

The impacts of rent burden and eviction on all-cause mortality in the United States

**Nick Graetz¹, Emily Lemmerman¹, Carl Gershenson¹, Sonya R. Porter²,
Danielle H. Sandler², Matthew Desmond¹**

¹Princeton University, Princeton, NJ, USA

²U.S. Census Bureau, Washington D.C., USA

October 25, 2022



**PRINCETON
UNIVERSITY**



DISCLAIMER: 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. DRB Approval Number(s): CBDRB-FY22-CES004-051.

A developer forced them out of their building. Three years later, nearly half are dead.

KNKK Public Radio | By Will James

Published December 8, 2021 at 6:00 AM PST

► LISTEN • 10:48



Tacoma Tenants Organizing Committee

Four of the five Merkle tenants in this photo have died in the three years since the Merkle closed. Those pictured, from left: Molly Nichols, a tenant advocate; Laconia Woodley, a tenant; Brandon Lee, a tenant; Juan Morales, a tenant; Dean Tsapralis, a tenant; Greta Brackman of Comprehensive Life Resources; Audrey Oliver of Comprehensive Life Resources; and Leonard Johnson, a tenant. Woodley, Lee, Morales and Johnson have died.

Study: Allowing evictions during Covid-19 could have caused nearly 11,000 unnecessary deaths

States' decisions to lift their eviction moratoriums earlier this year could have led to more than 400,000 excess Covid-19 cases.

By Jerusalem Demas | @JerusalemDemas | Dec 11, 2020, 8:30am EST



NEWS

Woman Who Died in SF Homeless Encampment Fire Was Mother of 3 and Had Been Evicted



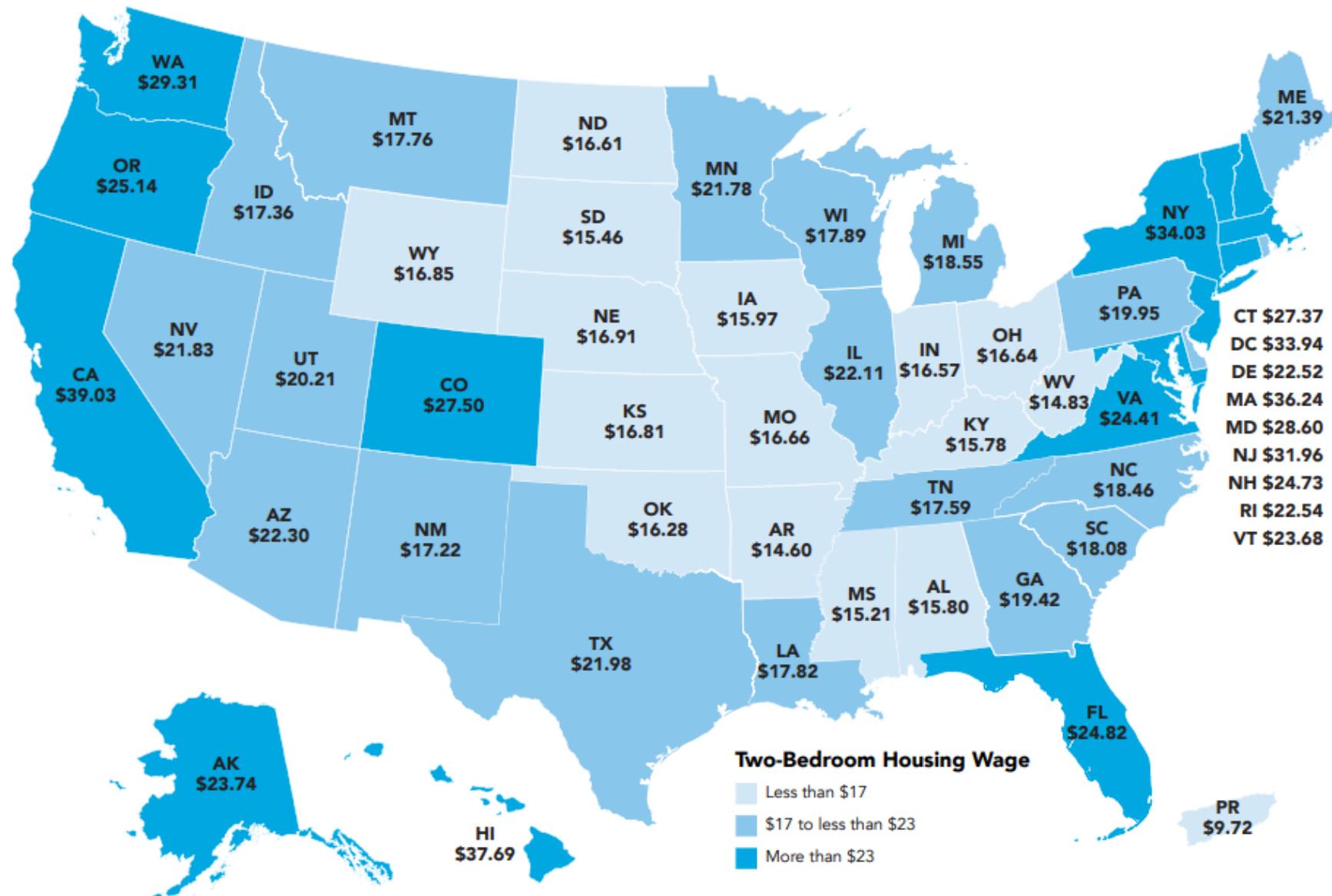
By Joe Fitzgerald Rodriguez, Annelise Finney | Mar 1 | Save Article



Jesse Montgomery sits under an overpass in San Francisco's Glen Park neighborhood, etching a drawing of Zarina Pimshin's name, on Feb. 25, 2022. Pimshin was sleeping in an encampment here with Montgomery and others when a fire broke out last Wednesday morning, killing her. (Annelise Finney/KQED)

2021 TWO-BEDROOM RENTAL HOUSING WAGES

Represents the hourly wage that a full-time worker must earn (working 40 hours per week, 52 weeks per year) in order to afford Fair Market Rent for a **TWO-BEDROOM RENTAL HOME**, without paying more than 30% of income.



Research questions

1. What are the associations between **levels/increases in rent burden** and **all-cause mortality**?
 - Cox proportional hazards models
2. What are the associations between **eviction (filings, judgements)** and **all-cause mortality** by age?
 - Discrete time hazards models
3. Are there heterogenous associations between eviction and mortality by **race-sex** or **eviction propensity**?
 - Discrete time hazards models

Baseline data: 2000 long-form Census

Modifiers of associations:

- Race (white, Black, Asian, AIAN, NHPI)
- Ethnicity (Hispanic/non-Hispanic)
- Sex (men, women)

Controls:

- Household income (continuous)
- Nativity (0/1)
- Living in the same place five years ago (0/1)
- Veteran status (0/1)
- Disability status (0/1)
- Unemployed (0/1)
- Educational attainment (less than high school, high school, some college, college or more)
- Household gross rent as a percentage of household income (0-100)
- Residential building size (single-unit, mobile single-unit, 2, 3-4, 5-9, 10-19, 20-49, 50 or more units)
- Number of bedrooms (continuous)
- Number of children (continuous)
- Marital status (0/1)

Outcome data: Death records, 2000-2019

- **Numident (Social Security)**
 - Only SSN-holders
 - First-party reports of death from family members
 - Verified third-party reports:
 - Friends
 - State government offices
 - The Centers for Medicare and Medicaid Services
 - The Department of Veterans Affairs
 - The Internal Revenue Service
- Benefits of Numident
 - Tracks SSN-holders outside US
 - **Backbone of the Census Person Identification Validation System (PVS)**

Measuring All-Cause Mortality With the Census Numident File

Keith Finlay, PhD, and Katie R. Genadek, PhD

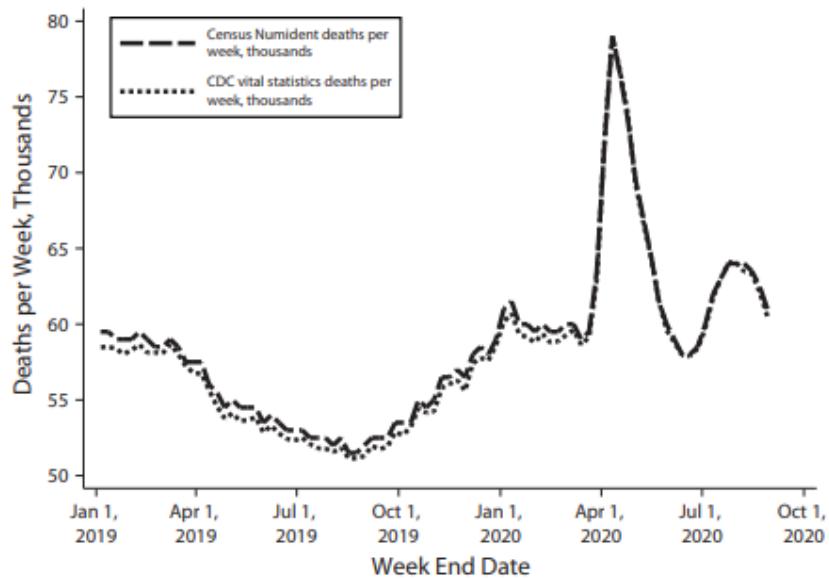
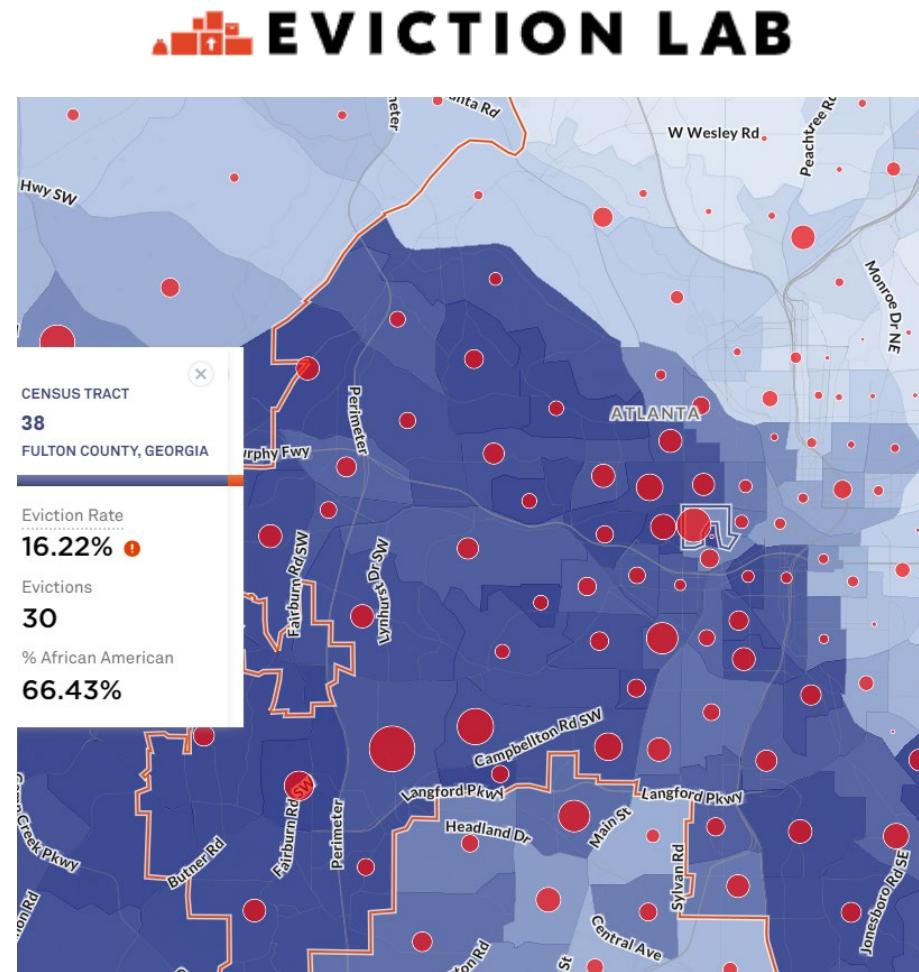


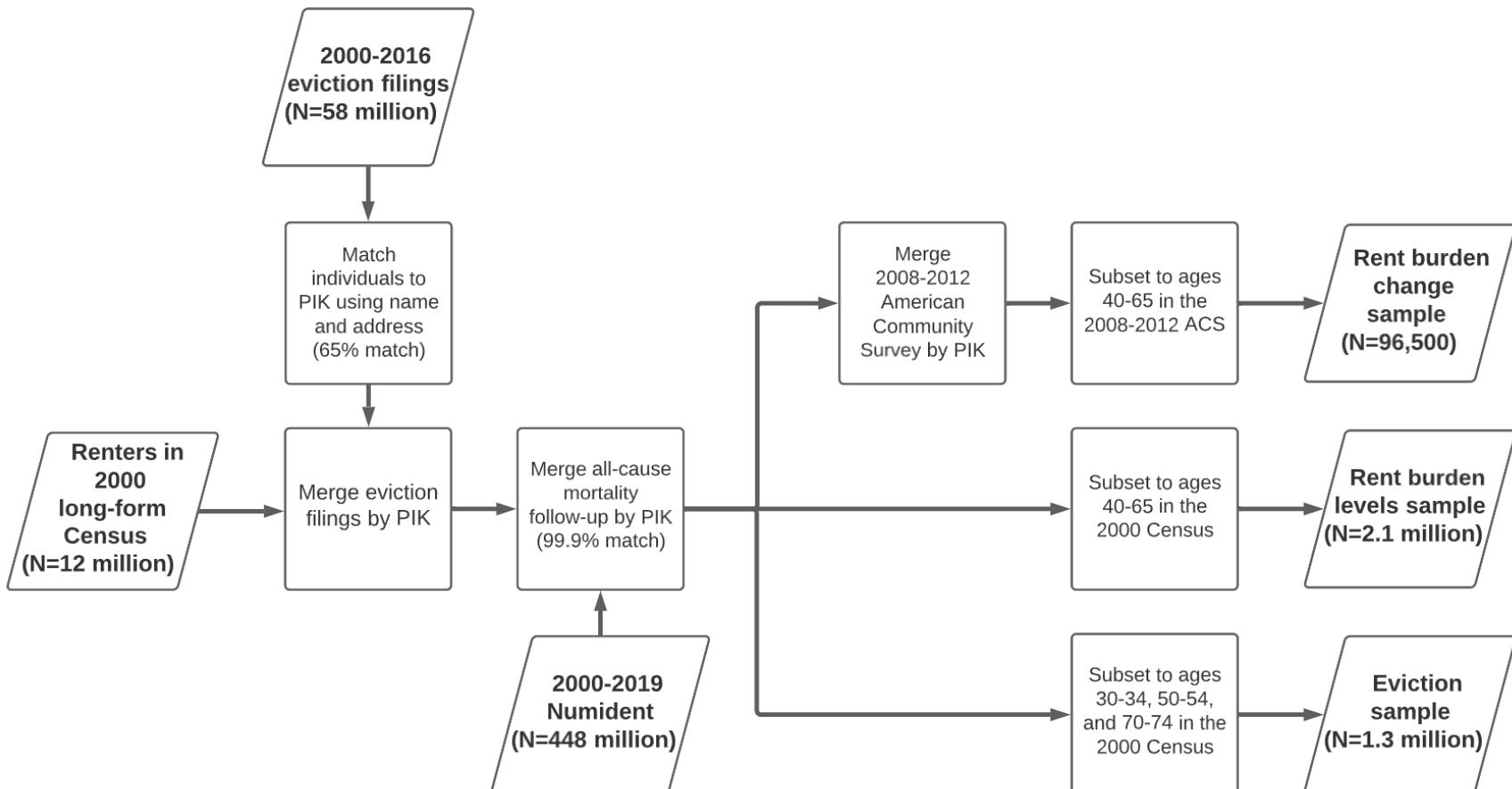
FIGURE 2— Coverage of Deaths per Week in the Census Numident vs Centers for Disease Control and Prevention (CDC) Vital Statistics, January 2019–September 2020

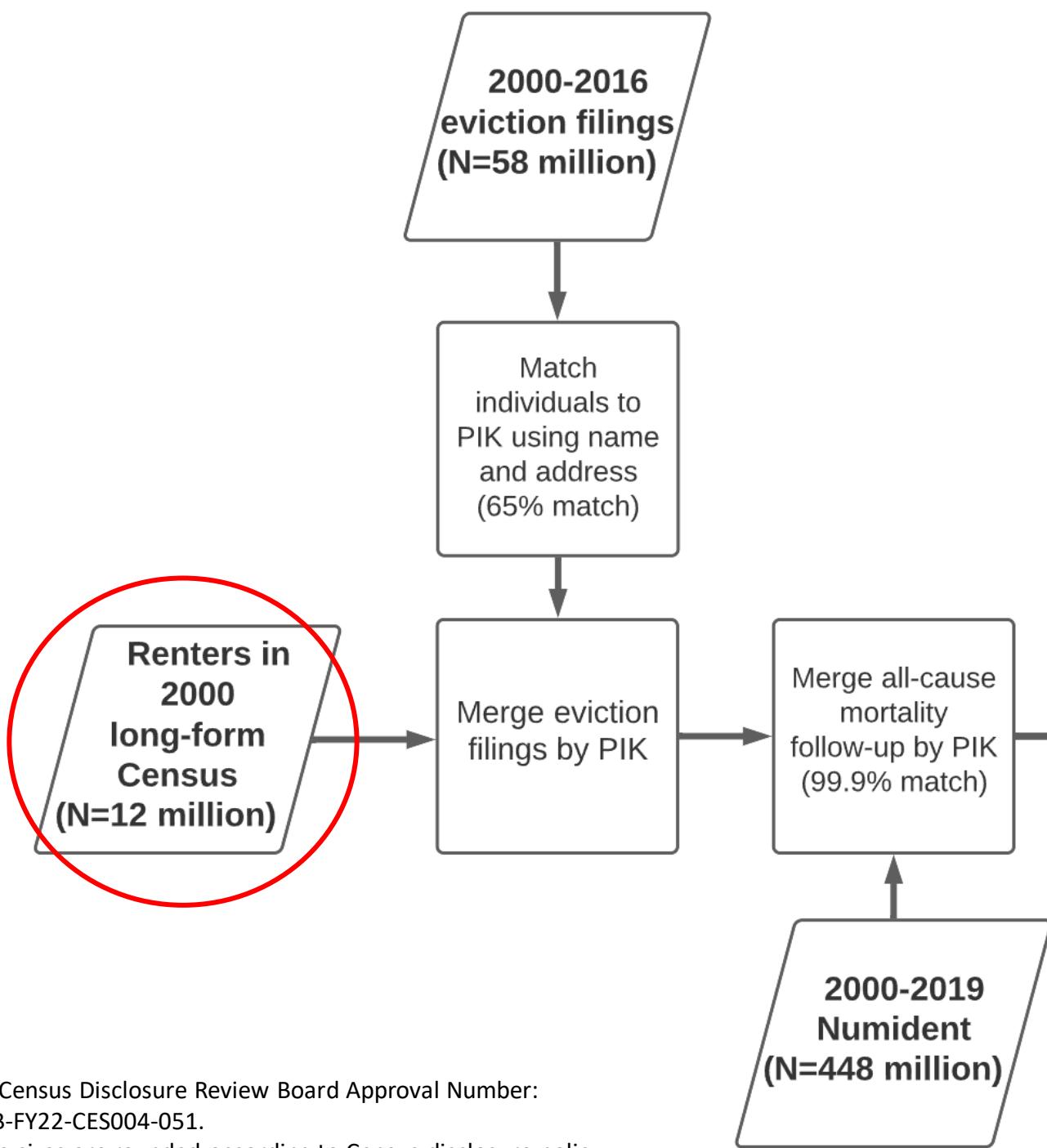
Exposure data: Eviction records, 2000-2016

- 2000-2016 court records (58 million)
- Limited information about each case
 - Case numbers
 - Names of plaintiffs (e.g., landlords, property managers) and defendants (tenants)
 - Defendant addresses
 - Filing dates



Linked records

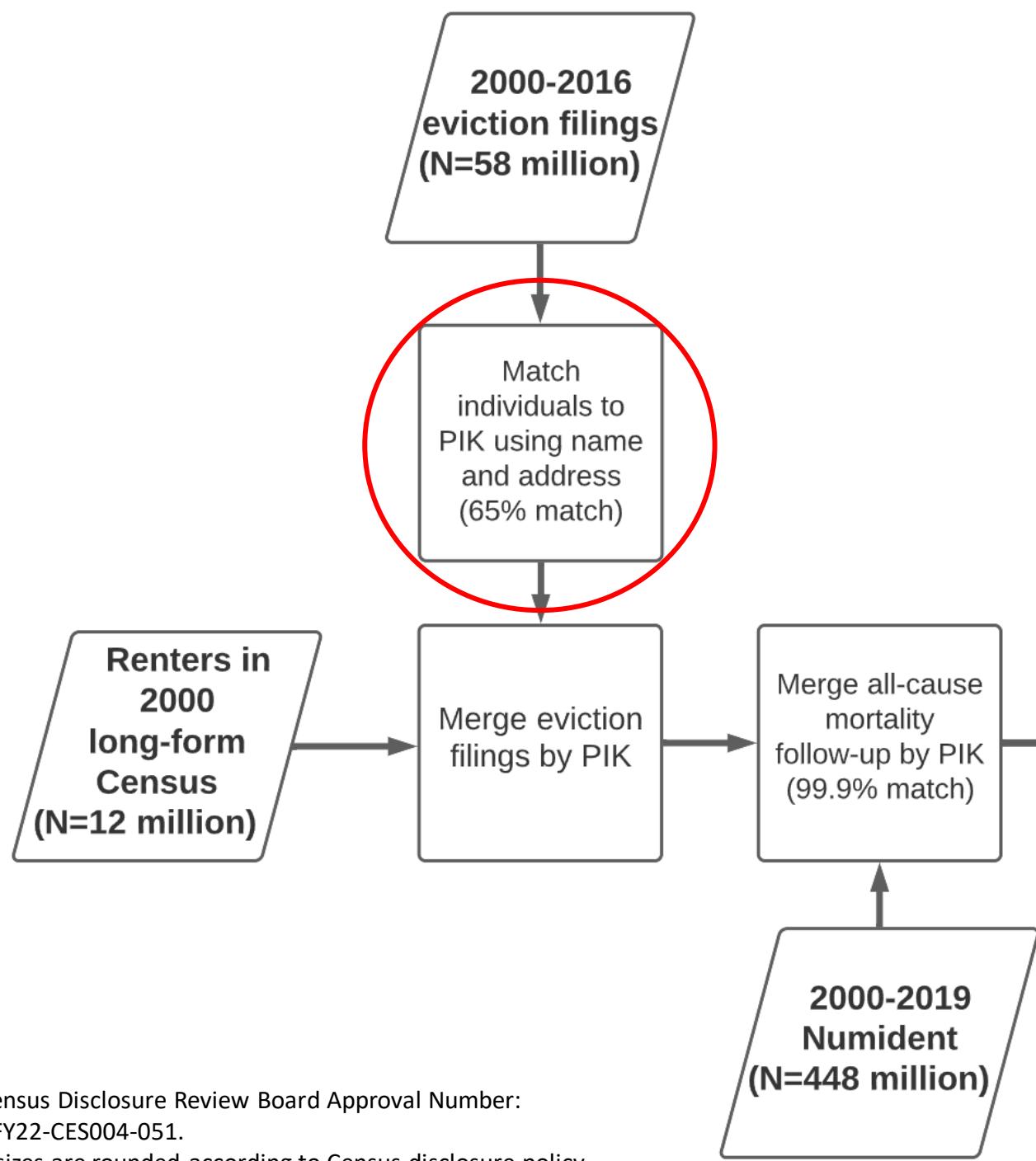


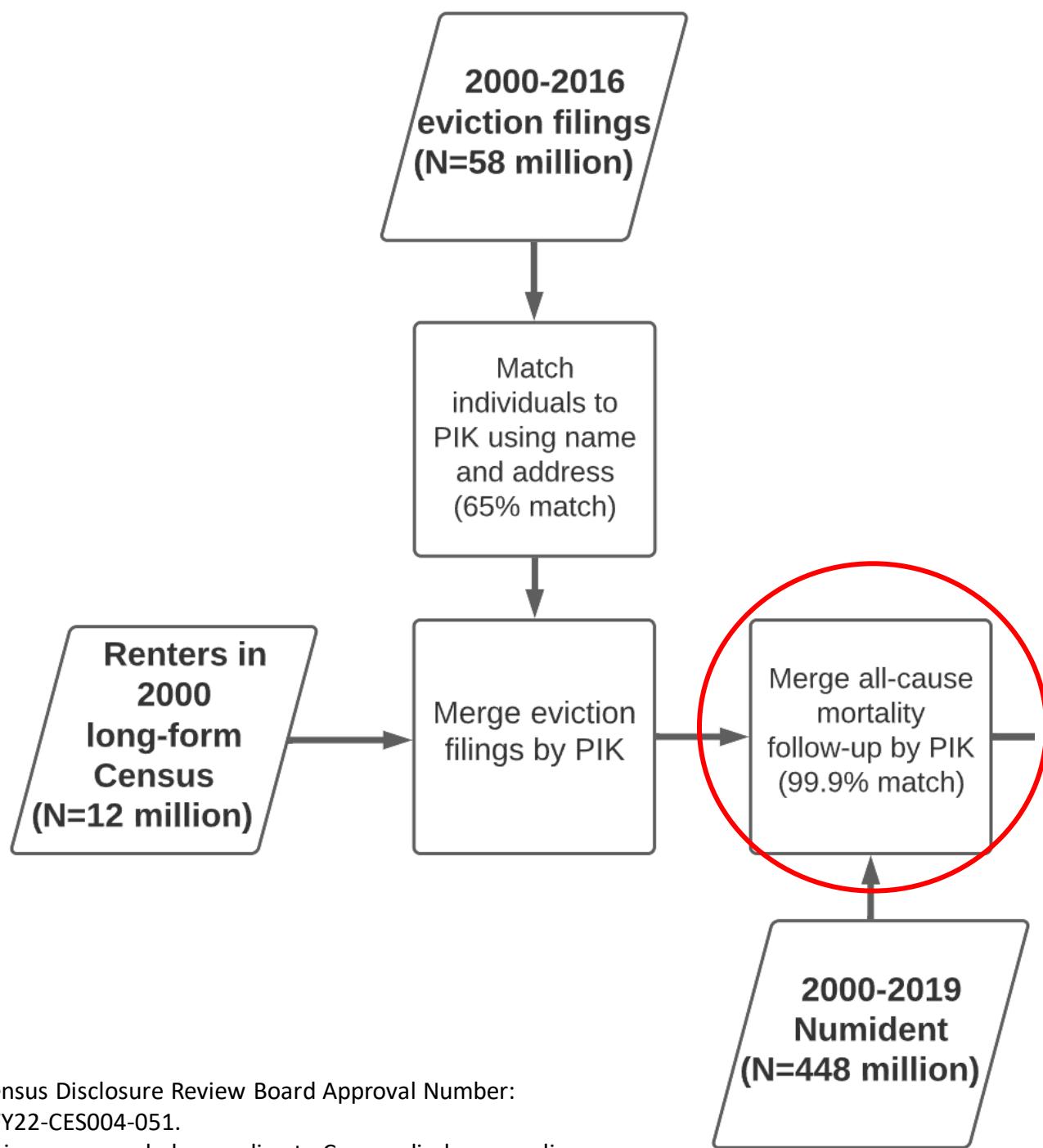


Note: Census Disclosure Review Board Approval Number:

CBDDB-FY22-CES004-051.

Sample sizes are rounded according to Census disclosure policy.

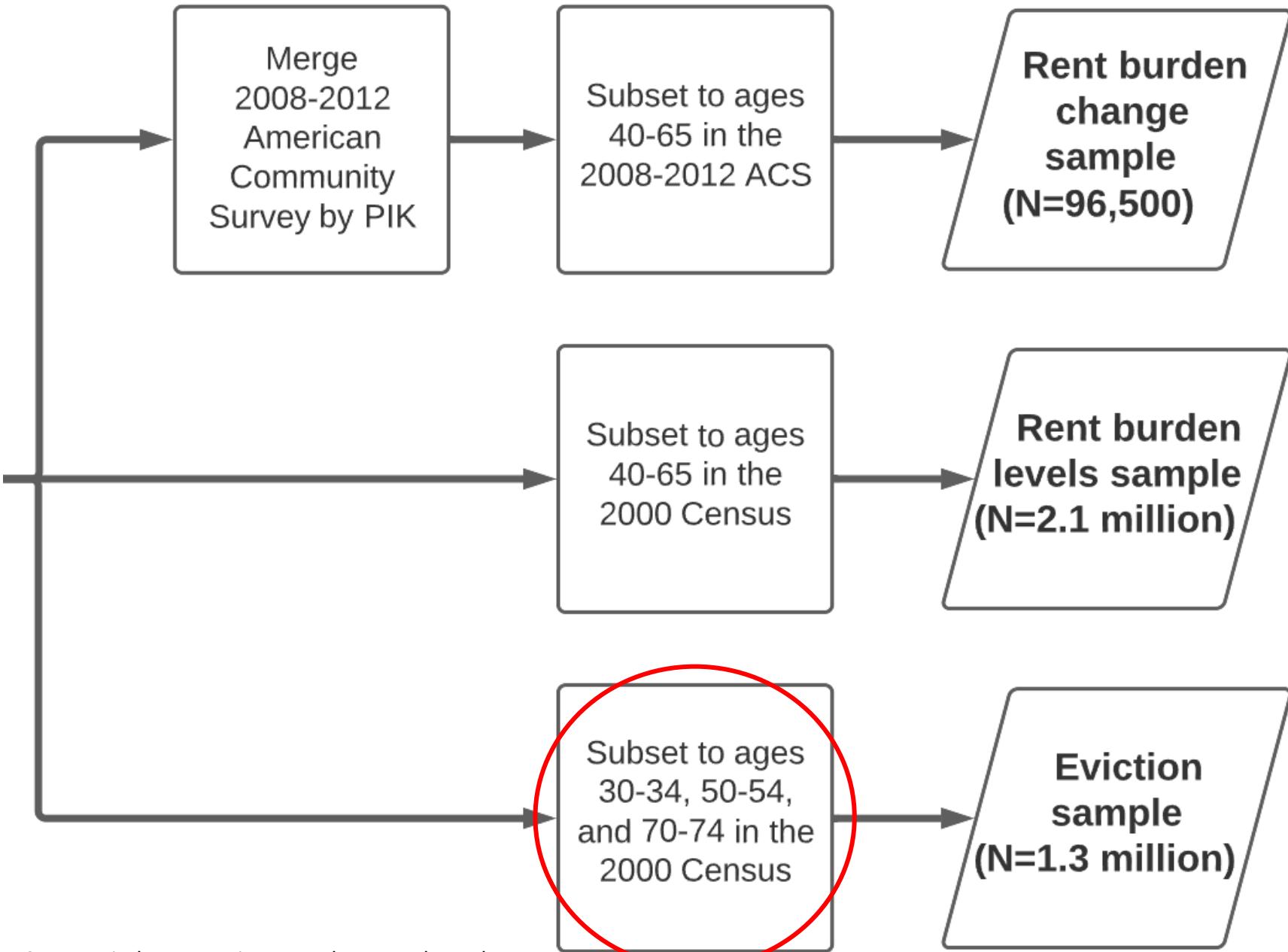




Note: Census Disclosure Review Board Approval Number:

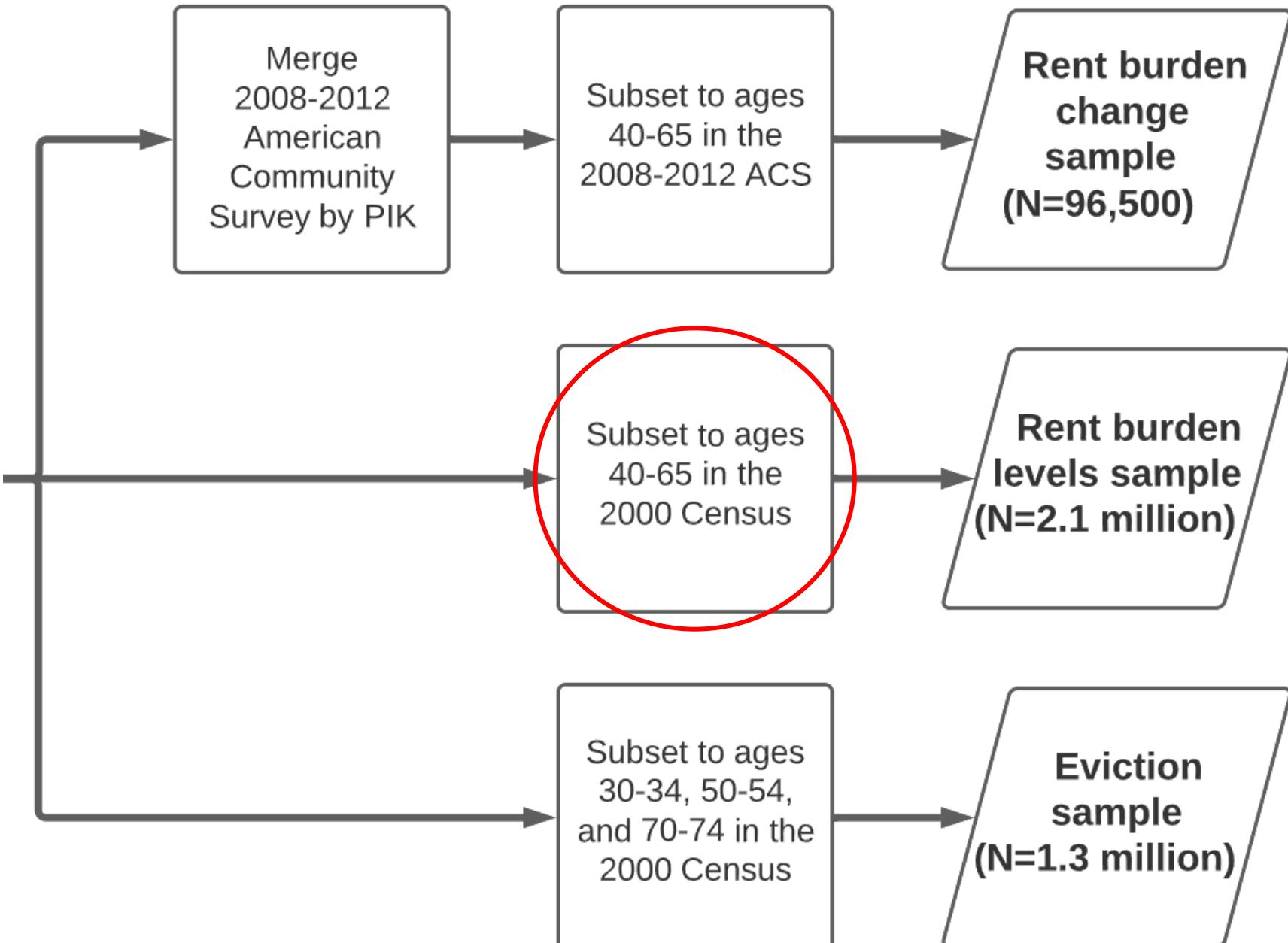
CBDDB-FY22-CES004-051.

Sample sizes are rounded according to Census disclosure policy.



Note: Census Disclosure Review Board Approval Number:
CBDRB-FY22-CES004-051.

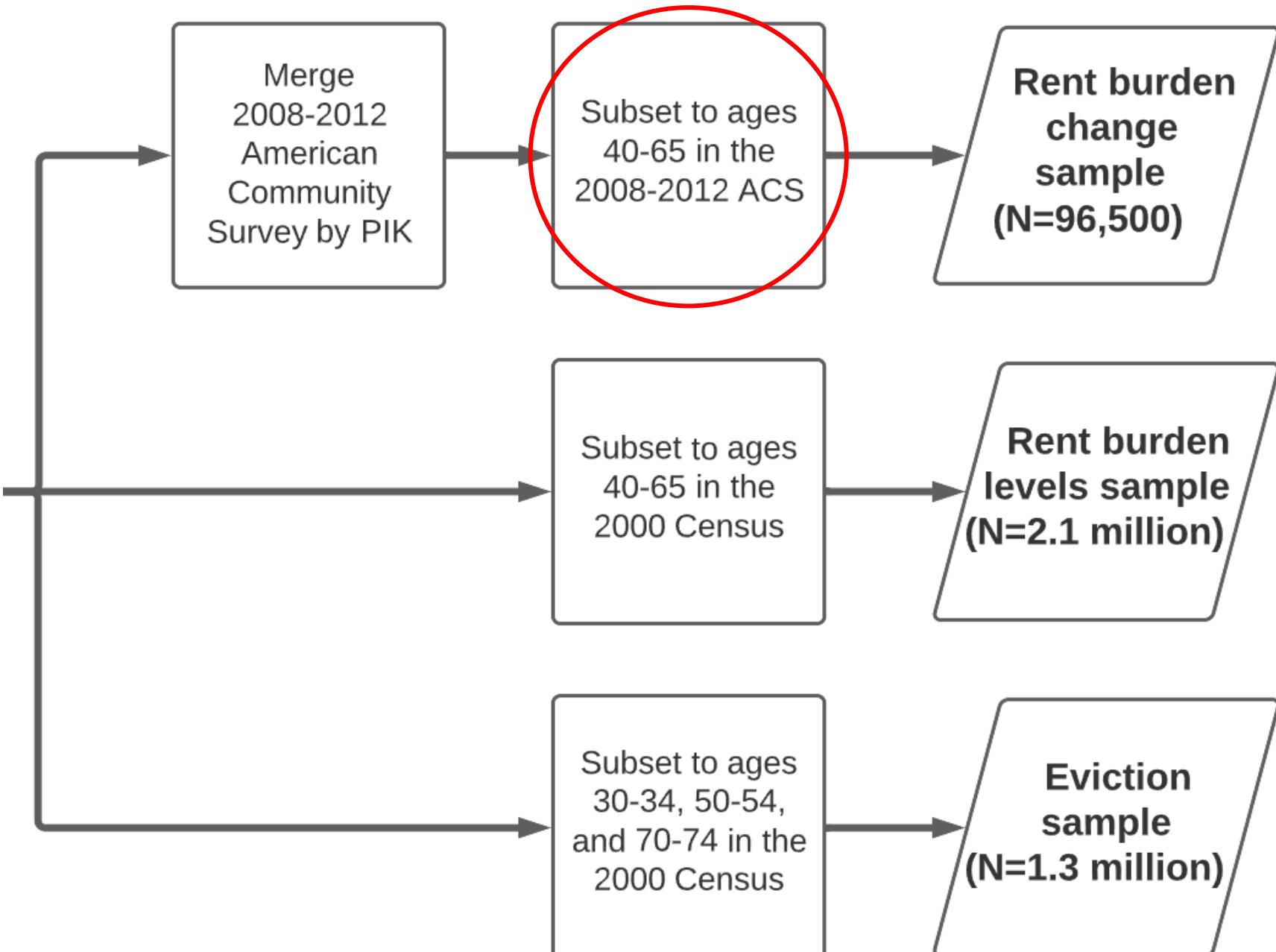
Sample sizes are rounded according to Census disclosure policy.



Note: Census Disclosure Review Board Approval Number:

CBDRB-FY22-CES004-051.

Sample sizes are rounded according to Census disclosure policy.

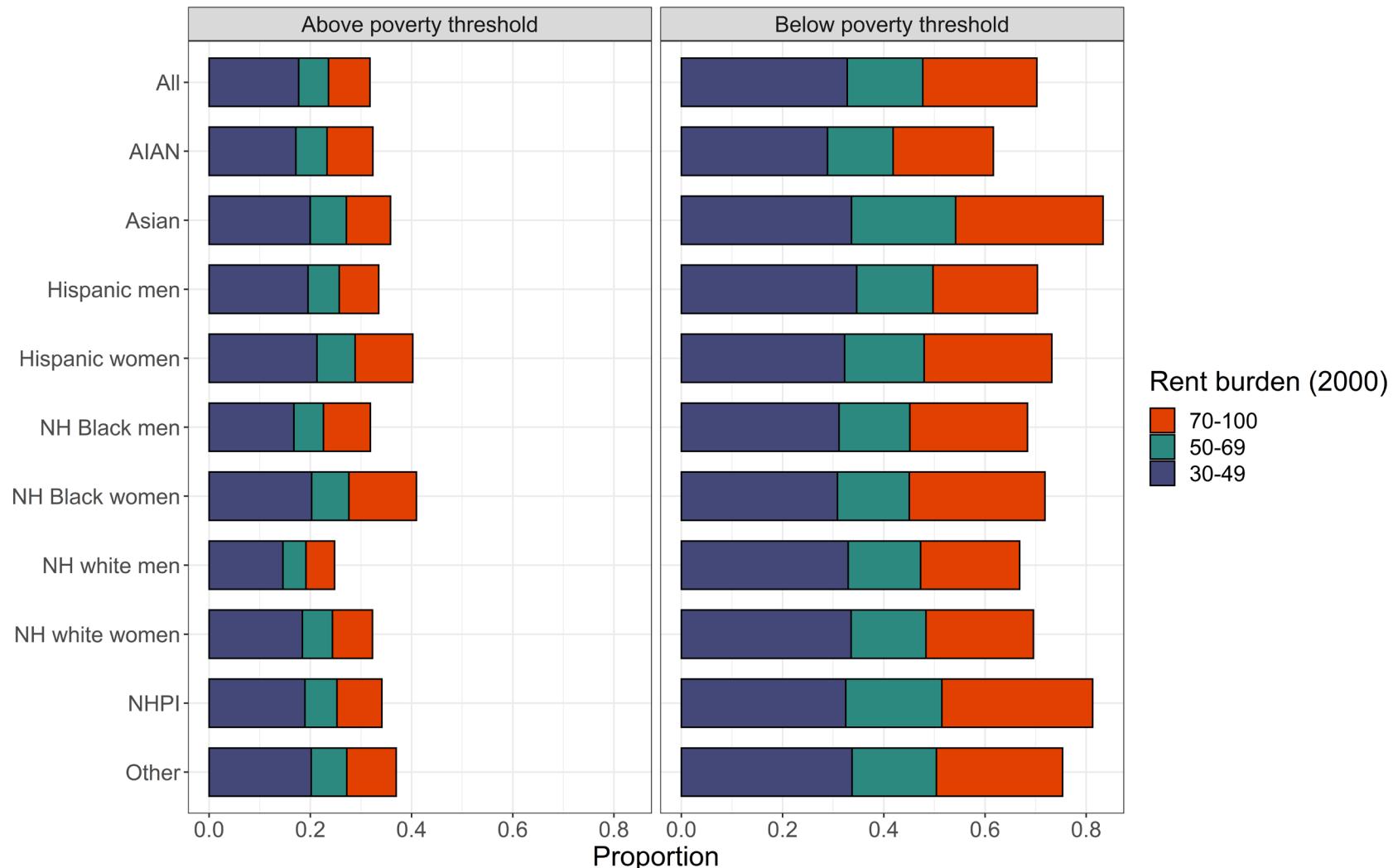


Note: Census Disclosure Review Board Approval Number:

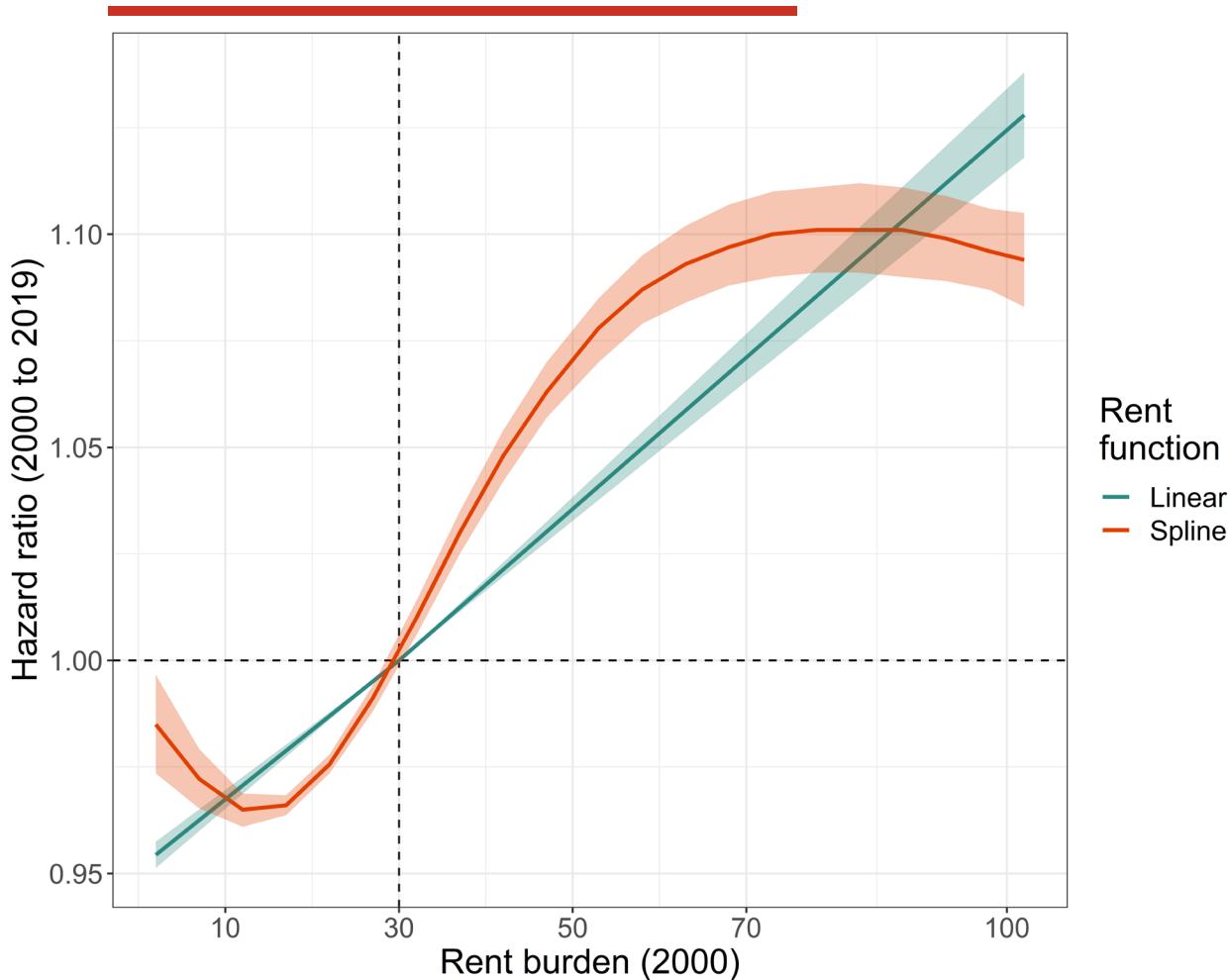
CBDRB-FY22-CES004-051.

Sample sizes are rounded according to Census disclosure policy.

Rent burden by poverty and race-sex (2000)



Association between rent burden (2000) and mortality (2000-2019)



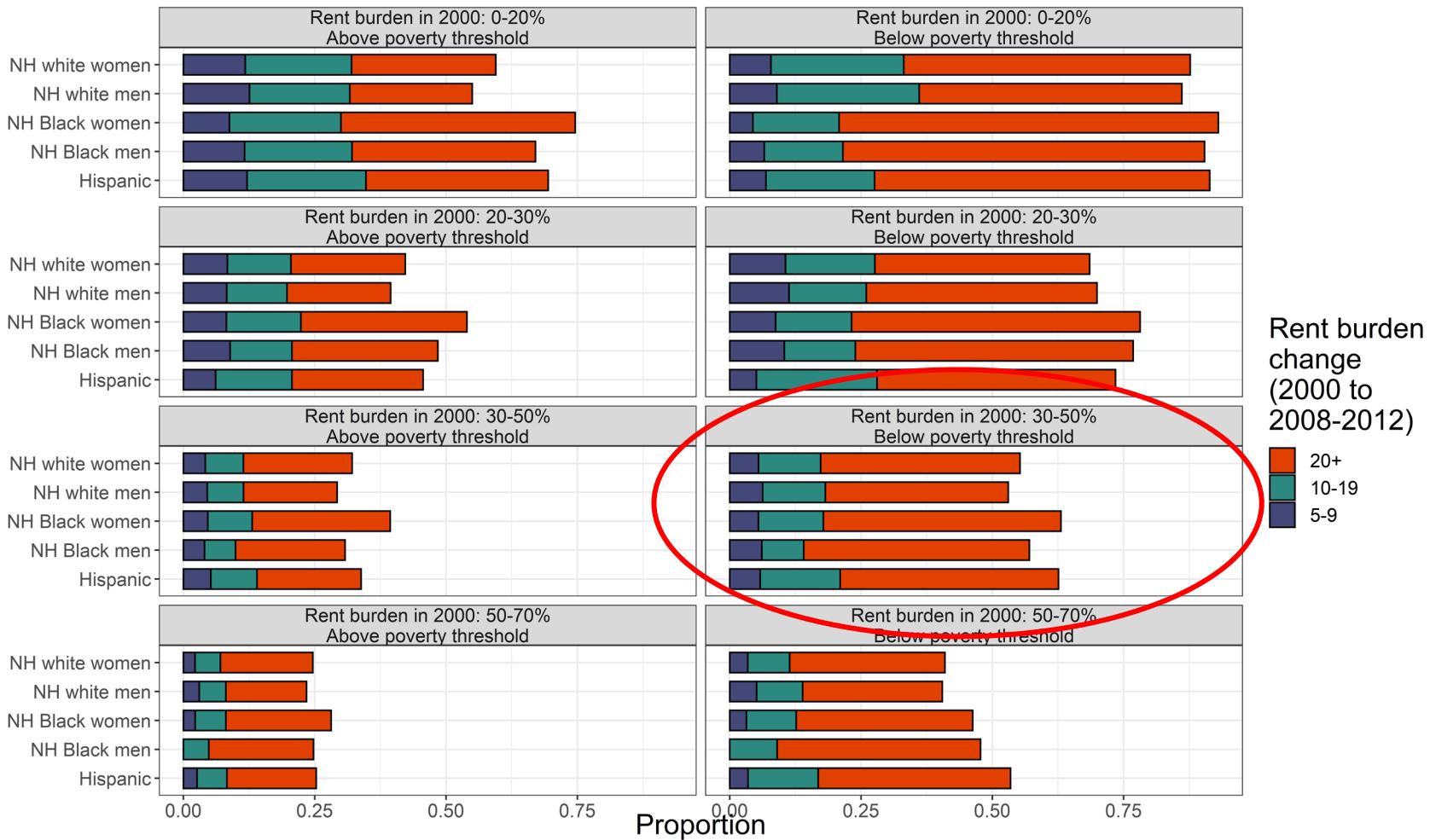
There is a steep increase in mortality risk between 20% and 70% burden, but risk levels off above 70%

Rent function
— Linear
— Spline

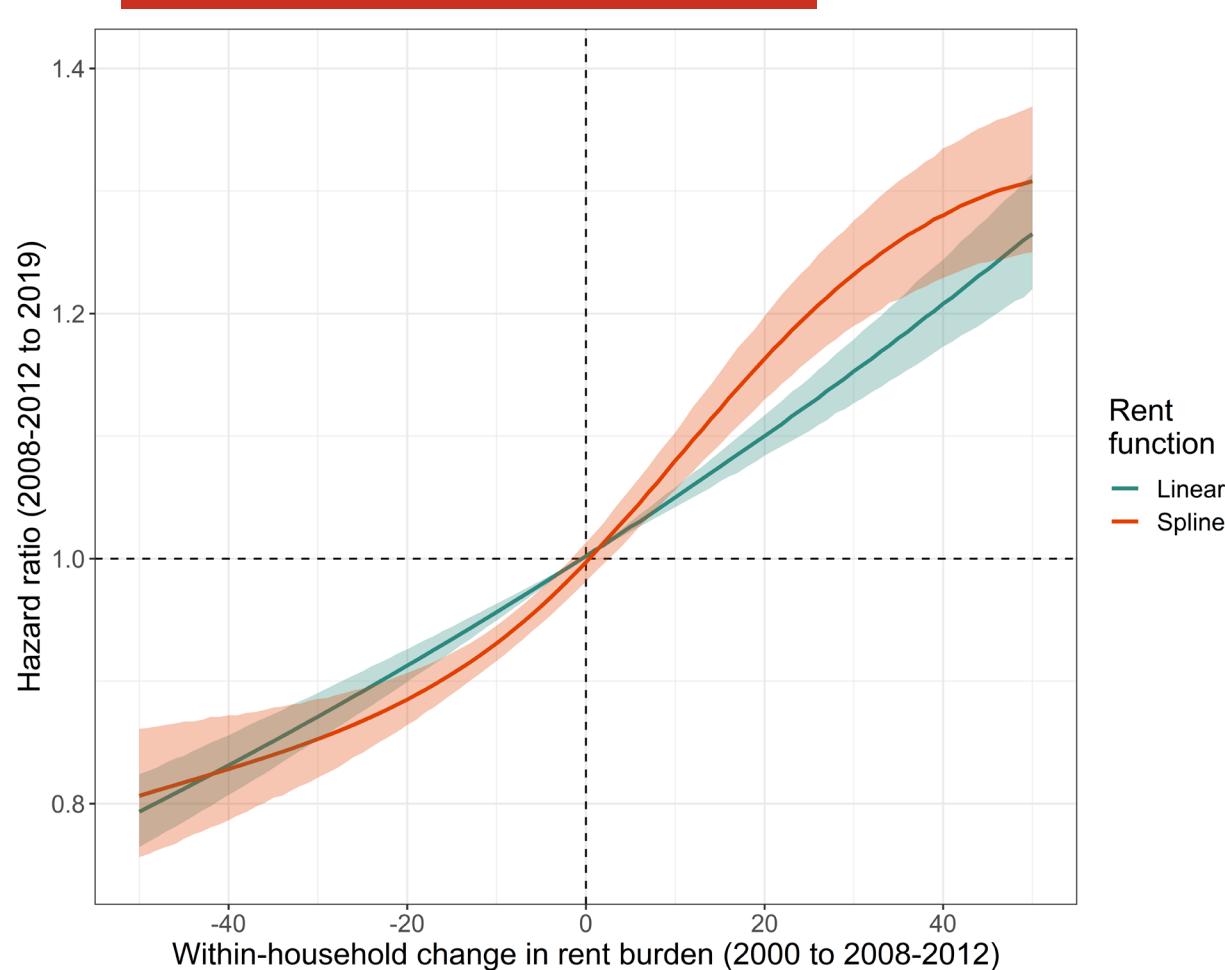
A 50% burden was associated with **7.05%** (**6.35-7.75%**) higher mortality from 2000-2019 compared to a 30% burden

For a 70% burden, the increase was **9.85%** (**8.90-10.85%**)

Rent burden change by race-sex (2000 to 2008-2012)



Association between rent burden change (2000 to 2008-2012) and mortality (2008-2012 to 2019)



A **10-point** increase in rent burden was associated with **7.95% (5.65-10.35%)** higher mortality compared to no increase in rent burden

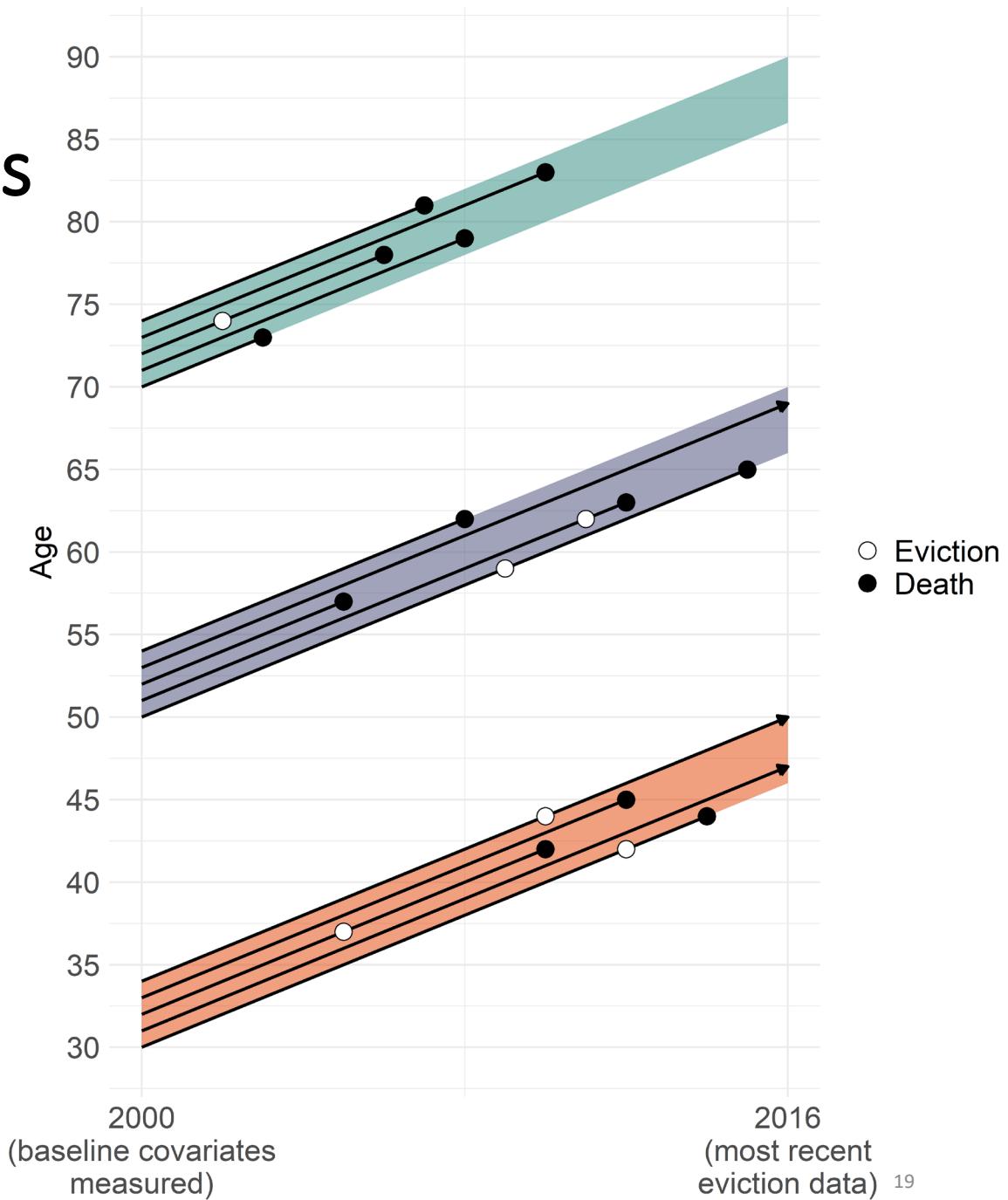
For a **20-point** increase in rent burden, mortality increased **16.30% (12.90-19.75%)**

Eviction cohorts

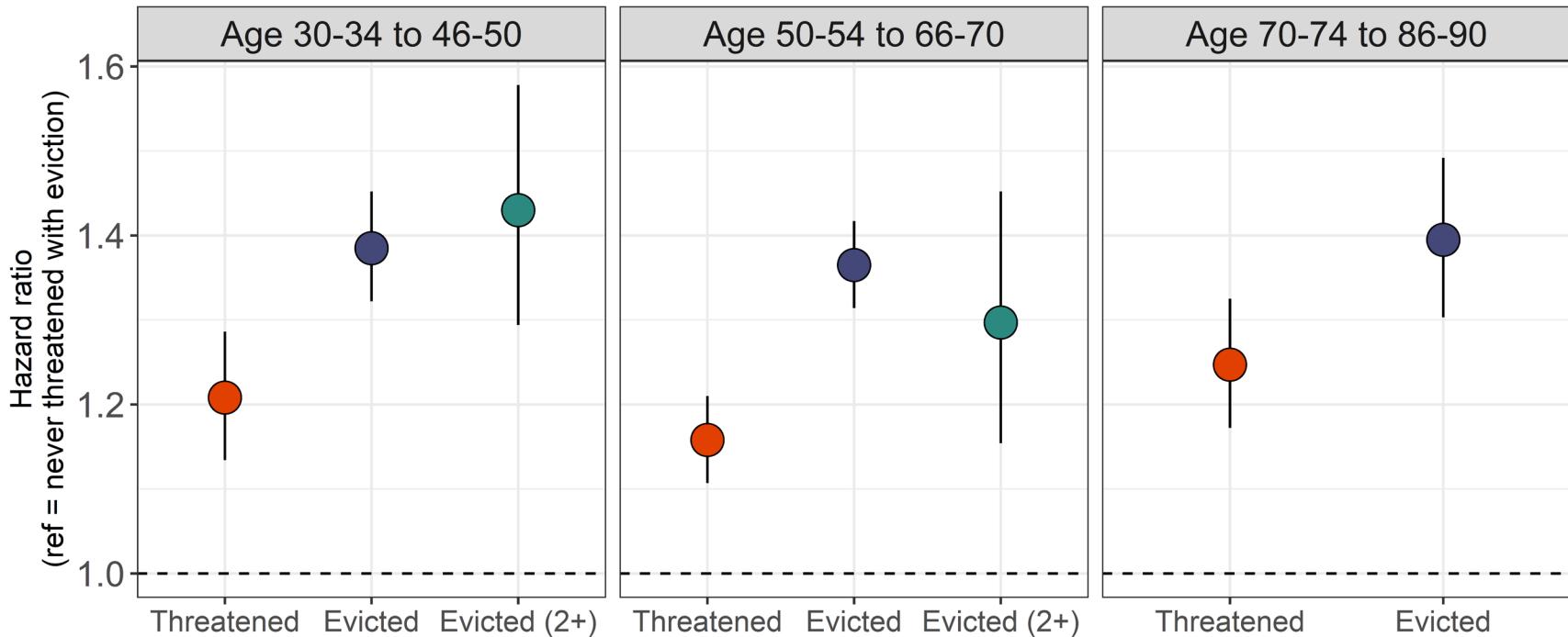
Follow three cohorts
covering life course: aged
30-34, 50-54, 70-74 in
2000

Discrete time hazards
model

Test for time-varying
hazards and time since
eviction exposure



Association between eviction and mortality (2000-2016)



Eviction filing without judgement (age 30-50): **20.80% (13.40-28.60%)** increase

Eviction judgement (age 30-50): **38.50% (32.20-45.20%)** increase

Limitations

- Eviction data
 - Incomplete PIK assignment (*we assume unmatched are not systematically different*)
 - Incomplete national coverage
 - No information on informal evictions
- Mortality data in Numident
 - Only SSN holders
 - No information on cause-of-death
- Time-varying characteristics measured once at 2000 baseline
 - We don't observe transitions to homeownership (*makes our estimates conservative*)
 - We don't observe events leading up to eviction (*risk of unobserved confounding*)

Summary

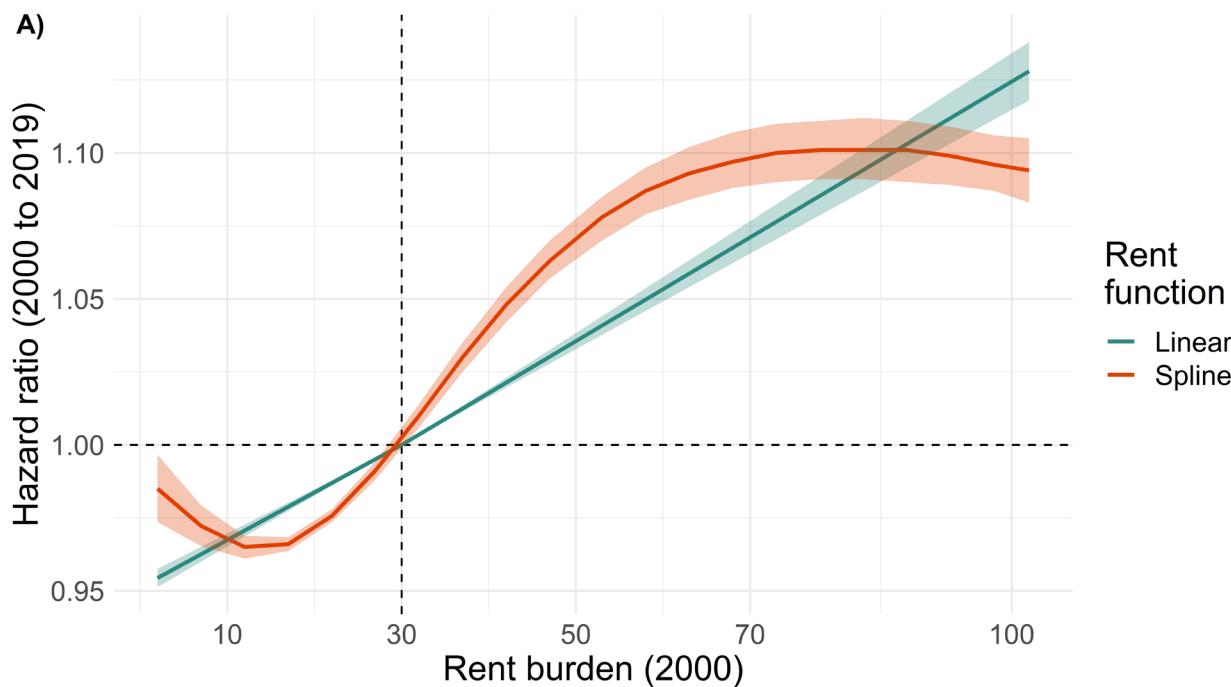
- **Higher levels of rent burden associated with higher mortality**
 - 50% and 70% burden = roughly **7%** and **10%** higher mortality than 30% burden
- **Within-household increases in rent burden associated with higher mortality**
 - 10- and 20-point increases = roughly **8%** and **16%** increases in mortality
- **Eviction filings and judgements associated with higher mortality**
 - Filings and judgements = roughly **20%** and **40%** increases in mortality
 - Evidence of higher associations among lower propensity

Prevalent exposures

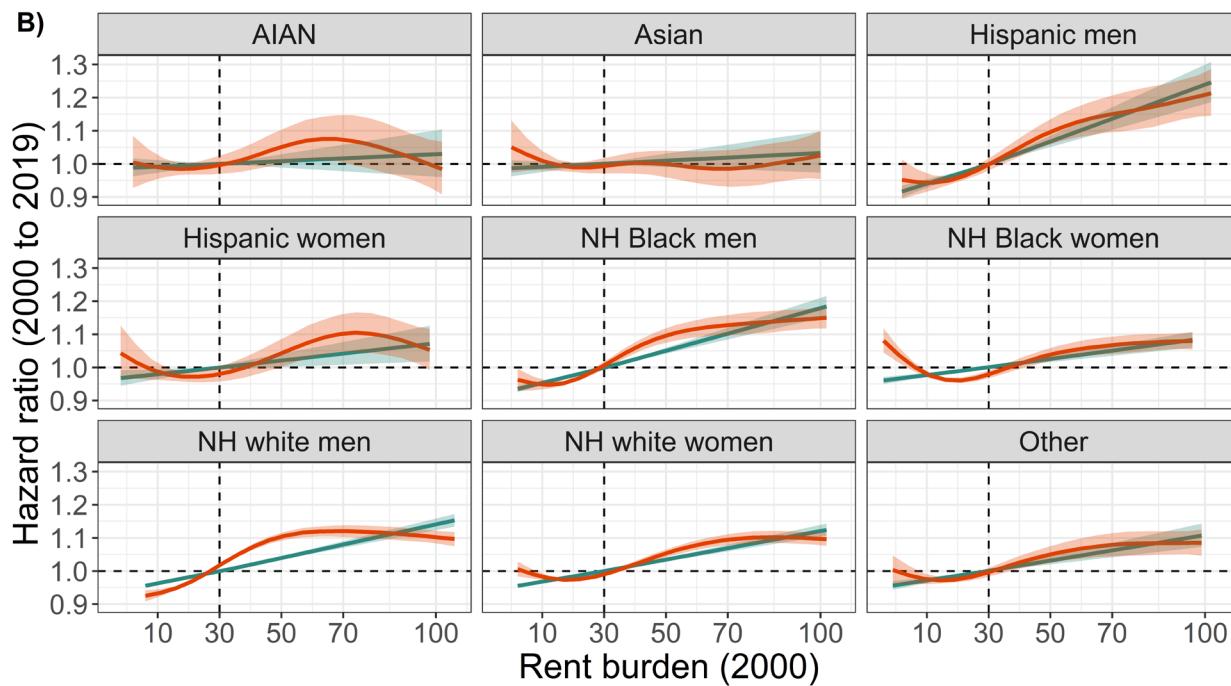
- Since 1985, rent prices have exceeded income gains by **325%**
- Nationwide, median asking rent more than doubled over the last two decades, rising from **\$483** in 2000 to **\$1,216** in 2021
- In 2021, nationwide median asking rent increased by **17%**, the fastest single-year increase on record
- The number of eviction filings increased by **21.5%** between 2000 and 2018, rising from **3,009,832** to **3,656,428** cases

EXTRA SLIDES

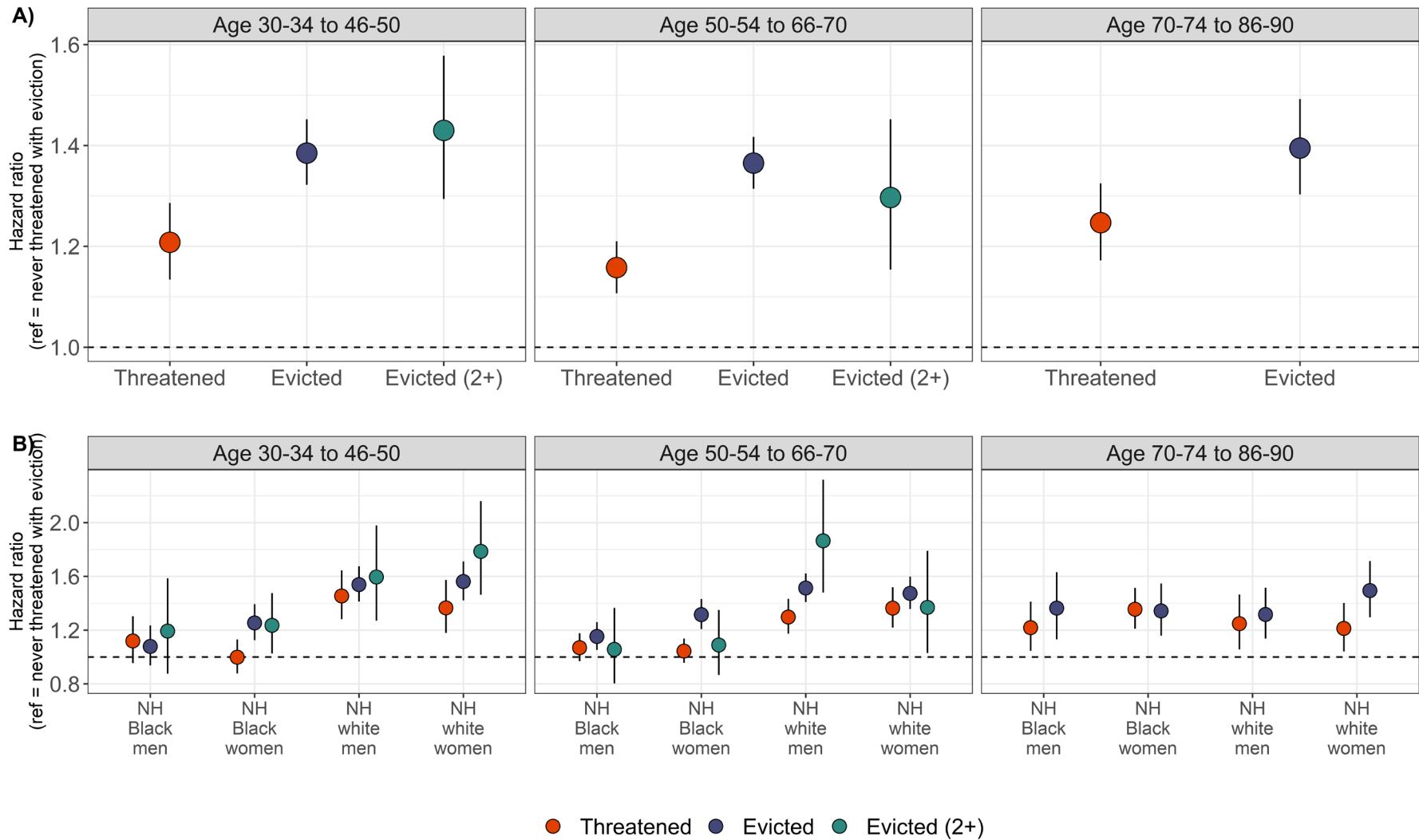
A)



B)



Note: Census Disclosure Review Board
 Approval Number: CBDRB-FY22-CES004-051.
 Source: 2000 Census.



Note: Census Disclosure Review Board Approval Number: CBDRB-FY22-CES004-051.

Sources: 2000 Census linked to 2021 Numident file and 2000-2016 eviction records.

Associations by propensity to be evicted

- Model propensity to be evicted and then stratify survival model by propensity strata
 - **Brand & Xie (2010)**: Heterogenous treatment effects of educational attainment on economic returns. *American Sociological Review* 75(2); 273-302
 - **Brand et al. (2019)**: Parental divorce is not uniformly disruptive to children's educational attainment. *PNAS* 116(15); 7266-7271
 - **Aquino, Brand, Torche (2022)**. Unequal effects of disruptive events. *Sociology Compass* 16(4); 1-16
- **Step 1**: model propensity using logistic regression (similar with GBM, BART)
- **Step 2**: survival model stratified by propensity groups

Associations by propensity to be evicted

- Eviction among renters most likely to be evicted: **21.80% (14.50-29.60%)** increase in mortality
- Much larger associations among renters least likely to be evicted
- **Implications for racial disparities:** most evictions happen to Black renters, but Black renters have much higher baseline mortality because they have a much different profile (income, education, rent burden) than white renters

Work in progress

- Other working papers
 - **Demographics of eviction in the United States**
 - Descriptive study focused on households affected by eviction (e.g., children)
 - **Excess mortality associated with COVID-19 for renters threatened with eviction**
 - Excess mortality framework
 - **The historical and contemporary role of housing in maintaining the Black-white mortality gap**
 - Decomposition framework
- Other Eviction Lab-Census Collaborations
 - Study the relationship between evictions, employment, and earnings
 - Generational linkage: 1940 Census to 2000 Census, including contextual characteristics (e.g., HOLC redlining maps)
 - Alexander, J. T., Leibbrandt, C., Massey, C., Tolnay, S. (2017). Second-Generation Outcomes of the Great Migration. *Demography* 54: 2249-2271.