

Sampling Frame Maintenance

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Outline

- What is sampling frame maintenance?
- Detailed example: housing frame
- Detailed example: business frame
- Detailed example: employment link frame
- Detailed example: geographic link frame

What is Sampling Frame Maintenance?

- The sampling frame or frame population defines the actual entities from the target population with a positive probability of inclusion in the survey or census
- Demographic and economic activity change the frame dynamically
- The biggest investment that statistical agencies and private firms make is the creation and maintenance of frame populations

Housing Frame

- Swedish registers
- Census MAF
- Housing address list updates
- How do you combine the information?

Swedish Registers

- All personal addresses in Sweden are maintained in national registers
- The registers are updated by the individual when he/she moves using the national PIN
- All businesses and governmental activity use the registers to find the person
- The registers can be used as the sampling frame to conduct a census or survey
 - [Swedish register-based census 2005](#)
 - [Official notice](#)

Census MAF

- Start with 1990 Census Address Control File (ACF)
- Add US Postal Service Delivery Sequence File (DSF)
 - Unduplication (one record per address)
 - No deletions yet
- 100% block canvas (independent of LUCA)
 - Physical visit of address; verification of use
 - Address confirmed or deleted
 - Missing addresses added if residential

Census MAF (2)

- Local Update of Census Addresses (LUCA; independent of 100% canvas)
 - Voluntary program by county and local governments
 - Adds and deletes by address
 - Special statutory exception to Title 13 for address improvement
 - State, as opposed to local, agencies not authorized

Census MAF (3)

- New construction
 - To include new construction since 100% canvas and LUCA
 - Updated DSF
 - Lists of new housing construction from local governmental units
- Arbitration of units found by LUCA not in 100% canvas (field verification)
- Unduplication of new construction list
- Field staff visits to determine Census status

From MAF to DMAF

- Decennial MAF
- Attempt to snapshot residential addresses as of April 1, 2000 whether vacant or occupied
- Occupancy status from Census short form
- The housing unit records in Census 2000 correspond to this MAF
- Group quarters handled with separate procedures
- <http://www.census.gov/prod/cen2000/doc/sf1.pdf>

Business Frame Populations

- Census Business Register
- BLS Establishment Register
- Establishment births and deaths
- The problem of false births and deaths
- The problem of multiple activity codes

Census Employer Business Register

- Frame population consists of businesses that file income tax returns
- Employers are identified from the tax forms
- Multiunit and single unit businesses are determined in the Economic Census
- Updates to the MU/SU classification are determined by the annual Company Organization Survey

Business Register (2)

- Frame maintenance is conducted using weekly strips from the IRS master business returns
- Information is acquired with a lag that corresponds to the difference between filing deadlines and accounting periods
- Many different business tax forms are used

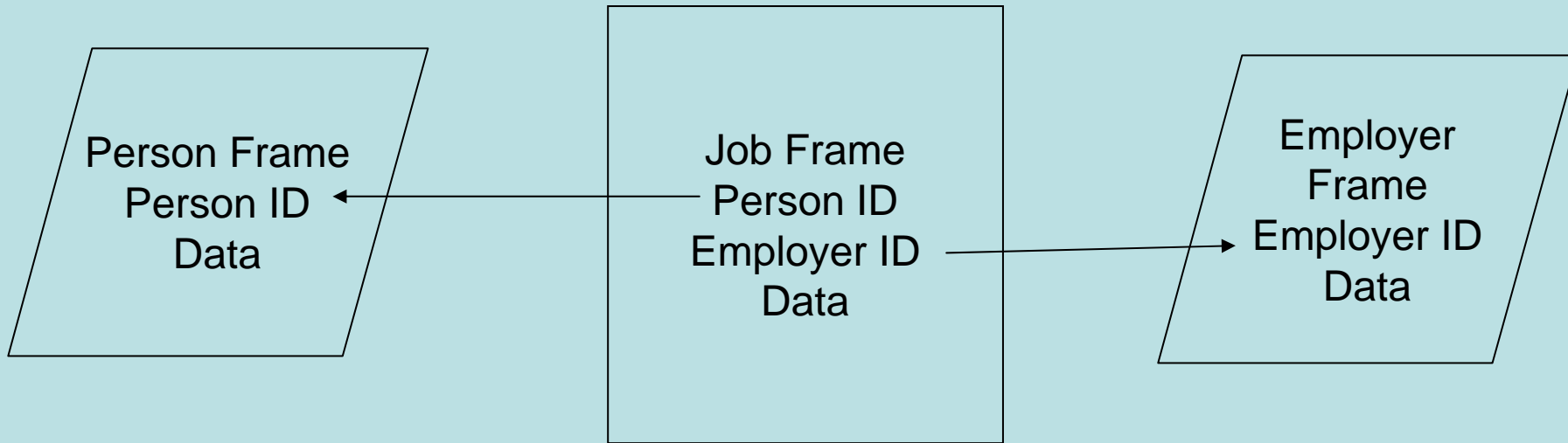
Business Register (3)

- To create a frame population from the Business Register (employer businesses)
 - Define the target population by activity and date
 - Select the establishments from the SU and MU business registers that meet the target population definition
 - Eliminate inactive establishments
 - Edit size measures (employment, payroll, sales)

Employment/Job Frame Populations

- A job is a relation between an employer and an employee
- Target population of jobs depends on definitions of employer and employee
- Frame population must be constructed from legal employment definitions
- No U.S. agency maintains a sampling frame for jobs
- Closest is the LEHD Infrastructure File System Employment History File at the Census Bureau

Job Frame Populations



- Dynamic frames
- Defining an employer
- Defining an employee

Job Frame Populations

- The problem of integration on the employer side
 - The job frame does not define a complete employer population frame, even if it is universal, unless the activity definitions for the employer and the employee report match
- The problem of integration on the employee side
 - The job frame does not define a complete individual population frame, even if it is universal, unless the individual activity definition only includes employment (no unemployment or non-participation).

Geographic Link Frame

- Transportation network frames
- Defining an origin location
- Defining a destination location
- Frame maintenance

Transportation Network Frame Populations

- Potential target populations:
 - Trips to work on a particular date
 - Trips to purchase a good or service on a particular date
 - Leisure trips on a particular date
- Potential frame populations
 - Reported place of work on Decennial Census
 - Residential and employer address information in a job frame

Defining an Origin Location

- Latitude and longitude of the trip origin
 - With confidentiality protections, this origin definition is too fine to protect the identity of the traveler for a public use file
 - Frame population can be constructed from small geographic areas that include lat/long boundaries
- Census 2000 uses Transportation Analysis Zones
- On The Map uses the Census block

Defining a Destination Location

- Latitude and longitude identify the location of the business exactly
 - Same concerns for public use files as in residential address
 - Frame populations constructed by assigning lat./long. to a particular unique area
- Census 2000: TAZ
- On The Map: block

Transportation Frame Population Maintenance

- The complete frame population is defined by all possible origin/destination pairs in the geography chosen
- Census 2000 frame population constructed from the long form questions; not currently updated
- On The Map frame population constructed from the job frame; updated annually for transportation modeling (experimental)