

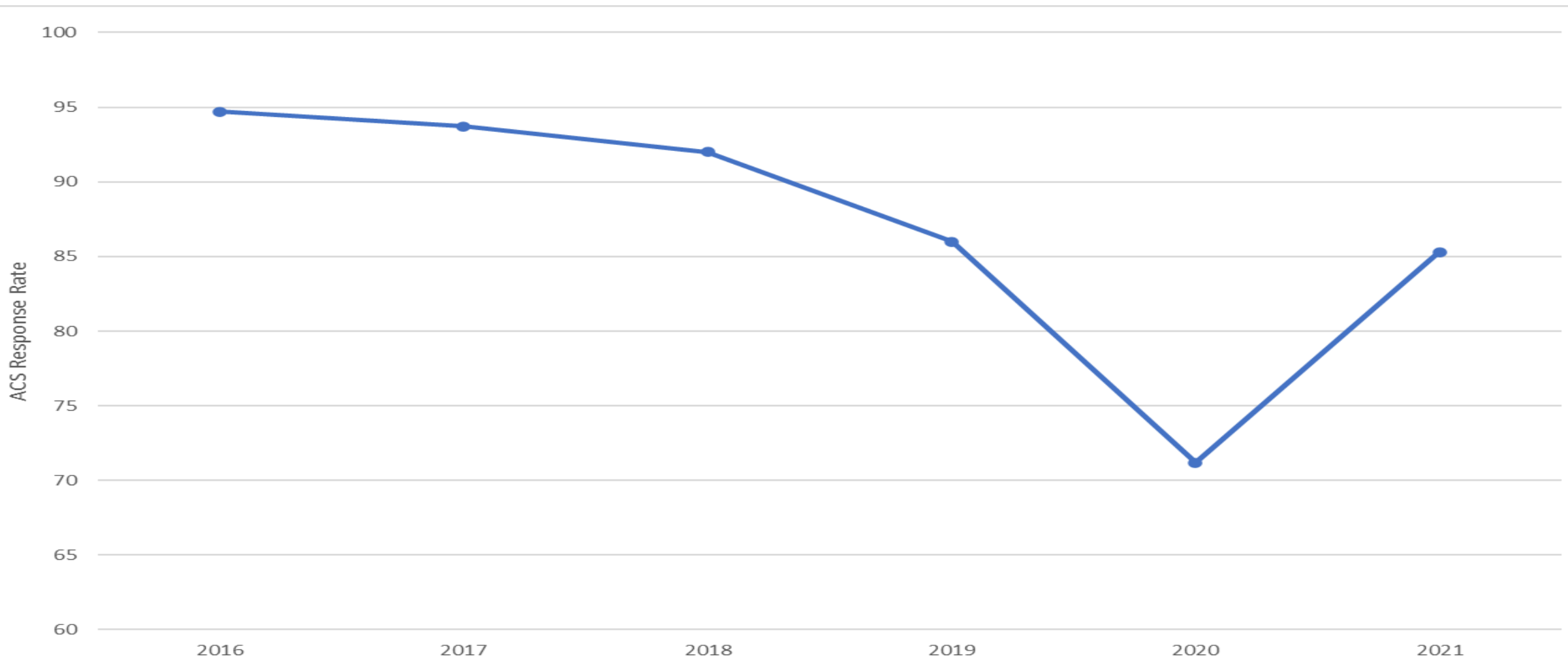
# Estimating the U.S. Citizen Voting-Age Population (CVAP) Using Blended Survey Data, Administrative Record Data, and Modeling

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# ACS Housing Unit Response Rate (Percent)



# Motivation

- Traditionally, survey weights of the respondents are adjusted for nonresponse bias
- We use administrative data for nonresponding housing units
- We replace edited and imputed survey citizenship responses with administrative data and modeling
- Report documents differences in estimates across methods and analyzes why they are different

# Enhanced CVAP Methodology

- All people in final 2016-2020 ACS responses for 50 states and DC are used
- ACS values for age, race, and ethnicity are not altered
- As-reported ACS citizenship values are not altered
- ACS citizenship values that are not as-reported are replaced with values from administrative or past as-reported survey data when available, and are modeled otherwise

# Enhanced CVAP Methodology

- Place people from 22 administrative data sources in nonresponding ACS housing units
- For administrative records with month, use 25-month window around ACS tabulation month – otherwise a 3-year window
- Exclude persons not alive or who were incarcerated in Bureau of Prisons in ACS tabulation month
- Age is from SSA NUMIDENT
- Race and ethnicity are from past decennial census, survey, and administrative data

# Enhanced CVAP Methodology

- Predict probability that person resided at ACS address in tabulation month
- Logistic regression model using 2016-2020 ACS responses
- Indicator for whether the person in administrative records at this address is also in this address's ACS response is dependent variable
- Explanatory variables include indicators for administrative record sources, a duration in days from ACS tabulation month for each source, and the first and last year the PIK-MAFID appeared in any source
- Person-place probabilities are normalized by dividing the original probabilities by the sum of all their administrative record address probabilities in the window around the ACS tabulation month

# Enhanced CVAP Methodology

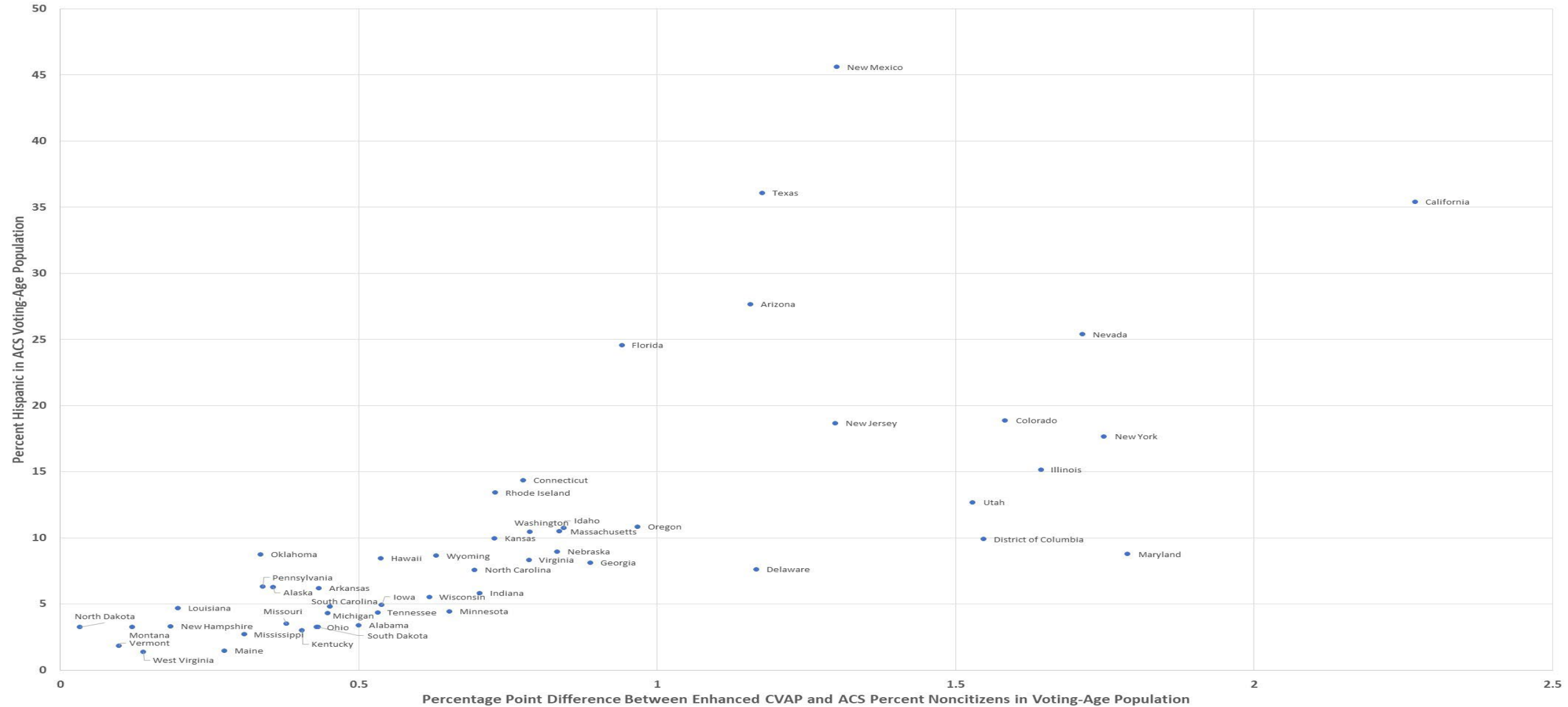
- Each person has a weight that is specific to their citizenship-age-race-ethnicity-location cell, via multiplying their probabilities of being in the citizenship category, age category, race-ethnicity category, and location

## Noncitizen Shares by Age and Race/Ethnicity for All ACS Housing Units and Group Quarters

	ACS	Enhanced CVAP	Percentage Point Difference	Percent Difference
Total	6.64	7.38	0.74	10.56
Age 0-17	2.51	2.18	-0.33	-14.07
Non-Hispanic	1.84	1.88	0.04	2.15
Hispanic	4.49	3.08	-1.41	-37.25
Age 18+	7.86	8.88	1.02	12.19
Non-Hispanic	4.19	4.80	0.61	13.57
Hispanic	26.93	29.98	3.05	10.72



# Association Between Enhanced CVAP – ACS Percentage Point Difference in Noncitizen Share and Percent Hispanic in Voting Age Population



The data presented in this figure are approved for dissemination by the DRB (CBDRB-FY23-272).

## Percent of Voting-Age Population by Race/Ethnicity Responding ACS Housing Units

	2020 Census	2020 ACS	2020 AR
Non-Hispanic Asian	6.50	6.50	5.74
Non-Hispanic Black	8.49	8.11	8.72
Non-Hispanic White	69.10	69.08	69.81
Hispanic	12.68	12.89	13.41

## Percentage Point Difference in Race/Ethnicity Share of Adults Nonresponding - Responding ACS Housing Units

	2020 Census	2020 AR	2020 ACS
Non-Hispanic Asian	-0.51	-0.62	-1.11
Non-Hispanic Black	5.69	5.65	6.03
Non-Hispanic White	-12.79	-12.61	-10.59
Hispanic	7.44	7.44	6.40

## Decomposition of Difference in Percent Voting-Age Noncitizens between ACS and AR in Nonresponding 2016-2020 ACS Housing Units

	AR and Modeling in Place of ACS Edits and Imputes in Responding HUs	AR and Modeling in Place of As-Reported ACS Citizenship	AR Rosters in Place of ACS Rosters	Difference in AR vs. ACS Change for Nonresponding vs. Responding HUs	Total Percentage Point Difference in Noncitizens
Non-Hispanic	0.08	-0.02	0.76	1.14	1.96
Hispanic	0.89	0.01	4.21	1.08	6.19

# Conclusions

- Enhanced CVAP method produces 0.74 percentage point higher noncitizen share, and 3.05 percentage points higher for voting-age Hispanics
- AR data include more voting-age Hispanic noncitizens with unknown legal status than ACS responses do
- ACS nonresponse bias weight adjustments by citizenship are less than what AR data suggests is the case
- AR and 2020 Census indicate similar levels of nonresponse bias by age and race/ethnicity

# Questions?

The report is available at: <https://www.census.gov/library/working-papers/2023/adrm/CES-WP-23-21.html>

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