Discussion of

New Keynesian versus Old Keynesian Government Spending Multipliers

by

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Brief overview of paper

- The paper uses an estimated workhorse New Keynesian Business cycle model to examine the robustness of the large government spending multipliers reported by Romer and Bernstein (2009) using an Old Keynesian model (VAR)

  - Use the Smets and Wouters (2007, AER) model

- The authors find that government spending multipliers are much smaller in the SW model than reported by Romer and Bernstein (2009)

  - More in line with the empirical literature on fiscal spending multipliers

- Examine the robustness of their results w.r.t. the monetary response and the existence of "rule-of-thumb" consumers

- Bottom line: New Keynesian models offer little support for the Obama administrations' fiscal stimulus package that was signed into law in February 2009

Discussion

- I found the paper very interesting to read, and I think the authors address an extremely policy relevant issue in a very careful way

- However, although I agree with many of the views expressed in the paper, I still think there is a case to be made that fiscal spending multipliers in New Keynesian models can be much higher than normal for well-timed moderate increases in government spending in the current economic environment

- Moreover, some empirical evidence suggests that when the stimulus package was signed into law, the economic outlook provided a favorable case for the view that the fiscal spending multiplier could be substantially higher relative to a normal situation

Role of the slope of pricing and wage curves

- The authors adapt their model from Smets and Wouters (2007), and do not discuss the parameterization of the model in greater detail

  - Posterior mode in the SW paper implies low slope of the Phillips curve (0.024) and wage curve (0.011)

- By doubling these slope coefficients, then multipliers can be substantially higher in a liquidity trap

  - Figures below show results to a (near permanent) increase in government expenditures in a model very similar to Smets and Wouters with benchmark and higher slope of the pricing and wage schedules when ZLB binds for 8 quarters (without spending) and in a normal situation

  - Normal policy: $i_t = (1 - \gamma_i)(\gamma_\pi \pi_t + \gamma_x x_t) + \gamma_i i_{t-1}$

  - ZLB policy: $i_t = \max\left[0, (1 - \gamma_i)(\gamma_\pi \pi_t + \gamma_x x_t) + \gamma_i i_{t-1}\right]$

Responses to a near permanent increase in G with 1% of baseline GDP in a SW type model: low slope of p and w equations
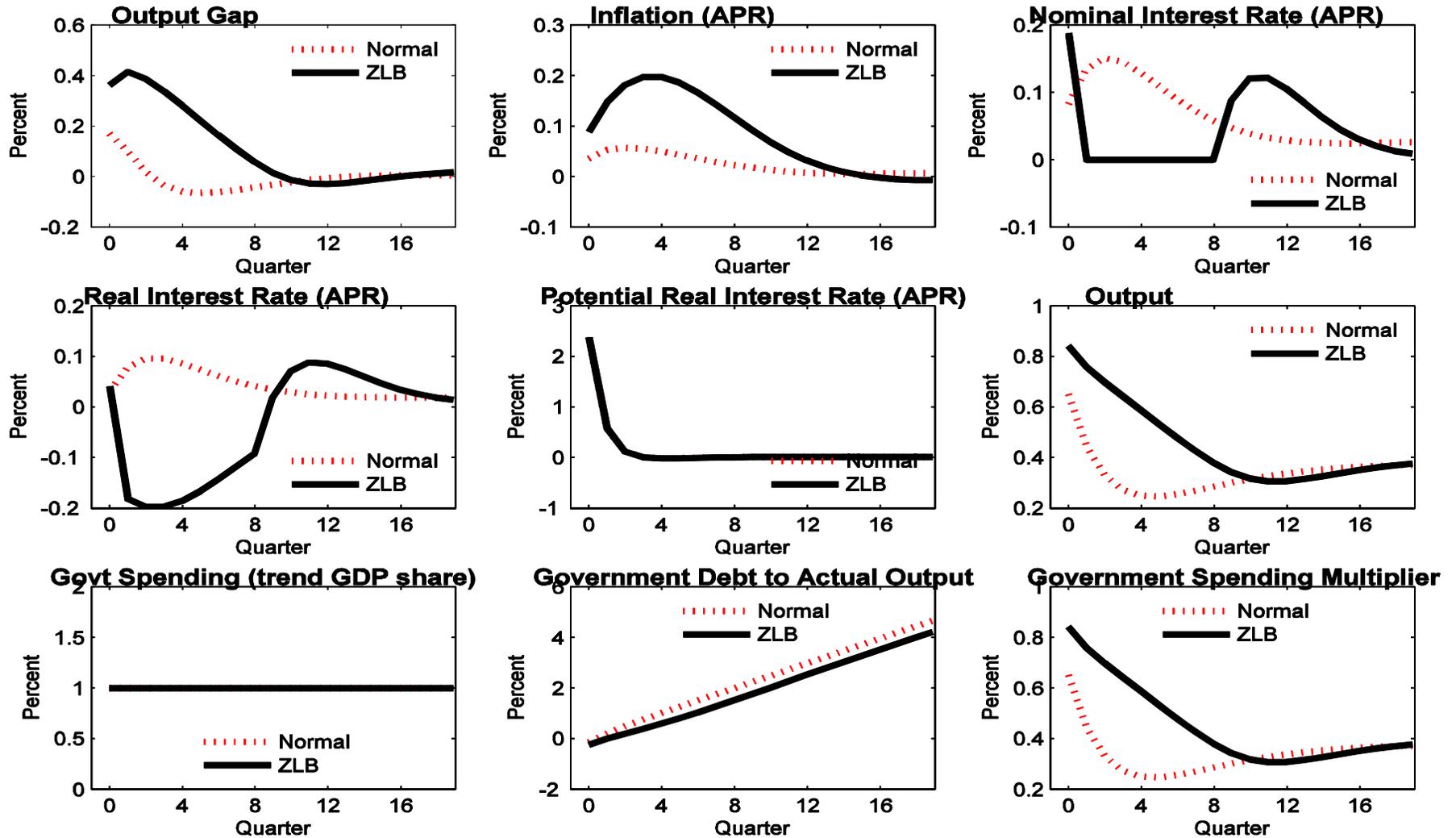
Responses to a near permanent increase in G with 1% of baseline GDP in a SW type model: higher slope of p and w equations
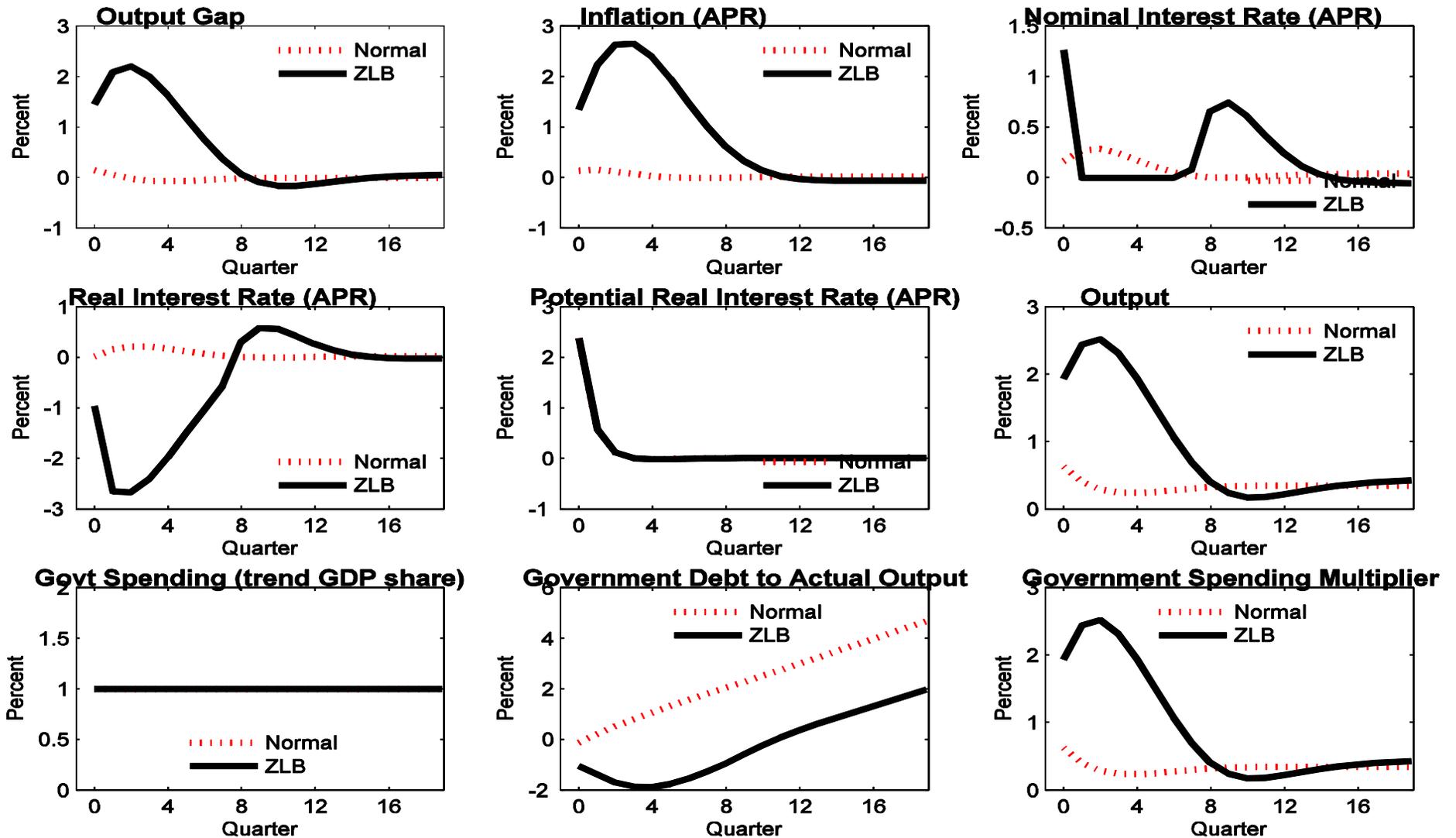
- From the posterior distributions in the   paper, I simulated parameter distributions under the assumption of uncorrelated parameters

  - Figures below show that it is not implausible that parameters can be twice as high

- Bottom line: Uncertainty bands for government multipliers in SW model probably skewed upwards

Simulated posterior distributions with slope coefficients in p (left) and w (right) curves: red line shows posterior mode
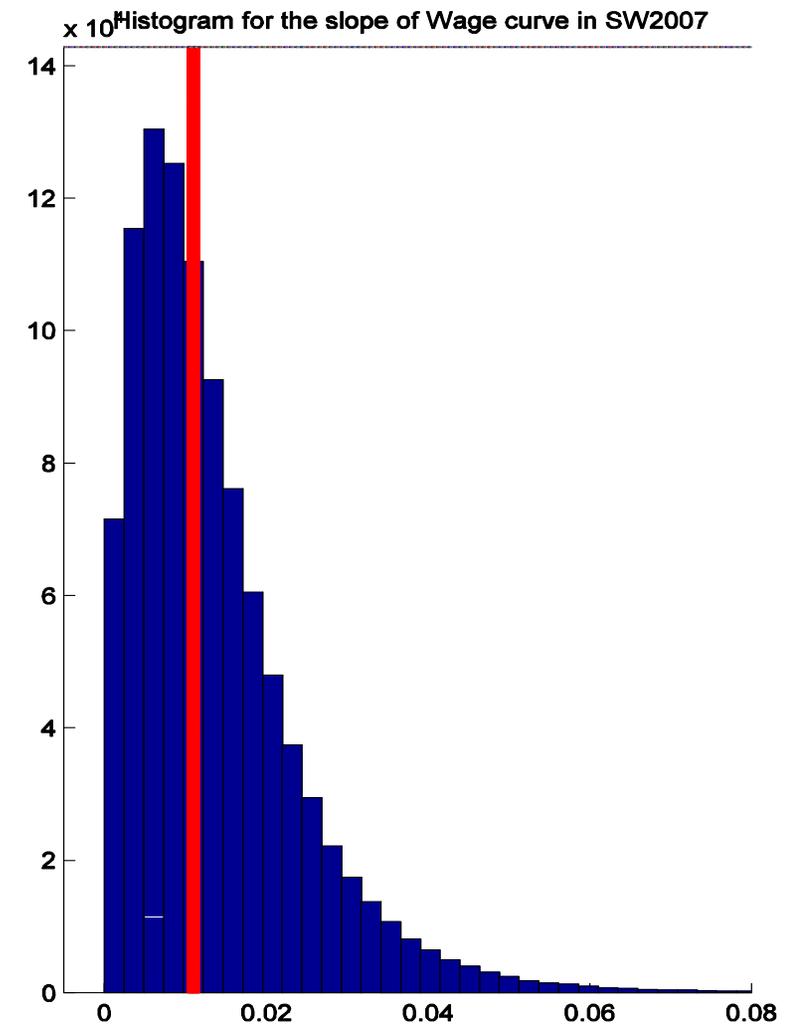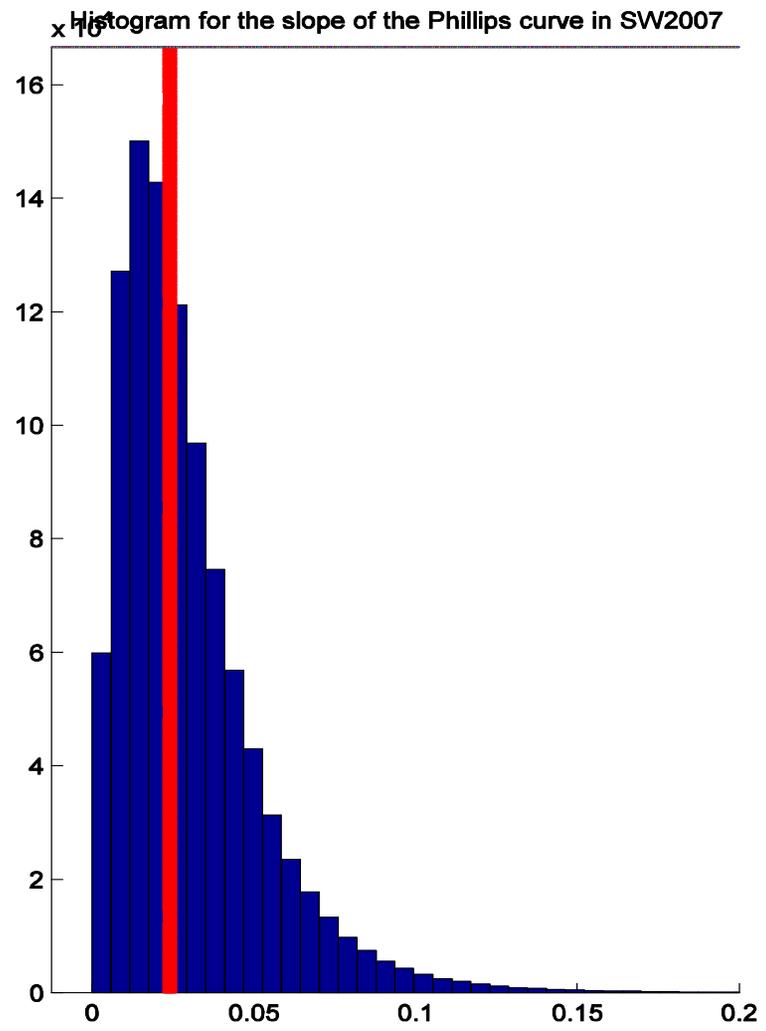
Duration of the liquidity trap

- Recent research (e.g. Christiano, Eichenbaum and Rebelo, 2009, and Erceg and Lindé, 2009) shows that the duration of the liquidity trap is crucial for how outsized government spending multipliers can be relative to a normal situation

  - Figure below shows fiscal spending multiplier for different liquidity trap durations in the simple forward-looking two-equation New Keynesian model for different slopes of the Phillips curve (contract durations)

  - Assume complete stabilization policy rule ($\gamma_\pi = 1000$, $\gamma_x = 1000$)

  - Outsized spending multipliers for long liquidity trap durations hinges on outsized movements in expected inflation

Figure 6: Marginal Government Spending Multipliers in Stylized Model
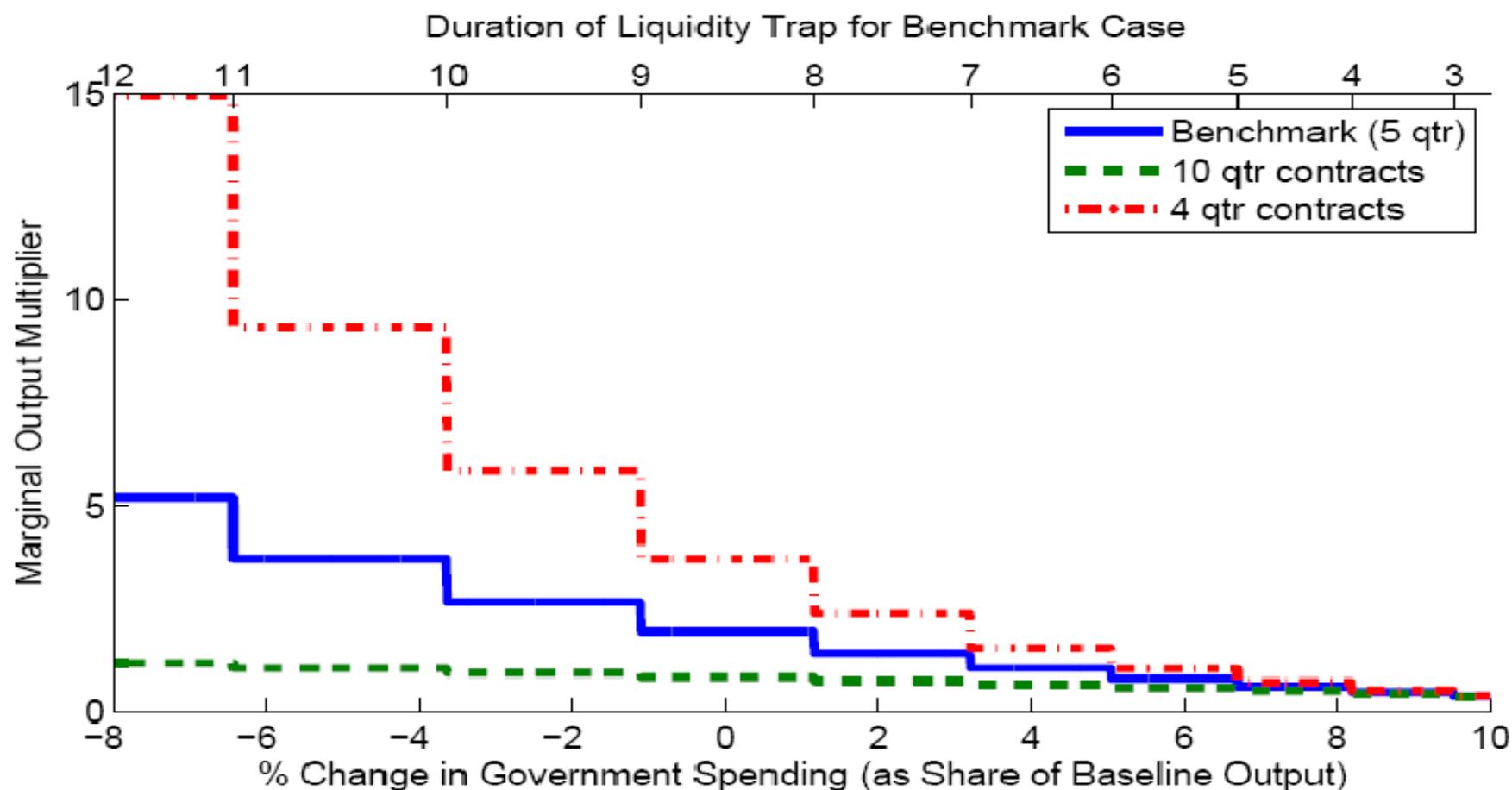
$$x_t = x_{t+1|t} - \hat{\sigma}(i_t - \pi_{t+1|t} - r_t^{pot})$$

$$\pi_t = \beta\pi_{t+1|t} + \kappa_p x_t$$

$$i_t = \max\left(-i, \gamma_\pi \pi_t + \gamma_x x_t\right)$$

Expected Inflation Channel

- The IS curve and price-setting equation can be solved forward to yield:

$$\pi_t = -\hat{\sigma}\kappa_p \sum_{j=0}^{T_n-1} \varphi(j)(-i - r_{t+j|t}^{pot})$$

- The weights $varphi_j$ are positive and determined by:

$$\varphi_j = \lambda_1 \varphi(j-1) + \lambda_2^j$$

subject to $\varphi(0) = 0$, and coefficients given by $\lambda_1 \lambda_2 = \beta$ and :

$$\lambda_1 + \lambda_2 = 1 + \beta + \hat{\sigma}\kappa_p$$

- Weights increase sharply in the duration of the liquidity trap (with the increase more dramatic as prices adjust more quickly)

Figure 2. Weights on Leads of the Interest Rate Gap in Inflation Equation

periods ahead
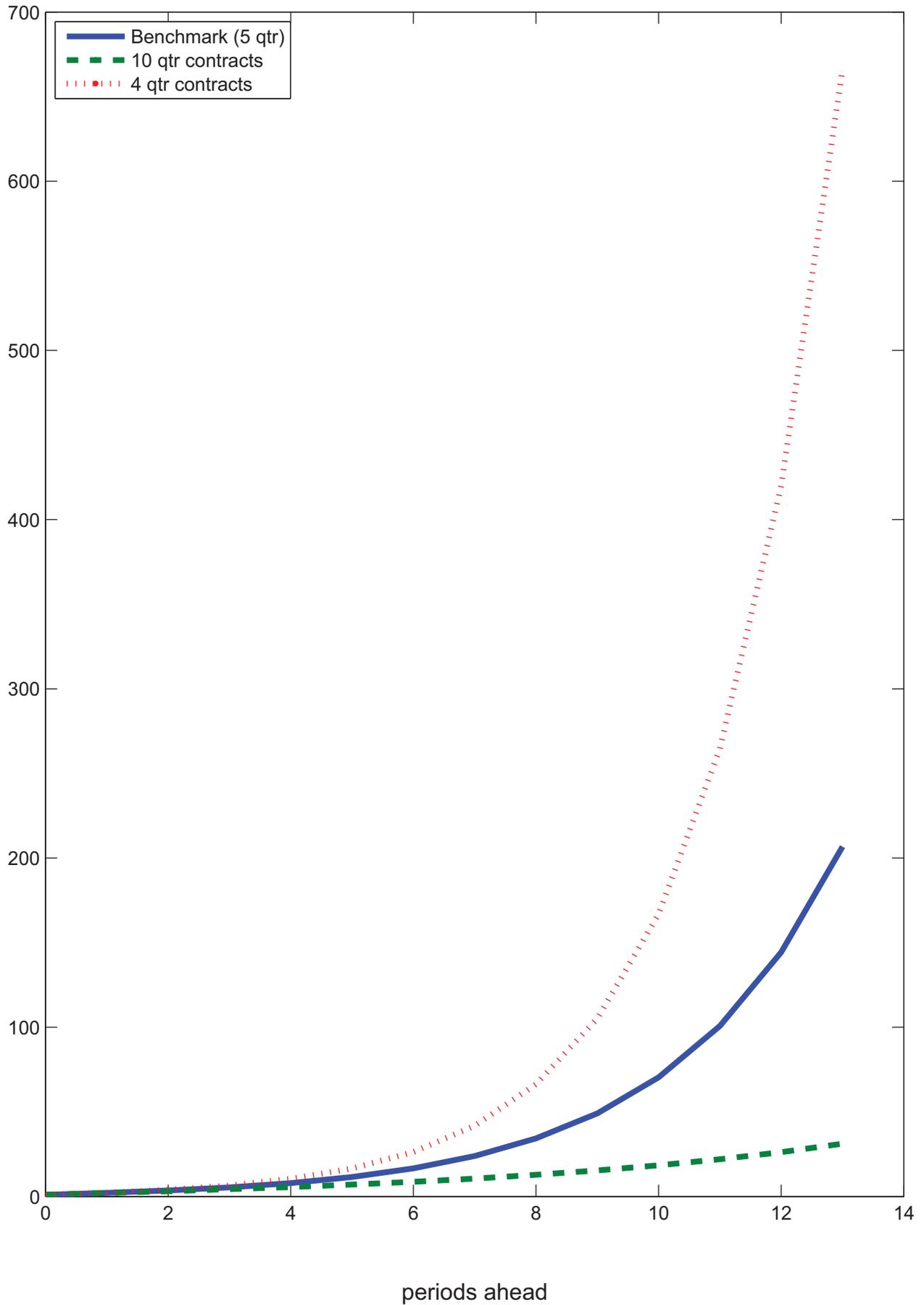
- However, the paper argues that the empirical evidence for a long duration of the liquidity trap is weak

  - Find by means of simulating the Smets and Wouters model forward from $2009Q1$ that the FFR should only be bounded by the ZLB for 2 quarters ($2009Q2$ and $2009Q3$)

- Present some real-time empirical evidence suggesting that when the fiscal stimulus package was signed into law, then the economic outlook was such that one could expect the FFR to be bounded by zero for a prolonged period

- Estimate three equation VAR(4) model with output gap (CBO), inflation and the FFR on the first vintage of data spanning $2008Q4$

  - Sample period $1982Q1 - 2008Q4$

  - Experiment with alternative measures of inflation: CPI, core CPI and PCE

  - Use estimated VAR model to make projections for $2009Q1 - 2010Q4$

- Figures with projections follows below

# Dynamic VAR projection 2009Q1-2010Q4 using data up to 2008Q4: CPI inflation variable
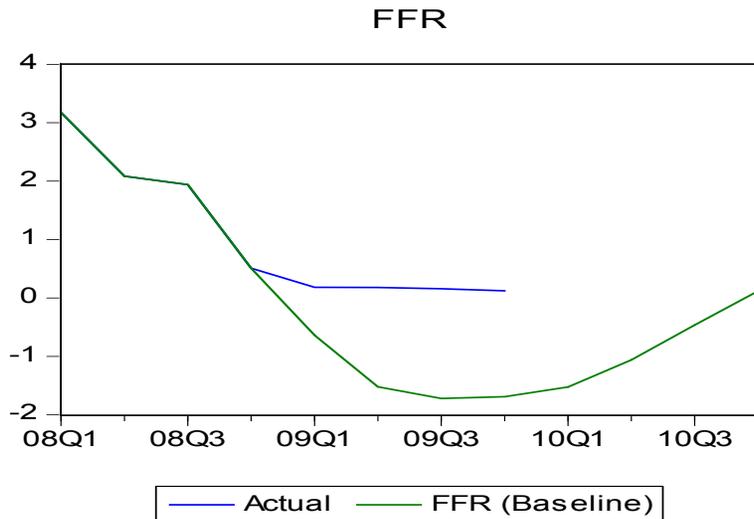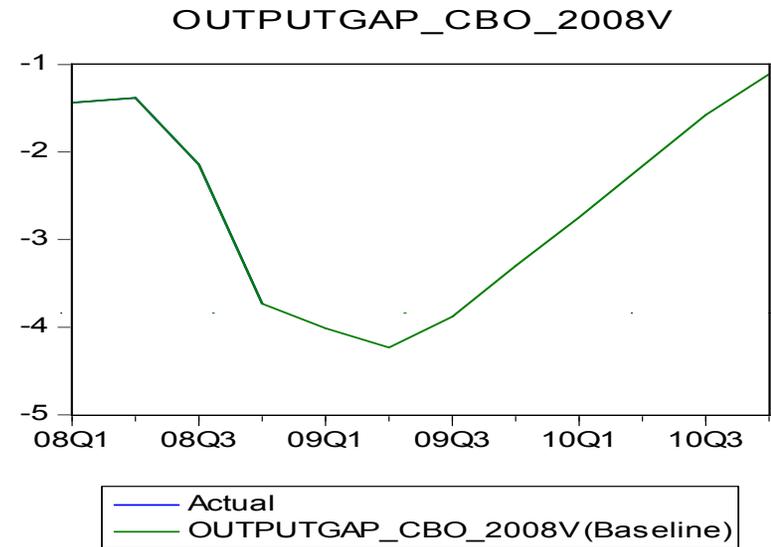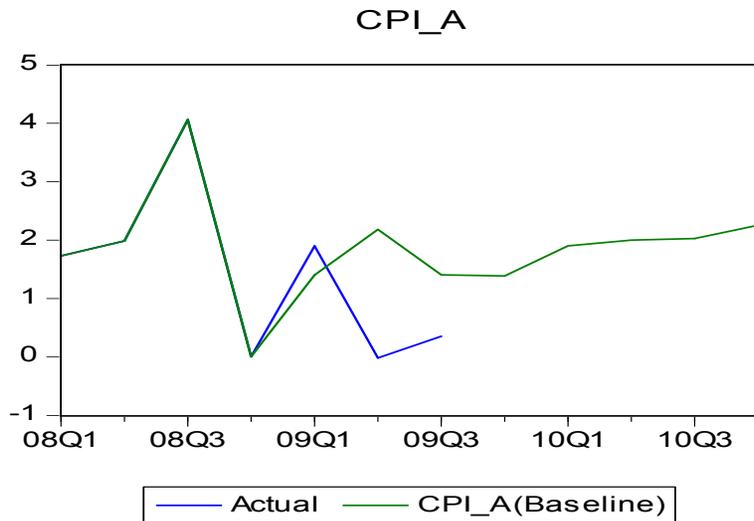
# Dynamic VAR projection 2009Q1-2010Q4 using data up to 2008Q4 (imposing intercept restrictions): CPI inflation
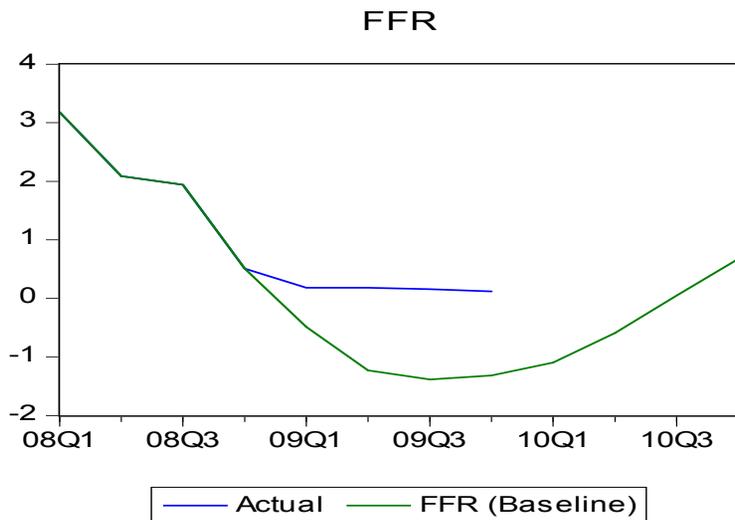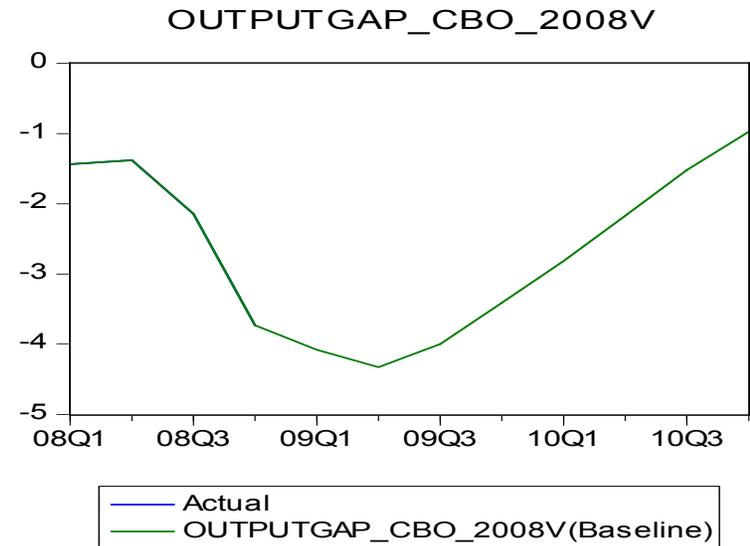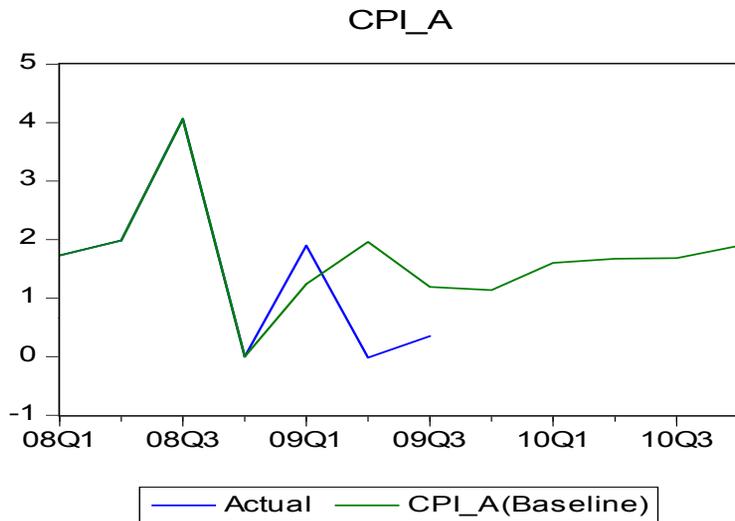
Dynamic VAR projection 2009Q1-2010Q4 using data up to 2008Q4: core CPI inflation instead of CPI inflation
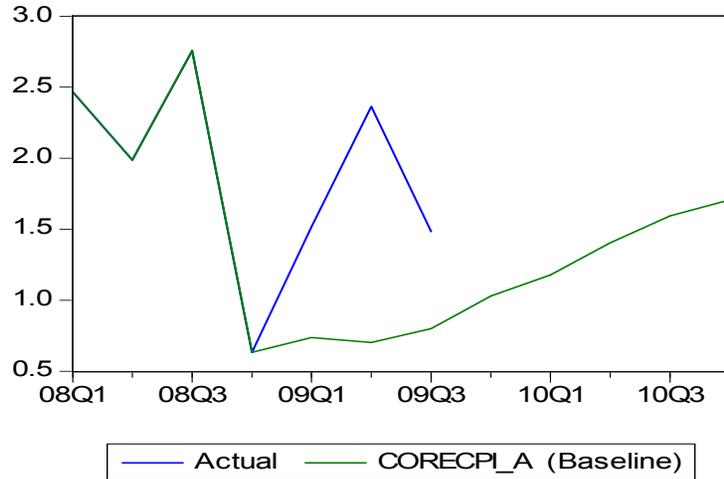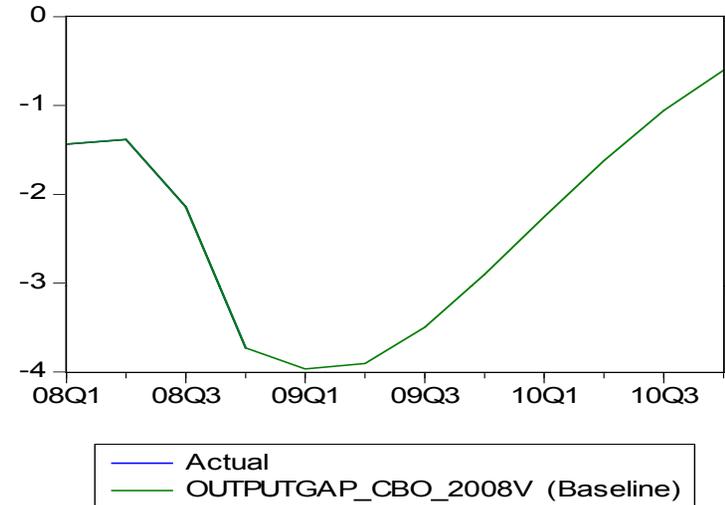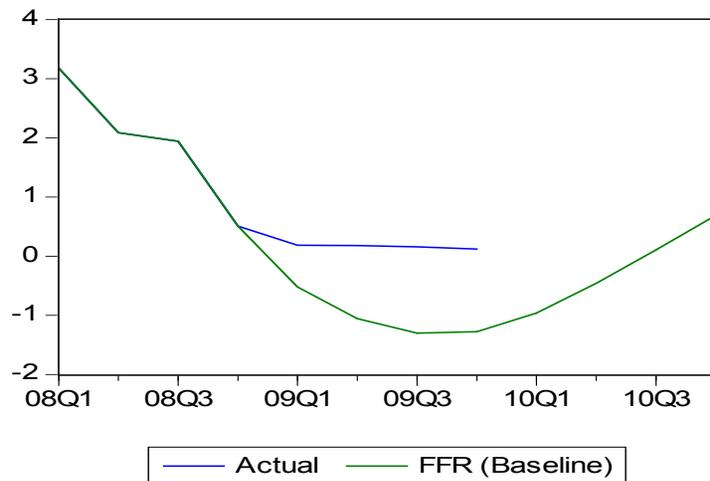
# Dynamic VAR projection 2009Q1-2010Q4 using data up to 2008Q4 (with intercept restrictions): core CPI
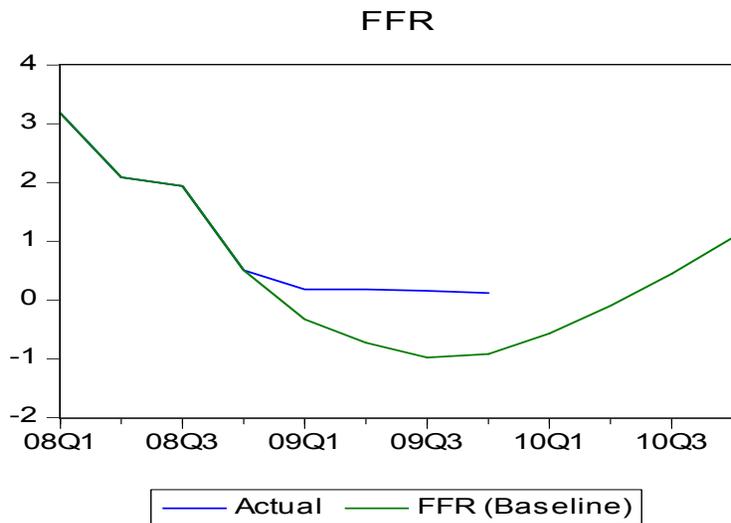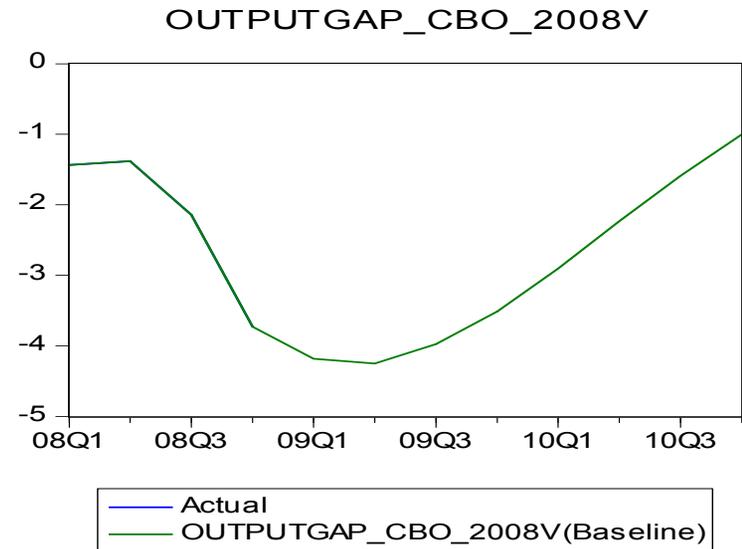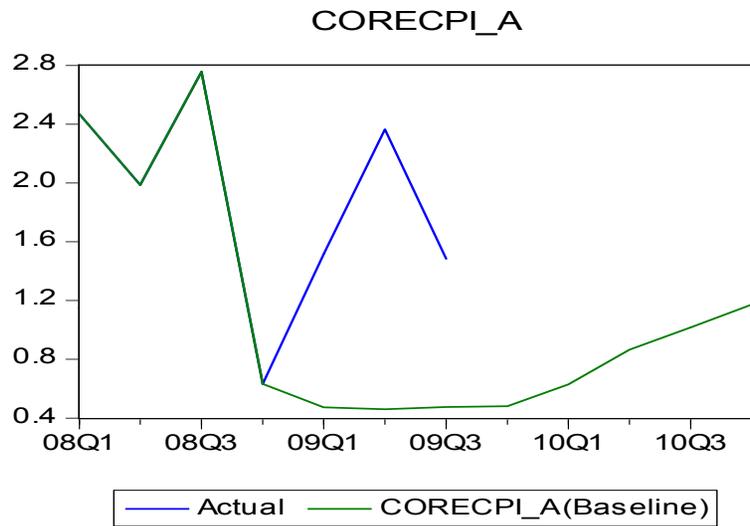
Dynamic VAR projection 2009Q1-2010Q4 using data up to 2008Q4: PCE defl. inflation instead of CPI
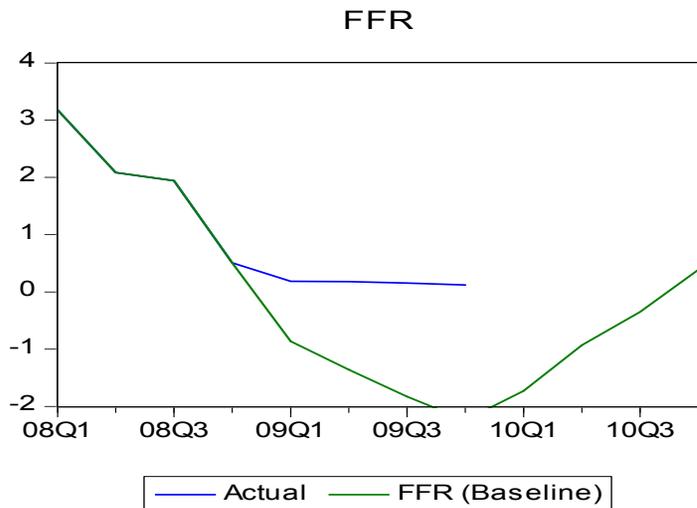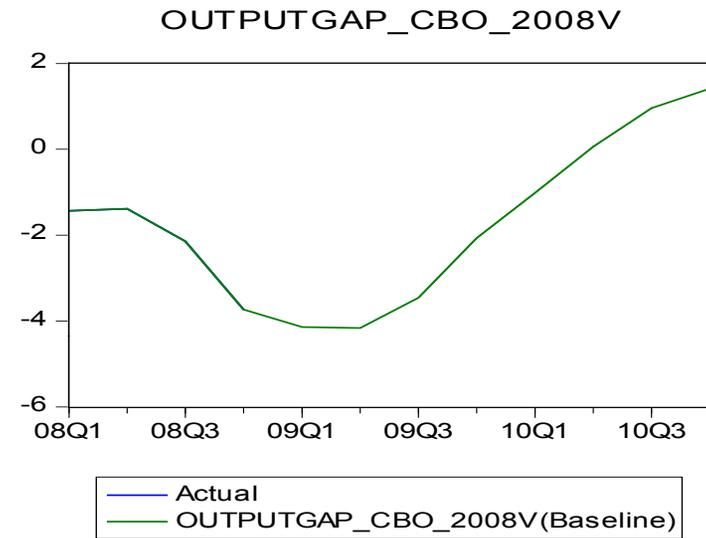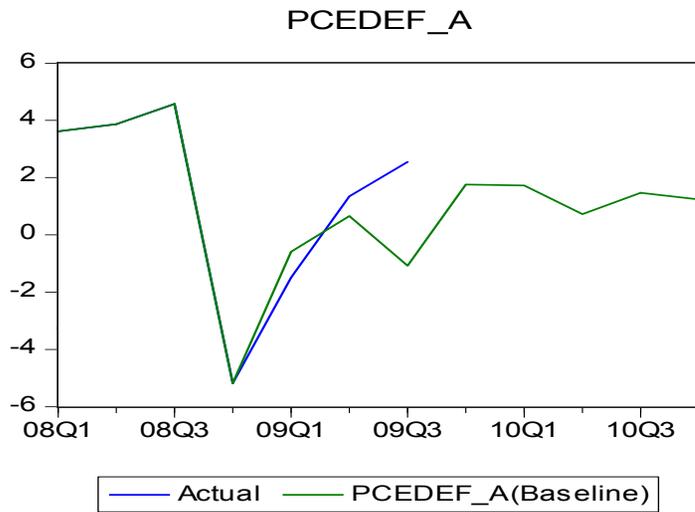
Dynamic VAR projection 2009Q1-2010Q4 using data up to 2008Q4 (with intercept restrictions): PCE defl. instead of CPI
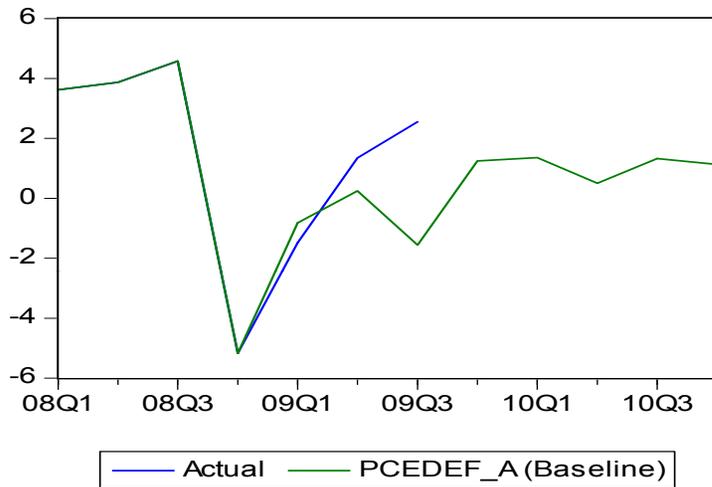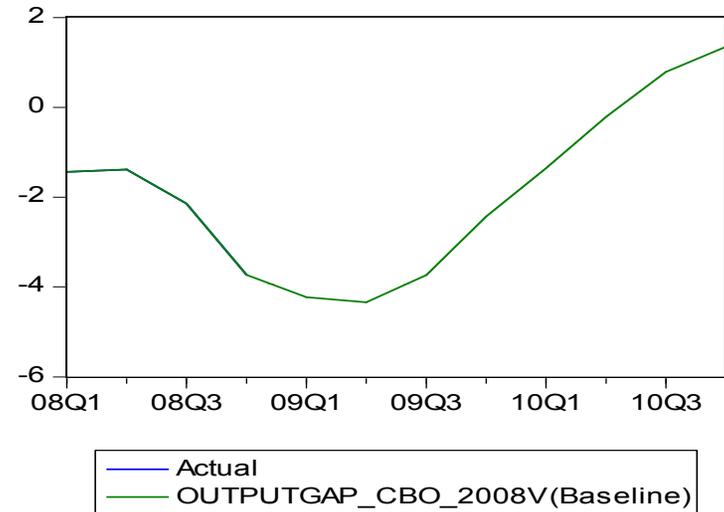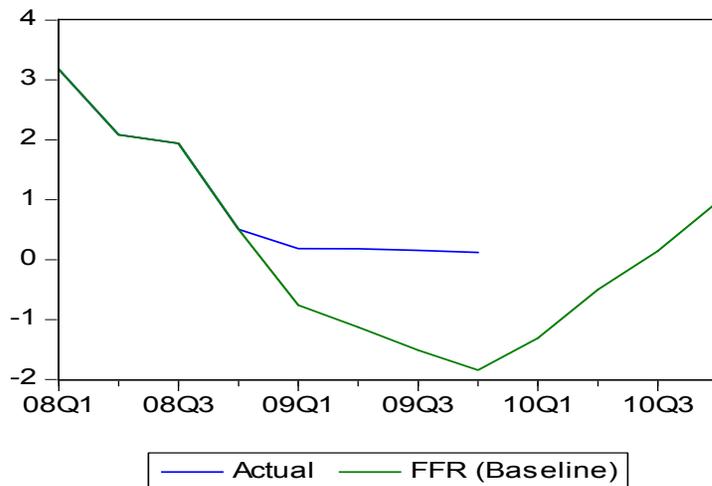
- This evidence supports the view that policy makers at the time were possibly facing a situation where the FFR would be bounded at zero for a protracted time period ($\geq$ 8 quarters)

- Under these circumstances, the government spending multiplier in New Keynesian models can be very large

  - In particular, this is the case if prices and wages are not too sticky and the fiscal expansion is front-loaded and not to persistent (and monetary policy accommodating)

Size of government expansion

- One issue that I miss discussion of in the paper is the size of the fiscal stimulus package

- When interest rates are bounded at zero for a prolonged period, there is a very important distinction between the average and marginal government spending multiplier if monetary policy follows

$$i_t = \max\left[0, (1 - \gamma_i)(\gamma_\pi \pi_t + \gamma_x x_t) + \gamma_i i_{t-1}\right]$$

  - If increase in government spending is large enough, this policy rule above will shrink duration of liquidity trap endogenously

- Erceg and Lindé (2009) computes average and fiscal multipliers when monetary policy follows the policy rule above (assuming perfect foresight)

  - Use a model very similar to the Smets and Wouters (2007) model used in this paper

- Important difference between average and marginal government spending multipliers in this model, in particular when the government spending multiplier is high

Figure 13: Average and Marginal Multipliers in the CEE-SW Model With Capital and their Sensitivity to the Degree of Price and Wage Stickiness
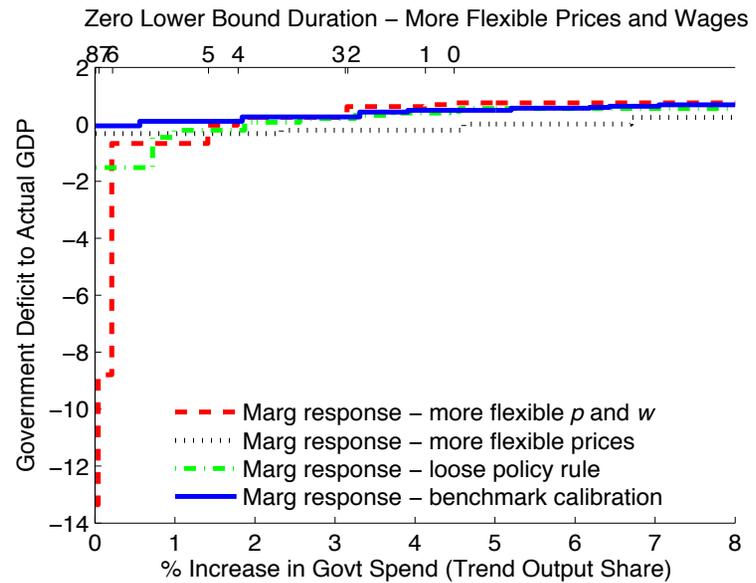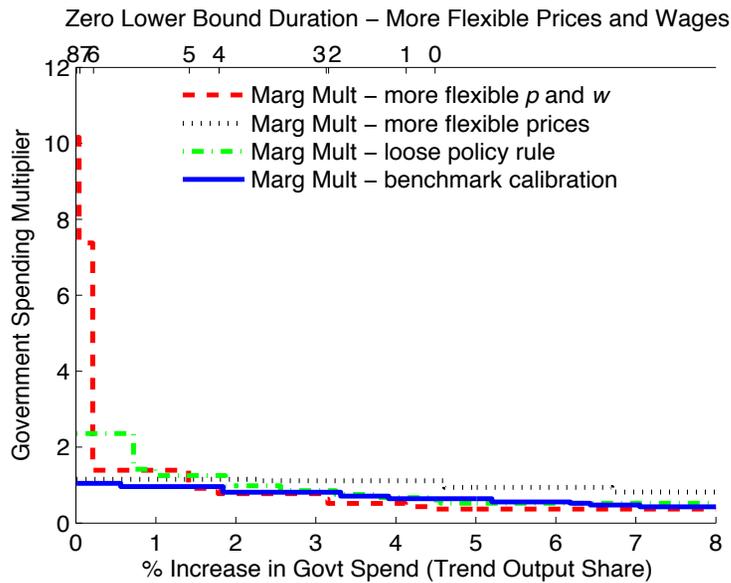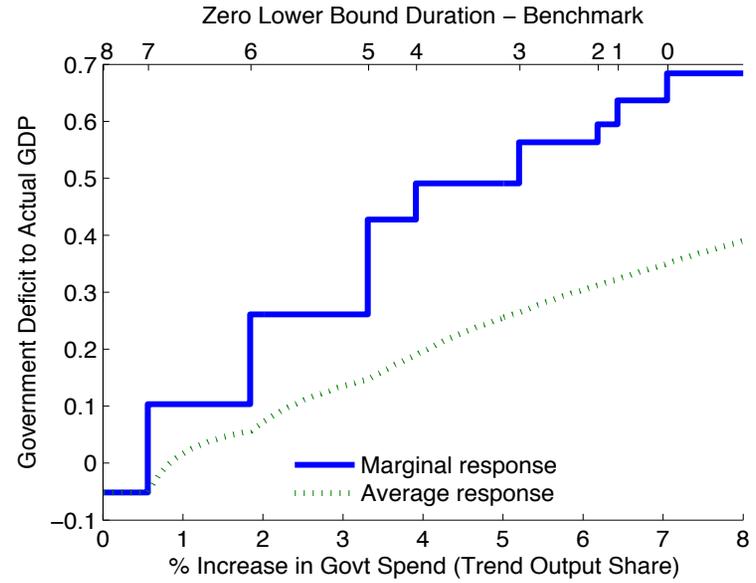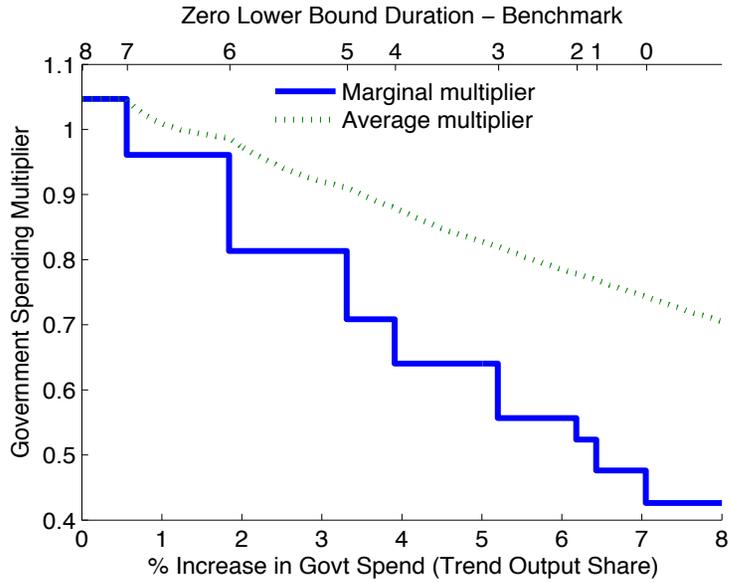
Share of rule-of-thumb consumers and role of financial frictions

- I found the estimation exercise for the model extended with rule-of-thumb consumers very interesting, but I am not sure what I learn from it given that you use exactly the same set of variables as Smets and Wouters

  – Would be of interest to extend the set of observables with government expenditures and disposable income to enhance identification of key parameters

  – Results in Erceg and Lindé (2009) suggests that the spending multiplier can be substantially enhanced if about 50% of households consume by "rule-of-thumb"

- In addition, results in Erceg and Lindé (2009) suggests that the introduction of financial frictions enhance fiscal spending multipliers to some extent.

- Results in the figure below shows fiscal spending multipliers in a model very similar to the Smets and Wouters model you use in the paper and how they change when introducing financial frictions and "hand-to-mouth" consumers

Figure 17: Responses to a Front-loaded Increase in Government Spending in Normal Times and in a Liquidity Trap in Model with Capital, Financial Frictions and Keynesian Agents
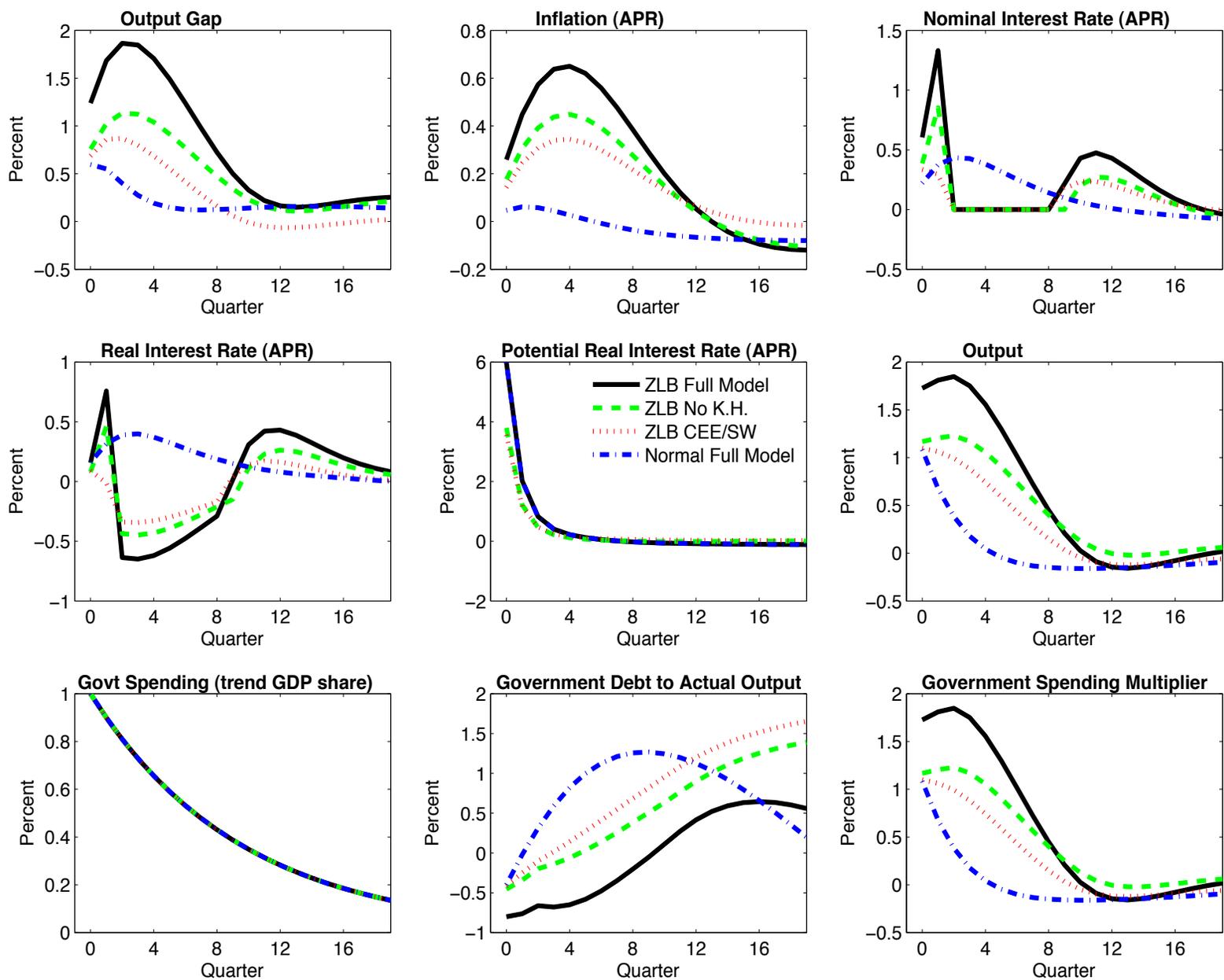
Concluding remarks

- I agree that for the government spending profiles considered in the paper, it is unlikely that fiscal multipliers will be as high in New Keynesian models as in "Old Keynesian" models (in particular further down the road)

- However, the fiscal spending multiplier can be substantially higher than unity in a prolonged liquidity trap in New Keynesian models for well-timed appropriately sized fiscal expansions

- In a liquidity trap, important to distinguish between average and marginal government spending multipliers

- Finally, reported some empirical evidence suggesting that when the stimulus plan was launched, the duration of the liquidity trap for the US could have been projected to be 8 quarters or longer without any discretionary fiscal stimulus