President's Message
The State of the Debate on "Too Big to Fail"

Job Creation
Government Spending Doesn't Seem to Help
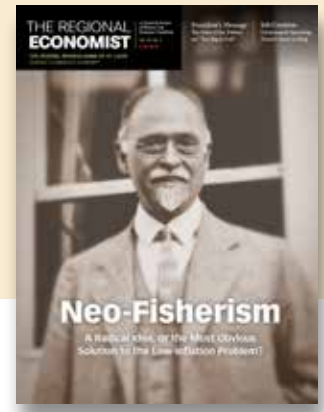
Neo-Fisherism

A Radical Idea, or the Most Obvious Solution to the Low-Inflation Problem?

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By Stephen Williamson

Central banks around the world are struggling with inflation rates that are below their targets. According to conventional central banking wisdom, interest rate cuts should increase inflation, but that's not working. Maybe—by Irving Fisher's logic—increasing nominal interest rates increases inflation.

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Community Banks' Compliance Costs and Performance

By Drew Dahl, Andrew Meyer and Michelle Neely

Research shows that complying with government regulations is more burdensome for smaller community banks than larger community banks. Despite spending proportionately more resources on compliance, the smaller banks do not perform as well as the larger ones, at least in one key metric.

The State of the Debate on "Too Big to Fail"

Following the financial crisis, many new regulations have been implemented to address systemic risk within the U.S. financial system, including measures that address capital requirements, liquidity ratios and leverage levels, among others. Even with the enactment of the Dodd-Frank Act, which has yet to be fully implemented, debate continues as to whether "too big to fail" (TBTF) remains an issue or whether the legislation has mitigated this risk to the U.S. economy. Among those who believe TBTF remains a key problem for the U.S. economy, proposals to address the issue range widely. Recent symposiums held at the Minneapolis Fed, under the leadership of President Neel Kashkari, explored several of these proposals.[1] In this column, I provide a brief overview of them and share some of my perspectives on the topic.

Some researchers, such as Simon Johnson from MIT, have suggested limiting bank size. Others, such as Anat Admati from Stanford, have suggested much higher capital requirements for large banks. A third proposal, by John Cochrane from Stanford, emphasizes changing the treatment of leverage in the tax code as a way to mitigate financial fragility. A fourth proposal seeks to improve the bankruptcy laws in a way that will allow a financial firm that is in trouble to more readily go through bankruptcy court. While this last proposal has garnered attention, it is also fraught with technical complications. Therefore, I will focus on the first three proposals.

Bank Size Limits: I have been an advocate of a system with smaller financial institutions which can be allowed to fail, if necessary. Generally speaking, however, size restrictions seem arbitrary. Why should a particular bank size be risky and another size not be risky? In addition, recent evidence suggests that substantial economies of scale exist, perhaps even for the largest financial institutions.[2] Furthermore, the primary concern could be that complexity or interconnectedness is the trigger toward financial fragility rather than size itself. For these reasons, some analysts have concluded that a size restriction by itself may not be the most natural solution to the TBTF problem.

Higher Capital Requirements: Raising capital requirements for large financial institutions is emphasized in the Dodd-Frank Act. The idea is that higher capital requirements provide a larger buffer to absorb significant shocks to the institutions, reducing their risk of failure. Admati and others argue that capital requirements should be even larger, which would make their equity capital levels more comparable to those of nonbanks. These researchers also point out that banks had much higher levels of capital in earlier eras when owners and shareholders were personally liable for paying the banks' creditors, if necessary.[3] This suggests that the market solution is to have banks hold more capital than they do today.

Is there a connection between capital requirements and size requirements? Recent comments by Fed Gov. Jerome Powell and other Fed officials suggest that higher capital requirements may cause firms to rethink their optimal size.[4] Some of the largest firms, such as GE Capital, have divested in an effort not to be designated as systemically important within the Dodd-Frank Act, a designation that can lead to higher capital requirements.

Leverage: Many have suggested that leverage—rather than capital—is the issue, in which case Cochrane's proposal to rethink the tax treatment of leverage might be a good idea. Keep in mind what happened during the "tech" bubble in the late 1990s and early 2000s, when firms had to raise their financing through equity. Although investors lost money when the market crashed, the repercussions for the economy were not as significant as the crash of the housing bubble several years later. The U.S. tax system favors bond financing: Interest payments on debt instruments are tax-deductible, while dividend payments to shareholders are not. Giving a less favorable tax treatment to bond financing and a more favorable tax treatment to equity financing might lead to enhanced stability.

These are certainly interesting ideas, but there is also a global aspect. In particular, we have seen efforts on a global level to limit systemic risk through coordinated regulatory policies across countries. In my experience, however, other countries often seem to be less concerned about TBTF as an issue than we are in the U.S. There is sometimes a tendency to view large financial firms as national champions, deserving of protection. In part because of this, we are evolving globally toward a regulated utility model—whereby very large financial institutions are under heavy regulation, which in my view makes them unlikely to innovate effectively in the future. This may leave them vulnerable to coming waves of financial innovation. This is an additional consideration in the ongoing TBTF debate. Ω

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

ENDNOTES

1   See www.minneapolisfed.org/publications/special-studies/endingtbtf/symposiums.
2   For instance, see Wheelock, David C.; and Wilson, Paul W. "Do Large Banks Have Lower Costs? New Estimates of Returns to Scale for U.S. Banks." *Journal of Money, Credit and Banking,* February 2012, Vol. 44, No. 1, pp. 171-99.
3   See Admati, Anat; and Hellwig, Martin. *The Bankers' New Clothes: What's Wrong with Banking and What to Do about It*. Princeton, N.J.: Princeton University Press, 2013. Also see their paper "The Parade of the Bankers' New Clothes Continues: 31 Flawed Claims Debunked," from December 2015.
4   See Powell's comments in the *Wall Street Journal* article "Fed Governors Signal Bigger Bank Capital Requirements Looming," from June 2, 2016.
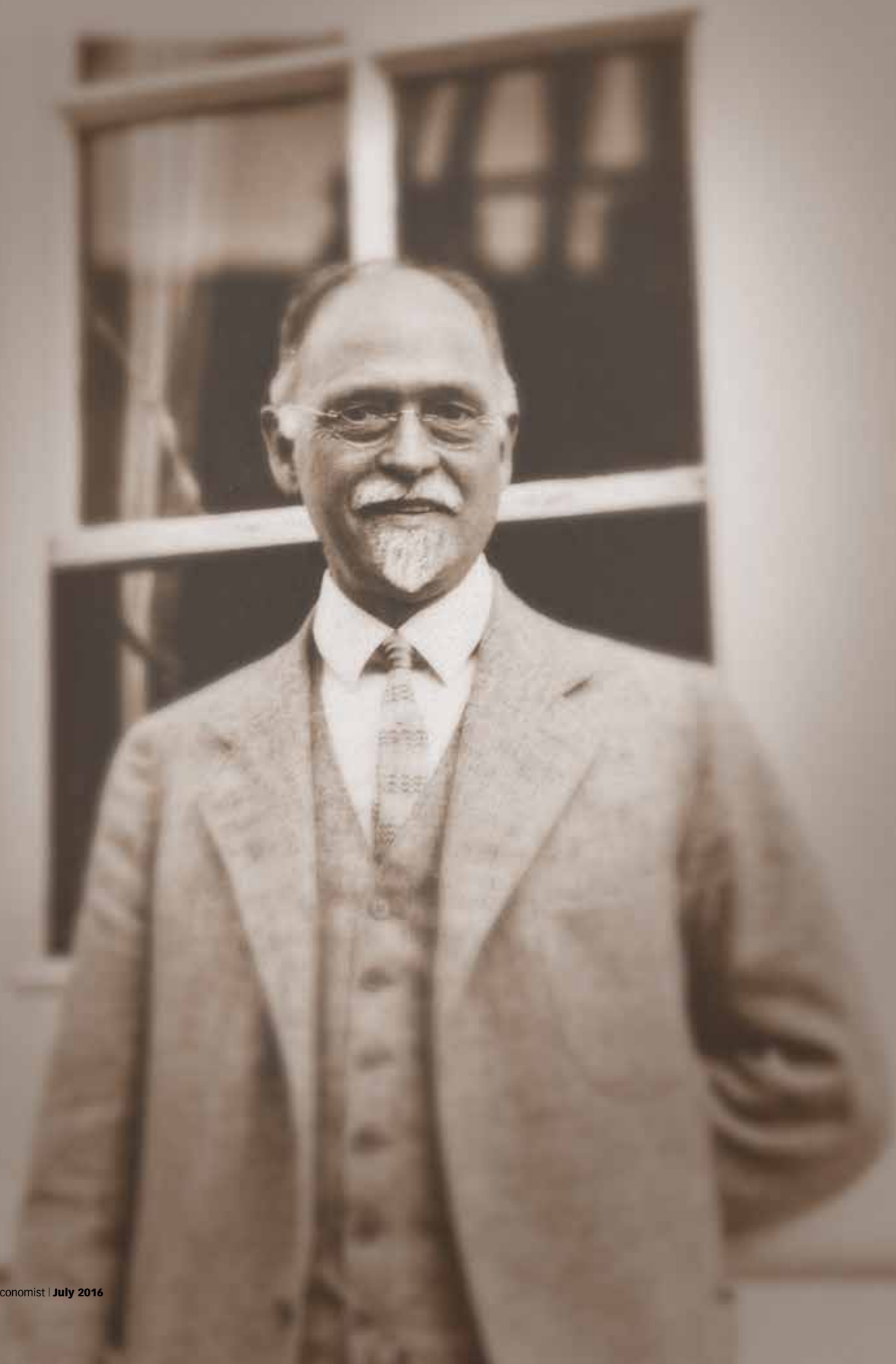
Neo-Fisherism

A Radical Idea, or the Most Obvious Solution to the Low-Inflation Problem?

By Stephen Williamson

During the 2007-2009 global financial crisis, many central banks in the world, including the Federal Reserve, cut interest rates and resorted to various unconventional policies in order to fight financial market disruption, high unemployment, and low or negative economic growth. Now, in 2016, these central banks are typically experiencing inflation below their targets, and they seem powerless to correct the problem. Further unconventional monetary policy actions do not seem to help.

Neo-Fisherites argue that the solution to too-low inflation is obvious, and it may have been just as obvious to Irving Fisher, the early 20th century American economist and original Fisherite. The key Neo-Fisherian principle is that central banks can increase inflation by increasing their nominal interest rate targets—an idea that may seem radical at first blush, as central bankers typically believe that cutting interest rates increases inflation.

Irving Fisher, American economist, circa 1927.

FIGURE 1

Evidence of the Fisher Relation (1954:Q3 to 2015:Q4)
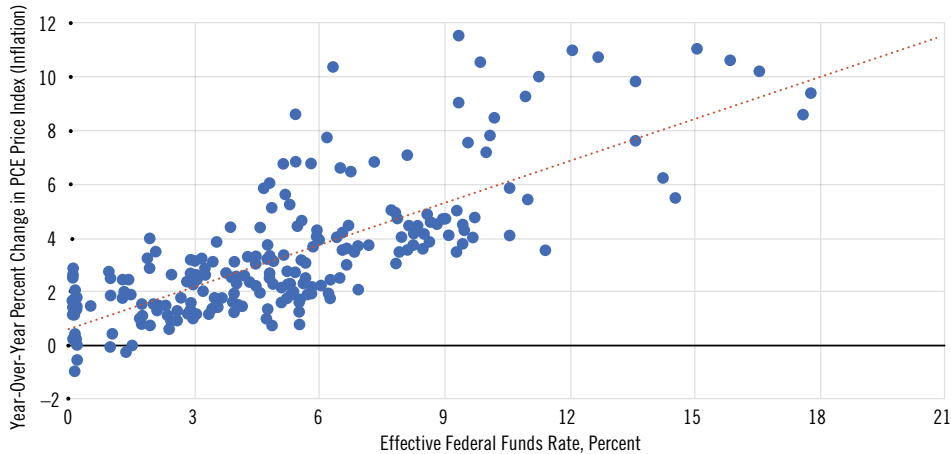
SOURCES: Federal Reserve Board and Bureau of Economic Analysis/Federal Reserve Economic Data (FRED).
NOTE: PCE=Personal consumption expenditures.

To see where Neo-Fisherian ideas come from, it helps to understand the roots of the science of modern central banking. Two key developments in central banking since the 1960s were the recognition that: (1) the responsibility for inflation lies with the central bank; and (2) the main instrument for monetary control for the central bank is a short-term (typically overnight) nominal interest rate. These developments were driven largely by monetarist ideas and by the experience with the implementation of those ideas by central banks in the 1970s and 1980s.

Monetarism is best-represented in the work of the economist Milton Friedman, who argued that "inflation is always and everywhere a monetary phenomenon" and that inflation can and should be managed through central bank control of the stock of money in circulation.[1] Friedman reasoned that the best approach to inflation control is the adoption by the central bank of a constant money growth rule: He thought the central bank should choose some monetary aggregate—a measure of the total quantity of currency, accounts with commercial banks and other retail payments instruments (for example, M1)—and conduct monetary policy in such a way that this monetary aggregate grows at a constant rate forever. The higher the central bank's desired rate of inflation, the higher should be this constant money growth rate.

During the 1970s and 1980s, many central banks, including the Fed, adopted money growth targets as a means for bringing down the relatively high rates of inflation at that time. Monetarist ideas were a key element of the policies adopted by Paul Volcker, chairman of the Fed's Federal Open Market Committee (FOMC) from 1979 to 1987. He brought the inflation rate down from about 10 percent at the beginning of his term to 3.5 percent at the end through a reduction in the rate of growth in the money supply.[2]

Though monetarist ideas were useful in bringing about a large reduction in the inflation rate, Friedman's constant-money-growth prescription did not work as an approach to managing inflation on an ongoing basis. Beginning about 1980, the relationship between money growth and inflation became much more unstable, due in part to changes in financial regulation, technological changes in the banking industry and perhaps to monetarist monetary policy itself. This meant that using Friedman's prescriptions to fine-tune policy to target inflation over the long term would not work.

As a result, most central banks, including the Fed, abandoned money-growth targeting in the 1980s. As an alternative, some central banks adopted explicit inflation targets, which have since become common. For example, the European Central Bank, the Bank of England, the Swedish Riksbank and the Bank of Japan have targets of 2 percent for the inflation rate. The U.S. is somewhat unusual in that Congress has specified a "dual mandate" for the Fed, which, since 2012, the Fed has interpreted as a 2 percent inflation target combined with the pursuit of "maximum employment."[3]

Conventional Practice

If a central bank is to move inflation toward its inflation target without reference to the growth rate in a measure of money, how is it supposed to proceed? Central banks control inflation indirectly by relying on an intermediate instrument—typically an overnight nominal interest rate. In the U.S., the FOMC sets a target for the overnight federal funds rate (fed funds rate) and sends a directive to the New York Federal Reserve Bank, which has the responsibility of reaching the target through intervention in financial markets.

Conventional central banking practice is to increase the nominal interest rate target when inflation is high relative to the

inflation target and to decrease the target when inflation is low. The reasoning behind this practice is that increasing interest rates reduces spending, "cools" the economy and reduces inflation, while reducing interest rates increases spending, "heats up" the economy and increases inflation.

Neo-Fisherism

But what if central banks have inflation control wrong? A well-established empirical regularity, and a key component of essentially all mainstream macroeconomic theories, is the Fisher effect—a positive relationship between the nominal interest rate and inflation. The Fisher relationship, named for Irving Fisher, is readily discernible in the data. Look at Figure 1, for example, which is a scatter plot of the inflation rate (the four-quarter percentage change in the personal consumption deflator—the Fed's chosen measure of inflation) vs. the fed funds rate for the period 1954-2015. In Figure 1, a positively sloped line would be the best fit to the points in the scatter plot, indicating that inflation tends to rise as the fed funds rate rises.

Many macroeconomists have interpreted the Fisher relation observed in Figure 1 as involving causation running from inflation to the nominal interest rate (the usual market quote for the interest rate, not adjusted for inflation). Market interest rates are determined by the behavior of borrowers and lenders in credit markets, and these borrowers and lenders care about real rates of interest. For example, if I take out a car loan for one year at an interest rate of 10 percent, and I expect the inflation rate to be 2 percent over the next year, then I expect the real rate of interest that I will face on the car loan will be 10 percent – 2 percent = 8 percent. Since borrowers and lenders care about real rates of interest, we should expect that as inflation rises, nominal interest rates will rise as well. So, for example, if the typical market interest rate on car loans is 10 percent if the inflation rate is expected to be 2 percent, then we might expect that the market interest rate on car loans would be 12 percent if the inflation rate were expected to be 4 percent. If we apply this idea to all market interest rates, we should anticipate that, generally, higher inflation will cause nominal market interest rates to rise.

But, what if we turn this idea on its head, and we think of the causation running from the nominal interest rate targeted by the central bank to inflation? This, basically, is what Neo-Fisherism is all about. Neo-Fisherism says, consistent with what we see in Figure 1, that if the central bank wants inflation to go up, it should increase its nominal interest rate target, rather than decrease it, as conventional central banking wisdom would dictate. If the central bank wants inflation to go down, then it should decrease the nominal interest rate target.

But how would this work? To simplify, think of a world in which there is perfect certainty and where everyone knows what future inflation will be. Then, the nominal interest rate R can be expressed as

$$R = r + \pi,$$

where r is the real (inflation-adjusted) rate of interest and π is future inflation. Then, suppose that the central bank increases the nominal interest rate R by raising its nominal interest rate target by 1 percent and uses its tools (intervention in financial markets) to sustain this forever. What happens? Typically, we think of central bank policy as affecting real economic activity—employment, unemployment, gross domestic product, for example—through its effects on the real interest rate r. But, as is widely accepted by macroeconomists, these effects dissipate in the long run. So, after a long period of time, the increase in the nominal interest rate will have no effect on r and will be reflected only in a one-for-one increase in the inflation rate, π. In other words, in the long run, the only effect of the nominal interest rate on inflation comes through the Fisher effect; so, if the nominal interest rate went up by 1 percent, so should the inflation rate—in the long run.

But, in the short run, it is widely accepted by macroeconomists (though there is some disagreement about the exact mechanism) that an increase in R will also increase r, which will have a negative effect on aggregate economic activity—unemployment will go up and gross domestic product will go down. This is what macroeconomists call a non-neutrality of money. But note that, if an increase in R results in an increase in r, the short-run response of inflation to the increase in R must be less than one-for-one.

Neo-Fisherism says, consistent with what we see in Figure 1, that if the central bank wants inflation to go up, it should increase its nominal interest rate target, rather than decrease it, as conventional central banking wisdom would dictate. If the central bank wants inflation to go down, then it should decrease the nominal interest rate target.

Response to a Permanent Increase in the Nominal Interest Rate at Time *T*
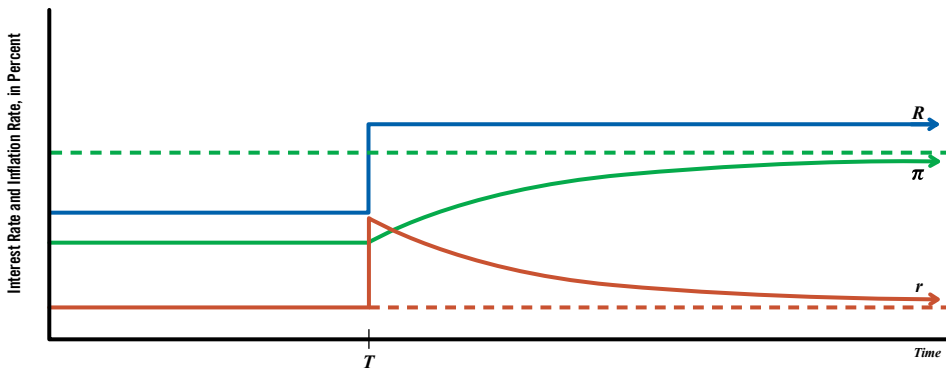
SOURCE: Stephen Williamson.

NOTE: *R* is the nominal interest rate, *r* is the real interest rate and *π* is the inflation rate. When *R* is increased, *r* increases one-for-one initially. As *r* moves back to its long-run level, *π* increases. In the long run, *r* returns to its equilibrium rate and *π* increases one-for-one with *R*.

However, if inflation is to go down when *R* goes up, the real interest rate *r* must increase more than one-for-one with an increase in *R*, that is, the non-neutrality of money in the short run must be very large.

To assess these issues thoroughly, we need a well-specified macroeconomic model. But essentially all mainstream macroeconomic models predict a response of the economy to an increase in the nominal interest rate as depicted in Figure 2. In this figure, time is on the horizontal axis, and the central bank acts to increase the nominal interest rate permanently, and in an unanticipated fashion, at time *T*. This results in an increase in the real interest rate *r* on impact. Inflation *π* increases gradually over time, and the real interest rate falls, with the inflation rate increasing by the same amount as the increase in *R* in the long run. This type of response holds even in mainstream New Keynesian models, which, it is widely believed, predict that a central bank wanting to increase inflation should lower its nominal interest rate target. However, as economist John Cochrane shows, the New Keynesian model implies that if the central bank carries out the policy we have described—a permanent increase of 1 percent in the central bank's nominal interest rate target—then the inflation rate will increase, even in the short run.[4]

The Low-Inflation Policy Trap

What could go wrong if central bankers do not recognize the importance of the Fisher effect and instead conform to

conventional central banking wisdom? Conventional wisdom is embodied in the Taylor rule, first proposed by John Taylor in 1993.[5] Taylor's idea is that optimal central bank behavior can be written down in the form of a rule that includes a positive response of the central bank's nominal interest rate target to an increase in inflation.

But the Taylor rule does not seem to make sense in terms of what we see in Figure 2. Taylor appears to have thought, in line with conventional central banking wisdom, that increasing the nominal interest rate will make the inflation rate go down, not up. Further, Taylor advocated a specific aggressive response of the nominal interest rate target to the inflation rate, sometimes called the Taylor principle. This principle is that the nominal interest rate should increase more than one-for-one with an increase in the inflation rate.

So, what happens in a world that is Neo-Fisherian (the inflationary process works as in Figure 2), but central bankers behave as if they live in Taylor's world? Macroeconomic theory predicts that a Taylor-principle central banker will almost inevitably arrive at the "zero lower bound."[6] What does that mean?

Until recently, macroeconomists argued that short-term nominal interest rates could not go below zero because, if interest rates were negative, people would prefer to hold cash, which has a nominal interest rate equal to zero. According to this logic, the lower bound on the nominal

interest rate is zero. It turns out that, if the central bank follows the Taylor principle, then this implies that the central bank will see inflation falling and will respond to this by reducing the nominal interest rate. Then, because of the Fisher effect, this actually leads to lower inflation, causing further reductions in the nominal interest rate by the central bank and further decreases in inflation, etc. Ultimately, the central bank sets a nominal interest rate of zero, and there are no forces that will increase inflation. Effectively, the central bank becomes stuck in a low-inflation policy trap and cannot get out—unless it becomes Neo-Fisherian.

But maybe this is only theory. Surely, central banks would not get stuck in this fashion in reality, misunderstanding what is going on, right? Unfortunately, not. The primary example is the Bank of Japan. Since 1995, this central bank has seen an average inflation rate of about zero, having kept its nominal interest rate target at levels close to zero over those 21 years. The Bank of Japan has an inflation target of 2 percent and wants inflation to be higher, but seems unable to achieve what it wants.

Over the past several years, membership in the low-inflation-policy-trap club of central banks has been increasing. This club includes the European Central Bank, whose key nominal interest rate is –0.34 percent and inflation rate is –0.22 percent; the Swedish Riksbank, with key nominal interest rate of –0.50 percent and inflation rate of 0.79 percent; the Danish central bank, with key nominal interest rate of –0.23 percent and inflation rate of 0 percent; the Swiss National Bank, with key nominal interest rate of –0.73 percent and inflation rate of –0.35 percent; and the Bank of England, with key nominal interest rate of 0.47 percent and inflation rate of 0.30 percent. Each of these central banks has been missing its inflation target on the low side, in some cases for a considerable period of time.[7] The Fed could be included in this group, too, as the fed funds rate was targeted at 0-0.25 percent for about seven years, until Dec. 16, 2015, when the target range was increased to 0.25-0.50 percent. The Fed has missed its 2 percent inflation target on the low side for about four years now.

How a Trapped Central Bank Behaves

Abandoning the Taylor principle and embracing Neo-Fisherism seems a difficult step for central banks. What they typically do on encountering low inflation and low nominal interest rates is engage in unconventional monetary policy. Indeed, unconventional policy has become commonplace enough to become respectably conventional.

Unconventional monetary policy takes three forms in practice. First, central banks can push market nominal interest rates below zero (relaxing the zero lower bound) by paying negative interest on reserves at the central bank—charging a fee on such accounts, as has been done by the Bank of Japan, the Swiss National Bank, the Danish central bank and the Swedish Riksbank. Second, there can be so-called quantitative easing, or QE—the large-scale purchase of long-maturity assets (government debt and private assets, such as mortgage-backed securities) by a central bank. Such programs have been an important element of monetary policy in the U.S., Switzerland and Japan, for example, in the years after the financial crisis (2007-2009). Third, central banks can engage in forward guidance—promises concerning what they will do in the future. Typically, these are promises that interest rates will stay low in the future, in the hope that this will increase inflation. But will any of these unconventional policies actually work to increase the inflation rate? Neo-Fisherism suggests not.

First, given the Fisher effect, a negative nominal interest rate will only make the inflation rate lower, as has happened in Switzerland, where nominal interest rates have been negative for some time and there is deflation—negative inflation. Second, some theory indicates that QE either does not work at all or acts to make inflation lower.[8] This is consistent with what we have seen in Japan, where an extensive QE program in place for two years has not yielded higher inflation. Third, forward guidance, which promises more of the same unconventional policies and continued low interest rates if the low-inflation problem persists, will only prolong the problem.

Conclusion

Among the major central banks in the world, the Fed stands out as the only one that is pursuing a policy of increases in its nominal interest rate target. This policy, referred to as "normalization," was initiated in December 2015. Normalization, however, is projected to take place slowly and is not motivated explicitly by Neo-Fisherian ideas, though James Bullard, president of the Federal Reserve Bank of St. Louis, has shown interest.[9]

What is the risk associated with Neo-Fisherian denial—a failure to take account of the Fisher relation in formulating monetary policy? Neo-Fisherian denial will tend to produce inflation lower than central banks' inflation targets and nominal interest rates that are at central banks' effective lower bounds—the low-inflation policy trap. But what of it? There are no good reasons to think that, for example, 0 percent inflation is worse than 2 percent inflation, as long as inflation remains predictable. But "perma-zero" damages the hard-won credibility of central banks if they claim to be able to produce 2 percent inflation consistently, yet fail to do so. As well, a central bank stuck in a low-inflation policy trap with a zero nominal interest rate has no tools to use, other than unconventional ones, if a recession unfolds. In such circumstances, a central bank that is concerned with stabilization—in the case of the Fed, concerned with fulfilling its "maximum employment" mandate—cannot cut interest rates. And we know that a central bank stuck in a low-inflation trap and wedded to conventional wisdom resorts to unconventional monetary policies, which are potentially ineffective and still poorly understood. Ω

Stephen Williamson is an economist at the Federal Reserve Bank of St. Louis. For more on his work, see https://research.stlouisfed. org/econ/williamson. Research assistance was provided by Jonas Crews, a research associate at the Bank.

E N D N O T E S

[1] See Friedman.

[2] The inflation rate is measured as the four-quarter percentage increase in the personal consumption deflator.

[3] See Federal Open Market Committee.

[4] See Cochrane.

[5] See Taylor.

[6] See Benhabib, Schmitt-Grohé and Uribe; Andolfatto and Williamson; and Bullard's 2010 work for examples.

[7] Data are for April 2016. For the European Union, Switzerland and the United Kingdom, the key nominal interest rate refers to the April average of the overnight interbank lending rate, while for Denmark it is the average of the tomorrow-next interbank rate. For Sweden, the rate refers to the end-of-period value of the central bank-pegged repo rate. Inflation rate refers to the 12-month percent change in consumer prices.

[8] See Williamson.

[9] See Bullard's 2016 work.

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Gender Pay Gap May Be Linked To Flexible and Irregular Hours
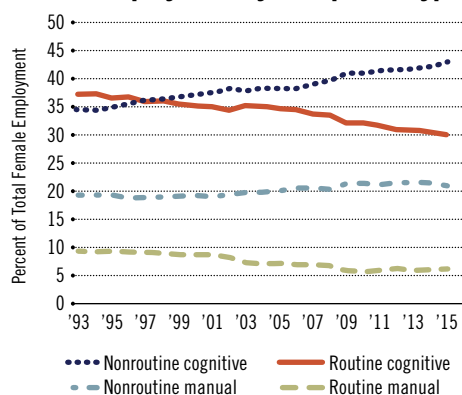
By Maria Canon and Limor Golan

Although women's educational attainments are increasingly surpassing men's in the U.S. and although women's representation in professional occupations is on the rise, there is still a gender pay gap, even within occupations. Recent research suggests that the gap exists because women tend to choose jobs that offer more-flexible hours than those chosen by men and that these jobs typically pay less than jobs with longer and more rigid hours.[1] In order to further understand the gender differences in different aspects of employment, this article explores the changes in patterns of flexibility in hours of men and women from 1993 to 2015.

To get an idea of changes in the patterns of types of jobs women sort into, we started off by analyzing data from the Current Population Survey (CPS) for the period 1993-2015. Figure 1 presents the changes in female employment by category of work. We grouped types of work into four categories based on the tasks performed in each one. The categories are **nonroutine cognitive,** which includes professional occupations, management, business and financial; **routine cognitive,** which includes sales, office and administrative work; **nonroutine manual,** which is a broad category that includes service; and **routine manual,** which includes construction and mining, installation, maintenance and repair, production and transportation.

As the figure shows, employment of women in nonroutine cognitive occupations increased from 34 percent in 1993 to 43 percent in 2015. Employment of women in nonroutine manual occupations also increased slightly. Employment decreased in both routine manual and routine cognitive occupations.

Meanwhile, Figure 2 shows the upward trend in the percentage of women working in nonroutine cognitive occupations. Men held a greater

FIGURE 1

Female Employment by Occupation Type

SOURCE: Census Bureau Current Population Survey and author's calculations.

FIGURE 2

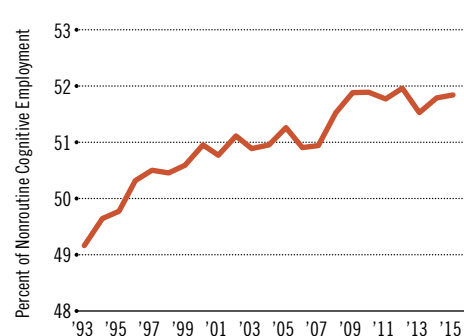### Nonroutine Cognitive Employment: Female

SOURCE: Census Bureau Current Population Survey and author's calculations.

percentage of these jobs than did women until 1996, when the positions were reversed.

We also explored the trend in job flexibility by gender. The table presents changes in flexibility of hours and patterns of irregular hours due to employer and personal reasons in 1997, 2001 and 2004 by occupation category.[2] While the notion of "job flexibility" is vague, intuitively job flexibility can be interpreted as having control over the timing of work.[3] However, individuals were also asked whether they worked irregular hours due to personal reasons or the job requirements (employer reasons).[4] Thus, one may think of the ability to work irregular hours due to personal reasons as flexibility, while working irregular hours due to employer reasons as a form of inflexibility.

The top panel of the table describes the job flexibility and irregular hours in nonroutine cognitive occupations. Overall, the fraction of women who responded "yes" to the question of flexibility of hours declined slightly from 1997 to 2004, but it increased for males.

However, this picture might be incomplete because, among those who work flexible hours, there are workers who work irregular hours due to employer reasons, and among those who responded "no" to the flexibility of hours question, there are people who work irregular hours due to personal reasons.

The overall fraction of workers who worked irregular hours for both personal and employer reasons in nonroutine cognitive occupations was similar in 1997 and 2004 (although the percentage of workers who worked irregular hours due to personal reasons increased from 1997 to 2001 and then decreased, while the percentage of workers who worked irregular hours due to employer reasons decreased and then increased). Interestingly, however, only 35 percent of females who worked in nonroutine cognitive occupations in 1997 worked irregular hours for personal reasons, while 54 percent did so in 2001 and 47 percent did so in 2004. At the same time, the fraction of women in these occupations who worked irregular hours due

to employer reasons declined substantially, from 65 percent in 1997 to 46 percent in 2001 and 53 percent in 2004.

Thus, women in occupations characterized by nonroutine cognitive tasks were more likely to have irregular shift schedules in 2001 and 2004 relative to 1997 due to personal reasons. One possibility is that this is a general trend driven by technological change or other employer-related changes in these occupations. If this is the case, then these patterns should also be observed for males. However, the table reveals that this is not the case. It shows that the trend is the opposite for men. Looking at the irregular work hours for men reveals that a higher proportion of men always worked more irregular hours due to employer reasons and less because of personal reasons, relative to women. The percentage of men who worked irregular hours for personal reasons declined from 34 percent in 1997 to 32 percent in 2001 and 24 percent in 2004. The proportion of men who worked irregular hours due to employer reasons increased substantially. In 1997, 66 percent of males worked irregular hours because of employer reasons, increasing to 68 percent in 2001 and 76 percent in 2004.

Since overall in the nonroutine cognitive occupations the percentage of workers who worked irregular hours for personal and employer reasons is the same in 1997 as in 2004, and since the percentage of women in these occupations went up from 45 percent to 50 percent between 1997 and 2004, the increase in irregular hours due to personal reasons of women offsets the decline in these hours worked by men. The same applies for irregular hours worked due to employer reasons: The increase for men offsets the decrease for women.

Looking at the trend in the percentage of workers having irregular hours in nonroutine manual jobs shows an overall increase in the portion of workers with irregular hours for personal reasons in 2001 and 2004 relative to 1997 and a lower fraction of workers working irregular hours for employer reasons in 2001 and 2004 relative to 1997. In routine manual jobs, there is a decrease in the percentage of workers with irregular hours due to personal reasons from 1997 and 2001 to 2004, and an increase in the fraction of workers working irregular hours due to employer reasons. These patterns hold both for males and females.

Overall, almost in all occupations in all years, a higher fraction of women work irregular hours due to personal reasons and a lower fraction work irregular hours due to employer reasons, relative to men. This might be due to more work at home for women than men and more child care responsibilities for women than men. Overall, both males and females in nonroutine cognitive occupations are less likely to work irregular hours due to personal reasons than they are in any other occupation, while the opposite is true for working irregular hours due to employer reasons. This fact holds in all years. However, as employment of women and the fraction of women in nonroutine cognitive occupations increase, there has been an increase for women in the irregular hours due to personal reasons and a decrease in irregular hours due to employer reasons.

Thus, to the extent that pay is related to the type of shifts that people work, it probably is important to further study differences in employment patterns of men and women in order to understand the persistence of the gender pay gap. Ω

Maria Canon and Limor Golan are economists at the Federal Reserve Bank of St. Louis. For more on their work, see https://research.stlouisfed.org/econ/canon and https://research.stlouisfed.org/econ/golan. Usa Kerdnunvong provided research assistance.

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Flexible and Irregular Hours for Women and Men

Subtype of Jobs	Year	(In each year) Percent of All Jobs	Gender Distribution		Flexible Hours			Irregular Hours for Personal Reasons (among those who work irregular hours)		
			Female	Male	Percent of Female Workers	Percent of Male Workers	Percent of Total Workers	Percent of Female Workers	Percent of Male Workers	Percent of Total Workers
Nonroutine Cognitive	1997	11.75	44.57	55.43	42.31	35.35	38.45	34.90	33.71	34.30
	2001	22.29	49.47	50.53	39.79	45.31	42.58	54.46	32.00	42.39
	2004	19.07	50.38	49.62	40.67	47.12	43.87	46.76	23.94	34.60
Routine Cognitive	1997	34.03	58.51	41.49	38.26	44.08	40.68	51.68	36.04	44.65
	2001	23.75	55.51	44.49	35.70	36.21	35.93	58.30	45.01	52.34
	2004	24.23	56.73	43.27	38.97	33.44	36.58	51.26	52.03	51.56
Nonroutine Manual	1997	27.39	45.95	54.05	32.43	23.42	27.56	48.64	45.32	47.12
	2001	28.83	49.68	50.32	31.22	24.40	27.79	60.52	48.62	55.26
	2004	32.98	49.71	50.29	31.39	25.79	28.57	51.58	46.62	49.33
Routine Manual	1997	26.82	19.58	80.42	18.16	20.55	20.08	61.78	40.27	44.08
	2001	25.14	21.17	78.83	18.67	18.46	18.50	57.17	42.34	45.51
	2004	23.71	17.03	82.97	15.74	19.70	19.03	51.04	31.86	34.56

SOURCES: Census Bureau Work Schedules Supplement and authors' calculations.

NOTE: The questions regarding flexible hours and irregular hours were asked in the CPS Work Schedules Supplement, which was intermittently included in the May CPS. Therefore, we reported the results from the three latest supplements, which were in 1997, 2001 and 2004.

Government Spending Might Not Create Jobs, Even during Recessions

By Bill Dupor and Rodrigo Guerrero

Countercyclical economic policy refers to the actions taken by governments to soften or neutralize the detrimental effects of business cycles. Governments have two main tools at their disposal to conduct such actions: fiscal policy and monetary policy. In a time when it has become infeasible for the monetary policymakers at the Federal Reserve to reduce interest rates much further, if at all, the effectiveness of fiscal policy has moved into the spotlight for macroeconomists. Fiscal policy consists of adjustments in tax rates and government spending levels; in this article, we focus on the latter, specifically on the effects of government spending on employment, particularly during recessions.

The Intricacies of Fiscal Policy

The effectiveness of fiscal policy is often questioned because its positive impact on employment and output may be dampened by secondary effects that "crowd out" economic activity in the private sector. For instance, if the expenditure is financed by borrowing, then this borrowing might exert upward pressure on interest rates, which, in turn, would cause a reduction in private investment. Similarly, a surge in fiscal spending may bid up wages, thereby reducing the demand for labor in the private sector.

Times of high unemployment usually see an uptick in calls for increased government spending from politicians, pundits and economists. These observers appeal to a logic for government intervention that might not be valid during normal economic times; they argue that the detrimental secondary effects of fiscal spending are not as prominent when the economy is slack.

The simple thinking is that because the government's demand for goods and services can be met with otherwise idle workers, additional public spending need not bid up wages significantly or crowd out private demand. There's also a natural and undeniable urge for political leaders to "do something" during a downturn. As economist Robert Lucas wrote during the 2007-2009 recession, "I guess everyone is a Keynesian in a foxhole."

Instincts and gut reactions notwithstanding, whether government spending is particularly effective at increasing economic activity during times of high unemployment is an empirical question. A large amount of research has been conducted on the effects of government purchases on output (or gross domestic product) during recessions; relatively less research has focused on these purchases' employment effects. Understanding the employment effects of government intervention during recessions is crucial—much of the brunt from downturns, such as the 2007-2009 recession, is likely felt by people losing their jobs.

Public Spending and Employment

A researcher ideally would like to see macroeconomic experiments with government spending changing over time for reasons unrelated to business cycle fluctuations and also to have these experiments occur during both high- and low-unemployment times. These exogenous changes would generate natural experiments akin to the controlled experiments used to test, for example, the efficacy of new drugs.

Although truly exogenous large changes in government spending do not exist in the U.S. (or probably anywhere else), we in the U.S. have something close in the form of defense spending. Defense spending can be used because changes in it are mostly determined by international geopolitical factors rather than macroeconomic conditions. In our new research, we employed a recently created data set containing more than 120 years' worth of data on government purchases; the data set was introduced in a series of papers by economists Michael Owyang, Valerie Ramey and Sarah Zubairy.[1] These data appear in the upper panel of the figure. They include episodes of large variation in government spending during both low-unemployment times, such as World War I and the Korean War, and high-unemployment times, such as World War II.

The spending data also include a time series of "defense news shocks." Using historical documents, such as Business Week magazine, Ramey constructed a time series of changes in the values of future military spending. These data appear in the lower panel of the figure. Note, for example, the large upward spikes near the start of World War II and the downward spikes as that war neared its end. Since this series is based on military purchases that were not motivated by business cycle conditions, the data help to identify the exogenous component of the government spending shocks. Moreover, it is important to use news about military spending to tease out exogenous changes rather than military spending itself because households and businesses may change their behavior in response to new information even if the actual defense spending is months to years away. For instance, a military contractor might react to news about future government purchases by increasing its workforce in anticipation of higher demand.

The upper panel of the figure plots real (inflation-adjusted) per capita government spending between 1890 and 2010. The shaded

bars indicate years when, according to our measure, the labor market was slack, i.e., the unemployment rate was greater than 6.5 percent. In addition to a general upward trend, there are spikes in government spending. The most notable ones result from World War I and World War II. The lower panel of the figure plots the military news variable. At each quarter, it gives the change in the present value of expected future defense spending as a fraction of gross domestic product (GDP). For many periods, its values are zero, which indicate periods where beliefs about future defense spending are unchanged. Not surprisingly, there are major positive spikes around the times of World War I and World War II.

Specifically, our research aims to answer the following two questions: (1) By how much does national civilian employment change when government spending increases? (2) Is this estimate dependent on the unemployment level at the time in which the spending occurs?[2] We used the news about military spending to infer the quantitative response of employment to exogenous changes in government spending.

Small Employment Effects

We found that, in the short and intermediate run, there are only small employment effects of government spending in both high- and low-unemployment times. We quantified the effects of government spending over a four-year horizon following exogenous news about future U.S. defense spending.

Following a policy change that begins when the unemployment rate is high, if government spending increases by 1 percent of GDP, then total employment increases by between 0 percent and 0.15 percent. Following a policy change that begins when the unemployment rate is low, the same government spending increase causes total employment to change by –0.4 percent and 0 percent.[3] Although the effect is larger during times of high unemployment, even then, the employment effect of government spending is low.

In the longer run (e.g., seven or eight years), we also found almost no effect on employment from government spending. The estimated effects are not statistically different from zero. The main difference is that in the long run we cannot reject the

possibility that the effect of public spending on employment is the same during times of high and low unemployment. This is due to the fact that we lose precision in the estimation at longer horizons.

Conclusion

The question of the efficacy of countercyclical fiscal policy during downturns is far from settled. It is important that macroeconomists continue to study the issue. As horse racing fans say, there is a lot of money riding on it. For example, the total budget impact of the most recent U.S. stimulus ($840 billion for the American Recovery and Reinvestment Act of 2009) was larger than U.S. defense spending in Iraq since 9/11.[4,5] Ω
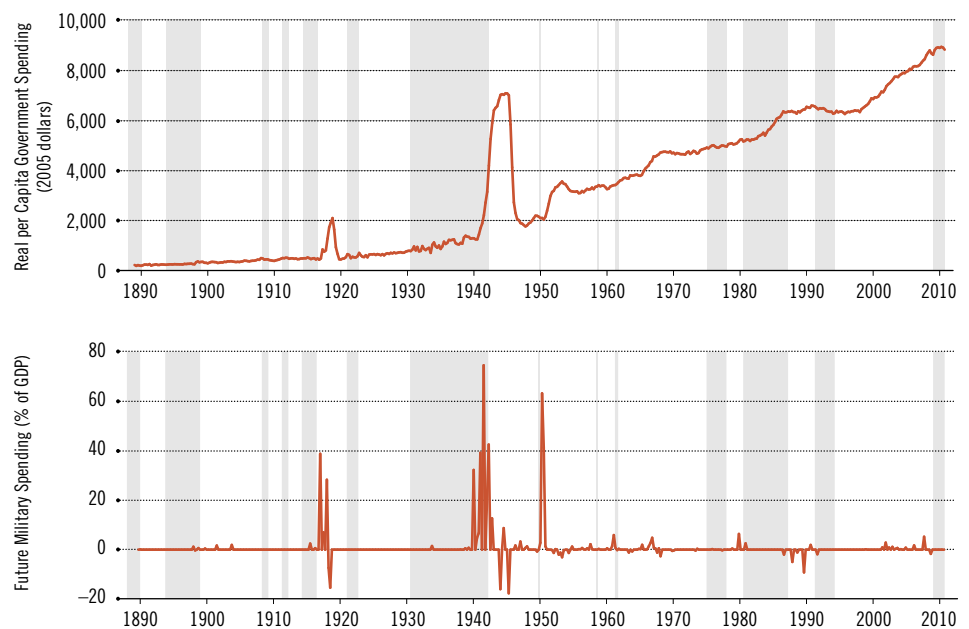

Bill Dupor is an economist and Rodrigo Guerrero is a research associate, both at the Federal Reserve Bank of St. Louis. For more on Dupor's work, see https://research.stlouisfed.org/econ/dupor.

FIGURE BELOW

SOURCES: Bureau of Economic Analysis, Bureau of Labor Statistics and Ramey (2011).

NOTE: The upper panel shows real per capita government spending for the years in our sample. The lower panel presents the change in the present value of expected future defense spending as a fraction of GDP, as constructed by economist Valerie Ramey. Shading indicates quarters in which the unemployment rate was above our benchmark threshold of 6.5 percent.

ENDNOTES

[1] Our paper largely follows the approach of a 2013 study by Michael Owyang, Valerie Ramey and Sarah Zubairy.

[2] In answering these questions, we used two econometric adjustment procedures. First, we estimated the dynamic effects using the local projections method to allow the effect of spending to vary depending upon whether the unemployment rate is high or low. Second, we used instrumental variables with defense news shocks to correct for the possibility that government spending is endogenous to local business-cycle conditions.

[3] These ranges are based on 90 percent confidence intervals.

[4] According to a 2014 study by Amy Belasco, between the 9/11 attacks and the end of 2014, congressional appropriations for military operations in Iraq totaled $815 billion.

[5] Our findings suggest that the drop in unemployment since 2009 was probably not a result of the Recovery Act's spending component. Understanding the reasons for the decline in unemployment is a topic that warrants further exploration.

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Government Spending and Military News Shocks in Times of High, Low Unemployment

Which Persists More from Generation to Generation —Income or Wealth?

By George-Levi Gayle and Andrés Hincapié

Do you earn more money than your parents? Do you have more wealth, i.e., assets minus liabilities, than your parents? Economists use the answers to these questions to determine what is called intergenerational mobility—the changes in a family's economic status between successive generations. Why should we care about intergenerational mobility? Being able to do better than one's parents is part of the American Dream. Also, a society with intergenerational mobility might have less economic inequality across generations.

It is well-documented that income and wealth inequality, i.e., the size of the differences in income or wealth between the haves and the have-nots, has increased significantly over the past 40 years.[1] If there were no inequality, then economic mobility would probably not be a topic of discussion because parents would have no economic advantage to bequeath. However, inequality exists, and as it increases, the need for economic mobility becomes more important. Policies that promote economic mobility can reduce inequality in the next generation.

What is it that makes one society more economically mobile than another? Are there factors that can promote economic mobility? In discussing such questions, economists have come up with two possible approaches to these challenges: (1) the economic opportunity structure and (2) economic growth. Economic growth promotes mobility by raising earnings or wealth for the entire population, all else being equal. For example, the growth following the Great Depression greatly benefited the children of those people who endured this period of economic distress. We will not explore the

effect of economic growth here. Instead, we will focus on the effect of the economic opportunity structure. Economists use this phrase to describe everything from equal access to good schools to equal career opportunities. The economic opportunity structure can promote economic mobility by helping the poor escape poverty (perhaps with the help of free preschool, for example) or by limiting the advantage of those who grew up privileged (by imposing inheritance taxes, for example, so that they have less to pass down to the next generation).

Which is more effective—instituting policies that help the poor escape poverty or instituting policies that limit the advantages of the privileged? Some light can be shed on this question by looking at the differences between intergenerational persistence of labor market earnings versus intergenerational persistence of wealth, as well as at their sources.

It is well-documented that labor market earnings are very persistent across generations,[2] and a few studies have shown that there is also intergenerational persistence of wealth.[3] Wealth, as a more comprehensive measure of economic well-being, includes the average labor market earnings over a person's working life (called permanent income by economists). Therefore, decoupling earnings persistence from wealth persistence will probably make it easier to answer the above question on policies. Economic research has shown that earnings persistence is mostly due to investment in early childhood education and other human capital development;[4] persistence of residual wealth (net of permanent income and education) would be due to bequests, asset accumulation and the capital market.[5]

Income and Wealth Data

We used data from the Panel Study of Income Dynamics from 1968 to 2013 on both wealth and labor market earnings to construct age-adjusted correlations of outcomes across generations.[6] The correlation in earnings from one generation to another is higher than the correlation in wealth from one generation to another. The intergenerational elasticity of earnings is 0.4 and that of wealth is 0.38, meaning that a 10 percent difference in parents' income would lead to a 4 percent difference in their offspring's income. For wealth, a 10 percent difference in parents' wealth would lead only to a 3.8 percent difference in their offspring's wealth. For technical reasons, the calculation of the intergenerational elasticity of wealth excludes households with no wealth or net debt. This is an important omission, given that one in five individuals has zero or negative net worth. Therefore, we also report the correlation between an individual's rank in his/her generation's income or wealth distribution and rank of his/her parents in their generation's income or wealth distribution (called the rank-rank correlation), which includes all households. The rank-rank correlation is 0.3 for wealth and 0.4 for labor market earnings; once the wealth distribution with both positive and negative net worth is accounted for, labor market earnings appear to be 33 percent more persistent than wealth.

One Number Isn't Enough

Using one number to summarize the intergenerational persistence of earnings and wealth cannot answer whether such persistence is due to the inability of the poor to escape poverty or the persistence of wealth

and income at the top. To answer this, we need to look at how children move to a different rung of the income ladder and wealth ladder from where their parents were. The figure presents these transitions.

The figure shows that permanent income is much stickier than wealth for those on the bottom of the economic ladder (first quintile). Those who are born to parents in the lowest quintile of the permanent income distribution have a 39 percent chance of remaining in their parents' position. However, those born in the bottom 20 percent of the wealth distribution have a 27 percent chance of remaining there. At the top of the economic ladder (fifth quintile), both permanent income and wealth are sticky: Those born in the top 20 percent of the permanent income and wealth distribution have a 41 and 47 percent chance of remaining there, respectively.

Decoupling Income and Education

A significant percentage of wealth is explained by permanent income and education. Therefore, we calculate residual wealth, which is wealth net of the effect of permanent income and education.[7] Residual wealth is much less persistent across generations, with an intergenerational elasticity of between 0.17 and 0.21. Hence, more than 50 percent of the persistence in wealth seems to be due to the persistence in permanent income. This is evident by looking at the residual wealth panel of the figure, which shows significantly more mobility. For example, 28 percent of the children of parents in the top quintile of the residual wealth distribution will end up in the bottom two quintiles, and 28 percent of the

children of parents in the bottom quintile of the residual wealth distribution will end up in the top two quintiles.

Policy Implication

Permanent or lifetime labor market income is much more persistent across generations than is wealth. Although people born in the lowest quintile of the wealth distribution have a 73 percent chance of escaping this position, the same is true for only 61 percent of those born in the lowest quintile of the income distribution. Furthermore, permanent or lifetime labor market income accounts for more than 50 percent of the persistence of wealth. This evidence suggests that policies aimed at human capital enhancement, e.g., free preschool for everyone, may be as effective at combating inequality as those aimed at limiting the advantage of the wealthy, e.g., a policy of a high inheritance tax. Ω

George-Levi Gayle is an economist at the Federal Reserve Bank of St. Louis. Andrés Hincapié was a technical research associate at the Bank. For more on Gayle's work, see https://research. stlouisfed.org/econ/gayle.

FIGURE BELOW

SOURCE: The Panel Study of Income Dynamics 1968 to 2013.

NOTE: Each panel shows the population in the study broken down into five quintiles, with each quintile having roughly the same number of people. The 1st quintile represents those at the bottom of the income/wealth ladder, and the 5th quintile represents those at the top. How should these figures be interpreted? Follow this example: In the Permanent Income panel, those born into the 1st quintile have a 39 percent chance of ending up there themselves. In the Residual Wealth panel, residual wealth is defined as wealth net the effect of permanent income and education. (In the middle panel, wealth is just assets minus liabilities.)
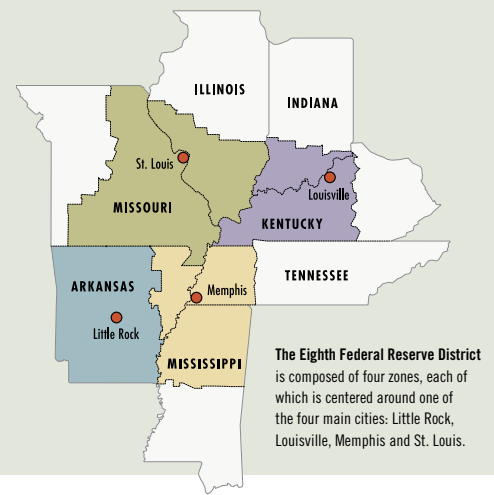
ENDNOTES
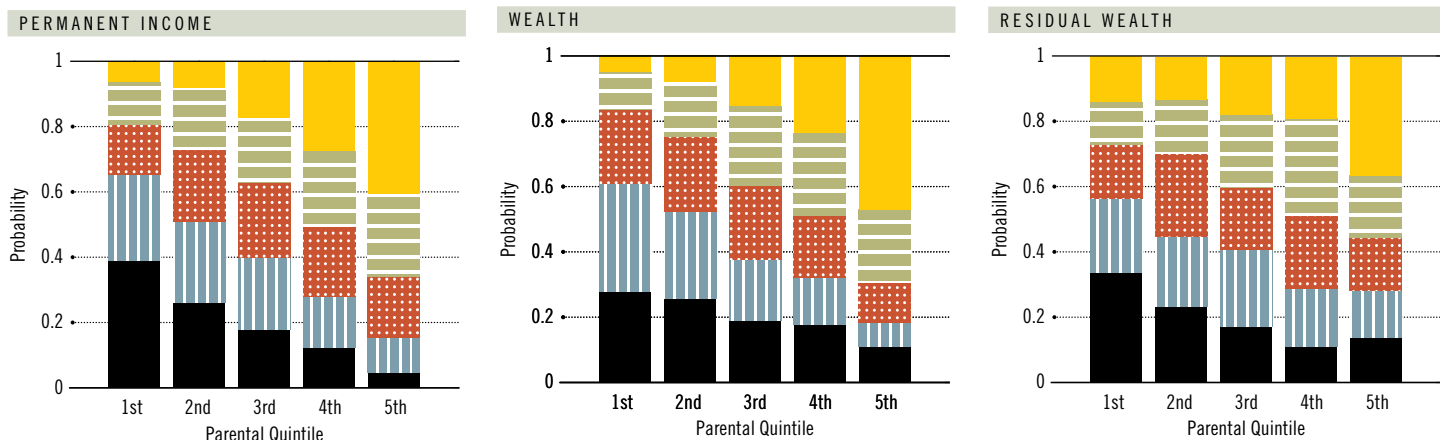
[1] Heathcote, Perri and Violante document the rising level of income inequality in the U.S., while Saez and Zucman document the trend in inequality and wealth inequality in the U.S. from 1913 to 2013. Both papers show that inequality has increased significantly in both income and wealth since the late 1970s.

[2] See Gayle, Golan and Soytas for details.

[3] See Charles and Hurst, as well as Pfeffer and Killewald, for details.

[4] This is the main conclusion of Gayle, Golan and Soytas.

[5] This is one of the main tenets of Thomas Piketty's 2014 best-selling book, *Capital in the Twenty-First Century.*

[6] These results are available upon request from the authors. The Panel Study of Income Dynamics data are collected at the University of Michigan.

[7] Residual wealth is computed as the residual of a regression of wealth on permanent income and education.

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Earnings and Wealth from One Generation to the Next

OFFSPRING QUINTILE: ■ 1st ▨ 2nd ▨ 3rd ▨ 4th ■ 5th

PERMANENT INCOME

WEALTH

RESIDUAL WEALTH

District Households Buck the Trend To Pay Down Debt

By Helu Jiang and Juan M. Sánchez

The Eighth Federal Reserve District is composed of four zones, each of which is centered around one of the four main cities: Little Rock, Louisville, Memphis and St. Louis.

At the national level, households have decreased their debt substantially since the financial crisis of 2008. In contrast, in the Eighth District, the average household has kept debt constant. This article breaks down the total debt into five different types to uncover the differences between what's happening at the national level vs. the District level. The main finding is that a large share of the discrepancy can be accounted for by the evolution of mortgage and home equity debt; those differences, in turn, seem related to the differences in the evolution of house prices.

The data are from the Federal Reserve Bank of New York Consumer Credit Panel/Equifax. The first panel of Figure 1 shows the average debt for the national sample and the District sample. The average household debt in the District has been lower than the national level for the entire period shown, 2004-2015. During this time, the average household debt was $79,797 in the nation and $53,111 in the District.

More interesting are the differences in the evolution of average household debt during this period. The average household debt in the nation was $64,055 in the first quarter of 2004; it rose by 41 percent to $90,215 in the fourth quarter of 2008; it then declined by 14 percent to $77,698 in the fourth quarter of 2015. In contrast, in the District, the average household debt increased by only 28 percent,
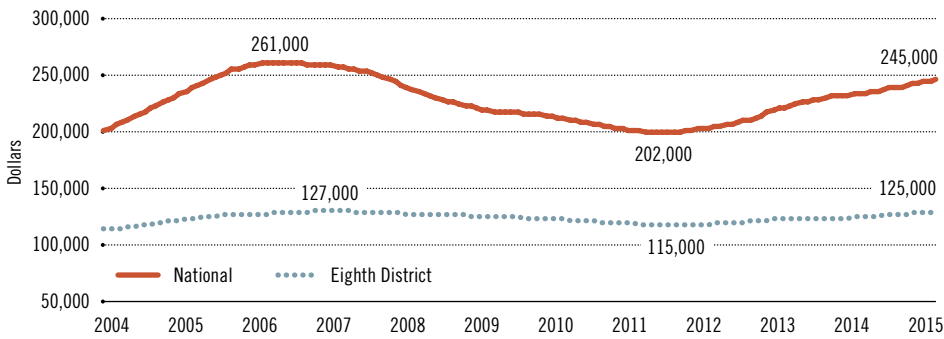
FIGURE 1
Average Household Debt by Type
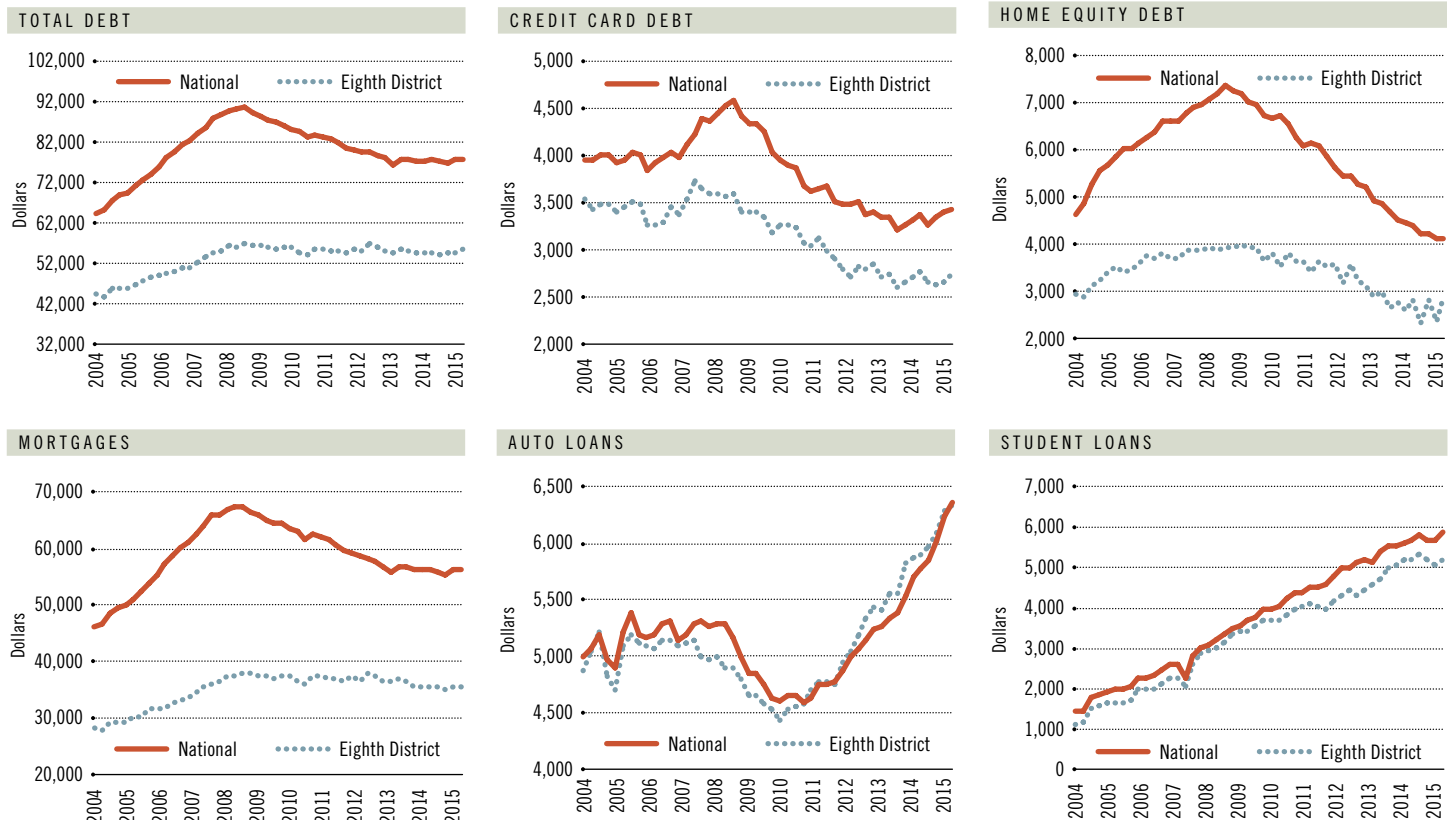
SOURCES: Federal Reserve Bank of New York Consumer Credit Panel/Equifax.

FIGURE 2

Average Median Home Values by ZIP Codes

SOURCE: Zillow Group, Home Value Index (ZHVI) All Homes Time Series.

from $44,331 to $56,744, in the period 2004-2008; it then decreased only slightly, by 2.3 percent, in the period 2009-2015, reaching $55,428 in the fourth quarter of 2015.

Another way of looking at the difference is to focus on the gap in average household debt between the nation and the District. In the period 2004-2015, that gap was, on average, $26,685. That gap widened in the period 2004-2008, increasing by almost 70 percent, from $19,724 to $33,471. In the period 2009-2012, the gap shrank, decreasing by 33 percent, reflecting a sharper deleveraging in the nation than in the District. In the past couple of years, the gap fluctuated around $22,500.

Though mortgages account for 73 percent and 66 percent of total household debt in the nation and the District, on average, we look at other types of debt because we want to understand not only the different levels of average debt but also the different evolution patterns of debt between the nation and the District.

Total debt is broken down into credit card debt, mortgages, auto loans,[1] student loans and home equity debt.[2] The remaining five panels in Figure 1 compare the average debt for households in the nation and in the District for different types of debt:

- Credit cards: For the period 2004-2015, the average for the national sample was $3,826 and for the District was $3,159.
- Mortgages: For the nation, it was $58,897 and for the District was $35,066.
- Auto loans: For the nation, it was $5,162 and for the District was $5,111.
- Student loans: For the nation, it was $3,731 and for the District was $3,343.
- Home equity debt: For the nation, it was $5,851 and for the District was $3,393.

Thus, for all five types of debt, the average debt in the District was lower than the national average for the 2004-2015 period.

Interestingly, the evolution of credit card debt, auto loans and student loans was very similar in the District and in the nation. Notice that this is true, although the evolution for each variable was very different: Credit card debt decreased after the financial crisis and has not recovered; auto loans declined very sharply after the crisis but recovered very quickly and, at the end of the period, were above previous levels; and, finally, student loans increased continually since 2004.

Thus, the difference in the evolution of total debt must be a consequence of mortgages and home equity loans. In particular, in the period 2004-2015, mortgages accounted for almost 90 percent of the total difference in the behavior of the nation and the District, while the other four types were much less significant: credit card, 2.52 percent; auto, 0.13 percent; student loan, 1.55 percent; and home equity, 9.14 percent.[3]

Now, why is the behavior of mortgages and home equity debt different in the District than in the nation? The gap could be explained by the differences in the level and evolution of house prices. Using the average median home values by ZIP code,[4] we constructed the house prices for the nation and the District. (See Figure 2.) Prices on houses in the District are about half of the national average (exactly 55 percent on average during 2004-2015), and the District prices fluctuated much less than the national prices did. The national home values increased by 29 percent in 2004-2006, decreased by 23 percent in

ENDNOTES

1 Auto debt is defined as the sum of auto finance debt and auto bank debt, both of which are reported in the original Equifax data set.
2 Home equity debt is defined as the sum of home equity installment debt and home equity revolving debt.
3 The shares of the five types of debt do not add up to 100 because there is a remaining "other" type of debt not discussed in this analysis, including consumer finance, retail and other debt reported in the Equifax data set, which accounts for –2.76 percent of the difference in total debt between the nation and the District. Notice that it can be negative because it is the share of a difference. The difference between the nation and the District for total debt is positive (more debt in the nation), but for "other" type of debt is negative (more debt in our District); so, the ratio of the two differences, which represents the share accounted by "other" type of debt, is negative.
4 The Zillow Home Value Index (ZHVI) All Homes Time Series data are available at www.zillow.com/research/data.

2007-2011 and then recovered to almost their precrisis level. In contrast, in the District, home values increased by only 13 percent in 2004-2006, decreased by 9.4 percent in 2007-2011 and later rose by 9.7 percent.
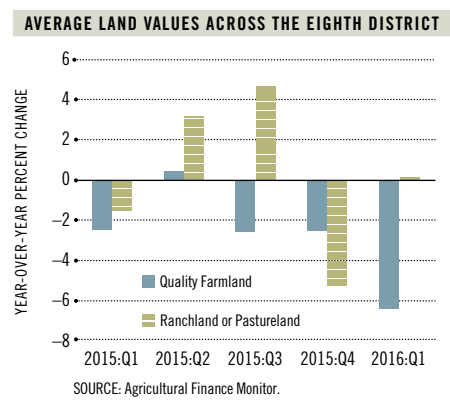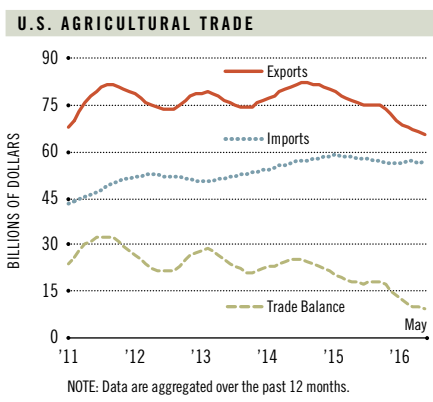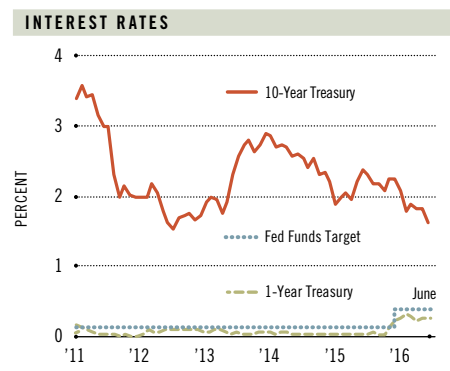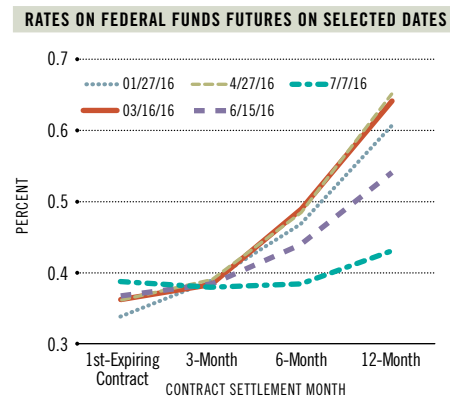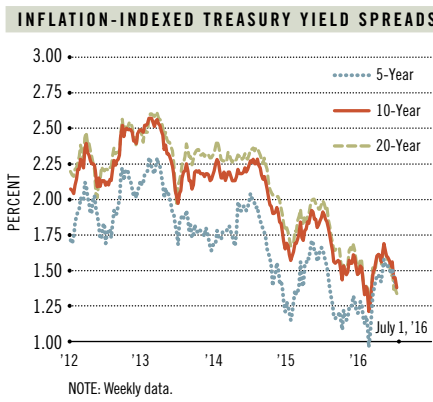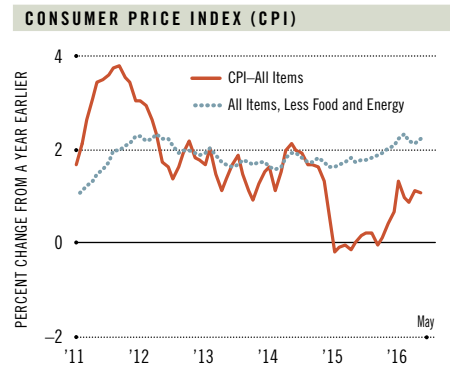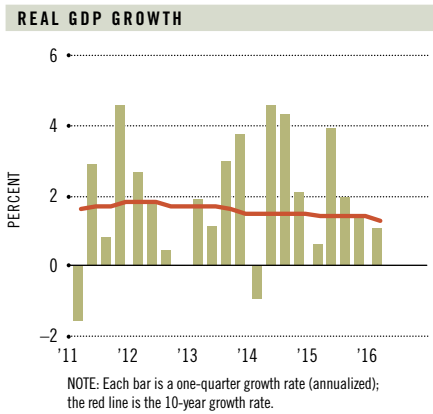
Thus, the difference in the level of prices, which were lower in the District than in the nation, seems to account for the differences in the level of household debt in the District and the nation. This is due to the fact that households usually borrow (using both mortgages and home equity loans) up to a share of their houses' value. The difference in the fluctuations in house prices, which were less volatile in the District than in the nation, could account for the difference in the evolution of household debt between the District and the nation. This may be the case because as prices decline (1) the value of home purchases is smaller and, consequently, the size of those

Now, why is the behavior of mortgages and home equity debt different in the District than in the nation? The gap could be explained by the differences in the level and evolution of house prices.

mortgages is smaller, and (2) home equity (the difference between the value of the house and the remaining mortgage obligations) declines sharply, implying a reduction in the availability of home equity to borrow against with home equity loans and refinancing for home equity extraction. Thus, as the decline in house prices was larger in the nation than in the District, the deleveraging was larger in the nation than in the District.

Of course, this evidence is suggestive, and more research is needed to understand, for instance, why the timing of fluctuations in house prices seems to lead the fluctuations in mortgage debt and home equity loans. Ω

Juan M. Sánchez is an economist and Helu Jiang is a technical research associate, both at the Federal Reserve Bank of St. Louis. For more on Sánchez's work, see https://research. stlouisfed.org/econ/sanchez.

REAL GDP GROWTH

NOTE: Each bar is a one-quarter growth rate (annualized); the red line is the 10-year growth rate.

INFLATION-INDEXED TREASURY YIELD SPREADS

NOTE: Weekly data.

CIVILIAN UNEMPLOYMENT RATE

U.S. AGRICULTURAL TRADE

NOTE: Data are aggregated over the past 12 months.

CONSUMER PRICE INDEX (CPI)

RATES ON FEDERAL FUNDS FUTURES ON SELECTED DATES

INTEREST RATES

NOTE: On Dec. 16, 2015, the FOMC set a target range for the federal funds rate of 0.25 to 0.5 percent. The observations plotted since then are the midpoint of the range (0.375 percent).

AVERAGE LAND VALUES ACROSS THE EIGHTH DISTRICT

SOURCE: Agricultural Finance Monitor.

On the web version of this issue, 11 more charts are available, with much of those charts' data specific to the Eighth District. Among the areas they cover are agriculture, commercial banking, housing permits, income and jobs. To see those charts, go to www.stlouisfed.org/economyataglance.

Despite Weakness, Economic Expansion Marks Seven Years
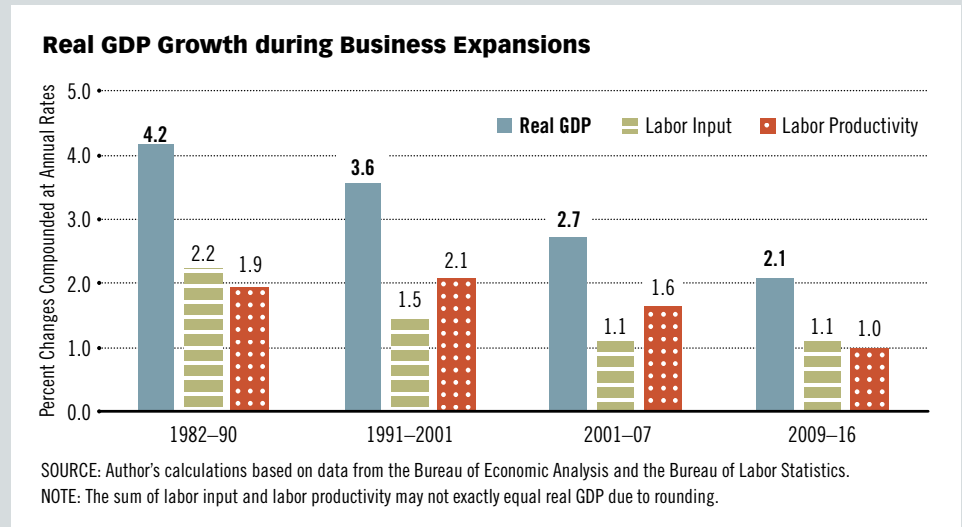
By Kevin L. Kliesen

The U.S. economic expansion is into its eighth year, having registered its seven-year anniversary in June 2016. From a historical perspective, the current expansion is long in the tooth. However, expansions do not typically die of old age. Instead, they end because of some unforeseen disturbance that causes firms and individuals to alter their planned expenditures and expectations of future incomes.

Although the current expansion keeps plugging along, the U.S. economy's pace of growth during the past seven years has been extraordinarily weak. Since the second quarter of 2009 (when the Great Recession officially ended), real growth in gross domestic product (GDP) has averaged 2.1 percent per year. By contrast, growth in the previous three expansions (1982-90, 1991-2001 and 2001-2007) averaged 4.2 percent, 3.6 percent and 2.7 percent, respectively.

Despite the current expansion's low growth rate, the unemployment rate declined from 10 percent to 4.9 percent—a level consistent with full employment—and inflation has stayed quite low. The all-items personal consumption expenditures price index (PCEPI) has increased by an average annual rate of 1.5 percent, which is below the 2-percent inflation target of the Federal Open Market Committee (FOMC).

There are two obvious questions that follow from this narrative. First, what explains the weak real GDP growth during the current expansion? Second, why has inflation remained so low in the face of an extraordinarily easy monetary policy?

Tackling the answer to the first question is reasonably straightforward. Real GDP growth is basically the sum of labor productivity growth and the growth rate of employment. Since mid-2009, productivity has increased at an average annual rate of 1.0 percent. Over the three previous expansions, it increased by an average of 1.9 percent per year, 2.1 percent and 1.6 percent, respectively. Thus, the current expansion's weak performance importantly reflects a significant

Real GDP Growth during Business Expansions

SOURCE: Author's calculations based on data from the Bureau of Economic Analysis and the Bureau of Labor Statistics.
NOTE: The sum of labor input and labor productivity may not exactly equal real GDP due to rounding.

slowing in the pace of labor productivity growth. But what explains weak productivity growth? There are many hypotheses, including increased government regulations, less economic dynamism and the replacement of retiring, experienced baby boomers with younger, inexperienced workers. The consensus of most forecasters is that productivity growth will eventually rebound and begin rising by about 1.5 percent per year. As yet, there is scant evidence of such an acceleration.

Turning to the second question, low inflation over this period coincided with three rounds of quantitative easing (large-scale asset purchases by the Federal Reserve) and repeated assurances by the FOMC that it would keep the proverbial monetary policy pedal to the metal. Despite the onslaught of a massively easy monetary policy regime, inflation rarely moved above 2 percent. Low inflation, it appears, importantly reflects the FOMC's promise to defend its 2-percent inflation target, which has helped keep inflation expectations low.

But since the second quarter of 2014, inflation has declined sharply, averaging 0.4 percent at an average annual rate. Falling inflation reflects two key developments. The first was the plunge in crude oil prices. The second was the sharp appreciation of the value of the U.S. dollar, which triggered declines in prices of imported goods. However, measures of the underlying inflation rate that attempt to remove these temporary factors, such as the Dallas Fed's trimmed-mean PCEPI inflation rate, show inflation to be much closer to the FOMC's target. As the effects of falling oil

prices and a stronger dollar wear off, headline inflation should return to 2 percent.

Monetary policymakers now confront a bevy of mixed signals as they decide how to proceed with their goal of slowly raising the federal funds target rate to its "normal" level. First, crude oil prices have rebounded, and the dollar has retreated modestly from its highs. Both of these developments should put upward pressure on inflation. Second, real GDP growth remained weak in the first quarter, and inflation expectations have edged a bit lower despite the rise in oil prices. Third, real GDP growth was expected to have accelerated in the second quarter, but there are few signs of a pending acceleration in labor productivity growth that could push GDP growth appreciably higher than 2 to 2.5 percent. Fourth, inflation is expected to remain close to 2 percent this year and next, but there are some risks it could move higher. Finally, the unemployment rate is projected to drop a bit further from its 4.9 percent rate in June 2016.

Formulating monetary policy in the current environment appears challenging, given that the economy appears to have settled down to its long-run growth path of roughly 2 percent, with 2-percent inflation the most likely outcome. Of course, if the economy and inflation begin to perk up or asset prices begin rising at worrying rates, then policymakers will need to adjust policy accordingly. Ω

Kevin L. Kliesen is an economist at the Federal Reserve Bank of St. Louis. Joseph T. McGillicuddy, a senior research associate at the Bank, provided research assistance. See http://research.stlouisfed.org/econ/kliesen for more on Kliesen's work.

Health Care, Hospitality and Retirees Keep Hot Springs Afloat

By Charles Gascon and Faisal Sohail

The water from the hot springs is one of the reasons why 1.5 million people visit Hot Springs National Park every year.

© QUAPAW BATHS & SPA

Located in central Arkansas, the Hot Springs metropolitan statistical area (MSA) is named after the numerous natural hot springs that can be found in the region, including those at Hot Springs National Park. The springs and surrounding area attract millions of visitors to the MSA every year. Indeed, tourists played an integral role in the area's early development and continue to shape the region's economy and demographics today.

The MSA is comprised of a single county—Garland—and in 2015 had a population of 97,177. It is one of the smaller MSAs in the nation and accounts for only 3 percent of the Arkansas population. Population growth in the previous five years was 1.2 percent, a little more than half of the state's growth of 2.1 percent.

The regional economy produces about $3 billion in goods and services each year, as measured by gross metropolitan product (GMP). Economic growth has averaged 3.9 percent per year over the past five years. This is faster than the state's average growth rate of 1.8 percent and the national rate of 2.1 percent for that period.

The median household income in Hot Springs is about $40,000, which is $1,000 less than the state median income. These figures mask the greater inequality in Hot Springs compared with that of the state overall. The share of households in Hot Springs earning less than $15,000 a year is 18.4 percent, compared with 16.6 percent for the state. On the opposite side of the coin, 3.5 percent of Hot Springs' households earn about $200,000, compared with the state's 2.9 percent. This level of inequality in Hot Springs is likely due to its industrial and demographic composition.

Health Care and Hospitality

Of the 40,000 workers employed in Hot Springs in 2014, about 60 percent were employed in one of three sectors: health services (21 percent); trade, transportation and utilities (20 percent); and leisure and hospitality (18 percent). While the employment share of the trade, transportation and utilities sector is reflective of the nation's, the employment share of health services and of leisure and hospitality is, respectively, 1.4 and 1.7 times larger in Hot Springs than in the nation overall. In 2014, the average annual income in leisure and hospitality was about $15,000. In health services, it was $40,000. This difference in income, combined with the large employment share in each sector, can partially explain the higher level of income inequality in Hot Springs.

The disproportionate size of the leisure and hospitality sector, relative to the rest of the country, should not be surprising, considering more than 2 million people annually visit a region of fewer than 100,000 residents. These visitors spent close to a quarter of the region's GMP in 2014 and accounted for the bulk of tax revenue for the region. Almost 1.5 million of these tourists visit the national park. The other major attraction in the region is Oaklawn, a horse race track and casino and the second largest employer in the region.

The abundance of leisure activities is not only ideal for tourists, but it makes Hot Springs an attractive location for retirees. About 22 percent of the region's population is over 65, well above the national average of about 15 percent. (See Figure 1.) While the U.S. is experiencing a general demographic shift toward an older population, Hot Springs has consistently featured a higher share of older residents.

This demographic makeup also explains the importance of the health services sector in the MSA, as older people generally need more of these services.

Typically, an older population is accompanied by lower tax revenue and lower population growth. Given that most of the area's tax revenue comes from visitors, the former likely is not a concern for Hot Springs. However, the lower rate of population growth already seems to be occurring in the data.

FIGURE 1
Percent of Population Over 65
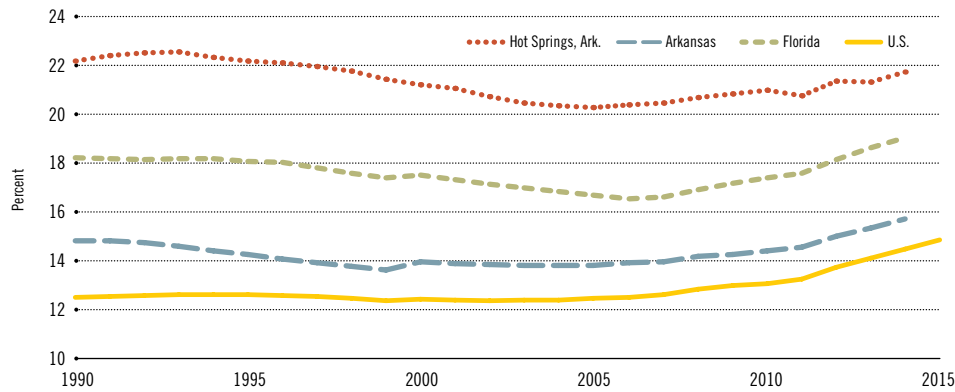
SOURCE: U.S. Census Bureau.

NOTE: State-level population data were not available for 2015. Florida was included because of its reputation as a state to which many people retire.

FIGURE 2
Nonfarm Payroll Employment
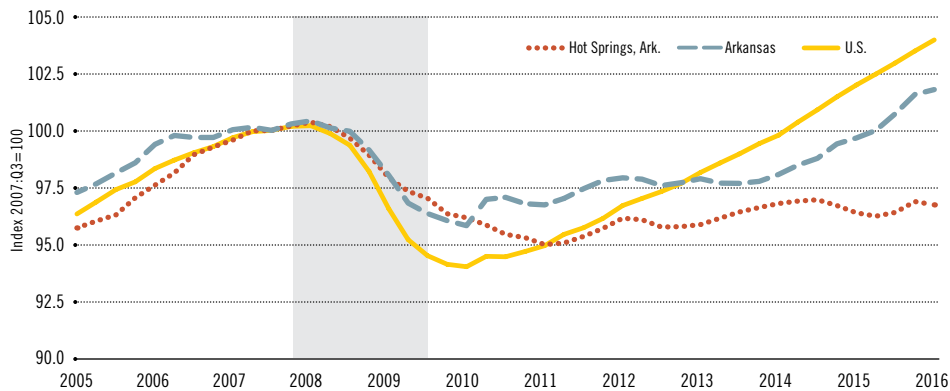
SOURCE: Bureau of Labor Statistics (BLS).

NOTE: Data for 2016 are the average of the available monthly data in that year. Gray bar indicates recession.

Private Employment before, during and after the Great Recession

Sector	Employment in 2007	% Change, 2007 to 2010	% Change, 2007 to 2014	Change in Employment 2007-2014
Construction	2,414	−33.5	−37.6	−756
Manufacturing	2,715	−30.2	−11.7	−299
Professional and business services	3,371	−5.6	−8.4	−271
Trade, transportation, and utilities	7,471	−3.1	−3.1	−227
Financial activities	1,533	−10.9	−7.1	−105
Natural resources and mining	370	−13.3	−24.4	−80
Other services	969	−0.6	−2.3	−22
Information	419	−23.0	20.6	96
Leisure and hospitality	6,383	−1.7	2.3	146
Education and health services	7,121	3.9	6.0	442
Total, all industries	**32,765**	**−6.0**	**−3.3**	**−1,075**

SOURCE: Quarterly Census of Employment and Wages, Bureau of Labor Statistics (BLS).

© VISIT HOT SPRINGS

Horse racing is one of the draws at Oaklawn, the second-largest employer in the metro area. Oaklawn also has a casino.

MSA Snapshot

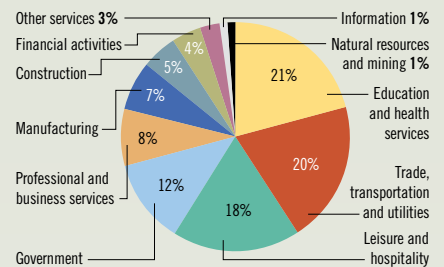### Hot Springs, Ark.

Population	97,177
Population Growth (2010-2015)	1.2%
Percentage with Bachelor's Degree or Higher	21%
Percentage with a HS Degree or Higher	86.9%
Per Capita Personal Income	$23,514
Median Household Income	$39,558
Unemployment Rate (May)	4.1%
Real GMP (2014)	$3.132 billion
GMP Growth Rate (2014)	1.55%

Largest Employers

CHI St. Vincent—Hot Springs	1,700
Oaklawn	1,368
Wal-Mart Stores (3 stores)	1,026
National Park Medical Center	653
City of Hot Springs	591

Industry Breakdown by Employment

After the Great Recession

Although the Great Recession (2007-2009) ended seven years ago, the Hot Springs MSA has still not fully recovered from its impact on local employment. Figure 2 shows the evolution of the nonfarm payroll employment for the U.S., Arkansas and the Hot Springs MSA. The decline in Hot Springs' employment during the recession was much more protracted than the state or national decline, and the MSA's recovery started a year after the Arkansas recovery began. What is perhaps most striking is that employment has not yet returned to its prerecession levels in Hot Springs despite state and national recoveries.

It is instructive to consider which sectors might be holding back a full recovery in Hot Springs. The table shows the changes and levels in employment before, during and after the most recent recession and features two salient findings. First, the scant recovery that did take place in Hot Springs was led by the leisure and hospitality sector and by health services,[1] reinforcing the importance of these two sectors for the area. Second, the lack of a full recovery is largely due to a sluggish recovery in the construction sector.

While the recession disproportionally impacted the construction sector throughout the U.S., the housing market has generally been on the rebound and the construction sector is adding jobs. A recovery in construction is not yet apparent in Hot Springs, as the sector has struggled to create jobs with new projects in the region. Several business contacts noted that the area's geography is not particularly well-suited to large construction projects, and this factor may play a role in the lack of a rebound in that sector.

Outlook

A consequence of a large leisure and hospitality sector is that the short- and long-term economic outlook of the MSA is highly dependent on the number of visitors to the area. The lack of a major airport in the area means that many visitors drive to Hot Springs for their vacations and most are from neighboring states.[2] Contacts in the area report that the economic growth in Texas is being felt in Hot Springs through a high volume of visitors from the state. While Hot Springs may regularly benefit from the short-term booms of neighboring economies, it is also exposed to their busts.

© VISIT HOT SPRINGS

Tourism is one of the main drivers of the economy in the Hot Springs metro area. The leisure and hospitality sector employs almost one in five workers. There is some concern, however, that the vitality of this industry might suffer in the future as Americans' intentions to go on vacation are declining, as are the number of people who say they will drive to a vacation destination. Hot Springs has no airport. For now, 2 million people visit the area annually, about a third driving from one of five neighboring states. One of the attractions is the Magic Springs and Crystal Falls Water and Theme Park (above).

FIGURE 3
Vacation Intentions of Americans
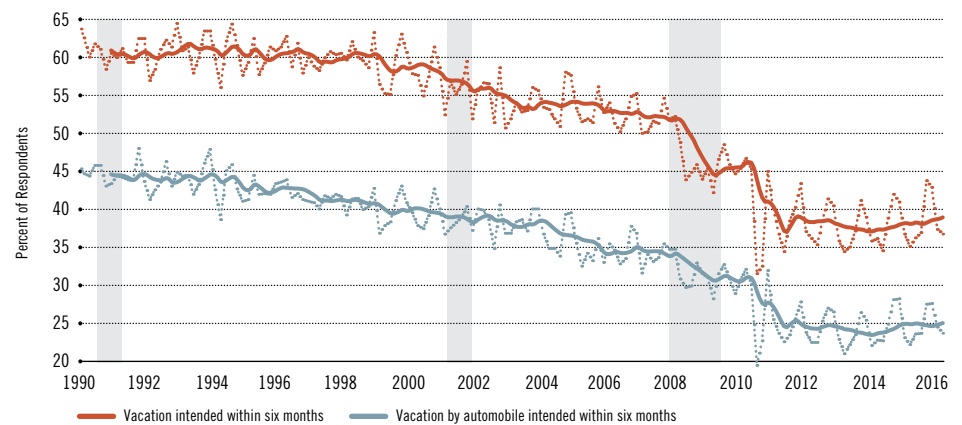
SOURCES: Conference Board, Haver Analytics.
NOTES: The solid lines show 12-month moving averages of underlying data (dotted lines). Gray bars indicate recessions. The intentions refer to plans to vacation in the U.S.

Hospitality-driven areas should be wary of households' intentions to take a vacation and, perhaps more importantly for Hot Springs, their intention to drive for a vacation. Figure 3 shows these intentions, and it highlights a long-term decline in the percentage of households reporting that they intend to take a vacation within the U.S. This decline is mirrored in households' intentions to drive for a vacation. While Hot Springs has enjoyed steady increases in the annual number of visitors in the recent past, these changes in household sentiment may pose a longer-term risk for the MSA. Ω

Charles S. Gascon is a regional economist and Faisal Sohail is a technical research associate, both at the Federal Reserve Bank of St. Louis. For more on Gascon's work, see http://research. stlouisfed.org/econ/gascon.

ENDNOTES

[1] Only 1 percent of total employment in the education and health services sector in the MSA is actually in education.
[2] The chamber of commerce reported that in 2013 just over 30 percent of all visitors were from one of five states: Illinois, Louisiana, Missouri, Oklahoma and Texas. Twenty percent of visitors were from Arkansas.

ASK AN ECONOMIST

Alexander Monge-Naranjo has been an economist at the Federal Reserve Bank of St. Louis since 2012. His research focuses on cross-country income differences and human capital. Outside of work, he enjoys spending time with his family, traveling and reading. For more on his research, see https://research.stlouisfed.org/econ/monge-naranjo.

Alexander Monge-Naranjo with his family in Kamakura, Japan, earlier this year.

Q. Recent college graduates have a higher chance of unemployment than their more experienced counterparts. How could student loans be designed to mitigate this risk?

A: Unemployment is an important risk for recent college graduates, who typically have little labor market experience, especially related to their field of specialization. Although unemployment insurance exists, workers need to be experienced to qualify. Furthermore, student loan programs do not account for the fact that finding a good-paying job may take a while; repayment is expected to start soon after graduation, although some loans do provide a grace period. Hence, these two programs do not offer much help to fresh college graduates who don't find a job right away. My recent research looks at ways to mitigate the burden for those who are in this situation.

In an article in the latest Federal Reserve Bank of St. Louis' *Review,* I showed how the design of student loans could mitigate the unemployment risk for recent graduates.[1] I found that unemployment compensation would be a key element of the optimal student loan program, whereby the student would receive financing not only for the time in college but also for the time until the student finds a job. An important feature of the optimal program is that the unemployment benefits received and the debt balance would depend on the length of the unemployment spell. In particular, to keep the recent graduate motivated to seek a job, the unemployment benefits should decline as the person remains unemployed, and also the amount of debt the person should pay must be increasing with the length of the unemployment. If well-designed, such a scheme would provide the optimal balance between insurance against the risk of unemployment and providing the right incentives to look for a job. Such schemes can be made revenue-neutral (on average), so taxpayers would not need to finance any deficits from the programs.

[1] Monge-Naranjo, Alexander. "Student Loans Under the Risk of Youth Unemployment." Federal Reserve Bank of St. Louis' *Review,* Second Quarter 2016, Vol. 98, No. 2, pp. 129-58. See https://research.stlouisfed.org/publications/review/2016/06/17/student-loans-under-the-risk-of-youth-unemployment/.

NEW PUBLICATION FOCUSES ON CONSUMER DEBT

The Center for Household Financial Stability at the Federal Reserve Bank of St. Louis has begun a new publication, *The Quarterly Debt Monitor: Trends in Consumer Debt in St. Louis, Little Rock, Louisville, Memphis—and Beyond.* Each issue will provide details on auto and student loans, credit card balances, mortgages and home equity lines of credit. Data and analysis are provided for the nation as a whole, as well as for the four largest metropolitan areas in the Eighth Federal Reserve District, which is served by the St. Louis Fed.

The inaugural issue includes data through the first quarter of this year. That quarter was the 10th in a row in which consumer debt has risen, the authors found. The trend is a reversal from what had been occurring since the Great Recession—an era when many consumers had either paid down their debts or even paid them off.

The recent increases in debt, fueled in part by the rapid growth of auto and student loans, "represent more economic activity as consumers take on new liabilities to finance consumption," the report says.

The full report can be found on the center's website at www.stlouisfed.org/hfs.

FORUMS AIM TO STRENGTHEN DELTA COMMUNITIES

Corey Wiggins, director of the Hope Policy Institute, speaks at the Delta Communities meeting June 10 in Helena, Ark.

The Federal Reserve Bank of St. Louis recently began the Delta Communities initiative to build awareness of tools and strategies to help strengthen communities across the Arkansas and Mississippi Delta region. This series of regional forums features presentations by St. Louis Fed staff, as well as by other regional and national representatives with experience in community and economic development efforts.

Forums began in June and are scheduled through the beginning of next year. The next set of meetings is titled Understanding the Credit Environment for Small-Business Development and Expansion and will take place Aug. 11 in Greenwood, Miss., and Aug. 12 in Helena, Ark.

For more information on this and other St. Louis Fed Community Development initiatives, go to www.stlouisfed.org/community-development.

ST. LOUIS FED IS NAMED A TOP WORKPLACE

The Federal Reserve Bank of St. Louis was recently ranked as the No. 1 workplace among St. Louis' large employers in a competition sponsored by the St. Louis Post-Dispatch newspaper. The rankings were based on surveys of employees. St. Louis Fed employees listed meaningful work, good opportunities and inclusiveness among their reasons for liking where they work. The Bank was honored in the category for employers with at least 500 employees. For details, see www.stlouisfed.org/careers/about-us/top-workplaces-award.

N E X T   I S S U E

Home Economics in the 21st Century

As the level of education for women rises, their role in providing economic support for their families is changing. More women are working outside the home and are working full-time. Simultaneously, more men are working part-time or even not working outside the home at all.

Read about the economic impact of these changes in family structure in the October issue of *The Regional Economist.*

FRED Has More Curb Appeal and a New Address

Renovations to FRED, our signature economic database, have made it easier to keep your eye on your graph. The graph is bigger, for one thing, and the editing box is next to it on the right, meaning you no longer have to scroll below the graph to change units of measurement, data frequency and the like, or to customize the chart with additional series.

Check out the upgrades and tutorials at the new address for FRED (Federal Reserve Economic Data): fred.stlouisfed.org. Don't worry about getting lost—all traffic from the old address will be redirected.