How the Financial Crisis Caused Persistent Unemployment

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Restoring Robust Economic Growth in America

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Explaining the excruciatingly slow recovery

Households are still constrained by debt incurred during the boom and by credit tightening from the financial crisis.
The Fed has done almost all that it can—another QE would have close to zero benefit.
No chance of conventional fiscal expansion; rather, possible cutbacks motivated by excessive federal debt.
Even less chance of exotic, revenue-neutral expansion

The state of the economy

Large adverse shift in product demand, resulting from the financial crisis and household deleveraging
Monetary policy responded by cutting the short-term nominal interest rate to its minimum value of zero
The real interest rate is stuck well above its market-clearing level
Unemployment persisting at high levels

Payroll employment relative to lowest value in the cycle

[Graph showing payroll employment growth over time compared to the lowest value in the cycle.]
The basic story, phase I

Real-estate binge in the 2000s
Buildup of housing and consumer durables
Buildup of mortgage, car, and credit-card debt
Financial institutions thinly capitalized

The basic story, phase II

Real-estate prices began to fall in 2007 and have fallen ever since
Financial institutions failed because of declining asset values; others severely stressed
Credit to households dramatically tightened
Homebuilding and consumer spending declined sharply and remains low today

Ratios of capital and durables to GDP

Deleveraging is central

Business credit tightened, but most GDP arises in businesses that are not credit-dependent
Huge tightening of credit to households and most are credit-dependent
The typical household has almost no liquid-asset buffer

Define a family as liquidity-constrained if holdings in savings accounts and the like are less than two months of income.

In the 2007 Survey of Consumer Finances, households illiquid by this standard earned 58 percent of all income.

Many quite prosperous families hold essentially no liquid financial assets.

The fraction of households that were constrained—74 percent—is even higher because lower-income households are more likely to be constrained.
The zero lower bound on the interest rate

The nominal interest rate can’t be negative, because investors can always hold currency.

The inflation rate in today’s economy is stuck around 1 or 2 percent per year.

So the real rate cannot be lower than -1 or -2 percent.

Inflation outlook

Professional forecasters, 10 year: 2.2 percent
Consumer expectations, 5 to 10 year: 3.0 percent
Treasury inflation-protected breakeven, 5 year: 2.9 percent
No sign that providential inflation will break out, resulting in lower real rates and faster recovery

The near-exogeneity of inflation in today’s economy

Unemployment rate

One-year-ahead inflation forecast

The central bank’s influence over inflation

Suppose the central bank has a policy lever that controls the rate of inflation $\pi$.

Any reasonable central bank would pick a rate of inflation that exceeded minus the equilibrium real interest rate ($\pi > -r^*$), so that the nominal rate would be positive in equilibrium and the zero bound would cause no mischief.

The zero lower bound binds when the central bank loses control of the rate of inflation.
Real rate of interest

The real rate is the nominal rate minus the rate of inflation.
Thus, if the nominal rate zero, the real rate is minus the rate of inflation.
If the rate of inflation is exogenous, the real rate is pinned at minus the rate of inflation.

A Long Period with the Nominal Short Rate Pinned at Zero

The U.S. economy in October 2008 and October 2009, while at the zero lower bound

Conventional policy

Monetary policy: Reacted instantly to the crisis but unable to provide much further stimulus thereafter
Government purchases (infrastructure): Potentially potent but so far untried
Transfers to consumers (tax cuts, rebates, unemployment benefits): Probably prevented a more serious contraction
**Monetary policy**

Normal: Fed can stimulate by issuing more reserves, which causes banks to expand lending and lower interest rates

Since October 2008: Fed has driven the safe nominal short rate to zero but pays a bit of interest on reserves, so banks just keep added reserves and the Fed cannot expand lending and push the interest rate below zero

The Fed has some limited ability to lower longer-maturity interest rates by issuing reserves and using the proceeds to buy longer-maturity bonds—quantitative easing (QE)

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**Effect of QE2 on bond interest rates**

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

A basis point is 1/100 of a percentage point

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**Effect of QE2 on expected inflation**

<table>
<thead>
<tr>
<th>Inflation swap, years into future</th>
<th>Increase in expected future inflation, basis points</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>4</td>
</tr>
<tr>
<td>10</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

A basis point is 1/100 of a percentage point

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**Fiscal policy: Government purchases**

- Beginning of recession
- Stimulus bill passed
- Sum of Federal, State, Local
Fiscal policy: Transfers

Exotic fiscal policy

A gradual switch to a consumption tax that is added to product prices rather than subtracted from factor incomes would make current consumption cheaper in nominal terms and eliminate the zero bound.

Exotic monetary policy

The existence of face-value currency is the root cause of the zero lower bound

If the Fed stopped exchanging reserves for currency at par, currency would immediately appreciate, so a $20 bill would buy, say, $30 worth of stuff

Then the Fed could drive the interest rate into deep negative territory by charging banks to hold reserves.

With a much more negative real interest rate, the economy would expand rapidly.

Effects of fiscal policy

<table>
<thead>
<tr>
<th></th>
<th>Purchases</th>
<th>Transfers</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average federal stimulus, 2009Q2-2010Q1</td>
<td>58</td>
<td>220</td>
<td></td>
</tr>
<tr>
<td>Multiplier</td>
<td>2</td>
<td>0.8</td>
<td></td>
</tr>
<tr>
<td>Effect</td>
<td>115</td>
<td>176</td>
<td>291</td>
</tr>
<tr>
<td>GDP</td>
<td></td>
<td></td>
<td>14,338</td>
</tr>
<tr>
<td>Percent of GDP</td>
<td>0.8</td>
<td>1.2</td>
<td>2.0</td>
</tr>
<tr>
<td>Average GDP shortfall</td>
<td></td>
<td></td>
<td>8.2</td>
</tr>
<tr>
<td>Counterfactual GDP shortfall</td>
<td></td>
<td></td>
<td>10.2</td>
</tr>
</tbody>
</table>
For the future...

The main lesson is to avoid the regulatory lapses that caused the accumulation of housing, its associated debt load, and resulting deleveraging.

Dodd-Frank has given the federal government a lot of new tools to improve financial oversight, but it remains to see if they will be used effectively.