Modelo de Desempleo con Salario Nominal Rígido.

Sup: $W = \bar{W}$

$N^T = N^d$

Modelo MAT.

$$Y^T = C(Y^T) + I(r - \bar{\pi}) + AD \text{ - - - - - - - - - - (1)}$$

$$L(Y^T, r) = \bar{M}/P \text{ - - - - - - - - - - - - (2)}$$

$$N^T = N^d(W/P) \text{ - - - - - - - - - - - - (3)}$$

$$Y^d = F(N^T) \text{ - - - - - - - - - - - - (4)}$$

Identidad

- $Y - C(Y^T) - I(r - \bar{\pi}) - AD \equiv 0$
- $L(Y^T, r) - \bar{M}/P \equiv 0$
- $N^T - N^d(\bar{W}/P) \equiv 0$
- $Y^T - F(N^T) \equiv 0$

$\Longleftrightarrow$

$\bar{Y}^T = Y^T(AD, \bar{\pi}, \bar{M}, \bar{W})$

$\bar{Y} = Y(\;"\quad"\;)$

$\bar{N}^T = N^T(\;"\quad"\;)$

$\bar{P} = P(\;"\quad"\;)$

Aplic. dif.

- $(1 - C')dY^T - I'dr + I'd\bar{\pi} - d\bar{AD} = 0$
- $L_Y dY^T + L_r dr - \left(\frac{Pd\bar{M} - \bar{M}dP}{P^2}\right) = 0$
- $dN^T - N^{d'} d\lambda = 0$
- $dY^T - F' dN^T = 0$

$$(1-c')\,dy^T - I'\,dr = dA\acute{O} - I'\,d\bar{\pi}$$

$$Ly\,dy^T + Lr\,dr + \frac{\bar{M}}{P^2}\,dP = 1/P\,d\bar{M}$$

$$dN^T = N^{d}\,d\lambda$$

$$-f'\,dN^T = 0$$

Matricial

$$\begin{vmatrix} (1-c') & -I' & 0 & 0 \\ Ly & Lr & 0 & \bar{M}/P^2 \\ 0 & 0 & 1 & 0 \\ 1 & 0 & -f' & 0 \end{vmatrix} \begin{vmatrix} dy^T \\ dr \\ dN^T \\ dP \end{vmatrix} = \begin{vmatrix} 1 & -I' & 0 & 0 \\ 0 & 0 & 1/P & 0 \\ 0 & 0 & 0 & N^{d'} \\ 0 & 0 & 0 & 0 \end{vmatrix} \begin{vmatrix} dA\acute{O} \\ d\bar{\pi} \\ d\bar{M} \\ d\lambda \end{vmatrix}$$

$$\begin{vmatrix} (1-c') & -I' & 0 & 0 \\ Ly & Lr & 0 & \bar{m}/P^2 \\ 0 & 0 & 1 & 0 \\ 1 & 0 & -f' & 0 \end{vmatrix} \begin{vmatrix} dy^T/d\lambda \\ dr/d\lambda \\ dN^T/d\lambda \\ dP/d\lambda \end{vmatrix} = \begin{vmatrix} 0 \\ 0 \\ N^{d'} \\ 0 \end{vmatrix}$$

Met. cramer

$$\Delta = \begin{vmatrix} (1-c') & -I' & 0 & 0 \\ Lr & Lr & 0 & \bar{M}/P^2 \\ 0 & 0 & 1 & 0 \\ 1 & 0 & -f' & 0 \end{vmatrix} = \begin{vmatrix} (1-c') & I' & 0 \\ Ly & Lr & \bar{M}/P^2 \\ 1 & 0 & 0 \end{vmatrix} = \begin{vmatrix} -I' & 0 \\ Lr & \bar{M}/P^2 \end{vmatrix}$$

$$\Delta = -\overset{(+)}{\frac{\bar{M}}{P^2}} \cdot \overset{(-)}{I'} \qquad \therefore \Delta > 0$$

$\frac{dN^T}{d\lambda} < 0$, Ahorro desempleo = bajo empleo = Menor demanda de Trabajo.

$$d\lambda \neq 0 \Rightarrow d\bar{AD} = d\bar{\pi} = d\bar{M} = 0$$

$$\begin{vmatrix} (1-c') & -I' & 0 & 0 \\ Ly & Lr & 0 & \bar{M}/P^2 \\ 0 & 0 & 1 & 0 \\ 1 & 0 & -F' & 0 \end{vmatrix} \begin{vmatrix} dy^T \\ dr \\ dw^T \\ dP \end{vmatrix} = \begin{vmatrix} 0 \\ 0 \\ N^d \\ 0 \end{vmatrix} d\lambda$$

$$\begin{vmatrix} (1-c') & -I' & 0 & 0 \\ Ly & Lr & 0 & \bar{M}/P^2 \\ 0 & 0 & 1 & 0 \\ 1 & 0 & -F' & 0 \end{vmatrix} \begin{vmatrix} dy^T/d\lambda \\ dr/d\lambda \\ dw^T/d\lambda \\ dP/d\lambda \end{vmatrix} = \begin{vmatrix} 0 \\ 0 \\ N^d \\ 0 \end{vmatrix}$$

$$\frac{dN^T}{d\lambda} = \frac{\begin{vmatrix} (1-c') & -I' & 0 & 0 \\ Ly & Lr & 0 & \bar{M}/P^2 \\ 0 & 0 & N^d & 0 \\ 0 & 0 & 0 & 0 \end{vmatrix}}{\Delta} = \frac{\begin{vmatrix} -I & 0 & 0 \\ Ly & 0 & \bar{M}/P^2 \\ 0 & N^d & 0 \end{vmatrix}}{\Delta}$$

- $$\frac{dN^T}{d\lambda} = \frac{N^{d'} \cdot \begin{vmatrix} -I' & 0 \\ Lr & \bar{M}/P^2 \end{vmatrix}}{\Delta}$$

- $$\frac{dN^T}{d\lambda} = \frac{\overset{(-)}{-}\overset{(-)}{\frac{\bar{M}}{P^2}} \cdot \overset{(+)}{N^d}\, \overset{(-)}{I}}{\underset{(+)}{\Delta}}$$

$\therefore \frac{dN^T}{d\lambda} < 0 \quad \uparrow \lambda \rightarrow \downarrow N^T$

Modelo SALARIO NOMINAL RÍGIDO

"SUPUESTO"

$W - \bar{W} \rightarrow$ No hay equilibrio

$N^s \neq N^d = dN^T \rightarrow$ Falla de mercado, la oferta de trabajo desaparece en este modelo.

Modelo

$$Y^T = C(Y^T) + I(r - \pi) + AD$$

$$\frac{\bar{M}}{P} = L(Y^T, r)$$

$$N^T = N^d\left(\frac{\bar{W}}{P}\right)$$

$$Y^T = F'(N^T)$$

Forma identidad

$$Y^T - C(Y^T) - I(r - \pi) - AD \equiv 0$$

$$\frac{\bar{M}}{P} - L(Y^T, r) \equiv 0$$

$$N^T - N^d\left(\frac{\bar{W}}{P}\right) \equiv 0$$

$$Y^T - F(N^T) \equiv 0$$

$$\Longleftrightarrow$$

$$\bar{Y}^T = y\,(AD, \pi, F_1, \bar{W})$$

$$\bar{Y} = r\,(AD, \pi, F_1, \bar{W})$$

$$\bar{N}^T = (AD, \pi, F_1, \bar{W})$$

$$\bar{P} = (AD, \pi, F_1, \bar{W})$$

$dy^T/d\Delta D > 0$

$d\Delta D \neq 0 \quad dH = 0 \quad d\omega = 0 \quad d\pi = 0$

$$\begin{bmatrix} 1-c & -Ir & 0 & 0 \\ -Ly & -Lr & 0 & -\bar{H}/P^2 \\ 0 & 0 & 1 & N^{d'}\left(\frac{\omega}{P}\right) \\ 1 & 0 & -f' & 0 \end{bmatrix} \begin{bmatrix} dy^T \\ dr \\ d\pi \\ dP \end{bmatrix} = \begin{bmatrix} 1 \\ 0 \\ 0 \\ 0 \end{bmatrix} d\overline{\Delta D}$$

$$\begin{bmatrix} 1-c & -Ir & 0 & 0 \\ -Ly & -Lr & 0 & -\bar{H}/P^2 \\ 0 & 0 & 1 & N^{d'}\left(\frac{\omega}{P}\right) \\ 1 & 0 & -f' & 0 \end{bmatrix} \begin{bmatrix} dy^T/d\Delta D \\ dr/d\Delta D \\ d\pi/d\Delta D \\ dP/d\Delta D \end{bmatrix} = \begin{bmatrix} 1 \\ 0 \\ 0 \\ 0 \end{bmatrix}$$

$$\frac{dy^T}{d\Delta D} = \frac{\begin{bmatrix} 1 & -Ir & 0 & 0 \\ 0 & -Lr & 0 & -\bar{H}/P^2 \\ 0 & 0 & 1 & N^{d'}\left(\frac{\omega}{P}\right) \\ 0 & 0 & -f' & 0 \end{bmatrix}}{\Delta} \qquad 1 \quad \frac{\begin{vmatrix} -Lr & 0 & -\bar{H}/P^2 \\ 0 & 1 & N^{d'}\left(\frac{\omega}{P}\right) \\ 0 & -f' & 0 \end{vmatrix}}{\Delta}$$

$$\frac{dy^T}{d\Delta D} = -Lr \frac{\begin{vmatrix} 1 & N^{d'}\left(\frac{\omega}{P}\right) \\ -f' & 0 \end{vmatrix}}{\Delta}$$

$$-Lr + f' N^{d'}\left(\frac{\omega}{P}\right) = \frac{-}{+}$$

$(-) \quad (+) \quad -$

$$\underbrace{+ \quad + \quad -}_{-}$$

Aplicamos Diferenciales

$$dy^T - c' dy^T - I_r dr + I_n dn - dA_0 = 0$$

$$\frac{dM \cdot P - dP \cdot M}{P^2} - l_y' \cdot dy^T - L_r \cdot dr = 0$$

$$dN^T - N^{d'} \cdot \left(\frac{dw \cdot P - dP \cdot w}{P^2}\right) = 0$$

Separamos endogenas y exogenas y factorizamos

$$(1-c')dy^T - I_r \cdot dr = dA_0 - I_\pi \cdot d\pi$$

$$-l_y \cdot dy^T - L_r \cdot dr - \frac{\bar{M}}{P^2} \cdot dP = -\frac{1}{P} dM$$

$$dy^T \qquad dN^T + N^{d'} \cdot \left(\frac{\bar{w}}{P^2}\right) dP = N^{d'} \frac{1}{P} d\bar{w}$$

$$-f' dN^T = 0$$

Forma Matricial

$$\begin{bmatrix} (1-c') & -I_r & 0 & 0 \\ -l_y & -L_r & 0 & -\frac{\bar{M}}{P^2} \\ 0 & 0 & 1 & N^{d'}\left(\frac{\bar{w}}{P^2}\right) \\ 1 & 0 & -f' & 0 \end{bmatrix} \begin{bmatrix} dy^T \\ dr \\ dN^T \\ dP \end{bmatrix} = \begin{bmatrix} 1 & -I_\pi & 0 & 0 & 0 \\ 0 & 0 & -1/P & 0 & 0 \\ 0 & 0 & 0 & N^{d'}\frac{1}{P} & 0 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix} \begin{bmatrix} dA_0 \\ -d\pi \\ dM \\ dw \end{bmatrix}$$

Hallamos determinantes

$$\Delta = \begin{bmatrix} (1-c') & -I_r & 0 & 0 \\ -l_y & -L_r & 0 & -\frac{\bar{M}}{P^2} \\ 0 & 0 & 1 & N^{d'}\left(\frac{\bar{w}}{P^2}\right) \\ 1 & 0 & -f' & 0 \end{bmatrix}$$

$$\Delta = 1 \begin{bmatrix} 1-c' & -I_r & 0 \\ -l_y & -L_r & -\frac{M}{P^2} \\ 1 & 0 & 0 \end{bmatrix} - N^{d'}\left(\frac{w}{P^2}\right) \begin{bmatrix} 1-c' & -I_r & 0 \\ -l_y & -L_r & 0 \\ 1 & 0 & -f' \end{bmatrix}$$

$$\Delta = \frac{\bar{M}}{P^2} \begin{bmatrix} 1-c' & -I_r \\ 1 & 0 \end{bmatrix} - N^{d'}\left(\frac{\bar{w}}{P^2}\right) \begin{bmatrix} 1-c' & -I_r \\ -l_y & -L_r \end{bmatrix}$$

$$\Delta = \frac{\bar{M}}{P^2} \cdot I_r + N^{d'}\left(\frac{\bar{w}}{P^2}\right) f' \left[-(1-c)L_r - l_y \cdot I_r\right] > 0$$