

2015 Administrative Record Modeling

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Administrative Records Modeling Team
Census Scientific Advisory Committee
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Administrative Records Modeling

Nonresponse Followup Operation

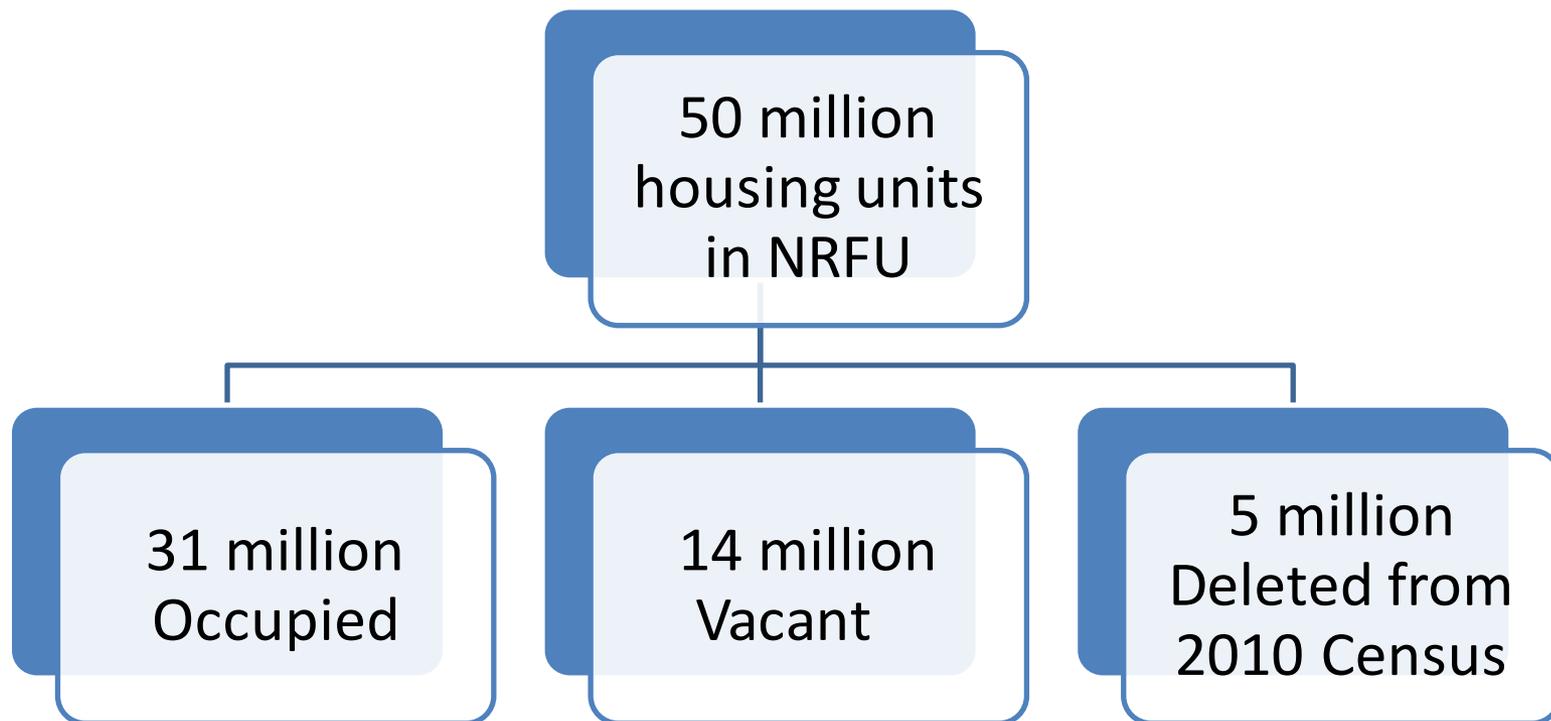
- 2010 Background
- 2015 Panels

Administrative Record Modeling

- Using administrative records to reduce contacts (**red circles**)
- Predictive models for contact times (**blue circles**)
- After NRFU Usage and imputation for unresolved unit and characteristic statuses (**orange circles**)

NRFU Background

2010 NRFU Housing Unit Statuses



Examples of Administrative Records Sources

Federal Files

- Internal Revenue Service, CMS Medicare Data, United States Postal Service

State Files

- Supplemental Nutrition Assistance Program

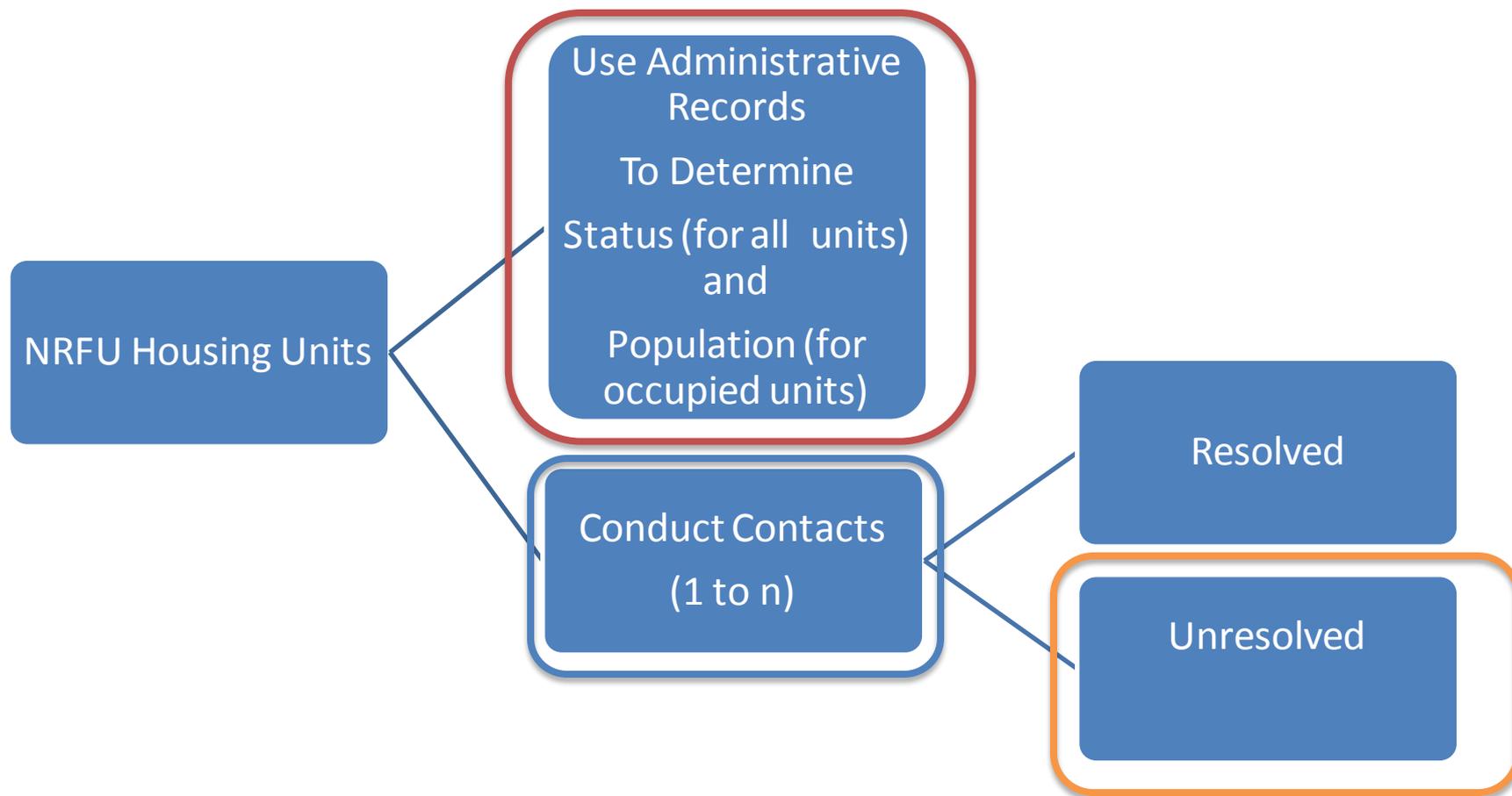
Commercial or Third-Party Files

2015 Census Test Three Panels

1. Control
2. Full Removal of Nonresponding Units using ROCKiT field reengineering
3. Hybrid Removal of Nonresponding Units using ROCKiT field reengineering

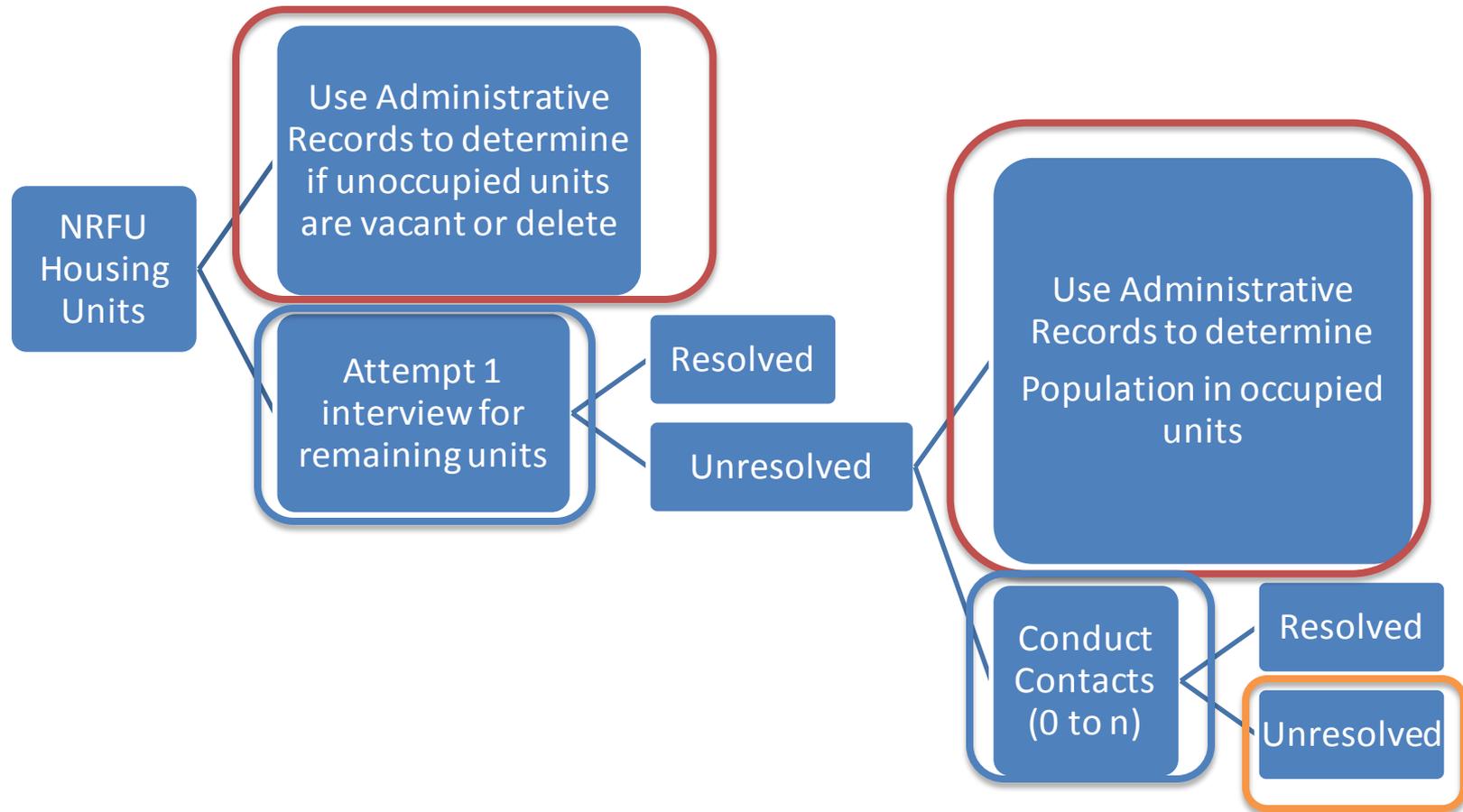
2015 Census Test

Panel #2: Full Approach Using ROCKiT



2015 Census Test

Panel #3: Hybrid Approach using ROCKiT



Using Administrative Records To Reduce Contacts

Predictive Model Approaches

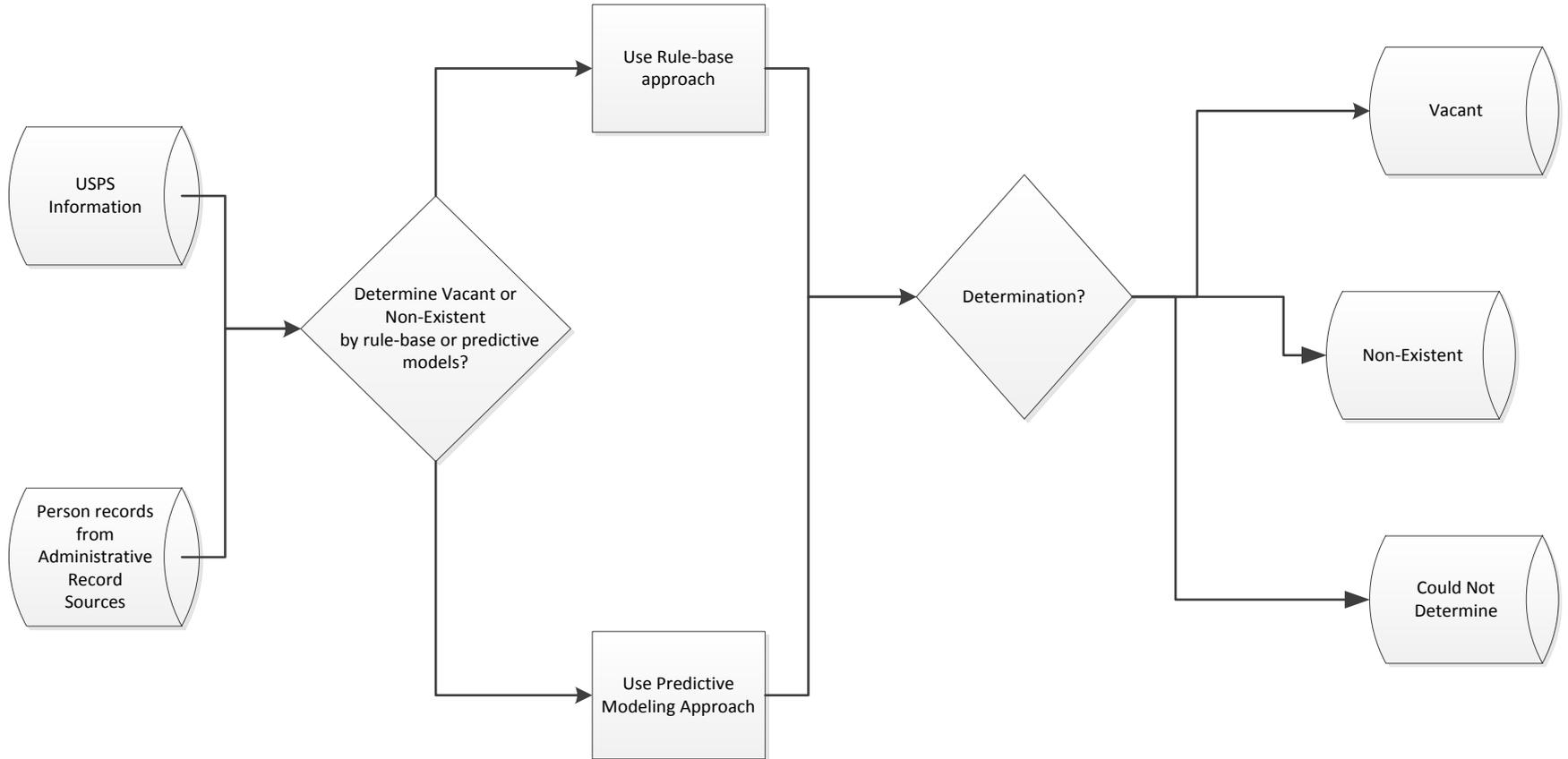
- Outcome Variable
 - 2010 Census NRFU Result (Occupied, vacant or delete)
 - Administrative Record count match the census count
- Modeling Techniques
 - Logistic or multinomial regression
 - Decision tree modeling
 - Random forest modeling

Using Administrative Records To Reduce Contacts

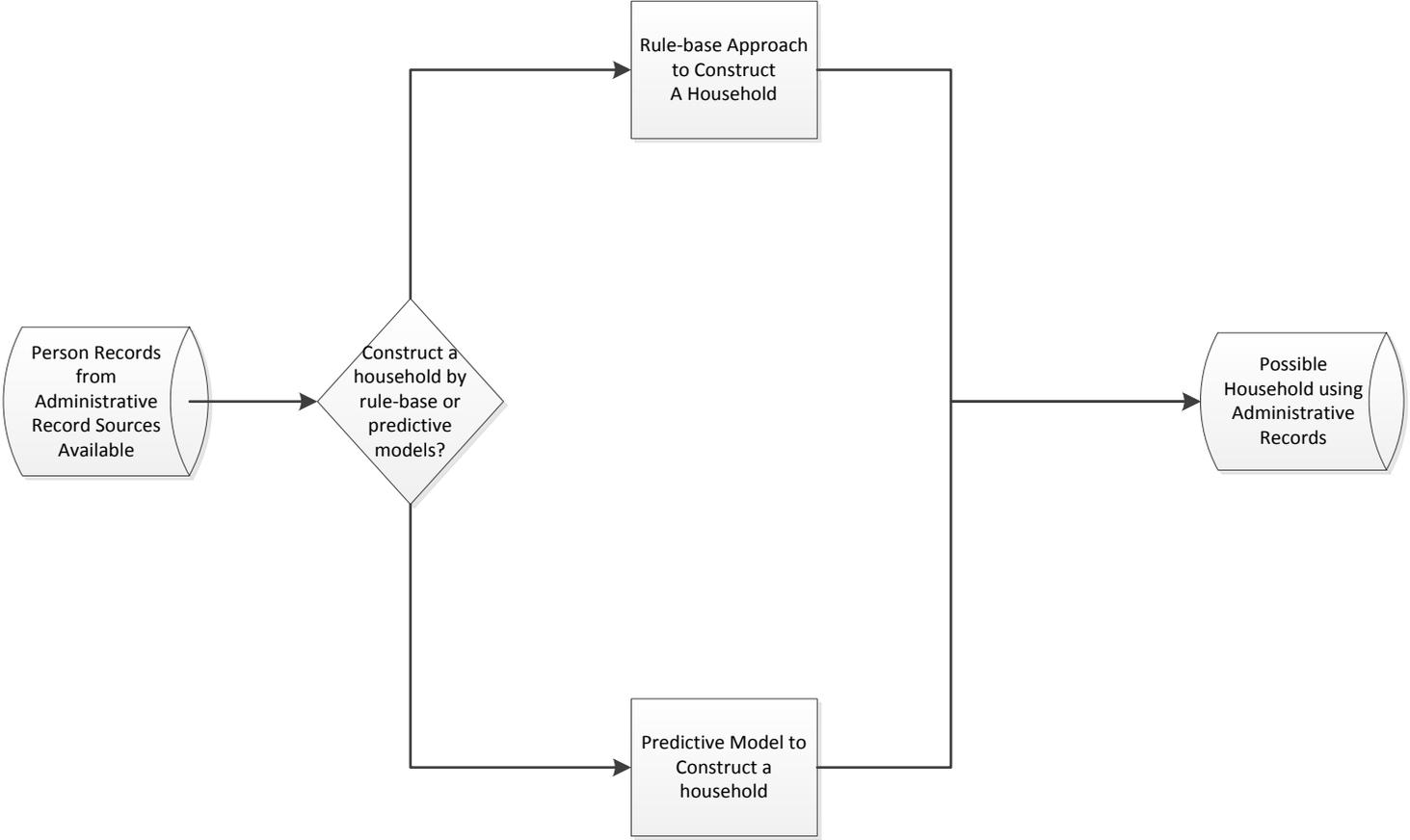
Rule-Based Approaches

- Simple Rule Examples:
 - If Medicare records and no Undeliverable-As-Address then determine occupied
 - If no person records and UAA because vacant then determine vacant
- Decision Tree modeling
 - Final nodes suggest possible rules

Using Administrative Records To Reduce Contacts Vacant Units or Non-Existent Housing Units

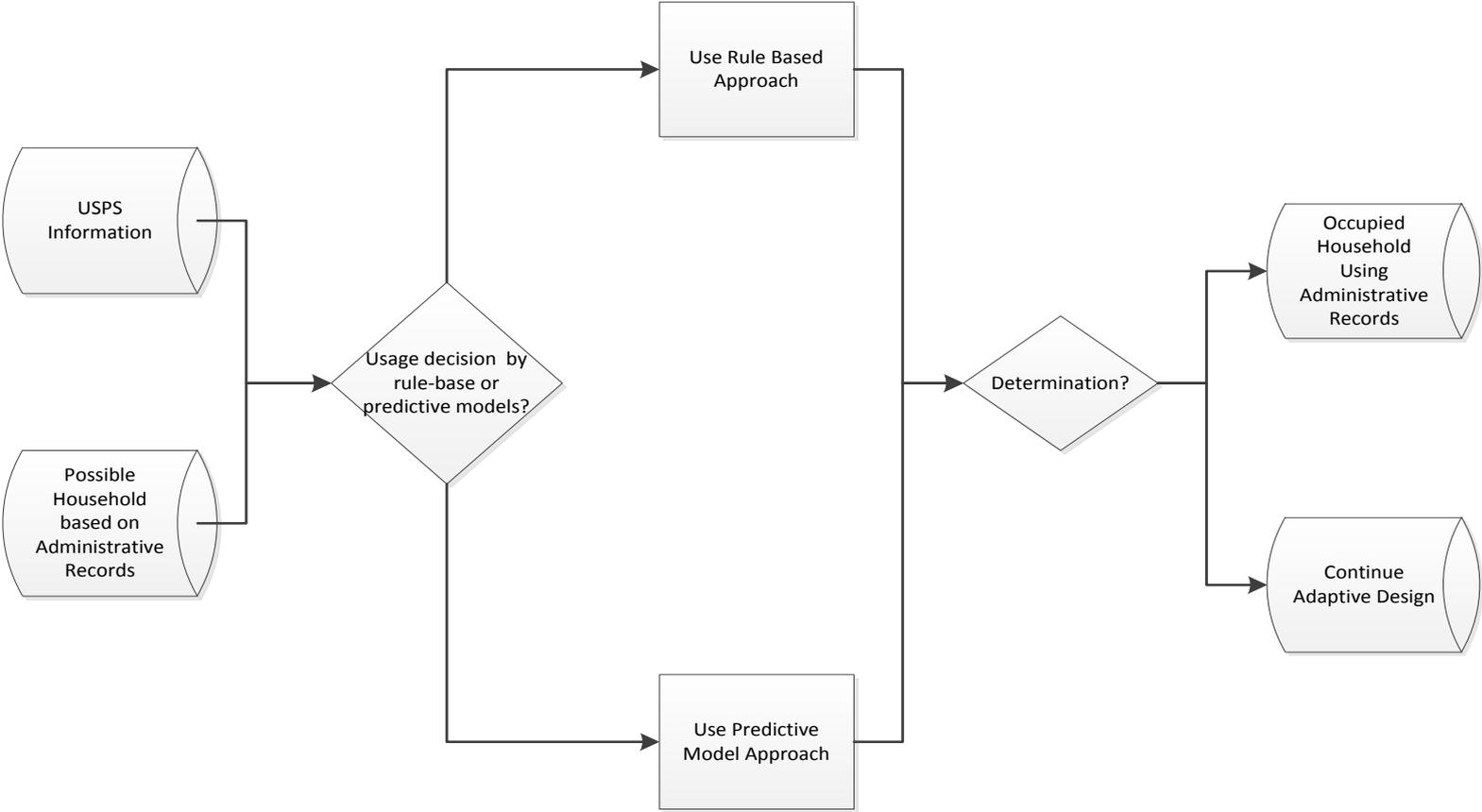


Using Administrative Records To Reduce Contacts Occupied Units: Constructing a Household



Using Administrative Records To Reduce Contacts

Occupied Units: Usage Decision



Using Administrative Records To Reduce Contacts Coverage Improvement Approach

What sources are needed before or during NRFU to make our determinations about reducing contacts?

- Selected number of sources used before or during the operation to make determination
- Additional sources utilized after NRFU to produce final result

Using Administrative Records To Reduce Contacts

Evaluation of Usage During Research

Macro-level

- Population and Housing Unit Results
- Aggregate to State, county, tract and block group
- Comparison to Census and Census Coverage Measurement

Micro-level

- Comparisons to Census Outcomes
- Comparisons to 2010 Census Coverage Measurement interviews
- Summarized to aggregate levels.

Predictive Models for Contacting Unit

- Working with the ROCKiT Field Reengineering Team
- American Community Survey contact information
- Utilizing available information
 - Census Master Address File information about housing unit
 - American Community Survey 5-year estimates about block groups
 - Administrative record information about household composition

Usages for Unresolved Units after Nonresponse Followup Completed

- Utilize administrative record information obtained after NRFU completed to determine status and population for the unit.
- Imputation for unresolved housing unit status of population
 - Use administrative records as covariates during imputation

Usages of Administrative Records for Missing Person and Housing Unit Characteristics

- Researching utilizing information provided to federal, state or third-party sources
- Imputation for unresolved characteristics
 - Use administrative records as covariates during imputation

Questions

What is your reaction to how we could possibly use administrative records to eliminate or reduce the number of contacts during NRFU?

What is your reaction to how we are using administrative records to help determine the best time to contact units during NRFU?

What is your reaction to how we could possibly use administrative records for unresolved units after NRFU is completed or for missing characteristics?



Thank you
