LEHD Fact Sheet

Disclosure Proofing

Purpose
The Census Bureau and the states are committed to protecting the confidentiality of the businesses and individuals whose employment and earnings make up the ES-202 data. However, traditional measures of disclosure proofing result in serious loss of information – as many as 60% of county or industry cells would be suppressed, even without demographic information. This purpose of this work is to provide states with more data without compromising confidentiality

Approach
The approach taken is to combine cell suppression methodology with noise addition. In cells with many employers, there is very little distortion of the cell values. In cells with only a few employers, values are all distorted a minimum amount, but the error associated with the estimate is reported, and users can still use the information.

The noise addition approach is to add random noise to a set of statistics for each EIN. The statistics that are fuzzed are the employment measures, accessions, separations, hires, and earnings – fuzzed change measures, such as job creation and destruction and earnings changes are directly calculated as rates from unfuzzed employment and earnings statistics, and then multiplied by fuzzed employment. The fuzz factor stays constant over time.

If fewer than three individuals are in the cell, the cell is suppressed and a "d" is published in the cell. If the fuzzed measure substantially differs from the actual measure, the statistic is flagged with an asterisk which notes that "the value of this cell was significantly distorted in order to preserve the confidentiality of the underlying data".

Finally, the estimates of key components of the employment dynamic statistics (employment, job flows, job creation, job destruction, accessions, separations, hires and recalls) were raked at the county level to ensure consistency with the county employment totals reported by the BLS.

What is returned to the state partners
1. Quarterly Workforce Indicators by county and major industry division for all quarters that BLS has provided LEHD with employment totals

Selected Results
The technique permits the release of many more cells for different age categories – compare, for example, the first part of table 5 from the supporting documentation with the first part of table 7 (age categories are coded 0 for all ages, and 1 through 8 for the associated WIA age categories).

Supporting Documentation
"The Longitudinal Employer-Household Dynamics Program: Employment Dynamics Estimates Project", January 17, 2001
Authors: Staff of the LEHD program
"Confidentiality, Disclosure and Data Access: Theory and Practical Applications for Statistical Agencies", edited by Pat Doyle, Julia Lane, Jules Theeuwes and Laura Zayatz, Elsevier Science, 2001.
Tables next page

LEHD Fact Sheet

From: *"The Longitudinal Employer-Household Dynamics Program: Quarterly Workforce Indicators Project*", January 17, 2001

Table 5: Age Categories With Disclosure Problems Using the Most Conservative Cell Limits WIA Age Categories by County (Illinois)					
	Employment-based (B, E, M, JF, JC, JD, W_1, ZW_2)	*Full Quarter Employment-based (F, ZW_3)*	*Worker Accession-based (A, ZWA, $Z\Delta$WA, ZNA)*	*Worker Hire/Recall-based (H, R, ZNH, ZNR)*	*Worker Separation-based (S, ZWS, $Z\Delta$WS, ZNS)*
1 ADAMS			8	1,2,3,4,5,6,7,8	8
3 ALEXANDER	1,2,3,8	1,2,3,7,8	1,2,3,4,5,6,7,8	0,1,2,3,4,5,6,7,8	1,2,3,4,5,6,7,8
5 BOND	1,2,3,8	1,2,3,8	1,2,3,4,5,6,7,8	0,1,2,3,4,5,6,7,8	1,2,3,4,5,6,7,8
7 BOONE	1,8	1,8	1,2,3,6,7,8	0,1,2,3,4,5,6,7,8	1,2,3,6,7,8
9 BROWN	1,2,3,5,6,7,8	1,2,3,4,5,6,7,8	1,2,3,4,5,6,7,8	0,1,2,3,4,5,6,7,8	0,1,2,3,4,5,6,7,8
11 BUREAU	1	1	1,2,3,6,7,8	1,2,3,4,5,6,7,8	1,2,3,6,7,8

Table 7: Age Categories With Disclosure Problems Using Noise Plus Less Conservative Cell Limits WIA Age Categories by County (Illinois)					
FIPS County	*Employment-based (B, E, M, JF, JC, JD, W_1, ZW_2)*	*Full Quarter Employment-based (F, ZW_3)*	*Worker Accession-based (A, ZWA, $Z\Delta$ WA, ZNA)*	*Worker Hire/Recall-based (H, R, ZNH, ZNR)*	*Worker Separation-based (S, ZWS, $Z\Delta$ WS, ZNS)*
1 ADAMS					
3 ALEXANDER			8	1,2,3,4,5,6,7,8	7,8
5 BOND			8	1,2,3,5,6,7,8	8
7 BOONE				1,8	
9 BROWN			2,3,7,8	1,2,3,4,5,6,7,8	1,2,3,7,8
11 BUREAU				1,2,8	