Understanding "Understanding the Great Recession"

Christiano, Eichenbaum & Trabant

Franck Portier

Ortigia Conference
June 14, 2014

Overall

- A masterpiece
- Impossible to summarize in 20mn
- If I had to write a referee report, I would ask zillions of questions about some details of the analysis ...
- ... and without doubt I would get at least two good answers for each of my questions.
- Let me not do it but rather raise 4 points
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  2. The cyclical movement of TFP
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Roadmap

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2. The cyclical movement of TFP
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1. The Missing Deflation Puzzle

- Taken from some explorations I did with Paul Beaudry and that Giorgio knows well (more about this later)
- Take the textbook New Phillips curve

$$\pi_t = \beta E_t \pi_{t+1} + \kappa \widetilde{y}_t + u_t$$

- Assume that the output gap is AR(1) with persistence ρ.

$$\pi_t = \frac{\kappa}{1 - \beta\rho} \widetilde{y}_t + u_t$$

- Assume that there are no cost-push shocks u
- Assume that HP filtered output well measures output gap
- Note: this holds for *any* monetary policy rule

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Table 1: Baseline calibration of the New Phillips Curve

β	σ	ϕ	α	θ	ϵ
0.99	1	1	1/3	2/3	6

- $\theta = \frac{2}{3}$ corresponds to a mean price duration of 3 quarters.
- $\rho = 0.85$ from HP filtered GDP series over the period 1947-2012.

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Figure 1: Predicted inflation with an AR(1) model for output gap

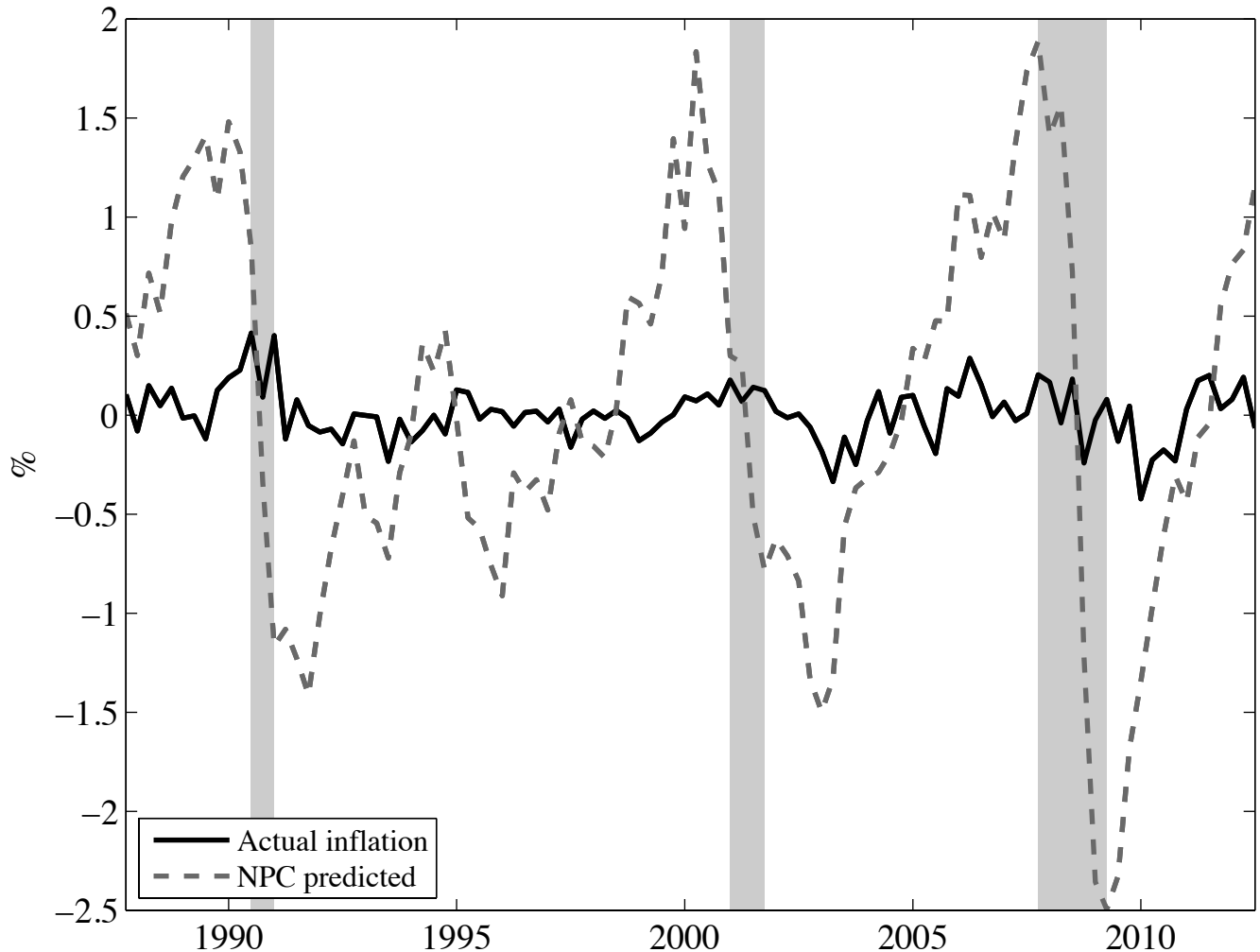

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Figure 2: Predicted inflation with an AR(1) model, output gap $= y - tfp$

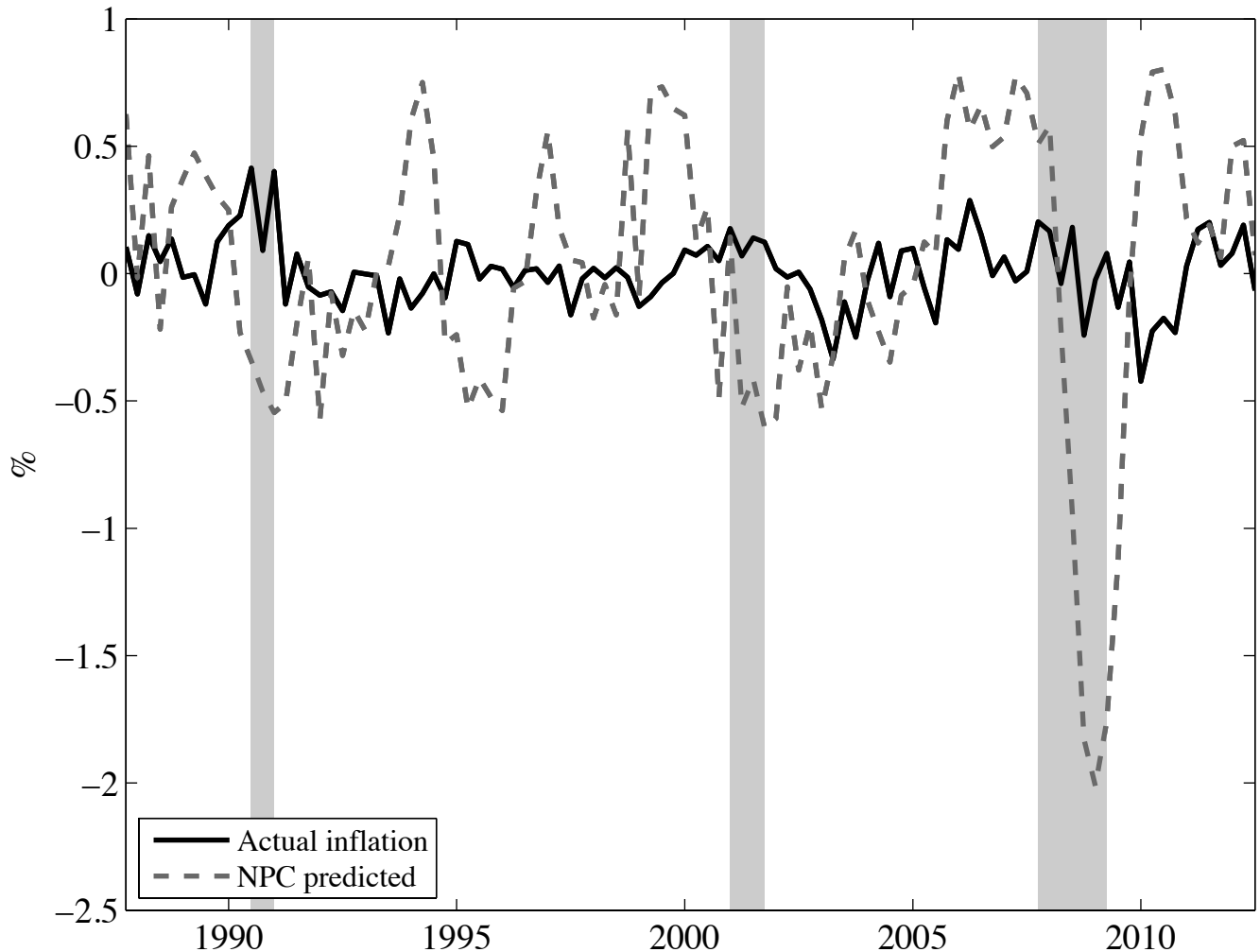

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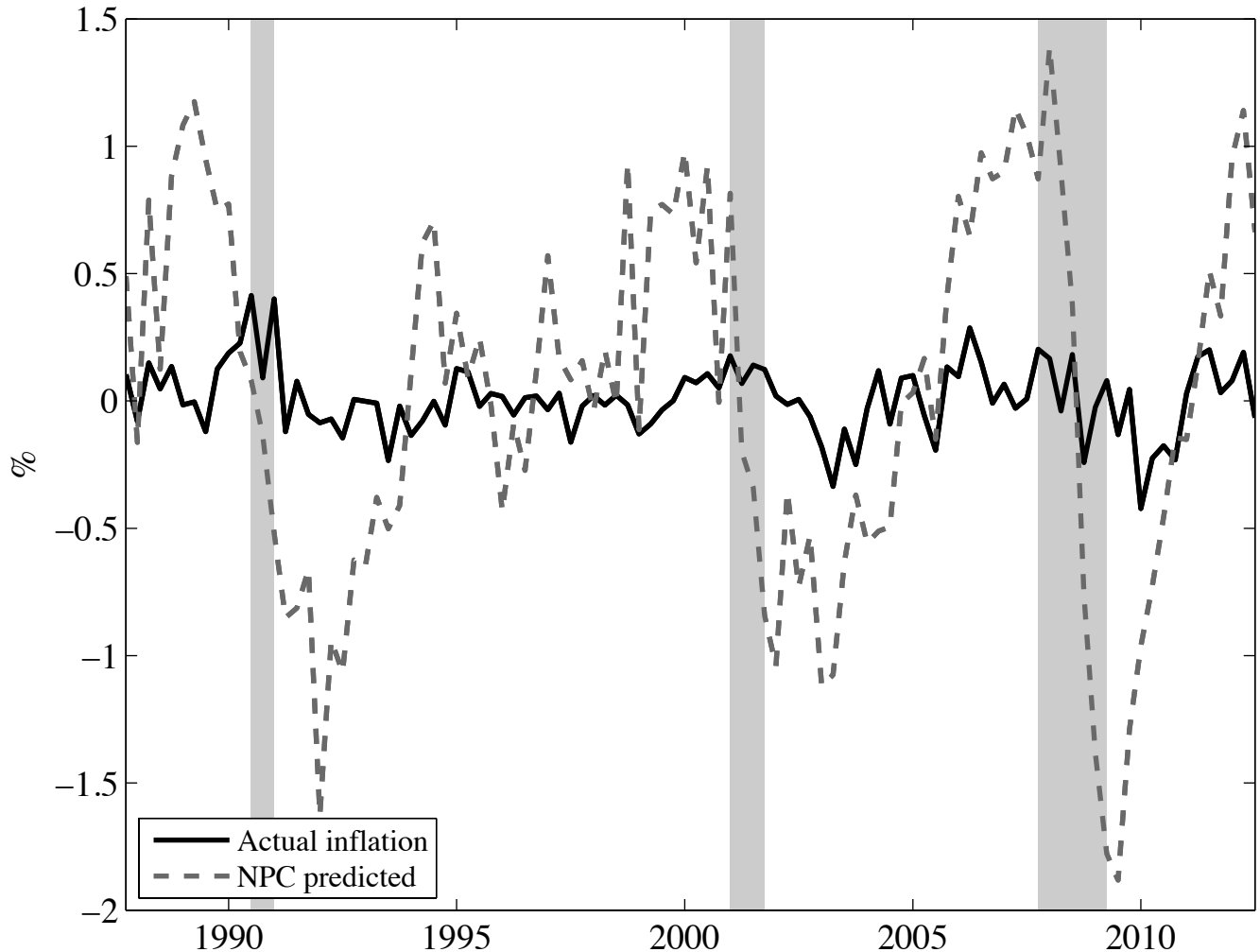
Figure 3: Predicted inflation with an AR(1) model, output gap = h



261%

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$$\pi_t = \beta E_t \pi_{t+1} + \kappa \widetilde{y}_t + u_t$$

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$$\widetilde{y}_t = \rho_1 \widetilde{y}_{t-1} + \rho_2 \widetilde{y}_{t-2} + \varepsilon_t$$

- Solve to obtain

$$\pi_t = \frac{\kappa}{1 - \beta\rho_1 - \beta^2\rho_2} \widetilde{y}_t + \frac{\kappa\beta\rho_2}{1 - \beta\rho_1 - \beta^2\rho_2} \widetilde{y}_{t-1} + u_t$$

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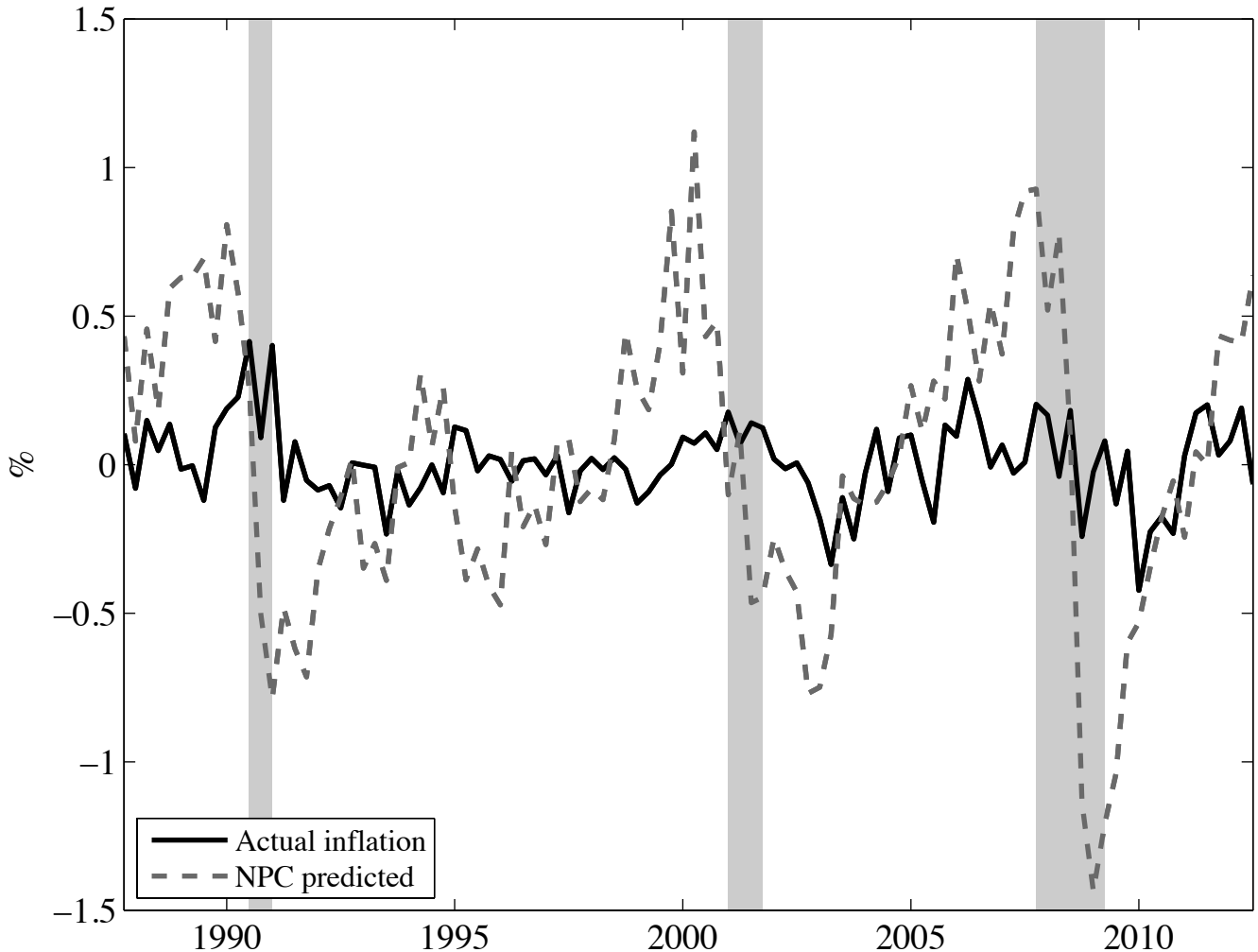
Figure 4: Predicted inflation with an AR(2) model for output gap



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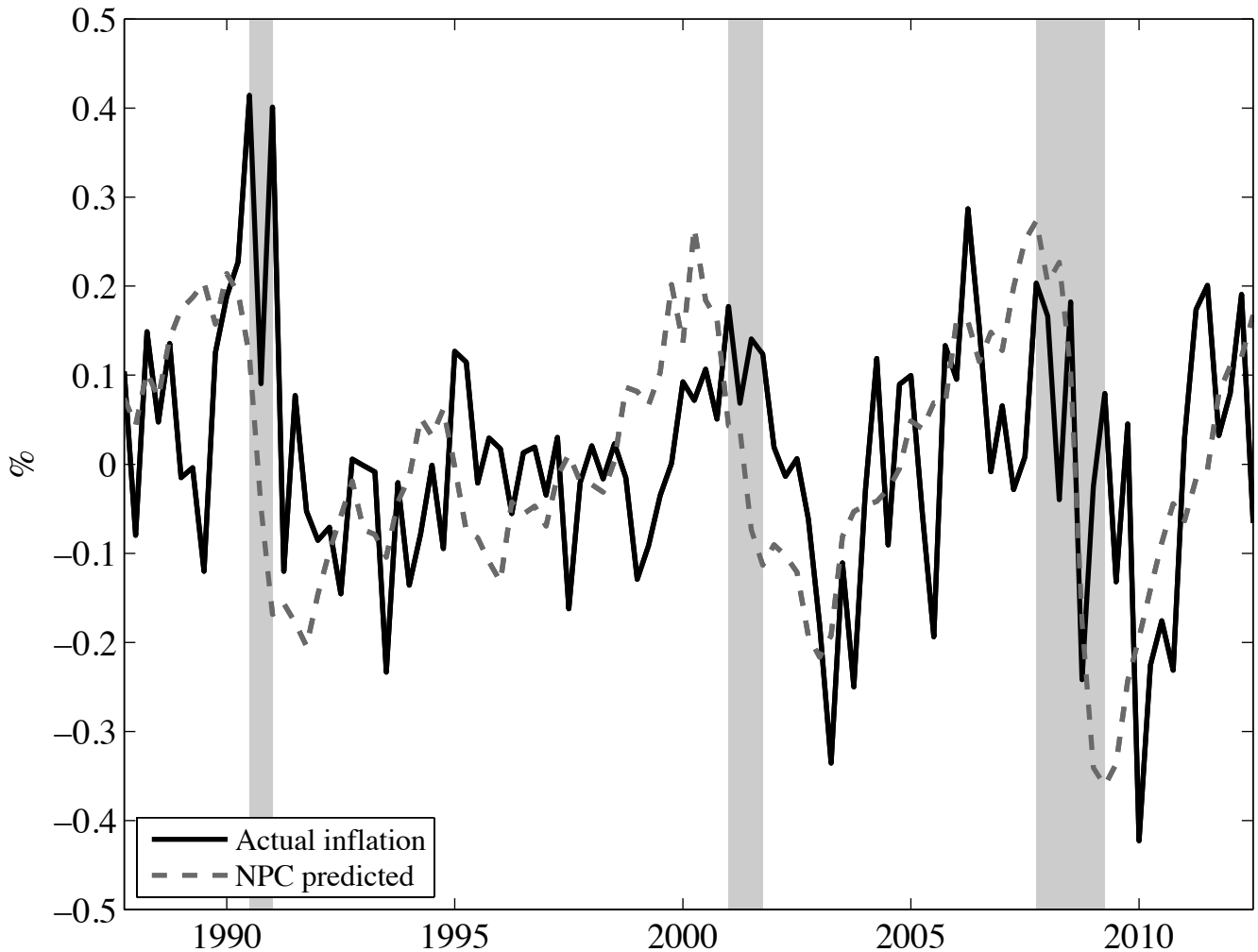
1. The Missing Deflation Puzzle

Figure 5: Predicted inflation with an AR(1) model for output gap and 7 quarters of price rigidity



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- Giorgio wrote a very nice comment on the above exercice that we did with Paul Beaudry for the 2013 NBER macro annual
- He is using a fully-fledged DSGE model with price and wage rigidities

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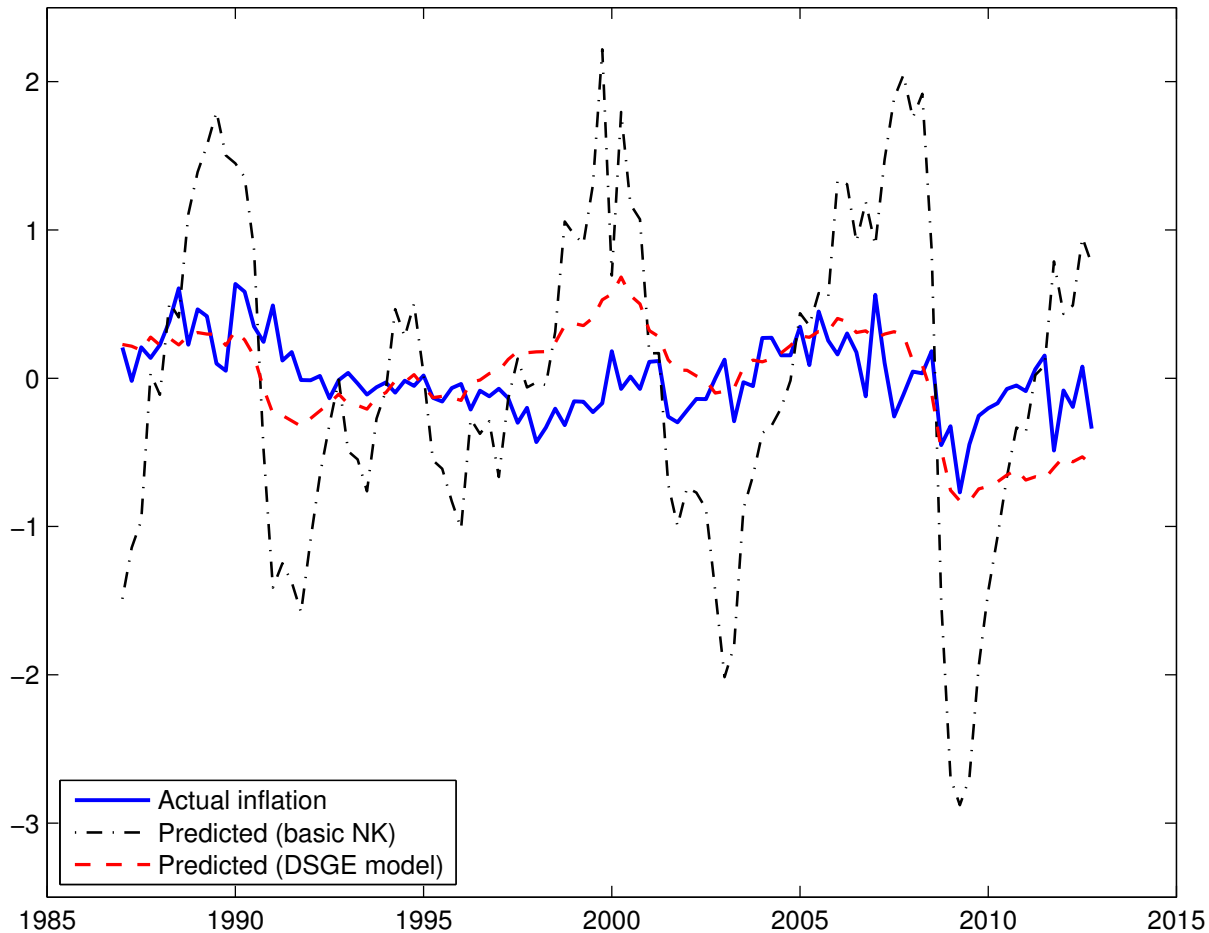
Figure 6: Inflation in Giorgio's fully fledge model



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- (sorry if I am wrong, I should have asked Giorgio before)
- Is that reasonable?

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- In a NK setting, a useful way to avoid (counterfactual) deflation in the Great Recession is to assume a negative TFP shock
- Is that what we see in the data?

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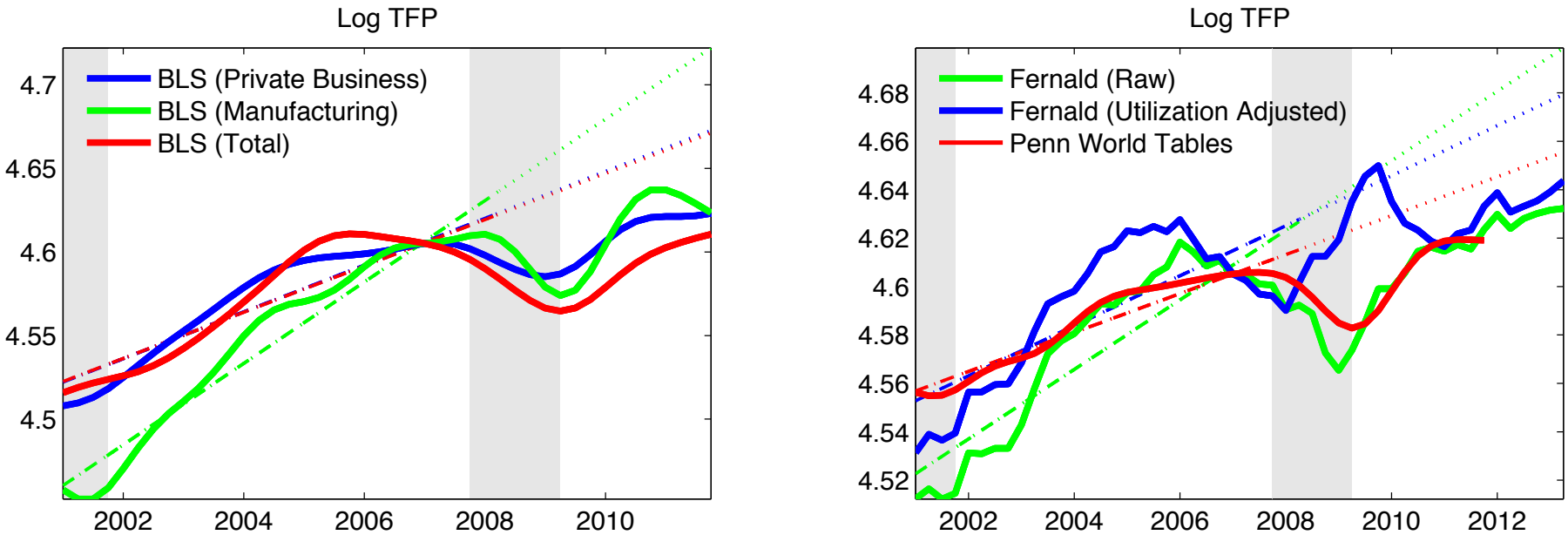
Figure 7: TFPs - This paper



- *"Note that, with one exception, (i) TFP is below its pre-2008 trend during the Great Recession, and (ii) it remains well below its pre-2008 trend all the way up to the end of our data set."*
- With one exception, TFP went down during the G.R.

2. The Cyclical Movements of TFP

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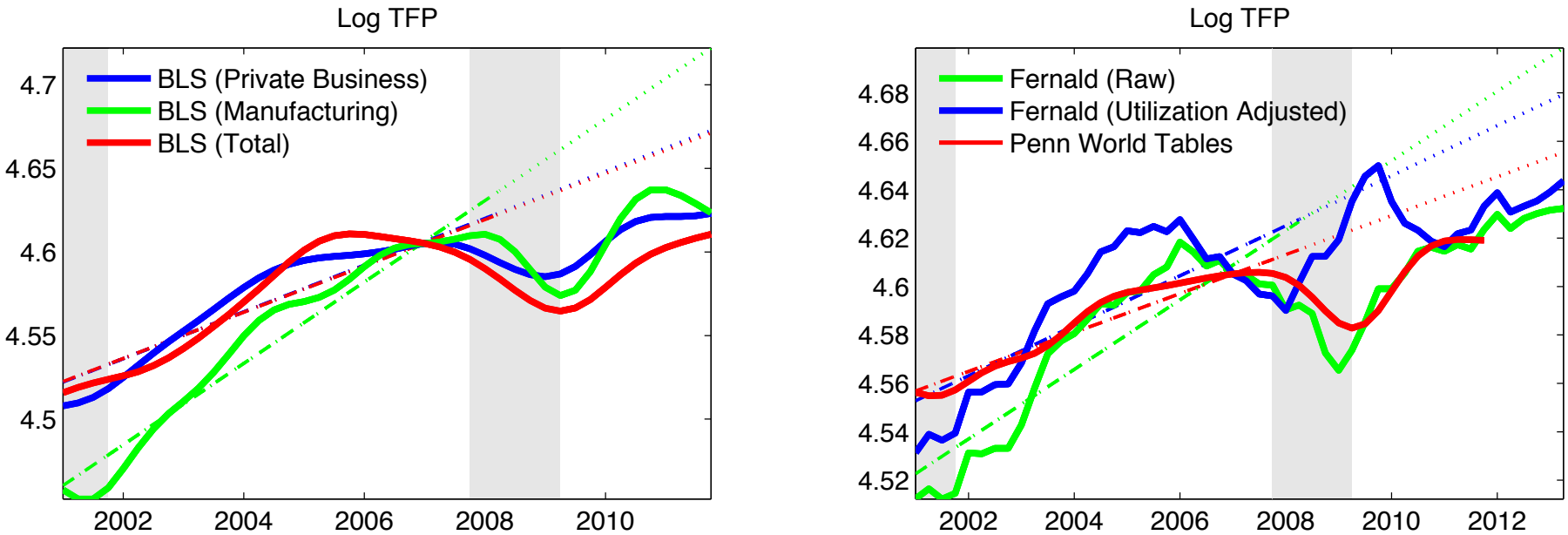

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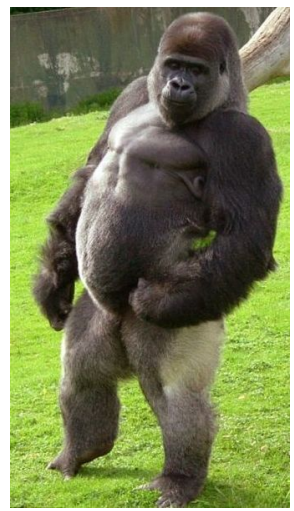
Figure 8: An experiment



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- *"Note that, with one exception, humans are more that 2 meters tall."*
- Google: 2 meters = 6.56167979 feet (6 feet 47/64 inches) ???

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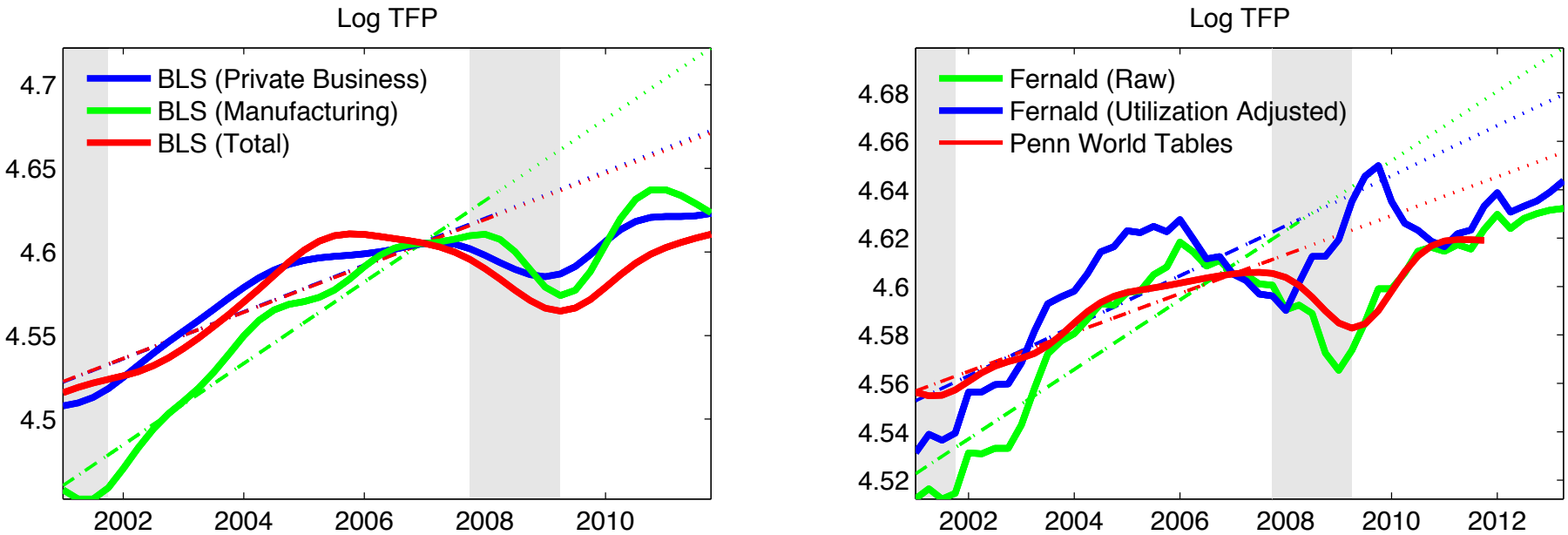
Figure 9: TFPs - This paper



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- We have to correcting TFP measurement for factor utilisation
- In a one factor (labor) world:
  - $Y = A \times L$
  - $P =$ active population (assumed to be fixed)
  - Shall we measure productivity as

$$\frac{Y}{L} = A$$

  - or

$$\frac{Y}{P} = A\frac{L}{P}$$

  - If L is procyclical for non-A shocks, then (measured) productivity-output correlation is biased upwards.

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- There is no difference (in theory) with capital utilization:
  - $Y = AF(uK, L)$
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- Does the correction make a difference?

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Figure 10: Corrected and Uncorrected TFP

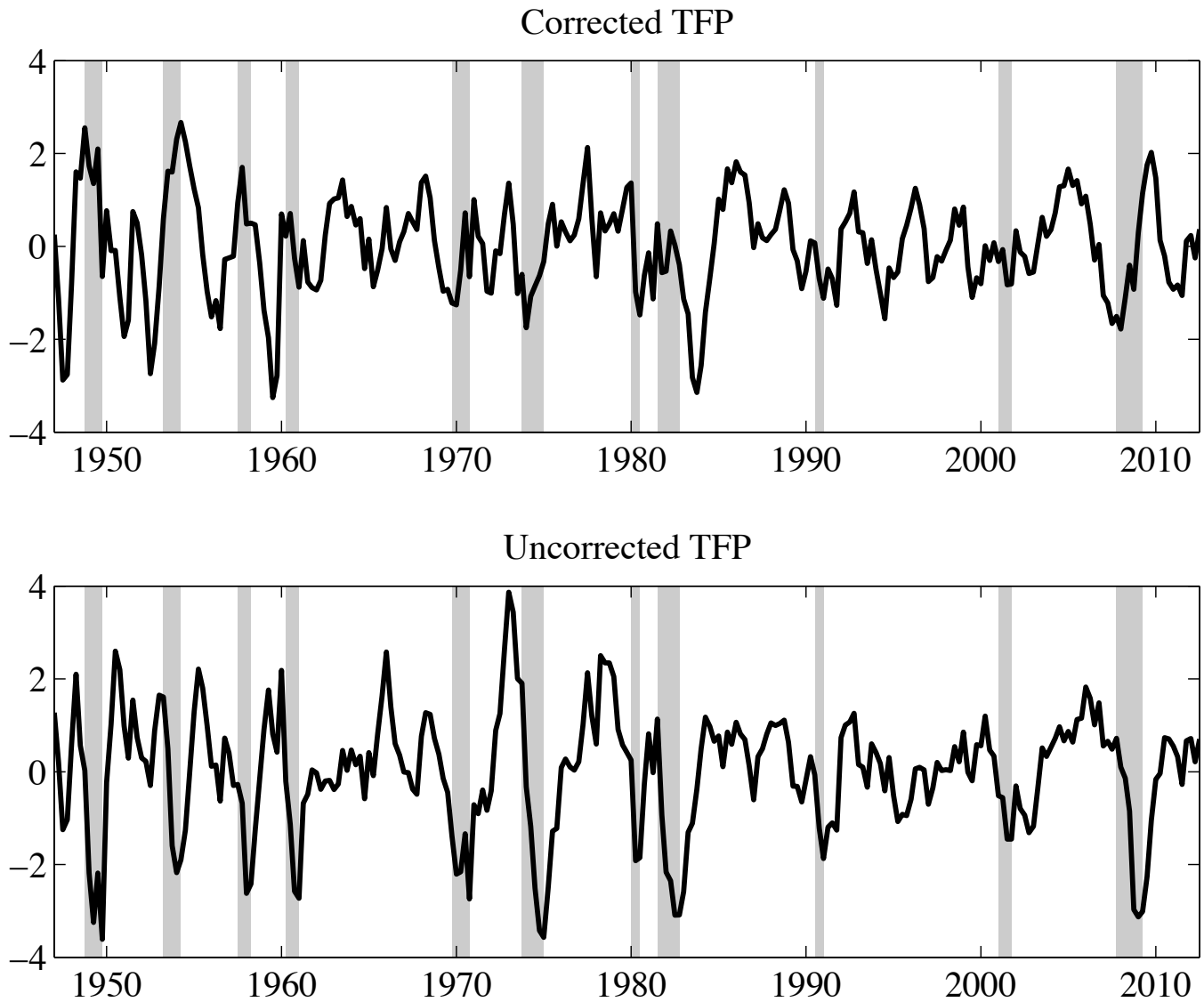

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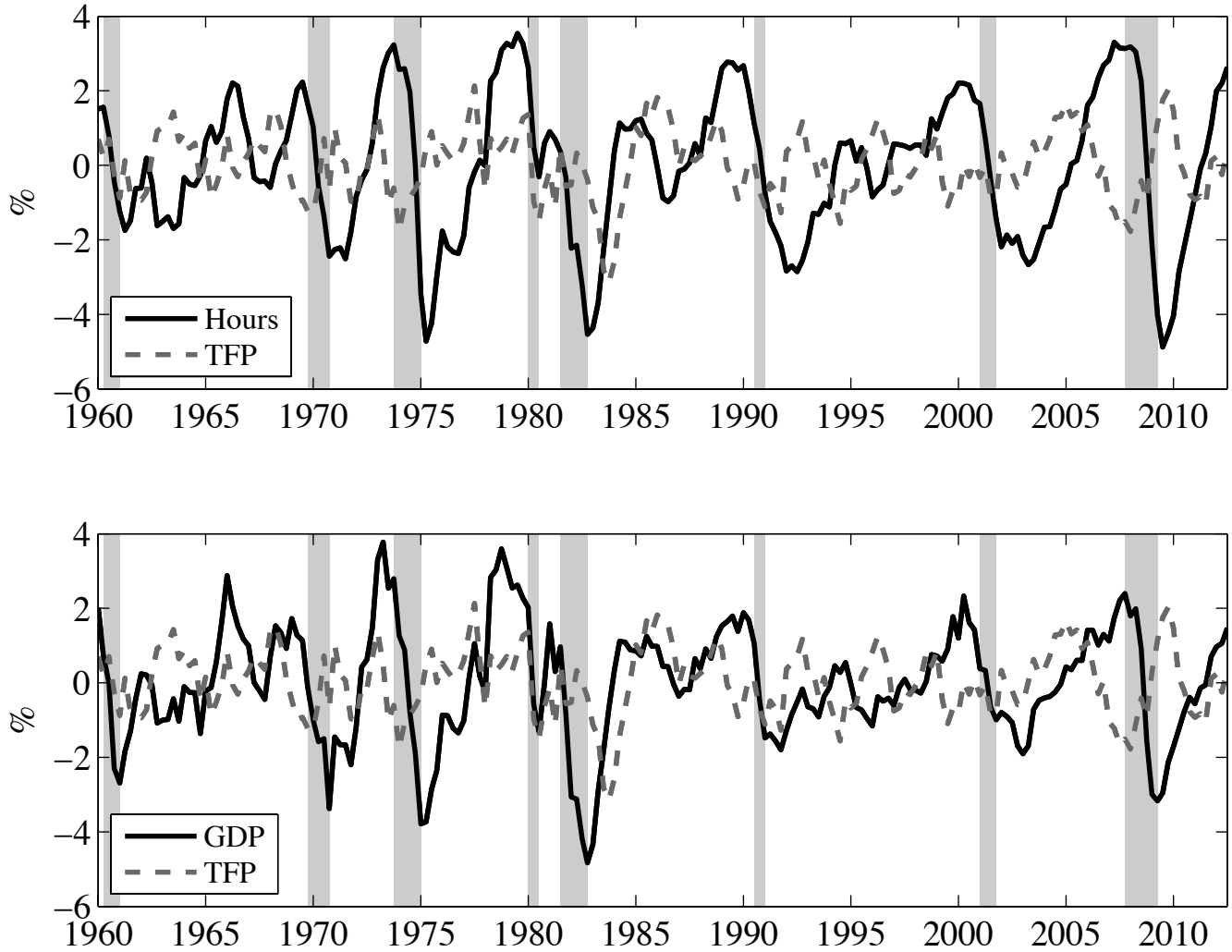
Figure 11: TFP, Output and Hours



Post Volcker correlations -.63 and -.24

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Figure 12: TFP-GDP correlation

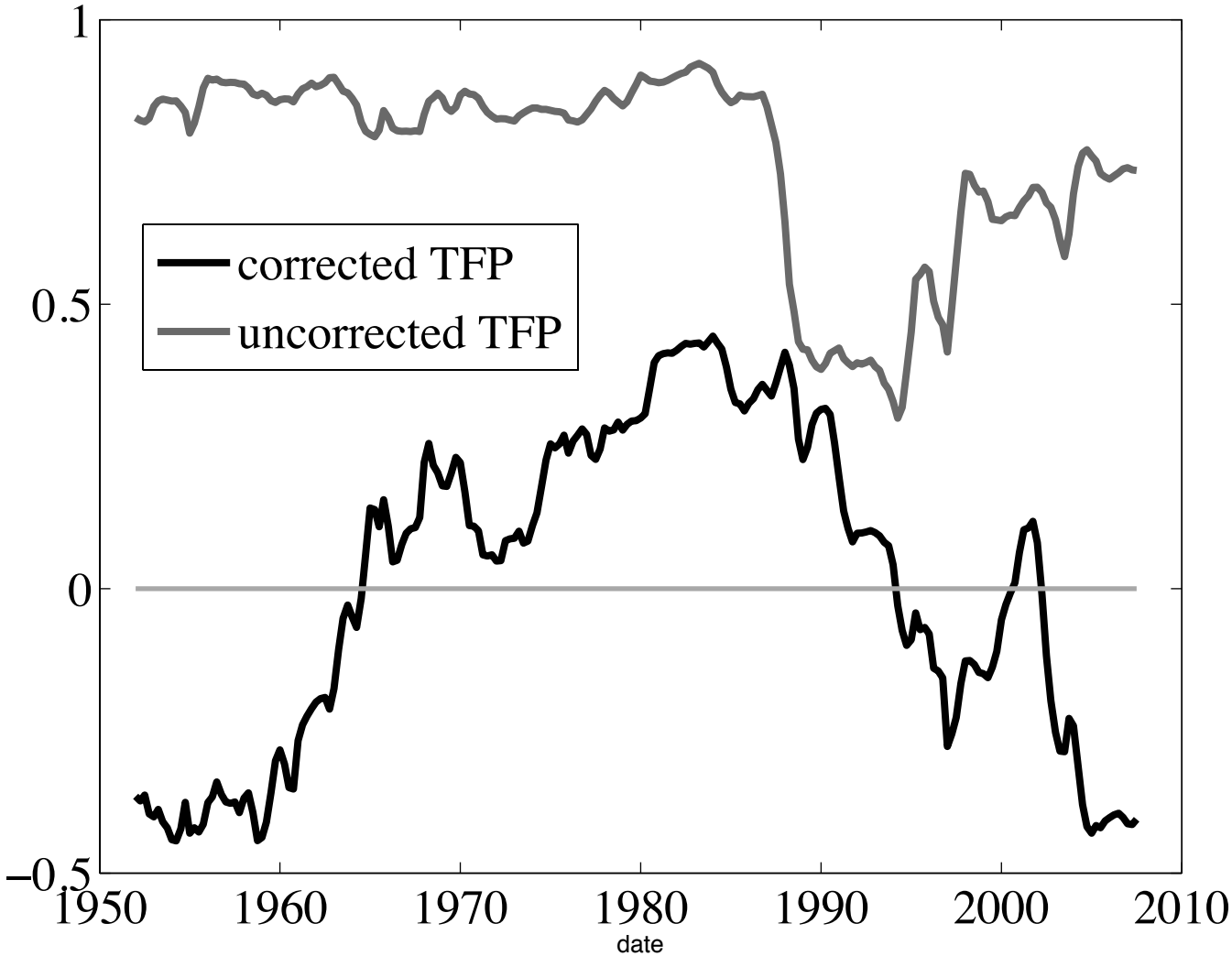

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Figure 13: TFP-GDP correlation

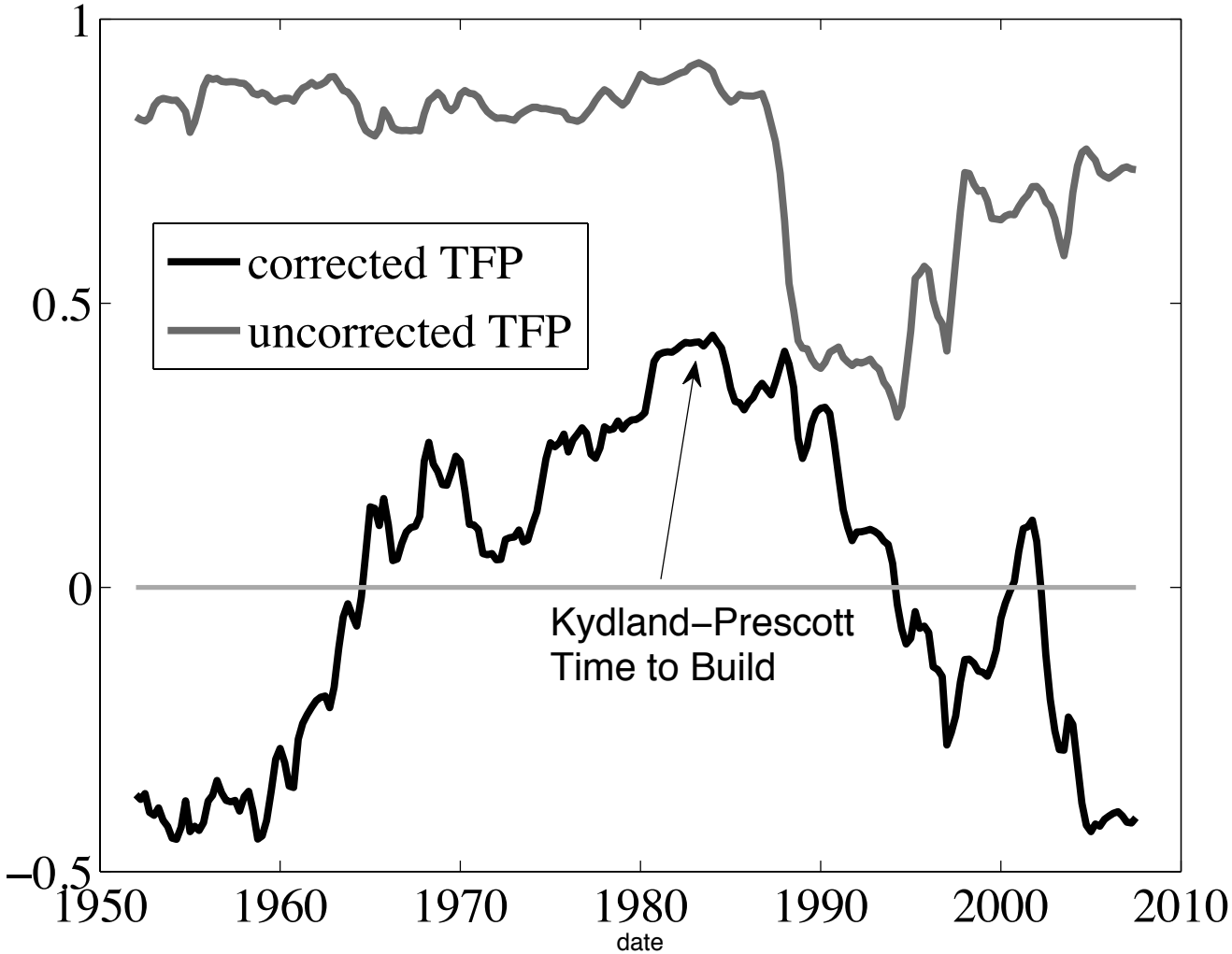

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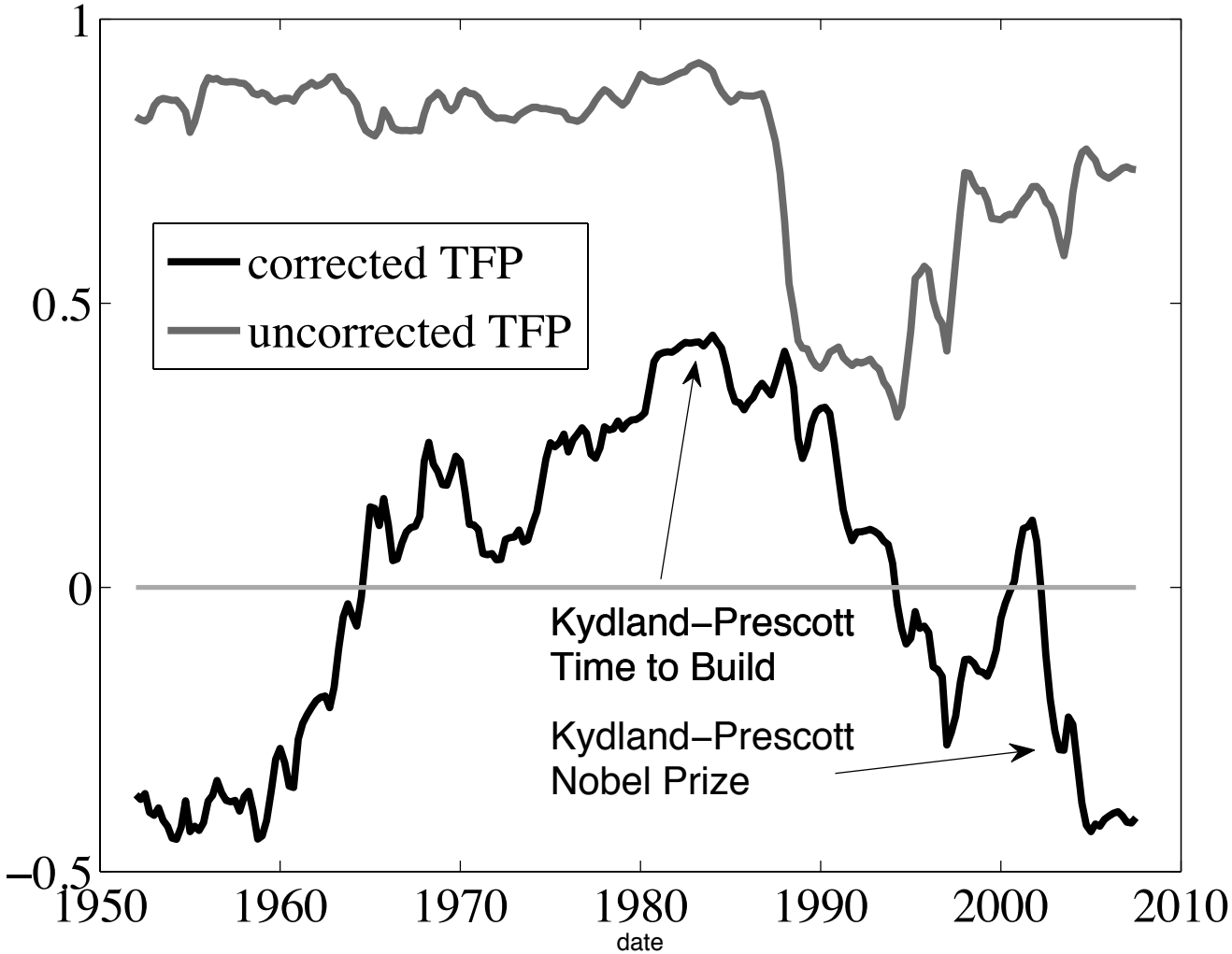
Figure 14: TFP-GDP correlation



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4. The *I* dot

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3. The Irruption of the η's

- A lot of ηs are introduced to guarantee BGP
  - $\times$ $$C_t^H = \eta_t^H (1 - L_t)^{1-\alpha_c} (L_t - l_t)^{\alpha_c} - \eta_t^L \mathcal{F}$$
  - $\times$ $$Y_{jt} = k_{jt}^{\alpha} (z_t h_{jt})^{1-\alpha} - \eta_t^{\phi} \phi$$
  - $\times$ $$\eta_t^{\kappa} \kappa = J_t$$
  - $\times$ $$U_t = \eta_t^D D_t + \widetilde{U}_t$$
  - $\times$ *etc...*
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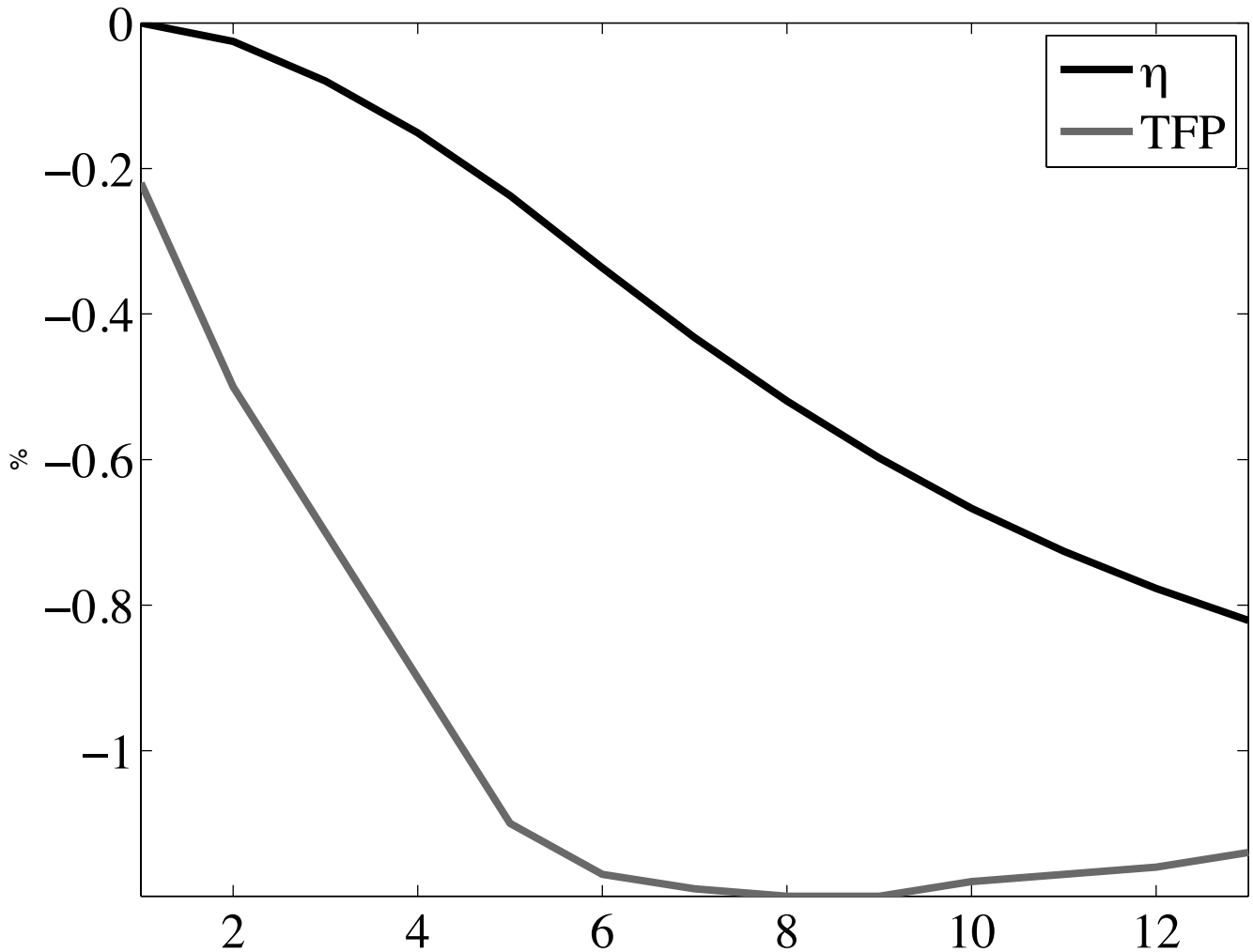
Figure 15: Cyclical variations of the ηs for the TFP shock



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- Two questions
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To Conclude

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