

Analyzing the Residential Status of Demographic Frame Addresses

By Brandon Pipher
Joint work with Tom Mule

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Outline

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4. Conclusion

Background

Motivation

- Results stem from work within the Continuous Count Study (CCS)
- CCS builds on findings from:
 - 2020 Real Time Administrative Record Census Simulation
 - 2020 Post-Enumeration Survey
- CCS quantifies utility and availability of administrative data, and assesses their coverage and quality
- CCS also researches use of administrative records to generate yearly population estimates, such as through Dual System Estimation (DSE)

Data

- Dual-system estimation requires two independent lists, in our case:
 1. 2021 Demographic Frame
 2. 2021 American Community Survey (ACS)
- 2021 ACS sampling universe is formed from an extract of the Master Address File (MAF) from *before* the 2020 Census
- We leveraged the 2020 Census to take the ACS sampling universe into consideration

Demographic Frame

- Person-level list derived from administrative, third-party, census and survey data records
- Frames program used person-place models to identify housing units associated with each person on the frame for a given reference date
- One person is usually associated with multiple housing units
- Administrative record source examples include the Internal Revenue Service (IRS), Department of Housing and Urban Development, Postal Service, and Medicaid records

American Community Survey

- ACS is an annual survey
- Creates estimates through a sample of housing units and people
- ACS Sampling Universe consists of all residential housing unit addresses
- A housing unit is **ACS Valid** if it is in the ACS sampling universe, and is otherwise **ACS Invalid**
- ACS sampling universe must be considered when matching list to Demographic Frame

Figure 1: Demographic Frame Components Address Valid or Invalid for ACS Sampling

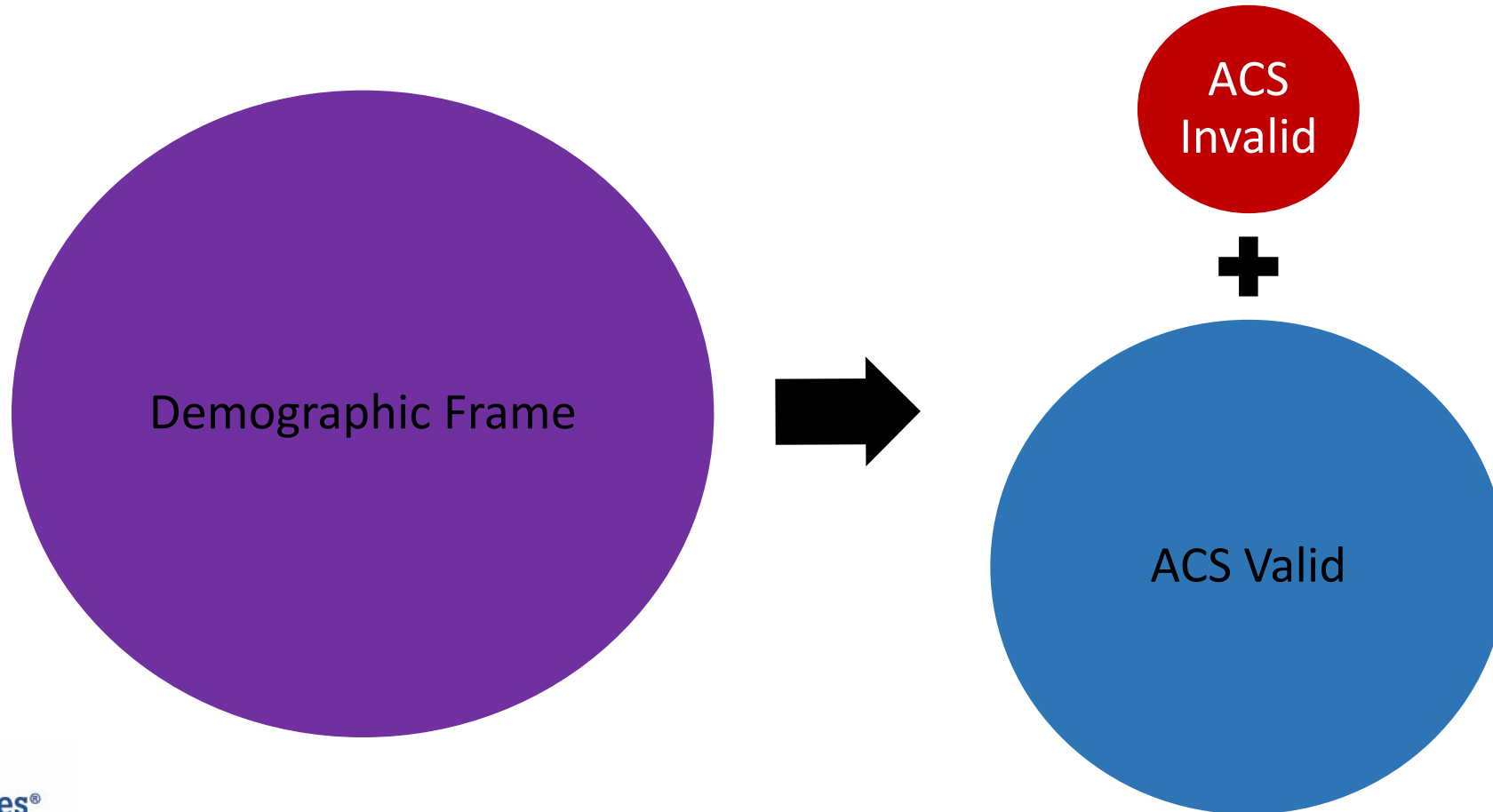
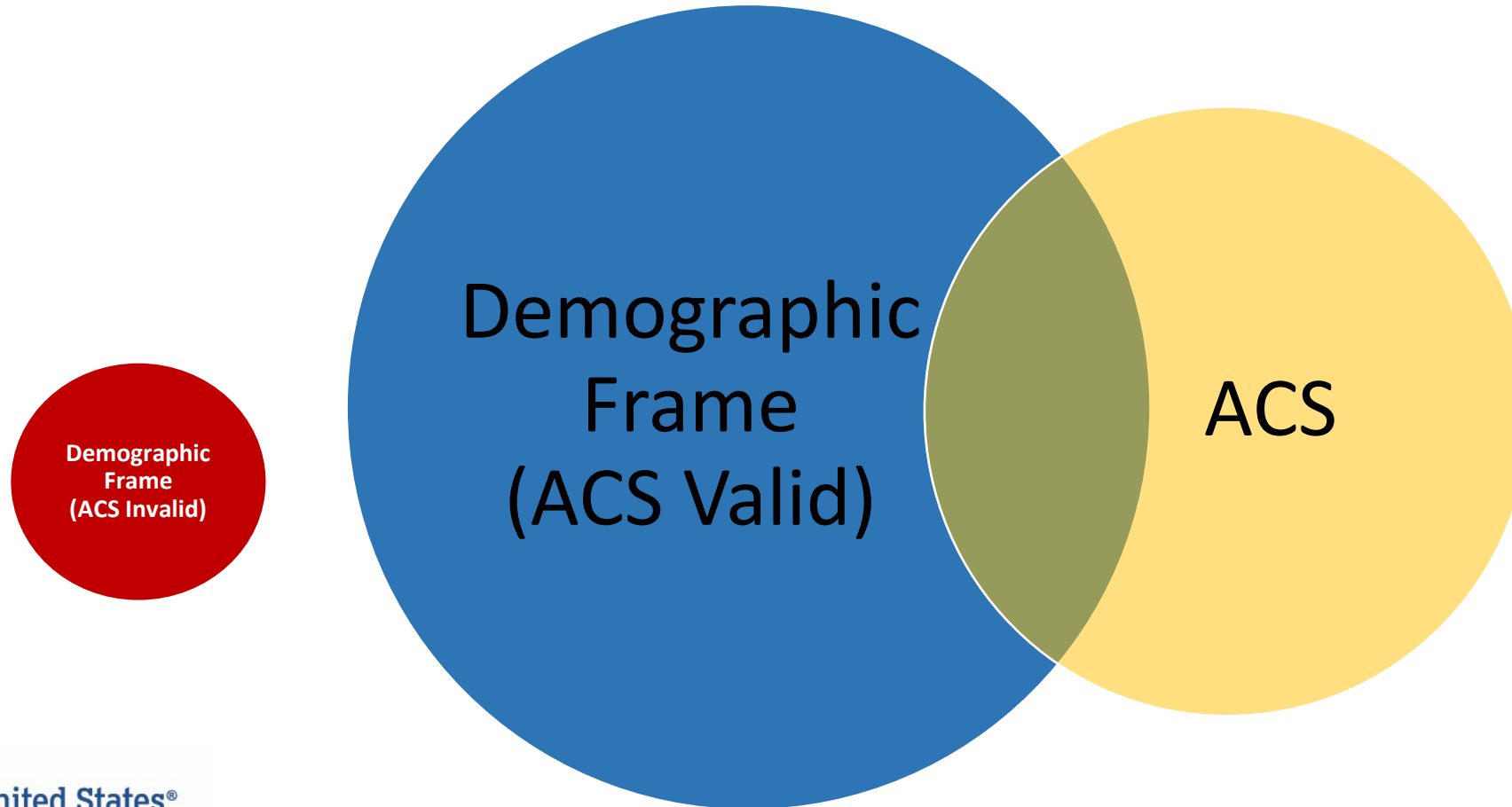


Figure 2: Our Dual System



Methodology

Methodology

- Deduplicate the 2021 Demographic Frame by person, that is place a person in only one housing unit
 - Deduplication was based on highest person-place model probability
- Identify whether a housing unit on the Demographic Frame is within the 2021 ACS sampling universe (ACS Valid)
- For ACS-Invalid housing units:
 - Determine whether the housing unit was found on the 2020 Census, and if not:
 - Examine the 2023 ACS sampling status for a more up-to-date validity

Results

Table 1: People by their housing units' ACS Valid status and presence on the 2020 Census

People on the 2021 Demographic Frame	Number of people	Percentage
Has a 2021 ACS-Valid Housing Unit	299,152,788	92%
Has a 2021 ACS-Invalid Housing Unit	27,010,992	8%
Housing Unit on the 2020 Census ¹	9,242,285	3%
Housing Unit not on the 2020 Census ²	17,768,707	5%
All	326,163,711	100%

¹ The 2021 ACS filter uses an address list from before the 2020 Census and would likely be ACS-Valid otherwise

² Potentially missed housing units or invalid housing units that we do not want to assign, such as non-residential units

Table 2: People at non-Census 2021 ACS-Invalid housing units
Shown by their 2023 ACS sampling filter status

People on the 2021 Demographic Frame	Number of People
2021 ACS Invalid and not on 2020 Census	17,768,707
2023 ACS Invalid ¹	17,765,360
2023 ACS Valid	3,347

¹ This is further broken down by administrative record source their reason for being ACS Invalid

- Person-place pair can be sourced from multiple administrative records
- Percents do not sum
- Many person-place pairs on Demographic Frame are found within IRS records, in addition to other sources
- IRS record source distribution varies across housing unit status

Table 3: Housing Unit Status by IRS Record source origin

IRS Source	ACS Valid	ACS Invalid and On 2020 Census	ACS Invalid and Not on 2020 Census
IRS i1040	82%	54%	28%
IRS i1099	69%	69%	81%
IRS i1099r	15%	8%	4%

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Conclusions

- Analysis highlights potential improvements to housing unit assignments
- Majority of the 17.8 million people found at a non-Census 2021 ACS-Invalid housing units continued to be an invalid or non-residential housing as of 2023
- Examining Administrative Record source of these Non-Census ACS-Valid MAFIDs suggest IRS records may be more likely to associate someone with non-residential addresses

Contact Information

Brandon Pipher

Brandon.Pipher@census.gov

Tom Mule

vincent.t.mule.jr@census.gov