

Bruce Meyer, Angela Wyse, Kevin Corinth

## Overview

- Fundamental questions about the size and characteristics of the U.S. homeless population are unresolved, in large part because it is unclear whether available data are sufficiently complete and reliable.
- In this paper, we triangulate restricted data sources on homelessness against less detailed public data at the national, local, and person level to examine the completeness and accuracy of available data.
- We also link the Census to shelter use microdata and use a statistical technique called dual system estimation to obtain a reliable estimate of the sheltered homeless population under certain assumptions.

## Data

### Restricted Data Sources

- 2010 Census's Service-Based Enumeration (SBE) counted people experiencing homelessness at shelters and at soup kitchens, food vans, and targeted non-sheltered outdoor locations (TNSOLs)
- 2006-2018 American Community Survey (ACS) collects detailed survey information from people in emergency and transitional shelters
- Homeless Management Information System (HMIS) tracks shelter use at all federally funded shelters in Los Angeles and Houston
- Can be linked to each other and to other data with anonymized codes

### Public Data Sources

- HUD's Point-in-Time (PIT) estimates (2007-2021) are created by Continuums of Care (CoCs), local bodies that administer homeless services in a given area; methods include canvassing and surveys
  - Efforts to evaluate PIT's coverage and accuracy have typically been narrow in scope, focusing on the unsheltered in a handful of cities
- CoCs also produce the Housing Inventory Count (HIC) (2007-2021), which provides an inventory of shelter beds and contains information about target population and facility type

## Methods

### Definitional and weighting adjustments to sheltered estimates

- PIT's homeless definition includes some in facilities outside the SBE's scope; we add estimates of the population in the this "PIT-only population" to our Census and ACS sheltered homeless estimates.
  - Includes domestic violence shelters, voucher-funded hotel/motel rooms, beds in non-shelter facilities.
- ACS inflates weights for the sheltered homeless by about one-third to represent people not in the survey's scope; we scale down estimates to correct this.

### Dual system methods to estimate the sheltered population

- Dual system estimation is widely employed in demography and other fields to obtain a reliable estimate of population size under certain conditions.
  - In ecology, goes by the name "mark and recapture."
  - Used by the Census Bureau to estimate the undercount of the Census.
- Using two systems or samples, the method multiplies the size of the first sample by the inverse of the share of those in a second sample also found in the first.
  - The first system is the Census's sheltered homeless count; second is people in HMIS shelters on the day of the Census count.
- With some modifications, we multiply the Census sheltered count by the inverse of the share of people in L.A. and Houston HMIS shelters who were found by the Census in shelters to estimate the true population:

$$\text{Census sheltered homeless count} * \frac{\text{HMIS sheltered homeless count}}{\text{Count of HMIS sheltered homeless also found by Census in shelter}}$$

### Accounting for HMIS exit date errors

- HMIS exit date errors prolong enrollments; we need to correct these errors for the dual system approach.
- Evidence of errors includes warnings in reports, clients found in jails and prisons by Census, implied enrollment over capacity.
- We assume that a share of those in HMIS have exit date errors and are distributed across statuses in the Census.

## Results

### Summary of key findings

- Using dual system methods, we estimate that about 367,000-382,000 people were in homeless shelters on the night of the 2010 Census.
  - Range is slightly lower than the PIT and much larger than the Census; latter fact due largely to differences in how the sources defined shelters.
- Census estimate of 210,000 and the PIT estimate of 235,000 provide a reasonable range for the unsheltered homeless population size – estimates are similar despite employing different methods.
  - We acknowledge the possibility of under or over counting in both sources.
- More than 90 percent of those in shelters were counted in the Census, although many were in facilities classified as housed or in other group quarters in Census.
- About 20 percent of those in shelters and 40 percent of those at unsheltered locations were counted twice in the Census.
  - Likely reflects fluidity of living situations and ties to housed family members.

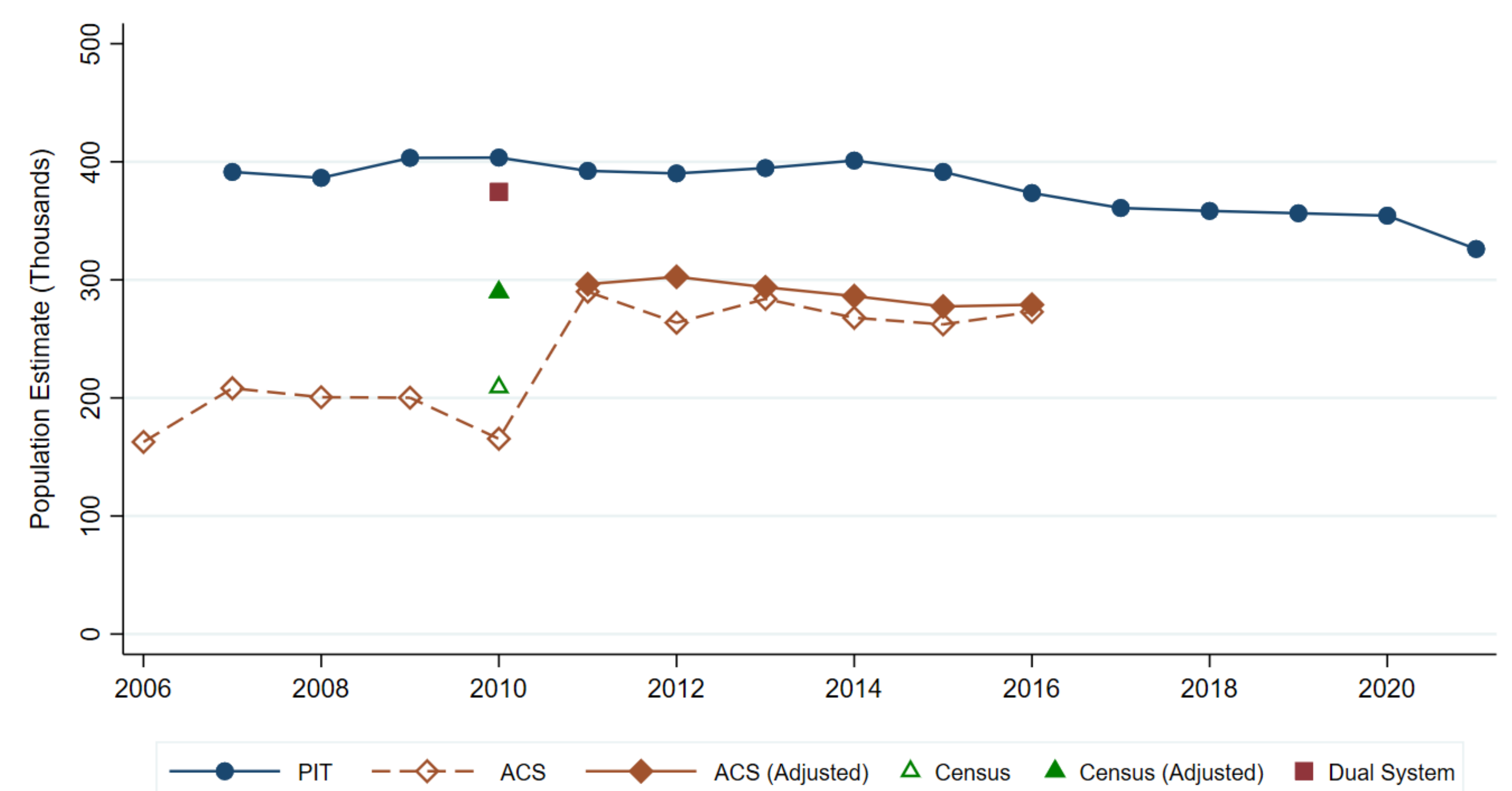
### Coverage of HMIS shelter users in the 2010 Census

Census Status	Lower bound	Upper bound
Sheltered	0.608	0.638
Unsheltered	0.040	0.042
Other GQ		
Non-Jail and Prison	0.089	0.092
Jail and Prison	0.000	0.000
Housed	0.188	0.194
	Upper bound	Lower bound
Status unknown	0.075	0.034
Observations	4,521	4,648

Sources: 2004-2014 Los Angeles HMIS data, 2004-2015 Houston HMIS data, 2010 Census

Notes: Table displays weighted share of those enrolled in HMIS on Census date found in statuses in Census accounting for date errors. Bound reflect uncertainty in adjusting for non-linkage.

### Sheltered Homeless Estimates



Sources: 2010 Census, 2006-2018 ACS, 2007-2018 PIT files  
 Approved for release by the Census Bureau's Disclosure Review Board, authorization number CBDRB-FY2022-CES005-015

## Conclusions

- On a given night, there are about 600,000 people experiencing homelessness in the U.S., about one-third sleeping on the streets and two-thirds in shelters.
  - Results lend new credibility to aggregate PIT estimates that had not previously been validated against independent estimates.
  - Also highlight that there is considerable ambiguity in what constitutes a shelter; population estimates are sensitive to these ambiguities.
- We find that most homeless individuals were included in the Census, and a substantial share were in fact counted twice.
- By establishing the broad coverage and reliability of the new data sources, this paper lays the foundation for pathbreaking future work using these data.

### Disclaimer and Contact

This paper, which has been subject to a limited Census Bureau review, is released to inform interested parties of research and to encourage discussion. Any opinions and conclusions expressed herein are those of the authors and do not represent the views of the U.S. Census Bureau. The Census Bureau has reviewed this data product for unauthorized disclosure of confidential information and has approved the disclosure avoidance practices applied to this release, authorization numbers CBDRB-FY20-ERD002-004 and CBDRB-FY2022-CES005-006.

Bruce D. Meyer, University of Chicago, bdmeyer@uchicago.edu  
 Angela Wyse, University of Chicago, awyse@uchicago.edu  
 Kevin Corinth, University of Chicago, kcorinth@uchicago.edu