Measuring Education: A Comparison of the Decennial Census and the American Community Survey

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Introduction

- By the end of the decade, the American Community Survey (ACS) will replace the Census as the primary source for state and local estimates of school enrollment.

- How do ACS estimates of school enrollment compare with those from the decennial Census?

American Community Survey (ACS)

- When fully implemented, the ACS will annually survey a nationwide sample of 3 million households
- Annual estimates will be provided for the nation, states, and places of 65,000+ beginning in 2006
- Annual data collection will allow areas to detect change quickly, compared to decennial data
- Beginning in 2010, annual, multi-year moving averages will be available down to the block group

Census 2000

- School enrollment data come from the Census 2000 sample
- 1-in-6 housing units, or 18.3 million households received the long form in 2000
- Data collected reflect the U.S. population on April 1, 2000

Analysis

- This study
  - Compares school enrollment estimates from the Census 2000 sample with comparable estimates from the 2000 ACS at the national level and for 21 ACS test sites
  - Compares total enrollment estimates and enrollment by type of school, grade, and age
  - Analyzes how differences in data collection and methodology may impact the various estimates
  - Focuses only on the household population

21 ACS Test Sites

Pima, AZ	Calvert, MD	Franklin, OH
Jefferson, AR	Hampden, MA	Multnomah, OR
San Francisco, CA	Madison, MS	Schuylkill, PA
Tulare, CA	Flathead-Lake, MT	Sevier, TN
Broward, FL	Douglas, NE	Ft. Bend-Harris, TX
Lake, IL	Bronx, NY	Starr-Zapata, TX
Black Hawk, IA	Rockland, NY	Yakima, WA

School Enrollment Questions

Both the ACS and Census 2000 ask two questions on school enrollment. The only difference in wording across the two surveys is in the reference period.

Q1 (ACS): At any time IN THE LAST 3 MONTHS, has this person attended regular school or college?

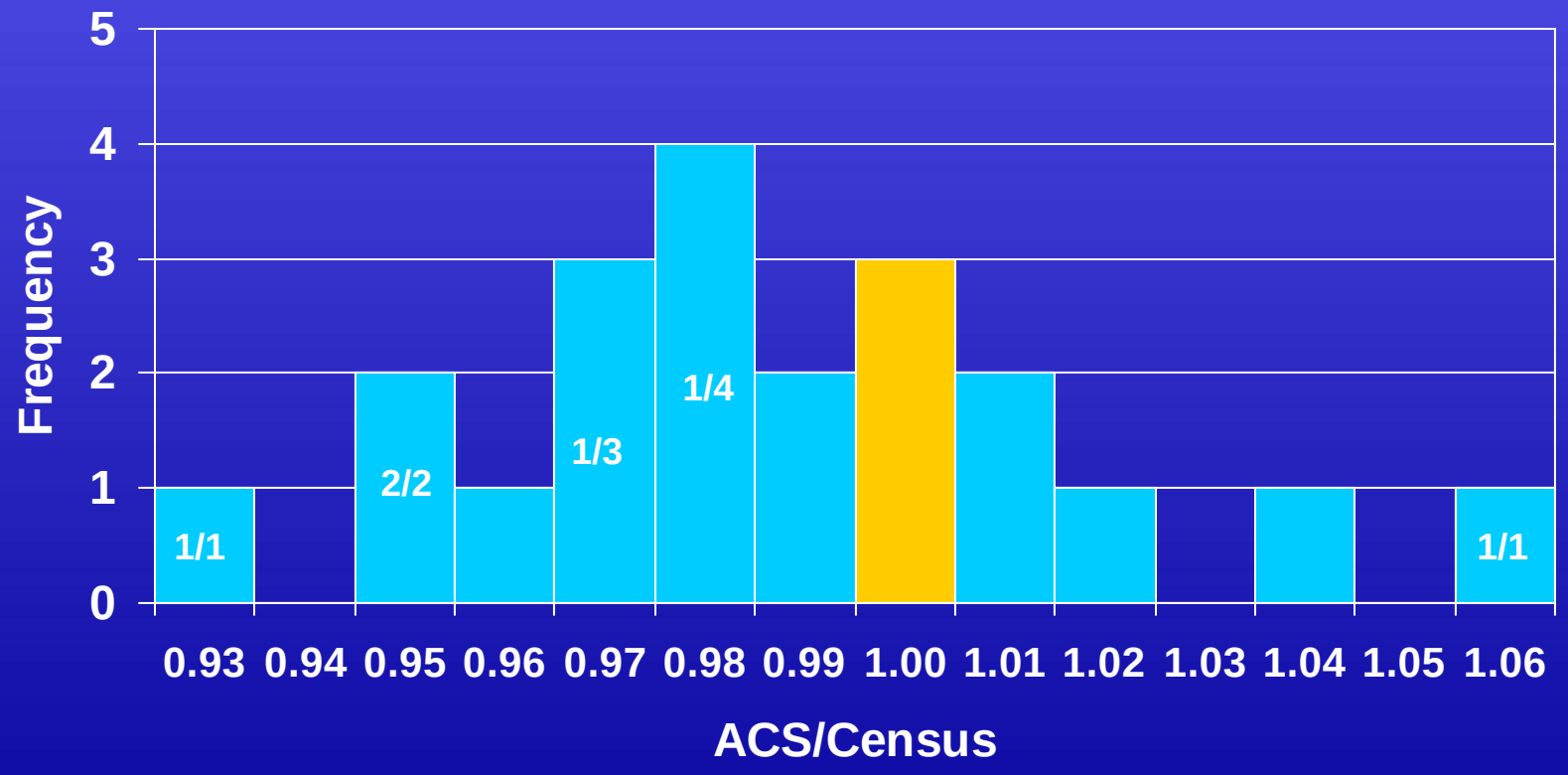
Q1 (CENSUS): At any time since February 1, 2000, has this person attended regular school or college?

Q2: What grade or level was this person attending?

National School Enrollment Estimates for the Household Population 3 Years and Over (weighted)

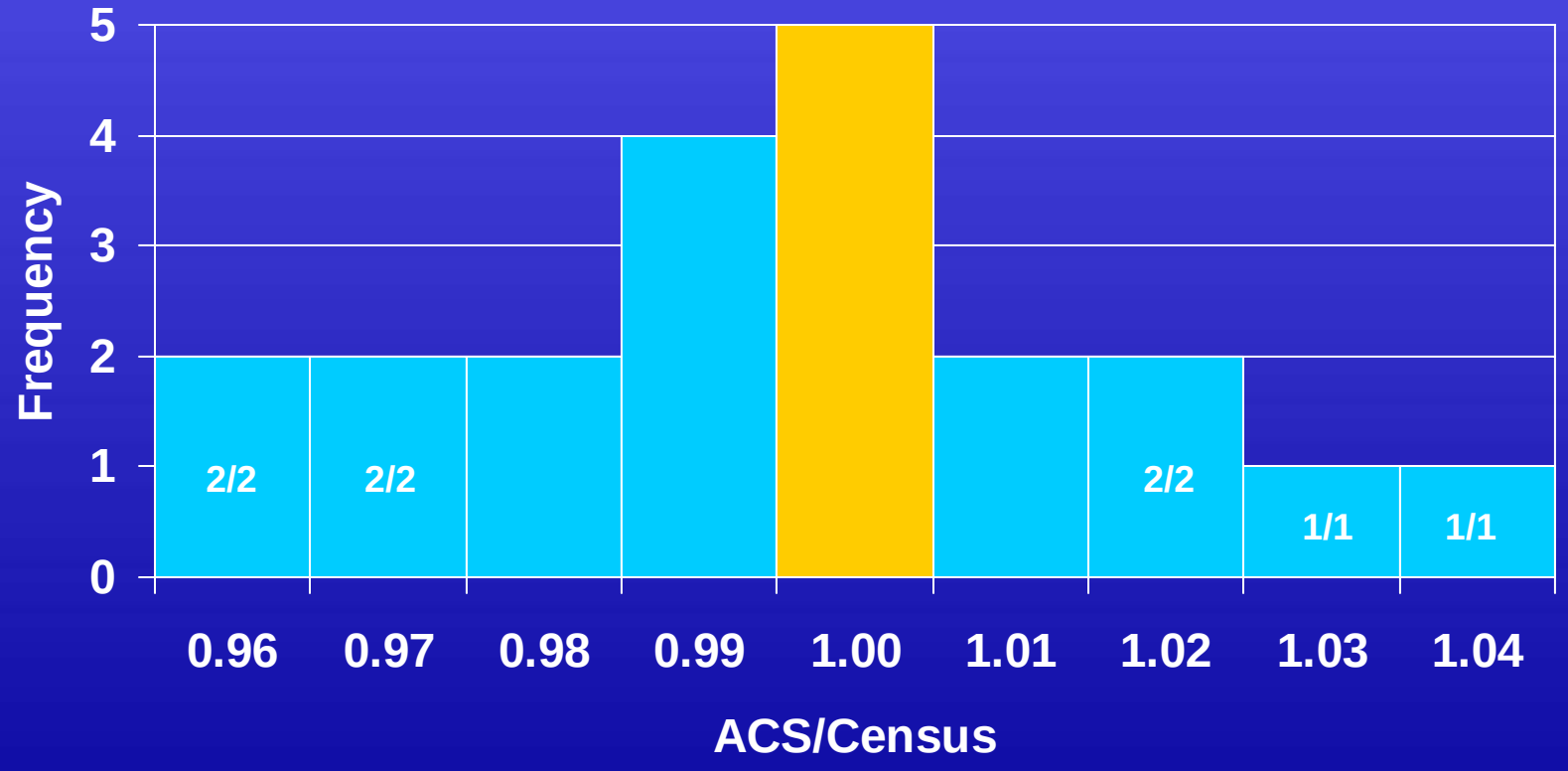
Data set	Total Enrolled	Percent Enrolled	Percent Public	Percent Private
2000 ACS	72,560,000	27.7	84.1	15.9
2000 Census	73,947,000	28.2	84.4	15.6
ACS/Census	0.98*	0.98*	1.00*	1.02*

2000 ACS Total Enrollment
Census 2000 Total Enrollment
for 21 ACS Sites, Frequency Distribution



2000 ACS % Enrolled in Public School

Census 2000 % Enrolled in Public School for 21 ACS Sites, Frequency Distribution

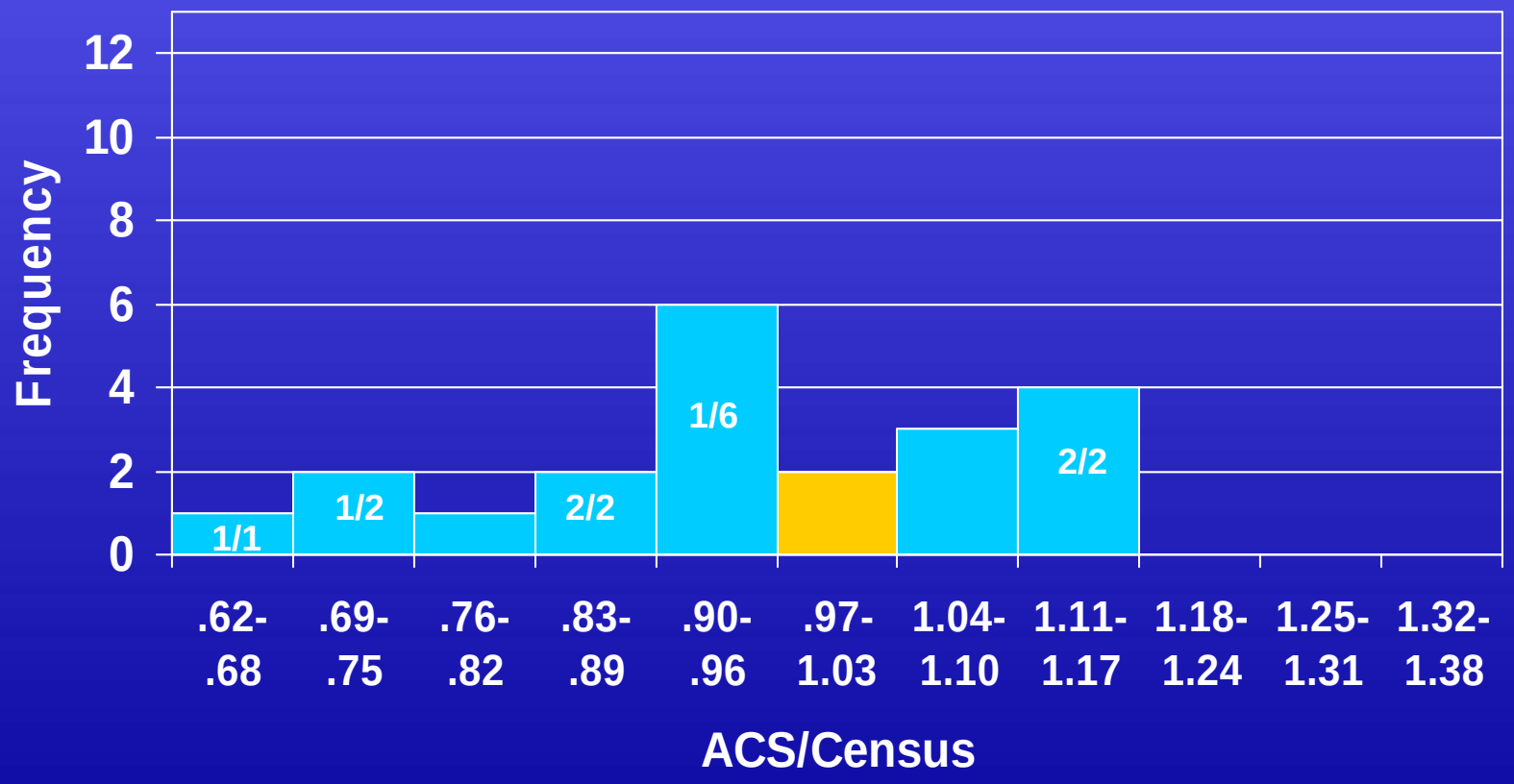


National School Enrollment by Level Enrolled for the Household Population 3 Years and Over, Percent Distribution (weighted)

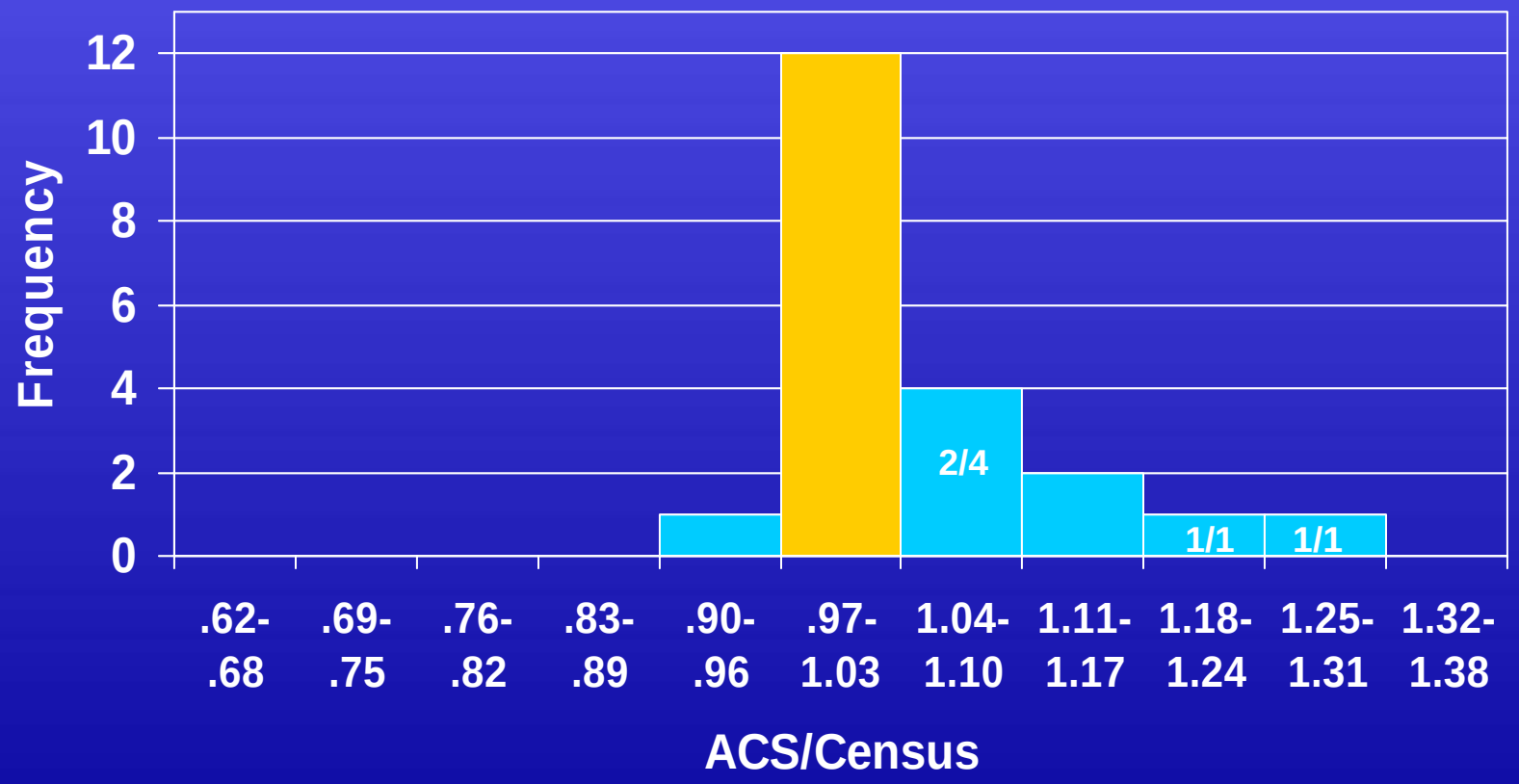
Data set	Nursery school	Kinder-garten	Grade 1 to 4	Grade 5 to 8	Grade 9 to 12	College	Grad or Prof.
2000 ACS	6.0	5.4	22.7	22.7	21.7	17.3	4.3
2000 Census	6.7	5.6	22.9	22.5	21.7	16.5	4.1
ACS/Census	0.90*	0.96*	0.99*	1.01*	1.00	1.05*	1.05*

2000 ACS % Enrolled Kindergarten

Census 2000 % Enrolled in Kindergarten for 21 ACS Sites, Frequency Distribution



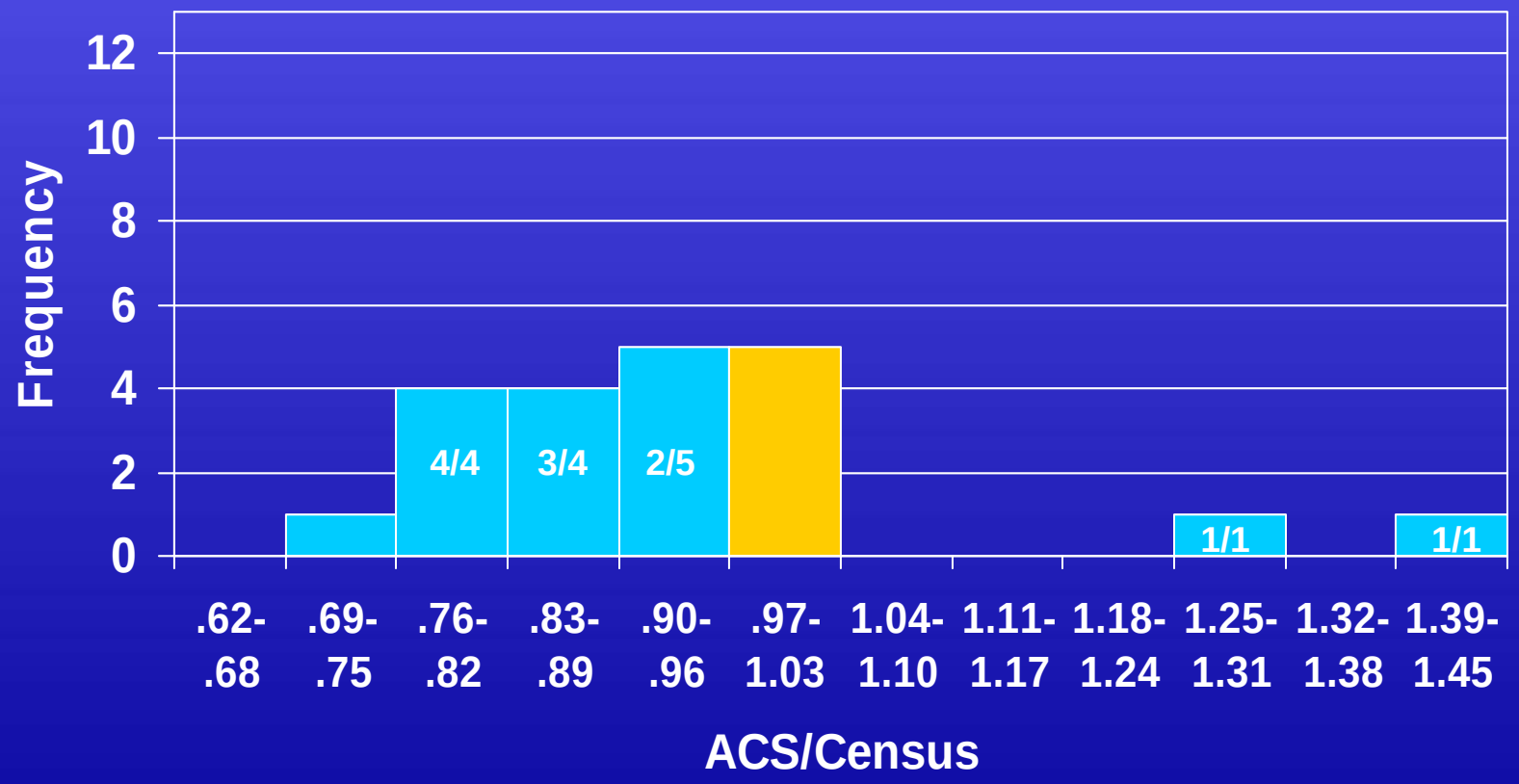
2000 ACS % Enrolled, College Undergraduate Census 2000 % Enrolled, College Undergraduate for 21 ACS Sites, Frequency Distribution



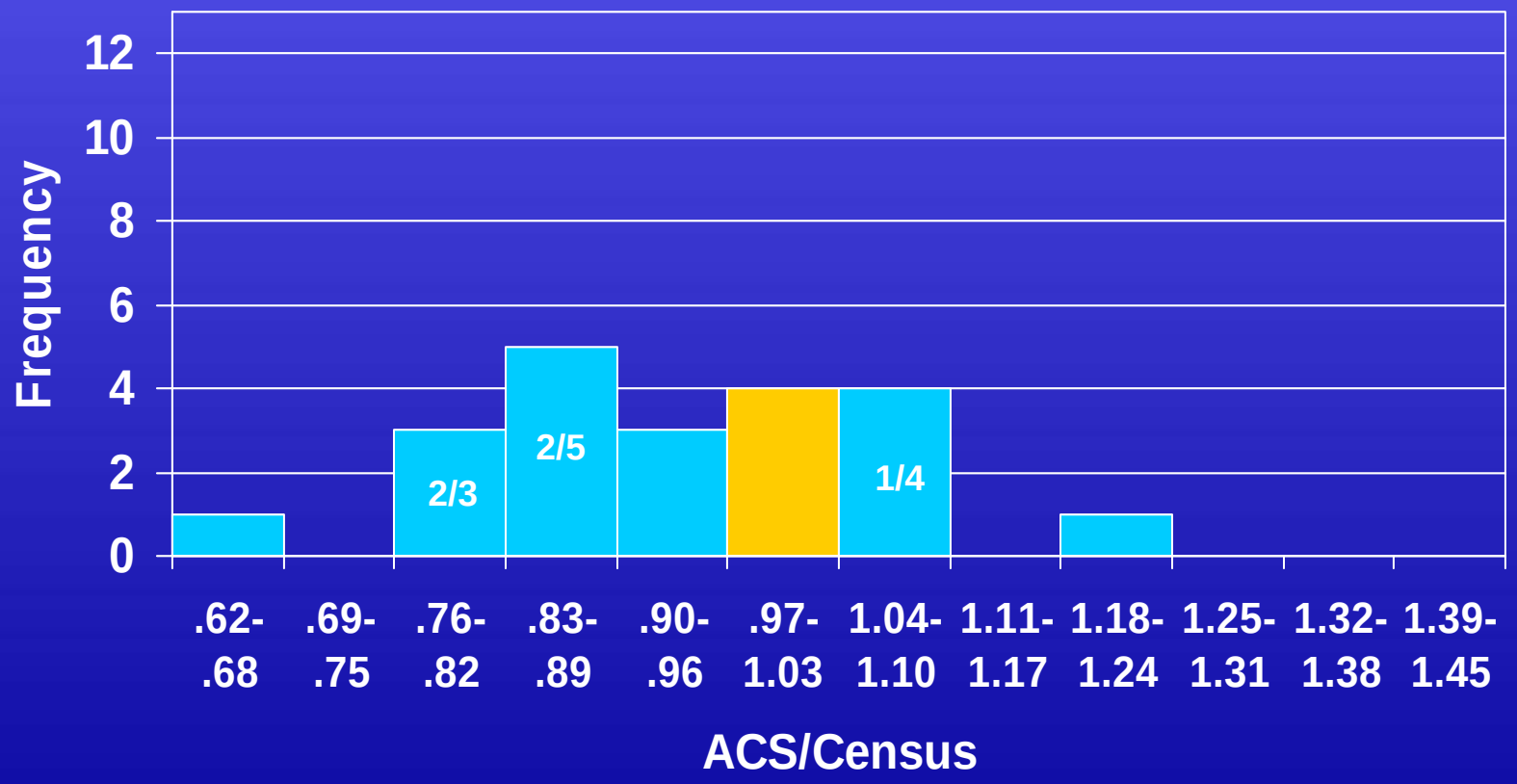
National Percent Enrolled by Age for the Household Population 3 Years and Over (weighted)

Data set	3-4 years	5-9 years	10-14 years	15-17 years	18-19 years	20-24 years	25-34 years	35+ years
2000 ACS	42.7	94.1	97.9	94.2	62.6	33.8	11.2	3.1
2000 Census	49.3	95.9	98.9	95.1	62.7	32.7	11.4	3.3
ACS/Census	0.87*	0.98*	0.99*	0.99*	1.00	1.03*	0.98*	0.94*

2000 ACS % Enrolled Age 3-4
Census 2000 % Enrolled Age 3-4
for 21 ACS Sites, Frequency Distribution



2000 ACS % Enrolled Age 25-34
Census 2000 % Enrolled Age 25-34
for 21 ACS Sites, Frequency Distribution



Survey Differences

The 2000 ACS and the Census 2000 sample differ in three important respects that may affect the estimates of school enrollment

❶ Mode of Data Collection

❷ Non-mail Interview Quality

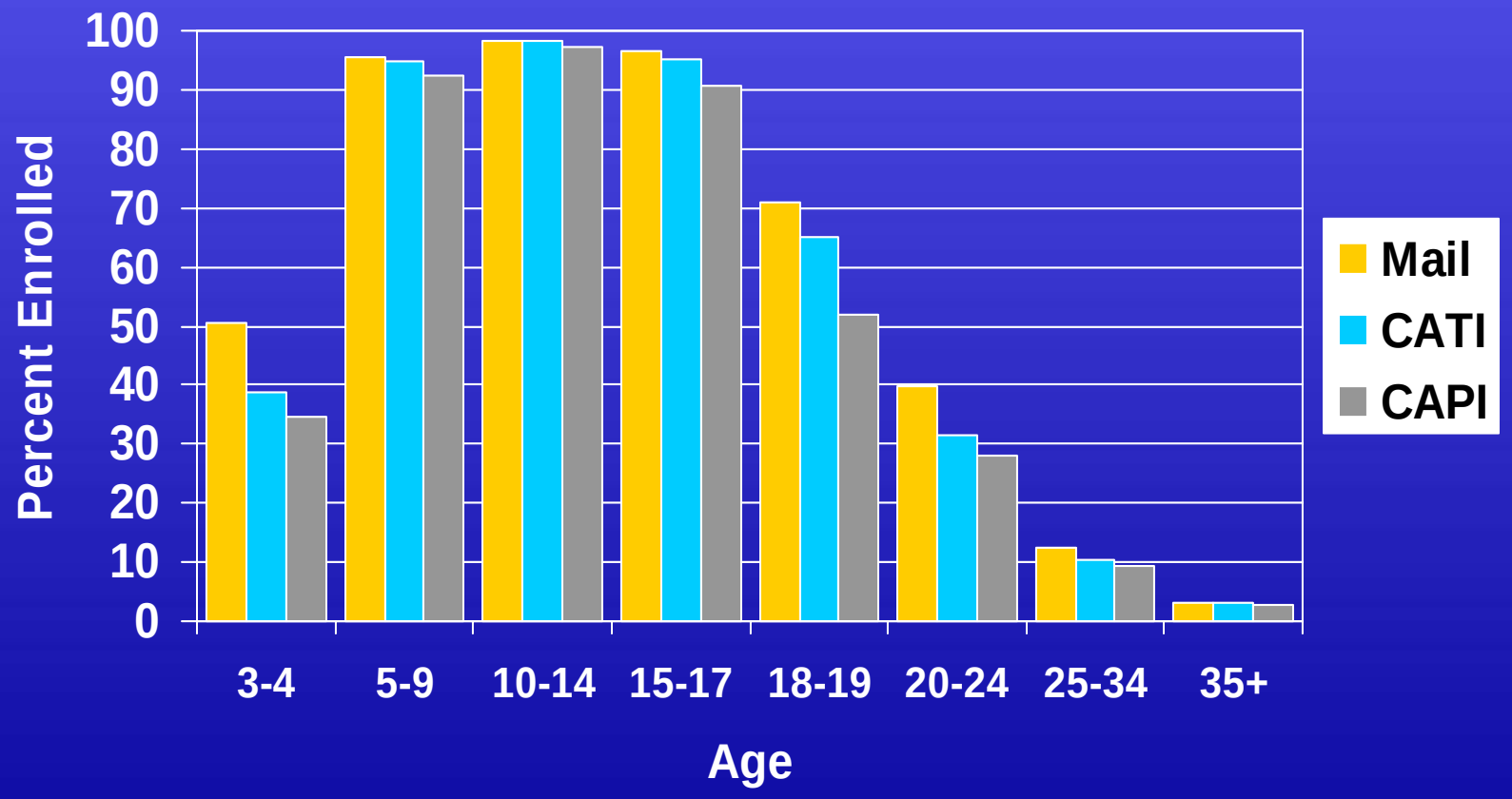
❸ Survey Timing

Mode of Data Collection

- 2000 American Community Survey
  - Mail-out/Mail-back questionnaire (58.3%)
    - Black Hawk, IA (70.2%)
    - Starr-Zapata, TX (21.9%)
  - Computer-assisted telephone interviews (9.4%)
  - Computer-assisted personal interviews (32.3%)

- Census 2000 Sample
  - Mail-out/Mail-back and Left/Mail-back questionnaires (~66%)
  - In-person enumeration (~34%)

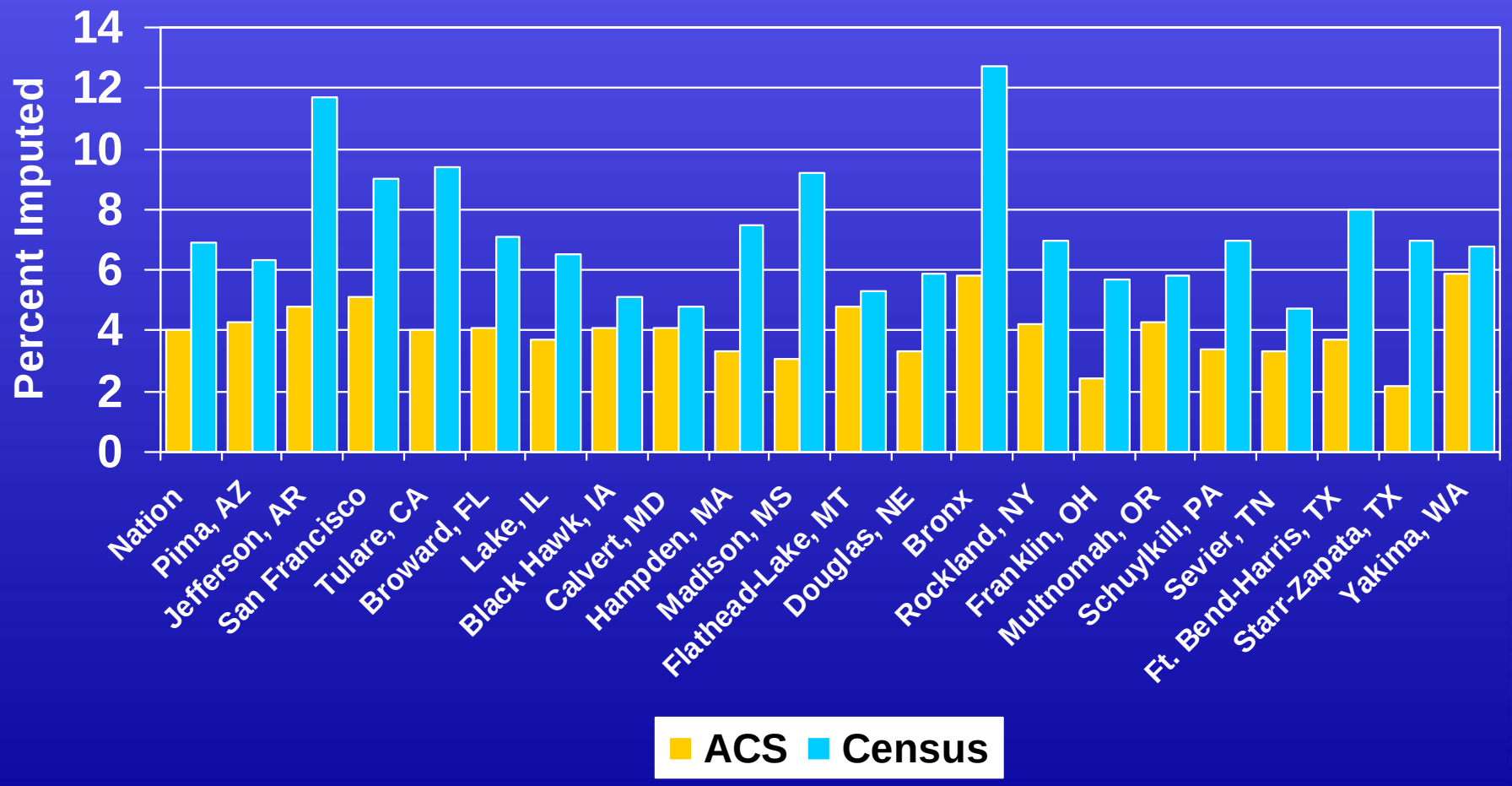
National Percent Enrolled by Age and Mode of Interview, 2000 ACS (weighted)



Non-mail Interview Quality

- 2000 American Community Survey
  - Used highly-trained, permanent employees for non-mail interviews (CATI and CAPI)
  - Used Computer-assisted non-mail interviews
- Census 2000 Sample
  - Used minimally-trained, temporary employees for non-mail interviews

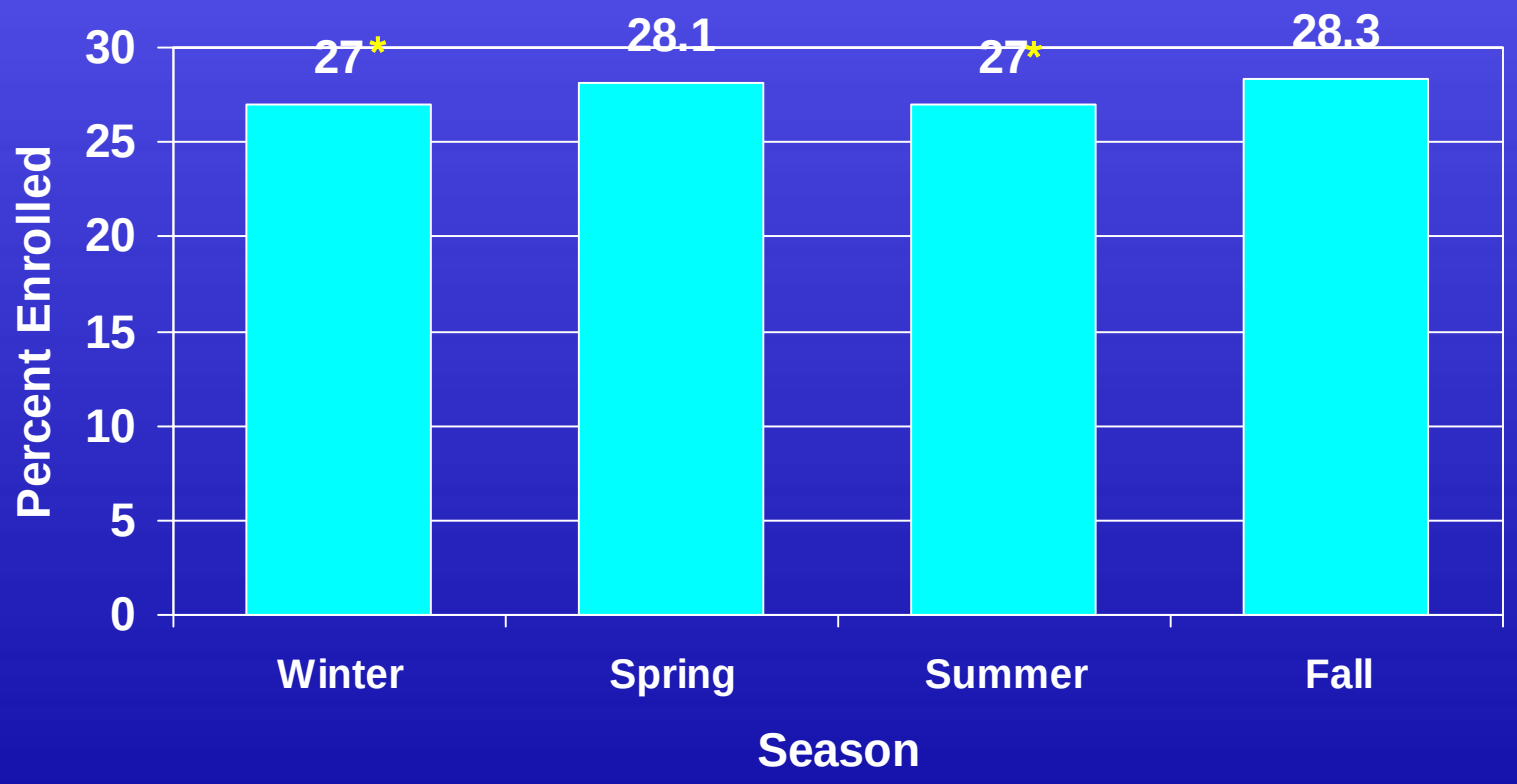
National School Enrollment Imputation Rates, 2000 ACS and Census 2000



Survey Timing

- 2000 American Community Survey
  - Data Collection Period = All year (Jan.-Dec.)
  - Reference Period = Last 3 months
- Census 2000 Sample (most cases)
  - Data Collection Period = Mar.-May
  - Reference Period = Since Feb. 1, 2000

National Percent Enrolled by Season, 2000 ACS (weighted)



Logistic Regression

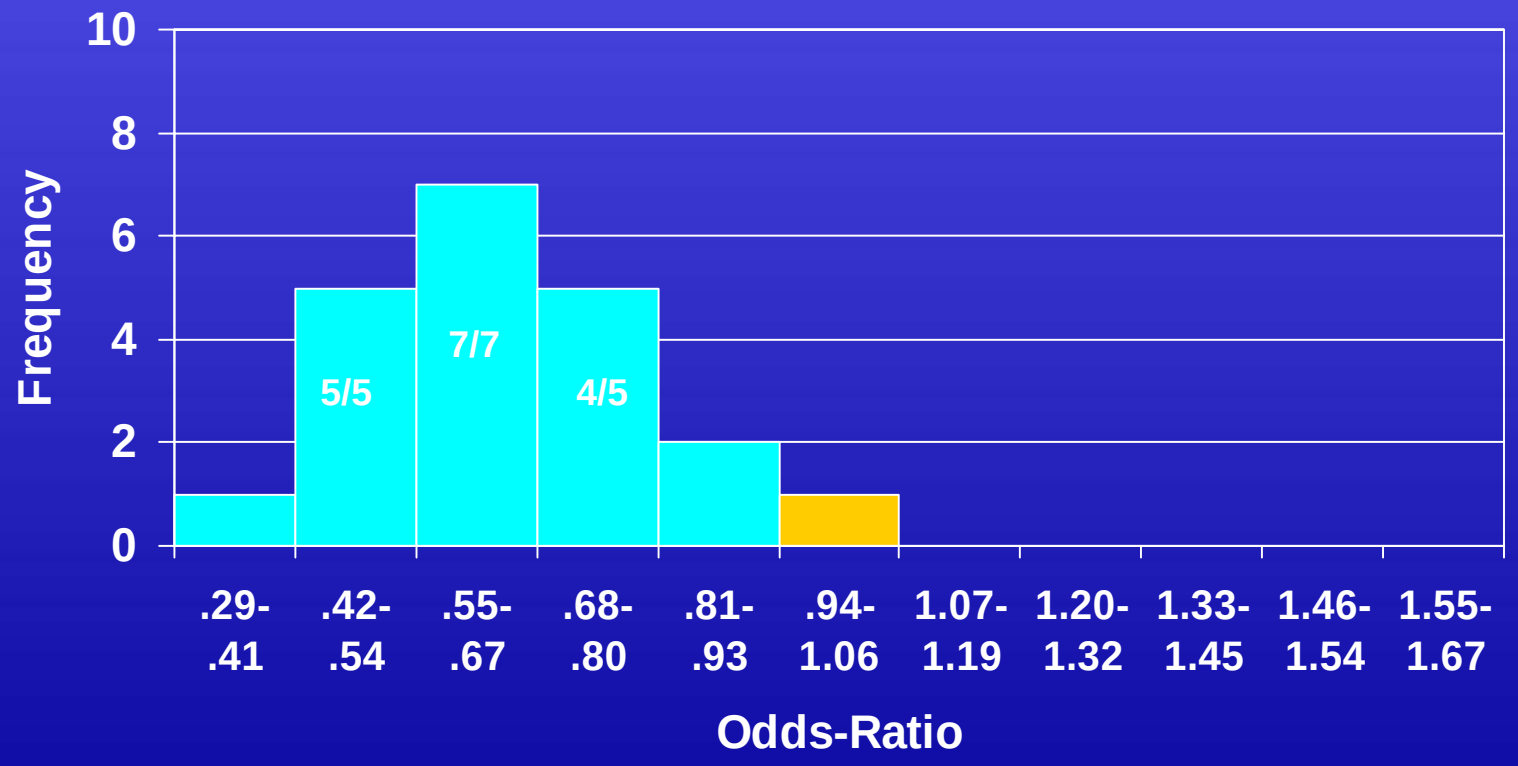
- **Dependent Variable** = Enrollment (1=Yes)

- **Independent Variables**
  - ACS: CATI, CAPI, Winter, Summer, Fall
  - Census: Enumerator

- **Controls** = age, sex, race, ethnic origin, nativity, linguistic isolation, household poverty (ACS), household income (Census), household size (Census), type of housing unit, telephone (1=yes), marital status, work status, mobility (ACS)

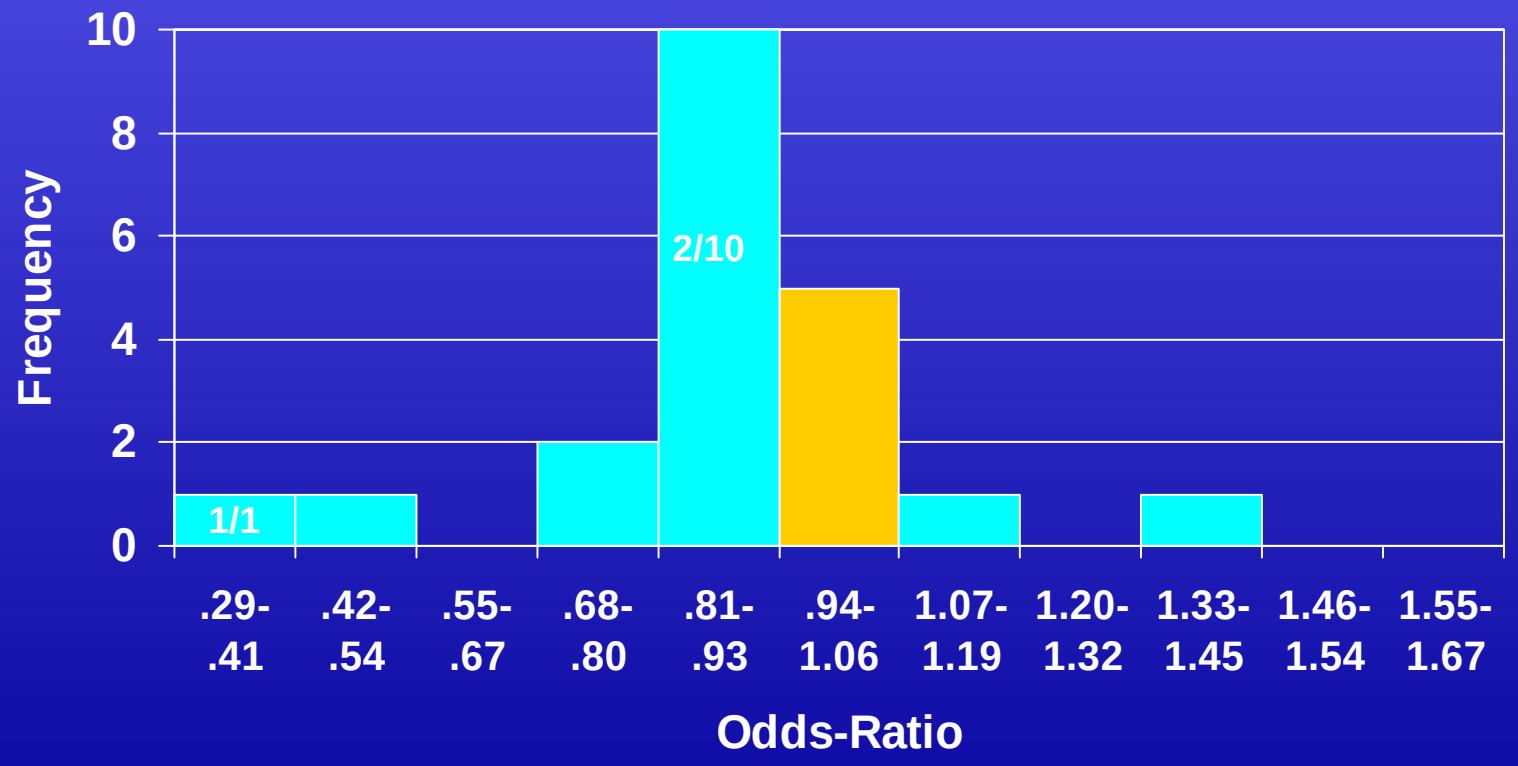
Distribution of Estimated Odd-Ratios for a Logistic Regression of School Enrollment on CAPI Interview Mode (*mail is the reference category*), 2000 ACS Sites

Nation=0.699*



Distribution of Estimated Odd-Ratios for a Logistic Regression of School Enrollment on Summer Interview (*Spring is the reference category*), 2000 ACS Sites

Nation=0.889*



Conclusions

- Similarities
  - Total Enrollment
  - Enrollment by Type of School
  - Primary School Enrollment
  - Secondary School Enrollment
  - Age-specific Enrollment Rates for those Ages 5 to 19

- Differences
  - Preprimary enrollment (Census > ACS)
  - Postsecondary enrollment (Census < ACS)
  - Enrollment rate for 3 and 4 year olds (Census > ACS)

Conclusions

- Differences in mode of administration, reference period, and survey timing would lead us to expect some difference in enrollment across the two surveys but do little to explain the observed pattern of differences.

Timing => higher enrollment in Census

Reference Period => higher enrollment in ACS

Mode? => higher enrollment in Census

Additional Information?

- Visit the American Community Survey Internet Site

  www.census.gov/acs/www

- Email

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