

inside the vault

AN ECONOMIC EDUCATION NEWSLETTER FROM THE FEDERAL RESERVE BANK OF ST. LOUIS



Many Moving Parts: A Look Inside the U.S. Labor Market

BY DAVID ANDOLFATTO AND MARCELA M. WILLIAMS

Almost 8 million jobs were lost in the Great Recession of 2007-09 when the average **unemployment rate** peaked at over 9 percent. Roughly 1 million jobs have been regained since early 2010, but the unemployment rate remains persistently high. Some policymakers fear a prolonged “jobless recovery”—a period of rising average income, measured by **gross domestic product** (GDP)—with little or no employment growth.

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What, if anything, monetary and fiscal policymakers can or should do to stimulate the labor market is widely debated. Disagreements stem, in part, from the complicated nature of the problem: The labor market has many moving parts, policies may have unintended consequences, and ups and downs in the labor market can be difficult to interpret.

Contrary to common belief, **unemployment** is not technically a measure of joblessness. It is, instead, a measure of job-search activity among the jobless. Millions of unemployed people find jobs every month, even in a deep **recession**. Millions of workers either lose or leave their jobs every month, even in a robust expansion. This flow of workers into and out of employment suggests that the labor market plays an important role in reallocating **human resources** to their most productive uses through good times and bad. Furthermore, unemployment rates, like most measures of labor market activity, often vary significantly across economic and demographic characteristics, such as income, age, sex, and education.

In the labor market, the job-search activity of unemployed workers coincides with the recruiting efforts of firms with job openings. The combination of jobs seekers and open jobs suggests the presence of “frictions” in the process of matching workers to jobs.

Vacancy rates (job openings) and unemployment rates tend to move in opposite directions over the **business cycle**. Normally, good times induce firms to create job openings, making it easier for unemployed workers to find jobs. However, this is not always the case. Since the end of the Great Recession, for example, job openings in the United States appear to have increased, yet unemployment is still high. Some economists interpret this as evidence of a “structural” change that will take years to work through.

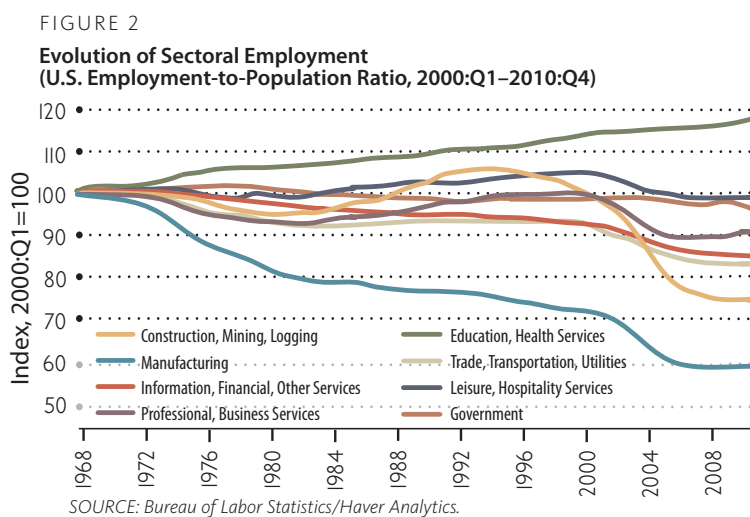
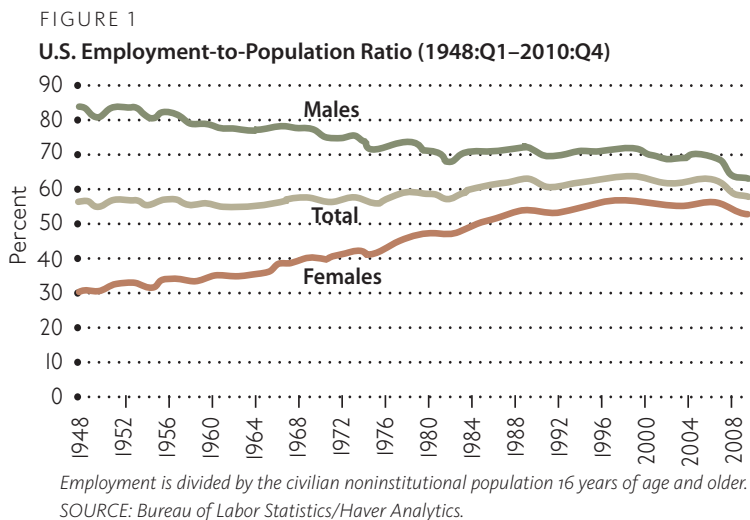
In everyday language, a “job” or “employment” is commonly associated with an activity that generates a monetary reward. Standard **labor force** surveys classify a person as **employed** in a given month if the person reports having performed any

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paid work in the previous four weeks. The term “paid” refers to direct monetary compensation by another party (an employer or, in the case of the self-employed, a customer).



Understanding how employment is defined and measured is important for interpreting its level. An increase in employment is usually considered a good thing and, indeed, it frequently is. But employment may also increase when, for example, a student cannot afford to remain in school and returns to work or when a stay-at-home parent is forced to find a paying job. Clearly, it is not in the interest of society to have everyone employed. But if this is the case, then how is **full employment** to be defined and measured?

The idea that the economy is at full employment when everyone who wants a job has a job is not very helpful. Almost anybody can get some sort of

job in relatively short order—the problem is finding a high-paying job. Everybody wants such a job, even if currently engaged in other productive activities, such as going to school or running a household.

Since World War II, employment, measured as a ratio of population size, has remained relatively stable over time, although the **employment rate** generally has been rising for women and falling for men. In the postwar era, the U.S. employment rate has averaged about 60 percent and has remained, for the most part, within 3 percentage points of this average from 1948 through 2010. Because the population base is large, a small change in the employment rate can translate into millions of jobs. For example, in the most recent recession, the employment rate declined by more than 3 percentage points—almost 8 million jobs.

Figure 1 plots the **employment-to-population ratio** in the United States from 1948 through 2010. Reviewing this data is helpful because employment grows naturally with the population. The figure reveals that employment rates for men and women have evolved differently. First, although rates are lower for females relative to males, this gap has closed significantly over the past 60 years. The male employment rate declined persistently in the first half of the sample, while that for females generally rose. While these long-run adjustments appear to have stabilized over the past 20 years or so, it remains unclear whether some notion of “full employment” can be identified. If it can, then it would appear to differ across genders and fluctuate over time.

Additionally, employment across different sectors varies widely even over relatively short periods. This suggests a degree of caution in creating a “one-size-fits-all” policy for the labor market. Figure 2 shows the employment-to-population ratios for eight sectors. These ratios have been normalized to 100 in the first quarter of 2000; therefore, movement in a given sector represents the percentage change in that sector’s employment-to-population ratio since the beginning of 2000.

If an economy were to grow along what economists call a “balanced growth path,” then all of the lines in Figure 2 would be expected to fluctuate around the normalized value of 100. Yet clear trends appear in at least two sectors: a long-run decline in the manufacturing sector and a steady rise in the education and health services sector—even through the Great Recession. In terms of **cyclical unemployment** (unemployment related to changes in the business cycle), there are no surprises. Take two extremes: Employment in the construction, mining, and logging sector is highly cyclical, whereas that in the government sector is not.

Joblessness is not the same thing as unemployment, according to standard labor force survey definitions. To be classified as “unemployed,” a person who is not working must report being available for paid work and having engaged in some job-search activity in the previous four weeks. (The only exception is for those temporarily laid off.) People without a job who are not actively looking for jobs are classified as “nonparticipants” in the labor force.

Conceptually, the distinction between unemployment and nonparticipation is clear enough; it involves some notion of active job search. The standard labor force survey asks those without jobs what they have done to find work (in the previous four weeks). If the respondents answer “nothing,” they are classified as nonparticipants. Almost any evidence of active job seeking warrants classification as unemployed. It is important to understand that these classifications are determined by the surveyor. The people being surveyed are never asked directly whether they are unemployed or not.

From an economic perspective, however, a person without a job who had one job interview in four weeks may not look that much different from a nonparticipant. Indeed, the conceptual distinction is further clouded by the fact that, in any given month, the number of nonparticipants who find jobs is as large as the number of unemployed who do.

On the other hand, the data show that an unemployed person is more likely to find a job than a nonparticipant. This difference in the probability of finding a job suggests that the unemployed are in some sense “more attached” to the labor market than nonparticipants. For this reason the labor force is defined as the sum of the employed and unemployed. The implication, as noted, is that nonparticipants are not in the labor force.

When a recession hits, the unemployment rate typically spikes quickly and sharply. Throughout the following recovery, however, the unemployment rate typically declines much more gradually. Figure 3 shows this pattern clearly for the United States: A prolonged time is needed to rebuild the job-worker relationships destroyed in a severe recession. If history is any guide, the U.S. unemployment rate should not be expected to fall back to pre-recession levels for many years.

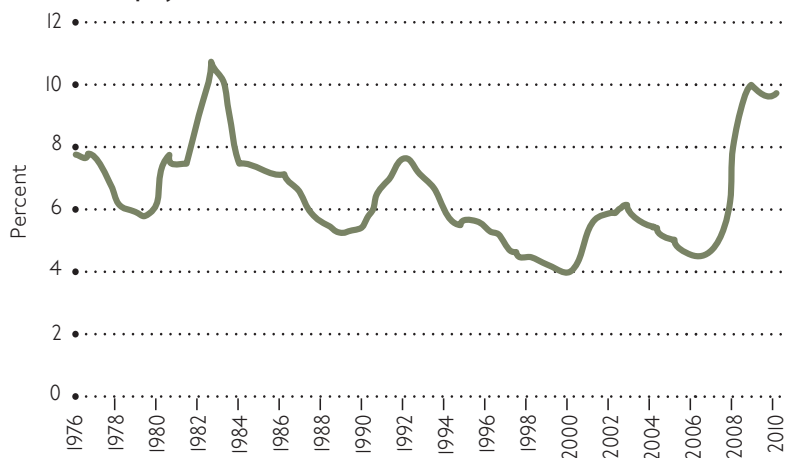
The categories of employment, unemployment, and nonparticipation represent snapshots of labor market activity at a point in time. However, workers in a given category will not necessarily remain in that category for long. Over any interval of time, a number of workers will transition from one labor market category to

another. These transitions are called **worker flows**.

An analogy may be useful here. Imagine a bathtub of water with its drain open and the faucet running. The level of water at a point in time corresponds to the level of employment. The water draining from the tub corresponds to the flow of workers losing or leaving their jobs. The water pouring in from the faucet corresponds to the flow of workers finding jobs. Whether the water level rises or falls depends on the relative size of the inflow and outflow. And so it is for the level of employment.

FIGURE 3

U.S. Unemployment Rate (1976:Q1–2010:Q4)



SOURCE: Bureau of Labor Statistics/Haver Analytics.

Economists Steven Davis, R. Jason Faberman, and John Haltiwanger suggest in a 2006 paper (“The Flow Approach to Labor Markets: New Data Sources and Micro-Macro Links”) that the economic forces behind worker flows can be grouped into a “supply” side and a “demand” side. On the demand side, employers continuously create new jobs and destroy old ones, a process that evidently accounts for much of the observed job mobility and many of the jobless spells experienced by workers. On the supply side, workers frequently switch jobs and change their labor market status for any number of reasons—for example, retirement, family relocation, or schooling. Also on the supply side is a continuous flow of new workers entering the labor force.

A job vacancy corresponds to an “unemployed job” from the perspective of a firm. Unemployed workers are looking for unemployed jobs, and vice versa. (Of course, many job openings are also targeted at employed workers, and many employed workers are

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also looking for better jobs. The flow of employment to employment transitions is also very large.) On the surface, it seems puzzling that job vacancies should coexist with unemployment. Why do firms with job openings simply not hire available workers until the unemployment rate drops to zero or until the available supply of vacant jobs is exhausted?

One answer is that resource allocation in the labor market is complicated by “search frictions.” First, firms with job openings and workers each possess idiosyncratic characteristics that make some job-worker pairings more productive than others. Second, firms and workers do not necessarily know beforehand where the best pairing is located. Both need to expend time and resources to seek out the best matches. A firm will generally not want to hire the first worker who comes through the door. Likewise, an unemployed worker may not want to accept the first job offer. As with unemployment, vacancies vary over the business cycle. In fact, unemployment and job vacancy rates tend to vary systematically: The unemployment rate tends to be high when the vacancy rate is low and vice versa.

With the U.S. unemployment rate still very high, many are asking what might be done about it. The **Federal Reserve** has lowered its policy rate as far as it can go. The economy is flush with liquidity (money available for lending). Many firms, however, remain reluctant to spend on investment and additional labor. For better or worse, political and fiscal constraints are withholding large expenditures on public works projects.

A key question, as far as policy is concerned, is why many firms appear reluctant to go “full speed ahead” in their investment and employment plans as the economy improves. Some argue that private sector spending remains restrained by psychological factors—a simple lack of confidence. Others argue legitimate reasons account for the apparent lack of confidence—including the policy uncertainty caused by political maneuvering in the public sector that could affect government policy. Your view of these two perspectives naturally influences your view of what constitutes desirable policy.

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Glossary

Bureau of Labor Statistics (BLS)—A research agency of the U.S.

Department of Labor that compiles statistics on employment, unemployment, and other economic data.

Business cycle—The fluctuating levels of economic activity in an economy over a period of time measured from the beginning of one recession to the beginning of the next.

Cyclical unemployment—Unemployment associated with recessions in the business cycle.

Employed—People 16 years of age and older who have jobs. Standard labor force surveys record a person as employed in a given month if he or she reports having performed any paid work in the previous four weeks.

Employment-to-population ratio—Represents employment divided by the relevant population (the civilian noninstitutional population 16 years of age and older).

Employment rate—The percentage of the labor force that is employed.

Federal Reserve—The central bank of the United States.

Fiscal policy—The spending and taxation policies used by the government to influence the economy.

Full employment—The lowest possible unemployment rate in a growing economy with all factors of production used as efficiently as possible.

Gross domestic product (GDP)—The market value of all final goods and services produced within an economy during a given period.

Human resources—People who provide work through their mental or physical work capabilities.

Labor force—The total number of workers in an economy, including both the employed and the unemployed, with the unemployed defined as people 16 years of age or older who are not working, report being available for paid work, and have engaged in some job-search activity in the previous four weeks. (The only exception to this rule is for those temporarily laid off.)

Per capita GDP—GDP divided by population.

Participation rate—The percentage of the total population 16 years or older that is willing and able to work and is either employed or actively seeking employment.

Real GDP—The market value of all final goods and services produced within an economy during a given period adjusted for inflation.

Recession—A period of declining real income and rising unemployment; significant decline in general economic activity extending over a period of time.

Unemployment—A condition where people 16 years of age and older are without jobs and actively seeking employment.

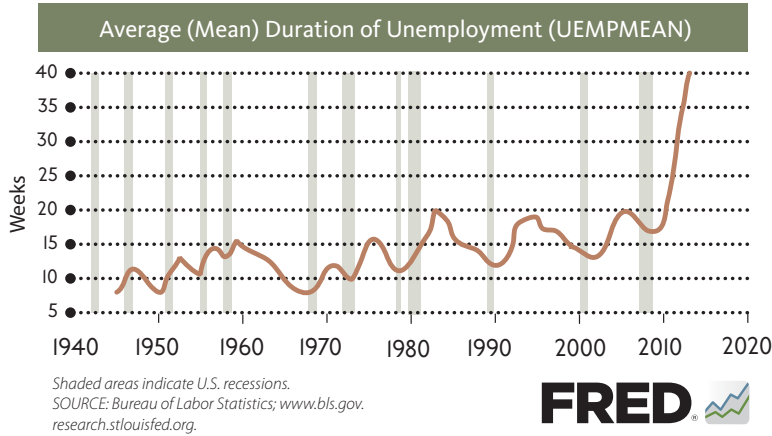
Unemployment rate—The percentage of the labor force that is willing and able to work, does not currently have a job, and is actively seeking employment.

Worker flows—Transitions of workers from one labor market category to another over time.

Duration of Unemployment

1. What causes the average duration of unemployment to change over time?

Changes in the business cycle cause the average duration of unemployment to rise and fall: It begins to rise during recessions, generally peaks following, and then declines as the economy improves, as seen in the graph below.



2. Based on the graph above, how does unemployment attributed to the most recent recession compare with that of past recessions?

The average duration of unemployment associated with the most recent recession is much higher (39 weeks) than that of past recessions. In the previous three recessions, the duration of unemployment remained below 20 weeks.

3. Based on the graph at right, what is the relationship between educational attainment and unemployment rates?

A higher level of educational attainment is associated with a lower level of unemployment.

Current Economic Data

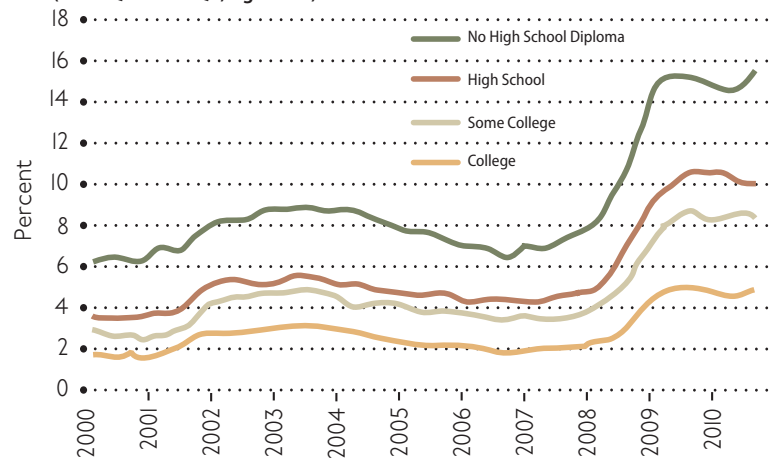
| | Q1-'11 | Q2-'11 | Q3-'11 | Q4-'11 |
|---|--------|--------|--------|--------|
| Growth Rate Real GDP | 0.4% | 1.3% | 1.8% | 2.8%* |
| Inflation Rate Consumer Price Index | 5.2% | 4.1% | 3.1% | 0.9% |
| Civilian Unemployment Rate | 9.0% | 9.0% | 9.1% | 8.7% |

*Advance estimate
SOURCE: GDP, Bureau of Economic Analysis; www.bea.gov.
Unemployment and consumer price index, Bureau of Labor Statistics; www.bls.gov.

4. The most recent recession started in December 2007 and ended in June 2009. Although the unemployment rate increased for all groups during that time, which groups had the highest and lowest increases? Propose an explanation for the difference.

The No High School Diploma group experienced the greatest increase in unemployment (from roughly 6 percent to roughly 15 percent), and the College group experienced the least (from roughly 2 percent to roughly 5 percent). The difference is likely related to the skill level of each group and the type of jobs held by relatively low-skilled workers.

U.S. Employment Rates Across Education Groups (2000:Q1–2010:Q4, Ages 25+)



SOURCE: Bureau of Labor Statistics/Haver Analytics.

Unemployment

Q. Does the government provide assistance to unemployed people?

Yes. A federal-state unemployment compensation program was established as a part of the Social Security Act of 1935, providing partial wage replacement on a temporary basis to eligible, unemployed workers. The program is based upon federal law but is administered by individual states. Although state benefit formulas differ, there are some consistencies across states. For example, all recipients must (1) have earned a specific amount of wages, worked a certain length of time, or met a combination of wage and employment requirements; (2) be able and available for work; and (3) be unemployed through no fault of their own. This limits payments to workers who are unemployed primarily as a result of economic causes.

Most states pay benefits weekly. Benefits paid vary by state based on a worker's record of wages (within limits) and the benefit formula. In all states, unemployment benefits are subject to federal income tax. When unemployment is high, federal law requires states to extend the amount of time a worker can receive unemployment benefits.

Q. What are the different types of unemployment?

There are three types of unemployment:

Frictional unemployment is unemployment resulting from those transitioning from one job to another and those new to the job market, including recent graduates.

Structural unemployment is long-term joblessness caused by a mismatch in the skills held by those looking for work and the skills demanded by employers.

Cyclical unemployment is unemployment associated with recessions in the business cycle, when fewer workers are needed to provide the new (lower) level of goods and services demanded.

Q. In terms of employment opportunities, what does the future hold?

The **Bureau of Labor Statistics** (BLS) publishes long-term occupational employment projections every 2 years. For the period 2008-18, the expectation is that more new jobs will come from professional and service occupations and growth will be faster among occupations requiring postsecondary education. Strong employment growth is expected in healthcare and in technology, while employment is expected to decline in manufacturing and in farming, fishing, and forestry.

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David Andolfatto and Marcela M. Williams. "Many Moving Parts: A Look Inside the U.S. Labor Market," in Federal Reserve Bank of St. Louis *Annual Report for the Year 2010*. Federal Reserve Bank of St. Louis, April 2011; http://stlouisfed.org/publications/ar/2010/PDFs/AR10_Essay.pdf.

Bureau of Labor Statistics. "Employment from the BLS Household and Payroll Surveys: Summary of Recent Trends." January 6, 2012; www.bls.gov/web/empsit/ces_cps_trends.pdf.

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The U.S. economy is clearly in recovery mode, even if the recovery is not very robust. Real **per capita GDP** is growing even if employment per capita is not. A growing GDP combined with zero employment growth necessarily means higher labor productivity (more output is being produced with the same amount of labor). Some people argue that higher productivity is responsible for the lack of hiring. But productivity has been rising for centuries with no obvious detriment to employment opportunities.

The recovery in GDP, however, has done little to diminish the belief among some that more should be

done to help the labor market. It is easy to understand the motivation for this sentiment. GDP is a measure of average income—it sheds no light on how this income is distributed across the population. Moreover, the incidence of unemployment is concentrated among the poor and less educated. In short, there is concern that the prosperity associated with the recovery will not be shared by all. Determining the best way to ensure shared prosperity without crippling the system that creates it is always a challenge for policymakers—and it is likely to remain so in the foreseeable future. Indeed, the labor market has many moving parts to consider.

ALL LOCATIONS

**Conversation with Chairman Bernanke:
Town Hall for Educators Video Conference**

August 7, 2012 • Noon to 5:00 p.m. CST

Registration (to open April 6, 2012):
www.stlouisfed.org/education_resources/events/
for all locations: Little Rock, Memphis, St. Louis,
and Louisville

LITTLE ROCK

Smart Economics and the Common Core

June 7, 2012 (K-5); June 8, 2012 (6-12)

Arch Ford Educational Cooperative, Plummerville, AR
Registration: www.afsc.k12.ar.us/vnews/display.v/SEC/Resources

June 11, 2012 (K-5); June 12, 2012 (6-12)

South Central Educational Cooperative, Camden, AR
Registration: www.scsc.k12.ar.us/

June 13, 2012 (K-5); June 14, 2012 (6-12)

Northcentral Educational Cooperative, Melbourne, AR
Registration: www.naesc.k12.ar.us/

June 18, 2012 (K-5); June 19, 2012 (6-12)

Western Educational Cooperative, Fort Smith, AR
Registration: www.wsc.k12.ar.us/coopcms/

July 9, 2012 (K-5); July 10, 2012 (6-12)

Ozarks Unlimited Educational Cooperative, Harrison, AR
Registration: www.oursc.k12.ar.us/

July 12, 2012 (K-5); July 13, 2012 (6-12)

Southeast Educational Cooperative, Monticello, AR
Registration: <http://se.sesc.k12.ar.us/index.htm>

July 16, 2012 (K-5); July 17, 2012 (6-12)

Dequeen-Mena Educational Cooperative, Mena, AR
Registration: <http://nexus.dmsc.k12.ar.us/>

July 23, 2012 (K-5); July 24, 2012 (6-12)

Northwest Arkansas Educational Cooperative
Farmington, AR
Registration: <http://starfish.k12.ar.us/web/>

MEMPHIS

**Real World Economics: Getting
to the “Core” (6-12)**

June 14, 2012 • 8:30 a.m. – 3:30 p.m.

East Arkansas Community College, Forrest City, AR
Registration: www.grsc.k12.ar.us

Getting to the “Core” with Kid Lit (K-5)

July 17, 2012 • 8:30 a.m. – 3:30 p.m.

Forrest City Junior High School, Forrest City, AR
Registration: www.grsc.k12.ar.us

July 24, 2012 • 8:30 a.m. – 3:30 p.m.

J. F. Wahl Elementary School, Helena, AR
Registration: www.grsc.k12.ar.us

**Focus on the Economy: Getting
to the “Core” (6-12)**

June 26 – 28, 2012

University of Mississippi, Oxford, MS
Registration: www.mscee.org/, see
“Focus on the Economy”

ST. LOUIS

Location for all: Federal Reserve Bank of St. Louis

Registration for all:
www.stlouisfed.org/education_resources/events/

Get Money Smart (9-12)

April 25, 2012 • 4 p.m. – 8 p.m.

**Advanced Placement (AP) Economics
(9-12)**

June 20 – 22, 2012 • 8:30 a.m. – 3:30 p.m. each day

Econ Fest (K-8)

July 18, 2012 • 8:00 a.m. – 3:00 p.m.

**Economic Forces in American History
(8-12)**

July 23 – 28, 2012

Bank Contacts**Little Rock**

Kris Bertelsen
501-324-8368
Kris.A.Bertelsen@stls.frb.org

Louisville

Caryn Rossiter
502-568-9257
Caryn.J.Rossiter@stls.frb.org

Memphis

Jeannette Bennett
901-579-4104
Jeannette.N.Bennett@stls.frb.org

St. Louis

Mary Suiter
314-444-4662
Mary.C.Suiter@stls.frb.org

Barb Flowers
314-444-8421
Barbara.Flowers@stls.frb.org

Scott Wolla
314-444-8624
Scott.A.Wolla@stls.frb.org

Jennifer Bradford
314-444-4608
Jennifer.L.Bradford@stls.frb.org



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P.O. Box 442
St. Louis, MO 63166

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New from Econ Ed Live!



The Story of Unemployment online course teaches students the answer to these questions: How is unemployment calculated? Why might people become unemployed? What can be done to get people back to work? Students also explore how education will help them avoid unemployment in the future. Enroll your students in the two-hour course today at https://bts.stlouisfed.org/econ_ed/online_learning/index.php?page=learning_modules.

Two St. Louis Fed *Economic Lowdown* podcasts complement this edition of *Inside the Vault*. Go to www.stlouisfed.org/education_resources/podcasts.cfm to access Episode 5: *Unemployment* and Episode 10: *The Labor Market*. Use this extra review to reinforce concepts already learned.

For a complete list of resources, visit www.stlouisfed.org/education_resources.



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