Discussion of

Gauti B. Eggertsson

What Fiscal Policy Is Effective at Zero Interest Rates?

By

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Overview

- Important addition to analysis of policy in the zero bound.
- Evidence that zero bound started to bind in late 2008.
- As recession deepened there were calls for expansionary fiscal policy:
  - increases in government spending.
  - Tax cuts.
- Eggertsson: “be careful what taxes you cut in a zero bound, because you may just add fuel to the fire.”

Zero Bound Crisis

- Ordinarily, real interest rate fluctuates to equilibrate demand and supply for saving.

$$\frac{1 + R_t}{1 + \pi^e_{t+1}}$$

- Lower bound on the nominal interest rate could translate into lower bound on the real interest rate if

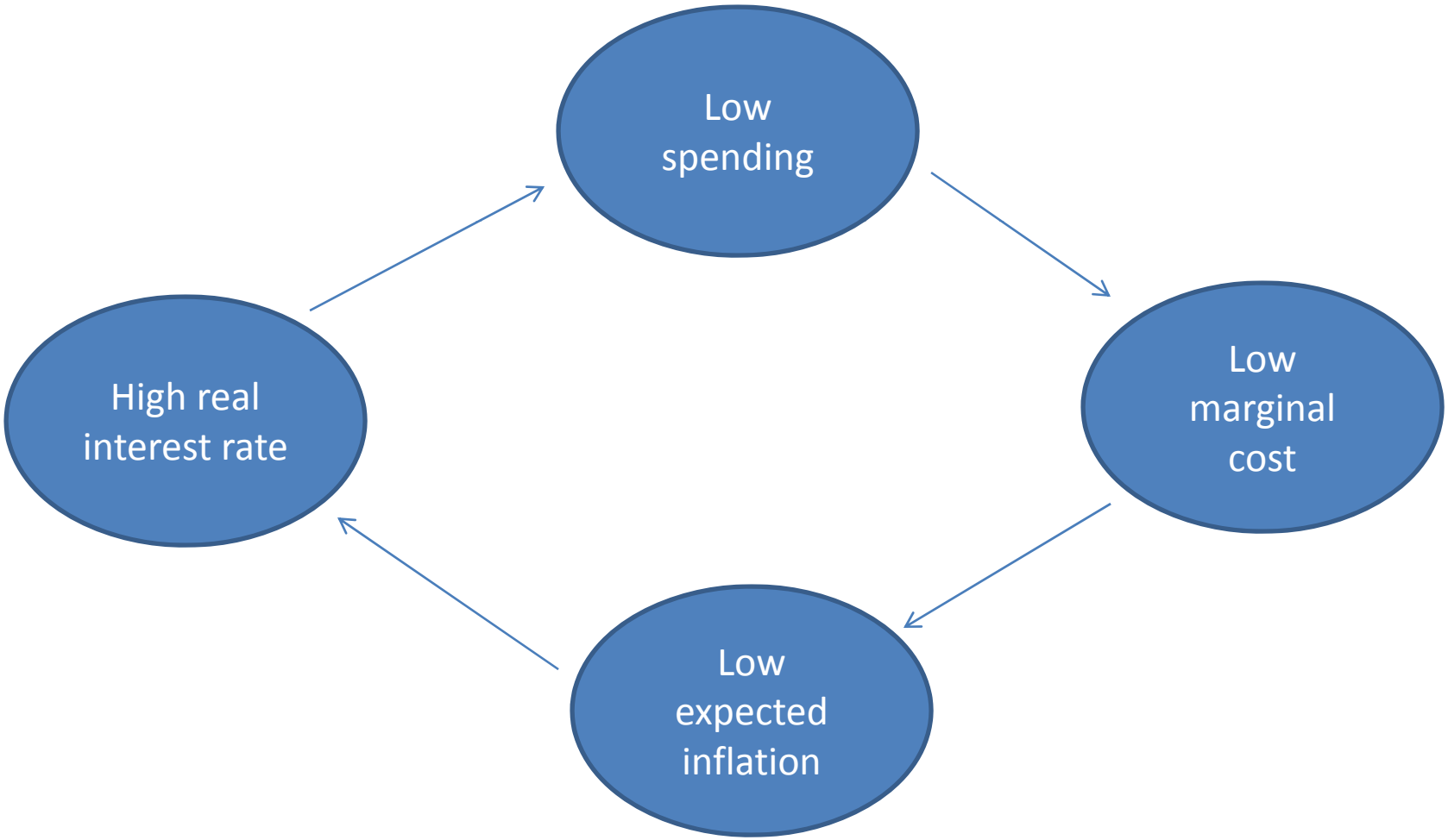
$$\pi^e_{t+1} > 0$$

Zero Bound Crisis, cnt'd

- A big enough shock could cause a lower bound on the real interest rate to bind.
  - Sudden increased desire to save.
  - Sudden decrease in ability of financial system to intermediate saving.
  - With excess saving (insufficient demand for goods), output begins to fall.

- Trouble!
  - Can fall into a ***deflation spiral.***

Deflation Spiral in Zero Bound



Remedies for deflation spiral

- Direct increase in spending … increase *G*,
- tax credits to encourage investment demand.
- Feldstein: revenue neutral conversion to VAT tax to encourage current consumption.
- Create inflation expectations (may lack credibility if government has spent years convincing the public it will never tolerate an increase in inflation).

Remedies, continued

- Classic tool for stimulating the economy, immortalized in undergrad textbook discussions of the 'Kennedy tax cut':
  - Cut income taxes.

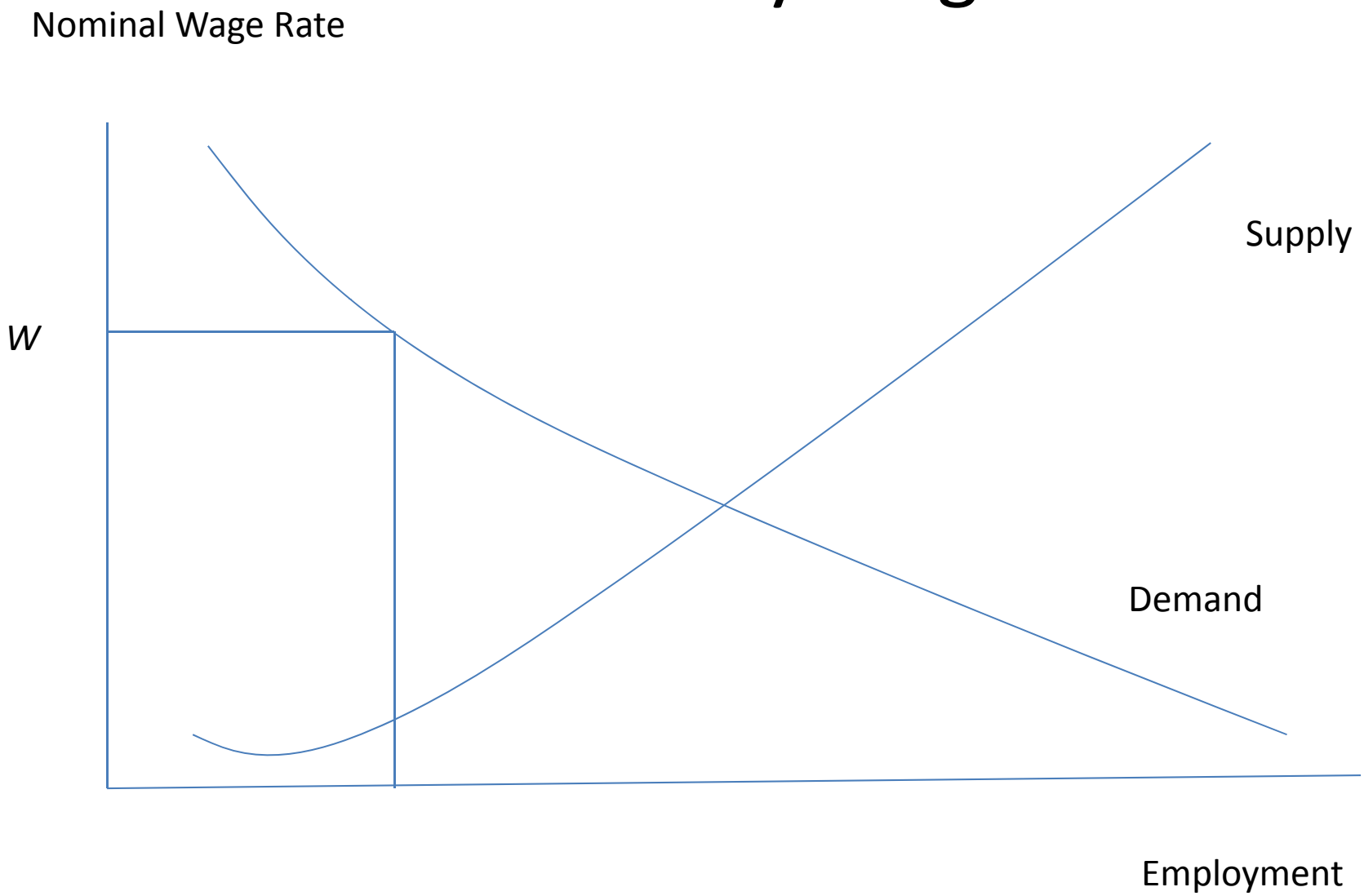
- Eggertsson: income tax cut may just 'add fuel to the fire'
  - Income tax cut increases supply of labor, reduces wages and so **reduces firm marginal cost**.
  - Accelerates deflation spiral.
  - Better to *increase* the income tax!

Quantitative Question

- How important, quantitatively, is the labor tax rate in a NK model?

- NK models that fit the data best:
  - Frictions in the adjustment of wages.
  - Employment demand determined.
  - Labor supply relatively unimportant
    - Explains why obsession of RBC literature with labor supply not present in NK literature.

Reduced Importance of Labor Supply with Sticky Wage



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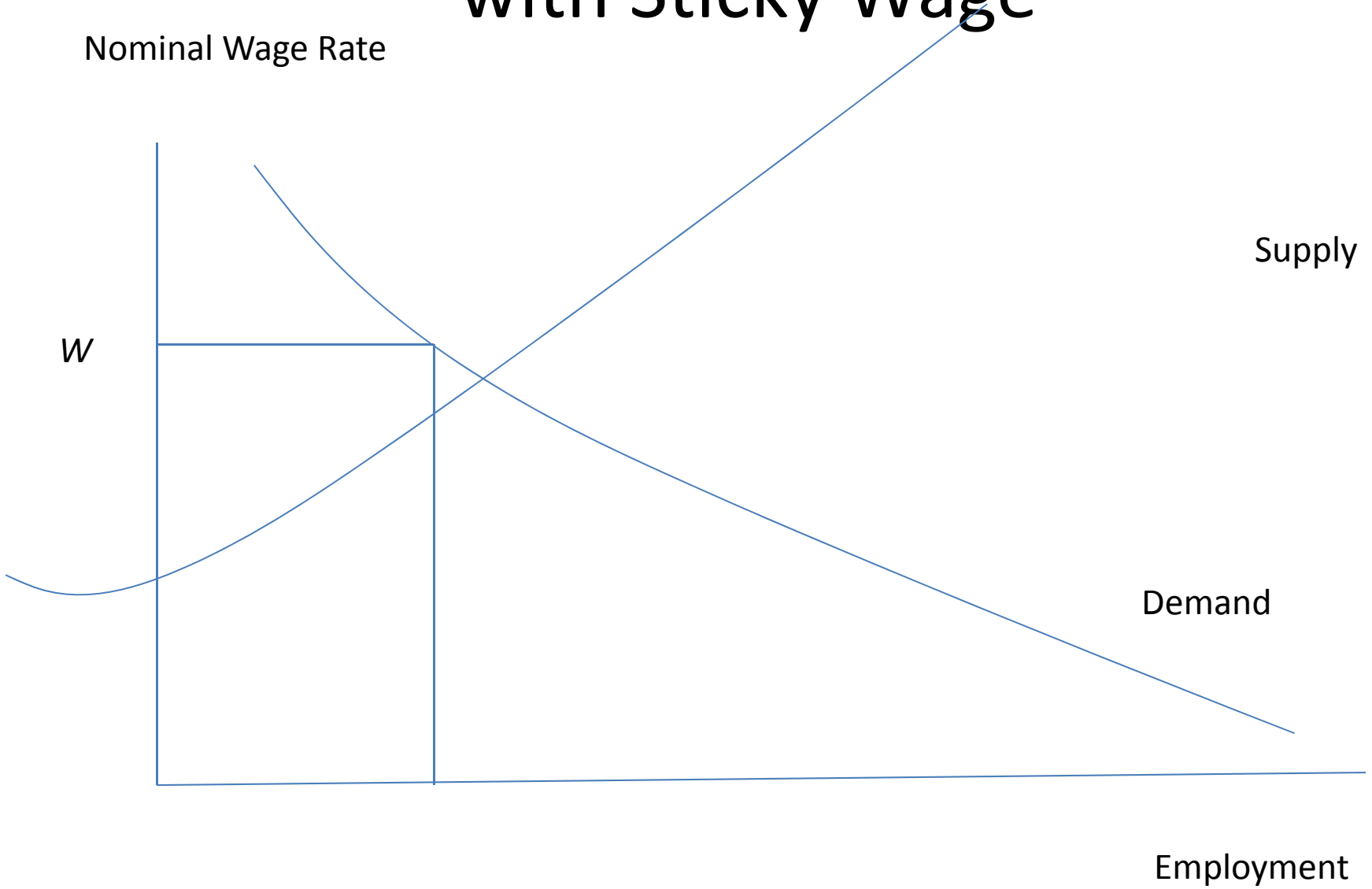


Goods Production

- Final Goods:

$$Y_t = \left[\int_0^1 Y_{i,t}^{\frac{1}{\lambda_f}} di \right]^{\lambda_f}, \; 1 \leq \lambda_f < \infty.$$

- Monopolists produce intermediate goods
  - Technology:

$$Y_{it} = H_{it}$$

  - Calvo sticky prices:

$$P_{i,t} = \begin{cases} P_{i,t-1} & \text{with prob. } \xi_p \\ \text{chosen optimally} & \text{with prob. } 1 - \xi_p \end{cases}$$

  - Enter competitive markets to hire labor.

EHL Labor Market

- Homogeneous labor:

$$H_t = \left[\int_0^1 (h_{t,j})^{\frac{1}{\lambda_w}} dj \right]^{\lambda_w}, 1 \leq \lambda_w < \infty$$

- *j-th* household preferences:

$$E_0 \sum_{t=0}^{\infty} \beta^t \left[\log C_t - A \frac{h_{j,t}^{1+\phi}}{1+\phi} \right]$$

- monopoly supplier of $h_{t,j}$
- Calvo sticky wages:

$$W_{t,j} = \begin{cases} W_{t-1,j} & \text{with prob. } \xi_w \\ \text{chosen optimally} & \text{with probl. } 1 - \xi_w \end{cases}$$

Monetary policy

$$Z_t = \frac{1}{\beta} - 1 + 1.5\hat{\pi}_t$$

$$R_t = \begin{cases} Z_t & Z_t \geq 0 \quad \text{‘zero bound not binding’} \\ 0 & \text{otherwise} \quad \text{‘zero bound binding’} \end{cases}$$

Analysis of Zero Bound

- In ‘pure sticky wage’ or ‘pure sticky price’ case, model reduces to usual three equation system.
  - The system has no state variable.
  - Makes possible a beautifully simple stochastic analysis of zero-bound scenario (Eggertsson-Woodford).

- In combined sticky-wage/sticky-price setup, there is a state variable, so EW setup does not work.

- I consider a deterministic scenario instead
  - Discount rate flips from +4 APR in steady state to -4 APR for 15 periods, deterministically.

Parameter Values

benchmark : $\xi_p = \xi_w = 0.75$ 'prices and wages stuck four quarters on average'

lots of sticky wages : $\xi_w = 0.85$

little sticky wages : $\xi_w = 0.20$

$$\beta = \frac{1}{1+r} = 0.99,\ r = 0.01$$

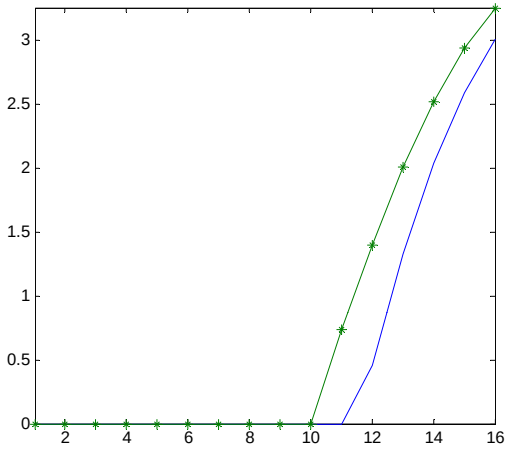
$\lambda_w = 1.20,$ 'elasticity of demand for specialized labor = 6'

$\phi = 1,$ $\tau = 0.30$

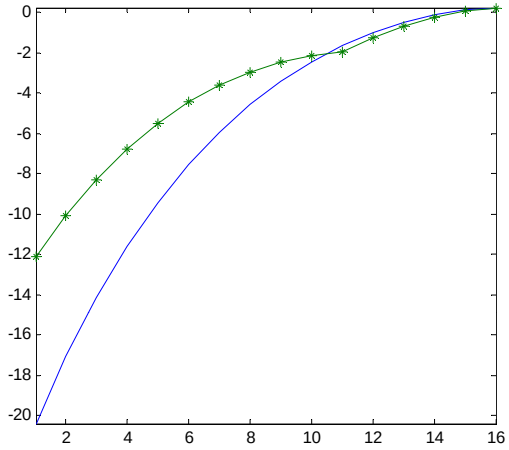
policy : τ increased from 0.30 to 0.40 while zero bound is binding

Baseline Simulation

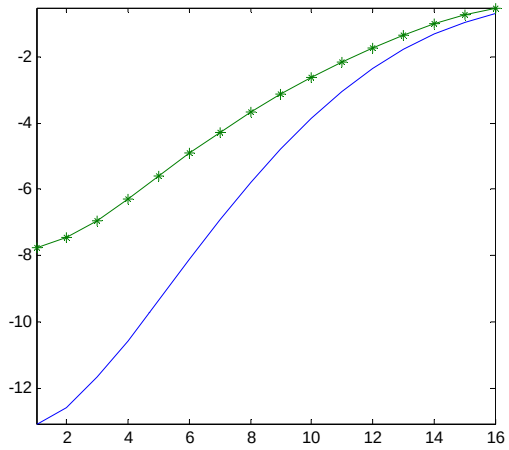
nominal rate of interest, $400*R_t$



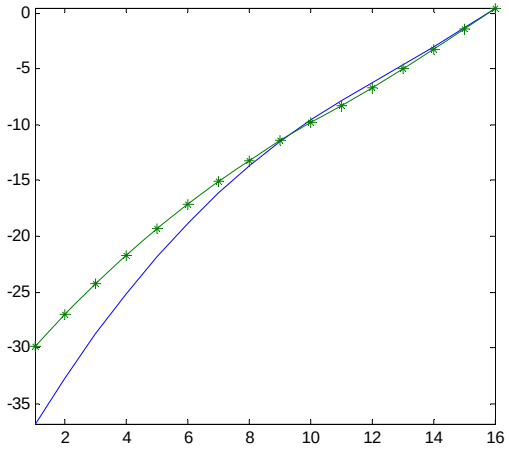
wage inflation, $400*\pi_{w,t}$



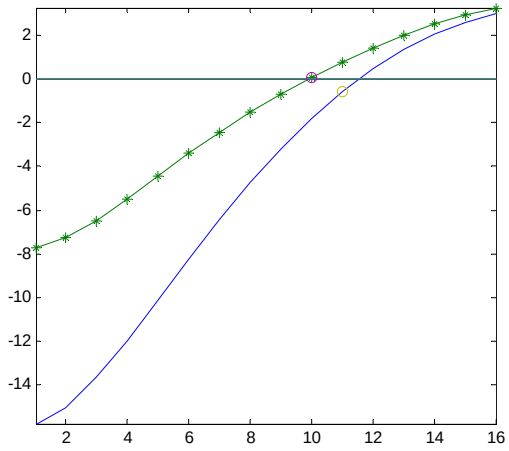
price inflation, $400*\pi_t$

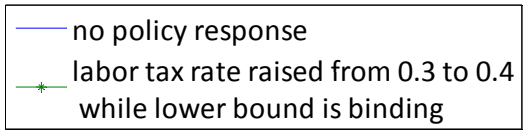


hours, percent deviation from steady state



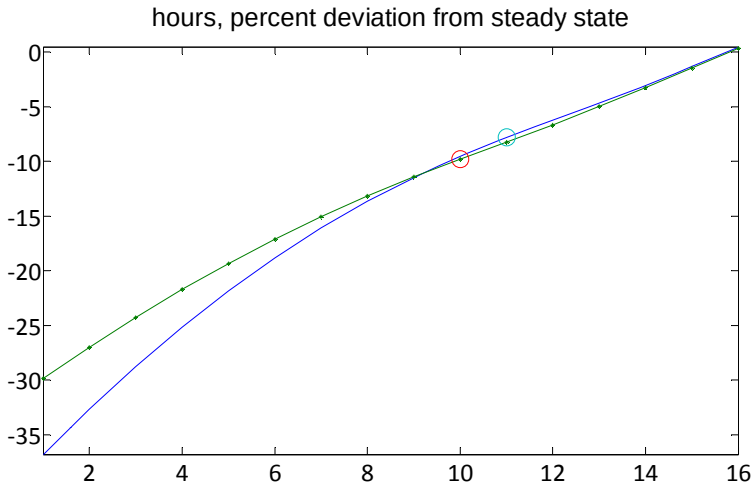
shadow interest rate, $400*Z_t$



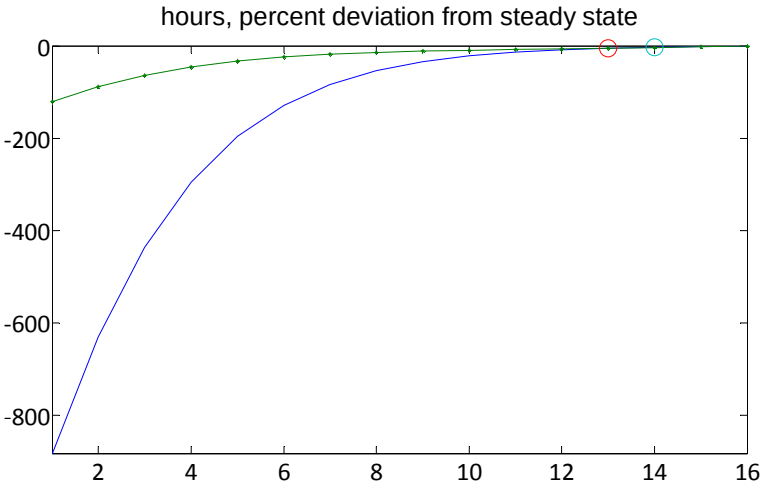


Time between wage reoptimization = 4 quarters

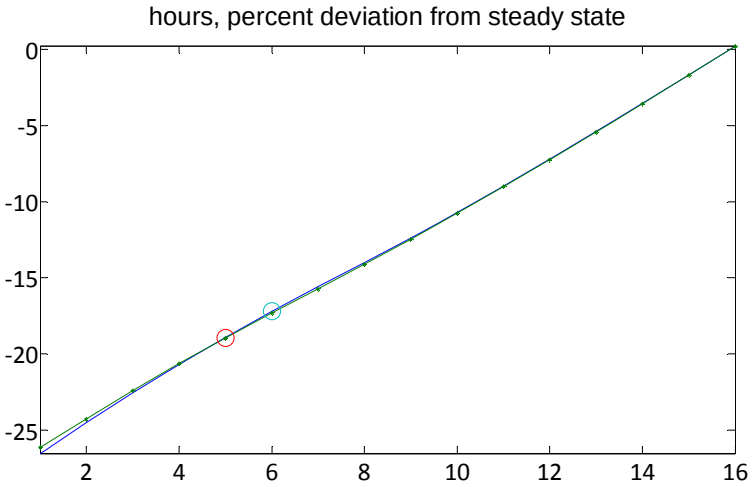
Circles indicate date when zero bound ceases to bind



1.25 quarters



6.7 quarters



Blue line: no policy response, Other line: tax rate increased from 0.30 to 0.40 while zero bound binds

Conclusion

- This is an eloquently written, important paper on the effects of policy in the lower bound.

- Two ways to state the result about fiscal policy in the zero bound:
  - An increase in government spending has a bigger impact if it is financed by an rise in income-taxes.
  - Cutting taxes may worsen the recession created by the deflation spiral.

- The computations suggest the tax effects may be small if wages are sticky….
  - but those computations do not change the qualitative nature of the results.