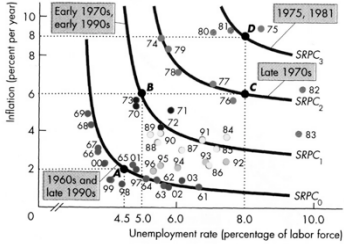


**Advanced
Macroeconomics**

Dale DeBoer
Set 2

IS/PC/MR model: Ch. 3



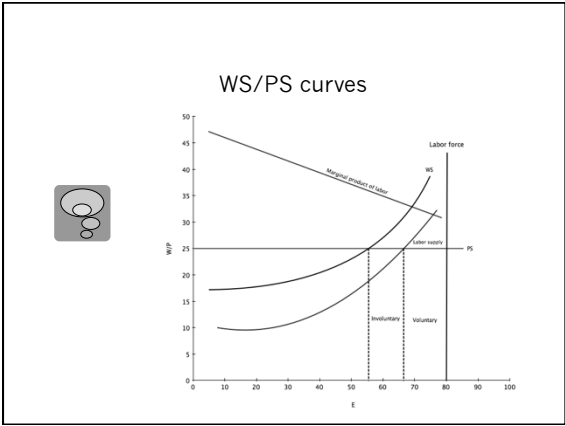
A model of inflation

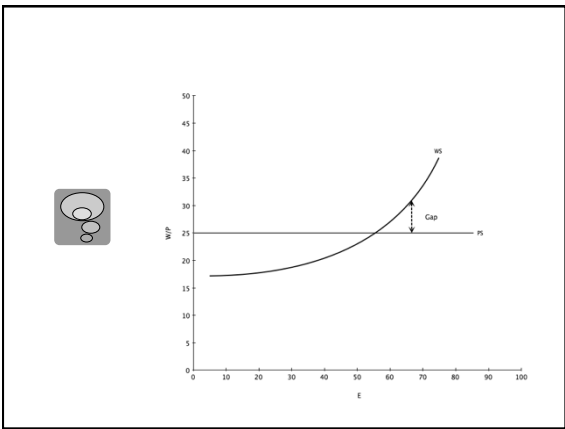


$$\pi_t = \pi^E + \alpha(Y_t - Y_t^E)$$

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

$$\pi_t = \pi_{t-1} + \alpha(Y_t - Y_t^E)$$

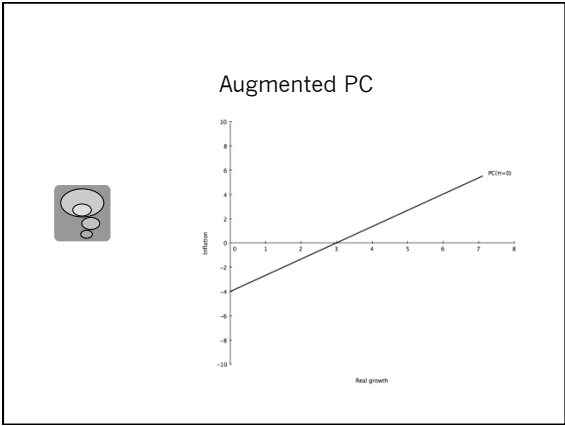


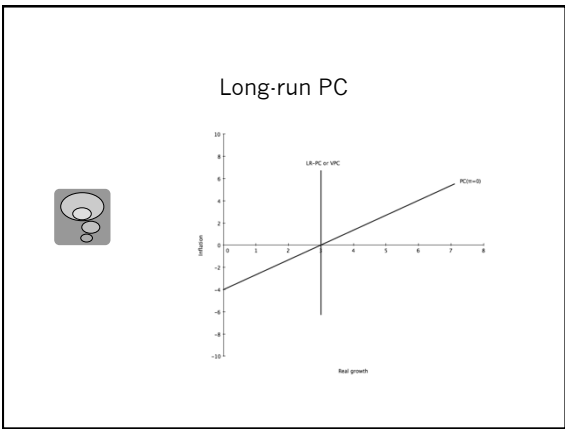


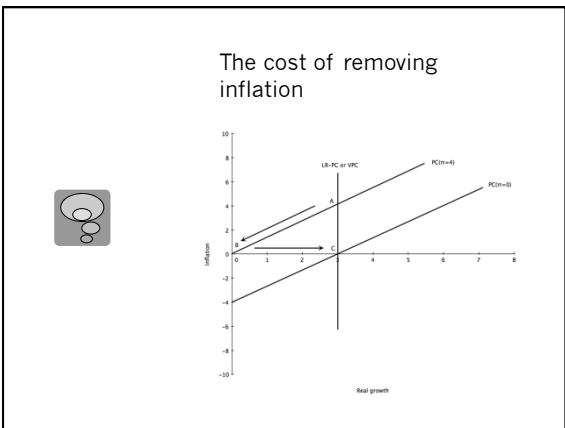
Moving to a dynamic setting

$Gap_t = Y_t - Y_t^e = Gap_{t-1} + Y_{t-1}g_Y - Y_{t-1}\bar{g}_Y$
 Assume $Gap_{t-1} = 0$
 $Gap_t = Y_{t-1}(g_Y - \bar{g}_Y) = Y_{t-1}(g_Y - 0.03)$
 $\pi_t = \pi_{t-1} + \alpha Y_{t-1}(g_Y - \bar{g}_Y)$
 $\pi_t = \pi_{t-1} + \alpha^*(g_Y - \bar{g}_Y)$



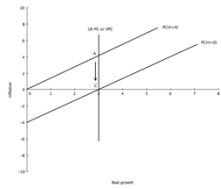






Rational expectations

$$\pi_t^E = \pi^T$$
$$\pi_t = \pi^T + \alpha (g_t - \bar{g}_t)$$



A revised IS curve

- Determines the output gap

$$Y = A - ar$$

$$Y_e = A - ar_e$$

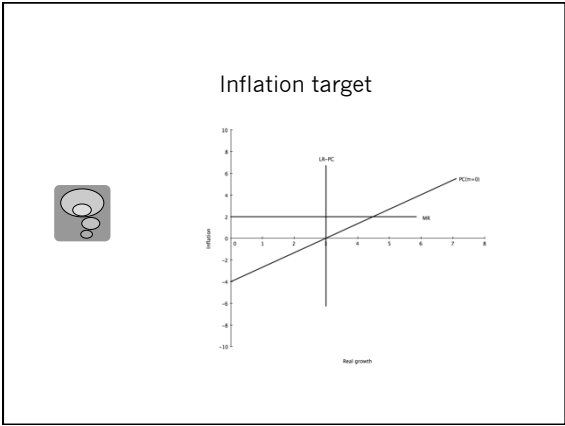
$$\text{Output gap} : Y - Y_e = -a(r - r_e)$$

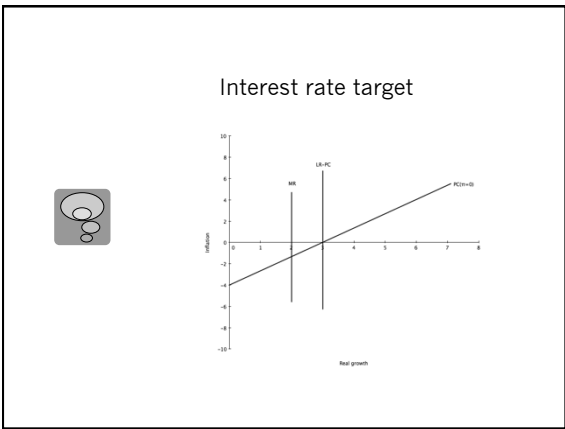


Monetary rule (MR)

- Options
 - 1: Inflation target
 - 2: Interest rate target
 - 3: Growth/inflation trade-off







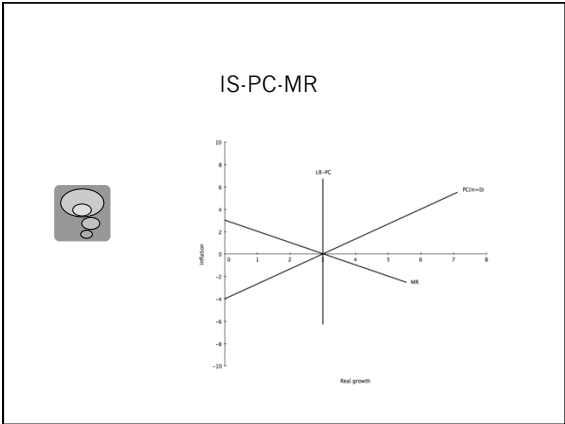
Trade-off target

- Equation of exchange

$$M \cdot V = P \cdot Y$$

$$g_{MV} = \pi + g_Y$$

$$\pi = g_{MV} - g_Y$$




- ### Demand shock examples
- Stock market contraction
 - Expansion in government expenditures



- ### Supply-side changes: Ch. 4
- Alteration to the WS/PS model
 - Taxes
 - Worker vs. producer
 - Productivity enhancement
 - Training/education




WS/PS math



$$WS: \frac{W}{P_c} = \frac{W}{P(1+t_c)} = b(E, z_w)$$


$$PS: \frac{W}{P_c} = \lambda \cdot f(\mu, z_p)$$

WS examples



- Tax increase
- E expansion
- Reduced institutional labor protections

PS examples

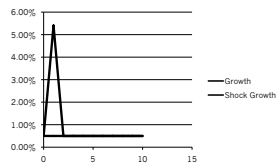


- Rise in productivity (λ)
- Increase in competition
- Fall in corporate taxes

Is it SR or LR?



Time	Labor	Employment	Post-Shock Output	Shock Output	Growth	Shock Growth
0	100.00	50.00	50.00	7.07	7.07	
1	101.50	50.50	55.55	7.11	7.45	0.50%
2	102.01	51.01	56.11	7.14	7.49	0.50%
3	102.03	51.52	56.67	7.18	7.53	0.50%
4	104.96	52.03	57.23	7.21	7.57	0.50%
5	105.10	52.55	57.81	7.25	7.60	0.50%
6	106.15	53.08	58.38	7.29	7.64	0.50%
7	107.21	53.61	58.97	7.32	7.68	0.50%
8	108.29	54.14	59.56	7.36	7.72	0.50%
9	109.37	54.68	60.15	7.39	7.76	0.50%
10	110.46	55.23	60.75	7.43	7.79	0.50%



Monetary policy: Ch. 5



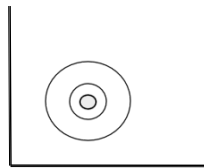
- Is there an ideal level of inflation?
 - Measurement issue
 - Erosion of "sticky" prices and wages
- Is there an ideal level of output growth?

Central bank loss function

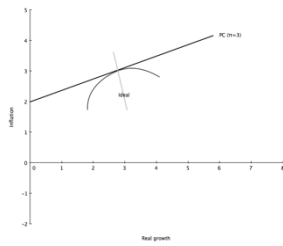



$$L = (Y - Y_e)^2 + \beta(\pi - \pi^T)^2$$
$$L_y = (g_Y - g_Y^*)^2 + \beta(\pi - \pi^T)^2$$

Central bank IC curves




Central bank policy





Concerns over policy ineffectiveness


- Liquidity traps
- Interest rate insensitive investment
- Rational expectations



Fiscal policy: Ch. 6

- Government budget balance

$$G + iB = T + \Delta B + \Delta M_B$$



Multipliers

- Government (neglects interest rate effects)

$$\frac{1}{1 - c_y(1 - t)}$$

- Tax

$$-c_y \frac{1}{1 - c_y(1 - t)}$$

Bond financing & crowding out



- As interest elasticity of money demand falls (inelastic), crowding out becomes more severe

Debt path



- What matters – debt or debt ratio?

$$\text{Debt ratio (DR)} = \frac{B}{PY}$$

$$g_{DR} = g_B - \pi - g_Y$$


Bond growth?



$$\Delta B = (G - T) + iB = D + iB$$


$$g_B = \frac{D}{B} + i$$

$$g_{DR} = \frac{D}{B} + i - \pi - g_Y$$



What if no primary deficit?

- $g_{DR} > 0$ if
$$i \geq \pi + g_Y$$
- What is i ?
$$i = r + \pi$$
$$i \geq g_Y$$



What determines r ?

- M (↓) and B/PY (↑)
- If $g_{DR} > 0$, $r < g_Y$ more difficult
- Worse, as r increases, l falls
 - Implication from growth models?
