

Market Tightness and Trading Probabilities

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<https://www.pascalmichailat.org/t5.html>



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

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

CRS 1/θ

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

- 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

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

\hookrightarrow

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