UNIVERSITY OF MICHIGAN

Observations on the Effectiveness of Monetary Stimulus

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The policy derivative

$$ {}_t y_{t+k} = \alpha_k(s) + \beta_k(s)\left(i_t - i_t^n\right) $$

$t = \text{time}$

$k = \text{horizon}$

$s = \text{time or state}$

$n = \mathit{natural}, \mathit{normal}, \text{or } \mathit{neutral}$

The policy derivative: Question(s)

$$ {}_t y_{t+k} = \alpha_k(s) + \beta_k(s)\left(i_t - i_t^n\right) $$

Has β been lower in recent years?

Will β normalize?

Why might we think β has been low?

No credible variation in policy rate, so it's not econometric evidence

Does low policy rate/unconventional easing

plus

lackluster growth

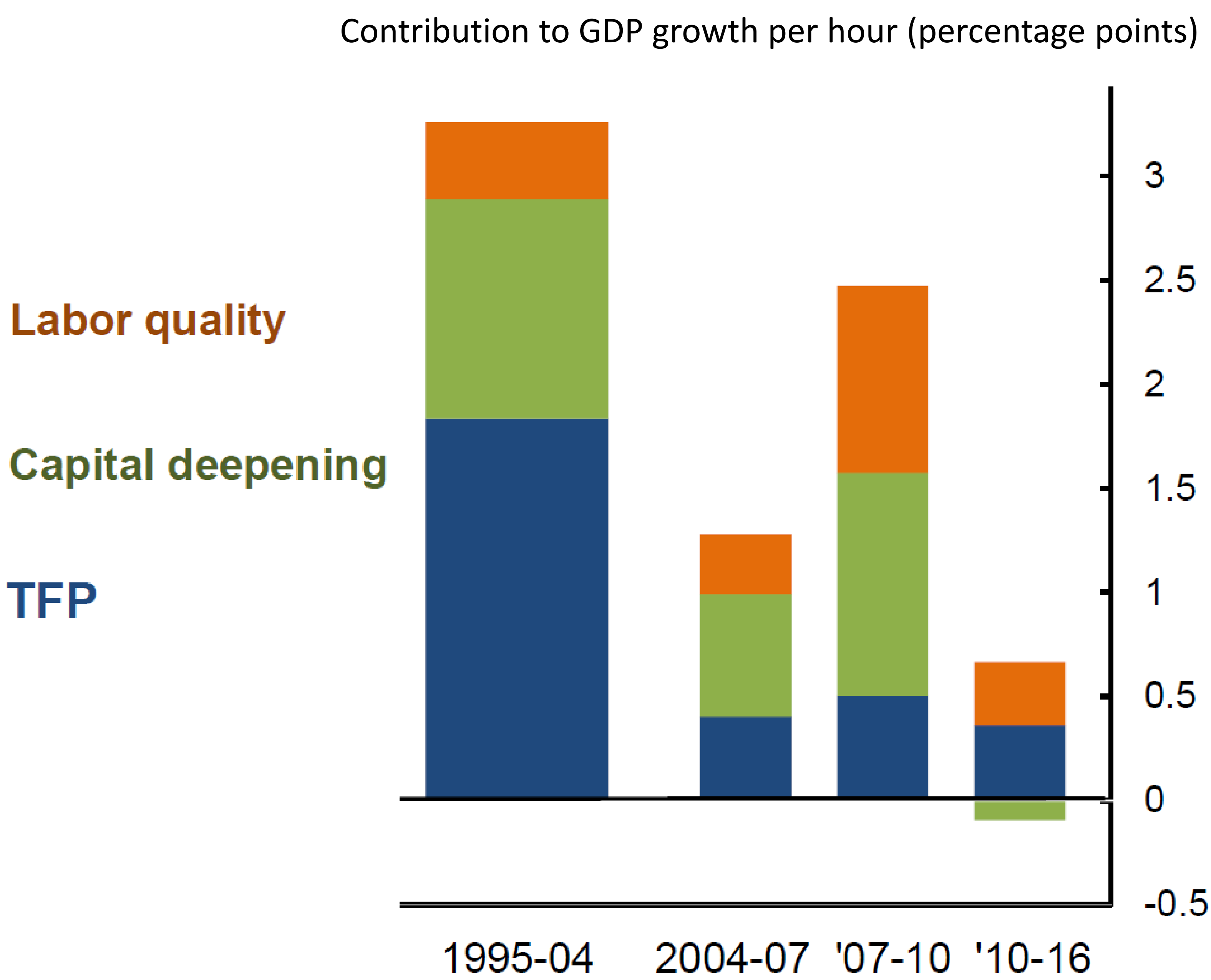
→ Low β ?

Low growth given β and policy

$$ {}_t y_{t+k} = \alpha_k(s) + \beta_k(s)\left(i_t - i_t^n\right) $$

Low α

- Low labor force growth
  - Decline from 1% to 0.5% p.a.
- Low TFP growth
- Low capital accumulation



Source: Fernald (2016)

Low growth given β and policy

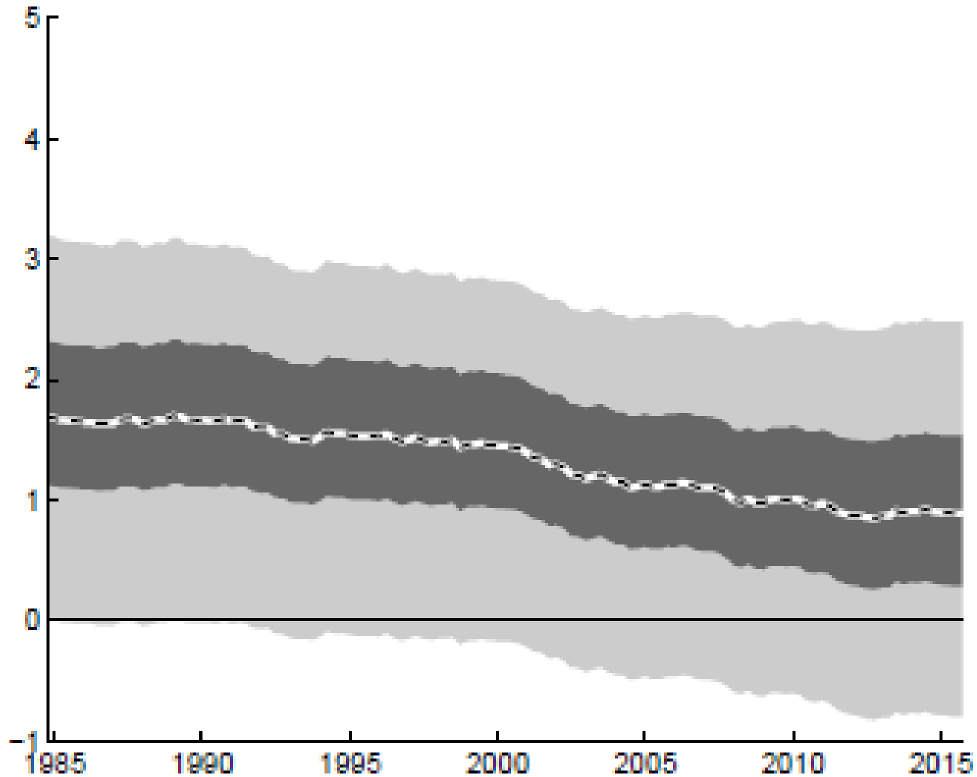
$$ {}_t y_{t+k} = \alpha_k(s) + \beta_k(s)\left(i_t - i_t^n\right) $$

Low i^n

- VAR forecasts
- Long-dated TIPS yield
- Thirty-year Treasury – 2%

→ i^n ≈1% recently, down from ≈2%

VAR Estimate of Real Fed Funds Rate



(b) Smoothed Estimates

Source: Benjamin Johannsen and Elmar Mertens (2016)

Recent 30-year Real Treasury Yields:
2010-2016

TIPS yield	Nominal yield – 2%
1.13%	1.32%

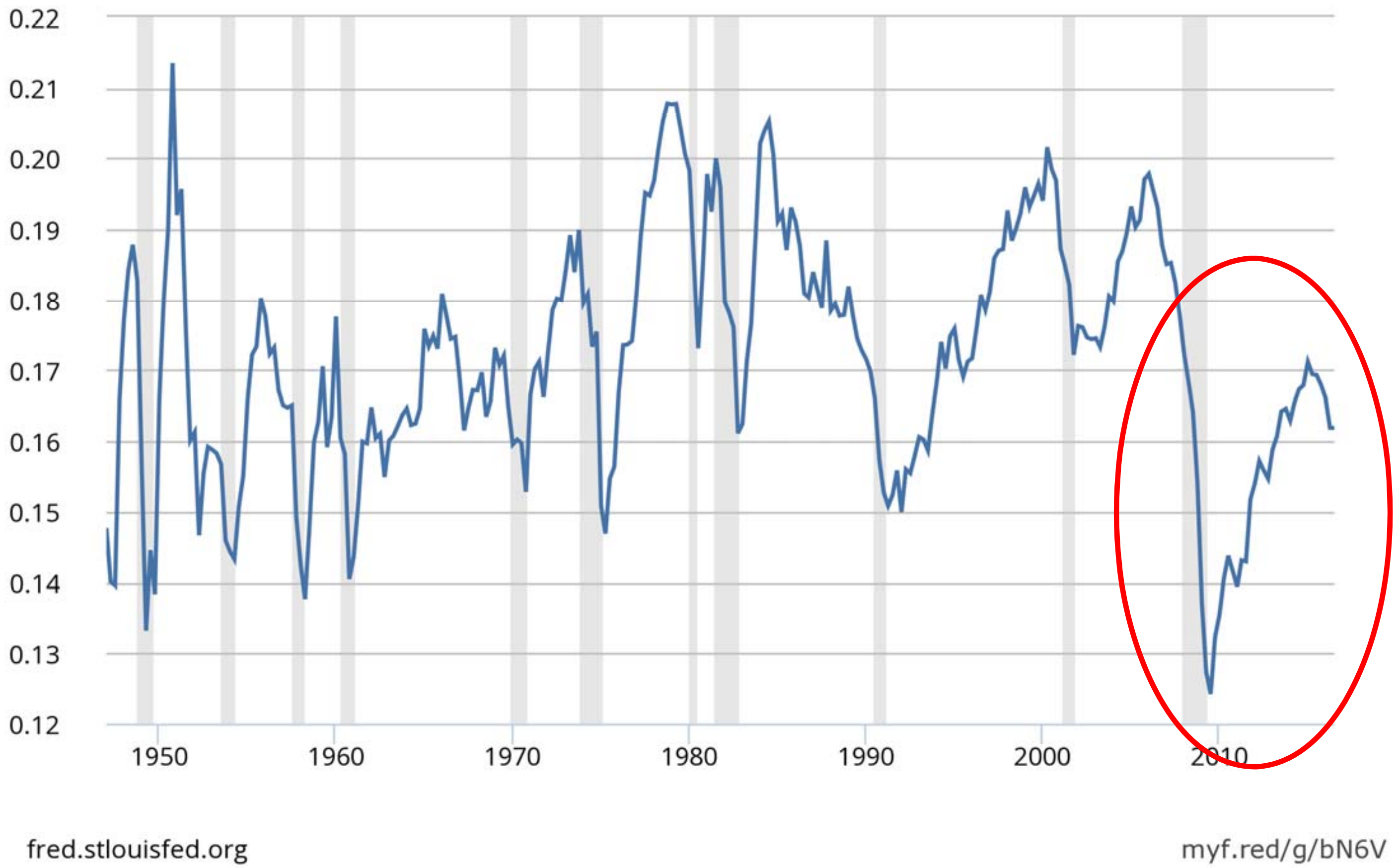
Data through October 2016

Possible (temporary) sources of attenuated response to monetary policy

1. Demand for credit: Natural borrowers out of market
2. Supply of credit: Bank retrenchment
3. Income effects loom larger relative to substitution effects

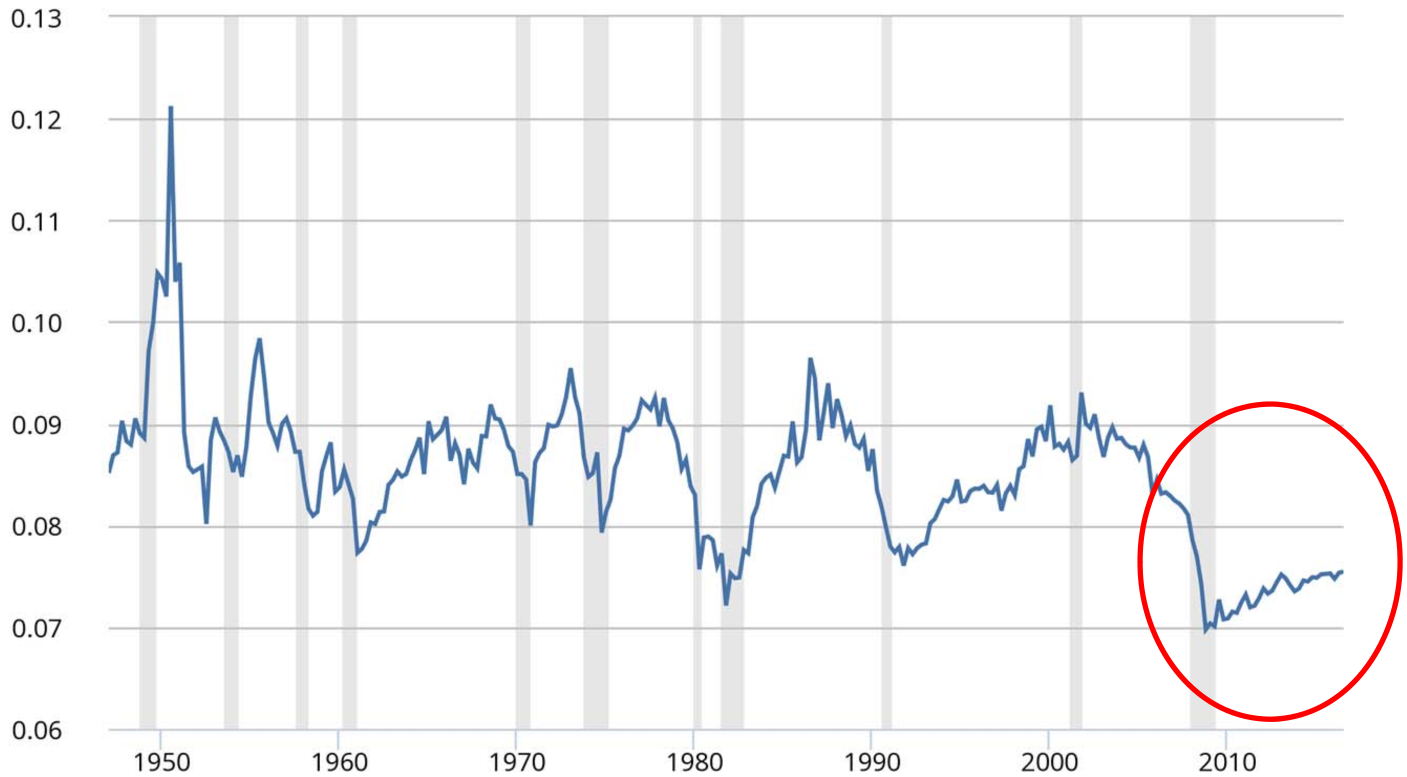
Demand for credit: Investment low

Ratio of Gross Domestic Private Investment/GDP



Demand for credit: Durable PCE low

Ratio of Durable PCE/GDP



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Causes of low capital accumulation

1. Stocks of housing, plant and equipment, and durables above steady state (autos an exception)
2. Natural borrowers in debt repayment mode, perhaps until recently

    Evidence from payroll tax expiration of balance-sheet repair of households.

    Requires kink or strong nonlinearity of budget set to affect responsiveness to monetary policy.

Supply of credit: Bank retrenchment

1. Requirement to increase capital
2. Increased scrutiny of loan risk

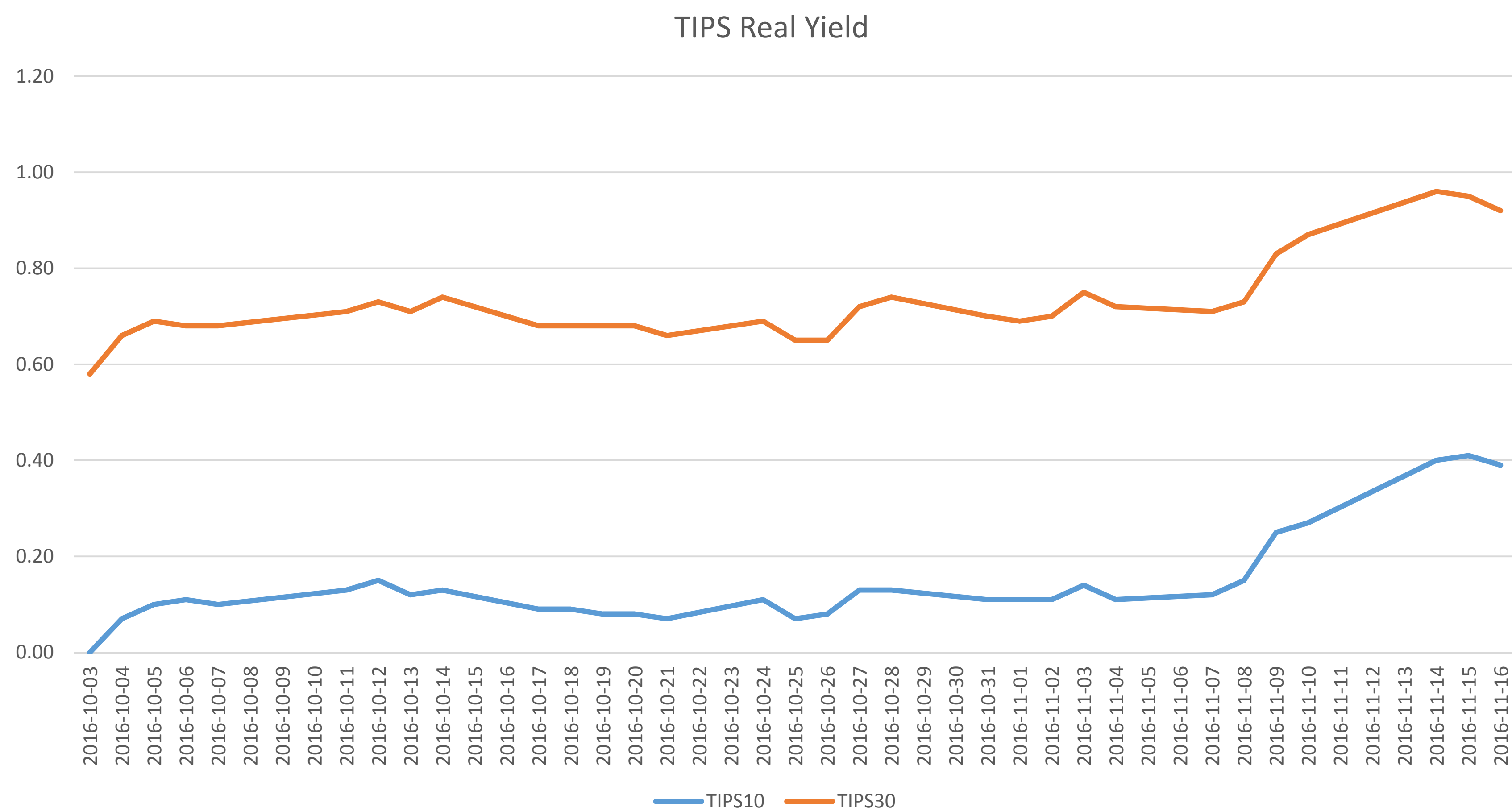
Income effects of low interest rates

1. Low rates squeeze incomes of older households, institutions
2. Offsetting stock market gains absent since 2014
3. Substitution effect less operative if natural borrowers in debt-repayment mode S

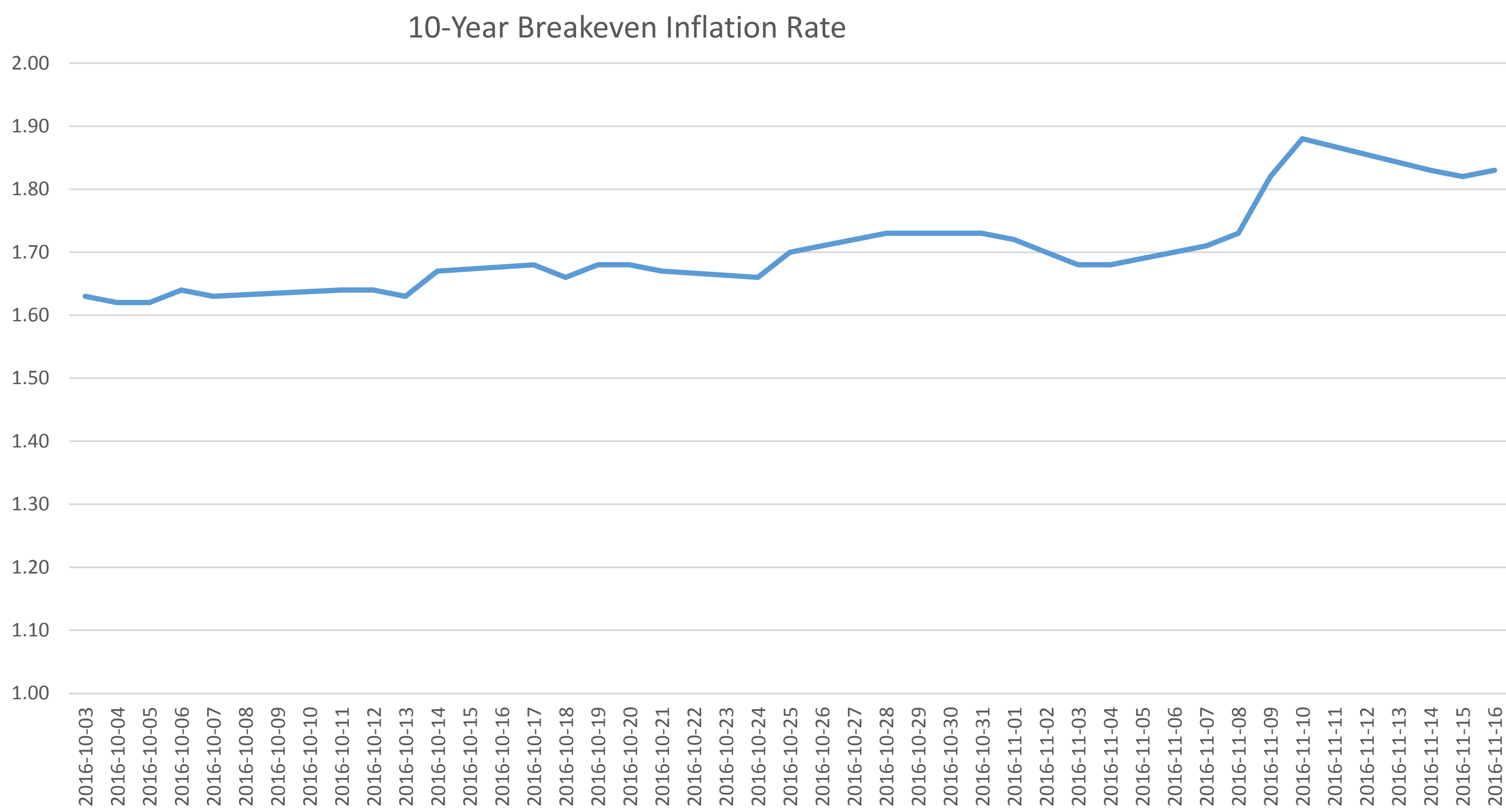
Summary: Do not expect abnormally muted response to monetary policy going forward

1. Muted response post-crisis from intercept, not responsiveness
2. Temporary factors effecting responsiveness abating, esp. regulatory

Looking forward: ZLB and inflation expectations after election



Looking forward: ZLB and inflation expectations after election



Looking forward: Fiscal expansion

- Large tax cuts
  - High-income MTR cuts
  - Elimination of ACA Medicare tax increases
  - Corporate
- Romer-Romer multipliers are large
- Whither fiscal discipline: Deficit hawks not much in evidence
  - Is there a plan for base broadening?
  - Sequester?
- Infrastructure

Looking forward: Upward pressure of real rates from fiscal expansion

- Standard estimates:
  - 1 percentage point increment to debt/GDP ratio $\rightarrow$3.5 basis points to real long-term Treasury rate
- Standard estimate is best-case scenario
  - Presumes historical discipline on debt/GDP ratio