

Public Affairs 854
**Macroeconomic Policy and
International Financial Regulation**
Lecture 20
4/1/2021

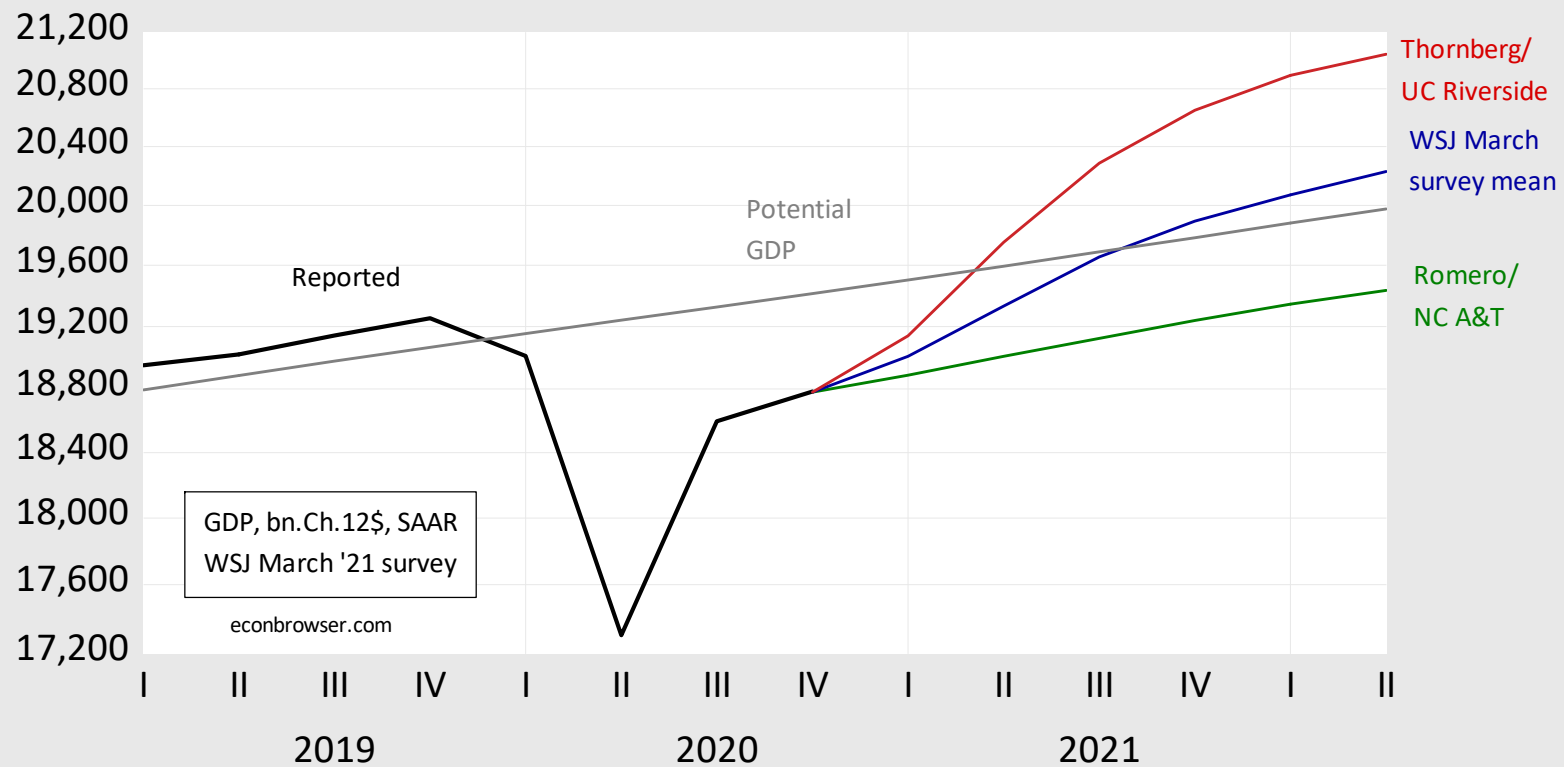
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La Follette School of Public Affairs
Spring 2021

Outline

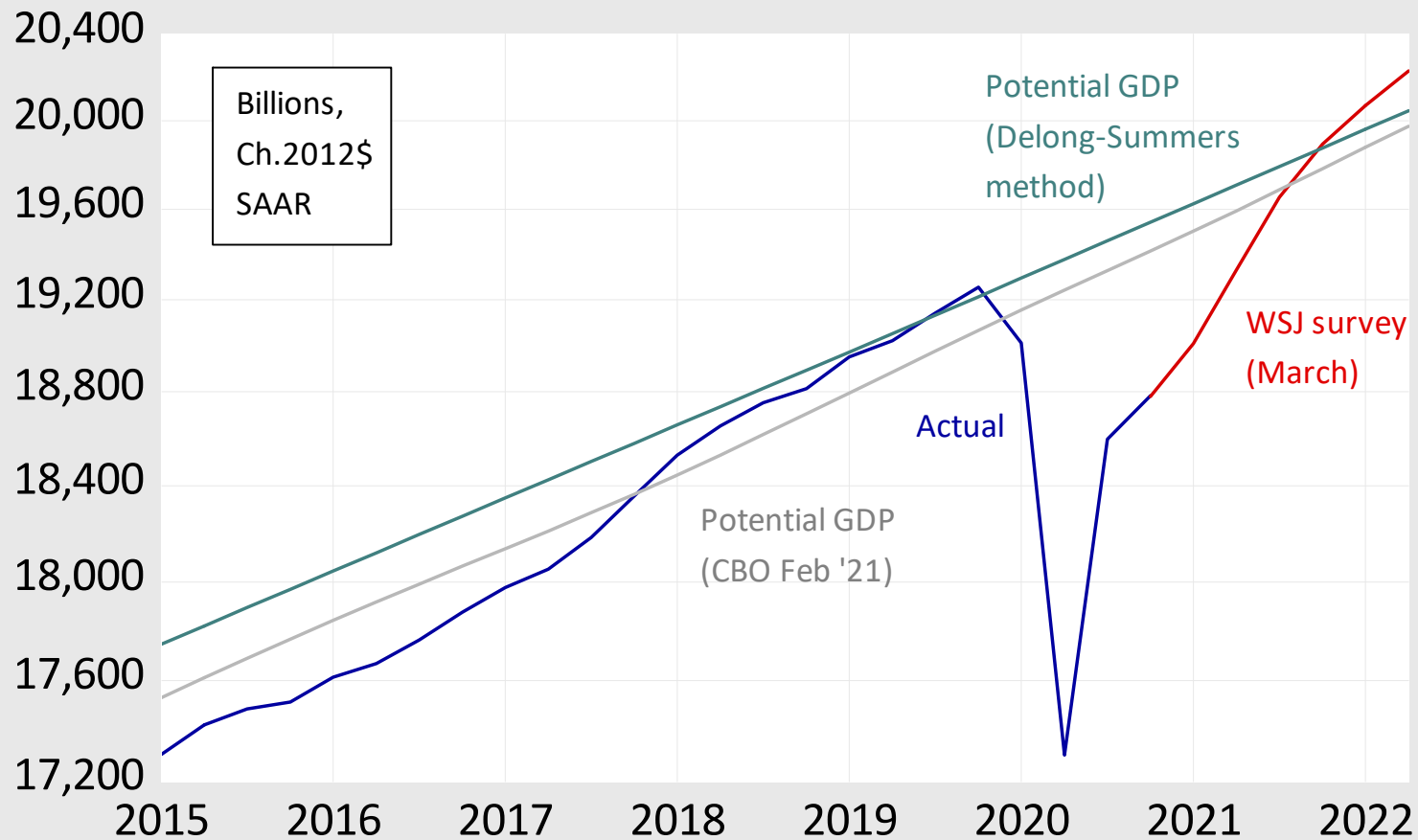
- Outlook Interpreted in AD-AS
- Nominal Exchange Rates: Intro
- Monetary Model of Exchange Rates
(Flexible Prices)

Outlook Interpreted in AD-AS

What Is the Economy's Trajectory?



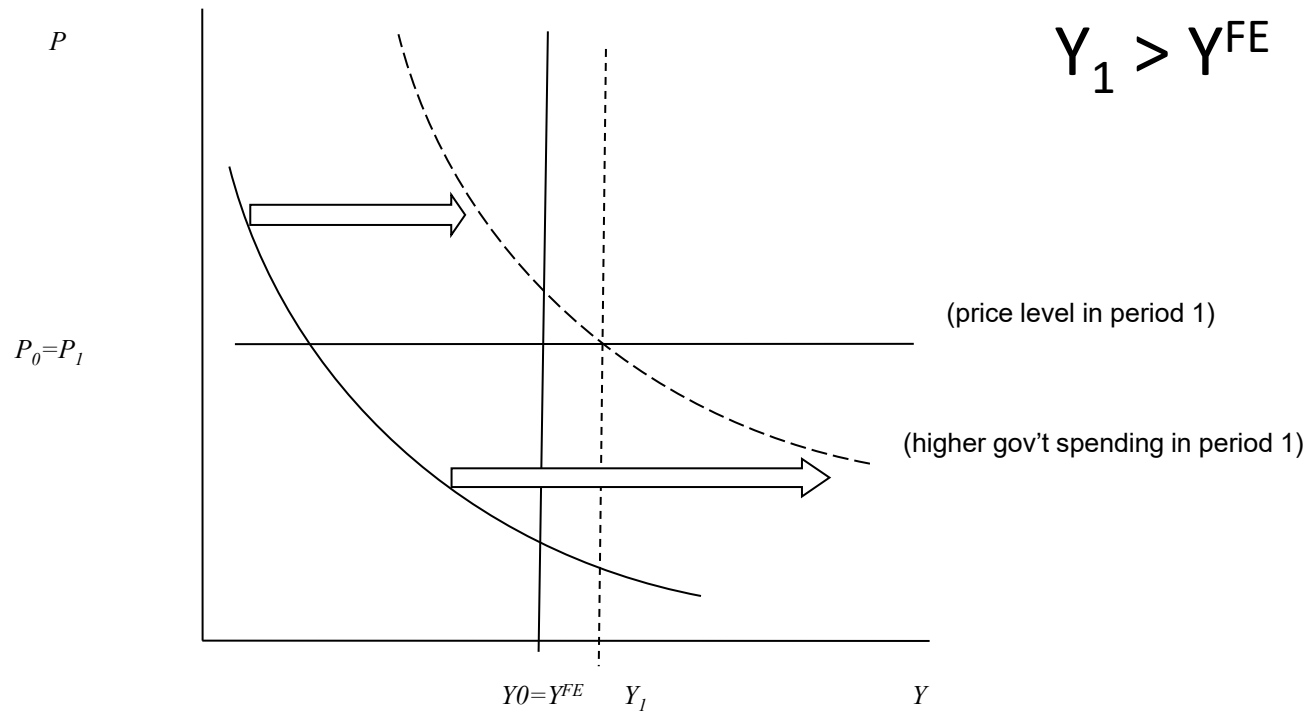
How Big Is Potential GDP?



Scenario 1

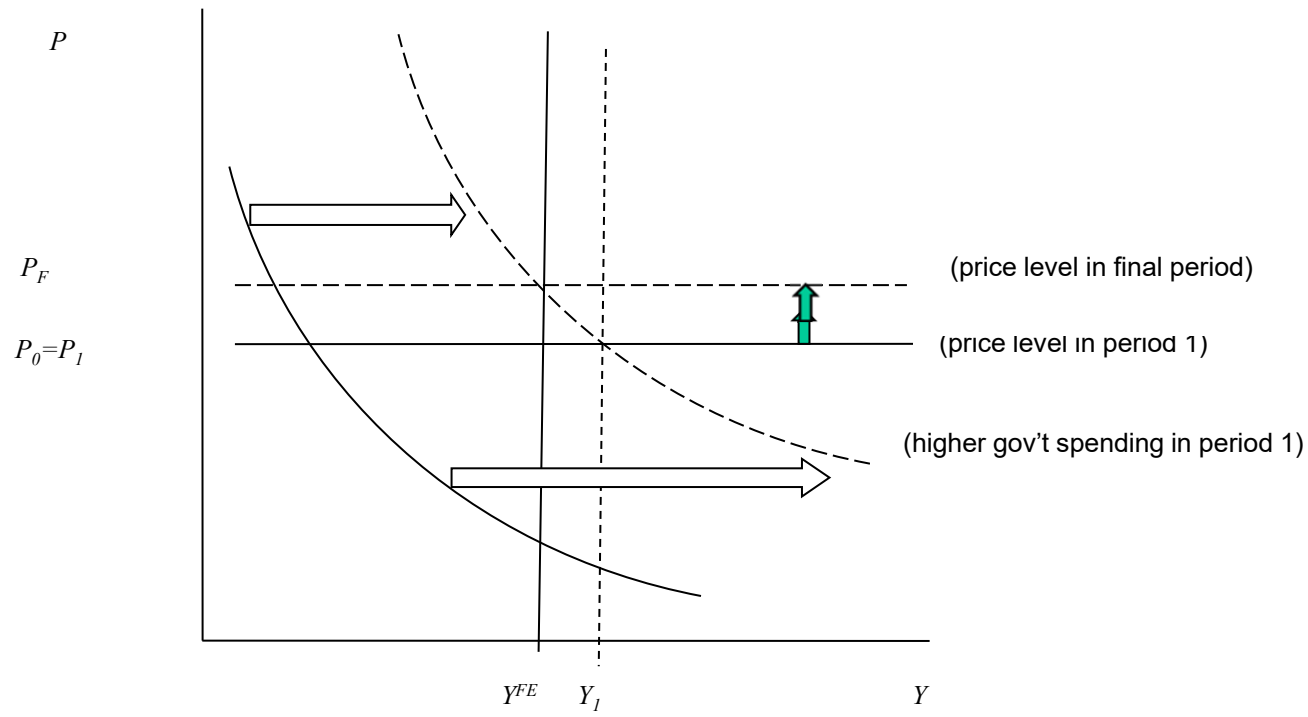
$$Y_0 \ll Y^{FE}$$

$$Y_1 > Y^{FE}$$

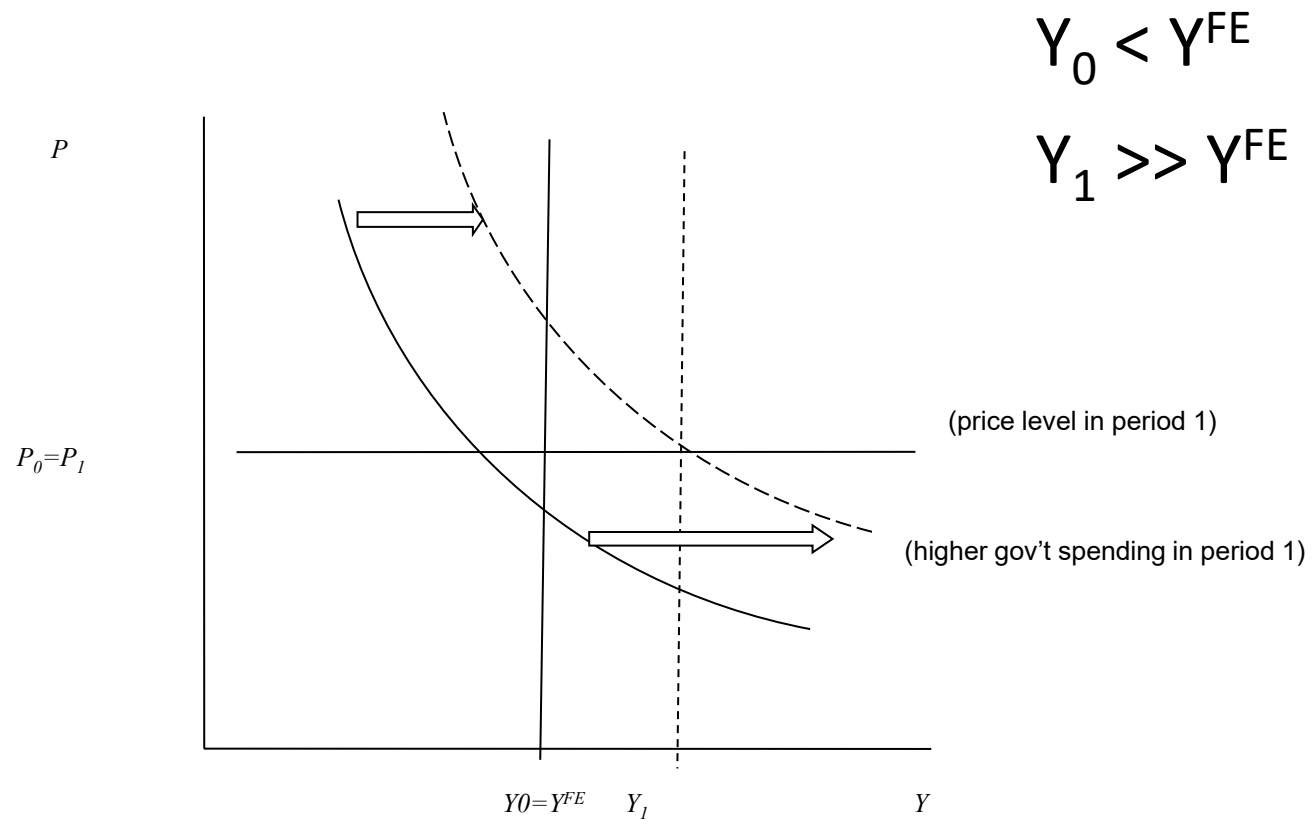


Scenario 1

$$P_F > P_0$$

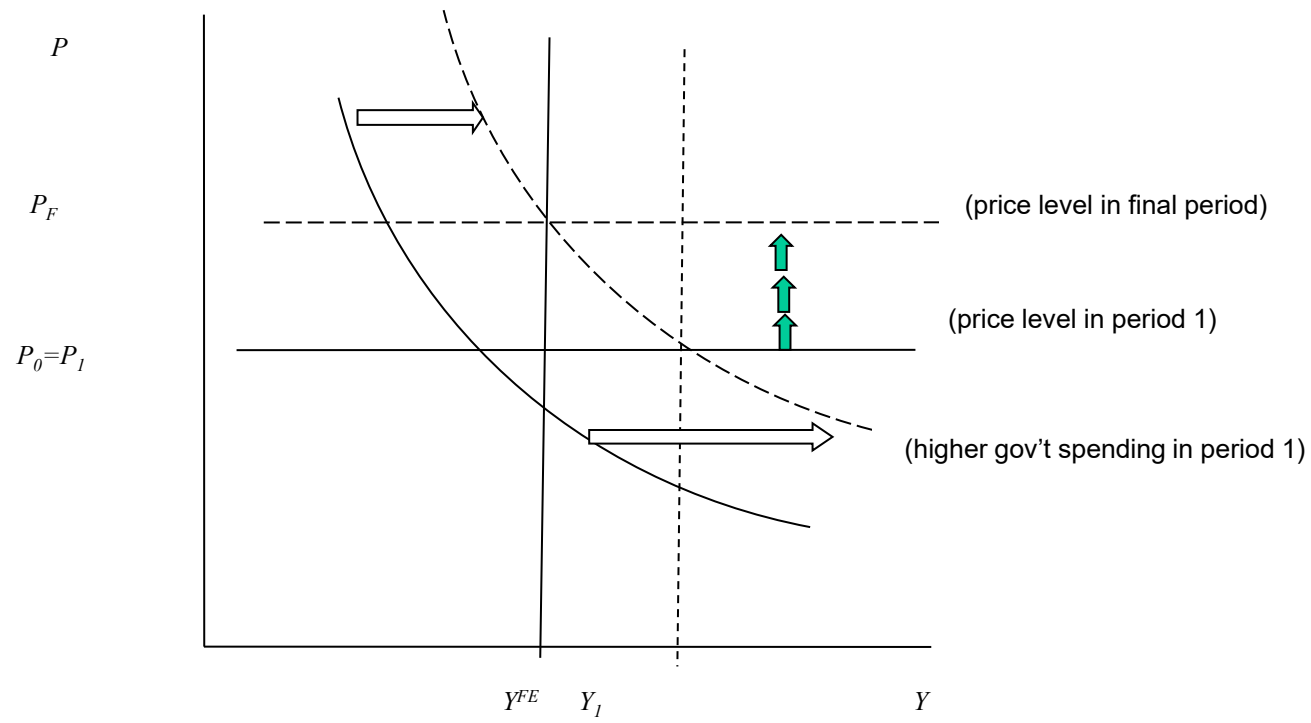


Scenario 2



Scenario 2

$$P_F \gg P_0$$



Complications

What if expected inflation rises as actual inflation rises?

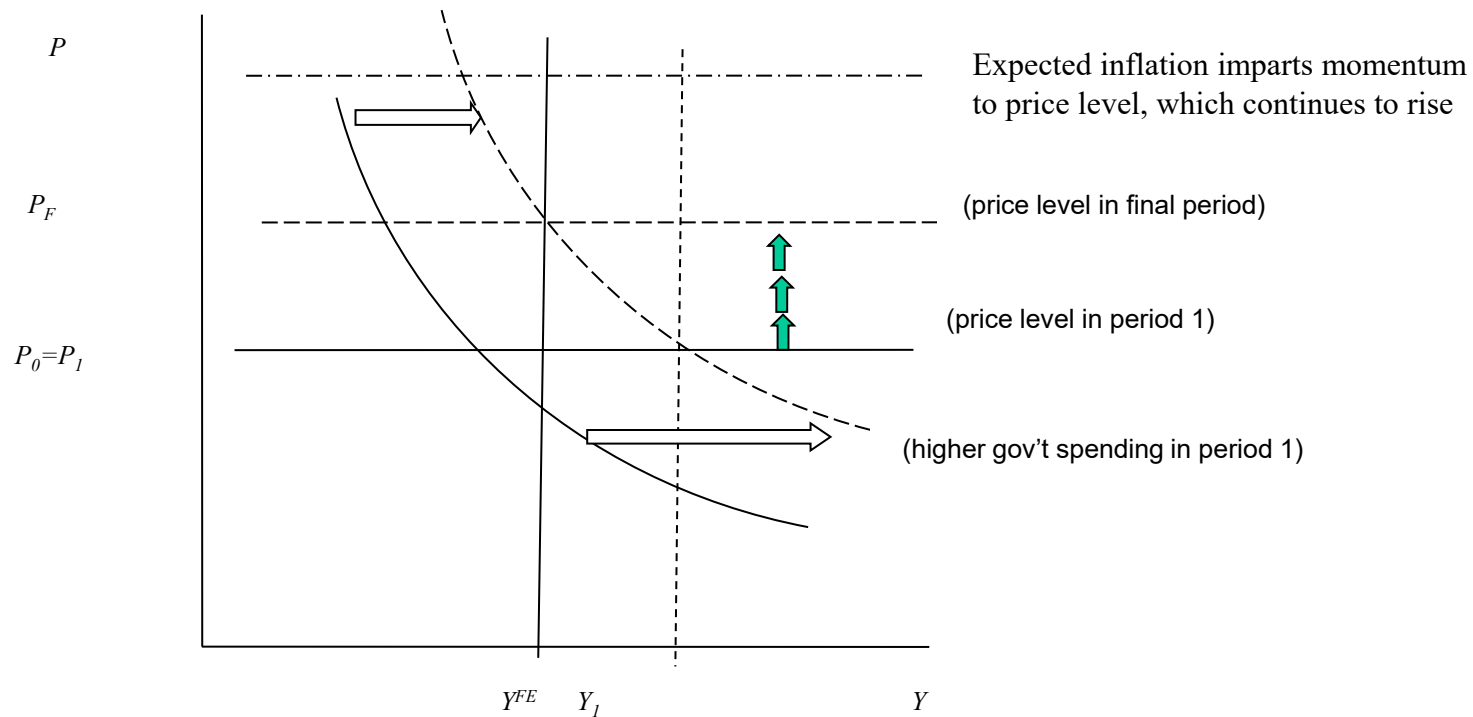
$$(16.4) \quad \pi_t = \pi_t^e + f \left(\frac{Y_{t-1} - Y^{FE}}{Y^{FE}} \right)$$

$$(16.5) \quad \pi_t = \pi_{t-1} + f \left(\frac{Y_{t-1} - Y^{FE}}{Y^{FE}} \right)$$

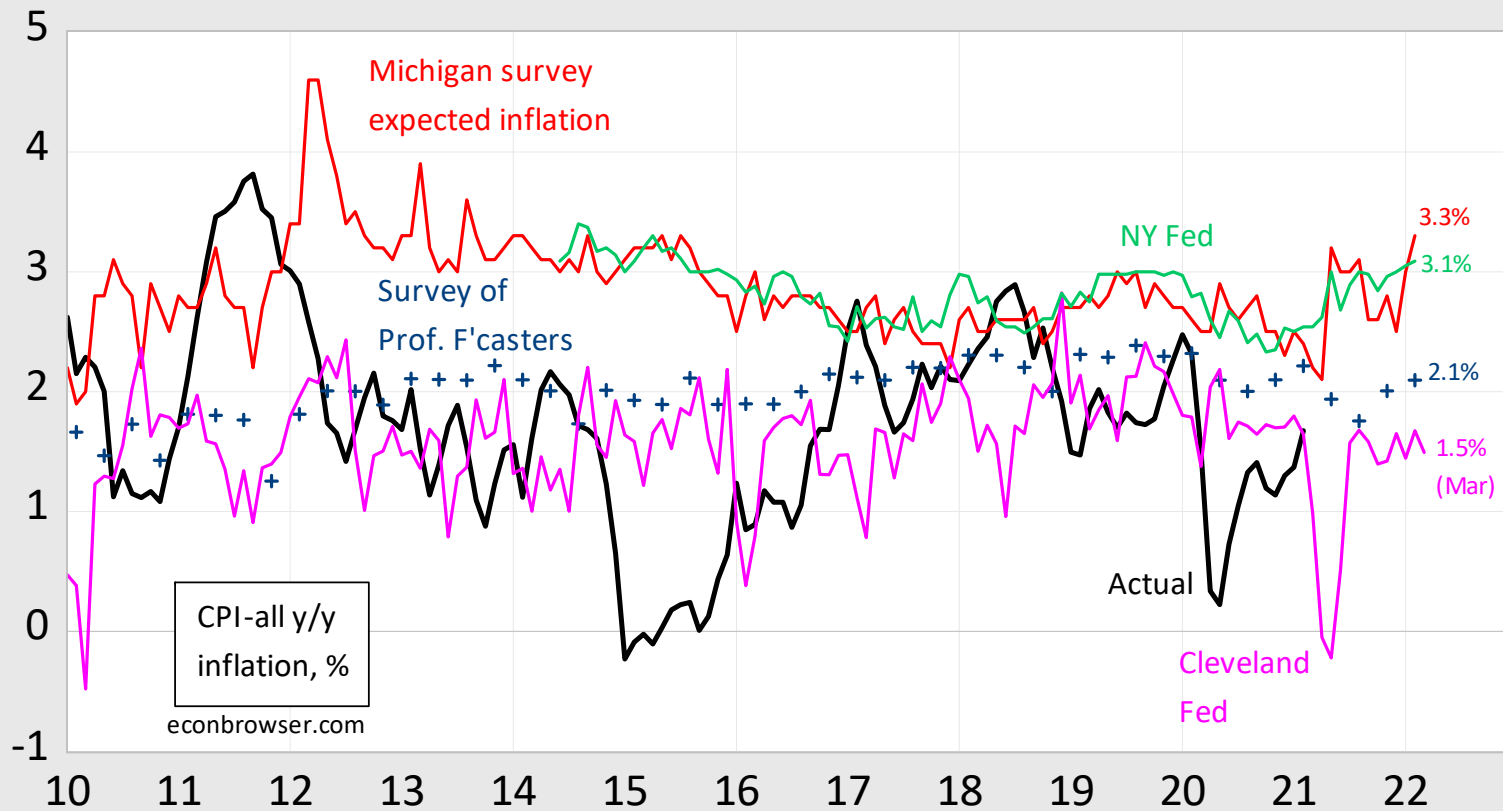
$$(16.6) \quad P_t = P_{t-1} \times \left[1 + \pi_{t-1} + f \left(\frac{Y_{t-1} - Y^{FE}}{Y^{FE}} \right) \right]$$

Complications: Scenario 2

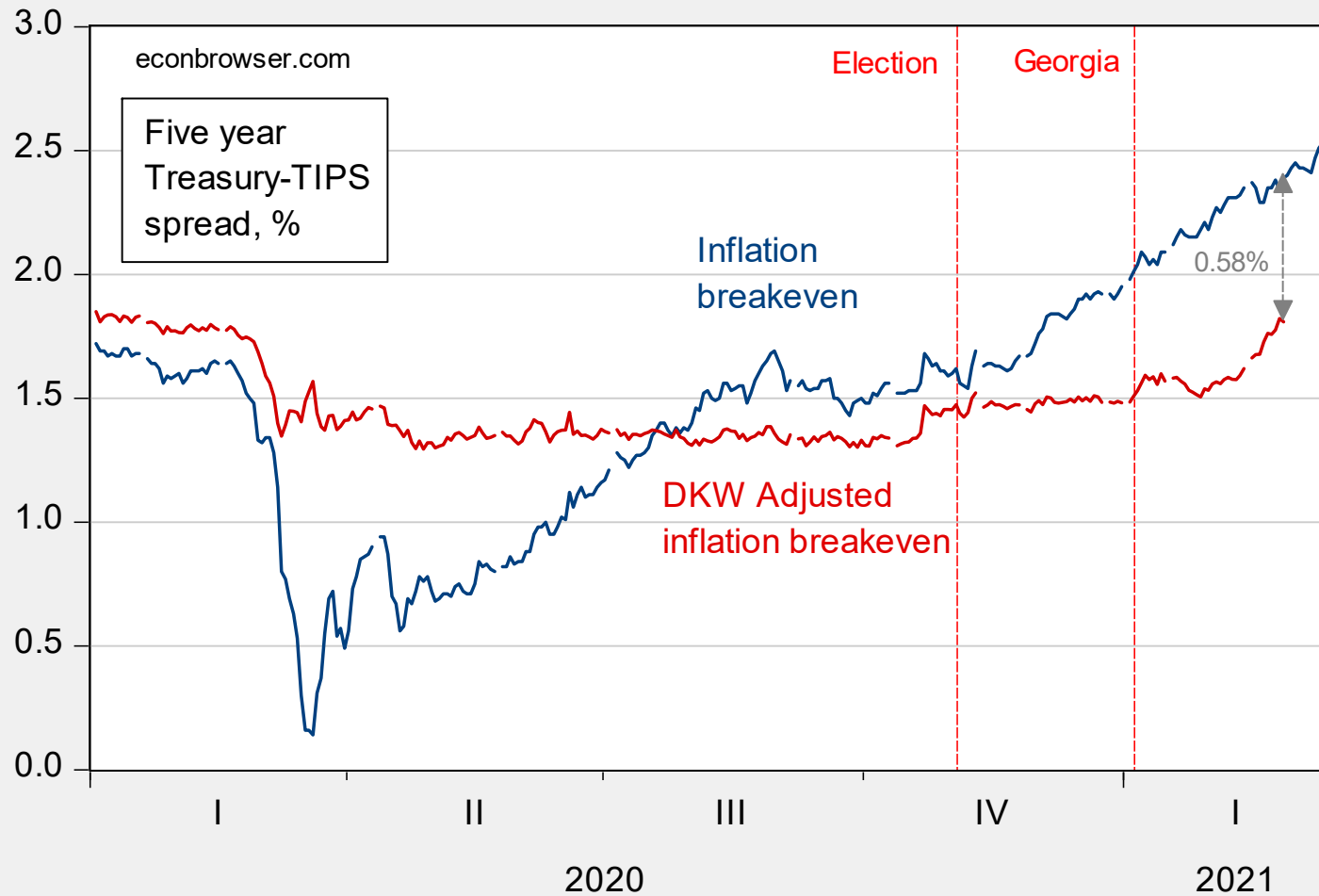
$$\pi_t^e = \pi_{t-1}$$



Expected Inflation (1 year)

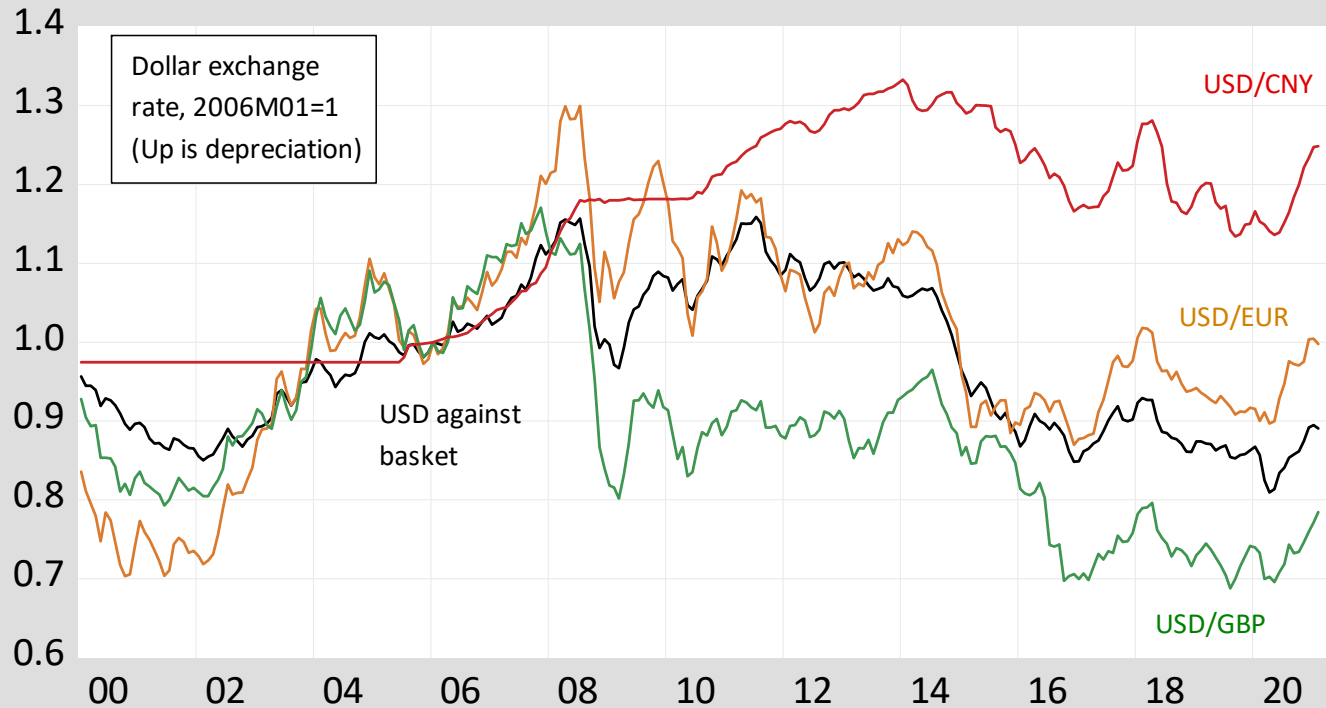


Expected Inflation (5 year)



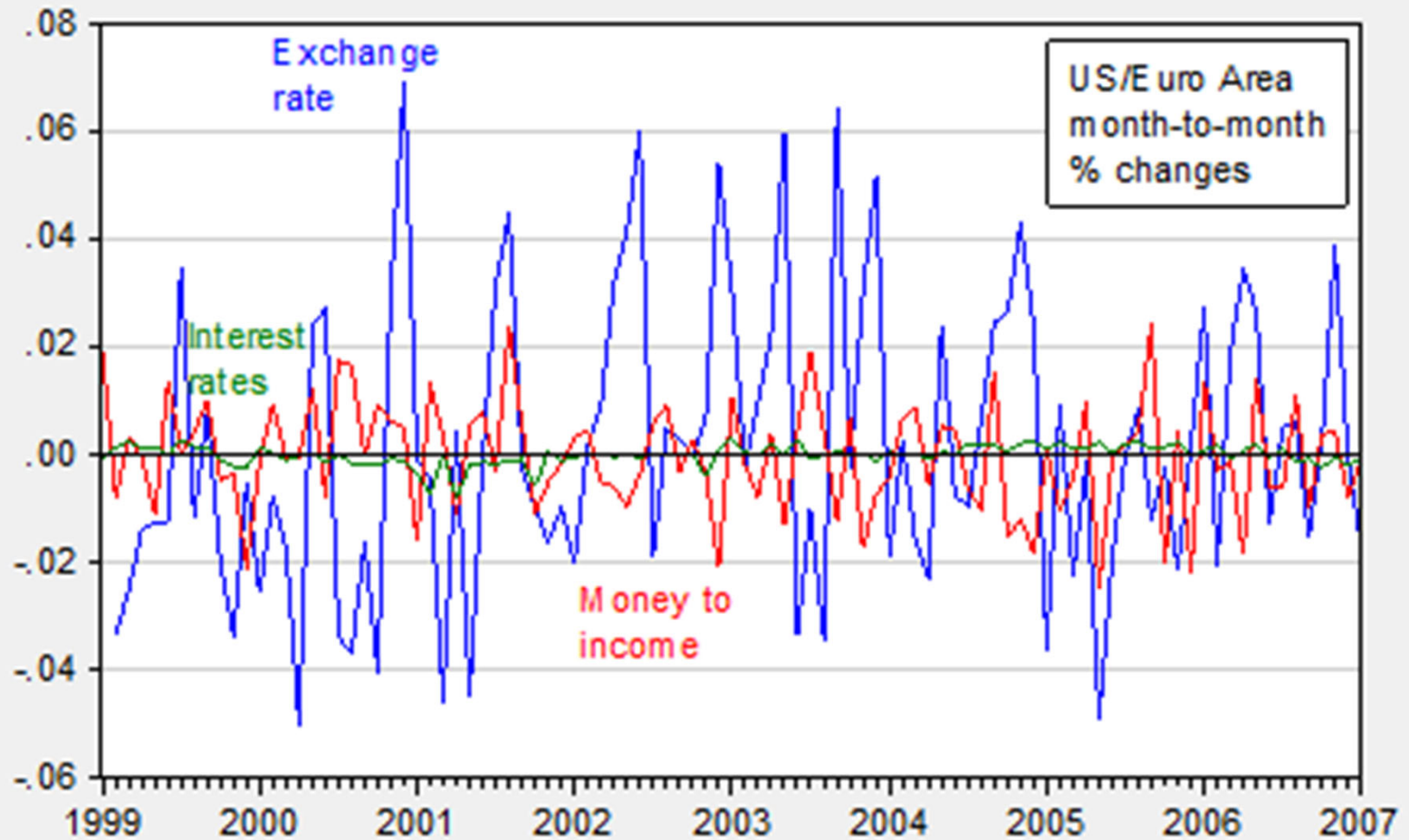
Nominal Exchange Rates: Intro

Some US Exchange Rates



- 100/NOMDOLLAR_BROADGS_SPL
- EXUSEU/@ELEM(EXUSEU,06.01)
- EXUSUK/@ELEM(EXUSUK,06.01)
- 1/(EXCHUS/@ELEM(EXCHUS,06.01))

Why Are Exchange Rates So Volatile?



Monetary Model of Exchange Rates (under Flexible Prices)

Deriving a Model Based on Money Supply/Demand

$$(17.1) \quad P_t = S_t \times P_t^*$$

$$(17.2) \quad s_t = p_t - p_t^*$$

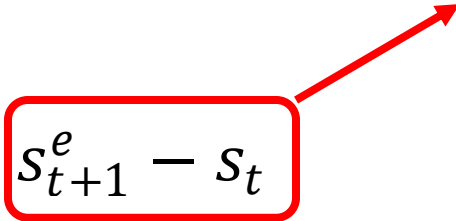
$$(17.3) \quad (m_t - p_t)^d = \varphi y_t - \lambda i_t$$

$$(17.4) \quad s_t = \underbrace{(m_t - m_t^*)}_{\text{Relative money supplies}} - \varphi(y_t - y_t^*) + \lambda(i_t - i_t^*)$$

Relative money
supplies

The Future Matters

$$(17.4) \quad s_t = (m_t - m_t^*) - \phi(y_t - y_t^*) + \lambda(i_t - i_t^*)$$

$$(17.5) \quad i_t - i_t^* = \Delta s_{t+1}^e \equiv \boxed{s_{t+1}^e - s_t}$$


$$(17.7) \quad s_t = \left(\frac{1}{1+\lambda} \right) \left[(m_t - m_t^*) - \phi(y_t - y_t^*) \right] + \left(\frac{\lambda}{1+\lambda} \right) s_{t+1}^e$$

Exchange rate today depends on fundamentals (money supply, money demand) and expected exchange rate next period

Generalization

- The exchange rate is the relative price of asset prices.
- We see the exchange rate today depends on the exchange rate expected tomorrow.
- All asset prices share this attribute: Price today depends on expected price tomorrow (e.g., stock price, bond price, house price).

The Future Matters (II)

$$(17.7) \quad s_t = \left(\frac{1}{1+\lambda} \right) \left[(m_t - m_t^*) - \phi(y_t - y_t^*) \right] + \left(\frac{\lambda}{1+\lambda} \right) s_{t+1}^e$$

Fundamentals



Let $\hat{M}_{t+i}^e \equiv (m_{t+i}^e - m_{t+i}^{e*}) - \phi(y_{t+i}^e - y_{t+i}^{e*})$

What does this depend on?

$$(17.8) \quad s_t = \left(\frac{1}{1+\lambda} \right) \left[\hat{M}_t + \left(\frac{\lambda}{1+\lambda} \right) \hat{M}_{t+1}^e + \left(\frac{\lambda}{1+\lambda} \right)^2 \hat{M}_{t+2}^e + \left(\frac{\lambda}{1+\lambda} \right)^3 \hat{M}_{t+3}^e \dots \right]$$

The exchange rate today depends on the discounted fundamentals into the infinite future

Next Lecture

- Monetary Model of Exchange Rates (under sticky prices)
- Models of Real Exchange Rates
- Big Mac Parity