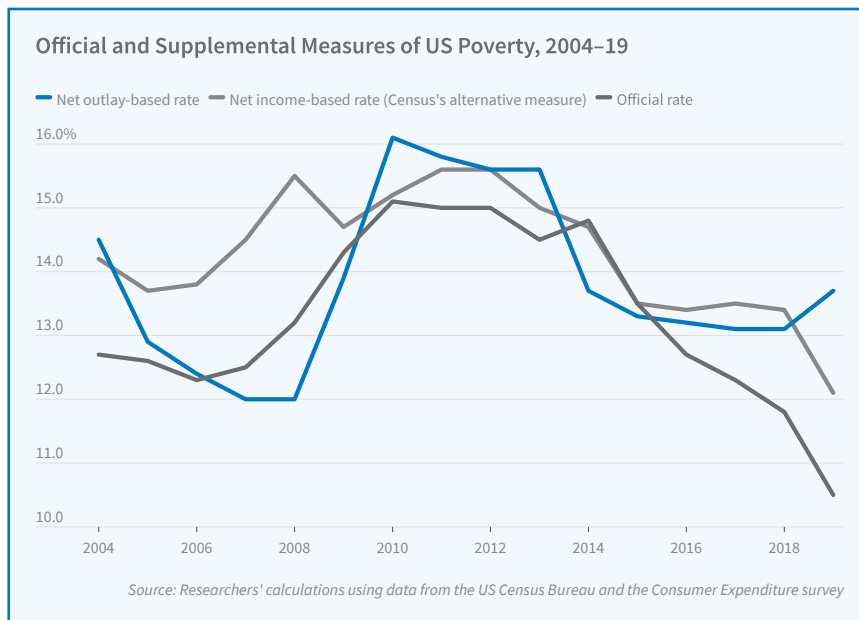
The two alternative poverty measures are within 1 percentage point for most demographic groups. However, SEPM child poverty rates are greater than SPM child poverty

rates after 2010, with the differential reaching 2 percentage points between 2010 and 2013. Removing government transfers would raise both alternative poverty rates significantly. After 2010, the removal of in-kind transfers, including Supplemental Nutrition Assistance Program benefits, would increase both measures by about 3 percentage points. Overall, tax credits and transfers reduce the net SEPM poverty rate by between 4 and 5 percentage points.

Using an expanded definition of the SEPM, the researchers construct an upper bound for the potential resources a household could spend by including potential drawdowns from liquid bank accounts and unused credit card borrowing capacity. Bank balances are low for households at the bottom of the spending distribution — in the bottom quartile, for instance, households with heads younger than 65 have a median balance of zero. Balance drawdowns only have a modest effect on poverty lev-

els. However, adding unused and potential credit card borrowing to potential resources lowers poverty rates by between 3 and 4 percentage points from a base of just over 13 percent. The researchers find that almost 10 percent of households, including over 31 million individuals in 2019, could not buy the minimum bundle of goods, even after entirely depleting their balances and maximizing their credit card borrowing.

—Aaron Metheny



expenditure-based SEPM deep-poverty rate. There are many more families with very low incomes than very low expenditures, possibly because incomes are underreported. In contrast, the SEPM near-poverty rate was about 5 percentage points greater than the corresponding income-based SPM poverty rate because there are many more families with only modest levels of expenditure than modest levels of income. About a third of the population is poor or near poor according to the spending-

New Estimates of the US Homeless Population

Counting the homeless population involves substantial challenges, most importantly the inability to use address-based survey approaches that are the foundation of Census Bureau enumeration and many household surveys. This raises questions about the completeness and reliability of any estimates of the homeless population.

In *The Size and Census Coverage of the US Homeless Population* (NBER Working Paper 30163), Bruce D. Meyer, Angela Wyse, and Kevin Corinth compare three detailed, restricted-use data sources to less-detailed public estimates of the homeless population. Their findings support the estimates in the most widely cited, but not uncontroversial, source.

The standard source of information on the homeless, the Department of Housing and Urban Development's Point-in-Time (PIT) count, is often questioned but studies of its quality examine few geographical areas and are somewhat dated. The completeness and coverage of shelter-use microdata, which are employed in the PIT's sheltered homeless estimates, have been little studied.

To develop new estimates of the homeless population, the researchers compare restricted data from the 2010 Census, the American Community Survey (ACS), and the Homeless Management Information System (HMIS) databases from Los Angeles and

Analysis of restricted-use microdata places the number of homeless between 500,000 and 600,000, and suggests that about two-thirds sleep in shelters.

Houston to PIT estimates as well as the Housing Inventory Count. The ACS and HMIS include those in homeless shelters, while the Census includes both sheltered and unsheltered homeless individuals.

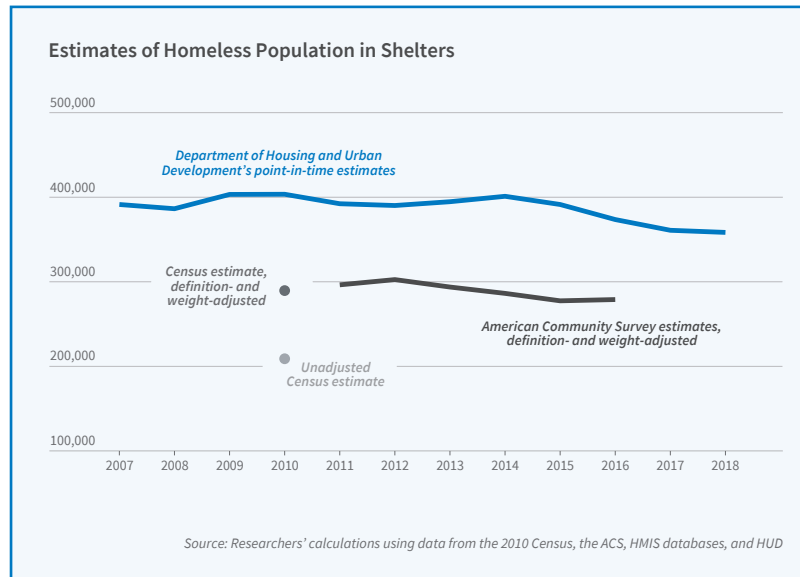
The researchers find that estimates of the homeless population from the 2010 Census, the ACS, and the PIT count are quite similar once definitional and weighting differences and discrepancies due to the long window of Census responses are taken into account. Taken together, these estimates suggest that on a given night there are between 500,000 and 600,000 homeless people in the US, with about one-third sleeping on the streets and two-thirds in

homeless shelters. Between 80 and 95 percent of those residing in HMIS shelters appear to have been included in the 2010 Census, although fewer—between 35 and 45 percent—were included in the Census's sheltered homeless count. The others were counted as housed, unsheltered homeless, or as residents of other types of group quarters.

The researchers also find significant double counting of individuals who were recorded as homeless in the 2010 Census. They estimate that over 20 percent of the sheltered homeless, roughly half of those at soup kitchens and food vans and about one-third of those at outdoor locations, had at least one housed record

in addition to their homeless record. This appears to be the result of many individuals being included on the Census questionnaire of a household where they occasionally reside, despite having actually been on the streets the day of the counting operation. This result suggests that at least some members of the homeless population make frequent transitions between housed and homeless living situations and that they may be included in household surveys more often than previously thought.

—Lauri Scherer



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