

1 Notes on Per's Homework 4

1. From the household BC:

$$c_t^i + k_{t+1}^i = w_t^i + (1 - \tau)(R_t - \delta)k_t^i$$

we get the Euler equation

$$u'(c_t) = \beta(1 - \tau)(R_{t+1} - \delta)u'(c_{t+1}).$$

In a steady state $c_t^i = c_{t+1}^i$ for all i and hence

$$1 = \beta(1 - \tau)(R - \delta).$$

R is the MPK, with $n_h = n_l = 1$ this pins down the overall steady state capital stock,

$$\frac{1}{\beta(1 - \tau)} + \delta = F_k(k, 1, 1)$$

and hence the wages (equal to the marginal product of labor). The agents' steady state capital stocks have to satisfy

$$k = k_h + k_l$$

and any set of (k_h, k_l) satisfying this determines a steady state; consumption is then obtained from the household's budget constraint. Higher capital income taxes reduce the steady state capital stock. For

$$F(k, n_h, n_l) = k^\alpha g(n_h, n_l)$$

we have

$$w_h/w_l = \frac{\partial g/\partial n_h}{\partial g/\partial n_l}$$

which does not depend on the steady state capital stock and thus on τ . For the case where capital and low-skill labor is perfectly substitutable, low capital income taxes increase the steady state capital stock and thus suppress low-skilled wages, increasing the wage dispersion. Increasing τ entails a substitution effect from capital accumulation to consumption, which in turn may change the wage differential (as above).

2. (a) Wage curve shifts up, JC curve shifts to the right; hence immediate increase in wages and market tightness θ . As the economy moves back to the Beveridge curve, unemployment decreases (but θ remains constant). (b) Value of a vacancy increases as productivity increase nears; JC shifts gradually right. θ gradually increases, u decreases. (c) Beveridge curve shifts out. JC curve shifts inwards, θ jumps up, u decreases as economy moves back onto the new Beveridge curve.
3. Isomorphic to standard McCall model.