

# Price Level Determination in Equilibrium A Discussion

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January 8, 2010

# Debt, Money and Inflation

- ▶ As many have pointed out in the conference, last two years have renewed our interest on issues of the price level and deficits such as the ones covered in Chris' talk.
- ▶ Many spirits that we thought were buried are summoned up back to life.
- ▶ Chris' paper is an excellent place to challenge our thinking about some of the consequences of recent actions by the Fed and the federal government (and, in fact, many other western governments).
- ▶ It also points out to new routes to improve existing dynamic models.

# Three Main Points

There are three issues I would like to consider:

1. The political economy of debt and taxes.
2. Richer debt structure.
3. Fiscal policy and financial markets.

## UK net public debt

As a % of GDP



Sources: [ukpublicspending.co.uk](http://ukpublicspending.co.uk); IMF from 1980 with forecasts to 2014

## US gross federal debt

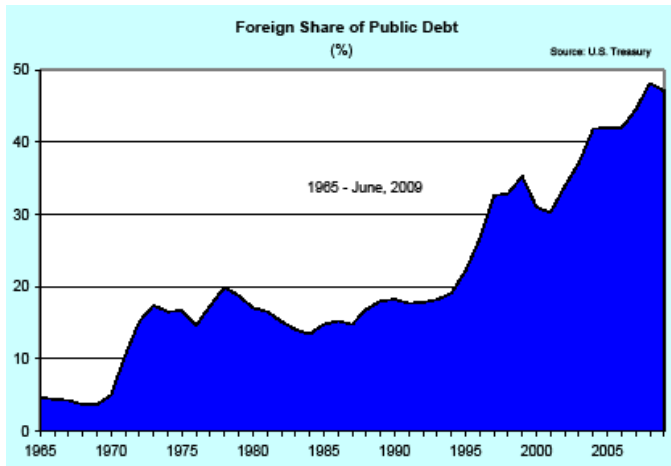
As a % of GDP



Sources: [usgovernmentspending.com](http://usgovernmentspending.com); OMB from 1980 with forecasts to 2014

# The Political Economy of Debt and Taxes

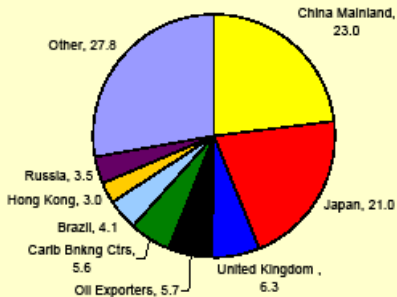
- ▶ **John Brewer**, in *The Sinews of Power: War, Money and the English State, 1688-1783*, describes the rise of the English fiscal-military state.
- ▶ To a large extent, England was credible in its commitment to pay back its public debt.
- ▶ Why? Larger debt holders were also the most powerful players in the government of England.
- ▶ Efficient tax system.
- ▶ Things are quickly becoming very different in the U.S.



## Major Foreign Holders of U.S. Public Debt, June 2009

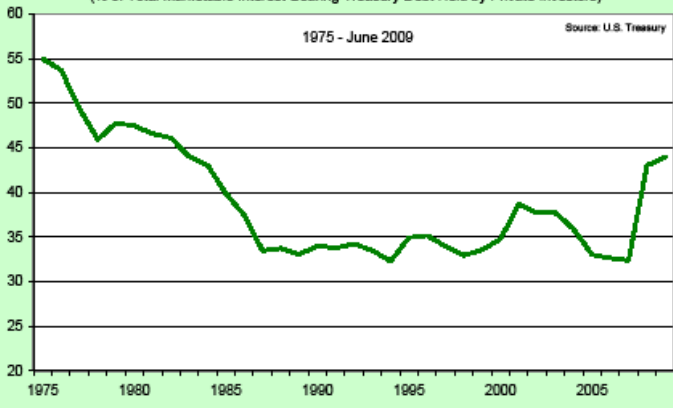
(% of total foreign ownership)

Source: U.S. Treasury



### Treasury Debt Maturing Within One Year

(% of Total Marketable Interest-Bearing Treasury Debt Held by Private Investors)

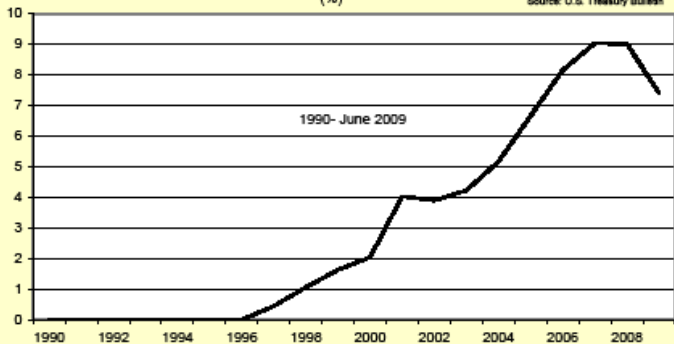




### Share of Public Debt Held in TIPS

(%)

Source: U.S. Treasury Bulletin

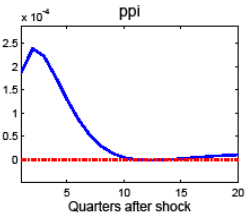
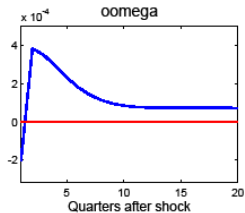
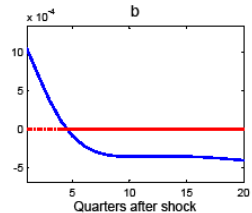
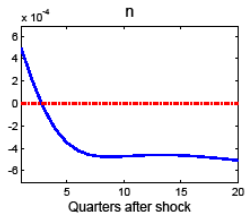
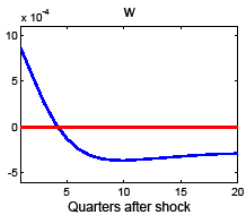
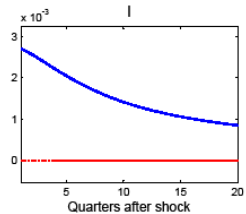
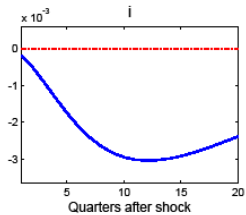
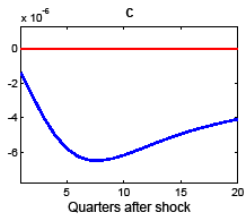
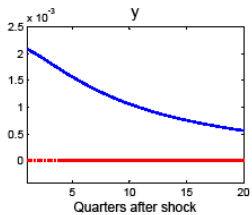


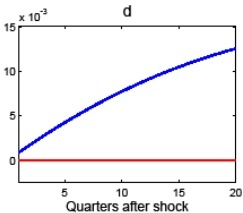
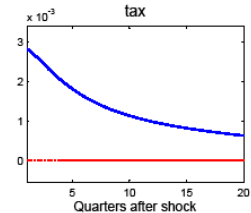
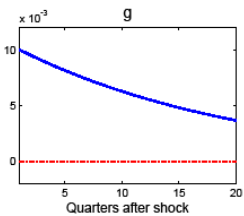
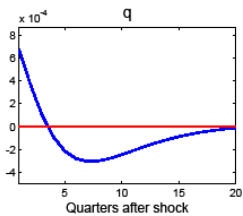
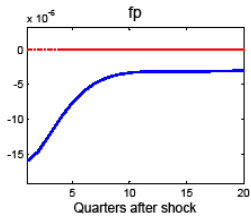
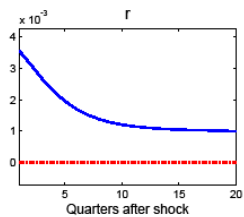
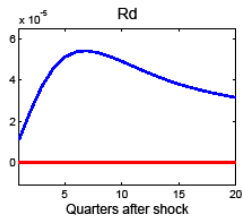
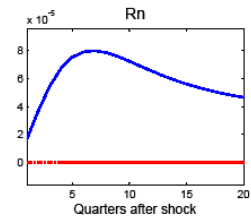
# Debt Structure

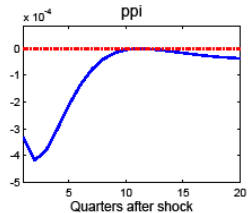
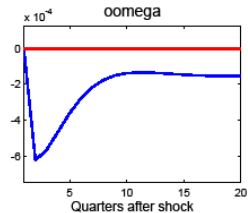
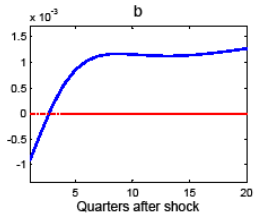
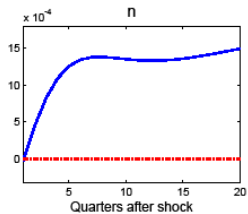
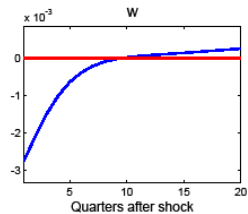
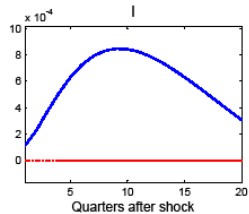
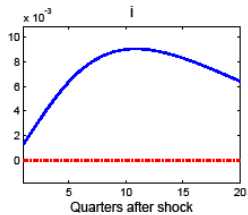
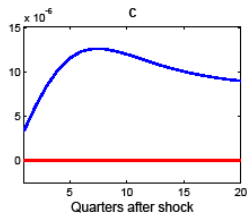
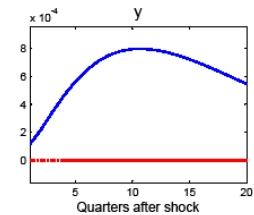
- ▶ Most DSGE models have a trivial debt structure. At most, money and one public bond.
- ▶ Given complete markets, we could write other public bonds but it would be rather boring.
- ▶ I read some of Chris' comments as a call for having a much richer structure of public debt.
- ▶ In addition, DSGE models have a hard time accounting for the yield curve.
- ▶ How can we introduce this richer structure and yet have a tractable model?

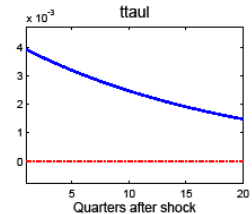
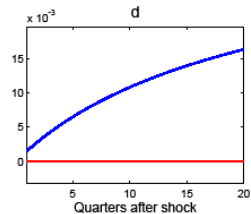
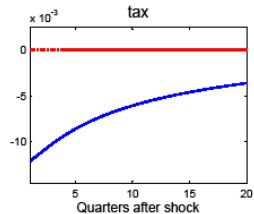
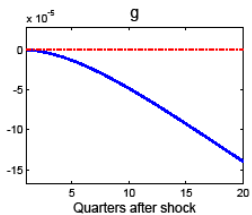
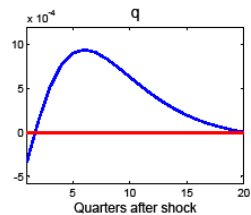
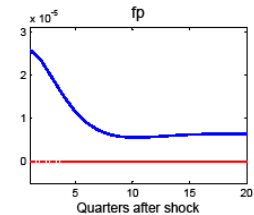
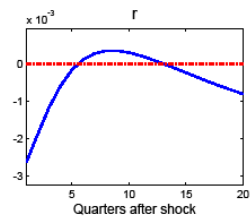
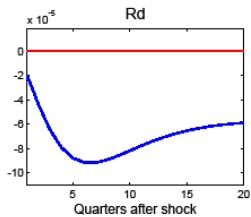
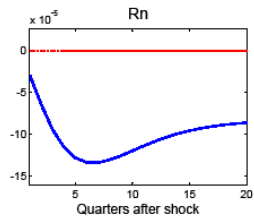
# Fiscal Policy and Financial Frictions

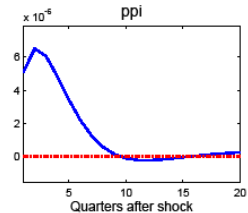
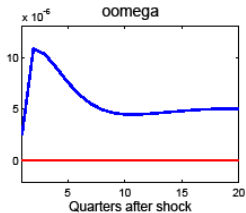
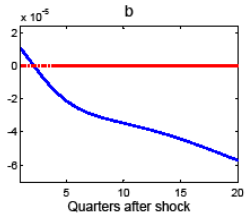
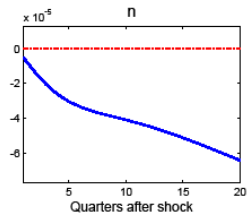
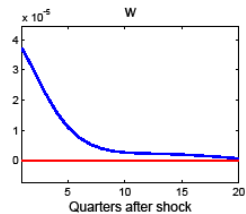
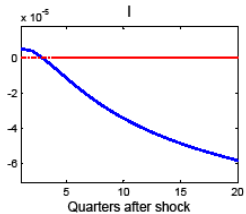
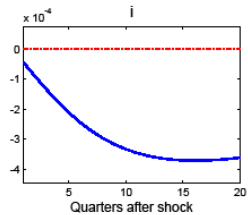
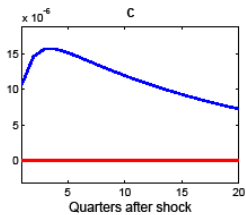
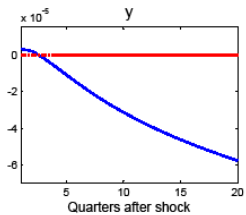
- ▶ All these points suggest that we want to have a more detailed understanding of the interactions between fiscal policy and financial markets.
- ▶ To analyze this topic, I build a DSGE model with financial frictions and fiscal policy, calibrate it to observations of the U.S. economy, and compute the responses of the economy to several fiscal shocks.
- ▶ Model based on [Bernanke, Gertler, and Gilchrist \(1999\)](#) and [Christiano, Motto, and Rostagno \(2009\)](#).
- ▶ A representative household, final and intermediate good producers, producers of capital, entrepreneurs, financial intermediaries, and a government that conducts monetary and fiscal policy.
- ▶ The financial frictions appear as a consequence of information asymmetries between lenders and borrowers.
- ▶ Strengths and weaknesses.



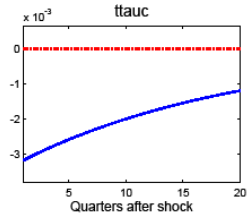
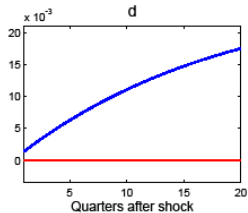
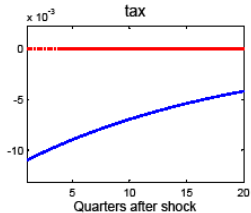
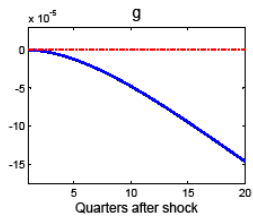
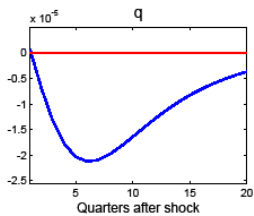
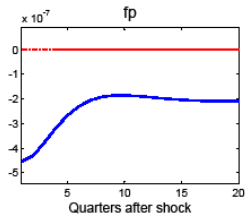
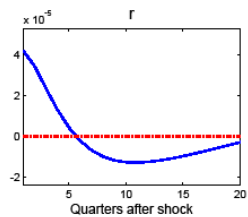
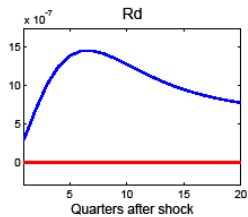
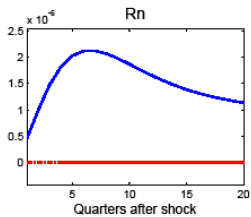


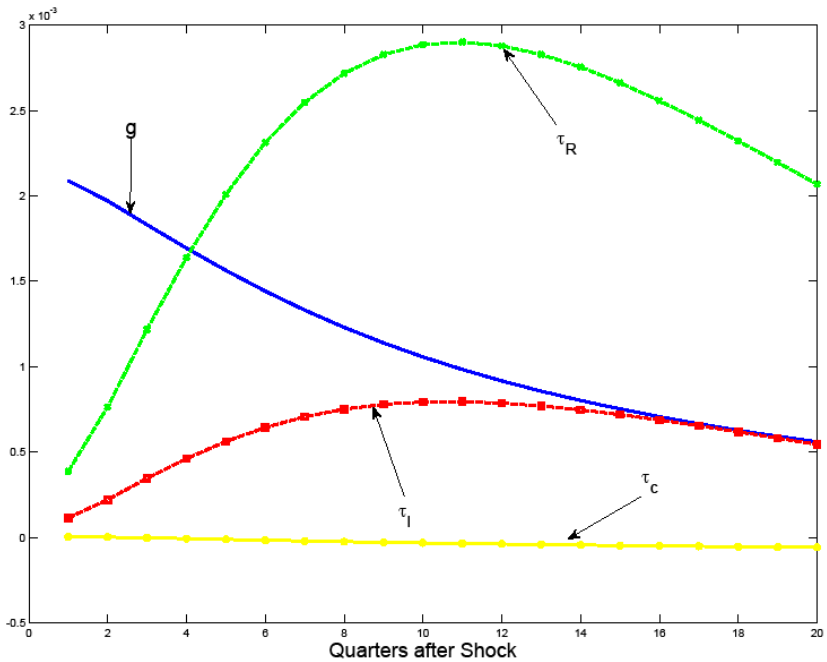












## Some Results

- ▶ In an environment with financial frictions, increases in government expenditure can be a more powerful tool than reductions in taxes to stimulate output in the very short run.
- ▶ Central mechanism: movements on real wealth created by the Fisher effect and the endogenous evolution of the finance premium.
- ▶ Welfare implications are ambiguous. Multiplier at impact  $< 1$  (and it falls quickly), government expenditure crowds out  $c_t$ . The question is, therefore, the valuation by the household of that flow of government expenditures.
- ▶ Zero bound on nominal interest rates: Christiano, Eichenbaum, and Rebelo (2009)'s recent results.