

# Data Sharing: Progress and Challenges at BLS

Richard Clayton  
Chief, Division of Administrative Statistics and Labor  
Turnover  
Bureau of Labor Statistics

FESAC  
December 12, 2014



# Data Sharing: Progress and Challenges at BLS

- Quarterly Census of Employment and Wages (QCEW) basics
- Data Sharing Opportunities
- Current Progress and Challenges
- Future Work and Opportunities

# QCEW Basics

- Federal/state system
  - BLS pays states and sets data quality standards
- UI mandated reporting
  - Any covered business must report to the state
- Supplemented by Annual Refiling Survey
  - Most establishments on a 3 year cycle
  - Establishments in “low change” industries on a 6 year cycle (cemeteries, pipelines, etc.)

# QCEW: Strengths

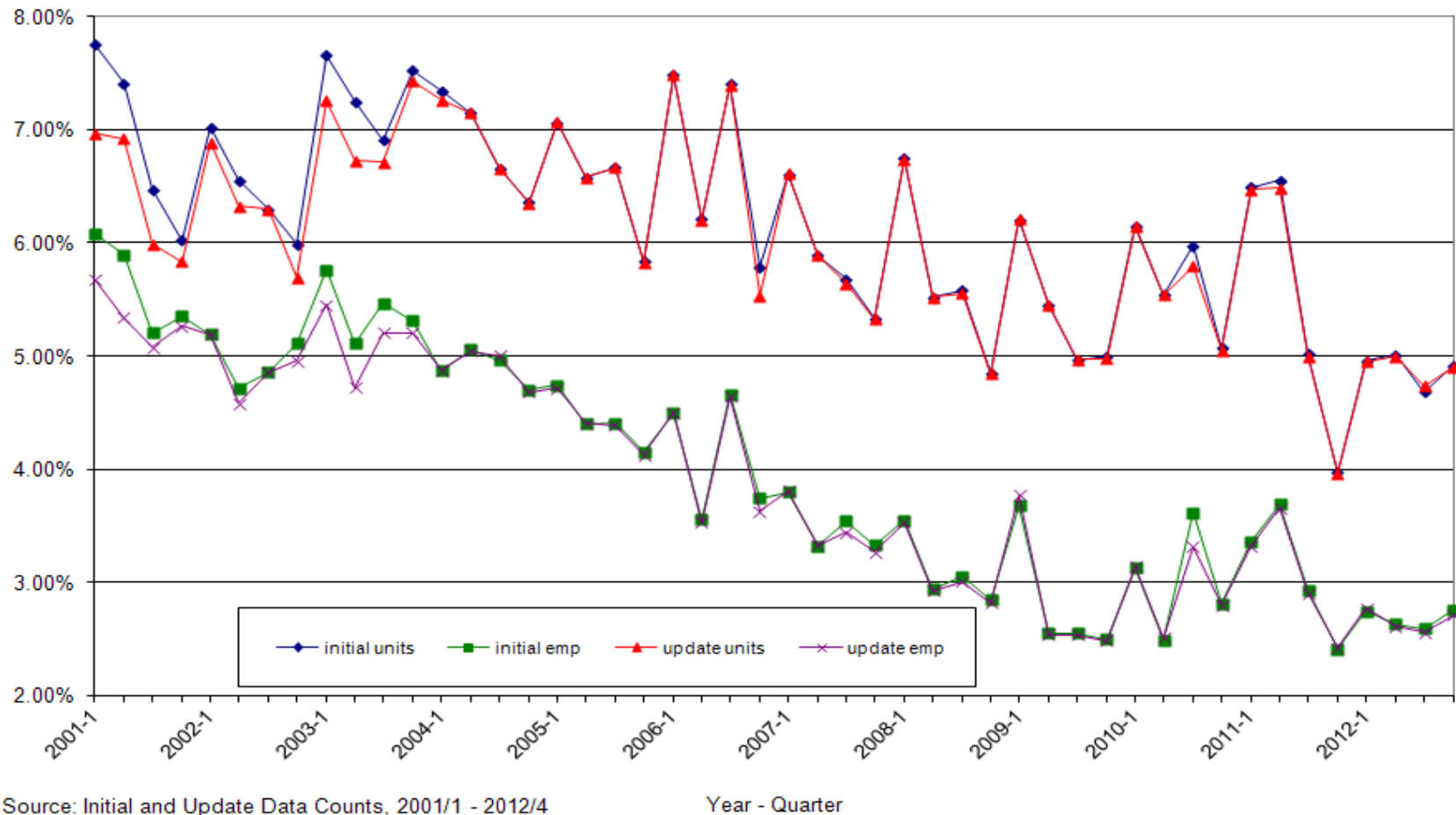
- Monthly employment for all UI covered businesses, quarterly wages...98% of US employment including government, agriculture and private households
- **Coverage**: Reporting is mandated by state laws.
  - 14.5 million annual UI claim verification events ensure high coverage; each initial UI claim includes a search for the employer. (280,000 x 52 weeks)

# QCEW: Strengths

- Timely, frequent, and heavily reviewed (by States, BLS, BEA)
  - Over-the-month, -quarter, and -year edits
- Lots of respondent re-contact
  - validation of change, reasons for change, corrections, etc.)
- 5.6 month lag to publication
  - Following the end of each calendar quarter
- 9.36 million establishments (Q1 2014)
- 143.6 million employment

# Data Quality: Low QCEW Imputations

QCEW Imputations: Percent of Units and Employment Imputed, Private Sector



Source: Initial and Update Data Counts, 2001/1 - 2012/4

Year - Quarter



# QCEW: Strengths – Multiple Worksite Report

- Multiple Worksite Report (any sub-unit with 10+ employees should be reported separately)
- Unmatched worksite reporting in the world
- Quarterly reports capture
  - continuing establishments,
  - new establishment births,
  - and establishment closings/deaths
- Mandatory in 28 states
- Voluntary in 25 states

# QCEW: Reporting Structure

- UI covered employment reported at UI number level within a state
- EINs for 99.9 % of establishments in private sector due to FUTA tax offset

## Multi

– EIN 1	UI 1	Estab 1
		Estab 2
	UI 2	Estab 1

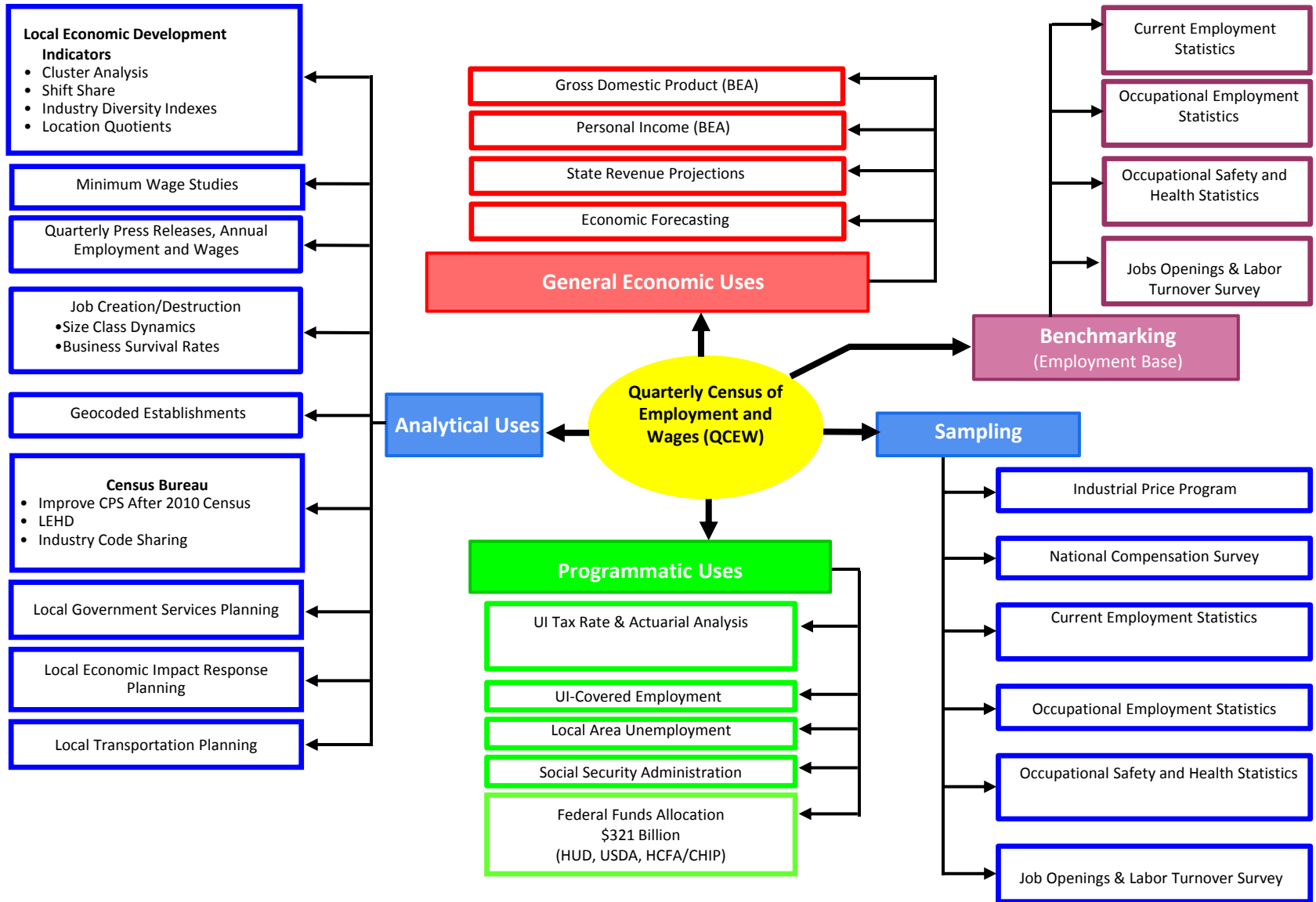
## Single

– EIN 2	UI 1	Estab 1
---------	------	---------

- EINs are directly linked to each owned establishment.



# USES OF QCEW



# Data Sharing: Progress and Challenges at BLS

- Quarterly Census of Employment and Wages (QCEW) basics
- **Data Sharing Opportunities**
- Current Progress and Challenges
- Future Work and Opportunities

# Existing Data Sharing Opportunities

- QCEW provides Census with NAICS codes, physical location address and other codes for new and unclassified businesses
  - Over 1 million codes provided each year saving Census funds, reducing burden, increasing consistency.
- QCEW used as base input to LEHD
- QCEW used in redesign of CPS sample after Decennial Census

# MOU

- BLS and Census share multi-unit firms under a 3-year Memorandum Of Understanding
- Timing: Files shared in October based on data availability of Econ Census or Company Organization Survey.
  - QCEW 2012 files are available by mid 2013.
    - QCEW March files available in September same year
  - Census 2012 files available fall 2014.
- MOU calls for meetings every 6 months

# MOU:

## BLS Primary Projects

1. Establishment vs. firms vs. enterprises
2. Product codes: PPI and QCEW
3. NAICS coding differences
  - Differences in NAICS has been a problem for BEA for 50 years (Bob Parker)
  - Can we address this problem?

# Data Sharing: Progress and Challenges at BLS

- Quarterly Census of Employment and Wages (QCEW) basics
- Data Sharing Opportunities
- **Current Progress and Challenges**
- Future Work and Opportunities

# Project 1: Establishment vs. firms vs. enterprises

- Users want different levels of data: establishment, firm, enterprise.
- These different levels are used to illustrate different economic concepts.
- But how different are they? Do they tell a different story?

# Project 1: Establishment vs. firms vs. enterprises

- Most firms/enterprises are single location businesses.
- QCEW (Single + Multi) data:
  - 5.84 Million of 6.18 Million firms have a single location
    - The establishment is the firm is the enterprise
  - 343 Thousand firms with > 1 location – i.e. Multi's
- Census Multi data:
  - 128 Thousand firms are single firm enterprises
    - The firm is the enterprise
  - 40 Thousands enterprises with > 1 firm
    - QCEW can benefit by obtaining this linkage from Census BR
- Given small number of multi-firm enterprises – we might expect Firm and Enterprise data to be similar

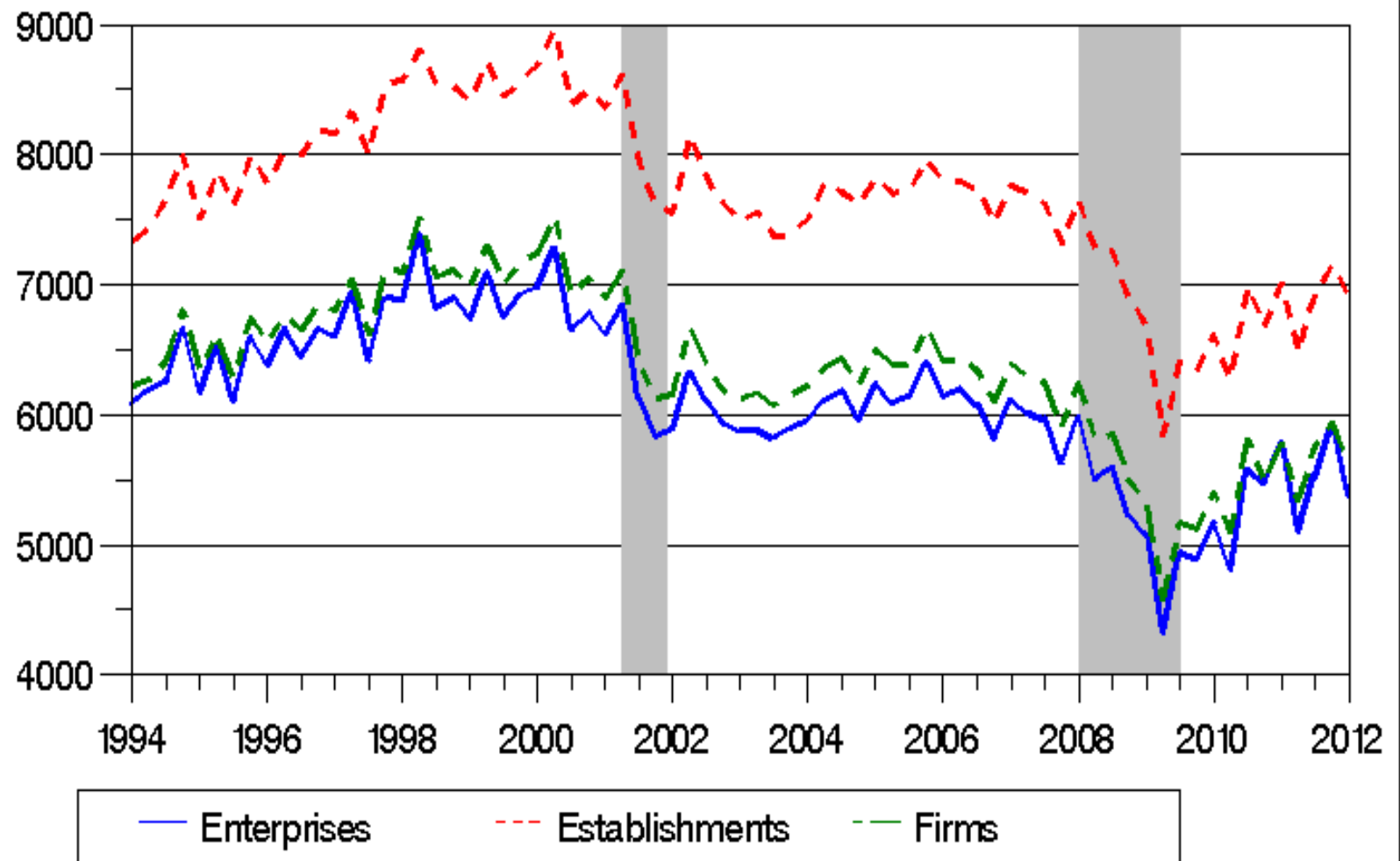


# Project 1: Establishment vs. firms vs. enterprises

- BLS has establishment and firm (EIN)
- Census provided “enterprise” codes
- BLS re-tabulated its Business Employment Dynamics data at the enterprise level.

Enterprises vs. Firms vs. Establishments  
September 1992 – September 2012  
Total gross job gains

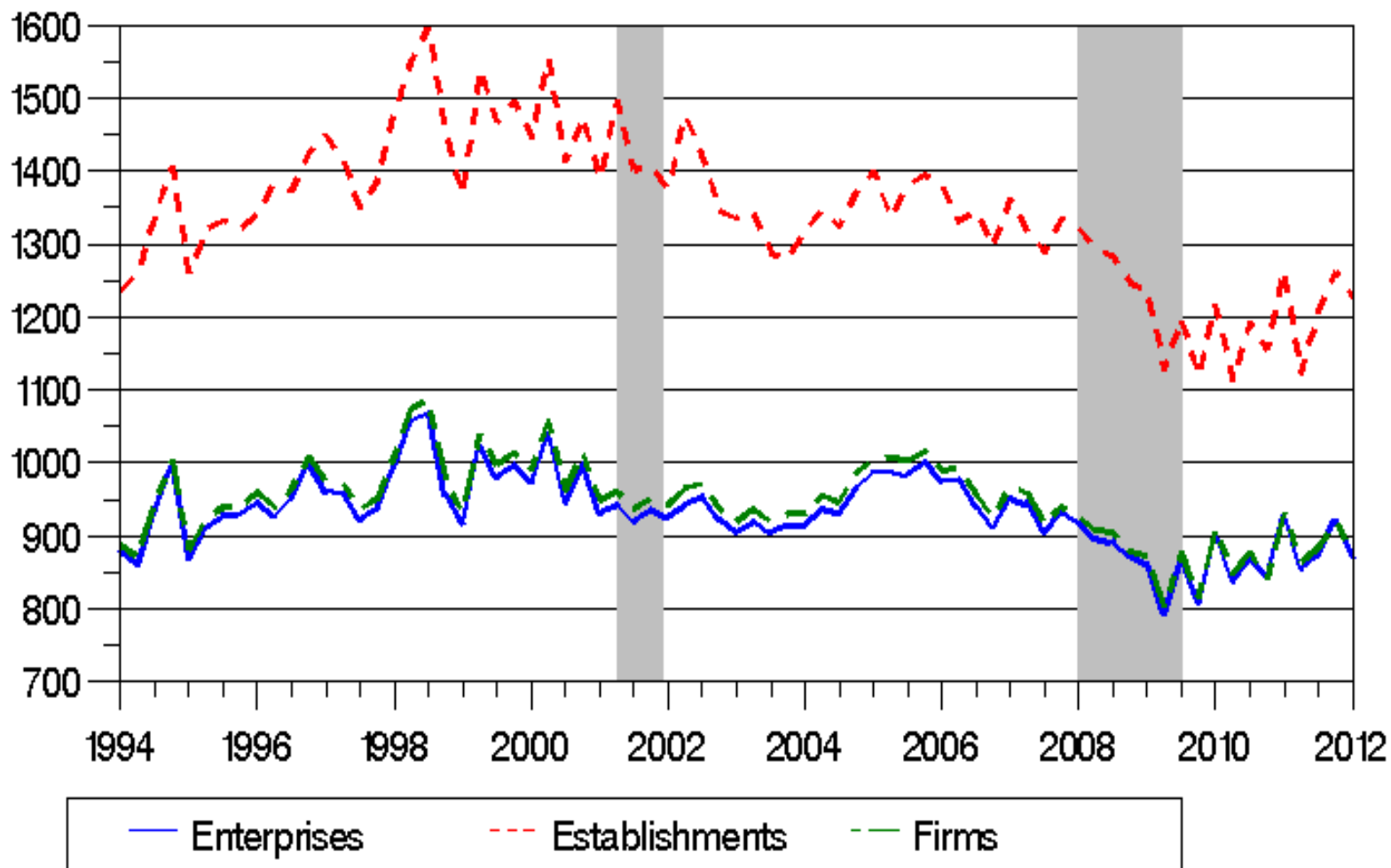
Total private  
Thousands



Note: Shaded area represents recession period.

Enterprises vs. Firms vs. Establishments  
September 1992 – September 2012  
Gross job gains from openings

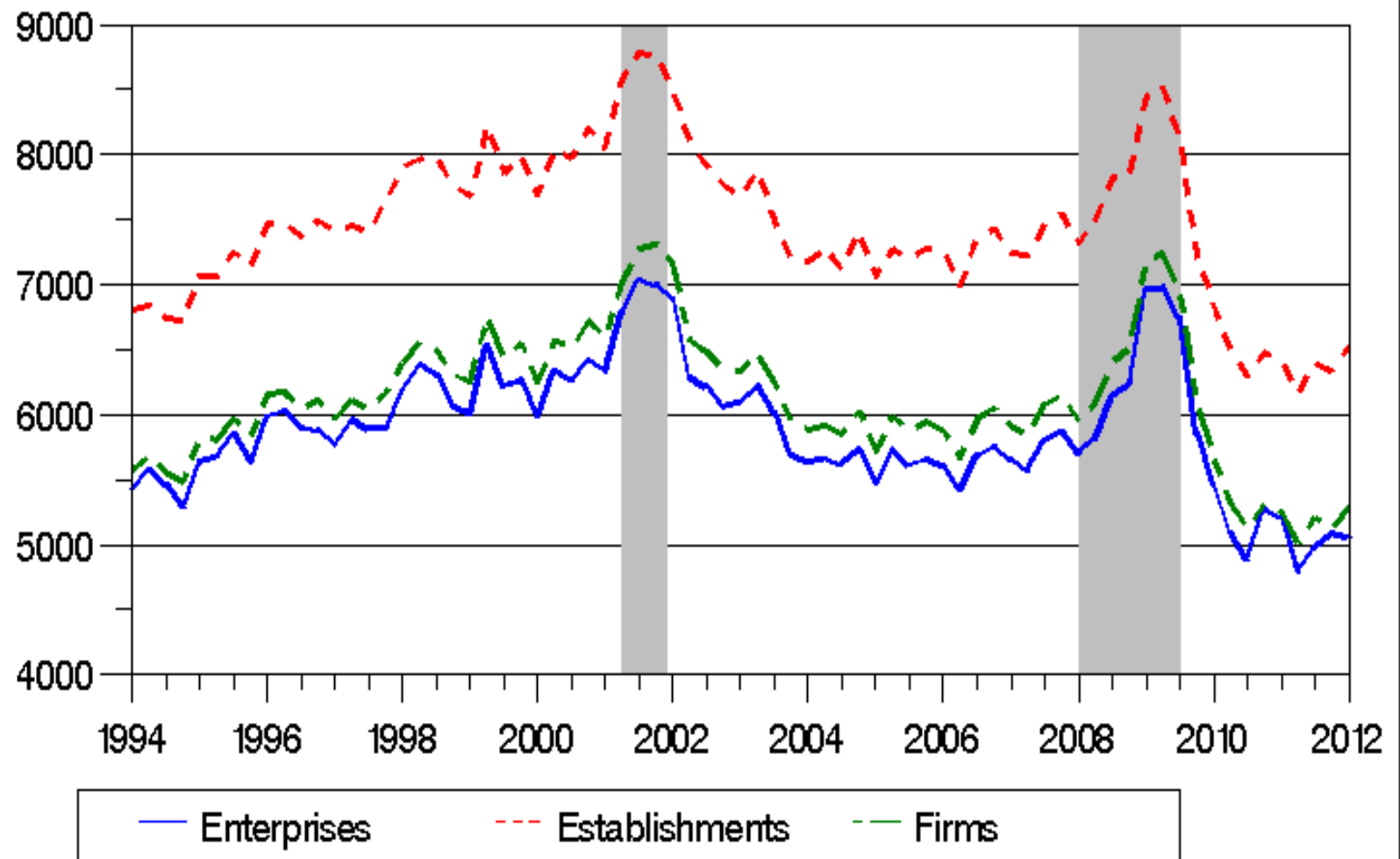
less than 50 employees  
Thousands



Note: Shaded area represents recession period.

Enterprises vs. Firms vs. Establishments  
September 1992 – September 2012  
Total gross job losses

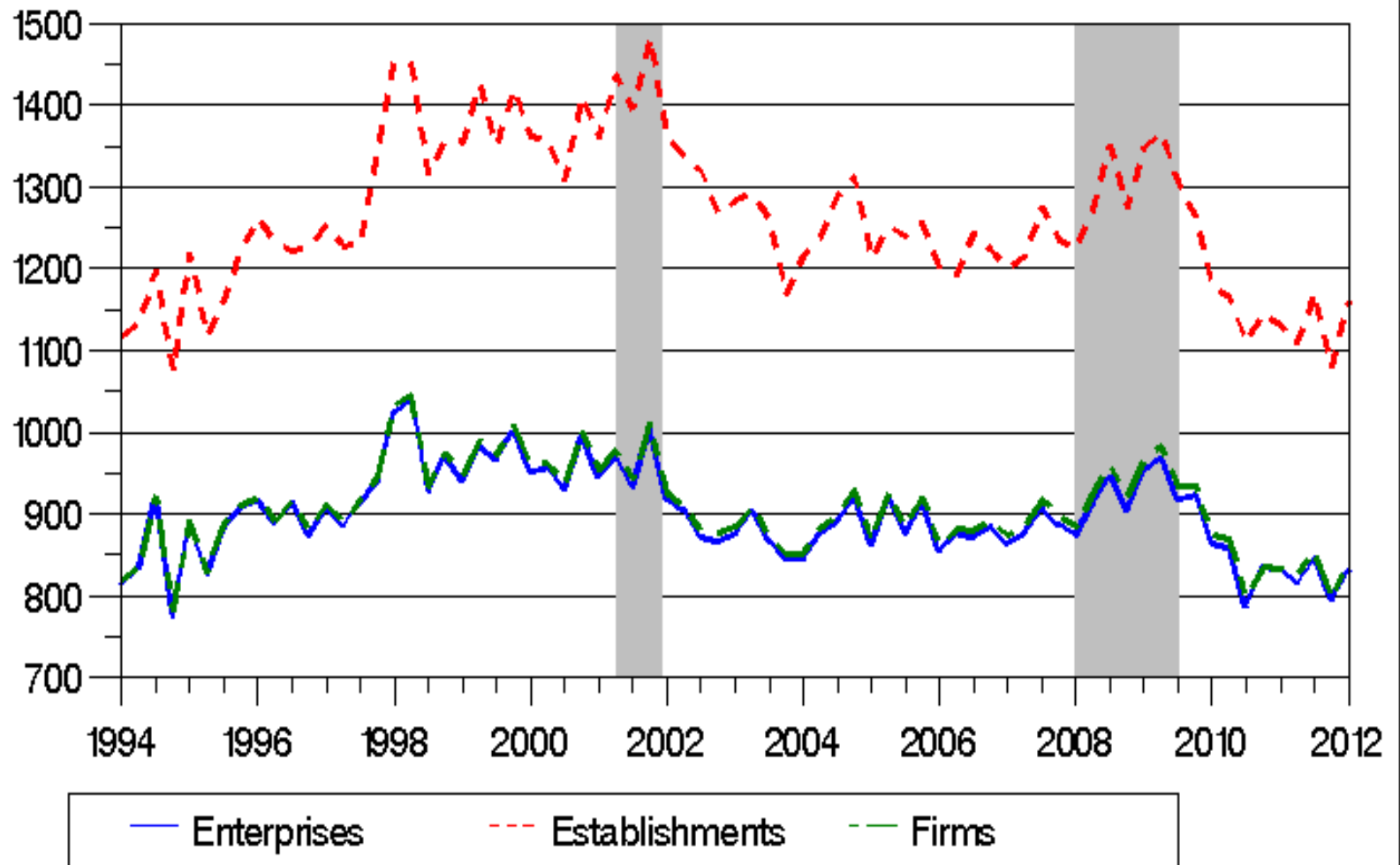
Total private  
Thousands



Note: Shaded area represents recession period.

Enterprises vs. Firms vs. Establishments  
September 1992 – September 2012  
Gross job losses from closings

less than 50 employees  
Thousands



Note: Shaded area represents recession period.

# Project 2: Producer Price Index and Product codes

- Under the continued MOU, the goal would be to establish whether product codes are stable over time, and if so, then:
  - Can PPI use product-level information from the Economic Census data as the primary sampling frame or more likely as a supplementary sampling frame with QCEW data.
  - Main concern is if PPI can only get that product code information once every 5 years, is it stable enough?
- PPI did joint work with International Price Program on using material codes for constructing an independent Input Price Index.
- QCEW has not yet been able to focus resources for work with product codes – however, this is still planned.

## Project 3: NAICS Coding Differences: Why do we have differences?

- **Different collection vehicles and processes**
  - Different collected information, forms, coders, frequency, timeliness
- **Frequencies/Timing**
  - QCEW conducts Annual Refiling Survey on 3-6 year rotating cycle. Most businesses with 3+ employees are on a 3-year cycle.
  - Census sets codes for many units each 5 years Econ Census
  - QCEW kills off deaths each quarter
    - Impacts employment comparisons

## Project 3: NAICS Coding Differences: Why do we have differences?

- **Multi-unit breakouts:**

- QCEW has 1.4 million more multi's - means that BLS will have different codes for varying "levels" of the business
  
- If QCEW has several establishments for a firm and Census has it as a single.....we each might be coding at a different level....different content equals different codes. And vice versa.



## Project 3: NAICS Coding Differences: Why do we have differences?

- **Respondents** within business **may differ**
  - For example, payroll offices versus tax preparers
- **Payroll provider** reporting versus business reporting may lead to employment differences
- **Professional Employer Organization** reporting differences may lead to NAICS coding and employment differences

## Project 3: NAICS Coding Differences: Why do we have differences?

- Response may be provided by a **Payroll provider** (ADP, Paychex, etc.) to QCEW and from within the business to Census
  - QCEW gets 38% of employment from payroll and tax companies. The respondent (of a business that uses a payroll provider) may use a different source of data for Census forms.
  - QCEW employment (from payroll providers) must also reasonably match UI wage records – a double check.

# Payroll Differences

Table 1: Industries with large wage/payroll differences between QCEW and Census

2007 NAICS	NAICS Description	BEA Figures Annual Payroll 2007* (in millions \$)		2007 Difference	2011 Difference	2012 Difference	Annual Payroll 2013 (in millions \$)	
		QCEW Wages	Census Payroll				QCEW- Census	QCEW- Census
5613	Employment Services	x	x		(73,631)	(82,299)	100,259	
561320	Temporary Help Services	60,913	70,050	(9,137)	(8,475)	(10,050)	73,290	
<b>561330</b>	<b>Professional Employer Organizations</b>	<b>19,542</b>	<b>70,625</b>	<b>(51,083)</b>	<b>(67,040)</b>	<b>(75,656)</b>	<b>14,377</b>	
523920	Portfolio Management	33,551	55,342	(21,791)	(18,765)	(23,329)	42,385	
525	Funds, Trusts, and Other Financial Vehicles	8,659	x		8,669	8,817	470	
<b>551114</b>	<b>Corporate, Subsidiary, and Regional Managing Offices</b>	<b>163,513</b>	<b>237,224</b>	<b>(73,711)</b>	<b>(104,005)</b>	<b>(103,013)</b>	<b>214,405</b>	
324	Petroleum and Coal Products Manufacturing	10,766	8,486	2,280	2,665	2,895	12,231	
<b>334</b>	<b>Computer and Electronic Product Manufacturing</b>	<b>115,220</b>	<b>65,952</b>	<b>49,268</b>	<b>40,987</b>	<b>44,125</b>	<b>107,057</b>	
42	Wholesale Trade	364,157	336,207	27,950	9,637	15,843	393,584	
44-45	Retail Trade	405,931	362,819	43,112	26,980	35,184	422,183	

\*These are the original data presented by BEA and have since been revised.

SOURCE: Quarterly Census of Employment and Wages and County Business Patterns

## Project 3: NAICS Coding Differences: Why do we have differences?

### Professional Employer Organizations (PEOs)

- PEO's acquire the employees of businesses, then lease them back
  - Frees owner to focus on business
  - Problem: how to know the industry/geography of the clients
- Many states already mandate client level reporting
- BLS and Florida focused on obtaining “client” level reporting for many years
- Breakthrough: Florida law requiring client level reporting – vastly improved distribution by industry and county
- BLS provided to Census PEO breakouts where known

## Project 3. **NAICS 525 – Funds, Trusts, and Other Financial Vehicles**

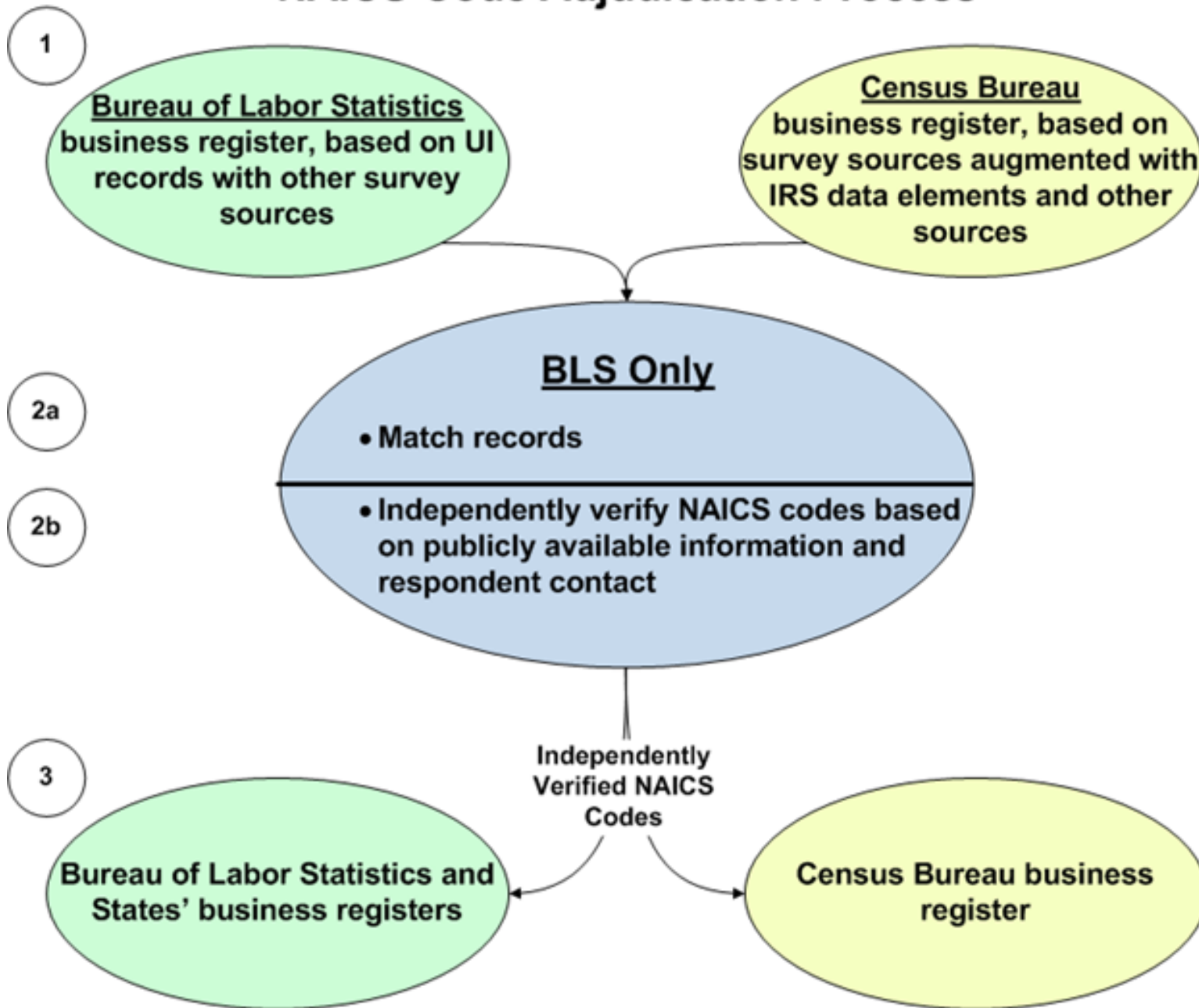
- BEA brought a discrepancy in this industry to our attention
- BLS reviewed cases and determined to move most establishments from 525 to 523920
  - Portfolio Management
  - Discrepancy reduced by over \$8 billion

# Project 3. Progress

## NAICS code adjudication

- For matched multi-units:
- About 8,000 units with employment over 50 that differ at the sector level
- Process: BLS regional staff are reviewing cases
- Two staff per case

# NAICS Code Adjudication Process



# NAICS code adjudication: Results of pilot tests

- 6 months: large cases - not necessarily representative
  - 434 (53%): matched QCEW code
    - 280 matched QCEW
      - 45 matched both (were different in 2011, now the same in 2012)
      - 235 did not match Census
    - 154 did not match QCEW code
      - 122 matched Census
      - 32 did not match either
    - 391 (47%): two Regional staff disagreed on sector
      - Review of cases: these are difficult
      - Respondents can vary on answers



# Data Sharing: Progress and Challenges at BLS

- Quarterly Census of Employment and Wages (QCEW) basics
- Data Sharing Opportunities
- Current Progress and Challenges
- **Future Work and Opportunities**

# Payroll Differences

Table 1: Industries with large wage/payroll differences between QCEW and Census

2007 NAICS	NAICS Description	BEA Figures Annual Payroll 2007* (in millions \$)		2007 Difference	2011 Difference	2012 Difference	Annual Payroll 2013 (in millions \$)	
		QCEW Wages	Census Payroll				QCEW- Census	QCEW- Census
5613	Employment Services	x	x		(73,631)	(82,299)	100,259	
561320	Temporary Help Services	60,913	70,050	(9,137)	(8,475)	(10,050)	73,290	
<b>561330</b>	<b>Professional Employer Organizations</b>	<b>19,542</b>	<b>70,625</b>	<b>(51,083)</b>	<b>(67,040)</b>	<b>(75,656)</b>	<b>14,377</b>	
523920	Portfolio Management	33,551	55,342	(21,791)	(18,765)	(23,329)	42,385	
525	Funds, Trusts, and Other Financial Vehicles	8,659	x		8,669	8,817	470	
<b>551114</b>	<b>Corporate, Subsidiary, and Regional Managing Offices</b>	<b>163,513</b>	<b>237,224</b>	<b>(73,711)</b>	<b>(104,005)</b>	<b>(103,013)</b>	<b>214,405</b>	
324	Petroleum and Coal Products Manufacturing	10,766	8,486	2,280	2,665	2,895	12,231	
<b>334</b>	<b>Computer and Electronic Product Manufacturing</b>	<b>115,220</b>	<b>65,952</b>	<b>49,268</b>	<b>40,987</b>	<b>44,125</b>	<b>107,057</b>	
42	Wholesale Trade	364,157	336,207	27,950	9,637	15,843	393,584	
44-45	Retail Trade	405,931	362,819	43,112	26,980	35,184	422,183	

\*These are the original data presented by BEA and have since been revised.

SOURCE: Quarterly Census of Employment and Wages and County Business Patterns

# Corporate, Subsidiary and Regional Managing Offices

(NAICS 551114)

- Largest single source of discrepancy
- Two alternatives for resolution:
  - BLS adjudicate differences case by case
    - 2-3 years, slowly changing codes
    - Slow changes in both BLS and Census products
    - New set of differences every 5 years
  - Provide BEA with tabulations allowing them to reallocate wages now
    - And proceed with adjudication of large cases

# Impact

- If all recommended changes from existing adjudicated cases are accepted by both states and Census:
  - Sector 55 Management of Companies and Enterprises (2013 annual average):
    - BLS wages change by \$1.2 billion
      - \$214.4 Billion to
      - \$215.6 Billion 0.4%
    - BLS employment
      - Changes by +7000 0.34 %

# Census Headquarters vs. QCEW Industries

Matched Records with Census Record in HQ and QCEW Record in Industry		
NAICS Sector	NAICS Sector Title	2012 Q1 QCEW Wages (thousands)
11	Agriculture	\$18,368
21	Mining	1,399,267
22	Utilities	36,849
23	Construction	190,714
31-33	Manufacturing	4,725,962
42	Wholesale Trade	1,743,941
44-45	Retail Trade	909,235
48-49	Transportation and Warehousing	538,118
51	Information	536,365
52	Finance and Insurance	696,472
53	Real Estate	387,535
54	Professional and Technical Services	1,780,955
55-56	Management and Administrative	1,846,005
61	Education	49,528
62	Health Care	1,864,650
71	Arts and Entertainment	92,366
72	Accommodations and food services	452,281
81	Other services	182,513 <sup>37</sup>

# HQ's

- Adjudicated cases:
  - Some units are HQ's (BLS incorrect)
  - Some are not (Census incorrect)
  - Multiple activities in the same location
  - BLS process improvement: Linking to OES data helpful (1.2 million sample over 3 years)
  - Example: One HQ had 1000+ nurses among other medical occupations

# QUESTIONS: NAICS coding

- NAICS coding practices and policies
  - Different timing, frequency, data items
- Should BLS also collect product information or product codes?
  - This might be easy for specific industries given rise of Internet collection

# Future for NAICS code changes

- Can Census address the PEO's opportunity?
- Should BEA adjust figures for HQ's?
- Should recoding of individual units continue?
  - Pro – improved data accuracy and consistency for BLS, Census, BEA
  - Con:
    - Slow, gradual shifts in industry profiles based on non-economic reclassification...QCEW and CBP misleading trends
    - Increased movement of establishments / firms from one industry to another; minor impact on continuity of economic statistics
    - Cloud of factory-less goods producer (FGP) shift away from HQ's
    - Opportunity costs of this work



# Future for NAICS code changes

- Why do we have the HQ industry?
  - A HQ within an establishment doing other activities leads to a mixed concept and under-reporting
    - either under-reporting for the HQ function or moving other economic activity NOT HQ-related into the HQ industry
  - Does any establishment think that it is in the HQ “industry”?
  - Does anyone set up a HQ “business” and then seek a customer for this management service?
  - Should the NAICS system rethink this? Should this be a 2022 NAICS issue?
- Return to the “auxiliary” concept could address all issues?

# Final Thoughts

## Future of Data Sharing

- BLS will continue to share multi's
- BLS will offer Census a quarterly “death file” for multi's
  - Might reduce Census costs
  - Might reduce employment and wage discrepancy
  - About 17,000 MU EINs die each year covering 264,000 employment.
- Other projects to continue as resources are available:
  - Product codes and other research
- Resource limitations make for slow progress

# Final Thoughts

## Lessons Learned

- Sharing is good
- Several projects like this over 20-25 years
- BLS and Census should have the periodic meetings as established in MOU
  - Maintain progress
  - Improve knowledge of each system
- Differences are inherent and institutionalized – change is difficult
- Adjudicating differences is hard and time consuming
- Data sharing for singles is very desirable (but it takes a law change)