

Economics 7720  
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Suppose the economy is populated by a continuum of infinitely-lived identical households that rank alternative plans for consumption and money holdings according to the following lifetime utility function:

$$W = \sum_{t=0}^{\infty} \beta^t [\ln c_t + m_t e^{-\gamma m_t}] \quad \gamma > 0$$

where  $c_t$  and  $m_t$  correspond to real consumption and holdings of real money balances at date  $t$ , and  $\beta = 0.95$  is the subjective rate of discount.

Assume that consumption and capital goods are manufactured according to the following production function:  $y_t = f(k_{t-1}) = \sqrt{k_{t-1}}$ . The rate of depreciation of physical capital is given by  $\delta = 0.02$ .

- (a) What rate of inflation  $\pi$  maximizes steady-state welfare?
- (b) How do real money balances at the welfare-maximizing rate of inflation depend on  $\gamma$ ?