# Macroeconomics 2 Presentation
# Part III equations

Gugelmo Cavalheiro Dias Paulo    Mitash Nayanika

Wang Shang

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## 1 Behavioral Enrichments to the Model

### 1.1 Term Structure of Consumer Attention

**Equation 49**

$$\begin{aligned} k_{t+1} &= \mathbf{G}^{k,BR}(c_t, N_t, k_t, \mathbf{X}_t) \\ &:= (1 + \bar{r} + \hat{r}^{BR}(\mathbf{X}_t))(k_t + \bar{y} + \hat{y}^{BR}(N_t, \mathbf{X}_t) - c_t) \end{aligned} \tag{49}$$

With :

- $k_{t+1}$ the capital at time $t+1$
- $\mathbf{G}^{k,BR}$ the ... ?
- $c_t$ the consumption at time $t$
- $N_t$ work at time $t$
- $k_t$ capital at time $t$
- $\bar{r}$ the ... ?
- $\hat{r}^{BR}$ the ... ?
- $\mathbf{X}_t$ the ... ?
- $\bar{y}$ the ... ?
- $\hat{y}^{BR}(N_t, \mathbf{X}_t)$ the ... ?
- $\mathbf{X}_t$ the ... ?

**Equation 50**

$$\begin{cases} \hat{r}^{BR} = m_r \hat{r}(\mathbf{X}_t) \\ \hat{y}^{BR}(N_t, \mathbf{X}_t) = m_y \hat{y}(\mathbf{X}_t) + \omega(\mathbf{X}_t)(N_t - N_t \mathbf{X}_t) \end{cases} \tag{50}$$

**Equation 51, Lemma 5 (Term Structure of Attention)**

$$\begin{cases} \mathbb{E}_t^{BR}\left[\hat{r}^{BR}(\mathbf{X}_{t+k})\right] = m_r \bar{m}^k \mathbb{E}_t\left[\hat{r}(\mathbf{X}_{t+k})\right] \\ \mathbb{E}_t^{BR}\left[\hat{y}^{BR}(\mathbf{X}_{t+k})\right] = m_r \bar{m}^k \mathbb{E}_t\left[\hat{y}(\mathbf{X}_{t+k})\right] \end{cases} \tag{51}$$

**Equation 52**

$$\hat{c}_t = \mathbb{E}_t\left[\sum_{\tau \geq t} \frac{\bar{m}^{\tau - t}}{R^{\tau - t}} \left(b_r m_r \hat{r}(\mathbf{X}_\tau) + m_Y \frac{\bar{r}}{R} \hat{y}(\mathbf{X}_\tau)\right)\right] \tag{52}$$

Where :

- $\hat{c}_t$ is the value of the deviation from the steady state of consumption
- $\tau$ ...

**Equation 53**

$$\frac{\Delta^{GE}}{\Delta^{\text{direct}}} = R^{\tau+1} \tag{53}$$

**Equation 54**

$$\frac{\Delta^{GE}}{\Delta^{\text{direct}}} = \left(\frac{R}{R - r m_Y}\right)^{\tau+1} \in \left[1, R^{\tau+1}\right] \tag{54}$$

## 1.2 Flattening of the Phillips Curve via Imperfect Firm Attention

**Equation 55**

$$v^{BR}(q_{it}, (\mathbf{X}_\tau)) := v^0\left(q_{it} - m_\pi^f \Pi(\mathbf{X}_\tau), m_x^f \mu(\mathbf{X}_\tau), c(\mathbf{X}_\tau)\right) \tag{55}$$

**Equation 56**

$$\max_{q_{it}} \mathbb{E}_t^{BR}\left[\sum_{\tau=t}^{\infty} (\beta\theta)^{\tau-t} \frac{c(\mathbf{X}_\tau)^{-\gamma}}{c(\mathbf{X}_\tau)^{-\gamma}} v^{BR}(q_{it}, \mathbf{X}_\tau)\right] \tag{56}$$

**Equation 57**

$$p_t^* = p_t + (1 - \beta\theta) \sum_{k=0}^{\infty} (\beta\theta\bar{m})^k \, \mathbb{E}_t\left[m_\pi^f(\pi_{t+1} + ... + \pi_{t+k}) - m_x^f \mu_{t+k}\right] \tag{57}$$

**Equation 58**

$$\kappa = m_x^f \bar{\kappa} \tag{58}$$

### 1.3 Nonconstant Trend Inflation and Neo-Fisherian Paradoxes

**Equation 59**

$$\pi_t^d = (1-\zeta)\bar{\pi}_t + \zeta \bar{\pi}_t^{CB} \tag{59}$$

Where :

- $\bar{\pi}_t$ is the moving average of past inflation
- $\bar{\pi}_t^{CB}$ is the inflation guidance

**Equation 60**

$$x_t = M \mathbb{E}_t \left[x_{t+1}\right] - \sigma \left(i_t - \mathbb{E}_t \left[\pi_{t+1}\right] - r_t^n\right) \tag{60}$$

**Equation 61**

$$\pi_t = \beta \cdot M^f \mathbb{E}_t \left[\hat{\pi}_{t+1}\right] + \kappa \cdot x_t \tag{61}$$

**Equation 62, Proposition 12**

$$\phi_\pi + \zeta \frac{(1-\beta M^f)}{\kappa} \phi_x + \zeta \frac{(1-\beta M^f)(1-M)}{\kappa\sigma} > 1 \tag{62}$$