

Cornell University

ECON 3040

Intermediate Macroeconomic Theory

Midterm 2: Review session

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Spring 2018

About the exam :

- The prelim is this Wednesday March 28th in class at the usual time. (Arrive 5-10 minutes early)
 - The midterm is cumulative but focuses on new material
- Bring :
 - Bring your Cornell ID
 - Two cheat-sheet 8.5'' x 11'' (both sides)
 - Handwritten, cannot be reproduction of large sections of material (lectures slides, textbook, problem set solution, etc)
 - A calculator (no phone/tablet/computer allowed)

Preparation for Midterm

- Review the problem sets
- Make sure you solve as many questions as you can from the textbook.
- Practice questions listed on lectures' slides.

Plan for today

- Go over the first problem set from PS1
- Answer questions

Goods and Services market

$$Y = C + I + G \quad (\text{Goods market eqm})$$

$$C = Z + 0.5 \cdot (Y - T) \quad (\text{Consumer demand})$$

$$I = 60 - 50 \cdot r \quad (\text{Investment demand})$$

$$G = T = 100 \quad (\text{Government budget})$$

Money market

$$M/P = L(Y, r + \pi^e) \quad (\text{Money market eqm})$$

$$L(Y, r + \pi^e) = \frac{1}{10} \cdot Y - 50 \cdot (r + \pi^e) \quad (\text{Liquidity preference})$$

$$M = 100 \quad (\text{Money supply})$$

Labor market

$$Y = 200 \quad (\text{Full equilibrium output})$$

Finding the IS curve

- Combine the equations on the Goods market

$$Y = C + I + G$$

$$Y = Z + 0.5(Y - T) + 60 - 50r + T$$

$$0.5Y = Z + 110 - 50r$$

$$r = \frac{Z + 110 - 0.5Y}{50}$$

Finding the LM curve

- Combine the Money Market equations

$$\begin{aligned}\frac{M}{P} &= \frac{1}{10}Y - 50(r + \pi^e) \\ \frac{100}{P} &= \frac{1}{10}Y - 50(r + \pi^e) \\ \frac{2}{P} &= \frac{1}{500}Y - (r + \pi^e) \\ r &= \frac{1}{500}Y - \frac{2}{P} - \pi^e\end{aligned}$$

First equilibrium

- Long-run equilibrium for $Z = 0$ and $\pi^e = 0$
 - $Y = 200$
 - The IS curve gives us interest rate $r = 1/5$
 - The LM curve gives us the price level

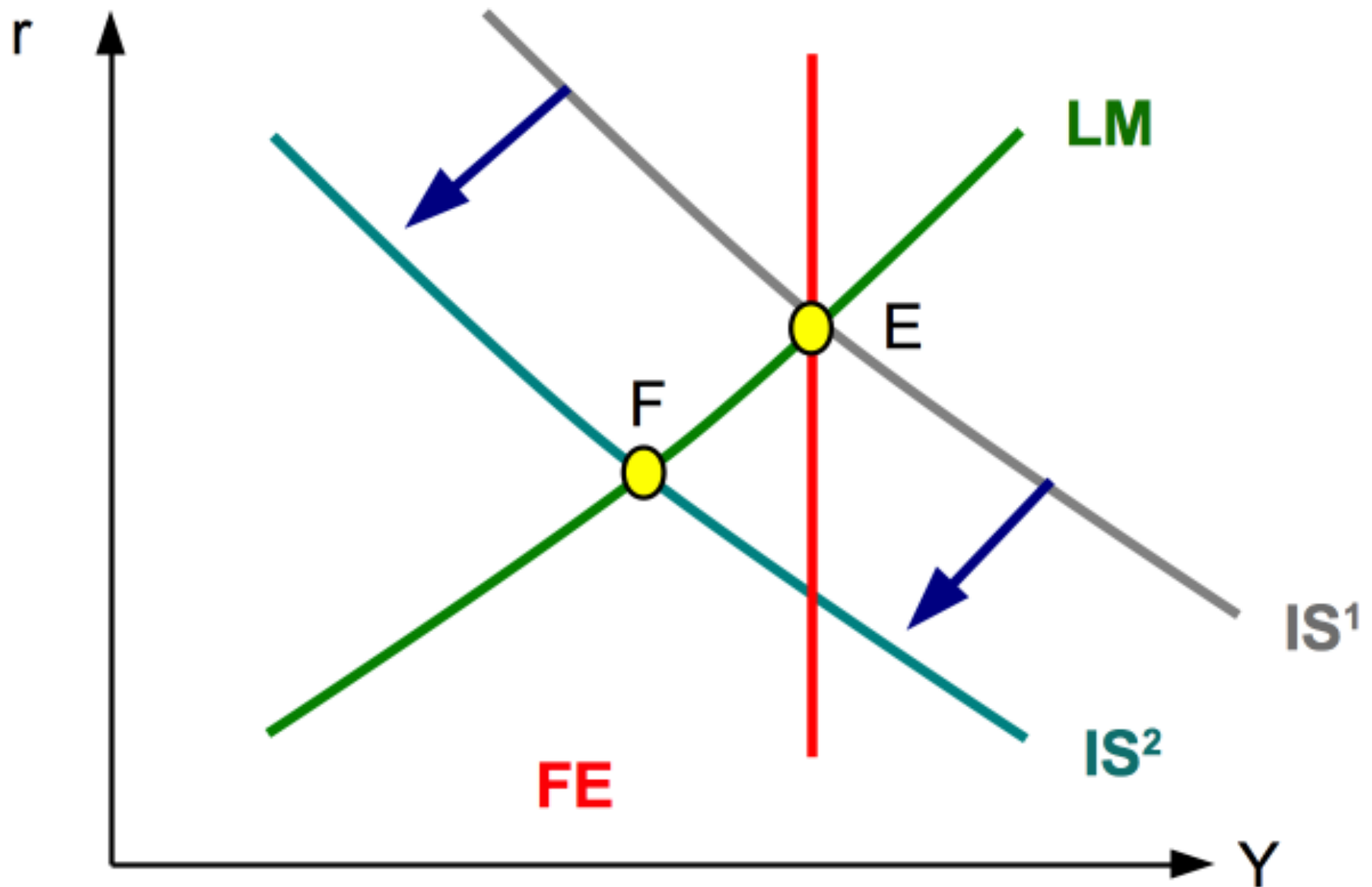
$$r = \frac{2}{5} - \frac{2}{P}$$

$$\frac{1}{5} = \frac{2}{5} - \frac{2}{P}$$

$$\frac{2}{P} = \frac{1}{5}$$

$$P = 10$$

Decline in confidence Z



Short-run equilibrium with $Z = -5$

- Price is fixed at $P = 10$ and we have $M = 100$
- We need to combine IS curve with LM curve

– LM is: $r = \frac{1}{500}Y - \frac{1}{5}$

– IS is: $r = \frac{-5 + 110 - 0.5Y}{50}$

$$\frac{1}{500}Y - \frac{1}{5} = \frac{-5 + 110 - 0.5Y}{50}$$

$$\frac{6}{10}Y = 115$$

$$Y = 192$$

- Plugging back for interest rate gives $r = 18\%$

Long-run equilibrium for $Z = -5$

- We go back on FE: $Y = 200$

- IS curve is
$$r = \frac{Z + 110 - 0.5Y}{50}$$
$$r = \frac{-5 + 110 - 100}{50}$$
$$r = \frac{-5 + 110 - 100}{50} = \frac{1}{10}$$

- To find price level, use LM

$$\frac{M}{P} = \frac{1}{10}Y - 50(r + \pi^e)$$
$$\frac{100}{P} = 20 - 5$$
$$P = 6.7$$

Question?