Technology Shocks with Fixed Prices

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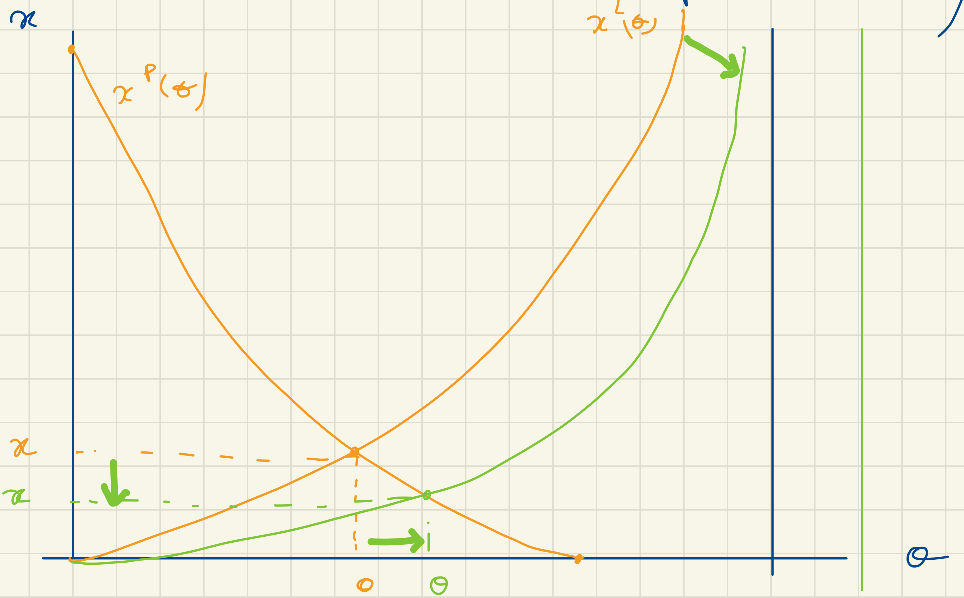
Positive technology shock. increase in a

$$\begin{cases} x = x^L(\theta) = \hat{f}^{-1}\left(\frac{w/p}{a\alpha} h^{1-\alpha} \hat{f}(\theta)^{1-\alpha} [1+\hat{\tau}(\theta)]^{\alpha} \right) \\ x = x^P(\theta) = \tau^{-1}\left(\left[\frac{X^{\varepsilon} \mu \alpha}{w \cdot h} \frac{1}{\hat{f}(\theta)} \right]^{1/\varepsilon - 1} - 1 \right) \end{cases}$$

increasing



After an increase in technology a

- $\theta \nearrow$ $[\hat{f}(\theta) \nearrow, 1-\hat{f}(\theta) \searrow, q(\theta) \searrow, \hat{\tau}(\theta)]$
- $\boxed{x \searrow}$ $[f(x) \searrow, 1-f(x) \nearrow, q(x) \nearrow, \tau(x)]$
- $\ell = \hat{f}(\theta) h$ so $\ell \nearrow$
- $y = \frac{X^{\varepsilon}}{[1+\tau(x)]^{\varepsilon-1}} \cdot \frac{a}{p}$ so $y \nearrow$

key difference b/w technology & AD shocks is the response of x → key to look at product market tightness to separate AD & technology shocks.

- $c = y / [1+\tau(x)]$ so $c \uparrow$
- $\hat{v} = \ell / q(\theta)$ so $\hat{v} \uparrow$