Solving the Model in Terms of Visits

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

Solve the model

- Find 2 variables: v, x

- Use 2 relations.

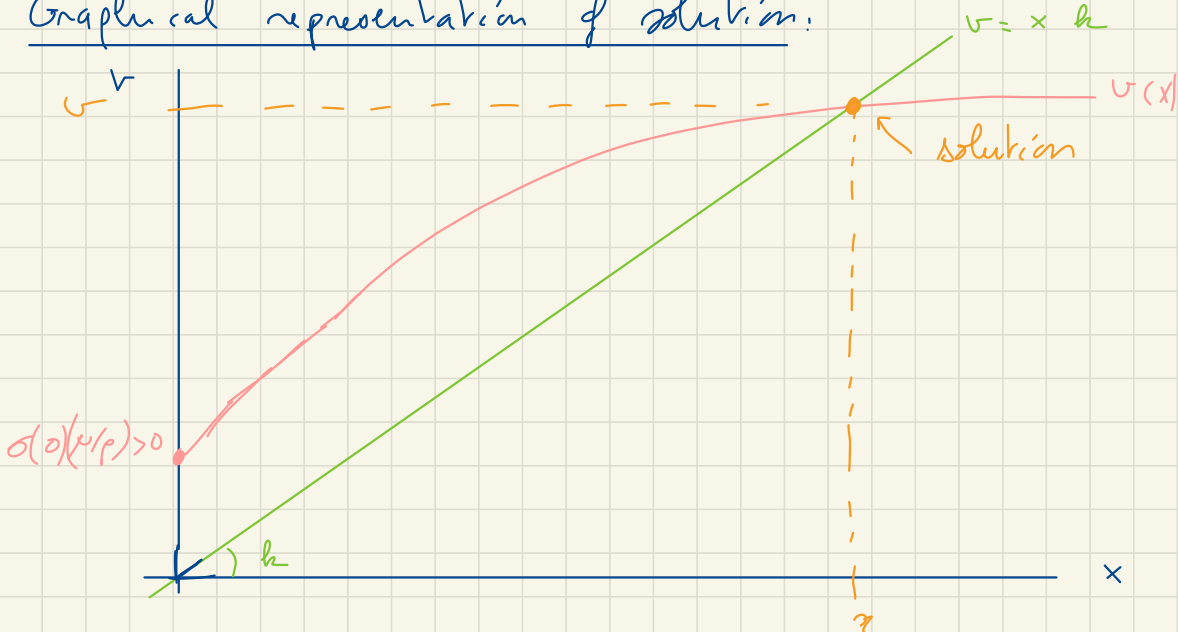① Households decide visits optimally given x

AD. $v = \dfrac{\sigma(x)}{q(x)} \cdot \left[f(x) \, k + \dfrac{\mu}{p} \right] \equiv v(x)$

② Definition of tightness :

$$x = v/k \quad \rightarrow \quad v = x \cdot k$$

Graphical representation of solution.

$v = x \, k$

$v(x)$

solution

$\sigma(0)(\mu/p) > 0$

v

k

x

This solution

$$\begin{cases} v = \dfrac{\sigma(x)}{q(x)} \left[f(x)\, h + \mu/\rho \right] \\ x = \sigma/h \end{cases}$$

$$(=) \quad \begin{cases} q(x)\, v = \sigma(x) \left[f(x)\, h + \mu/\rho \right] \\ q(x)\, v = q(x/\sigma)\, h \end{cases}$$

$$(=) \quad \begin{cases} y = \sigma(x) \left[f(x)\, h + \mu/\rho \right] \\ y = f(x)\, h \end{cases}$$

$$(=) \quad \begin{cases} y = \sigma(x) \left[y^S(x) + \mu/\rho \right] \\ y = y^S(x) \end{cases}$$

$$(=) \quad \begin{cases} y = \dfrac{\sigma(x)}{1-\sigma(x)} \cdot \dfrac{\mu}{\rho} = y^d(x) \\ y = y^S(x) \qquad\qquad y \text{ on } AS \text{ curve} \end{cases}$$

$$(=) \quad \begin{cases} y = y^S(x) \\ y^S(x) = y^d(x) \end{cases}$$

$\uparrow$ tightness equalizes
AS & AD