Market Tightness and Trading Probabilities

Pascal Michaillat
https://pascalmichaillat.org/c2/

matching function m

trades in a period $M = m(S, B)$

S # sellers

B # buyers

Trading probabilities

- f : probability to sell

$$f = M / S$$

- q = probability to buy

$$q = M / B$$

Selling probability f

CRS

$$f = \frac{M}{S} = \frac{m(S, B)}{S} = m\left(\frac{S}{S}, \frac{B}{S}\right)$$

$$f = m(1, B/S)$$

Market tightness

$$\theta = \frac{B}{S}$$

Labor market $\theta = V / U$

$$f(\theta) = m(1, \theta)$$

- selling proba only depends on tightness
- selling proba. is increasing in tightness
  $f'(\theta) > 0$
- selling proba concave in tightness
  $f''(\theta) < 0$
- $f(0) = 0$ no chance of selling when tightness is zero

$$m(S, B) \leq \min(S, B)$$

$$f = m(S, B)/S \leq \min(S, B)/S \leq 1$$

Buying probability

CRS

1/θ

$$q = \frac{M}{B} = \frac{m(S, B)}{B} = m\left(\frac{S}{B}, \frac{B}{B}\right)$$

$$q(\theta) = m\left(\frac{1}{\theta}, 1\right)$$

- buying probability only depends on tightness
- buying proba is decreasing in tightness
  $q'(\theta) < 0$

- $q(+\infty) = 0$ probability to buy is 0 when tightness is infinite

Relation b/w buying and selling proba

$$f(\theta) = m(1, \theta) \overset{CRS}{=} \theta \; m\left(\frac{1}{\theta}, 1\right) = \theta \; q(\theta)$$

↳

$$f(\theta) = \theta \; q(\theta)$$
$$f(\theta)/q(\theta) = \theta$$