



# What the American Community Survey Can Tell us About Mixed Mode Surveys

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Institute for Social Research  
University of Michigan  
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# What I'll cover

- Background on the ACS
- How ACS data are collected
- Mixed mode observations
- Mixed mode issues



# The American Community Survey is ...

- A large national survey that uses continuous measurement methods to produce detailed demographic, socioeconomic, and housing data each year



# Demographic Characteristics



- Sex
- Age
- Race
- Hispanic Origin
- Relationship



# Social Characteristics



- Education
- Marital Status
- Fertility
- Grandparents
- Veterans
- Disability
- Language Spoken at Home
- Place of Birth
- Citizenship
- Year of Entry
- Ancestry and Tribal Affiliation



# Economic Characteristics

- Income
- Benefits
- Employment Status
- Occupation
- Industry
- Commuting to Work
- Place of Work





# Housing Characteristics



- Tenure
- Occupancy & Structure
- Housing Value
- Taxes & Insurance
- Utilities
- Mortgage/Monthly Rent



# Frame and Sample Selection

- Initial sample cases are selected from the Census Bureau's Master Address File – about a 2.1% sample is selected each year and allocated into 12 monthly sample panels
- One frame is used for initial sample selection but frame limitations exist for mode-specific data collection





# Continuous Measurement

- Continuous data collection
- Monthly sample panels are cumulated over TIME to produce the lowest levels of geographic detail - 5 years or 60 months of data are required to produce data for smallest geographic areas



# Data Collection Methods

- Methodology based on best practices from decennial census and demographic surveys
- Monthly samples use three sequential modes of data collection
  - Mail
  - Telephone
  - Personal Visit



Sample Panel	Calendar Month				
	Jan 2005	Feb 2005	Mar 2005	Apr 2005	May 2005
Nov 2004	Personal Visit				
Dec 2004	Phone	Personal Visit			
<b>Jan 2005</b>	Mail	Phone	Personal Visit		
Feb 2005		Mail	Phone	Personal Visit	
Mar 2005			Mail	Phone	Personal Visit



Sample Panel	Calendar Month				
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Mar 2005			Mail	Phone	Personal Visit



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Jan 2005	Mail	Phone	Personal Visit		
Feb 2005		Mail	Phone	Personal Visit	
Mar 2005			Mail	Phone	Personal Visit



# Mail Mode

- Four mailings are used to maximize mail response
  - Pre-notice (or advance) letter
  - Initial mailing package
  - Reminder postcard
  - Second mailing package (for nonrespondents)
  
- Mandatory messages used

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Economics and Statistics Administration  
**U.S. CENSUS BUREAU**

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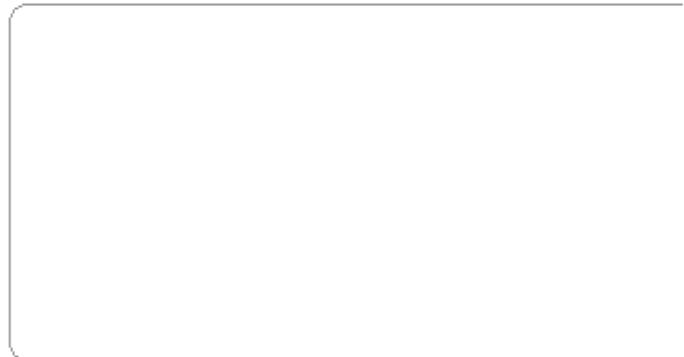
ACS-46(2005) (3-2006)

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Permit No. G-58

The American Community Survey  
Form Enclosed

**YOUR RESPONSE IS  
REQUIRED BY LAW**



U S C E N S U S B U R E A U



# THE American Community Survey

U.S. DEPARTMENT OF COMMERCE  
Economic and Statistics Administration  
U.S. CENSUS BUREAU

**Please complete this form and return it as soon as possible after receiving it in the mail.**

This form asks for information about the people who are living or staying at the address on the mailing label and about the house, apartment, or mobile home located at the address on the mailing label.



If you need help or have questions about completing this form, please call 1-800-354-7271. The telephone call is free.

Telephone Device for the Deaf (TDD):  
Call 1-800-582-8330. The telephone call is free.

**¿NECESITA AYUDA?** Si usted habla español y necesita ayuda para completar su cuestionario, llame sin cargo alguno al 1-877-833-5625.

Usted también puede pedir un cuestionario en español o completar su entrevista por teléfono con un entrevistador que habla español.

For more information about the American Community Survey, visit our web site at: <http://www.census.gov/acs/www/>

U S C E N S U S B U R E A U



## Start Here

➔ Please print today's date.

Month Day Year

➔ Please print the name and telephone number of the person who is filling out this form. We may contact you if there is a question.

Last Name

First Name

MI

Area Code + Number

-

➔ How many people are living or staying at this address?

- INCLUDE everyone who is living or staying here for more than 2 months.
- INCLUDE yourself if you are living here for more than 2 months.
- INCLUDE anyone else staying here who does not have another place to stay, even if they are here for 2 months or less.
- DO NOT INCLUDE anyone who is living somewhere else for more than 2 months, such as a college student living away or someone in the Armed Forces on deployment.

Number of people

➔ Fill out pages 2, 3, and 4 for everyone, including yourself, who is living or staying at this address for more than 2 months. Then complete the rest of the form.

FORM ACS-1(2009)KFI  
(05-22-2009)

OMB No. 0607-0810





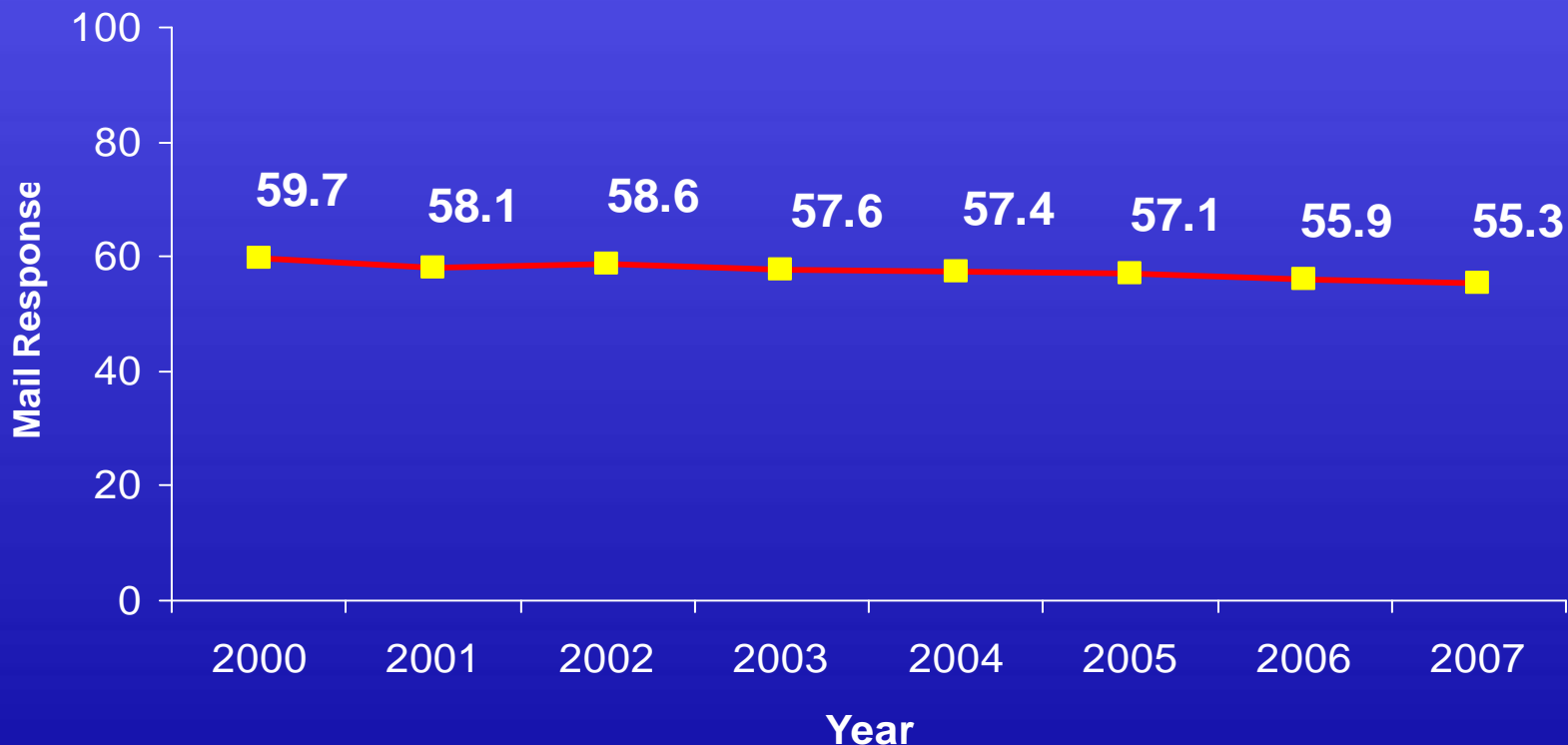
# Mail Mode

- Mail out is in English with Spanish forms available upon request
- Toll-free telephone assistance and an instructional booklet are provided to help respondents correctly complete their forms
- Data for mail returns are reviewed for completeness with a telephone follow-up to resolve missing and inconsistent responses



# Mail Mode

## Mail Response Rates



Source: 2000 – 2007 ACS, weighted mail response rates



# Mail Mode

## 2007 ACS Mail Response Rates

Some of the highest  
mail response rates

- Wisconsin
- Minnesota
- Iowa
- Nebraska
- Michigan

Some of the lowest  
mail response rates

- Puerto Rico
- Alaska
- Mississippi
- Louisiana
- Texas



# Mail Mode

## Issues

- Survey cost containment relies on the success of the mail mode
- Research needed to maintain/improve mail response rates
- Improvements in mailability and deliverability needed in some areas

Questions on the mail mode?



# Telephone Mode

- About 5 weeks after the initial mailout the workload is identified for telephone follow-up
- Commercial vendors provide telephone numbers and 3 call centers conduct interviews using computer-assisted methods (WebCATI)
- Telephone follow-up lasts about four weeks



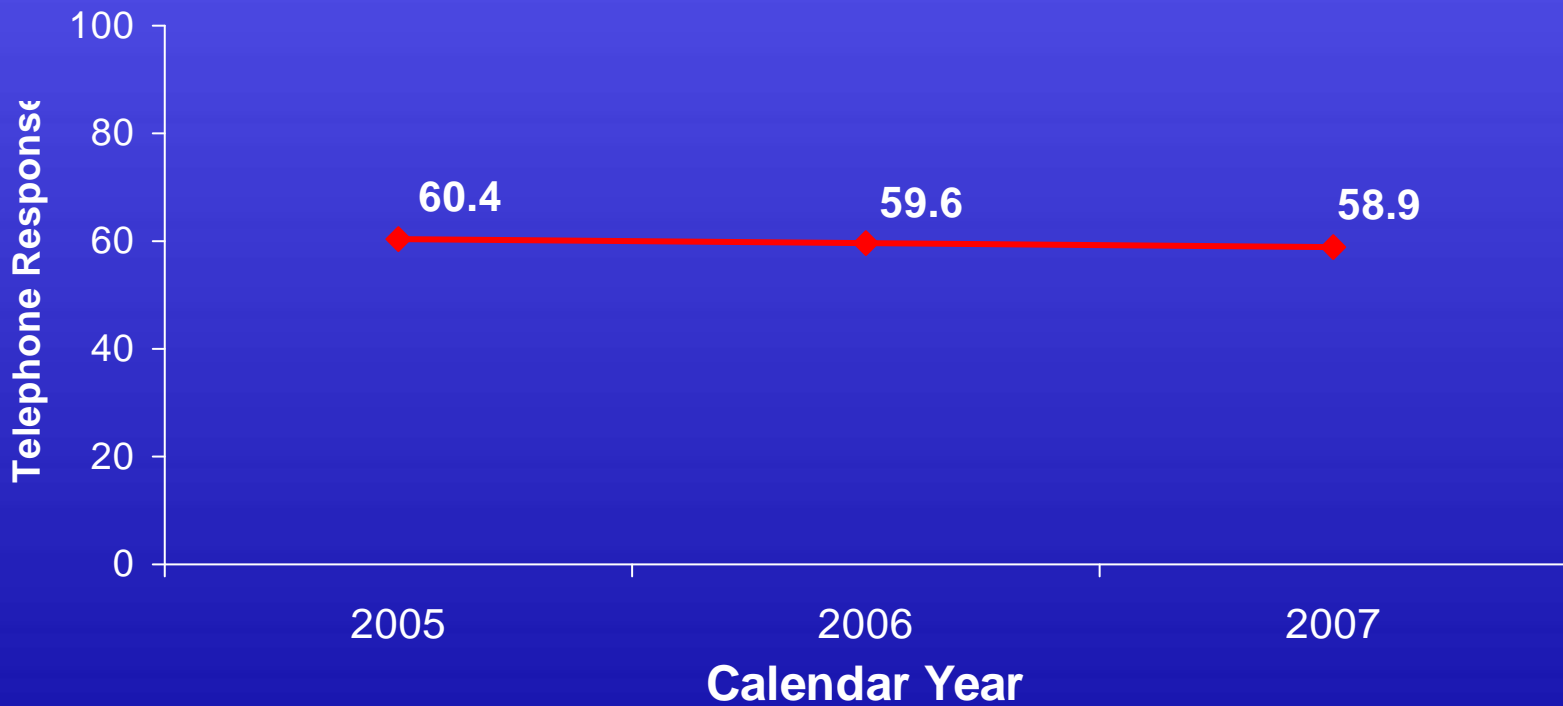
# Telephone Mode

- Survey instruments in English and Spanish, bilingual staff conduct interviews in additional languages
- Interviewers receive initial detailed training and periodic refresher training on special topics, monitored for quality with feedback provided to improve performance



# Telephone Mode

## Telephone Response Rates



Source: 2005 – 2007 ACS, weighted telephone response rates





# Telephone Mode Issues

- Obtaining valid phone numbers
  - Multi-units
  - Cell phones
- Maintaining/expanding language support
- Ensuring high standards of data quality through training and monitoring of interviewing

# Questions about the telephone mode?



# Personal Visit Mode

- Two universes for personal visit follow-up
  - Sample cases with a mailable address but without a mail or telephone response
  - Sample cases ineligible for mail
- A subsample of each universe is selected for personal visit follow-up



# Personal Visit Mode

- Interviewing is managed out of 12 Census Bureau Regional Offices
- Regional offices recruit bilingual staff to ensure data collection from non-English speaking households



# Personal Visit Mode

- Interviewers are experienced, continuously employed
- Interviewers use laptops with English and Spanish translations



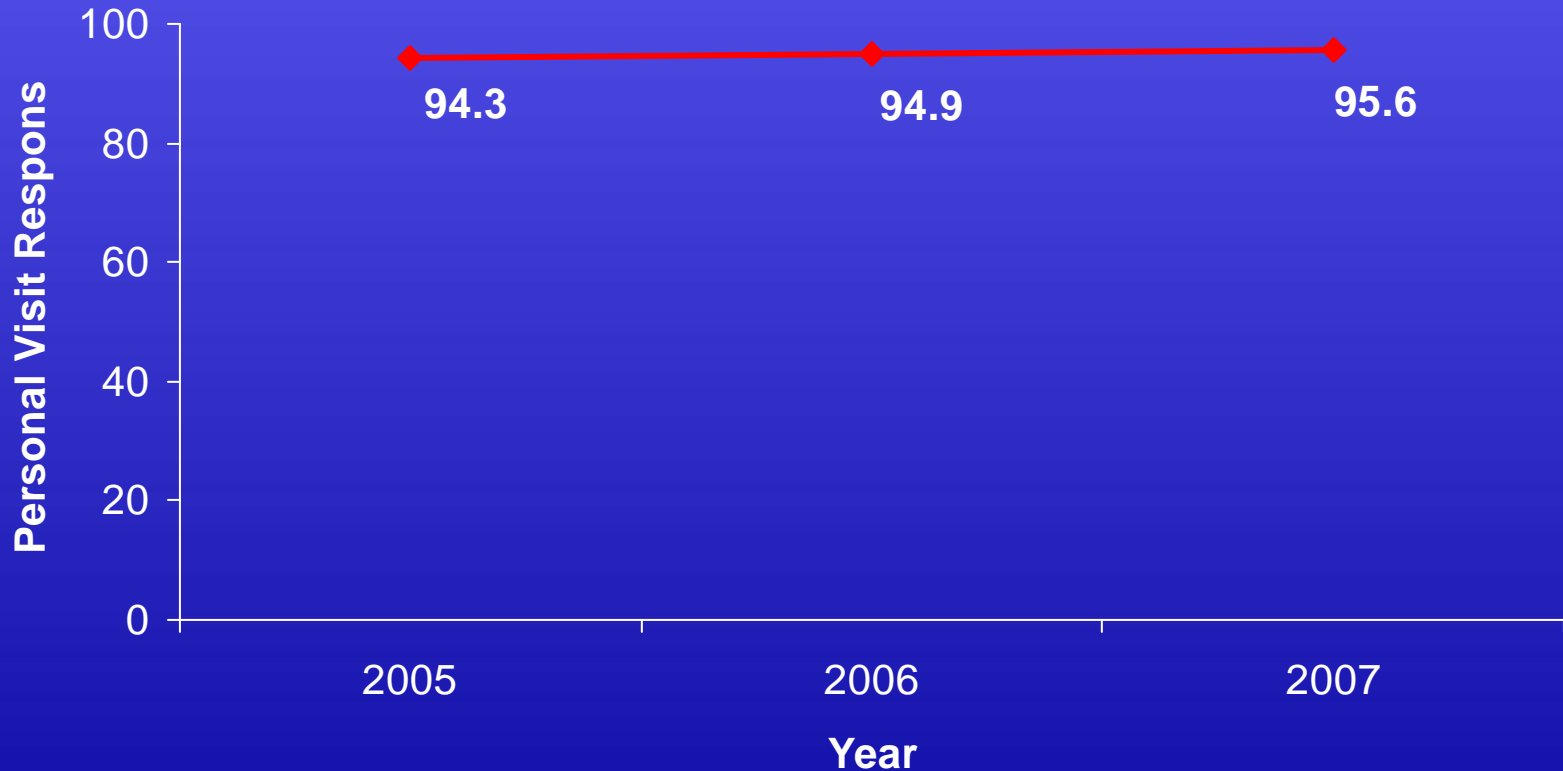
# Personal Visit Mode

- Interviewers receive initial detailed training and monthly reminders on special topics
- Interviewers are monitored for quality with feedback provided to improve performance



# Personal Visit Mode

## Personal Visit Response Rates



Source: 2005 – 2007 ACS, weighted personal visit response rates



# Personal Visit Mode Issues

- Costs
- Maintaining high levels of respondent cooperation
- Ensuring high standards of data quality
  - Training
  - Monitoring interviewing & completed work



Questions on personal visit?

How do the three modes all  
work together?



# Combination of Modes

An example of the timing of data collection activities for the October 2006 sample panel

## SEPTEMBER 2006

9/21 – Mail pre-notice letters

9/25 – Mail initial packages and begin mail check-in

9/28 – Mail reminder cards

## NOVEMBER 2006

11/1 – CATI interviewing begins

11/26 – CATI interviewing ends

11/28 – Create CAPI workload

## OCTOBER 2006

10/19 – Mail 2<sup>nd</sup> package

10/30 – Create CATI workload

## DECEMBER 2006

12/1 – CAPI interviewing begins

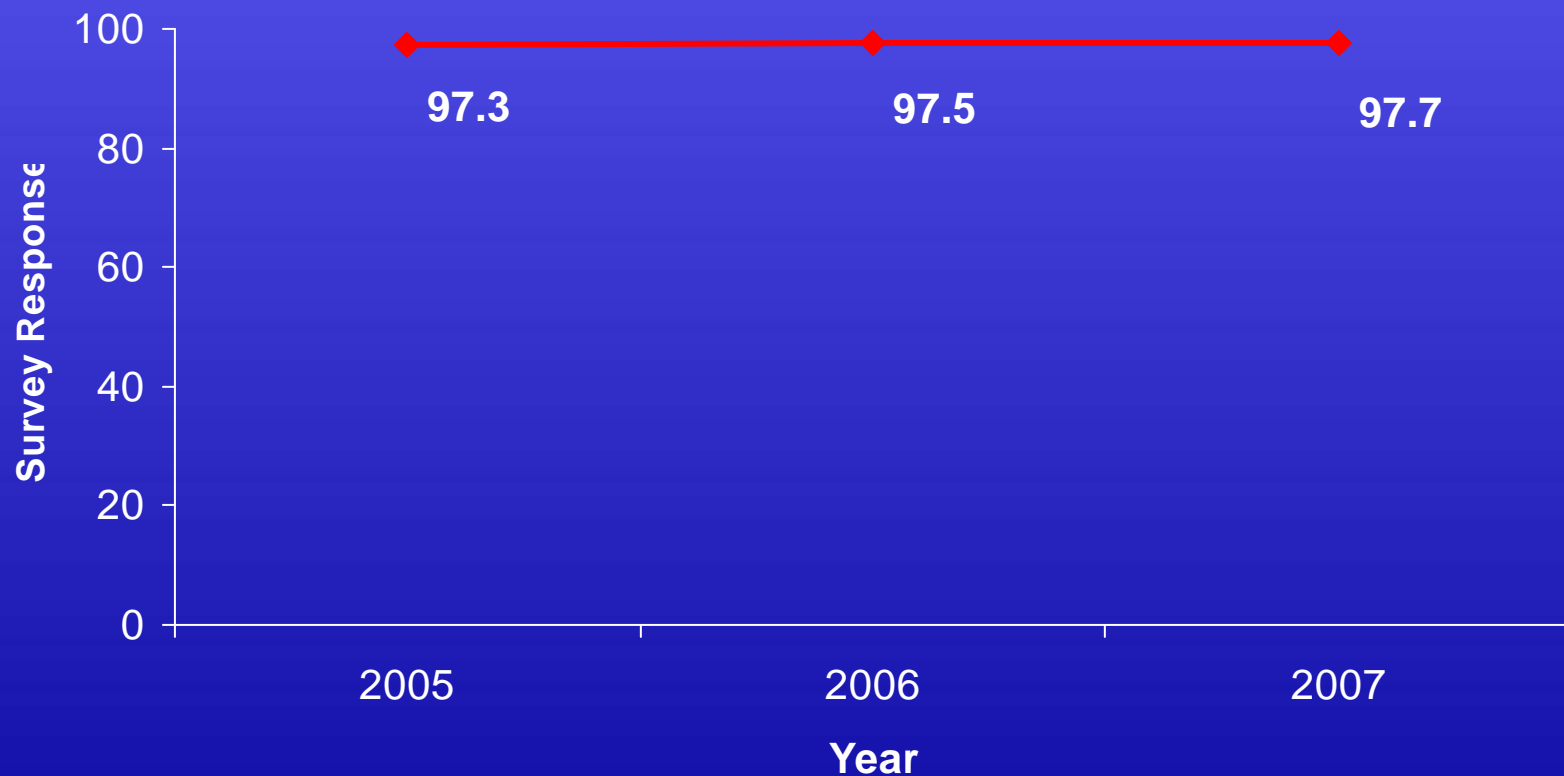
12/31 – CAPI interviewing ends

12/31 – End mail check-in



# Combination of Modes

## Survey Response Rates

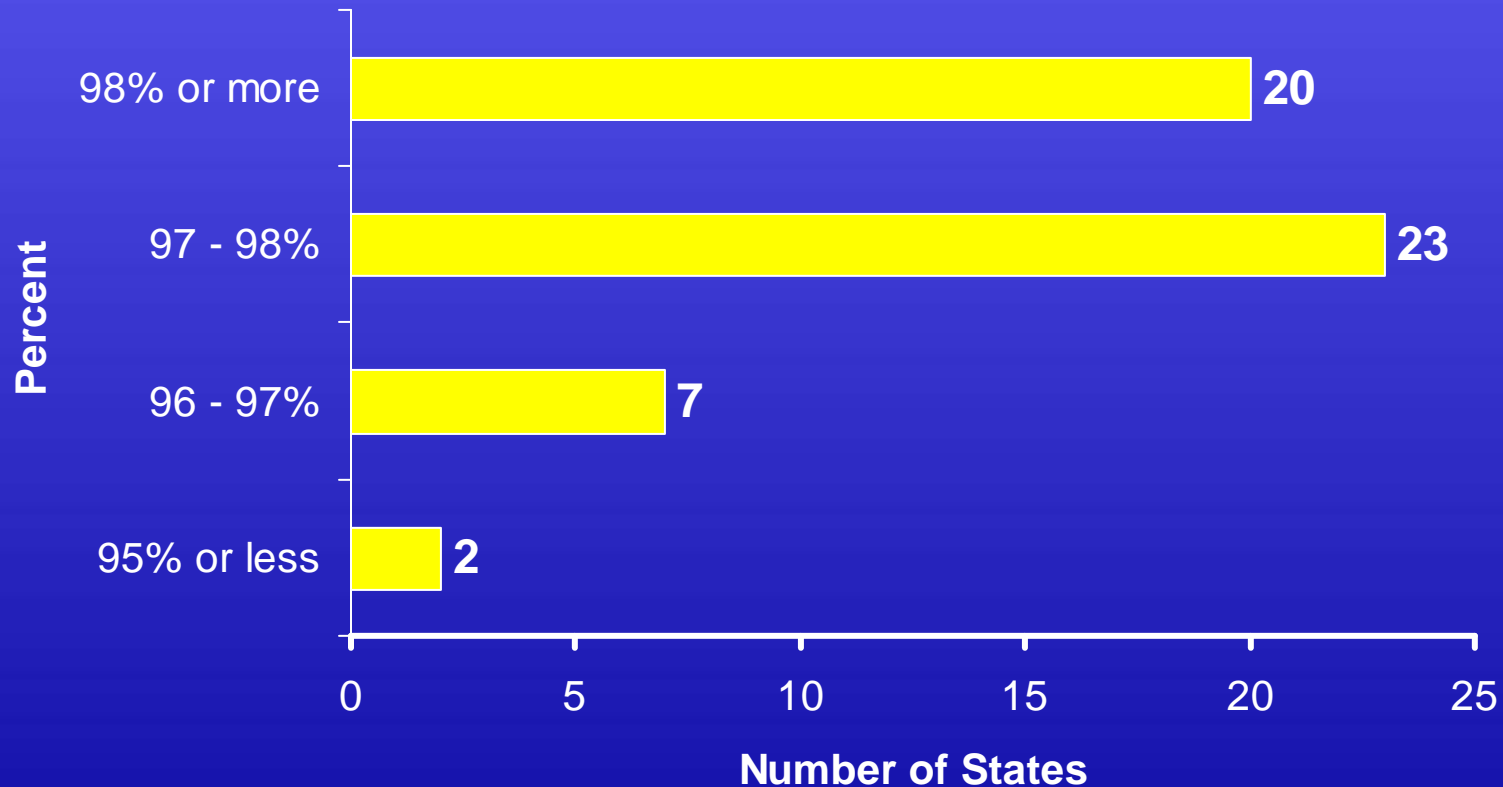


Source: 2005 – 2007 ACS, weighted survey response rates



# Survey Response Rates

## Distribution of State-level Rates



Source: 2007 ACS, weighted survey response rates



# Workloads and Costs by Mode

Mode	Cost per case	Monthly workload	Interviewers
Mail	\$13	230,000	NA
Telephone	\$16	98,000	580
Personal Visit	\$147	45,000	3,500

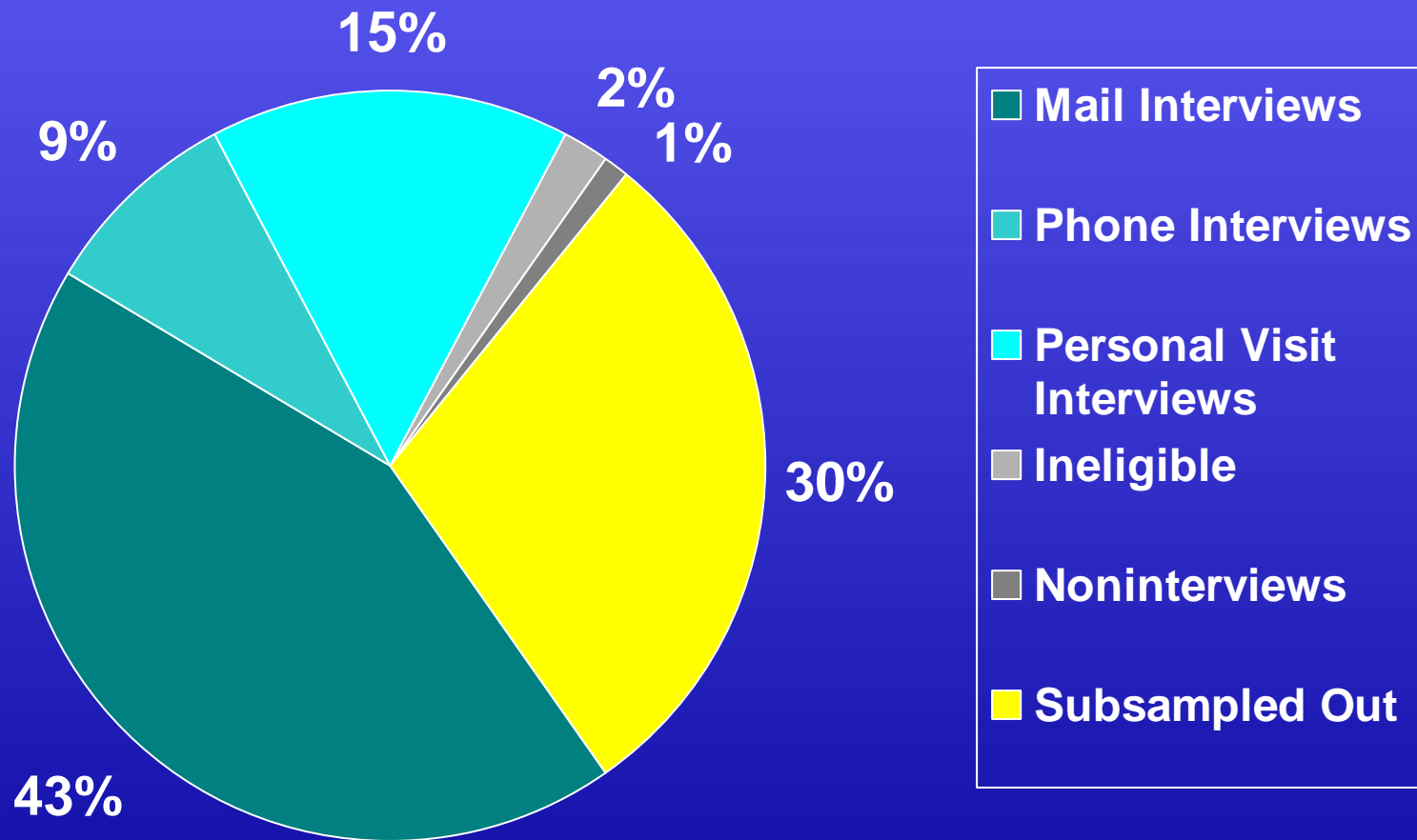


# Mixed Mode Observations

- Use of sequential mixed mode design is effective in increasing survey response
- Interview outcomes by mode vary across the country due to frame considerations and propensity to respond by a certain mode



# Increasing Survey Response



Source: 2007 ACS, unweighted outcome codes

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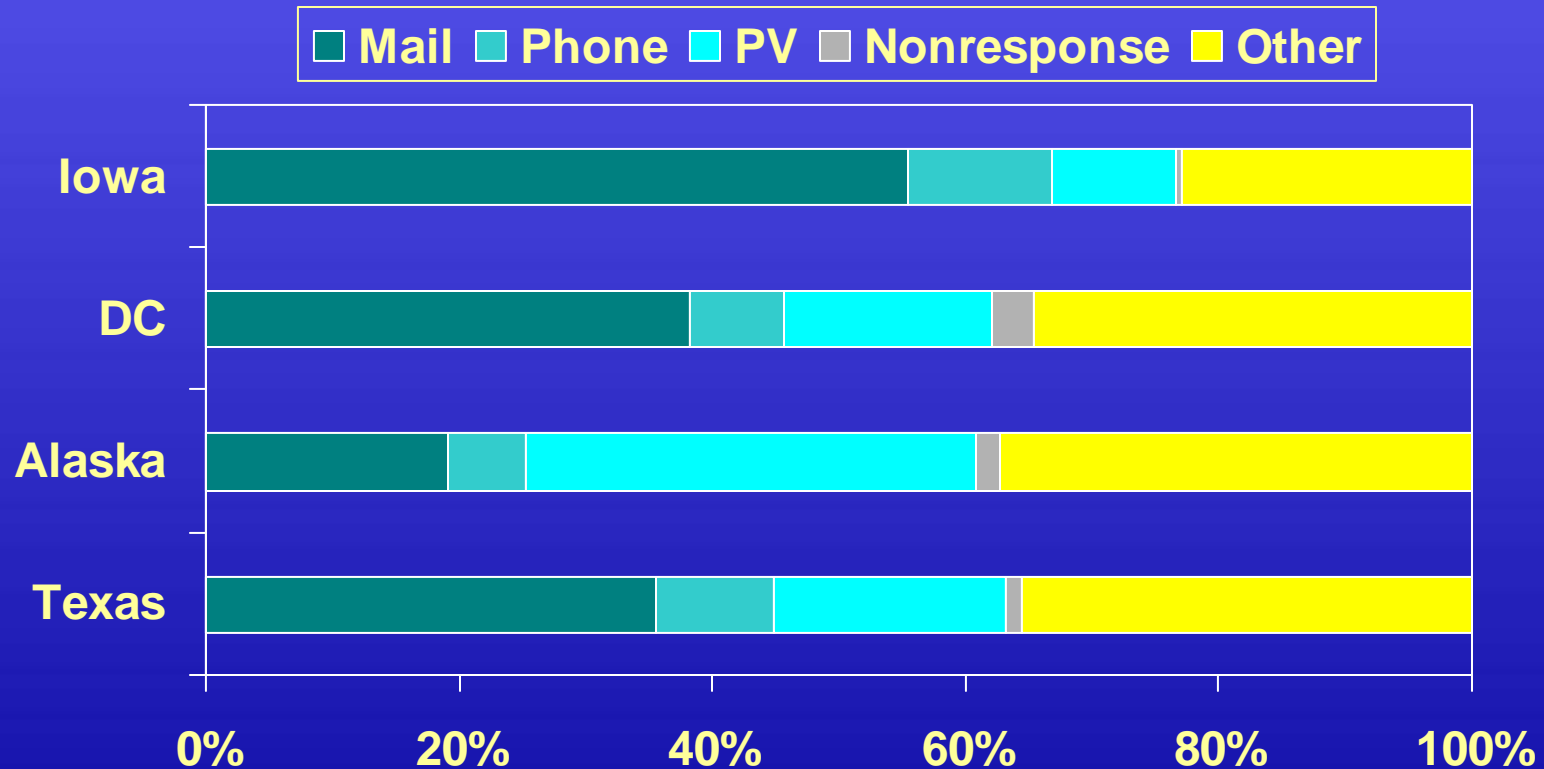
Helping You Make Informed Decisions





# Distribution of Interview Outcomes

## Variation in Selected States



Source: Unweighted 2007 ACS, State Level

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# Mixed Mode Observations

- Variation in item nonresponse across modes
- Several factors can contribute to these rates including questionnaire design, interviewer training and instruction, social desirability



# Item Nonresponse by Mode

Percent of Items Allocated

Mode	Population Items	Housing Items
All modes	5.9	5.3
Mail	6.8	4.7
Telephone	4.3	5.9
Personal Visit	4.8	6.2

Source: 2000 - 2001 ACS

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# Item Nonresponse by Mode

	Mail	Phone	PV
Year Built	4.7	14.8	27.9
Yearly other fuel cost	16.3	1.8	1.8
Property Value	3.8	14.0	18.1
Income	7.7	17.8	20.2

Source: 2006 ACS



# Mixed Mode Observations

- Self-selection into certain modes means that the characteristics of interviewed households vary across modes



# Characteristics by Mode

	Mail	Phone	PV
% Renter	22.6	24.0	54.6
% Moved in Last Year	12.6	6.8	28.6
% Less than HS education	11.3	16.6	20.5
% Below Poverty Level	8.9	11.9	20.5

Source: Joshipura, 2005 ACS



# Characteristics by Mode

	Mail	Phone	PV
% Not in Labor Force	26.8	20.4	15.6
% Household all over 65	20.0	15.1	7.3
% Household all under 30	7.7	5.1	17.8
% Black householder	6.9	14.0	20.2

Source: Joshipura, 2005 ACS



# Mixed Mode Issues

- Maintaining and translating multiple data collection instruments
- Equivalent Stimulus
- Maximizing quality of each mode





# Research

- Mode effects
- New Modes - Web Response Option
- Measuring and reducing mode-specific errors



# Research

- Cognitive testing of translations and the development of interviewer instruments in additional languages
- Testing additional mailings and new messages

Any questions?

Deborah.H.Griffin@census.gov  
(301) 763-2855