

Econ 482: Practice Questions

Deriving Money Demand Functions

and Other Fun Stuff

October 2001

1. Consider the standard overlapping generations model, where people have preferences defined over (c_1, c_2) and are endowed with earnings $(y_1, y_2) = (y, 0)$. There are no financial markets so that individuals cannot issue money or debt (i.e., $c_1 \leq y_1$). Let R denote the (gross) real return on money holdings; i.e., $R = p_t/p_{t+1}$, where p_t is the price-level at date t . For each of the utility functions below, derive the money demand function and explain its properties.
 - (a) $U = \ln c_1 + \beta \ln c_2$;
 - (b) $U = \ln c_1 + \beta c_2$;
 - (c) $U = 2c_1^{1/2} + 2c_2^{1/2}$;
 - (d) $U = Ac_1^\theta c_2^{1-\theta}$, where $A > 0$ and $0 < \theta < 1$;
 - (e) $U = c_1 + \beta \ln c_2$.
2. Suppose that individuals have preferences defined over (ℓ, c_2) , where ℓ denotes current 'home production' (leisure) and c_2 denotes consumption of the 'market good' in the future period. Preferences are given by $U = \ln(\ell) + \beta c_2$. Individuals are endowed with T units of time in the current period, which they can allocate either to leisure or work (n); i.e., $n + \ell = T$. Current period output (per young person) is given by $y = \omega n$, where $\omega > 0$.
 - (a) Write down the choice problem facing a young person (write out the budget constraint in terms of ℓ and c_2).
 - (b) What happens to *real* GDP in this economy as inflation rises? Explain.
3. Consider two OLG economies, A and B , that are identical in every respect except for one: The citizens of country A are 'more patient' in the sense that $\beta_A > \beta_B$. The money supplies and populations in each country are constant.
 - (a) Using the preferences of question 1a above, solve for the money demand function for each country. Derive the equilibrium inflation rate for each country. Derive the equilibrium value of money in each country. How do these objects differ (if at all) across countries? Explain.