

Matching Wedge

Pascal Michailat

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



Assumption. Each visit requires $p \in (0,1)$ services

Service purchased

- consumed: C
(deliver utility)
- used for matching & conduct visits

Service consumed $<$ services purchased

Link between consumption & purchases.

Household conducts v visits & aims to
consume C services

$$\text{services purchased} = C + v \times p$$

1 visit $\rightarrow q(x)$ services (in expectation)

1 purchase $\rightarrow 1/q(x)$ visits

(can't randomize)

$C + v \times p$ purchases \rightarrow require $\frac{C + v \times p}{q(x)}$ visits

$$v = \frac{C}{q(x)} + v \times \frac{p}{q(x)}$$

$$v \left(1 - \frac{p}{q(x)} \right) = \frac{C}{q(x)}$$

$$v = c * \frac{1}{q(x) - p}$$

Services required for matching

$$p \times v = c * \frac{p}{q(x) - p}$$

Services required for matching & consuming 1 service.

$$\tau(x) \equiv \frac{p}{q(x) - p}$$

$\tau(x)$ is the matching wedge

To consume 1 service, household purchases

$$1 + \tau(x) \text{ services}$$

↑
consumption

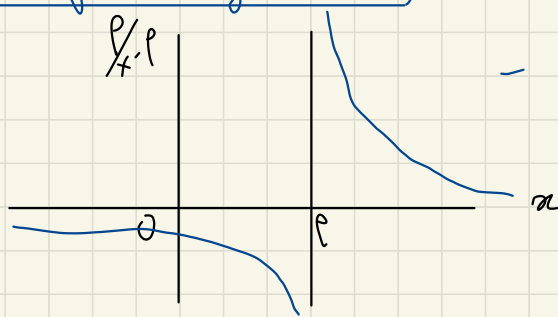
↑
matching

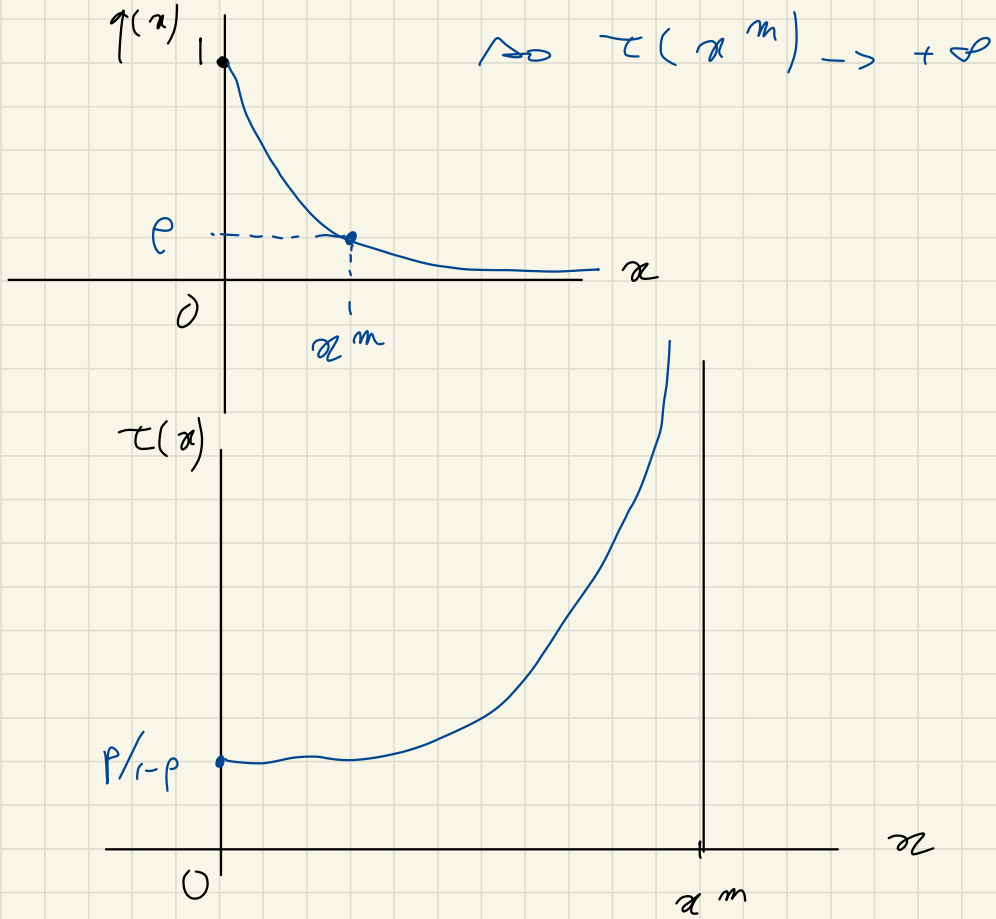
Properties of $\tau(x)$

$$- \tau(0) = p / (1 - p)$$

- $\tau(x)$ increasing in x
(b/c $p/(x-p)$ is ↓)

$$- \tau(x) \rightarrow +\infty \text{ when } q(x) = p$$





When the market is tighter, visits are less likely to be successful, so the household must devote more resources to matching \rightarrow the matching wedge is larger, it is more costly to consume things