$F(A_L L, A_H H)$

$F(\tilde{L}, \tilde{H})$ $\sigma < 1 \Rightarrow A_L$ is H biased

CES $\sigma > 1 \Rightarrow A_L$ is L biased

Show this:

$$\frac{\partial}{\partial A_L}\left(\frac{\partial F(\tilde{L},\tilde{H})/\partial H}{\partial F(\tilde{L},\tilde{H})/\partial L}\right) \begin{cases} >0 & \sigma<1 \\ <0 & \sigma>1 \end{cases}$$

H biased tech. change $\Rightarrow \frac{w_H}{w_L} \uparrow$

L biased tech. change $\Rightarrow \frac{w_H}{w_L} \downarrow$

Inc. Mkts

$$\max \sum_{t=0}^{\infty} \beta^t u(c_t)$$

$$\text{s.t.} \quad c_t + a_{t+1} = w_t + R a_t$$

$$\frac{u'(c_t)}{u'(c_{t+1})} = \beta R$$

- idiosyncratic
- labor income shock

- suppose instead: ie employment status

$$c_t + a_{t+1} = w_t \overbrace{e_t^i} + R a_t$$

agg technology: $F(K_t, L_t)$

$$L_t = \int_i e_t^i \, di = 1$$

$\Rightarrow$ if can save and borrow unconstrained,

$\Rightarrow$ Everything is deterministic

What if have incomplete markets?

Now,

$$\max E_0\left[\sum_{t=0}^{\infty} \beta^t u(c_t^i)\right]$$

$$\Rightarrow u'(c_t) = \beta R E_t u'(c_{t+1})$$

assume $u(c) = \frac{1}{\gamma}\exp\{-\gamma c\}(-1)$

$$\Rightarrow u'(c) = \exp\{-\gamma c\}$$

Spse $x \sim N(\cdot) \Rightarrow E[\exp\{x\}] = \exp\{E[x] + \frac{1}{2}Var(x)\}$

$$\Rightarrow E_t[u'(c_{t+1})] = \exp\{-\gamma E_t[c_{t+1}] + \frac{\gamma^2}{2}Var_t(c_{t+1})\}$$

$$= u'(E_t[c_{t+1}] - \frac{\gamma}{2}Var_t(c_{t+1}))$$

$Var_t(c_{t+1}) \uparrow \Rightarrow u' \uparrow \Rightarrow$ save more

(precautionary savings)

Can derive:

$$c_{t+1} - c_t = \frac{1}{\gamma}\ln \beta R + \frac{\gamma}{2} Var_t(c_{t+1}^i)$$