

Seminar problem 1

1. The price puzzle in VARs: a contractionary monetary policy shock is followed by a (small and temporary) rise in the price level. The most commonly accepted explanation is that it reflects the fact the VAR does not contain all the variables in the central bank's information set. Explain why this could potentially explain the price puzzle obtained in VARs.
2. Let period utility be non-separable in leisure (as in Exercise 2.1 in Galí, page 36):

$$U(C_t, N_t) = \frac{1}{1-\sigma} [C_t (1 - N_t)^\nu]^{1-\sigma}$$

- (a) Derive and explain the household's optimality conditions.
- (b) Log-linearize the labor supply equation.
- (c) Show that the log-linearized consumption Euler equation can be written as (use the labor supply equation)

$$c_t = E_t \{c_{t+1}\} - \frac{1}{\sigma + \nu(\sigma - 1)} (i_t - E_t \pi_{t+1} - \rho) + \frac{\nu(\sigma - 1)}{\sigma + \nu(\sigma - 1)} E_t \{\Delta \omega_{t+1}\},$$

and give an intuitive explanation for why consumption depends now depends on real wage growth.

3. Let period utility be (as in exercise 2.4 in Galí, page 38):

$$U(C_t, N_t) = \log C_t + \log \frac{M_t}{P_t} - \frac{N_t^{1+\varphi}}{1+\varphi},$$

and let the representative firm have a simple linear technology $Y_t = A_t N_t$.

- (a) Derive the log-linearized optimality conditions for the household and the firm.
- (b) Show that the "classical dichotomy" holds.