General Structure of the Model Solution

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Solution to the macro matching model

Need to solve a 2×2 system

$\begin{cases} 2 \text{ variable}: \quad y \text{ , } x \\ 2 \text{ equations}: \quad \text{aggregate demand, aggregate supply} \end{cases}$

The solution is given by

$$\begin{cases} y = \sigma(x) \left[\underline{f(x) \, k} + N/\rho \right] \\ y = f(x) \cdot k \end{cases}$$

AS curve: $\quad y^S(x) = f(x) \cdot k$

AD curve: $\quad y^d(x) = \dfrac{\sigma(x)}{1 - \sigma(x)} \cdot \dfrac{N}{\rho} = \dfrac{x^\varepsilon}{[1 + \tau(x)]^{\varepsilon - \theta}} \dfrac{N}{\rho}$
(pure)

$\dfrac{\sigma}{1 - \sigma} = \dfrac{MPS}{1 - MPS}$

endowment of wealth

Behavioral curve: $\quad y^b(x) = \sigma(x) \left[y^S(x) + \dfrac{N}{\rho} \right]$
(behavioral)

$$\boxed{y^b(x) = \sigma(x) \, y^S(x) + [1 - \sigma(x)] \, y^d(x)}$$

$\wedge$ Behavior of household is linear combination of
Spending $\quad$ supply & demand b/c $\begin{cases} \sigma \in (0,1) \\ 1 - \sigma \in (0,1) \end{cases}$

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

$\Leftrightarrow$
$$\begin{cases} y = \sigma(x)\, y^{S}(x) + [1 - \sigma(x)]\, y^{d}(x) \\ y = y^{S}(x) \end{cases}$$

$\Leftrightarrow$
$$\begin{cases} y = y^{S}(x) \\ y^{S}(x) = \underline{\sigma(x)\, y^{S}(x)} + [1 - \sigma(x)]\, y^{d}(x) \end{cases}$$

$\in (0,1)$

$\Leftrightarrow$
$$\begin{cases} y = y^{S}(x) \quad \longleftarrow \text{ output given by AS} \\ y^{S}(x) - y^{d}(x) \quad \longleftarrow \text{ tightness at AS = AD} \end{cases}$$