



The Hoover Institution on War, Revolution and Peace, founded at Stanford University in 1919 by Herbert Hoover, who went on to become the thirty-first president of the United States, is an interdisciplinary research center for advanced study on domestic and international affairs. The views expressed in its publications are entirely those of the authors and do not necessarily reflect the views of the staff, officers, or Board of Overseers of the Hoover Institution.

www.hoover.org

Hoover Institution Press Publication No. 627

Hoover Institution at Leland Stanford Junior University,
Stanford, California, 94305-6010

Copyright © 2012 by the Board of Trustees of the Leland Stanford Junior University
All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without written permission of the publisher and copyright holders.

For permission to reuse material from *Government Policies and the Delayed Economic Recovery*, ISBN 978-0-8179-1534-6, please access www.copyright.com or contact the Copyright Clearance Center, Inc. (CCC), 222 Rosewood Drive, Danvers, MA 01923, 978-750-8400. CCC is a not-for-profit organization that provides licenses and registration for a variety of uses.

Hoover Institution Press assumes no responsibility for the persistence or accuracy of URLs for external or third-party internet websites referred to in this publication, and does not guarantee that any content on such websites is, or will remain, accurate or appropriate.

First printing 2012

19 18 17 16 15 14 13 12 9 8 7 6 5 4 3 2 1

Manufactured in the United States of America

The paper used in this publication meets the minimum Requirements of the American National Standard for Information Sciences—Permanence of Paper for Printed Library Materials, ANSI/NISO Z39.48-1992. ©

Library of Congress Cataloging-in-Publication Data

Government policies and the delayed economic recovery / edited by Lee. E. Ohanian, John B. Taylor, and Ian J. Wright.

pages cm. — (Hoover Institution Press publication ; no. 627)

Includes bibliographical references and index.

ISBN 978-0-8179-1534-6 (cloth) —

ISBN 978-0-8179-1536-0 (e-book)

1. United States—economic policy—2009– 2. United States—Economic conditions—2009–
3. Economic development—United States. 4. Ohanian, Lee E., editor of compilation. II. Taylor,
John B., editor of compilation. III. Wright, Ian J., editor of compilation. IV. Series: Hoover
Institution Press publication ; 627.

HC106.84.G68 2012

330.973—dc22

2012028283

Government Policies and the *DELAYED* Economic Recovery

Edited by

Lee E. Ohanian

John B. Taylor

Ian J. Wright

HOOVER INSTITUTION PRESS

Stanford University | Stanford, California

view. If policymakers can deliver a policy environment characterized by greater certainty and stability, there will likely be a positive payoff in the form of improved macroeconomic performance.

References

- Baker, Scott, Nicholas Bloom, and Steven J. Davis (2012), “Measuring Economic Policy Uncertainty,” University of Chicago and Stanford University. Available at www.policyuncertainty.com.
- Bernanke, Ben (1983), “Irreversibility, Uncertainty and Cyclical Investment,” *Quarterly Journal of Economics* 98, 85–106.
- Bloom, Nicholas (2009), “The Impact of Uncertainty Shocks,” *Econometrica*, 77, 623–685.
- Bloom, Nicholas, Max Floetotto, Nir Jaimovich, Itay Saporta-Ecksten, and Stephen Terry (2012), “Really Uncertain Business Cycles,” Stanford mimeo. Available at <http://www.stanford.edu/~nbloom/RUBC.pdf>.
- Congressional Budget Office, Congress of the United States (2012), “The Budget and Economic Outlook: Fiscal Years 2012 to 2022.” Available at www.cbo.gov/ftpdocs/126xx/doc12699/01-31-2012_Outlook.pdf.
- Pastor, Lubos and Pietro Veronesi (2011), “Political Uncertainty and Risk Premia,” University of Chicago Working Paper.
- Panousi, Vasia and Dimitris Papanikolaou (2011), “Investment, Idiosyncratic Risk and Ownership,” forthcoming *Journal of Finance*.
- Romer, Christina (1990), “The Great Crash and the Onset of the Great Depression,” *Quarterly Journal of Economics*, 105, 597–624.

CHAPTER 4

How the Financial Crisis Caused Persistent Unemployment

ROBERT E. HALL

My topics are the current state of the economy, how we got here, why the recession is lasting so long, and why it will probably last well into the future. At the end, I will describe two blue-sky policies that could end the situation virtually overnight.

In my reading, the primary source of the current state of the economy is simple—it’s that people aren’t buying enough stuff. In other words, there was a large adverse shift in product demand. That resulted from forces leading up to the financial crisis, some direct effects of the crisis itself on financial institutions, and the resulting de-leveraging of the household. My reading of the data is that the central problem on the expenditure side of the economy arises within the household. Household consumption comprises two-thirds of GDP, so it’s not surprising that it should play a large role. The non-household part of private expenditure—that’s plant and equipment investment—seems to have actually outperformed its normal response to a collapse of consumption. The source

of low output and employment in today's economy is the huge decline in household spending.

1. Taylor Rules

Prior to the crisis, the United States, along with other advanced economies, had come to rely on monetary policy to keep the economy on an even keel. The Taylor Rule is a central component of modern thinking about how to deal with the business cycle. It has transformed monetary economics from an old-fashioned concern with monetary aggregates to an understanding that a rule itself can provide a nominal anchor to the economy. That's a tremendous step forward. The Taylor Rule gives policymakers a disciplined framework allowing economic stimulus when recessions strike while maintaining a credible promise to avoid later episodes of inflation. Monetary policy under the influence of the rule had delivered remarkably stable and low inflation over past decades, with only mild recessions, until the crisis hit.

The Taylor Rule instructs monetary policy to set a low federal funds interest rate to stimulate a soft economy. In 2008, prior to the crisis in September, the Federal Reserve Board had lowered the rate as the recession, which began in December 2007, took hold. Immediately after the crisis, in October 2008, the Fed lowered the funds rate almost all the way to its minimum possible value of zero. The question that has dogged monetary policy ever since is, "What do you do when the Taylor Rule tells you to set a negative Fed funds rate?" That's the central problem today. We can't just say, "Follow the Taylor Rule." There's a problem in the Taylor Rule, namely that the nominal interest rate cannot be less than zero. I'll address that issue later in the paper.

The result of this constraint on the Taylor Rule is that the interest rate is too high. The basic idea of modern monetary stabilization policy is to keep pushing the interest rate down until the economy is back at full employment, but that idea fails if a zero rate is still too high to regain full employment. When a really serious development causes a drastic reduction in the public's spending—as happened after the crisis—the Fed lacks the firepower of low interest rates to reverse the reduction and restore normal levels of spending, output, and employment. The inability to set rates low enough stymied the Fed during the Great Depression in the 1930s and has resulted in almost two decades of stagnation in Japan.

Inflation and interest rates push and pull the economy in different directions, so a discussion of interest rates needs to consider inflation as well. A low interest rate sends a signal to the public to spend now rather than later. A low rate implies a small reward to postponing spending by increasing saving and a small cost to spending now by borrowing. Similarly, a high rate of inflation rewards current spending by making the prices of goods purchased in the future higher than they are now. Normal monetary policy harnesses both forces in times of recession, by lowering the interest rate and nudging up the rate of inflation.

Recent monetary policy failed to deliver the usual stimulus on the inflation side as well as on the interest-rate side. Not only has the interest rate been stuck at a level just above zero, but inflation has declined by about 1 percent per year. The situation is nowhere nearly as bad as it was in the Depression, when prices fell rapidly and employment fell by more than 20 percent. Today, inflation seems remarkably unresponsive to conditions in the economy. Thus, the Fed cannot restore normal rates of inflation around 2

or 3 percent, but the Fed need not fear negative inflation, as in the Depression and in Japan over the past two decades.

The bottom line of all of this, and source of the most concern, is high and persistent unemployment resulting from the collapse of consumer spending following the crisis, uncorrected by normal monetary expansion. Unemployment reached its maximum value of 10.0 percent in October 2009 and declined gradually to 8.5 percent in December 2011. Forecasters don't have it reaching its normal range of 5 to 6 percent until around 2015, seven years after the crisis.

The Obama administration took command a few months after monetary policy had reached its limit of a zero interest rate and no corrective inflation. The new administration immediately announced an intention to use government purchases to correct the shortfall in private spending. Even in the two years when the Democrats controlled the House and the Senate as well as the presidency, the federal government was able to generate only modest increases in government purchases, while state and local purchases declined. I will discuss purchases and other spending policies later in this paper. There seems little inclination in Washington to enact further spending stimulus.

Given the exhaustion of monetary policy and the unwillingness to raise government spending, one wonders about the ability of any other policies to pull the economy out of the slump. At the end of the paper, I will address gimmicks—exotic, revenue-neutral, expansionary gimmicks. It's very frustrating being a macroeconomist today and knowing not one but two ways that, if policymakers would merely adopt them, could solve this problem overnight. They're revenue-neutral as well, and they don't involve any expansion of government spending. But this won't happen. When I dis-

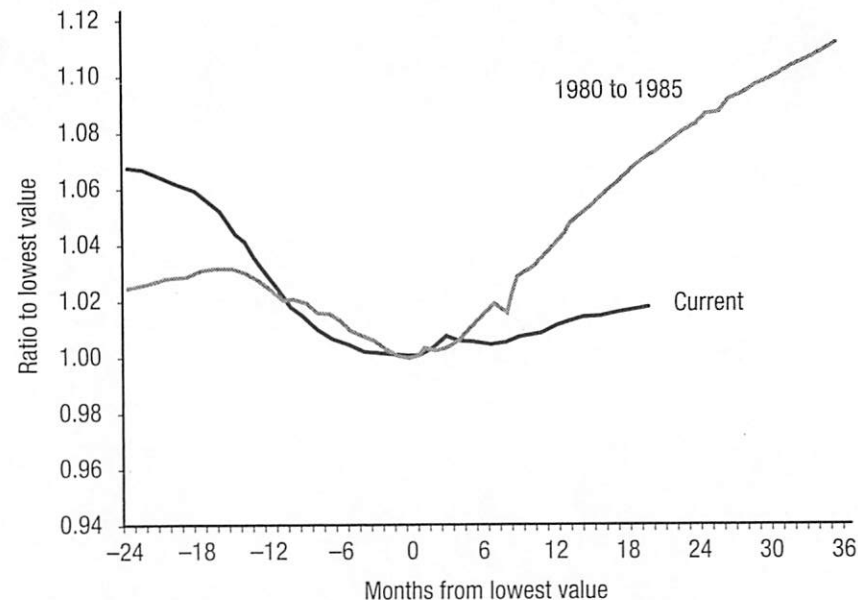


Figure 1. Payroll employment relative to lowest value in the cycle.

cuss them briefly at the end of this paper, you'll see that they're way too far out in left field—or right field, maybe—to be seriously considered.

2. Documenting the Persistent Slump

The most significant recession prior to the one that began at the end of 2007 was that of 1981–82. Figure 1 shows employment in that recession and recovery in comparison to the current slump. We're very far behind the expansionary path that was typical of recessions such as that of '81–'82. That problem has been addressed by me and others in recent research—see Hall (2011) and work cited there.

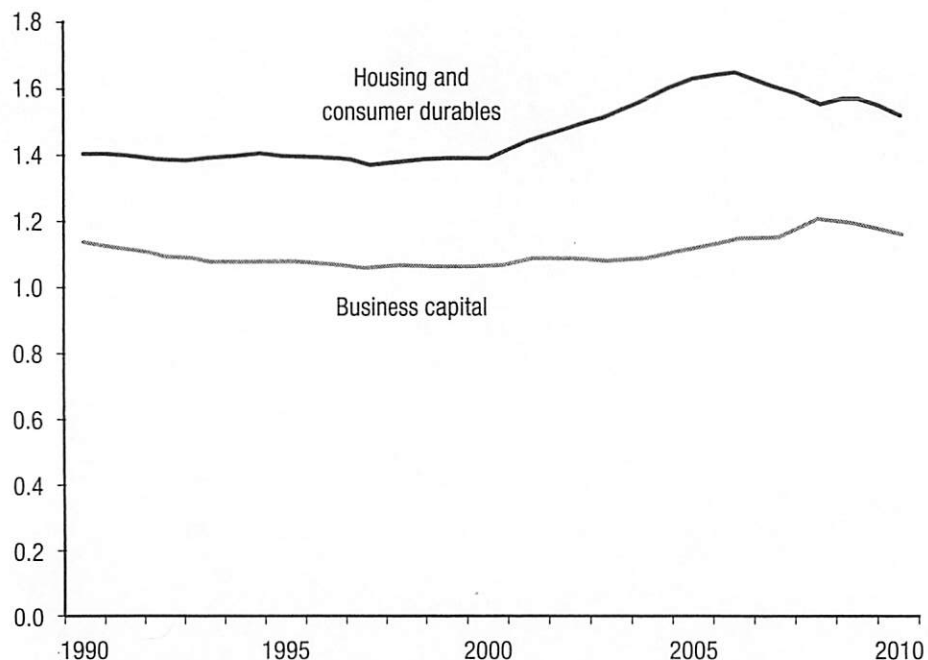


Figure 2. Ratios of capital and durables to GDP.

Source: U.S. National Income and Product Accounts, Fixed Asset Tables.

3. The Housing and Debt Binge Leading Up to the Crisis

In the 2000s, the United States was on a binge. We basically built a lot of houses and cars. The result was an overhang of household capital. Figure 2 documents the bulge of housing and consumer durables. It shows that the stock of housing and durables rose relative to GDP over the same years that the stock of business capital remained roughly constant relative to GDP. There have been a lot of stories about how interest rates were so low, or maybe too low, in the 2000s and that resulted in too much investment in general. But the investment was concentrated on the household side—residential and consumer durables. The figure shows that something

special was affecting housing and durables but not affecting business capital. That something special was a substantial easing of lending standards to consumers, not matched by any similar easing of credit to businesses.

The stock of housing and consumer durables reached a peak right before the crash. A general principle of economics is that when one component of spending—here, spending on new houses and cars—rises for a period to abnormal levels, that component will fall back to normal or even fall below normal sometime soon. The overhang of household capital set the stage for part of the crash that occurred in late 2008, when both new home construction and auto production fell to shockingly low levels. But because those stocks gradually depreciate, the ratio of household capital to GDP is now beginning to decline. It's about halfway back to normal. Normal levels of home building and car production should resume once the elevated stocks from the past decade disappear. There's going to be a gradual improvement but it's very gradual.

4. Business Credit

The term “credit” refers to borrowing from financial institutions, mainly banks. An important fact about the United States is that most of GDP arises from non-credit-dependent businesses. This is not true in other economies, but it definitely differentiates the United States. Why is that? It's because the United States has a history of weak banking. The United States developed strong securities markets to offset weak banking, and that's been a good thing. It means that the impairment of banks from the crisis was not as harmful to businesses in the United States as it is elsewhere. In fact it hardly touched big businesses with direct access to securities

markets such as Wal-Mart or Microsoft. Larger businesses, which account for the bulk of employment, have many alternative sources of finance besides bank loans. Of course, some sectors, such as transportation, are more credit-dependent, and smaller businesses cannot finance themselves from markets but, when they need to borrow, go to banks or bank-like financial institutions that suffered from the crisis.

5. Household Credit

Households have almost nowhere to turn for borrowing except banks and similar institutions. Unlike businesses, they cannot issue bonds or commercial paper and they certainly cannot issue equity. Thus the primary credit-dependent sector of the U.S. economy is the household. The wreckage from the financial crisis is found not in business but in the household. That's a very central finding of current research—see, in particular, Mian and Sufi (2011). Cutbacks in business spending were mostly a response to the collapse of household spending, not a direct result of the crisis.

A huge buildup of all kinds of consumer debt accompanied the binge of home building and car buying. First and foremost was mortgage debt, including the extension of mortgage borrowing to previously ineligible people through subprime lending. There was also a big accumulation of other types of debt; car loan debt and other kinds of debt expanded dramatically during the 2000s.

Many researchers, including myself, have been staring at the Survey of Consumer Finances recently and made the discovery that there's little liquidity protection for an ominous number of households (Kaplan and Violante (2011)). Here are some statistics for 2007, just before the crisis: Households illiquid by the standard of less than two months of liquid assets as a buffer, earned 58 per-

cent of all income. That's not just people making \$50,000 a year. If you look at the Survey of Consumer Finances, there are plenty of people making \$400,000 a year who have no liquid assets at all. If they encounter something unexpected, like a smaller bonus, it has to come out of consumption, because they don't save their bonuses. If they did, they'd have liquid assets; but they don't. That's a remarkable fact. This involves more than three-quarters of all households, and many of these families are prosperous. By this standard, 74 percent of households are constrained. This is a big deal. The buffer comes from borrowing power and not from the holding of liquid assets. That's a very important thing to know about how the great majority of American families run their family finances.

The conclusion is that a substantial majority of households, which account for somewhat less than half of consumption, are dependent on financial institutions to sustain their standards of living in case of an interruption of income. When the crisis resulted in tighter lending standards, the majority of households needed to run tighter ships because they were aware that they had lost some of their access to lending and thus needed to be more conservative, especially in making commitments to high levels of committed payments (Guerrieri and Lorenzoni (2011)). Even more important, when their lenders cut their lines of credit for home equity and credit-card loans, they had to cut consumption to meet the lenders' demands for repayment. Both of these factors contributed to the large reduction in consumer spending that followed the crisis.

6. The Fragile Financial System

During the boom of the past decade, financial institutions became thinly capitalized. Leverage was extremely popular. The famous

remark of CitiGroup's CEO, "As long as the music is playing, you've got to get up and dance,"¹ set the tone for the policies of major financial institutions. These institutions copied each other and became more and more precarious. They all thought it was safe because they didn't anticipate an unlikely event, the decline of housing prices.

There are two asset classes in the U.S. financial system broadly conceived. One is equity. Equity prices go up and down all the time. We had a huge decline in equity values in 2000, causing a mild recession. We have a robust equity-based system, and most business, as I mentioned before, is equity based. There's little leverage among equity holders, so a decline in equity values causes little stress and almost no cases of insolvency or bankruptcy. The government has never been called upon to bail out an institution funded mostly with equity.

On the other hand, we have the debt part of the financial system, which is based essentially entirely on real estate. It's very important to understand that. Basically, debt in the United States means real estate. It means, first of all, homeowners' mortgages, and then, all kinds of securities resting on mortgages. But it's all dependent on one asset class, namely real estate, which is vulnerable, as we discovered, to occasional substantial declines. Thinly capitalized institutions lost more than all their capital as a result of a modest decline in the underlying asset price, which was exclusively real estate. So that resulted in either failing or severely stressed financial institutions.

It's important to understand just how much of this distress remains today. All the major banks of the United States have suf-

1. *New York Times*, "Dealbook," July 10, 2007.

fered asset losses, according to the stock market. Bank of America and Citibank have market values of around 35 and 50 percent of book value, respectively.² The same thing is true in Europe. There are similar numbers for the French banks. Even the German banks are hurting, but not as badly. Thus we have an almost universal problem of financial institutions that are currently severely stressed.

These losses in asset value have resulted in a dramatic tightening of credit. The story in a nutshell is that a huge burst of home building and car buying, with the accompanying accumulation of debt, plus the tightening of credit standards, resulted in a collapse of spending on home building, consumer durables, and other categories of consumption. These declined sharply and remain low today. That's the basic story. It's a really simple story. And it's an ongoing one because problems in financial institutions and restrictions in the supply of credit to households remain in effect today. There's not been a lot of relaxation.

7. Indicators of Financial Stress

Figure 3 demonstrates the key fact of this paper. It shows the net money that the public was receiving from banks and other lenders (when above the horizontal line at zero) and the net money that the public was paying back to lenders (when below the horizontal line). The story is crystal clear. During the binge period from 2000 through 2006, families were playing a Ponzi game. They were borrowing more on a current basis than they were paying back in interest. They were financing all of the interest, and consumption

2. Source: finance.yahoo.com.

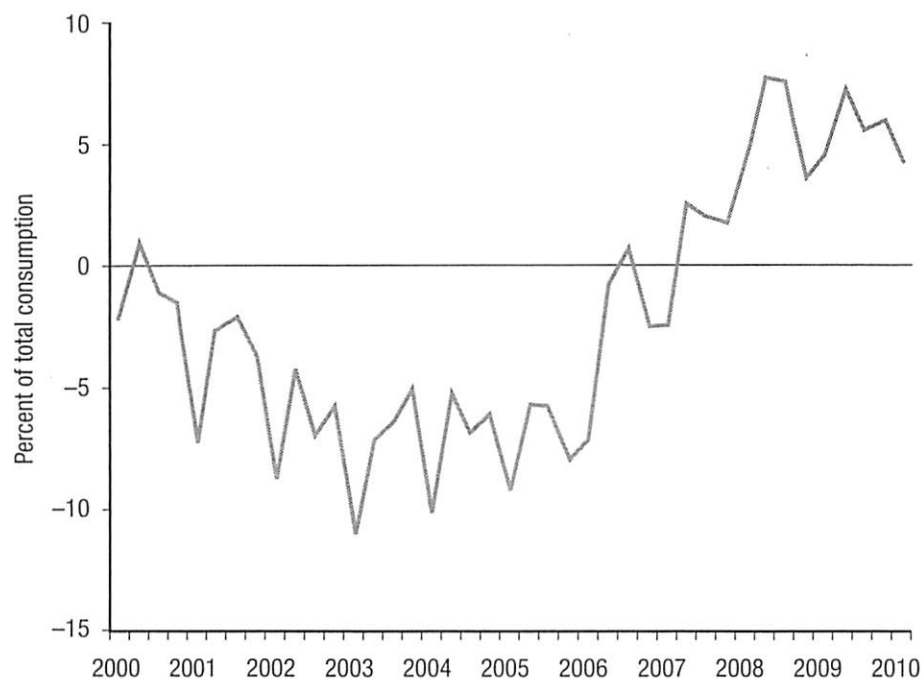


Figure 3. Burden of debt service.

Source: Author's calculations from Federal Reserve Board Flow of Funds and Loan Chargeoffs Data.

besides, by borrowing. Then at the beginning of the crisis, the flow changed dramatically. Starting in 2007, households paid cash back into financial institutions. This drain on household finances has continued right up to the present. The swing was about 20 percent of consumption. Families have been caught in a gigantic vise.

Another measure of tightening credit is the Senior Loan Officers Survey. Figure 4 shows an index of lending standards that I have calculated from the survey. The index shows that, especially with respect to mortgages, there was a huge increase in lending standards. The increase means it became more difficult for any

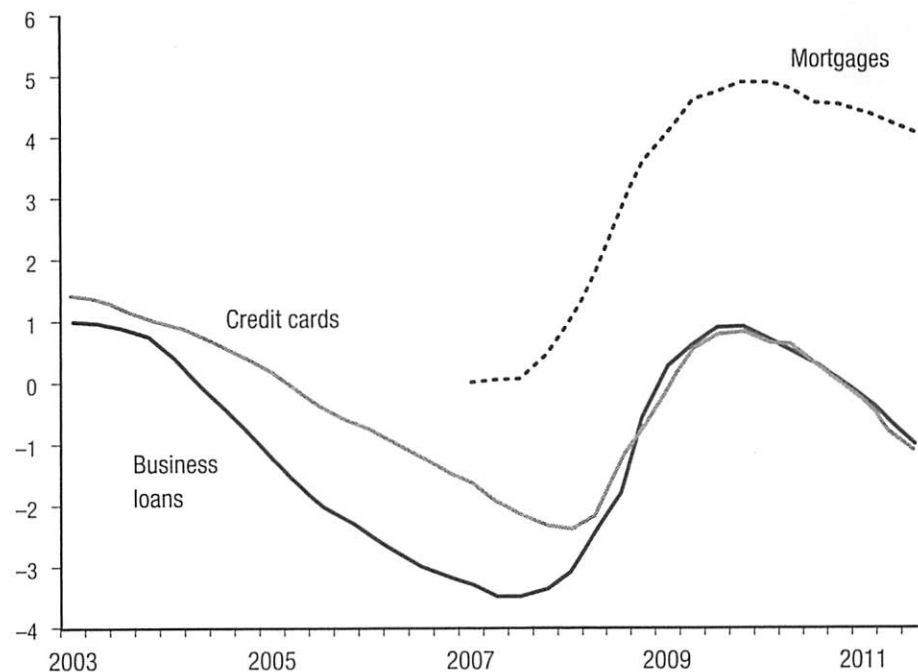


Figure 4. Indexes of lending standards inferred from the FRB Senior Loan Officer Survey.

Source: Author's calculations from Federal Reserve Board's Senior Loan Officers Survey.

given borrower with a given set of characteristics to be approved for a loan. The difficulty went way up and it's hardly gone down since then. Standards also became tougher for business loans, but in this sector there has been a good deal of relaxation. And the same is true of credit card lending standards. Mortgages are by far the biggest component of consumer credit, so the overall effect is still one of substantial tightening.

Google Insights is a valuable new tool for doing all kinds of research. It shows how the frequency of any popular search term

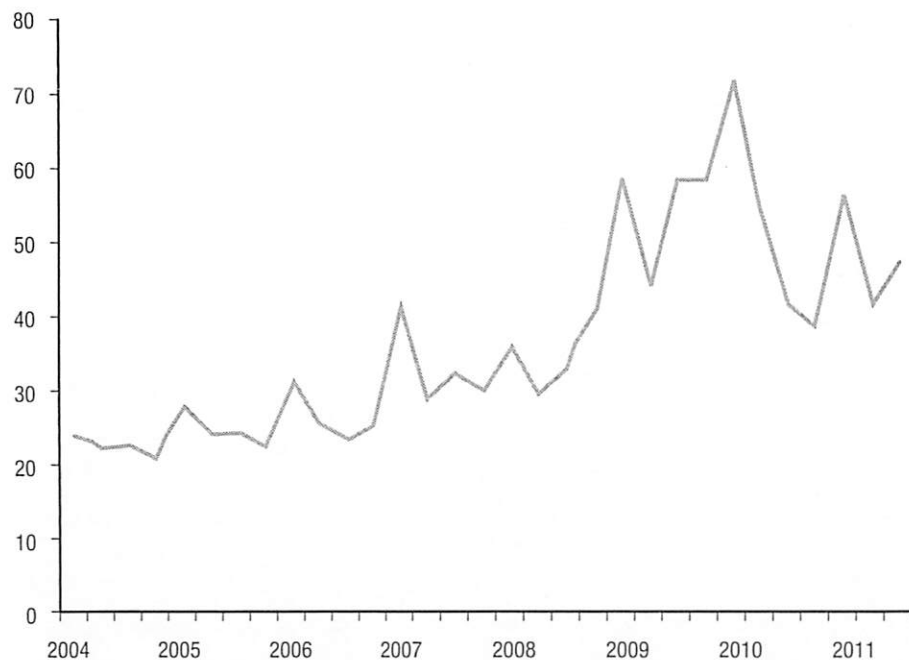


Figure 5. Indexes of Google search queries for the term “withdrawal penalty.”

has changed over time. Figure 5 shows the volume of searches on the term “withdrawal penalty.” This search term seemed best for documenting financial stress in households. Again, there’s a huge increase starting at the end of 2007, coinciding exactly with the crisis, of people who had their backs to the wall sufficiently that they were searching the Internet for what to do about a withdrawal penalty. These people were considering taking money out of a long-term savings account or out of a retirement account, both moves that would only be chosen by those who no longer had access to more economical solutions to financial stress.

So those are the basics. We have families unable to spend as much. What effect would that have in an ordinary economy? Lower interest rates would stimulate consumption among families that are not liquidity-constrained. These families account for about half of all consumption. Business spending is interest sensitive, so it will increase when interest rates decline. If we could obey the Taylor Rule by setting a negative interest rate, then the shortfall of spending among constrained families would be offset by higher spending of unconstrained families and businesses. If the rate of minus 5 percent wasn’t good enough, then we could go to minus 10 percent. Whatever the Taylor Rule tells us to do should work. But we can’t do that. If the Taylor Rule requires a negative interest rate, the best we can do is a zero rate, which is inadequate to restore full employment.

8. Why Not Set Negative Interest Rates?

This is a good time to explain why we can’t set negative interest rates. The reason is that the federal government, through the Federal Reserve, issues currency. Currency is a security that always has a zero nominal rate. It is the Fed’s normal policy to allow the public to switch back and forth between currency and reserves whenever they want. The Fed is always standing ready to convert reserves to currency one to one. That’s a fundamental principle of all central banks: to keep reserves and currency at par with each other. We don’t even think about it, they do it so effectively. We don’t think about there being separate markets for currency and for reserves because central banks are very efficient at pegging the two at the same value by swapping them back and forth as nec-

essary. But because they do that, they would just find themselves with an infinite demand for currency if interest rates were negative, because currency would be a superior, dominant way of holding liquidity if the nominal rate became negative. That said, we are seeing more and more negative rates. Negative rates are becoming quite common in Europe now. They've occurred quite frequently in the secondary market for Treasury bills. If it were possible, it would be extremely desirable to run the economy according to the Taylor Rule, at a rate of perhaps minus five percent.

9. Inflation Won't Budge

I noted earlier that inflation could offset the impediment to monetary stimulus arising from the inability to achieve negative interest rates. A dose of, say, three points of added inflation would bring the same benefits as lowering the interest rate to minus 3 percent. Normally we think of the burden of inflation, but we live in a topsy-turvy world now. Unfortunately, there's nothing the Federal Reserve can do to affect the rate of inflation today. How do we know that? Because it's dying for more inflation. Inflation is too low. The Federal Reserve is a very well-run organization. It does not pass up opportunities to do what needs to be done. It's done everything it can to get inflation up. But inflation has been running at sub-par rates ever since the crisis began. We can't get inflation back up above 1.5 percent, which is where it's been running consistently since the crisis except for unexpected surges and declines, mostly from fuel prices.

Figure 6 shows the history of U.S. inflation since 1987, along with the unemployment rate. Inflation began the period at around 4 percent. It declined gradually until 1999 and remained remark-

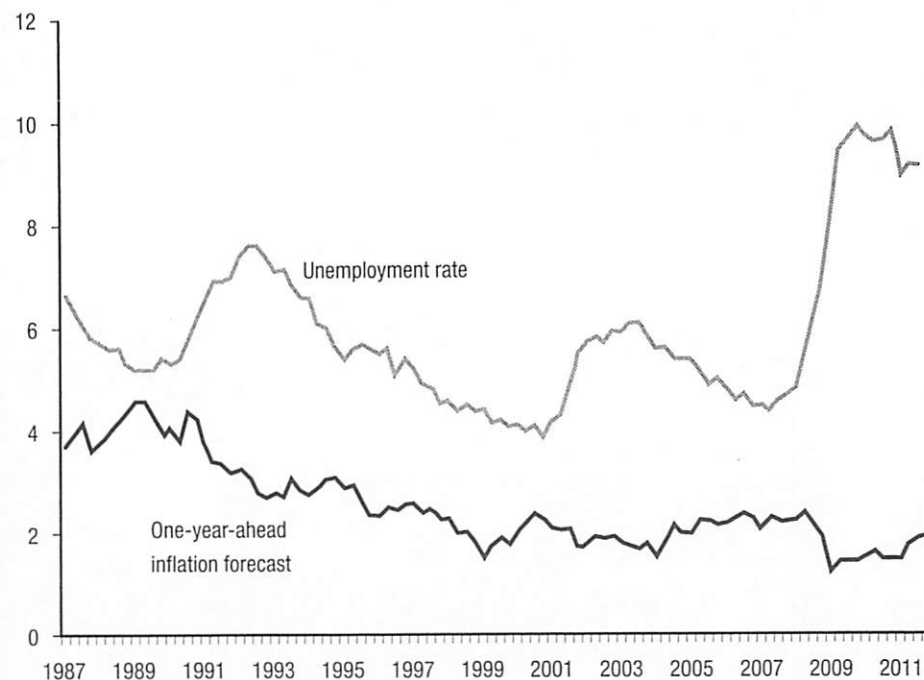


Figure 6. Inflation is below target.

ably close to 2 percent until the crisis, then dropped about 1 percent just after the crisis, and rose a bit recently. Ben Bernanke has identified 2 percent as the Fed's long-run goal for the inflation rate, so the rate still remains below target.

Alan Greenspan did a great job from 1987 to 2006 in completely stabilizing inflation. That accomplishment left a powerful anchor on inflation. Extreme slack in the economy has had almost no downward effect on inflation and heroic expansion of the Fed's portfolio has not succeeded in raising inflation. By contrast, in the Great Depression, a burst of unemployment resulted in the bottom falling out of the price level, and inflation got down to deeply negative territory. Nothing like that happened after the crisis of

2008. Some of us were afraid that it might, but it didn't. The flip side is the inability of the Fed to raise inflation up to its target rate of 2 percent.

10. The Fed's Policy after It Exhausted Standard Interest-Rate Policy

The Fed lowered the interest rate to essentially zero immediately after the crisis. Since October 2008, the Fed has used another approach to expand the economy, aiming to raise output, lower unemployment, and raise inflation back to the target level. This approach—quantitative easing or QE—involves buying longer-term bonds and paying for them with reserves. Reserves are the way that the Fed borrows from banks. Because reserves have paid low but above-market interest rates throughout this period, banks willingly hold them. The Fed has become a gigantic hedge fund, borrowing from banks at 0.25 percent per year and investing in bonds that yield from 1 to 5 percent per year. So far, this “carry trade” has been highly profitable.

The first wave of bond-buying, QE1, involved mortgage-backed bonds. The Fed's intent was to buoy the housing market by increasing the demand and thus lowering the interest rate on the bonds. This policy appears to have been a success in the sense that mortgage-bond interest rates fell dramatically, and at least some of this benefit made its way into lower mortgage interest rates for home buyers.

The second wave of bond-buying, QE2, involved Treasury bonds. Krishnamurthy and Vissing-Jorgensen (2011) do a careful job of showing the noticeable but small effects of QE2. Table 1 shows that QE2 lowered rates on longer-term Treasury bonds by

Table 1. Effect of QE2 on bond interest rates.

<i>Security</i>	<i>Decline in interest rate, basis points</i>
30-year Treasury bond	21
10-year Treasury note	30
5-year Treasury note	20
1-year Treasury bill	1
Long investment-grade corporate	19
Intermediate investment-grade corporate	16
Long junk corporate	13
Intermediate junk corporate	-17

Note: A basis point is 1/100 of a percentage point.

Source: Krishnamurthy and Vissing-Jorgensen (2011).

Table 2. Effect of QE2 on expected inflation.

<i>Inflation swap, years into future</i>	<i>Increase in expected future inflation, basis points</i>
30	4
10	4
5	4
1	5

Note: A basis point is 1/100 of a percentage point.

Source: Krishnamurthy and Vissing-Jorgensen (2011).

around a fifth of a percentage point. Rates on higher-quality corporate bonds fell by about the same amount, indicating that QE2 made funds cheaper for businesses and stimulated investment. The effects on lower-quality corporate bonds were ambiguous. Table 2 shows that QE2 had only tiny effects on expected inflation over both the short and long runs. The policy did almost nothing to get near-term inflation back up to target, so it was a disappointment

in that sense. On the other hand—contrary to the beliefs of some critics—the policy did almost nothing to kindle worries that the huge expansion in the Fed’s issuance of reserves might result in higher inflation in the longer run.

In normal times and under historical policy, if the Fed expanded its portfolio as much as it has since the crisis, the effect would have been extremely expansionary and inflationary. The Fed’s critics are concerned that as soon as the economy begins to return to normal, inflation will take off. Obviously markets don’t agree with the critics, or else the QE policies would have raised expectations of inflation in the longer run, and Table 2 shows that this did not happen. The reason that markets are right and the critics are wrong is that the Fed plans to contract its portfolio when the time comes to start raising interest rates. Moreover, the Fed has put in place a new policy never used historically—it is now paying interest on reserves and it can maintain banks’ willingness to hold high levels of reserves by increasing the rate it pays on them.

11. Spending Policy

Both the Bush and Obama administrations cranked up government spending in response to the recession that began at the end of 2007 and intensified after the crisis in late 2008. Government spending has two components that often play roles in offsetting weakness in the economy: (1) purchases of goods and services, and (2) transfers that boost people’s incomes. Figure 7 shows what happened to purchases measured by combining two layers of government: federal and state-local. The lines show the volume of purchases adjusted for inflation and for normal upward trends. Federal purchases rose rapidly in the last year of the Bush

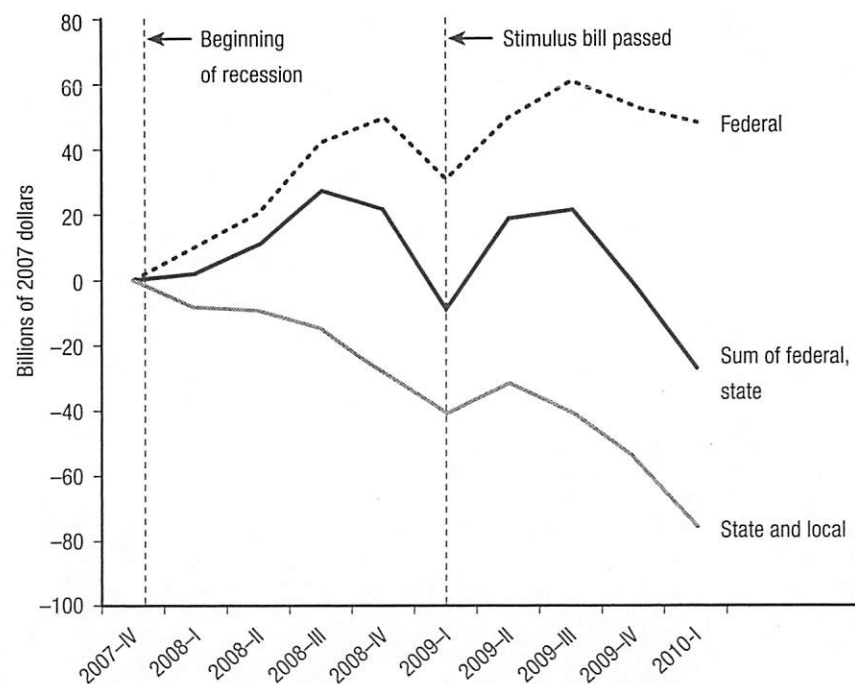


Figure 7. Spending policy: government purchases.

Source: Hall (2010).

administration, plunged at the changeover in the first quarter of 2009, recovered in the second quarter, then rose but not as rapidly under Obama as under Bush. Although Obama’s stimulus bill passed in the first quarter, the data show no signs of any large growth as a result of the bill. State and local purchases declined sharply over the period, so total government purchases declined modestly. Government as a whole made no contribution to stimulus from higher purchases over the period shown. Some critics of using government purchases to stimulate the economy have said that the policy failed, but what they mean is that it was never tried.

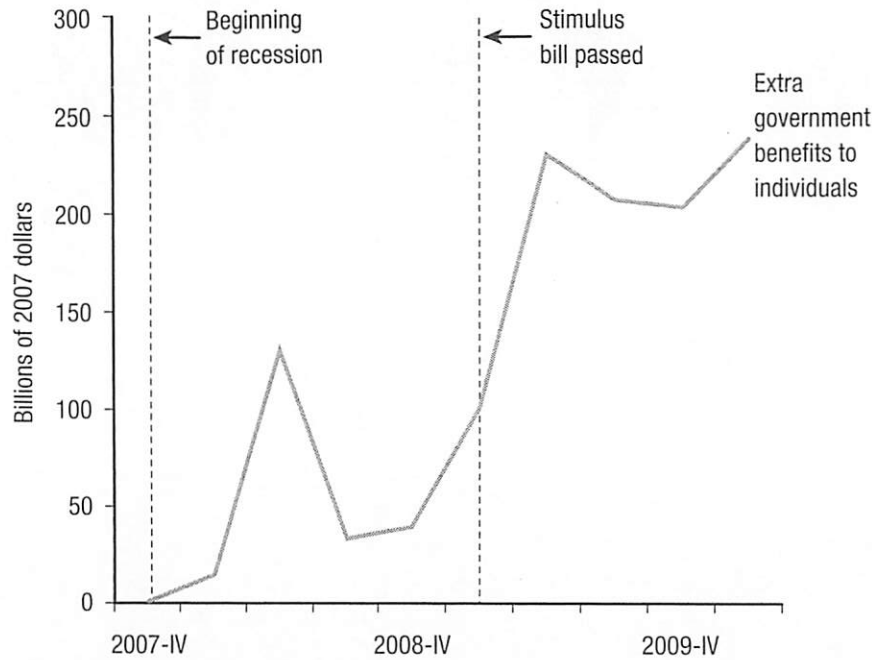


Figure 8. Spending policy: transfers.

Source: Hall (2010).

The story of government transfers—unemployment compensation, food stamps, and other types of income support—shown in Figure 8, is entirely different. Again, the line is adjusted for inflation and normal growth. I do not break down transfers between federal and state-local because many transfer programs receive funds from both levels. The government was successful in putting almost a quarter of a trillion dollars of extra income in the hands of the public. Part of the increase came from programs that automatically expand in bad times, such as unemployment compensation and food stamps, and part from expansions of programs,

Table 3. Effects of spending policy.

	<i>Purchases</i>	<i>Transfers</i>	<i>Total</i>
Average federal stimulus, 2009Q2–2010Q1	58	220	
Multiplier	2	0.8	
Effect	115	176	291
GDP			14,338
Percent of GDP	0.8	1.2	2.0
Average GDP shortfall			8.2
Counterfactual GDP shortfall			10.2

Source: Hall (2010).

notably the extension of unemployment benefits to the long-term unemployed who do not receive support in normal times.

Table 3 gives rough estimates of the effects of spending policy over the period from the second quarter of 2009 through the first quarter of 2010, at annual rates. The figures for purchases consider only the federal government, which raised purchases by \$58 billion. I estimate that the multiplier under the conditions of that period was two dollars of added GDP for each dollar of added federal purchases. Recent research has confirmed that the purchases multiplier is substantially higher in times when the interest rate is pinned at zero than in times when the Fed adjusts it according to its Taylor Rule—see Christiano, Eichenbaum, and Rebelo (2011). In normal times the multiplier is somewhat less than one, but is around two when the Taylor Rule is inoperative. The increase in transfers was much larger, but the multiplier effect of transfers is quite a bit smaller, around 0.8, because families use transfers to pay down debts as well as to buy goods and services. I estimate

that the combined effect of the two types of spending expansion raised GDP by about two percentage points. The policy prevented an even worse contraction of GDP than actually occurred.

A Choice of Magic Bullets

Finally, let me conclude with not one but two magic bullets. We need to send a message to people that the best time to spend is now. What's wrong with the economy is that consumers are looking around and saying, "I can't borrow, I've all these reasons. So I really shouldn't spend now. I'm going to spend later." But with unused resources, we want the signal to be: spend now! A negative interest rate would do exactly that. A negative interest rate would say you'll lose money if you defer, so spend now. But since we can't have a negative interest rate, we can do something which has the same effect, which is we can use taxes to send the message that it's better to spend now than later. Value-added or sales taxes can be manipulated to make consumption cheaper now than later. Martin Feldstein initiated this idea in 2003 in the Japanese context. Correia, Farhi, Nicolini, and Teles (2011) have picked up the ball. All we need to do is to announce today a phase-in of a national sales or value-added tax. Because the public would know that the rate would grow over time, the tax would make current consumption cheap relative to future consumption. For example, if the tax rate rose 5 percentage points per year, it would be equivalent to have an inflation rate 5 percentage points per year, say 7 percent rather than 2 percent. At the same time, there would be a phase-out of the income tax by the same amount per year, so the tax change would have little effect on the total tax bill.

So if the Taylor Rule indicates minus 5 percent, that says we should raise the consumption tax rate 5 percent per year. We probably need a consumption tax in the 20–25 percent range, which would allow a phase-in over four or five years. As soon as we announced that, it would transform the economy. We could have a new kind of Taylor Rule. When it runs out of power with the Fed funds rate, it just switches to changing the rate of change of the consumption tax rate. As a long-time advocate of consumption taxes, I maintain there's a double benefit here, because switching to a consumption tax is a great idea on its own merits. Notice that a changeover from an income to a consumption tax can and should be revenue-neutral—this plan does not involve any increase in the deficit. Rather, the expansion it would ignite would raise revenue, cut spending on benefits, and lower the deficit dramatically.

The second magic bullet operates in the monetary sphere. Earlier I explained that the existence of currency is the root cause of the Fed's inability to set negative interest rates. So a second idea is that the Fed should just stop exchanging reserves for currency at par. To exchange reserves for currency at par in a negative interest-rate environment is to create a federal security that dominates all others. It pays above market return, namely zero when the market return is negative. There's no reason why we have to do that. All we need to do is have the two float against each other. If we did that, then the price of currency relative to stated prices, and relative to reserves in particular, would jump upward. There would be a currency shortage, which would be solved by the price system by an upward jump in the value of the currency. Then, from that point on, the price of the currency would decline over time at whatever the prevailing negative nominal interest rate was. This would give

equilibrium in asset markets, because the nominal return on currency would now be minus 5 percent, instead of being locked at zero, because the price of currency would float. The world would change in one rather surprising way: if you went to the ATM and took \$30 out of your bank account, the ATM machine would give you only \$20 because the price of dollars relative to reserves had appreciated to that level.

So that's the second answer—probably the first one is more practical. But the point is we have two gimmick answers, not just one. And it seems that at some point we ought to start thinking about this issue, because this paralysis of monetary policy, the inability to follow the Taylor Rule, is a serious impediment to proper policymaking. It's the source of the persistence of the slump in the U.S. economy.

References

- Christiano, Lawrence J., Martin Eichenbaum, and Sergio Rebelo, "When Is the Government Spending Multiplier Large?" *Journal of Political Economy*, February 2011, 119 (1), 78–121.
- Correia, Isabel, Emmanuel Farhi, Juan Pablo Nicolini, and Pedro Teles, "Unconventional Fiscal Policy at the Zero Bound," October 2011.
- Guerrieri, Veronica and Guido Lorenzoni, "Credit Crises, Precautionary Savings and the Liquidity Trap," October 2011. University of Chicago Booth School of Business.
- Hall, Robert E., "Fiscal Stimulus," *Daedalus*, 2010, Fall, 83–94.
- , "The Long Slump," *American Economic Review*, April 2011, 101 (2), 431–69. 2011 AEA Presidential Address.
- Kaplan, Greg and Giovanni L. Violante, "A Model of the Consumption Response to Fiscal Stimulus Payments," September 2011. University of Pennsylvania.

- Krishnamurthy, Arvind and Annette Vissing-Jorgensen, "The Effects of Quantitative Easing on Interest Rates: Channels and Implications for Policy," *Brookings Papers on Economic Activity*, 2011, (2). Forthcoming.
- Mian, Atif and Amir Sufi, "What Explains High Unemployment? The Aggregate Demand Channel," November 2011. University of Chicago Booth School of Business.