MAT 1700

Løsnings-forslag

Oppgaveseminar #15

Seminar #15

Oppgave 1

(a) $\pi_t = \theta\pi_{t-1} + (\mu+z) - \alpha u_t$

$= \pi_t^e + (\mu+z) - \alpha u_t$ (8.3) side 168

$\pi_t^e = \theta\pi_{t-1} = \underline{0}$ since $\theta = 0$ (by assumption)

$\Rightarrow \pi_t = (\mu+z) - \alpha \cdot u_t$

$\theta = 1$;

$\Rightarrow \pi_t - \pi_{t-1} = (\mu+z) - \alpha u_t$ (8.6)

Assuming $\pi_t = \pi_t^e$ in equation (8.3);

$\pi_t - \pi_t^e = (\mu+z) - \alpha \cdot u_t$

$0 = (\mu+z) - \alpha \cdot u_t$

$= 0{,}10 - 2u_t$; $u_t = 0{,}05$

Note: $\mu_N = \frac{\mu+z}{\alpha}$

(b) $\pi_t = 0{,}10 - 2(0{,}03) = 0{,}04$ i hvert av årene

(c) $\pi_t^e = 0$ mens $\pi_t = 0{,}04$ doesn't make sense!

Expectations permanently incorrect!

Oppgave 1, forts.

(d) $\theta = 1 \Rightarrow$ forventningsdannelsen viktig!

(e) $\pi_5 = \pi_4 + 0,10 - 2(0,03) = \pi_4 + 0,04 = 0,04 + 0,04 = \underline{0,08}$

$\pi_6 = 0,08 + 0,10 - 2(0,03) = 0,08 + 0,04 = \underline{0,12}$

$\pi_7 = 0,12 + 0,04 = \underline{0,16}$

(f)

Oppgave 2 $\pi_t = \pi^e_t$ langs Phillipskurven!

(a) prod.-kostnad ↑ $\Rightarrow \mu$ ↑ (ikke-konkurransedrevne komponenter)

(b) $\pi_t = \pi^e_t$

$\pi_t - \pi^e_t = 0,08 + 0,10\mu - 2u_t$

$0 = 0,08 + 0,10\mu - 2u_t$

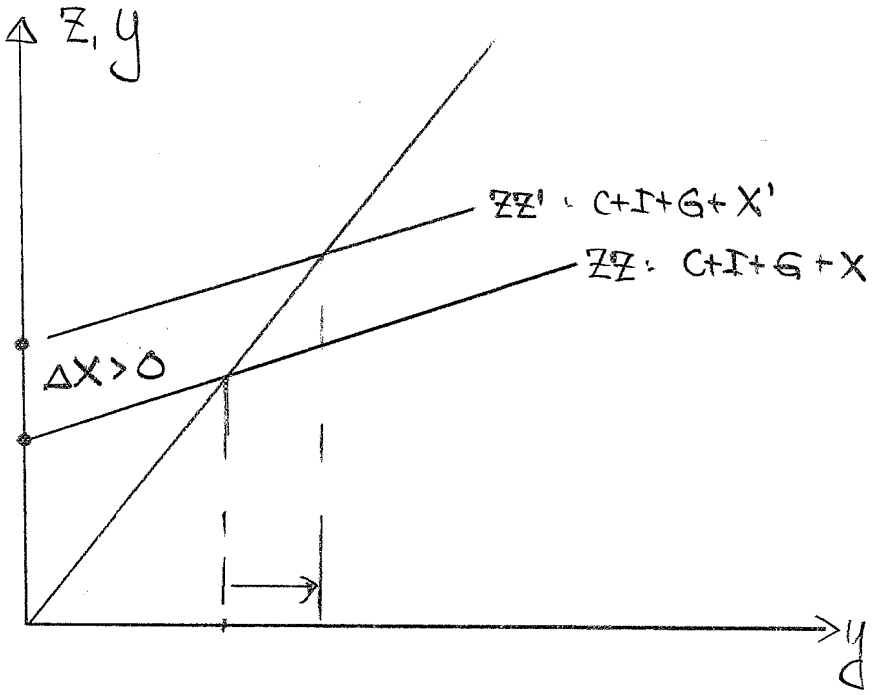
$u_t = u_N = \frac{0,08 + 0,10\mu}{2} = 0,04 + 0,05\mu$

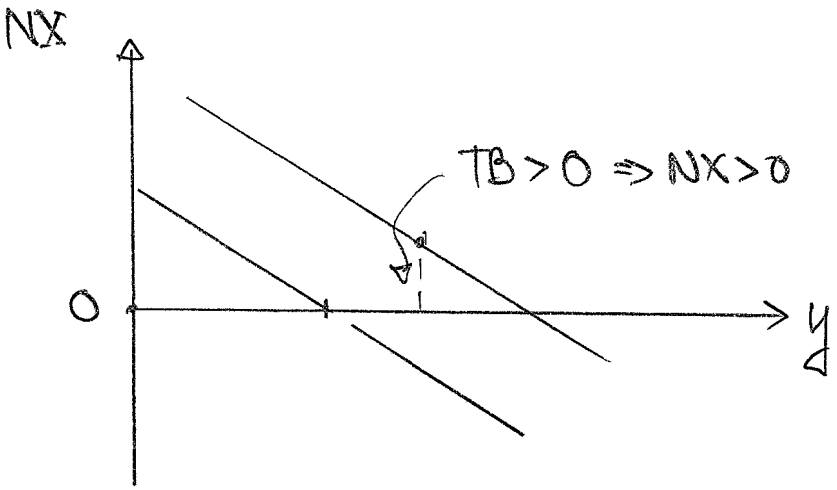
$\mu = \underline{0} \Rightarrow u_N = \underline{0,04}$

$\mu = \underline{0,10} \Rightarrow u_N = 0,04 + 0,05(0,10) = \underline{0,0450}.$

Oppgave 3

(a)





(b) $y\uparrow \Rightarrow I\uparrow$

$T = \bar{T} \Rightarrow (G-T)$ unchanged (deficit)

Oppgave 3. forts.

(c) $y = C + I + G - IM/\epsilon + X$

$$y - C - T = C + I + G - IM/\epsilon + X - C - T$$

$$S = I + G - T - IM/\epsilon + X$$

$$S = I + G - T - NX$$

$$NX = S + (T - G) - I \qquad (19.5)$$

$NX\uparrow = S\uparrow$ since $I\uparrow$ (because of $y\uparrow$)

(d) Exogeneous shocks may affect all the variables in (19.5)

Seminar #15

Oppgave 4

(a) (1) $K/AN = \left[s/(\delta + g_A + g_N) \right]^2 = \left[.16/(.10 + .02 + .04) \right]^2 = \underline{1.00}$

(2) $y/AN = f\left(\frac{K}{AN}\right) = \underline{1}$ (Equation 12.2)

(3) $g_{y/AN} = \underline{0}$ fordi $(K/AN^*) = (y/AN^*)$; dvs. in 'steady-state' y is growing at the same rate as AN (effektive labor) $\Rightarrow$ ratio is constant (zero growth);

$g_y = (g_A + g_N) = g_K$ in 'steady state' (langs. likevekt)

(4) $g_{y/N} = g_A = \underline{0,04}$ ... " when economy in steady-state; output per worker, $g_{y/N}$, grows at the rate of techn. progress, g_A " (page 253 Blanchard)

(5) $g_y = g_A + g_N = 0,04 + 0,02 = \underline{0,06}$

(b) Assuming $g_A = 0,08$ (doubles from initial level)

(1) $K/AN = \left(0,16/0,20\right)^2 = \underline{(4/5)^2}$

(2) $y/AN = \underline{4/5}$

(3) $g_{y/AN} = \underline{0}$ (for same reasons as stated above)

(4) $g_{y/N} = g_A = \underline{0,08}$

(5) $g_y = g_A + g_N = \underline{0,10}$

Oppgave 4, con't

Seminar #15

(c) $g_A = 0,04$ (at initial level), whereas $g_N = 0,06$

$$y = F(K, AN) = \sqrt{K}\sqrt{AN}$$

$$y/AN = \frac{\sqrt{K}\sqrt{AN}}{AN} = \frac{\sqrt{K}\sqrt{AN}}{\sqrt{AN}\cdot\sqrt{AN}} = \frac{\sqrt{K}}{\sqrt{AN}}\ ;\ \text{ie.}$$

$$f\left(K/AN\right) = \sqrt{K/AN}$$ (Blanchard, page 249)

(1) $K/AN = \underline{(4/5)^2}$

(2) $y/AN = \underline{4/5}$

(3) $g_{y/AN} = \underline{0}$

(4) $g_{y/N} = \underline{0,04}$

(5) $g_y = \underline{0,10}$

People better off under (a); $g_A = 0,04$ in both cases, however; K/AN and y/AN larger under (a) as compared to (c).