

QWI Data

Presented by

Scott Bailey, Matt Graham & Jeremy Wu

U.S. Census Bureau & Washington State
Employment Security Department

Labor Market and Economic Analysis



Regional Economist

June, 2009

What we'll cover

Quarterly Workforce Indicators (QWI)

- Understanding the different kinds of employment
- Understanding basic QWI data
- How to use on-line QWI data tools

A question about Louisiana...

Employment in Louisiana:

- What's going on with employment?
- How many people are employed?
- How many jobs are there?

Last month's news release:

Date: May 27, 2009

NEWS RELEASE

BATON ROUGE – Louisiana's employment picture continued to outperform the nation in April despite a **drop in nonfarm jobs**...

Seasonally adjusted nonfarm jobs in Louisiana declined by 8,300 from April 2008 to April 2009, bringing the **total number of jobs in the state to 1,931,800**.

Over the month, the state experienced a 7,000 nonfarm employment drop.

Same press release:

Louisiana's civilian labor force – the number of people working or looking for work – for April was 2,074,611...

The number of employed in April was 1,946,270...

The number of unemployed in Louisiana in April 2009 rose to 128,341...

Hold the phone...which one is it?

“...total number of jobs in the state to 1,931,800.”

“The number of employed in April was 1,946,270.”

Employment types

- Labor force, employment and unemployment
- Nonfarm employment
 - Also called wage & salary employment
- Covered employment
- QWI employment

Labor Force and Unemployment

Residents of a geographic area aged 16 and older can be put into one of three buckets:

- Employed persons
- Unemployed persons: no job and actively seeking work
- Persons Not in the labor force
 - Retired
 - Homemaker
 - Student
 - “Discouraged worker”

Labor force = employed + unemployed

Labor Force and Unemployment

Louisiana in April:

- Employed persons: 1,946,270
- Unemployed persons: 128,341
- Labor force: 2,074,611
- Unemployment rate =
 - $128,341 / 2,074,611 = 6.2$ percent
- Not in the labor force: not reported, probably around 1 million people

Where do the numbers come from?

- “Civilian labor force statistics are estimated from a sample survey by place of residence.”
- U.S.—60,000 households are surveyed every month
- Louisiana—about 580 households
- Parishes—no direct measurement

Nonfarm employment

- Count of jobs by place of work—*employer-based*
- Louisiana in April: 1,931,800
- Available by industry:
 - 140,100 construction jobs
- Available by MSA/parish:
 - 42,500 construction jobs in Baton Rouge MSA

Nonfarm employment

Why is nonfarm employment different from employed residents?

- Farm employment
- Private household employment
- Multiple jobholders
- Self-employed
- Unpaid family workers
- Cross-border commuting

Where do the numbers come from?

“Nonfarm statistics are estimated from an employer-based sample survey by place of work.”

Annual benchmarking

- Preliminary estimates are revised based on employer tax filings
- Sometimes revisions are small, sometimes more substantial

Covered employment

- Every employer across the nation files a quarterly report with their employment department
- Quarterly Census of Employment and Wages (QCEW)
- Data is edited, sliced and diced, published

Covered employment

How does covered employment differ from nonfarm employment?

- Take out ag and private household employers
- Add in certain non-covered employment, for example:
 - Railroads
 - Religious organizations

What does all this data tell us?

At the state and local level:

- Unemployment rate
- Employment by industry
- Payroll and average wage by industry
- Net change over time, comparisons between areas

What don't we know?

- Which industries employ young people?
 - What are new hires paid?
 - How has youth employment changed over time?
- Which industries will have a high number of retirees in the near future?
- Which industries offer the best prospects for young men or young women (aged 22-24)?
- How does hiring—and firing—change during recessions?

Quarterly Workforce Indicators

New information:

- Employment by age and sex
- Gross changes:
 - Hires
 - Separations
- Average earnings for incumbent workers

Where does the data come from?

- Start with quarterly Unemployment Insurance reports
- Census Bureau attaches confidential personal data: age, sex, residence
- Summarize to protect confidentiality

Unemployment insurance reports

Quarterly reports completed by every employer in each state

Each report includes:

- Monthly employment count, and total quarterly payroll
- List of all employees, with wages earned

EQUI Database

- Employer Quarterly Unemployment Insurance database
- Compilation of employer-level data
 - Employer characteristics like account number, name, location, industry (NAICS)
 - Monthly employment and quarterly payroll
- Summary published as the Quarterly Census of Employment and Wages (QCEW)

Quarterly Wage File

List of every individual job

- Job = specific worker with earnings from a specific employer

Data elements

- Worker name and SSN
- Employer account number
- Total wages paid

Quarterly Wage File *cont.*

What we don't know: How much of the quarter did a job last?

- Could be just one hour
- Could be full-time, full-quarter
- Could be part-time, full-quarter
- Could be full-time, part-quarter
- Could be in transit, seasonal, etc.

Two different job counts

QCEW/Nonfarm: Monthly point-in-time

- Number of jobs in the pay period covering the 12th of the month

Wage file: Quarterly job flow

- Number of jobs at any time, of any duration, during the quarter

Differences due to turnover, off-reference week employment

Example: Scott's Cajun Cafe

QCEW monthly data

- Reports 3 jobs in January, 3 in February, 3 in March

How many records in the wage file?

- Could be as few as 3 (zero turnover)
- Could be as many as 9 (100 percent turnover)
- Could be even higher (short-term employment in off-reference weeks)

QWI vs. QCEW

Quarterly Workforce Indicators are based on the quarterly wage files

- The employer account is matched with EQUI data (industry, business location)
- The worker information is matched with Social Security Administration data (age, sex, residence)
- Quarter-to-quarter comparisons are made
- Data is summarized (confidentiality)
- Current quarterly counts are adjusted to match covered employment in the first month of the quarter

QWI Measures

Thirty different measures

Five types of measures:

- Employment
- Employment change
- Job Growth
- Earnings
- Turnover

Data Breakouts

Region: State, WDA, MSA, County

Industry: 2, 3, and 4-digit NAICS

Sex (male, female, both)

Age—eight age ranges

- 14-18
- 19-21
- 22-24
- 25-34
- 35-44
- 45-54
- 55-64
- 65+

Glorious Detail

For a given county, for a given industry, QWI can tell us, for example:

- The number of male employees aged 25 to 34
- The number of new hires who were females aged 35 to 44
- The average monthly wage for males aged 55 to 64
- The number of separations (job leavers) aged 19 to 21

QWI Measures: Employment

Job = employee-employer relationship in a quarter

4 employment measures:

- Total employment
- Beginning-of-quarter employment
- End-of-quarter employment
- Full-quarter jobs employment

Total employment

- Symbol: EmpTotal
- All jobs in the current quarter
 - Job = employee-employer relationship
- Not used much
- Interesting for high-turnover industries/populations

Beginning-of-quarter employment

- Symbol: Emp
- All jobs in the current quarter that also existed in the *previous* quarter
- Corresponds to QCEW employment in the first month of the quarter

End-of-quarter employment

- Symbol: EmpEnd
- All jobs in the current quarter that also exist in the *next* quarter
- Theoretically, EmpEnd for the current quarter = Emp for the next quarter

Full-quarter (“stable”) employment

- Symbol: EmpS
- All jobs in the current quarter that also exist in the *previous and subsequent* quarters
- Assumption: these jobs were “continuous” throughout the quarter

EmpTotal: “Total number of employees with positive earnings from an employer during the reference quarter.”

Employee	Previous Quarter	Reference Quarter	Next Quarter
Alma	\$4,100	\$6,100	\$6,500
Biff		\$4,200	\$5,200
Charles	\$4,300		
Debra	\$6,400	\$5,400	

EmpTotal: “Total number of employees with positive earnings from an employer during the reference quarter.”

Employee	Previous Quarter	Reference Quarter	Next Quarter
Alma	\$4,100	\$6,100	\$6,500
Biff		\$4,200	\$5,200
Charles	\$4,300		
Debra	\$6,400	\$5,400	

Emp: “Total number of employees with positive earnings from an employer during the reference and previous quarters.”

Employee	Previous Quarter	Reference Quarter	Next Quarter
Alma	\$4,100	\$6,100	\$6,500
Biff		\$4,200	\$5,200
Charles	\$4,300		
Debra	\$6,400	\$5,400	

Emp: “Total number of employees with positive earnings from an employer during the reference and previous quarters.”

Employee	Previous Quarter	Reference Quarter	Next Quarter
Alma	\$4,100	\$6,100	\$6,500
Biff		\$4,200	\$5,200
Charles	\$4,300		
Debra	\$6,400	\$5,400	

EmpEnd: “Total number of employees with positive earnings from an employer during the reference and subsequent quarters.”

Employee	Previous Quarter	Reference Quarter	Next Quarter
Alma	\$4,100	\$6,100	\$6,500
Biff		\$4,200	\$5,200
Charles	\$4,300		
Debra	\$6,400	\$5,400	

EmpEnd: “Total number of employees with positive earnings from an employer during the reference and subsequent quarters.”

Employee	Previous Quarter	Reference Quarter	Next Quarter
Alma	\$4,100	\$6,100	\$6,500
Biff		\$4,200	\$5,200
Charles	\$4,300		
Debra	\$6,400	\$5,400	

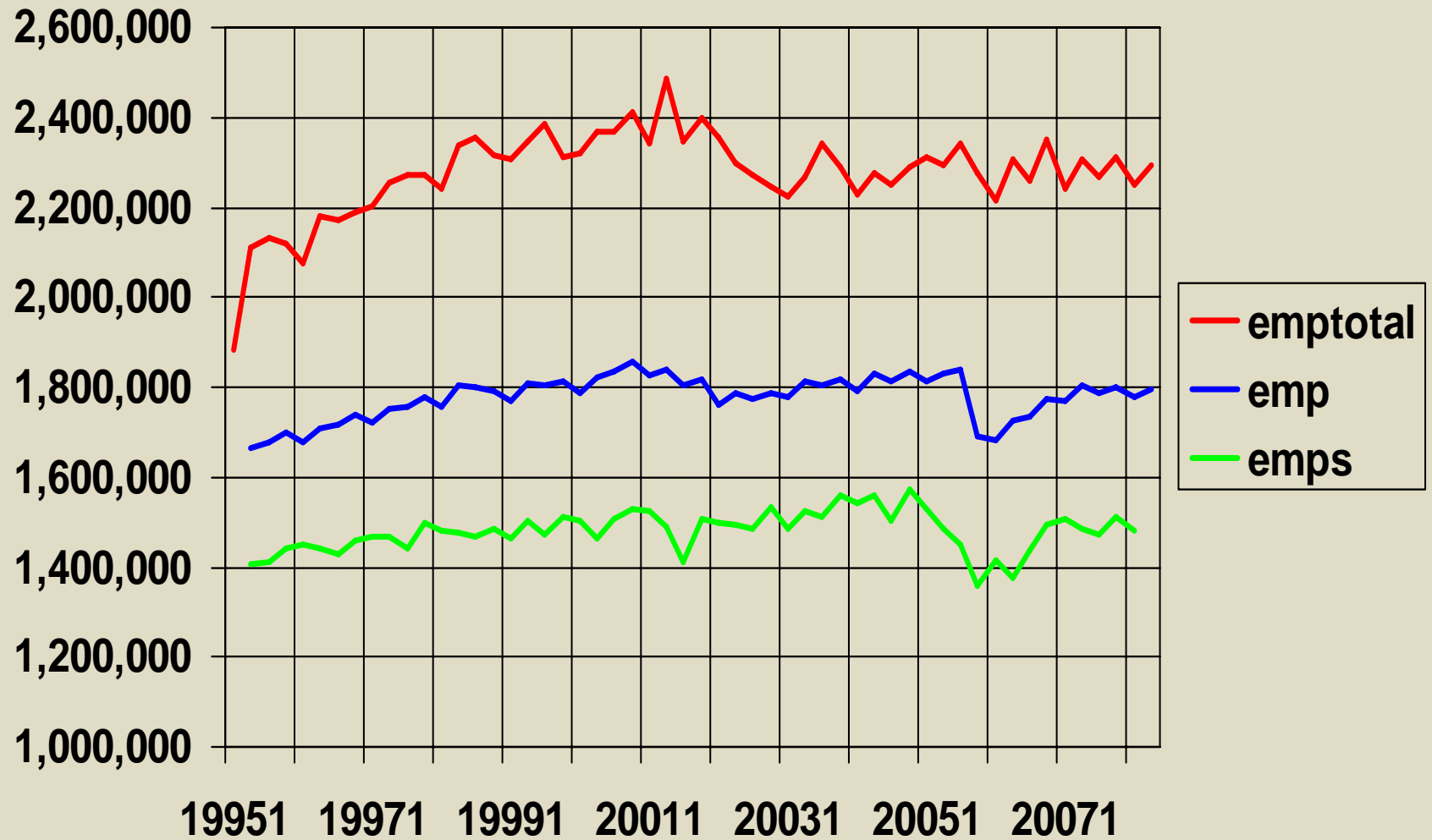
EmpS: “Total number of employees with positive earnings from an employer during the previous, reference, and subsequent quarters.”

Employee	Previous Quarter	Reference Quarter	Next Quarter
Alma	\$4,100	\$6,100	\$6,500
Biff		\$4,200	\$5,200
Charles	\$4,300		
Debra	\$6,400	\$5,400	

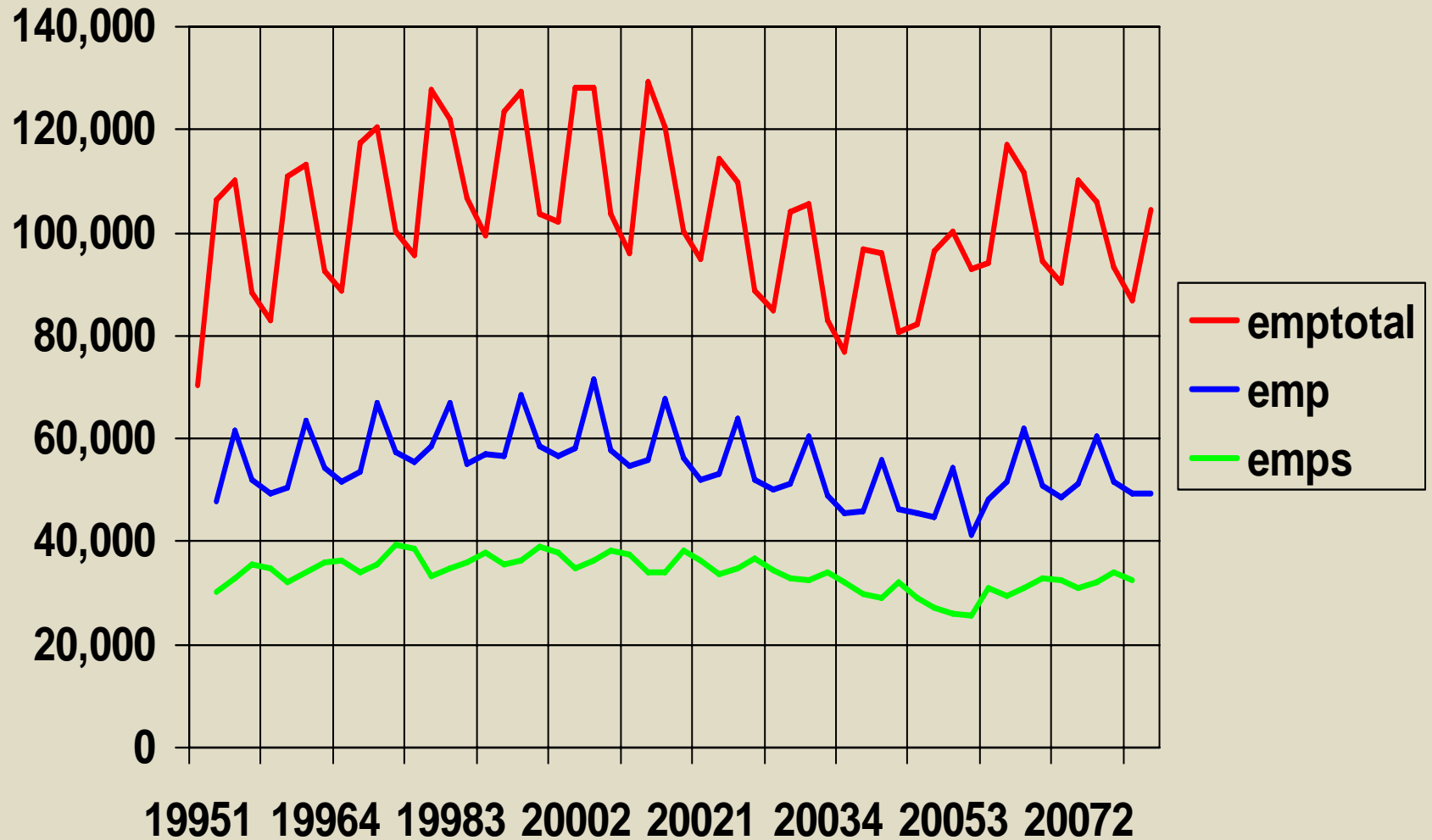
EmpS: “Total number of employees with positive earnings from an employer during the previous, reference, and subsequent quarters.”

Employee	Previous Quarter	Reference Quarter	Next Quarter
Alma	\$4,100	\$6,100	\$6,500
Biff		\$4,200	\$5,200
Charles	\$4,300		
Debra	\$6,400	\$5,400	

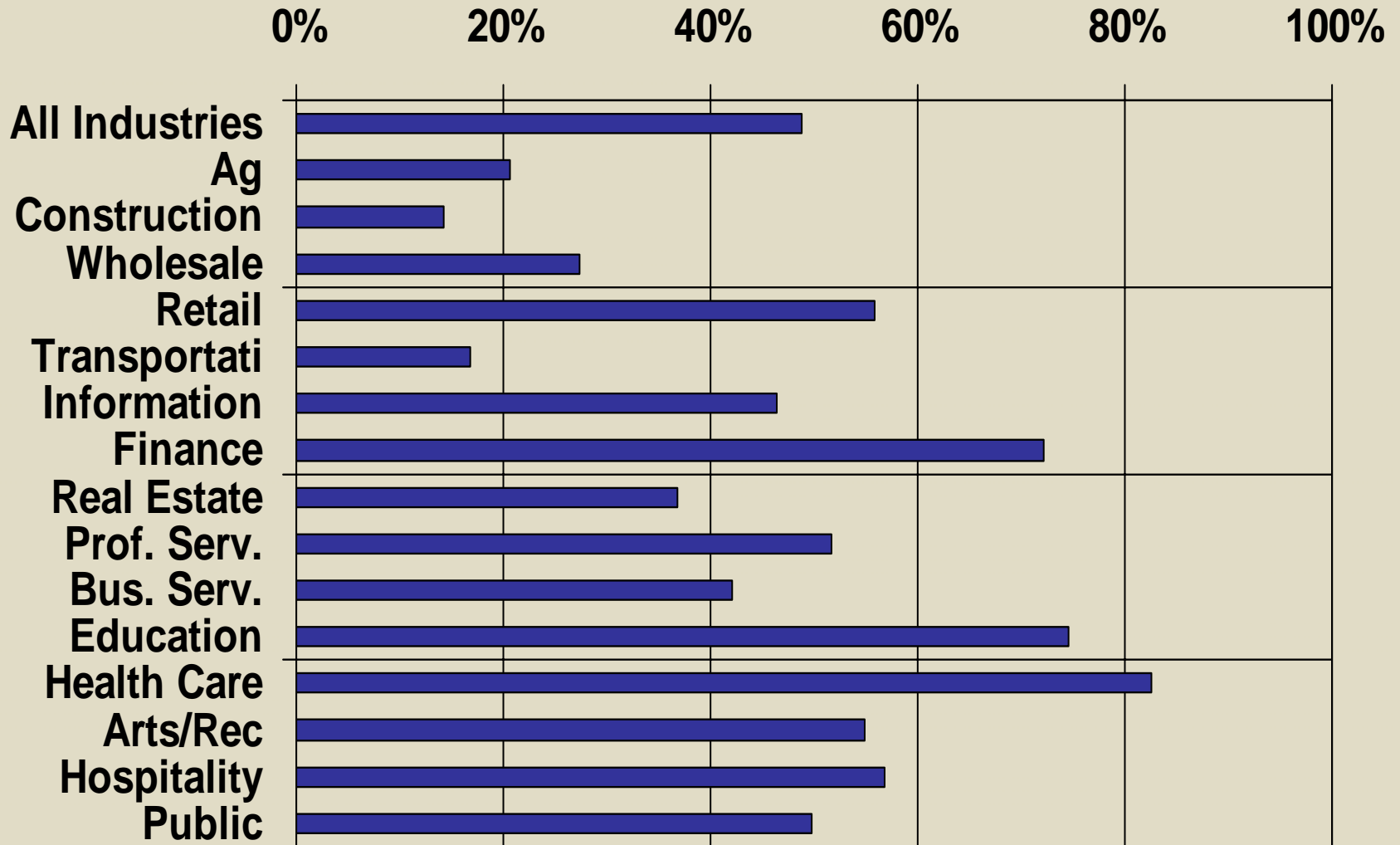
Historical Employment Measures



Historical Employment Measures Ages 14-18



Emp: Percent Female, 2008-2



QWI Measures: Employment Change

- Hires
- Separations

Hires

5 hire measures:

- All hires
- New hires
- Recalls
- All full-quarter hires
- New full-quarter hires

All Hires

- Symbol: HirA
- Jobs in this quarter that did not exist last quarter

New Hires

- Symbol: HirN
- Jobs in this quarter that did not exist *in any of the previous four quarters*

Recalls

- Symbol: HirR
- Jobs in this quarter that did not exist *last* quarter, but did exist in one of the three quarters before that
- Recalls + new hires = all hires

All Full-Quarter Hires

- Symbol: HirAS
- Full-quarter jobs in this quarter that were hires in *last* quarter
- Note the timing shift: full-quarter hires in this quarter were hires *last* quarter

New Full-Quarter Hires

- Symbol: HirNS
- Full-quarter jobs in this quarter that were new hires in *last* quarter
- Same timing shift

QWI Measures: Separations

- 2 separation measures:
 - Separations
 - Full-quarter job separations

Separations

- Symbol: Sep
- Employed in this quarter but not in the *next* quarter
- Sometime during this quarter (maybe on the last day), employment ended

Full-quarter separations

- Symbol: SepS
- Full-quarter job *last* quarter, employed in this quarter but not in the *next* quarter
- Note the difference in timing compared with HirAS, HirNS

HiresA: “Total number of employees with positive earnings from an employer during the reference quarter, but not the previous quarter.”

	Preceding 3 Quarters	Previous Quarter	Reference Quarter	Next Quarter
Alma	\$4,100	\$5,100	\$6,100	\$6,500
Biff	\$0	\$0	\$4,200	\$5,200
Charles	\$3,300	\$0	\$4,300	\$0
Debra	\$4,800	\$6,400	\$5,400	\$0

HiresA: “Total number of employees with positive earnings from an employer during the reference quarter, but not the previous quarter.”

	Preceding 3 Quarters	Previous Quarter	Reference Quarter	Next Quarter
Alma	\$4,100	\$5,100	\$6,100	\$6,500
Biff	\$0	\$0	\$4,200	\$5,200
Charles	\$3,300	\$0	\$4,300	\$0
Debra	\$4,800	\$6,400	\$5,400	\$0

HiresN: “Total number of employees with positive earnings from an employer during the reference quarter, but not the preceding four quarters.”

	Preceding 3 Quarters	Previous Quarter	Reference Quarter	Next Quarter
Alma	\$4,100	\$5,100	\$6,100	\$6,500
Biff	\$0	\$0	\$4,200	\$5,200
Charles	\$3,300	\$0	\$4,300	\$0
Debra	\$4,800	\$6,400	\$5,400	\$0

HiresN: “Total number of employees with positive earnings from an employer during the reference quarter, but not the preceding four quarters.”

	Preceding 3 Quarters	Previous Quarter	Reference Quarter	Next Quarter
Alma	\$4,100	\$5,100	\$6,100	\$6,500
Biff	\$0	\$0	\$4,200	\$5,200
Charles	\$3,300	\$0	\$4,300	\$0
Debra	\$4,800	\$6,400	\$5,400	\$0

HiresR: “Total number of employees with positive earnings from an employer during the reference quarter, but not the previous quarter, but with positive earnings sometime in the preceding three quarters.”

	Preceding 3 Quarters	Previous Quarter	Reference Quarter	Next Quarter
Alma	\$4,100	\$5,100	\$6,100	\$6,500
Biff	\$0	\$0	\$4,200	\$5,200
Charles	\$3,300	\$0	\$4,300	\$0
Debra	\$4,800	\$6,400	\$5,400	\$0

HiresR: “Total number of employees with positive earnings from an employer during the reference quarter, but not the previous quarter, but with positive earnings sometime in the preceding three quarters.”

	Preceding 3 Quarters	Previous Quarter	Reference Quarter	Next Quarter
Alma	\$4,100	\$5,100	\$6,100	\$6,500
Biff	\$0	\$0	\$4,200	\$5,200
Charles	\$3,300	\$0	\$4,300	\$0
Debra	\$4,800	\$6,400	\$5,400	\$0

HirAS: “Total number of employees with positive earnings from an employer during the previous quarter, reference and subsequent quarters, but not the preceding quarter.”

	Preceding Quarter	Previous Quarter	Reference Quarter	Next Quarter
Alma	\$4,100	\$5,100	\$6,100	\$6,500
Biff	\$0	\$1,500	\$4,200	\$5,200
Charles	\$1,700	\$4,300	\$0	\$0
Debra	\$0	\$6,400	\$5,400	\$0

HirAS: “Total number of employees with positive earnings from an employer during the previous quarter, reference and subsequent quarters, but not the preceding quarter.”

	Preceding Quarter	Previous Quarter	Reference Quarter	Next Quarter
Alma	\$4,100	\$5,100	\$6,100	\$6,500
Biff	\$0	\$1,500	\$4,200	\$5,200
Charles	\$1,700	\$4,300	\$0	\$0
Debra	\$0	\$6,400	\$5,400	\$0

HirNS: “Total number of employees with positive earnings from an employer during the previous quarter, reference and subsequent quarters, but not the preceding four quarters.”

	Preceding 4 Quarters	Previous Quarter	Reference Quarter	Next Quarter
Alma	\$4,100	\$5,100	\$6,100	\$6,500
Biff	\$0	\$1,500	\$4,200	\$5,200
Charles	\$1,700	\$4,300	\$0	\$0
Debra	\$0	\$6,400	\$5,400	\$0

HirNS: “Total number of employees with positive earnings from an employer during the previous quarter, reference and subsequent quarters, but not the preceding four quarters.”

	Preceding 4 Quarters	Previous Quarter	Reference Quarter	Next Quarter
Alma	\$4,100	\$5,100	\$6,100	\$6,500
Biff	\$0	\$1,500	\$4,200	\$5,200
Charles	\$1,700	\$4,300	\$0	\$0
Debra	\$0	\$6,400	\$5,400	\$0

Sep: “Total number of employees with positive earnings from an employer during the reference quarter, but not the subsequent quarter.”

	Preceding Quarter	Previous Quarter	Reference Quarter	Next Quarter
Alma	\$0	\$5,100	\$6,100	\$6,500
Biff	\$0	\$4,200	\$1,500	\$0
Charles	\$1,700	\$4,300	\$0	\$0
Debra	\$5,400	\$6,400	\$540	\$0

Sep: “Total number of employees with positive earnings from an employer during the reference quarter, but not the subsequent quarter.”

	Preceding Quarter	Previous Quarter	Reference Quarter	Next Quarter
Alma	\$0	\$5,100	\$6,100	\$6,500
Biff	\$0	\$4,200	\$1,500	\$0
Charles	\$1,700	\$4,300	\$0	\$0
Debra	\$5,400	\$6,400	\$540	\$0

SepS: “Total number of employees with positive earnings from an employer during the reference quarter, but not the subsequent quarter, and are full-quarter employed in the previous quarter.”

	Preceding Quarter	Previous Quarter	Reference Quarter	Next Quarter
Alma	\$0	\$5,100	\$6,100	\$6,500
Biff	\$0	\$4,200	\$1,500	\$0
Charles	\$1,700	\$4,300	\$0	\$0
Debra	\$5,400	\$6,400	\$540	\$0

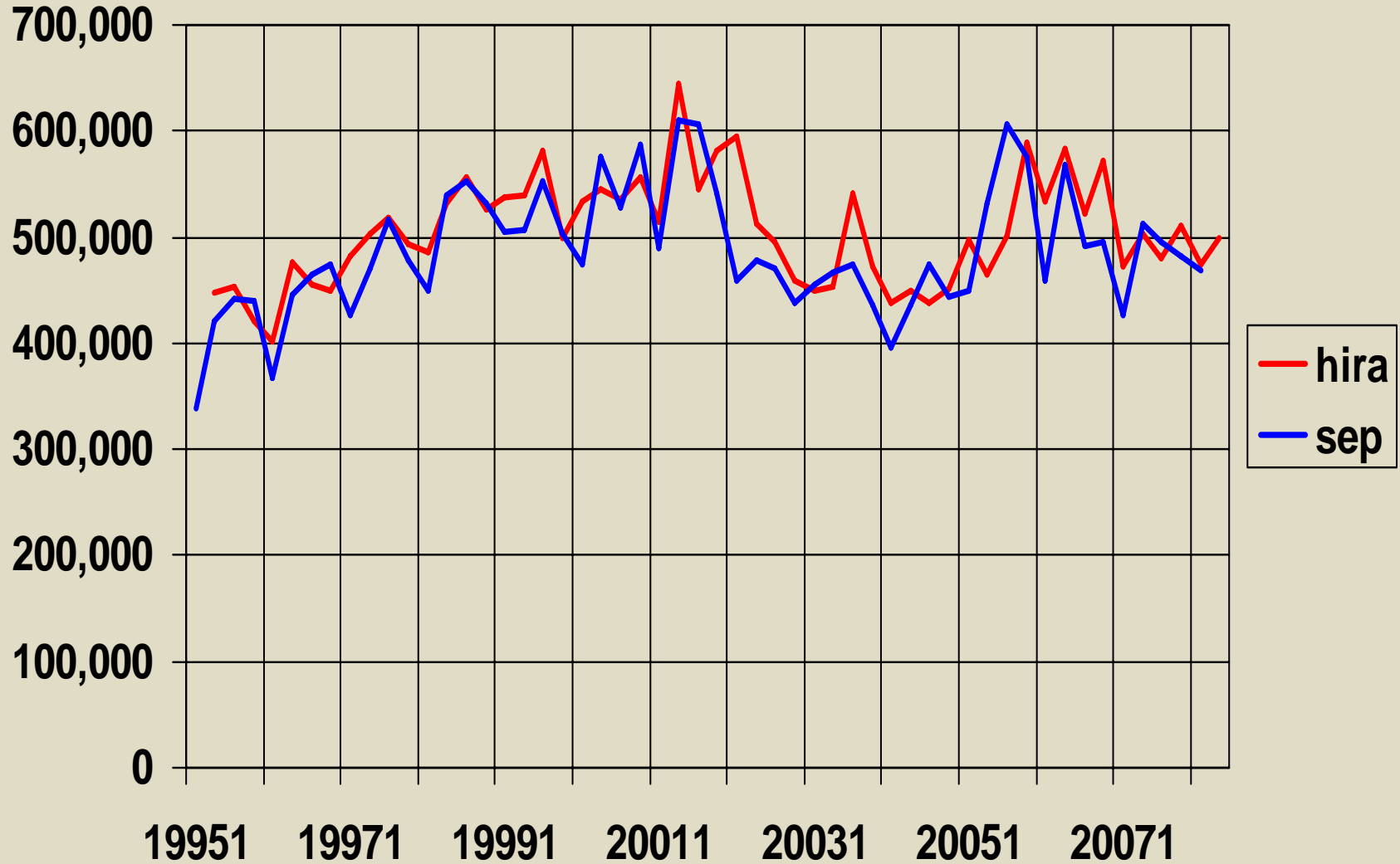
SepS: “Total number of employees with positive earnings from an employer during the reference quarter, but not the subsequent quarter, and are full-quarter employed in the previous quarter.”

	Preceding Quarter	Previous Quarter	Reference Quarter	Next Quarter
Alma	\$0	\$5,100	\$6,100	\$6,500
Biff	\$0	\$4,200	\$1,500	\$0
Charles	\$1,700	\$4,300	\$0	\$0
Debra	\$5,400	\$6,400	\$540	\$0

HiresA: “Total number of employees with positive earnings from an employer during the reference quarter, but not the previous quarter.”

	Previous Quarters	Previous Quarter	Reference Quarter	Next Quarter
Alma		\$5,100	\$6,100	\$6,500
Biff			\$4,200	\$5,200
Charles		\$4,300		
Debra		\$6,400	\$5,400	

Historical Hires and Separations



QWI Measures: Earnings

- 7 earnings measures, including:
 - Full-quarter job earnings (EarnS)
 - Full-quarter hire earnings (EarnHirAS, EarnHirNS)
 - Full-quarter separation earnings (EarnSepS)
 - Flawed, but soon to be fixed
- Earnings = wages/employment/3

QWI Measures: Job Change

- Even when the economy's in the dumpster, some firms are hiring
- Six variables:
 - Firm Job Gains
 - Firm Job Losses
 - Firm Job Change
 - Same for Full-Quarter Job Changes

Firm Job Gain

- Symbol: $FrmJbGn$
- Employment gain for all firms that expanded and for new firms
- Equal to the sum of $EmpEnd - Emp$ for all firms where $EmpEnd$ is greater than Emp

Firm Job Loss

- Symbol: FrmJbLs
- Employment loss for all firms that contracted or died
- Equal to the sum of $\text{EmpEnd} - \text{Emp}$ for all firms where EmpEnd is less than Emp

Firm Job Change

- Symbol: FrmJbC
- Net change in employment for all firms
- Equal to the sum of $\text{EmpEnd} - \text{Emp}$ for all firms

Full-Quarter Versions

- Symbols: FrmJbGnS, FrmJbLsS, FrmJbCs
- Equal to the sum of EmpS in the current quarter – EmpS in the previous quarter

Important Note about Firm Job Measures

- Unlike other measures, Firm Job measures may not be additive
 - Male + Female does not necessarily add to total
 - Same for age groups

FrmJbGn: “EmpEnd – Emp, when >0.”

FrmJbLs: “Emp – EmpEnd, when >0.”

FrmJbC: “EmpEnd – Emp.”

Sex	Emp	Emp End	FrmJb Gn	FrmJb Ls	FrmJbC
Male & Female	310	300			
Male					
Female					

FrmJbGn: “EmpEnd – Emp, when >0.”

FrmJbLs: “Emp – EmpEnd, when >0.”

FrmJbC: “EmpEnd – Emp.”

Sex	Emp	Emp End	FrmJb Gn	FrmJb Ls	FrmJbC
Male & Female	310	300		10	-10
Male					
Female					

FrmJbGn: “EmpEnd – Emp, when >0.”

FrmJbLs: “Emp – EmpEnd, when >0.”

FrmJbC: “EmpEnd – Emp.”

Sex	Emp	Emp End	FrmJb Gn	FrmJb Ls	FrmJbC
Male & Female	310	300		10	-10
Male	160	140			
Female	150	160			

FrmJbGn: “EmpEnd – Emp, when >0.”

FrmJbLs: “Emp – EmpEnd, when >0.”

FrmJbC: “EmpEnd – Emp.”

Sex	Emp	Emp End	FrmJb Gn	FrmJb Ls	FrmJbC
Male & Female	310	300		10	-10
Male	160	140		20	-20
Female	150	160	10		10

QWI Web Tools

- LEHD Website
 - <http://lehd.did.census.gov/led/index.html>
- QWI Online
- Industry Focus

QWI Online

- <http://lehd.did.census.gov/led/>
- Click on “QWI online” and on your state
- QWI Online Exercise I
 - Find the most current employment and monthly earnings levels for 19-21 year-olds in your area, and compare them with those of 44-54 year olds.

Industry Focus Exercises I

- Create a PDF that details the top 12 industries with the greatest employment among 14-18 year-olds in the East Baton Rouge metro area. Include average monthly earnings for all workers and average monthly earnings for new hires in this report

Industry Focus Exercises II

- Create a report that details the top 10 industries with the greatest earnings among women between the ages of 35-44 in the Iberia Parish. Include employment and number of new hires in this report.

QWI Spreadsheet

- Open up the excel file
 - First tab: what the download looks like
 - Second tab: cleaned up
 - Third tab: no age/sex breakout
 - Fourth & fifth tabs: historical graphs