Structure of the Solution of the Two-Market Model

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Variables: y, $\cancel{c}$, x, $\cancel{p}$, $\cancel{k}$

ℓ, $\cancel{n}$, θ, $\cancel{w}$

9 variables $\rightarrow$ 9 conditions/equations

Once we know these variables:

- rate of idleness $= 1 - f(x)$
- rate of unemployment $= 1 - \hat{f}(\theta)$
- trading probabilities. $f(x)$, $q(x)$, $\hat{f}(\theta)$, $\hat{q}(\theta)$
- matching wedge : $\tau(x)$, $\hat{\tau}(\theta)$

Can simplify model from 9×9 description:

$$c = y / [1 + \tau(x)] \qquad 8 \times 8$$

$$n = \ell / [1 + \hat{\tau}(\theta)] \qquad 7 \times 7$$

$$k = a \cdot n^{\alpha} = a \cdot \left[\ell / [1 + \hat{\tau}(\theta)] \right]^{\alpha} \qquad 6 \times 6$$

$$p = p^n(x, \theta)$$

$$w = w^n(x, \theta)$$

w/ fixed price - fixed wage assumption p, w are parameters

↳ Model boils down to 4×4 system.

4 variables: y, ℓ, x, θ

4 equations

1 . $\ell = \ell^s(\theta) = \hat{f}(\theta)\cdot k$

2 . $\ell = \ell^d(\theta, x) = \left[\dfrac{f(x)\cdot a\cdot \alpha}{w/p}\right]^{1/1-\alpha}\left[\dfrac{1}{1+\hat{\tau}(\theta)}\right]^{\alpha/1-\alpha}$

3 . $y = y^s(x, \theta, \ell) = f(x)\ a\cdot\dfrac{\ell^\alpha}{[1+\hat{\tau}(\theta)]^\alpha}$

$y = y^d = \sigma(x)\left[f(x)\cdot k + \dfrac{N}{p}\right]$

$\Leftrightarrow$ 4 $y = y^d = \sigma(x)\cdot\left[f(x)\, a\,\dfrac{\ell^\alpha}{[1+\hat{\tau}(\theta)]^\alpha} + \dfrac{N}{p}\right]$