

“Employment Hysteresis from the Great Recession”
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Codebook for Online Data Tables

Hysteresis Data Table 1 “Main Data: Great Recession Shocks and Effects by Commuting Zone”

This online data table reports CZ-level estimates of Great Recession employment and earnings impacts, along with auxiliary Commuting-Zone- (CZ-) level variables. Unless otherwise specified, the data source is the paper’s main sample, which derives from de-identified tax records. Main-sample-based CZ-level variables are available only for the 591 CZs with at least 100 main sample individuals; 99.5% of the continental U.S. population lives in those CZs. LAUS-based auxiliary variables derive from the county-level Bureau of Labor Statistics Local Area Unemployment Statistics, aggregated to the CZ level. The LAUS data pertain to the 16+ civilian non-institutional population. Census-based auxiliary variables derive from the Census’s Annual County Resident Population Estimates of the total 16+ population, aggregated to the CZ level. The County Business Patterns data pertain to employment during the week of March 12, collected by the Census Bureau and released at the level of county, year, and three-digit NAICS industry level.

The online replication code uses Hysteresis Data Table 1 to approximate the paper’s main result, as displayed and documented in the paper’s Online Appendix Table 1. The code also produces Figure 3 and other CZ-level exhibits.

Stata Variable Name	Short Description	Full Description
cz	Commuting Zone	Commuting Zone, a collection of counties with strong commuting ties
czname	Commuting Zone name	Commuting Zone name
state	State	State with all or a majority of a CZ’s population
stateabbr	State abbreviation	State abbreviation
statefips	State FIPS code	State FIPS code
cs_pop2007	2007 Census population	2007 Census county-level population aggregated to the CZ level
shock	Great Recession local shock (pp)	Great Recession local shock (pp), equal to the CZ’s 2009 LAUS unemployment rate minus the CZ’s 2007 LAUS unemployment rate
erate_impact	Effect on 2015 employment (pp)	Great Recession effect on 2015 employment (pp), equal to CZ fixed effects from a regression of 2015 relative employment (2015 employment minus mean 1999-2006 employment) on CZ fixed effects and 2006-age-earnings-industry fixed effects
earn_impact	Effect on 2015 earnings (\$)	Great Recession effect on 2015 earnings (\$), equal to CZ fixed effects from a regression of 2015 relative earnings (2015 earnings minus mean 1999-2006 earnings) on CZ fixed effects and 2006-age-earnings-industry fixed effects
earnpc_impact	Percent-change effect on 2015 earnings (%)	Great Recession percent-change effect on 2015 earnings (%), equal to CZ fixed effects from a regression of the individual’s percent change in earnings from 1999-2006 to 2015 on CZ fixed effects and 2006-age-earnings-industry fixed effects

lauscs_erate_change	LAUS/Census employment rate change (pp)	Relative employment change between 1999-2006 and 2015 (pp) based on LAUS and Census data, equal to the CZ's 2015 LAUS-Census employment rate minus the CZ's mean 1999-2006 LAUS-Census employment rate
erate_2015	2015 employment rate	2015 employment rate
earn_2015	2015 mean earnings	2015 mean earnings
erate_impact_def2	Effect on 2015 employment (pp), definition 2	Alternative Great Recession impact on 2015 employment (pp), equal to CZ fixed effects from a regression of each individual's change in employment status from 2006 to 2015 on CZ fixed effects and 2006-age-earnings-industry fixed effects
earn_impact_def2	Effect on 2015 employment (pp), definition 2	Alternative Great Recession impact on 2015 earnings (\$), equal to CZ fixed effects from a regression of each individual's change in earnings from 2006 to 2015 on CZ fixed effects and 2006-age-earnings-industry fixed effects
earnpc_change	CZ-level percent-change in earnings	CZ-level mean 2015 earnings divided by CZ-level mean 1999-2006 earnings (%)
earnpc_change_def2	CZ-level percent-change in earnings, definition 2	CZ-level mean 2015 earnings divided by CZ-level mean 2006 earnings (%)
lauscs_erate_change_def2	LAUS/Census employment rate change, definition 2	Employment change between 2006 and 2015 (pp) based on LAUS and Census data, equal to the CZ's 2015 LAUS-Census employment rate minus the CZ's mean 2006 LAUS-Census employment rate
shock_r	Residualized Great Recession local shock	Residualized Great Recession local shock (pp), equal to residuals from a regression of Great Recession local shocks on 2006-age-earnings-industry fixed effects with the overall mean added to the residuals
ss_shock_20102015	2010-2015 Shift-Share Shock (%)	Shift-share shocks based on County Business Patterns, equal to the projected 2010-2015 percentage change in the CZ's employment based on leave-one-CZ-out nationwide changes in employment by three-digit NAICS industry categories (see Online Appendix Figure 2b for the formula, applied to 2010-2015)
ss_shock_20062010	2006-2010 Shift-Share Shock (%)	Shift-share shocks based on County Business Patterns, equal to the projected 2006-2010 percentage change in the CZ's employment based on leave-one-CZ-out nationwide changes in employment by three-digit NAICS industry categories (see Online Appendix Figure 2b for the formula, applied to 2006-2010)
ss_shock_20062015	2006-2015 Shift-Share Shock (%)	Shift-share shocks based on County Business Patterns, equal to the projected 2006-2015 percentage change in the CZ's employment based on leave-one-CZ-out nationwide changes in employment by three-digit NAICS industry categories (see Online Appendix Figure 2b for the formula, applied to 2006-2015)

Hysteresis Data Table 2 “Blanchard-Katz Replication Data: Employment Statistics by State and Year”

This online data table reports state-year-level employment, labor force, population, and unemployment totals from LAUS 1976-2015; nationwide annual employment, labor force, population, and unemployment totals from CPS 1976-2015; estimated state-level shocks over the Great Recession, the early-1980s recession, and the early-1990s recession based on Blanchard-Katz forecast errors; and CPS-based changes in formal and self-employment rates 2007-2015. LAUS refers to the Bureau of Labor Statistics Local Area Unemployment Statistics state-level aggregates of the 16+ civilian non-institutional population. CPS refers to official Bureau of Labor Statistics totals from the Current Population Survey. Online Appendix A documents the use of the 1976-2007 LAUS and CPS variables to estimate the Blanchard-Katz (1992) three-equation log-linear autoregressive system in state employment growth, unemployment rates, and labor force participation rates relative to the nation. The state-level shocks are estimated based on the LAUS variables, as described in Online Appendix B. The state-level shocks equal the sum of specific years' employment growth forecast errors: 2008 and 2009 for the Great Recession; 1980, 1981, and 1982 for the early-1980s recessions (treated as a single recession); and 1990 and 1991 for the early-1990s recession. The changes in formal- and self-employment rates are defined as in Online Appendix Figure 3.

The online replication code uses Hysteresis Data Table 2 to reproduce every state-level table and graph in the paper.

Stata Variable Name	Description
state	State
stateabbr	State abbreviation
statefips	State FIPS code
year	Calendar year
laus_e	LAUS employment
laus_lf	LAUS labor force
laus_pop	LAUS population
laus_u	LAUS unemployment, equal to laus_e minus laus_lf
laus_erate	LAUS employment rate, equal to laus_e divided by laus_pop
laus_lfprate	LAUS labor force participation rate, equal to laus_lf divided by laus_pop
laus_urate	LAUS unemployment rate, equal to laus_u divided by laus_lf
cps_us_e	CPS nationwide employment (does not vary by state)
cps_us_lf	CPS nationwide labor force (does not vary by state)
cps_us_pop	CPS nationwide population (does not vary by state)
cps_us_u	CPS nationwide unemployment (does not vary by state)
shock_statelevel_gr	Great Recession state-level shock (does not vary by year)
shock_statelevel_early80s	Early-1980s recession state-level shock (does not vary by year)
shock_statelevel_early90s	Early-1990s recession state-level shock (does not vary by year)
formal_emp_change	2015 formal employment rate minus 2007 formal employment rate (pp) (does not vary by year)
self_emp_change	2015 self-employment rate minus 2007 self-employment rate (pp) (does not vary by year)

Hysteresis Data Table 3 “Age-Adjusted U.S. Employment by Year”

This online data table reports raw and age-adjusted U.S. labor market statistics based on the CPS. The data without the “ageadj” suffix derive from Current Population Survey age-month totals, averaged evenly across months within each age-year. The population is the 16+ civilian non-institutional population, except when specified as “prime-age” which restricts to the age-25-54 civilian non-institutional population. The age-adjusted variables aggregate across ages using the 2007 age distribution.

The online replication code uses Hysteresis Data Table 4 to create Online Appendix Figure 1.

Stata Variable Name	Description
year	Calendar year
cps_erate	CPS age-adjusted employment rate
cps_lfprate	CPS age-adjusted labor force participation rate
cps_urate	CPS age-adjusted unemployment rate
cps_erate_ageadj	CPS age-adjusted employment rate
cps_lfprate_ageadj	CPS age-adjusted labor force participation rate
cps_urate_ageadj	CPS age-adjusted unemployment rate
cps_erate_prime	CPS prime-age (25-54) employment rate
cps_lfprate_prime	CPS prime-age (25-54) labor force participation rate
cps_urate_prime	CPS prime-age (25-54) unemployment rate
cps_erate_prime_ageadj	CPS prime-age (25-54) age-adjusted employment rate
cps_lfprate_prime_ageadj	CPS prime-age (25-54) age-adjusted labor force participation rate
cps_urate_prime_ageadj	CPS prime-age (25-54) age-adjusted unemployment rate

Hysteresis Data Table 4 “U.S. Employment Statistics by Month”

This online table consists of monthly data on U.S. unemployment rates, labor force participation rates, and employment-population ratios from 1948-2017. The data are from the Federal Reserve Bank of St. Louis. The population is the 16+ civilian non-institutional population.

The online replication code uses Hysteresis Data Table 4 to create Figure 1a.

Stata Variable Name	Description
observation_date	Date of observation (month/day/year)
numyrmo	Date of observation (year + month/13)
unrate	Unemployment rate
civpart	Labor force participation rate
emratio	Employment-population ratio

Hysteresis Data Table 5 “U.S. Employment Statistics by Age and Year”

This auxiliary online data table comprises age-year data on CPS population, employment rates, labor force participation rates, and unemployment rates. The data derive from Current Population Survey age-month totals, averaged evenly across months within each age-year. The population is the 16+ civilian non-institutional population.

This data table underlies Hysteresis Data Table 3.

Stata Variable Name	Description
year	Calendar year
age	Age at time of survey, with ages greater than 79 recoded to 79
cps_pop	Population implied by CPS survey weights
cps_erate	CPS employment rate
cps_lfprate	CPS labor force participation rate
cps_urate	CPS unemployment rate

Hysteresis Data Table 6 “Employment Statistics by Commuting Zone and Month”

This auxiliary online data table comprises auxiliary CZ-month variables 1999-2015. The LAUS-based variables derive from the county-level Bureau of Labor Statistics Local Area Unemployment Statistics, aggregated to the CZ level. The LAUS data pertain to the 16+ civilian non-institutional population. The Census-based variables derive from the Census’s Annual County Resident Population Estimates of the total 16+ population, aggregated to the CZ level. The LAUS/Census employment rates exceed 100% for a few very small CZs due to differing definitions and methods across LAUS and Census.

This data table underlies the Great Recession local shock variable and the LAUS/Census-based variables in Hysteresis Data Table 1.

Stata Variable Name	Description
cz	Commuting Zone
czname	Commuting Zone name
state	State
stateabbr	State abbreviation
statefips	State FIPS code
year	Calendar year
month	Calendar month
cs_pop	Census county-year-level population aggregated to the CZ-year level
laus_e	LAUS employment
laus_lf	LAUS labor force
laus_u	LAUS unemployment
lauscs_erate	LAUS/Census employment rate, equal to laus_e/cs_pop
lauscs_lfprate	LAUS/Census labor force participation rate, equal to laus_lfp/cs_pop
laus_urate	LAUS unemployment rate, equal to laus_u/laus_lfp