

Editing and Imputing Measure of Size Variables on the U.S. Census Bureau's Business Register (BR)

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Overview

- Introduction
- Employer Identification Number (EIN) Imputation
- General Data Prep
- Multi-unit Imputation
- Receipts Edits
- Conclusion/Next Steps

Introduction

- Measure of Size Variables
 - March 12th Employment
 - First Quarter Payroll
 - Annual Payroll
 - Annual Receipts
- BR Data Sources
 - Administrative
 - Response
- Business Entities
 - Single-unit
 - Multi-unit

EIN Imputation: Payroll

- Compare given quarter payroll to
 - Previous and subsequent quarter payroll
 - Previous year (PY), same quarter payroll
- Editing 'one quarter behind'
- Referrals generated from unusually low or high values
- Imputed Payroll = Average of previous and subsequent quarter payroll

EIN Imputation: Employment

- Employment is imputed for EINs where
 - Employment = 0 and payroll > 0
 - Employment > 0 and payroll = 0
 - Average wage is out of range
- First, impute with average employment from the two adjacent quarters
- Else use prior year data adjusted by a wage inflation factor
- Else if there is no prior year data then use average wage factor to impute employment

General Data Prep

- General Data Prep is a series of processing steps for editing response data collected from the Economic Census, Report of Organization Survey and Annual Survey of Manufacturers
- Main paths
 - Single-Unit Establishment Data
 - Multi-Unit Establishment Data
 - Leased Employment Data
- Edits only: Annual Payroll, Q1 Payroll and Employment

General Data Prep (Cont.)

- Five main parts to editing process:
 - Check for rounding errors
 - Check for payroll switch errors
 - Imputation of missing data items
 - Check for internal consistency
 - Comparison of current year items with prior year data or administrative data

Multi-unit Imputation

- Processes incomplete MU payroll and employment data
- If imputation is required, must determine level of imputation:
 - Complete Company Imputation - all establishments in the company are delinquent
 - Delinquent Establishment Imputation - only some establishments in company are delinquent

Multi-Unit Imputation

Complete Company Imputation

- Includes *completely delinquent* and *non-mail* companies
- Distributes company-level administrative records data to establishments.
 - *For existing companies*, the distribution of PY data is used to assign employment, Q1 payroll, and annual payroll.
 - *For births (new companies and establishments)*, industry employment averages are used.

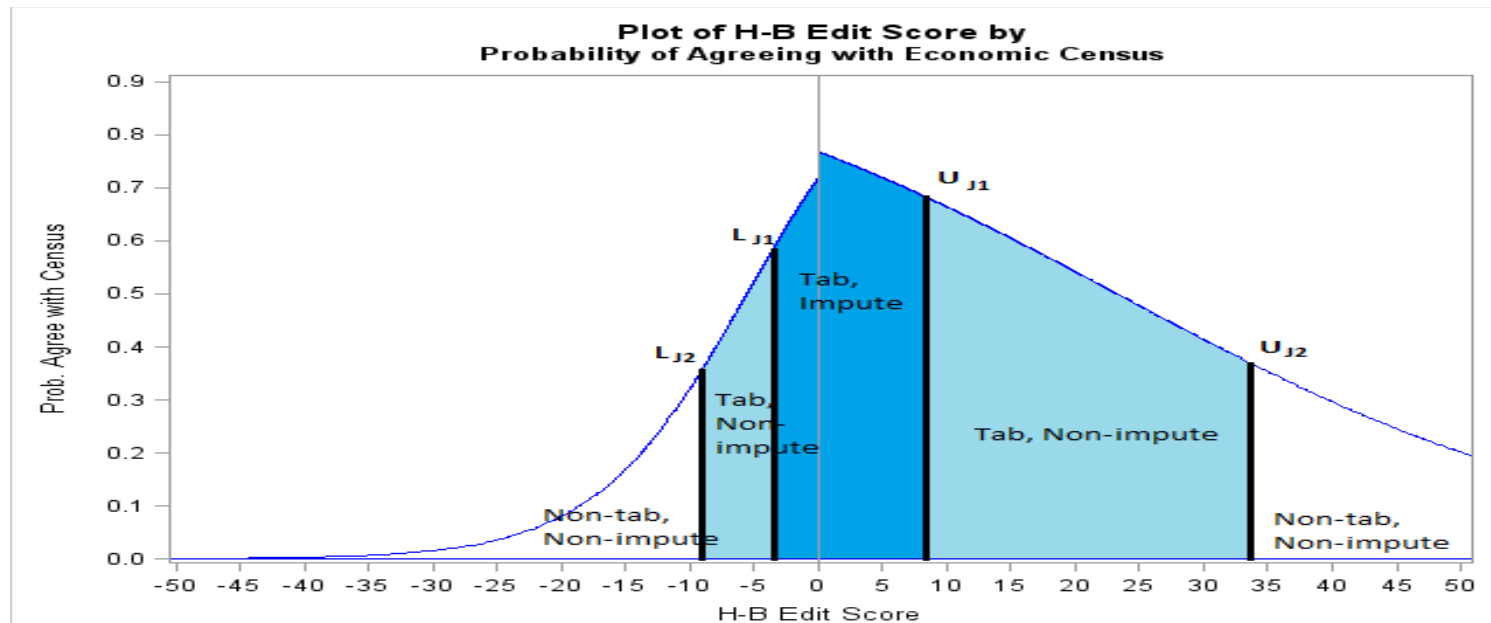
Multi-unit Imputation

Delinquent Establishment Impute

- Only some of the establishments in the company reported
- Delinquent establishments are imputed based on PY data
- Adjust PY data based on wage and inflation factors

Receipts Edits

- New process starting Fall 2015 to identify extreme cases using Hidiroglou-Berthelot (H-B) Edits Method
- 3 Levels of Quality



Conclusion/Next Steps

- Continually reviewing and improving as needed
- Research ability to actually edit and impute annual receipts for SUs
- Research feasibility of flagging MU establishment receipts

Thank you!

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