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By Juan M. Sánchez

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A Comparison of Unconventional Monetary Policy in the U.S. and Europe

The global financial crisis of 2007-09 affected most countries around the world in a similar way. Deep recessions hit the U.S., Europe and Japan, and even China experienced slower growth. During the early stages of the global economic recovery, the U.S. and the euro area had similar unemployment rates of roughly 10 percent in October 2009. Subsequently, monetary policy in the U.S. and in the euro area took different paths, as did the economic performance of those two economies.

In the U.S., the Federal Open Market Committee (FOMC) undertook unconventional monetary policy after it lowered the federal funds rate target to near zero in December 2008. The FOMC undertook three rounds of quantitative easing, or large-scale asset purchases. The first two programs were for fixed amounts. The third one (QE3) was an open-ended program, in which the FOMC said the purchases would continue at a certain pace until a particular objective was achieved. In addition to quantitative easing, the FOMC used forward guidance, whereby the committee promised to stay at zero beyond the time when it might otherwise have been expected to raise the federal funds rate target. Of these two unconventional approaches to monetary policy, quantitative easing seems to have been more effective.

When the FOMC adopted QE3 in September 2012, the objective was substantial improvement in labor markets. At the time of the FOMC meeting, the latest reading on unemployment was 8.1 percent, and the rate was not expected to drop that rapidly even with the QE3 program. The actual result, however, was that unemployment dropped dramatically faster than anticipated at the launch of QE3. In October 2014, the FOMC declared that substantial improvement in labor markets had occurred and ended QE3.

Meanwhile, the European Central Bank (ECB) lowered its benchmark rate to 1 percent in May 2009 but was reluctant to adopt unconventional monetary policy during and after the 2008-09 recession in the euro area. Not only was the ECB less inclined to promise to stay at zero for any length of time, but it was also less inclined to adopt a quantitative easing program similar to those in the U.S., U.K. and Japan—and with good reason. The ECB is a multinational institution, and the prospect of purchasing sovereign debt of the different nations in the euro area was not envisioned in the Maastricht Treaty, which led to the creation of the ECB. Therefore, the ECB adopted more of a wait-and-see approach to see if the historically low interest rates alone would be enough to spur recovery. However, the European sovereign debt crisis hit in late 2009 and was especially severe in 2011 and 2012, and Europe went back into recession. Euro area unemployment, instead of declining as in the U.S., peaked at 12.1 percent during the second quarter of 2013. The rate remains in double digits (11.3 percent in February 2015), a stark contrast with U.S. unemployment (5.5 percent for the same period).

While the Fed has a dual mandate for maximum sustainable employment and stable prices, the ECB has a single mandate for price stability, which it has interpreted as keeping inflation below but close to 2 percent via an explicit inflation target. During 2014, the ECB's ability to keep inflation close to its target seemed to be eroding as both actual and expected inflation drifted down. Inflation has even been below zero since December 2014.¹ As a result, ECB policymakers overcame their reluctance to adopt unconventional monetary policy.² They decided in January 2015 to implement an open-ended quantitative easing program modeled on the QE3 program in the U.S., with the sovereign



debt purchases beginning in March. The ECB intends to continue the program at least until September 2016 but, if necessary, can continue beyond that until inflation moves back toward target. Based on the U.S. outcomes from QE3, the ECB has a reasonable chance at success with this program.

This is not a story only about Europe. Global yields began to fall during 2014 as it became more likely that the ECB would undertake a sovereign-debt quantitative easing program. From the beginning of 2014 to the end of 2014, yields on 10-year German bonds declined by about 1.4 percentage points, and yields on 10-year U.S. Treasury securities declined by more than 0.8 percentage points. These examples illustrate the big impact that the expectation of quantitative easing in the euro area had on U.S. and global markets. In my view, the ECB's undertaking of quantitative easing was a momentous decision and a major milestone in global monetary policy. [Ω](#)

James Bullard, President and CEO
Federal Reserve Bank of St. Louis

ENDNOTES

- 1 Although U.S. inflation has not been what was expected, it has not gone down to zero. Headline inflation has been drifting down in recent months due largely, in my view, to the decline in oil prices. U.S. inflation refers to the year-over-year percent change in the Personal Consumption Expenditures Price Index, and euro area inflation refers to the year-over-year percent change in the Harmonized Index of Consumer Prices.
- 2 After raising its benchmark rate twice in 2011, the ECB has since lowered it to near zero.



Regional

Global
Regional

Global

Region

Business Cycles

Business Cycles

Business

Global

Regional

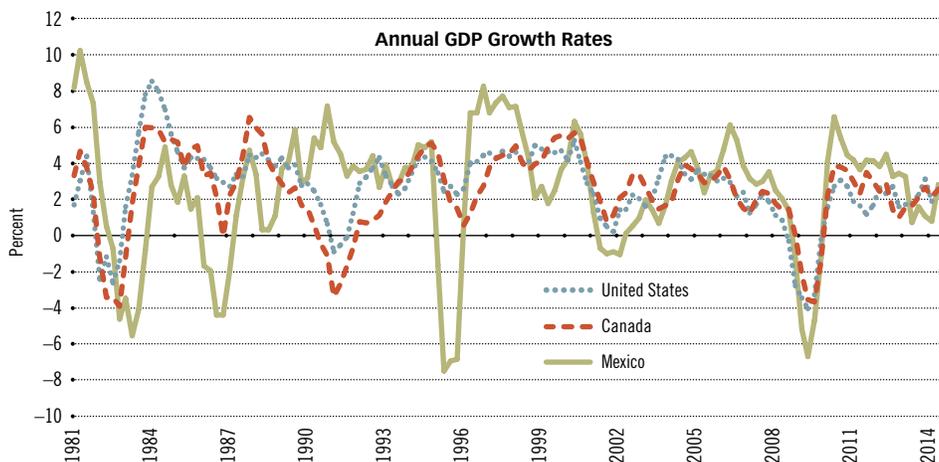
Regional vs. Global

How Are Countries' Business Cycles Moving Together These Days?

By Diana A. Cooke, M. Ayhan Kose, Christopher Otrok and Michael T. Owyang

An economy moves between extended periods of positive output growth (expansions) and shorter periods of negative growth (recessions). Shifting between these phases is typically referred to as the business cycle. This cycle is a prominent feature in economies—both advanced and developing—and can be correlated across countries. The correlation of business cycles implies that groups of countries are in the same phase for stretches of time. An example of this can be seen in the figure, which shows the annual gross domestic product (GDP) growth rates in the United States, Canada and Mexico from 1981 through 2014. Notice that U.S. and Canadian data moved similarly over the past 30 or so years. In the past decade, the Mexican economy also fell into sync: The correlation between U.S. and Mexico increased by over 100 percent.¹

An Example of How Countries' Business Cycles Can Become Correlated



SOURCE: Organization for Economic Cooperation and Development.

Business cycle synchronicity might occur because countries experience shocks common to all countries (e.g., oil price shocks that increase or decrease the price of oil for everyone) or shocks common to countries in the same region (e.g., weather disruptions or regional conflicts). Alternatively, shocks could occur in one country and propagate rapidly to nearby countries. The degree to which business cycles synchronize across countries might depend on, among other things, physical distance, the amount of bilateral trade, similarities in institutions or language, or historical trade routes.²

One way to think about business cycle synchronicity is to imagine each country's business cycle as having a global component, a regional component and a country component. The global component captures the common movements in all countries' business cycles and represents global synchronicity. The regional component captures the common movements with a country's (possibly geographic) neighbors and represents regional synchronicity. A country component captures the movements in the business cycle that are unique to that country and lead to a more independent business cycle.

The strength of the correlation of countries' business cycles depends on the relative importance of these components. For example, if the regional component of a country's cycle is larger than the global and country components, the country may appear more synchronized with its neighbors than with the world as a whole. In a 2003 article, economists Ayhan Kose, Christopher Otrok and Charles Whiteman assessed the relative importance of the global, regional and country components of business cycles in 60 countries. In their initial sample (1960 to 1990), they found that the global and country components explained a substantial portion of the cyclical movements for most countries; regional components explained far less.

Over time, determinants of business cycle synchronicity—institutions, trade patterns, etc.—can change. For example, the formation of the European Union and the ratification of the North American Free Trade Agreement enabled goods to flow more easily across borders. Declines in transportation costs and the ability of more ports to off-load large shipping containers also may have increased bilateral trade between countries that pre-

Two Ways of Looking at Countries' Business Cycle Synchronization

Latin America	Europe	Africa	North America
Costa Rica	Austria	Cameroon	Canada
Dominican Republic	Belgium	Ivory Coast	Mexico
El Salvador	Denmark	Kenya	U.S.
Guatemala	Finland	Morocco	
Honduras	France	Senegal	Asia (Developing)
Jamaica	Germany	South Africa	Bangladesh
Panama	Greece	Zimbabwe	India
Trinidad	Iceland		Indonesia
Argentina	Ireland	Asia (Developed)	Pakistan
Bolivia	Italy	Hong Kong SAR	Philippines
Brazil	Luxembourg	Japan	Sri Lanka
Chile	Netherlands	Malaysia	
Colombia	Norway	Singapore	Oceania
Ecuador	Portugal	South Korea	Australia
Paraguay	Spain	Thailand	New Zealand
Peru	Sweden		
Uruguay	Switzerland		
Venezuela	United Kingdom		

NOTE: The continent headings show how economists Ayhan Kose, Christopher Otrok and Charles Whiteman divided countries by geography in 2003. An alternative (and more recent) classification groups countries not by geography but by common interests, institutions, values and the like; this classification groups the countries into three nongeographic "regions," shown in red, green and blue. This system was developed by economists Neville Francis, Michael Owyang and Ozge Savascin.

viously may not have traded. In the past, more openness in trade led to globalization; more recently, regional trade agreements may have shifted the landscape toward more regionalized—rather than globalized—business cycle synchronicity.

In a more recent paper, economists Hideaki Hirata, Kose and Otrok found that the importance of regional cycles—especially in Europe and Asia—had risen substantially. Understanding synchronicity—and, in particular, which countries are synchronized—can be an important component for implementing countercyclical policy. Downturns in other countries that have synchronous cycles can forecast domestic downturns, leading to more timely policy. Understanding synchronicity can also provide insight into the impact of trade diversification, of the increase in financial flows and of regional trade agreements, all of which have helped to define the global economy in the 21st century.

In this article, we document some facts about business cycle synchronicity—in particular for countries in the Organization for Economic Cooperation and Development (OECD). We focus on the global and

regional components, which indicate cross-country comovement, rather than the country components, which indicate how data within the country move. We first consider the importance of these components for each country's cycle over a 30-year period beginning in 1960. Countries are sorted into seven "continental" regions based on geographic proximity.³ We then consider whether geographically defined regions are optimal and provide some evidence for using economic institutions, in addition to physical distance, as a measure of forming regions. Finally, we document whether the regional component of countries' cycles has become more important.

Documenting International Business Cycles

Although business cycles are most commonly used to describe the state of a single country's economy, globalization and the proliferation of regional trade agreements have prompted economists to study common movements of these cycles across multiple countries. The eurozone, for example, is an economic and monetary union consisting of 19 European countries. These countries

are in close geographic proximity, have adopted the euro as their form of currency and are members of the European Union, which facilitates freer flow of trade among member countries. Changes in the European Central Bank's monetary policy, then, can affect all of the countries in the monetary union and make their business cycles move together. This interconnectedness means that shocks—good or bad—will be experienced by all member countries. The European Central Bank's quantitative easing has already played a role in increasing forecasts of GDP growth across all member countries. On the other hand, the uncertainty surrounding the rumored exit by Greece from the eurozone could destabilize the European economy.

In the aforementioned 2003 article, Kose, Otrok and Whiteman examined how 60 countries' business cycles were related. The countries and their continental regions are shown in the accompanying table. In particular, they considered whether the countries moved together as a whole, whether countries on the same continent moved together or whether each country moved independently of the others. Using the growth rates of output, consumption and investment, they measured the fraction of each country's business cycle attributable to global, regional and country components. Although each of these components is unobserved, they can be inferred from the data, and the sum of these components is a proxy for the business cycle.

The relative importance of each component suggests the degree of that country's interconnectedness. The comovement of all 60 countries is significant, indicating that there is a world business cycle: Fifteen percent of the deviation in world output growth away from the norm was experienced by all 60 countries in the sample. Similarly, 9 percent and 7 percent of deviation in world consumption and investment growth, respectively, were commonly experienced by all countries. However, the importance of the global component varies across countries, indicating that some countries are more interconnected than others. The global component is more important for explaining economic activity of advanced, industrialized countries than of developing nations. When considering only the countries in the so-called Group of 7, the share of

The Determinants of Trade Range from Comparative Advantage to “Iceberg” Costs

The amount of trade between countries can be determined by a variety of things. One is **comparative advantage**. One country trades a good for which it has a comparative advantage in producing for another country's “comparative advantage” good. Comparative advantages in production can be generated by, among other things, differences in the skill sets of the labor forces of the countries, differences in the quality of the physical capital, and differences in the quality or abundance of natural resources used as inputs.

Another determinant of trade is **policy**. Policies that act to deter trade by imposing large barriers are deemed to “increase the size of the border” between the respective countries. Monetary policy rules that target the exchange rate can shift relative prices in the two countries and make trading more or less favorable. These types of policies tend to change the flows of trade but may not affect the overall level of trade.

Tariffs or trade agreements can affect the prevalence of trade. For example, the Transatlantic Trade and Investment Partnership (TTIP) is a trade agreement currently in negotiation between the European Union and the United States. Among other things, the TTIP would standardize regulations in the production of goods so that, for example, the safety features of cars would not have to be approved by both countries involved.

In his 1954 article, economist Paul Samuelson argued that one of the primary determinants of the amount of bilateral trade between countries was the cost of transporting goods. These **“iceberg” costs** increase as the physical distance between the trading countries increases. Since the transport costs are paid for in units of that good, the amount of tradable good decreases as the physical distance between the trading countries increases, just as an iceberg grows smaller as it continues to melt the farther it has floated from its origin. The implication is that the iceberg (which is a metaphor for the tradable good) melts the farther it sails from the country of origin. Iceberg costs provide economic motivation for the regional component of the business cycle: Trade within regions is less costly because of the physical proximity between countries. Distance, in an economic sense, can refer to more than simply physical distance. The cost of transporting goods can change with terrain; with distance from and access to ports, rail, highway and airports; and with a country's infrastructure.

Recently, some economists have conjectured that bilateral trade between countries may also be related to a more broadly defined economic distance. For example, the similarity in those countries' institutions, including **language** and **laws**, might also facilitate trade. Companies in one country might be more inclined to do business with another country if they have some familiarity with the laws. If firms understand the manner in which conflicts are resolved, they may be more willing to risk overseas ventures, produce goods intended for sale in other countries or move production offshore.⁶

In our rapidly globalizing and technologically advancing world, country-specific characteristics, such as common language spoken and laws regarding conflict resolution, supersede the significance of physical distance in determining the prevalence of trade between countries. We can continue to expect the determinants of bilateral trade to fluctuate, especially with the rise in regional trade agreements.

Although business cycles are most commonly used to describe the state of a single country's economy, globalization and the proliferation of regional trade agreements have prompted economists to study common movements of these cycles across multiple countries.

the fluctuations in output growth explained by the global component more than doubles and the share of the fluctuations in consumption growth explained by the global component more than quadruples.⁴

The importance of the global component suggests some interconnectedness across all of the countries during world economic downturns. The regional components, however, appear to explain only a small percentage of business cycle fluctuations, suggesting that regional interconnectedness is very limited for most countries. In particular, the regional component for (pre-European Union) Europe explains only 2 percent of the variation in the three economic variables (output, consumption and investment). The regional component for North American countries, on the other hand, explains a larger proportion of output variation than that for Europe, roughly equal to the contribution of the global component.

The business cycles of most African and Asian (developed and developing) countries do not appear to comove with either their regional neighbors or the rest of the world. In these regions, the country component plays the dominant role in explaining movements in the economic variables; the contributions from both the global and regional components are small. This lack of synchronicity may result from these countries' having relatively small international trade sectors or from the compositions of their economies. For example, many of the African countries in the sample have relatively large agricultural sectors.

What Is a Region?

It is puzzling why the regional component's contribution to the business cycle is small compared with the contributions of the other components. If trade is a substantial determinant of interconnectedness, low regional correlation may suggest that intraregional trade is not important compared with overall trade. If true, this finding confounds the notion that iceberg costs—transportation costs that increase over geographic distance—decrease the propensity to trade.⁵ (See sidebar.) Instead, other factors—e.g., language or institutions—may play a more important role.

In a 2012 paper, economists Neville Francis, Michael Owyang and Ozge Savascin

found that the regional component is more important when the "region" is defined differently from simple geography. Regions based solely on geographic distance may mute the regional comovement, especially if iceberg costs are not the primary determinant of trade. Rather than choose the regions based on location, regions are created based on country-specific factors, such as the degree of economic openness to trade, the investment share of real gross domestic product, the method of conflict resolution, the legal system, language, and composition of trade and production.

The data suggest that the countries can be sorted into three groups. The accompanying table highlights the differences in the geographic regions of Kose, Otrok and Whiteman and the alternative regions of Francis, Owyang and Savascin. The latter regions are organized by color. The first group consists of the many industrialized nations, including Japan and most of Europe. The second group consists of the United Kingdom and many of its former British Commonwealth countries: Australia, Canada, India, New Zealand, South Africa and the United States. A few other countries in Africa and Asia are included in this second group. The final cluster consists of South American countries, along with Mexico, Morocco, Senegal and the Philippines. Consistent with the findings of Kose, Otrok and Whiteman, African countries' business cycles were primarily driven by the country-level component and not assigned to any region with any level of confidence.

Analysis of the formation of groups of countries into regions highlights the important features of international business cycles. While there is a role for a geographic component of regional business cycle synchronization—most European countries were grouped together, and most South American countries were grouped together—other country-specific characteristics appear to also determine business cycle synchronization within regions. Countries with common cultures—especially, languages—and common legal systems tend to have similar business cycles. Thus, Mexico is grouped with its shared-language South American neighbors, and the United States and the United Kingdom are grouped together.

Regions defined in this manner increase the share of output growth fluctuations attributable to the regional component, raising its importance relative to the global and country-specific components. Defining regions based solely on location, the regional component explains just over 2 percent of the fluctuations in output growth; these new regional components explain over 22 percent of the fluctuations in output growth. This dramatic increase in the significance of the regional component indicates that the importance of the regional factor may be misrepresented when countries are sorted into purely geographic regions. National policy is less effective if the nature of economic linkages between countries is misunderstood; thus, classification of countries into “regions” continues to evolve to match trends in trade and financial flows.

A Rise in Regionalization?

In the past 30 years, regional linkages and trade agreements have increased substantially. If trade and financial flows across countries are becoming increasingly regional, the regional component may also find a rise in importance. In a 2013 article, Hirata, Kose and Otrok studied whether economic linkages are becoming increasingly global or increasingly regional. Globalization of trade and finance might lead to stronger economic linkages among all countries, regardless of regions. But the resilience of the Asian economy during the 2008-2009 financial crisis suggests a potential increase in regional versus global linkages.

In order to assess whether the regional components of business cycles have increased in importance, the sample can be split into two periods, 1960-1984 and 1985-2010, during which the number of regional trade agreements increased from five to 200 and during which global and financial flows increased substantially. When the sample is split, more importance is found in the regional component in the second period. For example, the average contribution of the global component to fluctuations in the output growth rate fell from 13 percent in 1960-1984 to 9 percent in 1985-2010. On the other hand, the average contribution of the regional component to fluctuations in the output growth rate rose from 11 percent in 1960-1984 to 19 percent in 1985-2010.

The proliferation of regional trade agreements over the past 30 years might help explain the increasing significance of economic linkages. For example, Canada, Mexico and the United States implemented the North American Free Trade Agreement in 1994 to eliminate barriers to trade and investment. Subsequently, intraregional trade flows in North America accounted for nearly 55 percent of total trade during the past decade. Similarly, the establishment of the European Union and the creation of the eurozone increased intraregional trade flows in Europe to roughly 75 percent of total trade during the past decade.

The increase in regional synchronization might be attributed to the diversification of industry and the acceleration of trade in the second period. For example, the diversification of trade increases the degree of sectoral similarity across countries, increasing the likelihood that countries are exposed to similar shocks and contributing to the convergence of business cycles.

Business cycles track movements in the economy. With the rise in openness to trade, business cycles have become increasingly interconnected. Understanding the nature of comovement of business cycles is important for the formulation of domestic policies to stabilize business cycles. If business cycles are largely global in nature, then domestic policy within one country will have little impact on the nation’s economy, unless accompanied by global economic reform. If business cycles are largely regional in response to trade agreements, one should consider coordinating macroeconomic stabilization policies as part of the formulation of a free-trade zone. Lastly, domestic policy should focus on smoothing business cycle fluctuations that are primarily determined by the country-specific cycle rather than those determined by the global and regional components. ⁹

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ENDNOTES

- ¹ Correlation coefficients between the U.S. and Canada, the U.S. and Mexico, and Canada and Mexico from 1984:Q3 to 2014:Q3 were 0.80, 0.42 and 0.33, respectively. Correlation coefficients between the U.S. and Canada, the U.S. and Mexico, and Canada and Mexico from 2004:Q3 to 2014:Q3 were 0.90, 0.86 and 0.90, respectively.
- ² Business cycle synchronization is often attributed to the prevalence of bilateral trade between the two countries. Bilateral trade was often thought to be higher the shorter the physical distance between two countries. More recent theories have conjectured that distance can also measure culture and institutional similarity.
- ³ Kose, Otrok and Whiteman define seven regions based on geography. The seven regions are Africa, developing Asia, developed Asia, Europe, Latin America, North America and Oceania. They split the Asian countries into two regions consisting of (1) Bangladesh, India, Indonesia, Pakistan, the Philippines and Sri Lanka and (2) Hong Kong, Japan, Malaysia, Singapore, South Korea and Thailand.
- ⁴ The Group of 7 (also known as the G7) consists of Canada, France, Germany, Italy, Japan, the United Kingdom and the United States.
- ⁵ In the iceberg transport cost model, the cost of transporting a good is in the depletion of the good itself, rather than in the use of other resources. This idea is based on floating an iceberg; there is no cost as the distance between the origin and destination locations increases, except for in the amount of the iceberg that melts.
- ⁶ See Levchenko for further discussion of institutional differences as a determinant in trade flows and Melitz for the influence of common language in bilateral trade.

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Contract Enforcement, Corruption Controls and Other Institutions Affect Trade, Too

By Subhayu Bandyopadhyay, Suryadipta Roy and Yang Liu



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The role of institutions in international trade has been getting increasing attention from economists. While traditional theories have focused on differences in labor, land, capital and other factor endowments in explaining international trade patterns, recent research has highlighted the role of institutions. Well-established and high-quality institutions that lay down the rules, procedures and guidelines for trade in a clear and transparent manner, as well as institutions that protect traders from predation, are now viewed to be essential requirements for prosperous trade. For example, a 2003 study by economists James Anderson and Eric van Wincoop showed that higher trading costs due to weak institutions quantitatively affected trade more than barriers such as tariffs, quotas and natural impediments like the distance between the trade partners.

A number of private institutions and think tanks—such as the Political Risk Services Group, Transparency International and the World Bank—have constructed indicators of institutional quality that are used to assess the relative risk of carrying out businesses in different countries. These institutional-quality indices use measures of contract enforcement, control of corruption and the rule of law, among other indicators. To sharpen the focus of our discussion, the rest of this article discusses two of the indicators, namely the contract enforcement and corruption indicators. We do this first by explaining how each of these institutional factors may affect trade and then by discussing an empirical study that relates to each factor, respectively.

Absence of contract enforcement can hinder trade in situations in which exporters are likely to incur substantial fixed costs

before they get paid by importers. Exporters who are unable to recover these costs due to weak contract enforcement in the importers' nations will not enter into trade at all.

A similar problem can afflict investments by upstream producers who are needed to supply customized products to the downstream producers, products that otherwise have no value outside the relationship between the two parties. Researchers have found that institutions that promote contract enforcement, for example, international treaties like the New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards, are able to mitigate such costs and promote trade.

In addition to hindering the overall volume of trade, international differences in contracting institutions have an important bearing on the “pattern of trade”—that is, which countries export which types of goods. One would expect that nations which have superior institutions to enforce contracts should have a comparative advantage in goods that are more “contract intensive,” and, therefore, export these goods in exchange for less contract-intensive goods.

Contract Intensity

One way to think about contract intensity is the following. Some goods require widely available intermediate inputs that may be available from a variety of suppliers. These goods are not contract-intensive. On the other hand, some other goods may require some special intermediate inputs in their production (e.g., some specialized parts for a high-end luxury car), the terms for the delivery of which may have to be negotiated in a contract between the final good producer and the intermediate input supplier. In this case, satisfaction of the

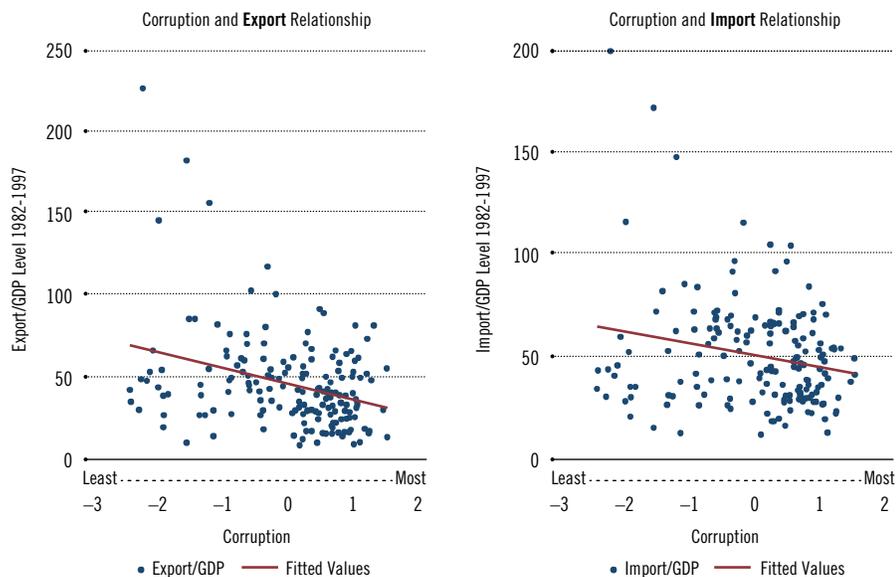
terms of the contract becomes important in ensuring timely and efficient production of the final good.

If a nation's judicial system is weak, such contracts may not be properly enforced and, hence, the costs of producing such contract-intensive goods will be higher. Accordingly, nations with weak judicial systems will have a comparative disadvantage in producing such contract-intensive goods and will end up importing these goods, while exporting other goods.

Following this line of logic, a 2007 study by Harvard economist Nathan Nunn analyzed judicial quality's impact on the global trading patterns and found that countries with high contract-enforcement quality have a comparative advantage in industries in which relationship-specific investments are important. The author designed a variable to measure the relationship-specific investments needed in goods produced in 182 industries. Combining this relationship investment ratio with trade volume and contract-enforcement quality, the author found that countries with good contract enforcement specialize in the production (and export) of goods for which relationship-specific investments are most important. The author also found that differences in contract-enforcement abilities of nations affect the global trade pattern to a greater extent than differences in physical and human capital.

Along similar lines, a 2014 study by economists Nunn and Daniel Trefler showed that advanced countries, which usually have better institutions, undertake production and exports of sophisticated, high-quality products (which are more contract-intensive by their very nature) to a greater extent compared with low-income countries. Moreover, the high-income countries with

Corruption and Trade



SOURCE: Authors' calculations.

NOTE: The scatterplots show that corruption reduces both exports and imports of countries as a percentage of their respective GDPs. Each blue dot represents one of the 171 countries that were part of this study. Dots that appear to the right and bottom of the scatterplot represent countries with high corruption levels that are associated with reduced levels of exports and imports as a fraction of the nations' respective GDPs. The red line shows the fitted relationship between corruption and exports/ imports based on an Ordinary Least Square Regression. See the endnote for sources of the corruption and trade data.

similar institutional structures were found to trade disproportionately more with one another than with low-income countries.

Corruption

Turning to corruption, countries with high levels of it are characterized by burdensome regulations, which are exploited by dishonest officials to extract bribes from traders, thereby driving up the costs of trade. Among other studies, a 2007 study by economists Subhayu Bandyopadhyay and Suryadipta Roy investigated the effect of corruption in impeding trade. Using time-series and cross-section data for a group of 88 countries over the period 1982-1997, they found that greater corruption significantly increased import duties and other related taxes, while reducing the trade-gross domestic product (GDP) ratios of the respective nations. Using their dataset, we constructed two graphs (above); they show the relationship between an index of corruption and the level of exports/imports across 171 countries during the period 1982-1997.¹ The graphs indicate a negative relationship between corruption and export/GDP and import/GDP ratios, suggesting that corruption is an impediment to trade.

What is clear from our discussion is that the literature in international trade has reached a consensus that improved

institutions facilitate trade and that production of more-sophisticated products requires better institutions. Keeping these two issues in mind, developing nations have to find ways to improve their institutions. This is a complex problem, especially for developing nations facing resource constraints.

Reforming policy through measures like relaxation of licensing requirements or reductions in import taxes is one way to improve on the current situation. For example, if there is no import restriction on a certain good, there is also no possibility for a corrupt customs official to take a bribe to allow its importation. In other words, streamlining rules and liberalizing trade will likely reduce incentives for corruption. In turn, this should help increase the volume of trade.

On the other hand, improving the quality of judicial institutions in a nation is a much more difficult proposition and will depend on a variety of factors, including but not limited to the political systems in these nations. Ω

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ENDNOTE

¹ Corruption measure is obtained from the International Country Risk Guide, and the level of exports and imports from the World Bank's World Development Indicators.

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Living Arrangements Matter Not Just to Your Parents but Also to Policymakers

By Guillaume Vandenbroucke



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The United States has 115 million households, the makeup of which varies across the board. Some people live alone. In other households, many people reside—the average is 2.6. Some occupants are married. Some are cohabiting. Some have never married. Should the composition of U.S. households and the living arrangements of people in them matter to economists and policymakers? Yes. Think of unemployment and income inequality, for example. No question, these are issues of interest to policymakers. The decision to look for a job, as well as some

The possible indicators are many. Consider the decision to be a member of the labor force or not. Being a member of the labor force does not always mean that one is employed. One may be unemployed and looking for a job and still be included in the “labor force participation” data. However, if one does not even look for employment, then one is not part of the labor force.

A person who is sufficiently economically secure may choose not to participate in the labor market. Figure 1, Panel A shows that more than 90 percent of married men between

force based on their living arrangement, or are they choosing their living arrangement based on whether they are members of the labor force? These are interesting questions, but not the ones I am trying to answer here. My point is that living arrangements and economic lives are correlated.

Let’s turn to another indicator of economic performance: income. More precisely, let us look at the income received from labor and exclude other sources of income, such as financial assets, Social Security payments, etc. It is well-known, and often discussed, that income inequality is large. One form of inequality is the so-called gender gap in labor income, that is, the fact that men tend to be paid more than women. Panel A of Figure 2 shows the ratio between men’s and women’s labor income. When this number is close to 1, men and women have similar levels of income. When the number is far above 1, men earn more than women. The people considered here are similar in age (between 30 and 40) and education (they have at least a high school diploma). Also, they are all working.

The figure reveals that, when comparing married men and married women, the gap in earnings tends to be large, albeit decreasing over time. In the 1970s, a married man of this type made 2.5 times more money working than a married woman of the same age and with the same education. What is remarkable, however, is that there was almost no difference between never-married men and never-married women. The ratio is much closer to 1, which, again, means that they earn the same amount of money at work. This is more evidence that the arrangement in which people spend their lives has important implications for their economic lives; this is particularly true for women.

When comparing married men and married women, the gap in earnings tends to be large, albeit decreasing over time. ... What is remarkable, however, is that there was almost no difference between never-married men and never-married women.

measures of income inequality, are closely connected with the living arrangements people choose, as I will show in this article with a few statistics.

First, let’s take a look at how the composition of U.S. households has changed over the years. According to the Current Population Survey, the fraction of households headed by a married couple has decreased since the 1970s from 70 to 50 percent. Over the same period, the fraction of households made up of men or women living alone has increased, from just below 20 to just below 30 percent. These trends reveal another set of trends: The marriage rate of Americans has decreased, and the divorce rate has increased. Another phenomenon is the increasing number of people cohabiting but not getting married.¹

So, how does economic life differ for people in different living arrangements?

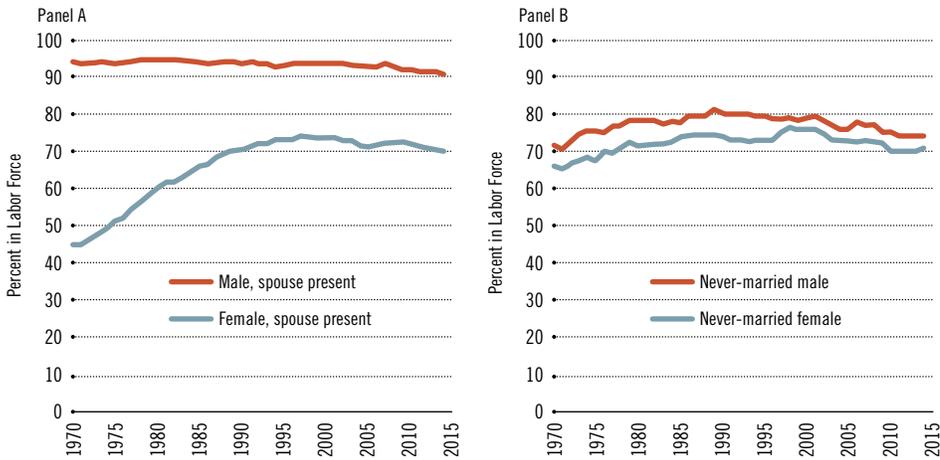
the ages of 18 and 50 who live with their spouses have participated in the labor market since at least the 1970s. Quite different are the numbers for married women living with their spouses. In 1970, fewer than half were in the labor force; that percentage grew by 1990 to 70 percent, where it remains, more or less, today. This trend has been the object of many studies and, in fact, was under way before the 1970s.

The picture of labor force participation changes when one looks at never-married individuals, as in Figure 1, Panel B. There, the difference between men and women appears insignificant compared with Panel A. About 75 percent of never-married men and women participate in the labor force today; this figure has been remarkably steady since the 1970s.

To be sure, Figure 1 does not answer the “which comes first” question, that is, are people deciding to participate in the labor

FIGURE 1

Labor Force Participation of Men and Women, by Marital Status

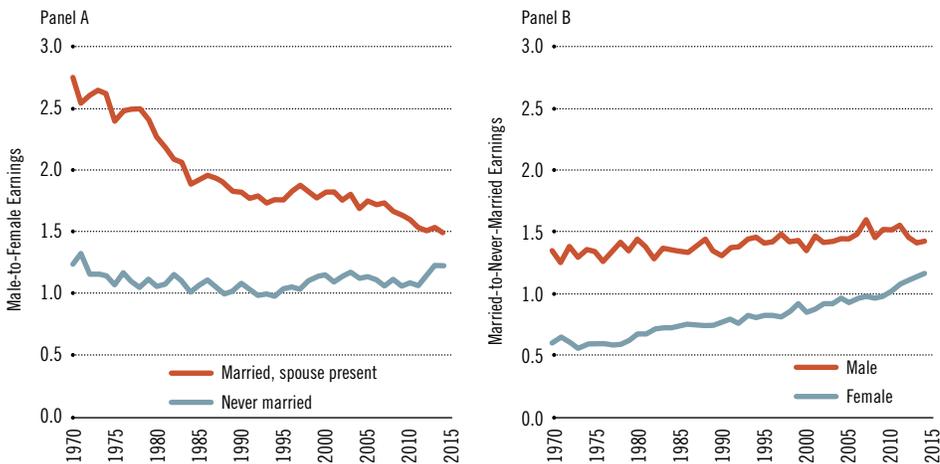


SOURCE: IPUMS-CPS (Integrated Public Use Microdata Series—Current Population Survey), University of Minnesota. See www.ipums.org.

NOTE: A high percentage of married men have always been in the labor force, as can be seen in Panel A; the percentage of married women was less than half of that of men in 1970 but has since grown dramatically. Panel B shows that the percentages of never-married men and never-married women in the labor force have been close since 1970.

FIGURE 2

Relative Earnings



SOURCE: IPUMS-CPS (Integrated Public Use Microdata Series—Current Population Survey), University of Minnesota. See www.ipums.org.

NOTE: Panel A shows that married men still make more than married women, although the gap isn't nearly as large as it was in 1970; meanwhile, the gap in earnings between never-married men and never-married women has been small—or even nonexistent—over the entire period. Panel B shows that married men have always earned more than never-married men. The panel also shows that never-married women earned more than married women from 1970 until sometime after 2005; for most of the time since then, married women have earned more.

Panel B of Figure 2 reveals another aspect of the data that is interesting. It shows the relative earnings between married and never-married people. Again, they are all between 30 and 40, have at least a high school diploma and work. Clearly, for men it is better financially to be married. Married men make about 50 percent more money than never-married men. However, for most of the sample period, it is exactly the opposite for women: Married women tend to make less money (50 percent less in the 1970s) than never-married women (at least until the end of the sample period). Once again, the

question of causality is not addressed here: Are the married men making more money than the single men because they are married, or is it the case that more-productive men are better at getting married?

In the end, the lesson from this discussion is that living arrangements are informative about people's economic lives. 

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ENDNOTE

¹ The source is the U.S. Census Bureau, Current Population Survey, Annual Social and Economic Supplement, selected years, 1970 to 2012.

Stimulus Grants and Schools: How Was the Money Spent?

By Bill Dupor



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The ability of the Federal Reserve to stimulate the economy through monetary policy has been hampered in recent years because the federal funds rate, the Fed's primary policy instrument, has been effectively "stuck" at zero. Once reached, the "zero lower bound" limits a central bank's ability to provide additional monetary stimulus. In this situation, fiscal policy takes center stage as a potential tool to combat an economic downturn. Stimulative fiscal policy consists of lowering taxes, increasing transfers to individuals, increasing government purchases, or some combination of the three. The federal government pursued all three of these strategies as part of the American Recovery and Reinvestment Act of 2009 (ARRA). The law's total price tag was \$840 billion, making it the largest countercyclical fiscal intervention in the U.S. since FDR's New Deal.

A large share of the ARRA's funding was made as grants to state, local and other governments below the federal level, as well as to public institutions. Public school districts were one of the largest groups of these recipients, receiving over \$64 billion in Department of Education ARRA dollars. This injection of funds translated into greater spending at the district level. The figure displays the median value of total expenditures relative to enrollment for public school districts by school year. As the figure indicates, expenditures per pupil rose substantially following the act's passage.

Moreover, the ARRA's education component has been touted as one of the success stories by supporters of the law. For example, according to the Executive Office of the President in 2009, "The rapid distribution of SFSF [State Fiscal Stabilization Fund]

funding helped fill the gaps and avert layoffs of essential personnel in school districts and universities across the nation."

The three immediate goals of the act were:

- to create new jobs and save existing ones,
- to spur economic activity and invest in long-term growth, and
- to foster unprecedented levels of accountability and transparency in government spending.

As a bonus for researchers, the ARRA provided a great deal of detailed data to analyze the effectiveness of countercyclical fiscal policy.

A Research Challenge

From a public policy perspective, it is important to quantify the effects of the ARRA's components, including education. To answer this question for the act's education component, one must address the counterfactual: What would school districts have done with spending and hiring decisions in absence of the act's funds? M. Saif Mehkari, a University of Richmond economics professor, and I answered this question in a study this year by exploiting the heterogeneity in how these ARRA grant dollars were allocated across school districts, that is, how did districts that were receiving relatively little grant money adjust their spending choices relative to districts receiving plenty of grant money? From this comparison, Mehkari and I inferred how all districts would have performed had ARRA funds not been available.

To conduct this study, we used data on expenditures, both ARRA and non-ARRA revenue, and staffing levels for over 6,700 school districts from both before and during the ARRA period. We found that, during

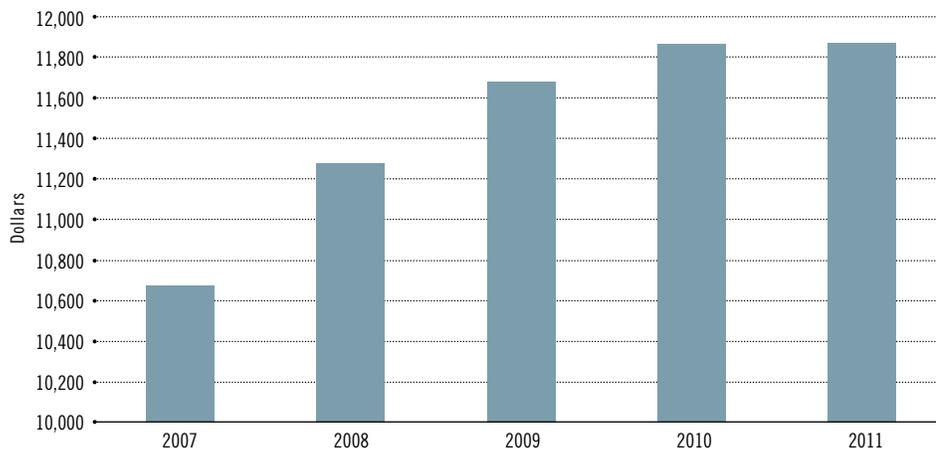
the first two years following the act's passage, each \$1 million of grants to a district increased education employment by 1.5 persons relative to a no-stimulus baseline.¹ Moreover, all of this increase came in the form of nonteaching staff. The jobs effect was also not statistically different from zero.

One potential explanation for not changing the number of teachers may be the districts' own preference for maintaining student-teacher ratios in the classroom. If this was a top priority for district administrators, then even districts with relatively small ARRA grants and large budget gaps may have found ways to meet budget shortfalls other than laying off teachers. In fact, surveys of school administrators found that, in response to the recession, administrators took exactly these types of steps, including furloughing personnel, eliminating or delaying instructional improvement initiatives, deferring textbook purchases and reducing high-cost course offerings.² The positive, but seemingly small, effect on nonteaching staff may be similarly due to a desire to maintain student-staff ratios at close to their pre-act levels.

Moreover, districts that received relatively generous ARRA grants may have been less willing to hire new staff for risk that, once the short-lived grants were spent, the new staff would need to be let go.

We also found that each \$1 million of grants increased expenditures at the district by \$570,000 relative to a no-ARRA baseline. Approximately 70 percent of the expenditures took the form of capital outlays, such as construction, land purchases and equipment acquisition. The gap between the two numbers, \$430,000, might be accounted for by states' cutting their own contributions to

Median Expenditure per Pupil by School District



SOURCE: National Public Education Financial Survey.

NOTE: The American Recovery and Reinvestment Act of 2009 provided \$64 billion in grants to public school districts around the country. As can be seen in the chart, the median spending per pupil rose after the act's passage.

school districts upon the districts' receipt of ARRA grants.³

Explaining a Puzzle

At first pass, it may seem puzzling that school districts used a substantial part of their grant dollars for capital outlays at a time when the economy was in a deep downturn. To address whether this behavior would

It may seem puzzling that school districts used a substantial part of their grant dollars for capital outlays at a time when the economy was in a deep downturn.

be rational on the part of the districts, we developed a model of the dynamic budgeting problem faced by a school district. In the model, a district uses revenue to hire workers and purchase capital, that is, equipment and structures, to provide a flow of educational services over time. The district chooses its inputs to maximize the expected flow of educational services, both now and in the future, that it can generate. The model also assumes that the district can make rational predictions of how much revenue, on average, it will receive in the future, despite considerable levels of uncertainty.

Next, suppose the district receives a one-time injection of funds, such as the ARRA money. The district could choose either to

increase employment substantially, causing a temporary improvement in teacher-student and staff-student ratios, or make investments in capital. Interestingly, and perhaps intuitively, the model implies that most of the revenue increase is spent on capital investment because it allows the district to smooth the benefits of additional educational services provided by the capital over many years, benefiting not only today's students but those in the future. Only a small amount of revenue is used to increase the number of employees in the district.

Thus, the model is capable of explaining two of our empirical findings: the small, but positive, education jobs effect and the relatively large increase in capital expenditures resulting from ARRA grants. Our model does not address the result that districts used only about one-half of their grants on expenditures. In summary, our research shows that the education component of the Recovery Act was only partly successful at boosting spending on public education in the U.S. The extent to which other intergovernmental grants, such as those for high-speed rail and home weatherization, financed by the act actually translated into greater spending on their intended objectives remains an open question. ^Ω

Bill Dupor is an economist at the Federal Reserve Bank of St. Louis. For more on his work, see <http://research.stlouisfed.org/econ/dupor>.

ENDNOTES

- ¹ In their study, one job refers to one job-year, that is, one year of employment for a person.
- ² See American Association of School Administrators.
- ³ If state governments did cut their contributions to districts upon the districts' receipt of ARRA grants, then an interesting, and more complicated, issue is how state governments might have used these freed-up dollars.

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A Familiar Name with an Economy Facing Familiar Challenges

By Georgette Fernandez Laris and Charles S. Gascon



At a recent Route 66 festival in downtown Springfield, classic cars were a big draw.

PHOTO BY DAVID J. ESLICK

Springfield, Mo., as well as the area around it, has the air of Americana, with it being the birthplace of the legendary Route 66 and sharing a name with other medium-sized cities that seem to reflect the heartland of the country. While the origin of the city's name is contested, some presume it resulted from early settlers' remembrances of distant Springfields.

The city of Springfield, Mo., is the largest of the eight cities that share the Springfield name.¹ It is also the second-largest of the four metropolitan statistical areas (MSAs) sharing the name, having about three-quarters the population of Springfield, Mass., almost twice as many residents as Springfield, Ill., and three times as many as Springfield, Ohio.

The Springfield, Mo., MSA extends across five counties in southwestern Missouri: Christian, Dallas, Greene, Polk and Webster. Robust population growth over the past few decades reflects the region's relative prosperity. Since 1970, annual growth has averaged over 1.8 percent, about three times the state average (0.6 percent) and higher than the national rate (1 percent).

The area's educational attainment closely aligns with the state's. In the MSA, 87.8 percent of the 2009-2013 population had at least a high school diploma and 26 percent held a bachelor's degree or higher. Springfield's percentage of those with a high school diploma is slightly higher than the national percentage (86 percent), and the college-educated population share is slightly below the U.S. average (28.8 percent).

Springfield's real gross domestic product (real GDP) growth has been modest during

the postcrisis recovery period, averaging 1 percent between 2010 and 2013. Based on a survey we conducted among local businesses, Springfield's low cost of living is perceived as one of the region's strengths. In 2012, Springfield's price level was 10.8 percent lower than the U.S. average. Its relative affordability is most pronounced in terms of the cost of housing. As of 2012, Springfield's rents were 31.3 percent lower than the U.S. average, 5.4 percent lower than the state average and approximately 14.6 percent lower than the average in nearby metropolitan areas, such as St. Louis. Springfield, Mo., also has the lowest cost of living of the four Springfield MSAs in the country.

"Springfield isn't tied to one major employer, but diversified geographically by many small- and medium-sized employers."

— Springfield-area retailer²

In many ways, the region's distribution of workers among different sectors mirrors ongoing national trends. Seventy-five percent of the MSA's workers are employed in the private service sector, slightly higher than the national average (70 percent). The MSA's service sector workers tend to be employed in the health care, transportation and retail sectors.

The diverse industry mix, coupled with a strong base of health care employment, has afforded the region strong job growth over the past few decades. The area was relatively stable economically even during the Great Recession and financial crisis.

The Role of Health Care

More than 17 percent (about 34,000) of the region's workforce is employed in health care. Almost half of these workers are employed by the region's two largest employers: Mercy Health (9,004) and Cox Health Systems (7,891). Relative to the national average, this represents about 1.3 times as many workers in the health care sector. The strong health care presence helped buffer job losses during the Great Recession; while the other sectors lost about 12,000 jobs between 2007 and 2009, the local health care sector added 2,600 jobs. As one of the fastest-growing sectors nationally, this has been a boon for the region since the recession ended: Almost a quarter of the MSA's employment growth during this period has come from the health care sector.

The sector is thought to employ relatively high-paid people; almost 14,000 workers are

employed in “practitioner and technical” occupations, earning an average of \$58,000 per year, about 60 percent above the MSA average wage across all industries, which is about \$37,000. On the other hand, Springfield also has about 7,200 workers in health care support occupations; these workers earn an average wage of about \$24,000.

Beyond health care, Springfield is headquarters for two major national retailers: Bass Pro Shops and O’Reilly Auto Parts, employing 2,600 people and 1,500, respectively. While not headquartered in the MSA, Wal-Mart is also a major employer in the region, employing 3,567 people. These firms, along with many other retailers in the region, employ close to 25,000 people or 12 percent of the total MSA workforce. Still, the retail sector has not, thus far, reached its prerecession peak.

“We do not have enough manufacturing jobs that have sufficient pay. We have a labor force based on service and fast food.”

—Springfield-area construction contact³

Unlike many Midwestern cities that have relied heavily on manufacturing, Springfield has actually employed a smaller share of workers in manufacturing than both Missouri and the nation since the 1980s. At the same time, the region has closely followed the nationwide prolonged decline in manufacturing jobs: While in 1980, roughly 16 percent of the MSA’s workforce was employed in manufacturing (21 percent nationally), by 2013, only 7 percent of the MSA’s workforce was employed in the sector (9 percent nationally).

Despite this steady decline and the smaller share of employment, manufacturing remains an important sector in the region, accounting for 12 percent of the region’s output in 2013. Multiple contacts we surveyed expressed the desire for more manufacturing jobs because of the higher wages associated with the industry. In Springfield, manufacturing jobs pay, on average, close to \$42,000, which is almost 20 percent above the average pay for workers in the MSA.

“Paying more than a living wage would help with poverty issues in the area.”

—Springfield-area nonprofit contact

Few higher-paying manufacturing jobs may explain some of the lower-wage bias in

the region. Wages across all major occupational groups are relatively low when compared with those of other MSAs in Missouri. In St. Louis, where the cost of living is nearly the same (a fact that may surprise many), average wages (across all industries) are 35 percent higher, or \$47,800 per year. While Springfield’s low wages can be seen as a comparative advantage relative to what is being paid in other MSAs, they are not without a hitch. While contacts noted that the relatively low wages in the Springfield area were important in driving job growth, regional poverty is a concern, as well, since almost 19 percent of the MSA population lives below the poverty level, higher than the national rate of 14.5 percent. The poverty rate is even more pronounced in counties such as Dallas and Polk, where it is over 20 percent.

While many factors can fuel wage discrepancies among MSAs, these discrepancies can be most directly accounted for by city-specific differences in labor productivity.⁴ For example, in 2013, an average worker in Springfield produced about \$79,000 worth of output, while the average value of output per worker in St. Louis was \$103,800, approximately 30 percent more. Differences in labor productivity, in turn, depend on multiple factors; these include workers’ skill levels, often measured by educational attainment, and prior work experience. In Springfield, nearly 26 percent of the population has at least a bachelor’s degree and 8.6 percent has a graduate degree or higher, compared with 31 percent and 12 percent, respectively, in St. Louis. Similarly, researchers have found a positive relationship between wages and city size—a 1 percent increase in wages for each additional 100,000 people.⁵ Based on this relationship alone, one would expect wages in St. Louis to be about 24 percent higher than in Springfield.

Current Economic Conditions

“Low labor costs make it easier for businesses to survive, grow and increase jobs.”

—Springfield-area service-sector contact

“I see wages are lower here than in some other parts of the country, but I believe unemployment is less here.”

—Springfield-area Realtor



Mercy Health is the largest employer in the area, with more than 9,000 employees. The health care sector employs more people (18 percent of the total) than any other sector.

PHOTO © MERCY HEALTH

MSA Snapshot

Springfield, Mo.

Population	448,744
Population Growth (2009-2013)	3%
Population (Age 25+)	
w/Bachelor’s Degree or Higher	26%
Population in Poverty	18.7%
Real Per Capita Personal Income	\$36,121
Real Per Capita Personal Income Growth (2009-2012)	1.5%
Cost of Living	-10.8%
Rents	-31.3%
Unemployment Rate	4.6%
Real GDP (2013)	\$15.7 billion
Real GDP Growth (2010-2013)	1%

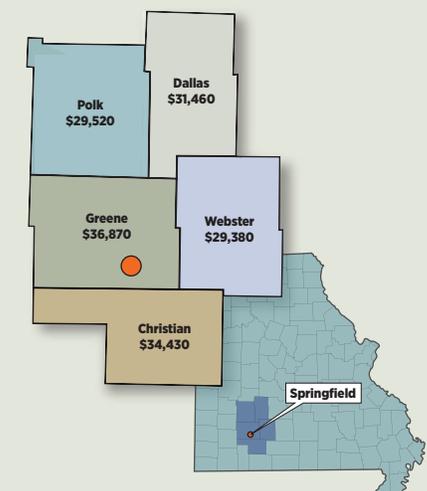
NOTE: Population estimates come from the U.S. Census Bureau. Cost of living data come from the Bureau of Economic Analysis’ Regional Price Parities series.

LARGEST EMPLOYERS

1. Mercy Health Springfield	9,004
2. Cox Health Systems	7,891
3. Wal-Mart Stores	3,567
4. Springfield Public Schools	3,206
5. Missouri State University	2,583

SOURCE: www.springfieldregion.com.

2013 Per Capita Personal Income



SOURCE: GeoFRED with data from the U.S. Bureau of Economic Analysis.

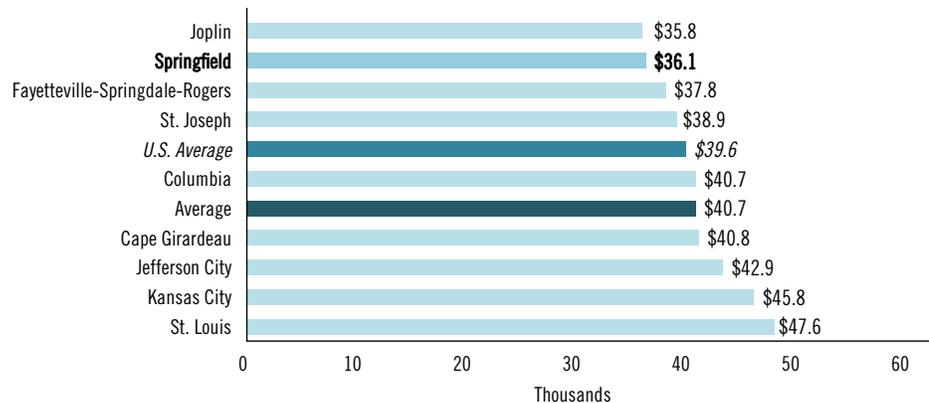
Missouri Metropolitan Statistical Areas' Price Parities: All Items (2012)



SOURCE: Bureau of Economic Analysis, Regional Data.

NOTE: The Regional Price Parities (RPPs) presented in the table above measure the differences in the price levels of goods and services across states and metropolitan areas for a given year. RPPs are expressed as a percentage of the overall national price level for each year, which is equal to 100. Springfield's broad Regional Price Parity of 89.2 indicates the area's price level is 10.8 percent lower than the U.S. aggregate (equal to 100). In the figure, the U.S. median statistic suggests that 50 percent of the MSAs in the country have a cost of living (as measured by the RPPs) lower than 93.2 and 50 percent above it. The median is very close to, yet below, the mean RPP of 94.6, indicating a slightly higher concentration of more-expensive cities. Roughly 25 percent of the country's MSAs have RPPs ranging between 97 and 122.9. Springfield falls into the least expensive 25th percentile.

Missouri Metropolitan Statistical Areas' Real Per Capita Personal Income (2012)



SOURCE: Bureau of Economic Analysis, Regional Data.

NOTE: Real per capita income is total real personal income divided by total midyear population. In the figure, the U.S. average corresponds to the mean real per capita personal income across all the MSAs in the country.

Much like the nation, Springfield has enjoyed steady job growth and a falling unemployment rate. As of December 2014, the unemployment rate stood at 4.6 percent, about a percentage point below the national average and well below the state average of 5.4 percent. The local housing market has shown signs of improvement. As of the fourth quarter in 2014, home prices were up 2.4 percent from one year ago, the number of building permits had increased slightly and anecdotes have been generally upbeat.

Early indicators, including our survey results, suggest that growth has continued into the first part of 2015. Almost 60 percent

of the businesses surveyed noted that January sales met or exceeded their expectations. However, many contacts said they did not expect a short-term uptick in business to change their hiring plans. For example, one contact noted that his company has held off hiring for the past couple of years to ensure the stability of the recovery, reiterating that hires will be made only for long-term growth.

Looking Ahead

According to our survey results, the perceived economic outlook for Springfield is positive. With several national employers in the area, the region is expected to

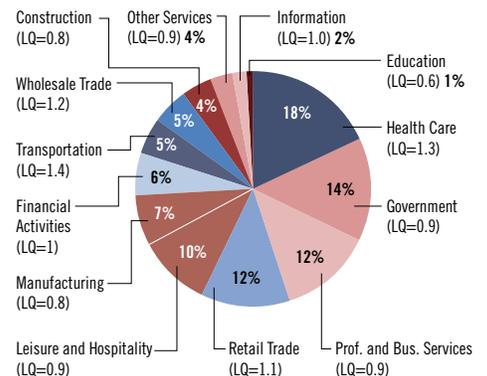
ENDNOTES

- 1 According to the Census Bureau, cities named Springfield are in Florida, Illinois, Massachusetts, Michigan, Missouri, Ohio, Oregon and Tennessee. As of July 2013, Springfield, Mo., had a population of 164,122, about 10,000 more than Springfield, Mass. In addition to those eight cities, there are 12 smaller localities around the country sharing the Springfield name.
- 2 Anecdotal information in this report was obtained from a voluntary survey of business contacts in Springfield between Feb. 4 and Feb. 13. In total, 114 contacts completed the survey, conducted by the Federal Reserve Bank of St. Louis. The results should be interpreted with caution because the sample of respondents may not be fully representative of businesses in Springfield. Some quotes were lightly edited to improve readability.
- 3 About 9.7 percent of workers are employed in food preparation and serving-related occupations, just slightly above the national rate.
- 4 Measured by GDP per worker, adjusting for differences in average hours worked.
- 5 See Baum-Snow and Pavan.
- 6 See Eubanks and Wiczer.

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- Eubanks, James D.; and Wiczer, David. "Where's the Wage Pressure?" Federal Reserve Bank of St. Louis *The Regional Economist*, January 2015, Vol. 23, No. 1, an online-only article. See www.stlouisfed.org/publications/regional-economist/january-2015/wage-pressure.

Springfield, Mo., Employment Industry Mix



NOTE: The figure shows the share of total employment by industry in 2014. Industries shaded in the blue scale employ a larger share of workers than the national average, meaning they have quotients (LQ) greater than 1. Industries shaded in the red scale employ a smaller share of workers than the national average, meaning they have an LQ less than 1. The darkness of the shading indicates the magnitude of the difference. For example, the health care sector employs 18 percent of the region's workforce, which is 1.4 times the national average of 13 percent, hence the dark-blue shade. The financial activities sector employs 6 percent of the region's workforce, which is only slightly greater than (1.01 times) the national average of 5.8 percent, hence the light-blue shade.

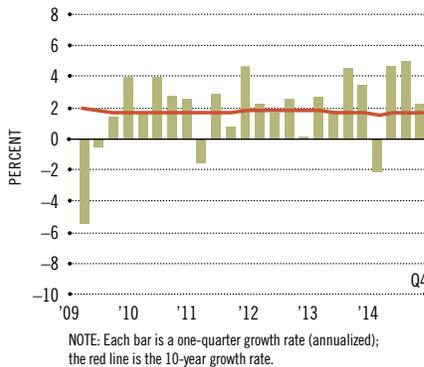
benefit from strong national growth. Seventy percent of contacts surveyed expect the local economy to be better or somewhat better during the next 12 months, and fewer than 10 percent of contacts expect conditions to worsen. Respondents also carefully follow policies that might have an impact on the region. As expected, contacts mentioned a wide range of policy issues; the most important factors influencing their outlook include changes in interest rates, the Affordable Care Act and state funding for highway projects and for other municipal programs.

In addition to the survey respondents' widespread perception of Springfield's low labor costs, contacts noted that the unemployment rate is lower than in nearby areas and wondered how this may impact job growth and wages. Some mentioned facing difficulties in finding qualified workers, which ultimately affects their hiring strategies. Intuitively, the already low unemployment rate, paired with employers' difficulties in finding adequately skilled workers, could cause an uptick in wages. However, the relationship between wages and unemployment is not as direct. In fact, average hourly earnings (adjusted for inflation) in the region have been on a slow and steady decline. Some of this reflects long-term, nationwide changes in the country's wage structure, most of which started even prior to the 2007-09 Great Recession. Recent research has shown that improvements in labor market conditions are more likely to affect the bargaining power and wages of workers earning less than the median wage than those of higher earners.⁶ While this could mean good news for low-income earners in Springfield, the majority of businesses surveyed don't anticipate a significant increase in wages. Rather, most survey respondents expect wages to remain the same or increase only slightly. This is because firms typically adjust wages based on labor productivity growth, which has been weak, and inflation expectations, which have been lower recently. Should these factors improve, wage growth should pick up. 

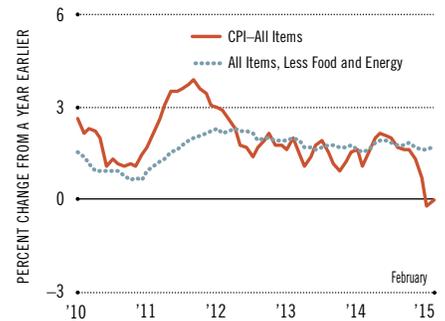
Charles S. Gascon is a regional economist, and Georgette Fernandez Laris is an industry relations specialist, both at the Federal Reserve Bank of St. Louis. For more on Gascon's work, see <http://research.stlouisfed.org/econ/gascon>.

Eleven more charts are available on the web version of this issue. Among the areas they cover are agriculture, commercial banking, housing permits, income and jobs. Much of the data are specific to the Eighth District. To see these charts, go to www.stlouisfed.org/economyataglance.

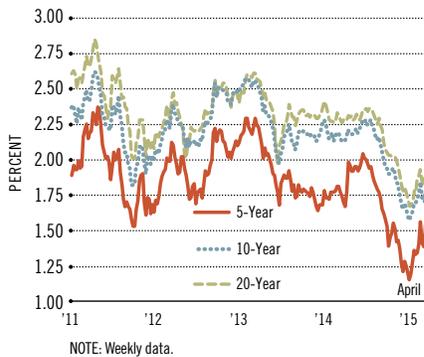
REAL GDP GROWTH



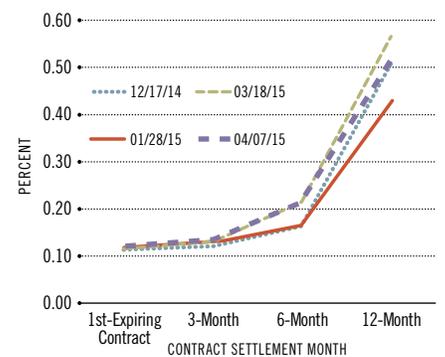
CONSUMER PRICE INDEX (CPI)



INFLATION-INDEXED TREASURY YIELD SPREADS



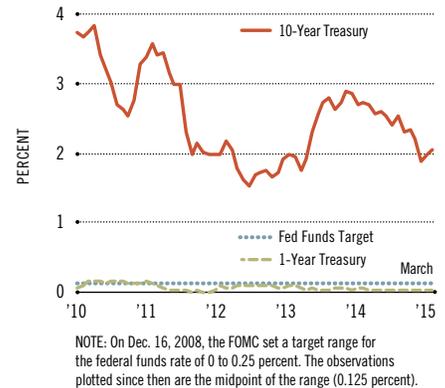
RATES ON FEDERAL FUNDS FUTURES ON SELECTED DATES



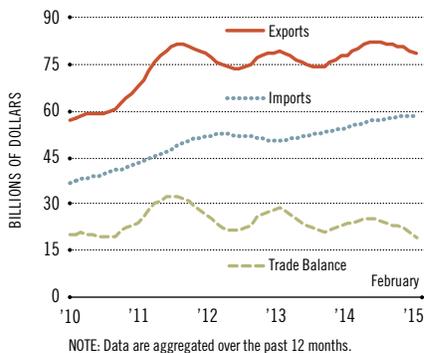
CIVILIAN UNEMPLOYMENT RATE



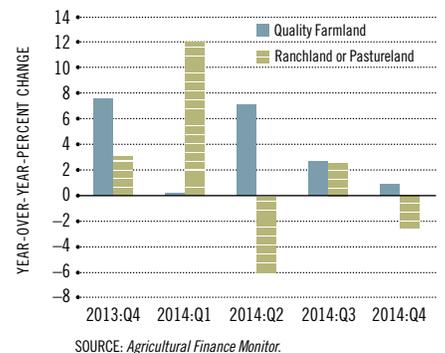
INTEREST RATES



U.S. AGRICULTURAL TRADE

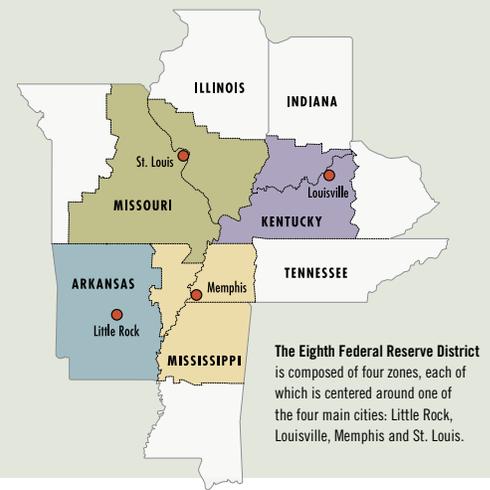


AVERAGE LAND VALUES ACROSS THE EIGHTH DISTRICT



Track Records for District, Nation Differ on Startups, Which Are an Important Driver of Job Growth

By Maria E. Canon



The creation of new businesses, the so-called startups, is important for job growth, as research has shown. Economists John Haltiwanger, Ron Jarmin and Javier Miranda, using data from the Census Bureau's Business Dynamics Statistics (BDS),¹ showed that the annual job creation rate in the U.S. is 18 percent, that is, every year 18 percent of total employment stems from jobs created during that year.² About a fifth to a third of that annual job creation happens at startups, they found.³ This high rate of creation is balanced with high job-destruction rates of about 16 percent of total employment per year, according to Haltiwanger,

During the recovery from the Great Recession, establishments' births were significantly higher in the nation than in the District, which explains lower job-creation rates in the District.

Jarmin and Miranda⁴; about a third of this job destruction happens at establishments that shut down. Using the same data, economist Tim Kane found that during recessions job creation at startups remains stable, while net job growth (job creation minus job destruction) at existing firms is highly sensitive to the business cycle.⁵

Studying the dynamics of establishments' births and deaths gives important information about labor market performance. We compare the dynamics of such flows in the states of the Eighth District (excluding Illinois⁶) relative to the nation since the early

1990s. BDS data measure establishment births and deaths, as well as the subsequent creation and destruction of jobs. Births and deaths of businesses do not include temporary shutdowns or seasonal reopenings. Thus, a business must be closed for a year to be considered as a death. This, in turn, restricts the availability of business death data up to the second quarter of 2013.

Dynamics during the Great Recession

The chart shows establishments' births and deaths for the states in the Eighth District and the nation since late 2006. Births and deaths are normalized to 100 in each quarter of 1993; therefore, each index reflects establishments' births/deaths relative to the same quarter of 1993. New establishments (births) decreased significantly during the Great Recession for both the states in the Eighth District and the nation. In the fourth quarter of 2007, establishment births in the states of the Eighth District were 8.1 percentage points higher than in the fourth quarter of 1993, but these births decreased 13.9 percentage points by the third quarter of 2009, the first quarter after the recession officially ended. The pattern was similar for the nation: While establishment births were 19.2 percentage points higher in the fourth quarter of 2007 than in the fourth quarter of 1993, they decreased by 18.4 percentage points by the third quarter of 2009.

Establishment deaths, or shutdowns, increased significantly during the Great



©CLAYCO

Business incubators play an important role in many communities in encouraging people to start businesses. Cortex (above) is one of those in St. Louis.

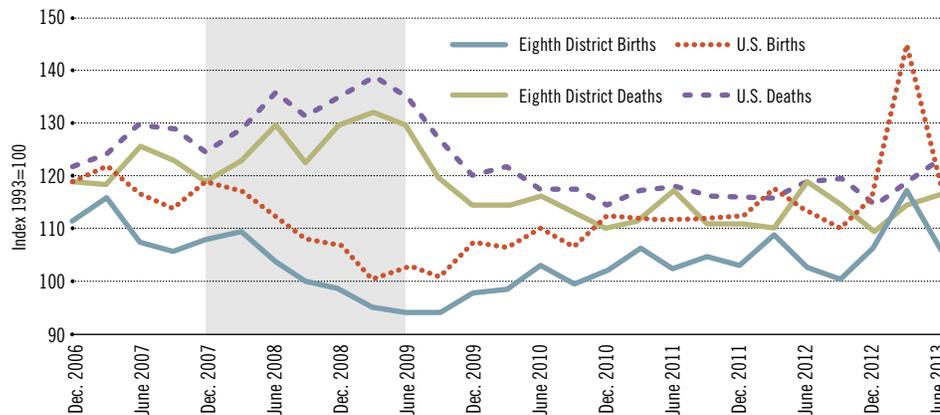
Recession. Shutdowns in the states of the Eighth District were 12.5 percentage points higher in the first quarter of 2009 relative to the fourth quarter of 2007. For the nation, shutdowns were 13.9 percentage points higher in the first quarter of 2009 relative to the fourth quarter of 2007.

Consistent with the findings in the 2013 study by Haltiwanger, Jarmin and Miranda, the decrease in establishments' births and the increase in establishments' deaths were accompanied by an increase in job losses and a sharp decrease in job creation. (See the table.) Job losses increased 15.15 percent for the Eighth District states and 9.85 percent for the nation between the fourth quarter of 2007 and the second quarter of 2009. Newly created jobs decreased 16.3 percent for the Eighth District states and 16.63 percent for the nation between the fourth quarter of 2007 and the second quarter of 2009. Therefore, the Eighth District states experienced more volatile employment dynamics during the Great Recession

Establishments' Employment Gains and Losses

		Growth rates (percent)	
		Dec. 2007-June 2009	June 2009-June 2013
Job Gains	U.S.	-16.63	12.71
	Eighth District	-16.30	8.09
Job Losses	U.S.	9.85	-19.11
	Eighth District	15.15	-21.97

Business Births and Deaths



SOURCES: Bureau of Labor Statistics and National Bureau of Economic Research.

NOTE: Each reading on the horizontal axis corresponds to the same quarter in 1993. The shaded bar shows the span of the Great Recession.

than did the nation as a whole. This higher variability in employment can be explained by a larger decrease in establishments' birth rates in the financial activities and "other services" sectors, combined with a larger increase in establishments' death rates in the manufacturing sector in the District, relative to the nation.

Dynamics in the Recovery

In the second quarter of 2013, four years after the Great Recession ended, employment gains in the U.S. were 12.71 percent higher than in the second quarter of 2009; in the District states, the gains were 8.09 percent higher. Total employment reflects lower employment losses in the District relative to the nation over the same period. (Employment losses in the second quarter of 2013 were 21.97 percentage points lower than in the same quarter of 2009 for the District, while they were 19.11 percentage points lower for the nation.)

Similar to what happened during the Great Recession, establishments' birth and death rates help explain these dissimilar employment dynamics. During the recovery

from the Great Recession, establishments' births were significantly higher in the nation than in the District, which explains lower job-creation rates in the District. In the second quarter of 2013, business birth rates were 14.5 percentage points higher in the nation than in the same quarter of 2009, but birth rates were only 11.7 percentage points higher in the District. In the postrecession period, total birth rates in the District continued to be lower in the financial activities and "other services" sectors, as well as in the information, retail and transportation sectors, helping to explain lower job-creation rates in the District.⁷ Differences in establishments' deaths in the four years after the end of the Great Recession are not as significant (12.8 percentage points lower in the District and 11.9 percentage points lower in the nation). ^Ω

Maria E. Canon is an economist at the Federal Reserve Bank of St. Louis. For more on her work, see <http://research.stlouisfed.org/econ/canon>.

ENDNOTES

- ¹ The Business Dynamics Statistics data series, published by the Census Bureau, decomposes the U.S. net employment change into gross job gains and gross job losses. The quarterly data series includes the number and percent of gross jobs gained by opening and expanding establishments, and the number and percent of gross jobs lost by closing and contracting establishments. The data also include the number and percent of establishments that are classified as openings, closings, expansions and contractions.
- ² See Haltiwanger, Jarmin and Miranda (a) and (b).
- ³ The BDS calls a startup an establishment of age zero, and calls an existing firm an establishment that is at least 1 year old.
- ⁴ See Haltiwanger, Jarmin and Miranda (a).
- ⁵ See Kane.
- ⁶ Illinois is excluded because Chicago, where much of the state's economic activity takes place, is not part of the Eighth District. BDS data cannot be broken down for the Eighth District's portion of the state, the southern part. More details on the Eighth District region can be found at <http://research.stlouisfed.org/regecon>.
- ⁷ Some exceptions are observed in the professional services sector, in which birth rates have been increasing in Missouri since the first quarter of 2009; since the third quarter of 2011, these rates have been above prerecession levels. Startups in the education and health sector in Missouri also showed a significant spike in the first quarter of 2013.

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Growth Is Modest in GDP but Strong in Labor Markets

By Kevin L. Kliesen

The U.S. economy appears to have lost some momentum during the winter months of 2014 and 2015. Although it is often difficult to gauge the underlying strength of the economy in real time, it appears that temporary factors have worked to slow the pace of economic activity in the first quarter. By contrast, U.S. labor market conditions remain strong despite a weaker-than-expected March employment report. Over the six months ending in March 2015, nonfarm payroll employment increased by about 1.6 million. Thus, with the slowdown viewed as temporary and inflation having been temporarily reduced because of the recent plunge in oil prices, the Federal Open Market Committee (FOMC) signaled at its March meeting that it remains on track to begin normalizing monetary policy this year.

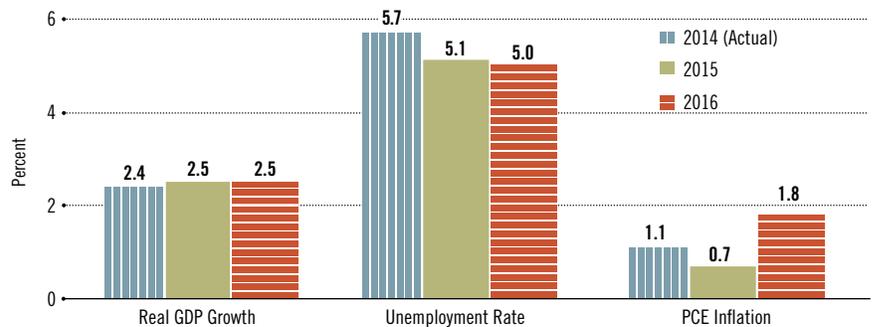
The Pause That Refreshes

The U.S. economy lost a bit of momentum at the end of last year. According to the Bureau of Economic Analysis, real gross domestic product (real GDP) rose at a 2.2 percent annual rate in the fourth quarter of 2014 after increasing at about a 4.75 percent annual rate during the previous two quarters. Weaker growth in the fourth quarter of 2014 largely reflected sizable declines in businesses' equipment expenditures and federal defense outlays.

By contrast, the growth of real personal consumption expenditures (PCE) remained vibrant over the second half of 2014. Households continued to benefit from the plunge in crude oil prices, spurring a noticeable increase in their real after-tax personal income.

Although the advance estimate for real GDP growth in the first quarter of 2015 will not be published until late April, forecasters have been modestly marking down their estimates because of weaker-than-expected data. In mid-March, the consensus of professional forecasters was that real GDP was likely to increase by a little less than

The FOMC's March 2015 Economic Projections for 2015 and 2016



NOTE: Projections are the midpoints of the central tendencies. The projections for real GDP growth and inflation are the percentage change from the fourth quarter of the previous year to the fourth quarter of the indicated year. Inflation is measured by the personal consumption expenditures (PCE) chain-price index. The projection for the unemployment rate is the average for the fourth quarter of year indicated.

2.5 percent; however, some forecasters are predicting that real GDP growth will slow to 2 percent or less.

Adverse weather in January and February explains part of the slowing in the first quarter. For example, January and February retail sales were much weaker than expected; however, supportive of the weather story, online sales posted healthy gains during this period. Thus, despite some recent firming in gasoline prices in February and early March, the household sector remains a bright spot in the outlook—a sentiment noted in the March *Beige Book*.

Other temporary factors contributing to the expected first-quarter slowdown include a likely drop in business inventory investment, cutbacks in capital spending in the oil-exploration industry and the recent slowing in shipments from West Coast ports, a development that has hampered supply chains.

Despite modest growth in the overall economy, firms continue to add jobs at a brisk pace. Although nonfarm payrolls rose by only 126,000 in March, the unemployment remained at 5.5 percent. If the expected slowdown reflects temporary factors, then the economy should strengthen over the remainder of 2015. If job growth remains brisk, then it is likely that the unemployment rate will fall below 5 percent sometime during the second half of 2015.

The combination of robust labor market conditions and the prospect of continued low mortgage rates in 2015 should also benefit the housing industry. Industry forecasters expect that new home construction will increase by about 11 percent in

2015, although the consensus of professional forecasters is a bit less optimistic.

Business surveys suggest that optimism among large and small firms is on the rise. However, a sizable percentage of large firms are worried about the recent strengthening of the dollar and some softening of growth in Europe and Asia. Thus, while a strengthening domestic economy should help the manufacturing sector, the near-term outlook for business capital spending is more mixed.

Temporary Decline in Inflation

Headline inflation, as measured by the PCE price index, was about 0.75 percent in 2014, lower than 2013's 1.25 percent increase. Inflation edged further downward in February, as the PCE price index was up by only 0.3 percent over the previous 12 months. Besides weaker oil prices, the recent strengthening of the trade-weighted dollar has intensified the downward pressure on prices of nonpetroleum imported goods. But with inflation excluding energy prices measuring 1.5 percent in February, it is highly likely that headline inflation rates (including food and energy) will rise modestly over the remainder of 2015 as oil prices begin to stabilize. Still, most forecasters expect that headline PCE price inflation will remain below 2 percent in 2015. That also is the consensus of the FOMC. 

Kevin L. Kliesen is an economist at the Federal Reserve Bank of St. Louis. Lowell R. Ricketts, a senior research associate at the Bank, provided research assistance. See <http://research.stlouisfed.org/econ/kliesen/> for more on Kliesen's work.

ASK AN ECONOMIST



Ana Maria Santacreu is an economist at the Federal Reserve Bank of St. Louis, where she has worked since September. Her research focuses on international trade, international macroeconomics and economic growth. She enjoys outdoor activities, especially hiking, biking and sailing. For more on her research, see <http://research.stlouisfed.org/econ/santacreu>.

Q: *What’s behind the dramatic increase in international trade? What can be done to increase it even further?*

A: World trade has increased dramatically over the past few decades. What may be surprising to some people is that less than one-quarter of the growth in trade between 1948 and 2006 was due to the emergence of new trading partners. The large majority of the increase in world trade came from countries that had traded with one another since before the first year in the sample.

When discussing barriers to trade, people usually think of transportation costs, market access and tariffs. However, a survey of firms¹ found that the biggest barriers to trade actually are:

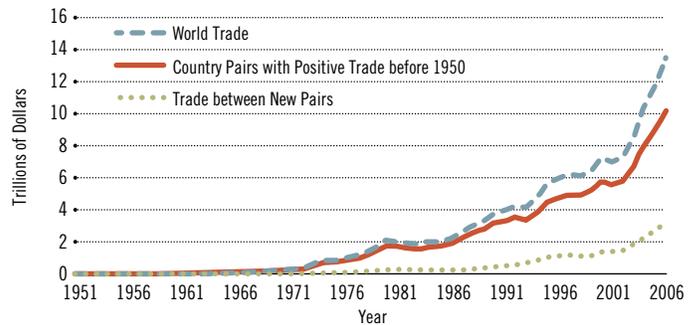
- i) identifying contacts,
- ii) understanding customers in the destination,
- iii) coping with regulations and the legal environment, and
- iv) building networks and relationships.

In a recent paper, my co-authors, Pushan Dutt and Daniel Traca, and I built on this insight and looked at the role of experience in international trade.² We found that more experience between a particular exporter-importer pair of countries lowers bilateral trade costs and increases bilateral exports. This is because the

accumulation of experience over time helps to overcome the informational, contractual and cultural barriers involved in trade.³ Our finding clarifies the large difference between trade flows among existing partners and new partners. The accumulated experience of countries that have been trading since before 1948 effectively makes trade with that country much cheaper.

The benefits of experience tend to be shared among firms and industries; so, this is where there is opportunity to help increase international trade: by supporting the entry of early exporters—those first few companies that start trading with a new country. This would lower the trade costs and encourage entry by new firms and products into export markets.

Decomposition of World Exports into Trade between Country Pairs That Traded Prior to 1950 and Emergence of New Trade



SOURCE: Dutt, Santacreu and Traca.

ENDNOTES

- 1 See Telephone Survey of UKTI Inward Investment and Trade Development Customers and Non-Users: Summary Report, OMB Research: London, 2005.
- 2 Read the working paper, “The Gravity of Experience,” at <http://research.stlouisfed.org/wp/more/2014-041>.
- 3 Experience is measured as the number of years for which a pair of countries has been trading.

St. Louis Fed’s Free Resources on Personal Finance and Economics Grow in Popularity

April is National Financial Literacy Month, a good time for the Federal Reserve Bank of St. Louis to remind teachers and others of the many educational resources it has offered for years, first on paper and now online, too, all at no charge.

In 2011, the St. Louis Fed began providing economic and financial education materials online for use in the full range of classrooms—from kindergarten through college. That year, Bank economic education staff developed 23 online courses. Today, the Bank has **43 online courses (17 of which are available in Spanish), 70 videos and 123 lessons**. Many lessons have complementary activities for interactive whiteboards.

The subject matter includes personal finance topics, such as credit, budgeting and saving; also covered are economic topics, such as supply and demand, opportunity cost, comparative advantage, and present value. The online courses allow teachers to enroll their students, who can then take the pre- and post-tests and receive grades from the program. This system allows teachers to track student progress and address any areas of concern.

The Bank’s educational materials are specifically designed to be used in **economics, personal finance, history, civics, mathematics or language arts classes** and are aligned with national standards in those fields. All materials also align with the Common Core State Standards. All materials are free.

The Federal Reserve Bank of St. Louis also cooperates with the Federal Reserve banks of Atlanta, Boston and Philadelphia to administer an online **professional development program** for educators. This program allows teachers, at their convenience, to receive continuing education credit, Federal Reserve certification or graduate credit for five topics: inflation, unemployment, gross domestic prod-

uct, monetary policy and money. The St. Louis Fed also offers free, face-to-face professional development for educators within its District.

The data below show growth in the use of the St. Louis Fed’s free online resources from 2013 to 2014.

Item	2013	2014	Percent Change
Enrollments in Online Courses	327,227	540,948	65
Pageviews of Education Websites	4,423,965	7,544,677	71
Visits to Education Websites	543,930	916,467	68
Downloads of Educational Materials	304,585	334,504	10

The St. Louis Fed’s efforts to teach others about personal finance and economics have received many accolades. Last month, the St. Louis Fed was chosen by the Institute for Financial Literacy as its **Organization of the Year** in its EIFLE awards (Excellence In Financial Literacy Education).

Besides teachers, students and the general public are welcome to use the Bank’s educational resources on personal finance and economics. Many are designed for parents and their children to use together. To get started, go to **www.stlouisfed.org/education**.

Meanwhile, the Bank has a new educational resource on site that is open to one and all: the *Inside the Economy*™ Museum. Located inside the Bank, in downtown St. Louis, the museum features nearly 100 exhibits, games, sculptures and videos. In a fun and interactive way, visitors learn how the economy works. For hours and more information, see **stlouisfed.org/economymuseum**.



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NEXT ISSUE

Chasing Bubbles

How Do You Define, Detect and Deal with Them?

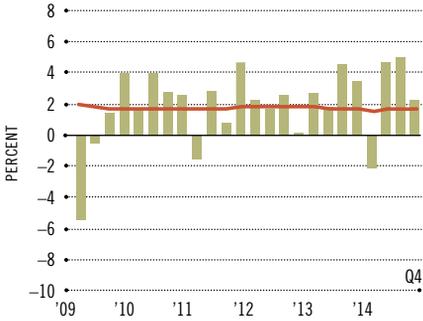
In the July issue of *The Regional Economist*, read about recent research on bubbles—those price run-ups that don't seem to be warranted by the fundamentals. Bubbles are usually difficult to define and detect—at least until after they've burst. See how the research has developed in this area. A historical perspective will be given, and bubbles' connection to financial crises also will be explored.

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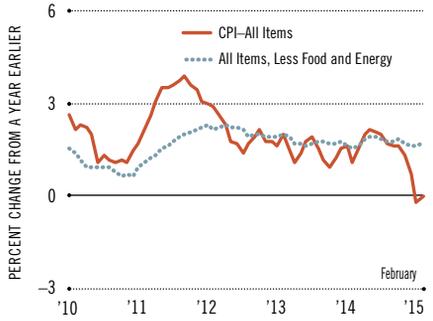


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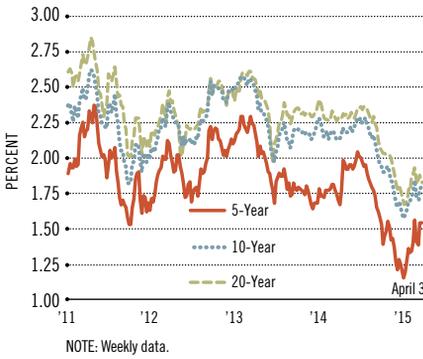
REAL GDP GROWTH



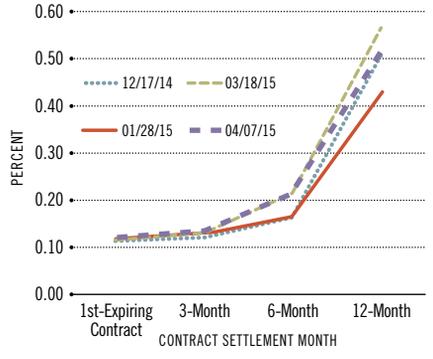
CONSUMER PRICE INDEX



INFLATION-INDEXED TREASURY YIELD SPREADS



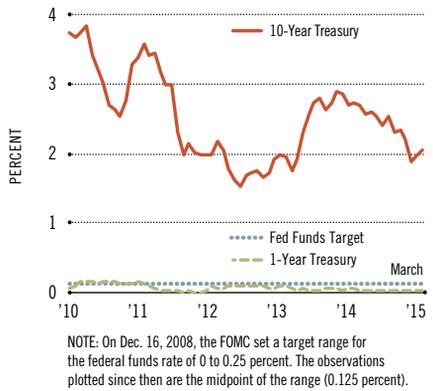
RATES ON FEDERAL FUNDS FUTURES ON SELECTED DATES



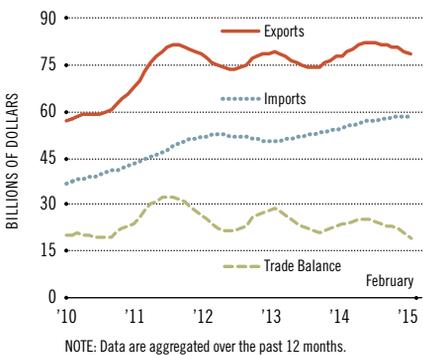
CIVILIAN UNEMPLOYMENT RATE



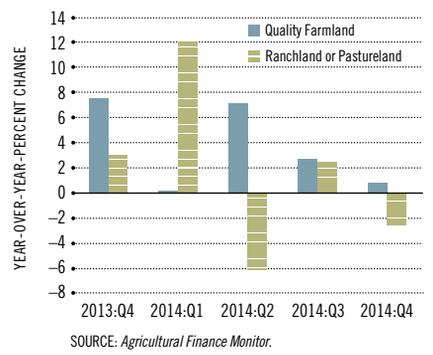
INTEREST RATES



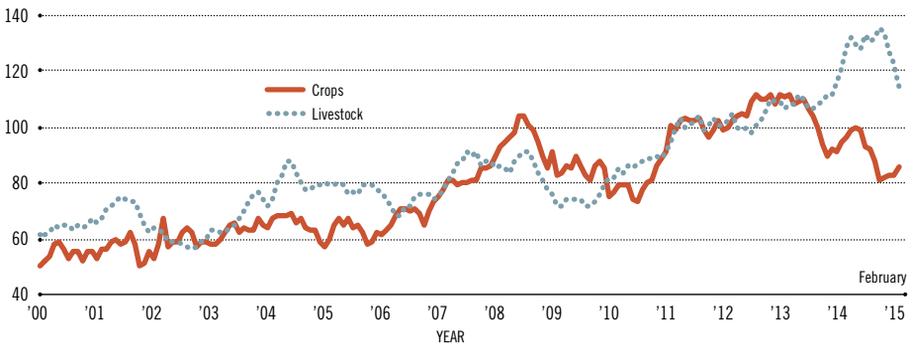
U.S. AGRICULTURAL TRADE



AVERAGE LAND VALUES ACROSS THE EIGHTH DISTRICT



U.S. CROP AND LIVESTOCK PRICES / INDEX 1990-92=100

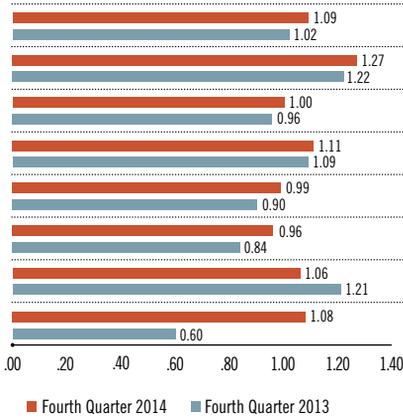


COMMERCIAL BANK PERFORMANCE RATIOS

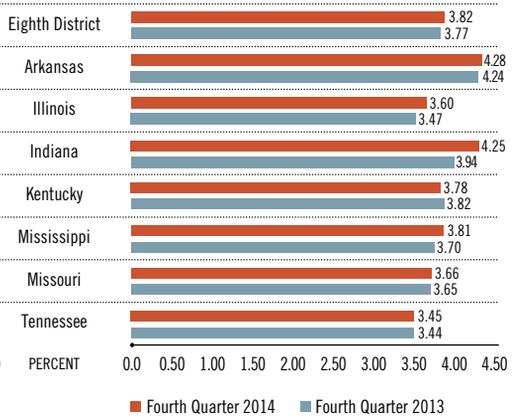
U.S. BANKS BY ASSET SIZE / FOURTH QUARTER 2014

	All	\$100 million-\$300 million	Less than \$300 million	\$300 million-\$1 billion	Less than \$1 billion	\$1 billion-\$15 billion	Less than \$15 billion	More than \$15 billion
Return on Average Assets*	1.00	0.99	0.95	1.03	1.00	1.04	1.02	0.99
Net Interest Margin*	3.11	3.82	3.82	3.83	3.82	3.87	3.85	2.94
Nonperforming Loan Ratio	1.96	1.34	1.36	1.30	1.33	1.33	1.33	2.15
Loan Loss Reserve Ratio	1.49	1.51	1.53	1.47	1.50	1.34	1.41	1.51

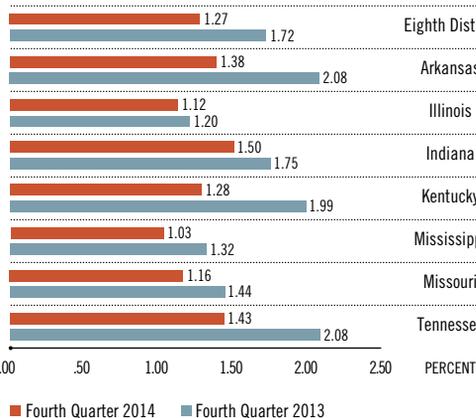
RETURN ON AVERAGE ASSETS*



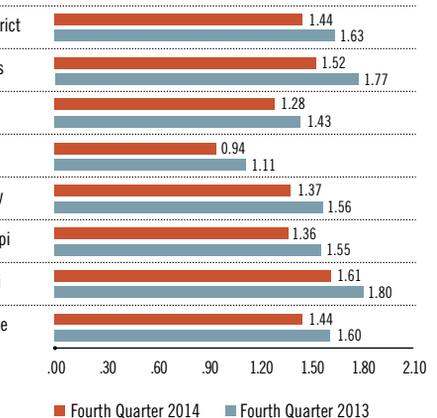
NET INTEREST MARGIN*



NONPERFORMING LOAN RATIO



LOAN LOSS RESERVE RATIO



NOTE: Data include only that portion of the state within Eighth District boundaries. SOURCE: FFIEC Reports of Condition and Income for all Insured U.S. Commercial Banks * Annualized data

For additional banking and regional data, visit our website at: www.research.stlouis.org/fred/data/regional.html.

REGIONAL ECONOMIC INDICATORS

NONFARM EMPLOYMENT GROWTH / FOURTH QUARTER 2014

YEAR-OVER-YEAR PERCENT CHANGE

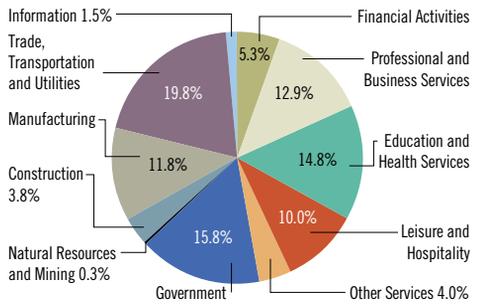
	United States	Eighth District †	Arkansas	Illinois	Indiana	Kentucky	Mississippi	Missouri	Tennessee
Total Nonagricultural	2.2%	1.4%	1.6%	0.8%	1.9%	2.0%	0.1%	1.7%	2.2%
Natural Resources/Mining	5.0	1.8	4.2	2.7	1.9	-1.0	4.0	0.8	NA
Construction	5.1	3.3	9.4	8.6	3.2	-5.0	-8.0	2.4	NA
Manufacturing	1.7	2.2	3.4	-0.2	4.6	1.4	2.9	2.3	2.5
Trade/Transportation/Utilities	2.1	0.3	-0.1	-0.5	0.5	2.0	-1.4	-0.6	2.1
Information	1.4	-1.8	-4.5	-2.1	-2.8	3.7	-3.7	-2.5	-1.5
Financial Activities	1.6	0.7	-0.1	-0.4	2.1	-2.0	-0.2	2.6	2.1
Professional & Business Services	3.5	3.1	1.2	2.5	2.8	5.4	1.4	3.1	4.6
Educational & Health Services	2.1	1.4	2.2	1.1	0.3	2.3	1.4	2.7	0.9
Leisure & Hospitality	3.2	2.5	4.6	0.6	1.2	6.6	1.3	3.7	3.4
Other Services	1.6	0.5	0.5	0.2	3.4	-0.2	-1.4	-1.2	0.8
Government	0.3	0.5	-0.1	0.2	1.5	0.5	0.1	1.5	-0.2

† Eighth District growth rates are calculated from the sums of the seven states. For Natural Resources/Mining and Construction categories, the data exclude Tennessee (for which data on these individual sectors are no longer available).

UNEMPLOYMENT RATES

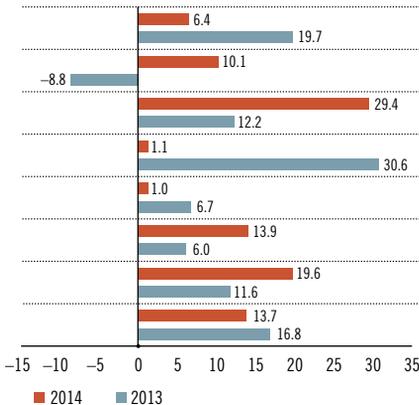
	IV/2014	III/2014	IV/2013
United States	5.7%	6.1%	7.0%
Arkansas	5.7	5.9	6.9
Illinois	6.2	6.5	8.5
Indiana	5.9	5.8	6.5
Kentucky	5.5	6.0	7.7
Mississippi	7.2	7.4	8.0
Missouri	5.5	5.7	6.3
Tennessee	6.6	6.6	7.1

EIGHTH DISTRICT PAYROLL EMPLOYMENT BY INDUSTRY-2014



HOUSING PERMITS / FOURTH QUARTER

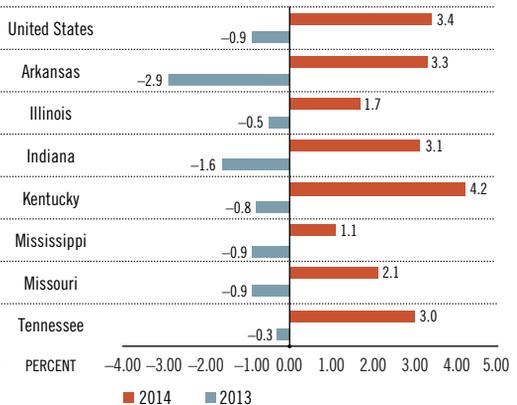
YEAR-OVER-YEAR PERCENT CHANGE IN YEAR-TO-DATE LEVELS



All data are seasonally adjusted unless otherwise noted.

REAL PERSONAL INCOME* / FOURTH QUARTER

YEAR-OVER-YEAR PERCENT CHANGE



*NOTE: Real personal income is personal income divided by the PCE chained price index.