New-Keynesian Model

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Spring 2017

$$Y_t = \left(\int_0^1 Y_t(i)^{\frac{\theta-1}{\theta}} di \right)^{\frac{\theta}{\theta-1}}$$

$$Y_t(i) = Y_t \left(\frac{P_t(i)}{P_t} \right)^{-\theta}$$

$$P_t = \left(\int_o^1 P_t(i)^{1-\theta} di \right)^{\frac{1}{1-\theta}}$$

$$E_t\left[\sum_{k=0}^{\infty}(\alpha\beta)^k(Y_{t+k}P_{t+k}^{\theta-1}X_t^{1-\theta}$$

$$X_t=\frac{\theta}{\theta-1}\frac{E_t\left(\sum_{k=0}^{\infty}(\alpha\beta)^kY_{t+k}P_{t+k}^{\theta-1}MC_{t+k}\right)}{E_t\left(\sum_{k=0}^{\infty}(\alpha\beta)^kY_{t+k}P_{t+k}^{\theta-1}\right)}$$

$$P_t^{1-\theta}=(1-\alpha)X_t^{1-\theta}+\alpha P_{t-1}^{1-\theta}$$

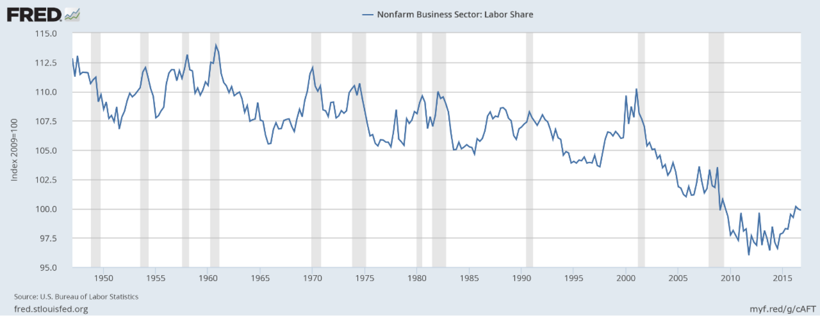
$$\sum_{k=0}^{\infty} \frac{E_t C_{t+k}}{\left(\prod_{m=1}^{k+t} R_{t+m}\right)} = A_t + \sum_{k=0}^{\infty} \frac{E_t Y_{t+k}}{\left(\prod_{m=1}^{k+t} R_{t+m}\right)}$$

$$L = \sum_{k=0}^{\infty} \left(\frac{1}{1+\beta}\right)^k U(C_{t+k}) +$$

$$\lambda \left[A_t + \sum_{k=0}^{\infty} \frac{E_t Y_{t+k}}{\left(\prod_{m=1}^{k+1}\right)} - \sum_{k=0}^{\infty} \frac{E_t C_{t+k}}{\left(\prod_{m=1}^{k+1} R_{t+m}\right)}\right]$$

$$A = \frac{1}{1 + \sigma\phi_x + \kappa\sigma\phi_\psi} \begin{pmatrix} 1 & \sigma(1 - \beta\phi_\psi) \\ \kappa & \beta + \sigma\kappa + \beta(1 + \sigma\phi_x) \end{pmatrix}$$

$$B = \frac{1}{1 + \sigma\phi_x + \kappa\sigma\phi_\psi} \begin{pmatrix} 1 & -\sigma\phi_\psi \\ \kappa & 1 + \sigma\phi_x \end{pmatrix}$$


FRED
Nonfarm Business Sector: Labor Share
115.0
112.5
110.0
107.5
105.0
102.5
100.0
97.5
95.0
Index 2009=100
1950
1955
1960
1965
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
Source: U.S. Bureau of Labor Statistics
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