HOMEWORK 2 (second part)

1. Consider an economy with an infinitely lived consumer with preferences

$$\sum_{t=0}^{\infty} \beta^t \left(\theta \log c_t + (1 - \theta) \log(1 - n_t) \right)$$

   and budget constraint

$$c_t + \beta a_{t+1} = a_t + w_t n_t$$

   for all t, with $a_0 = 0$ and no restrictions on borrowing (a no-Ponzi restriction is also assumed).

   (a) Consider, initially, the case $w_t = w$ for all t. Solve this problem fully for the sequences of consumption, labor, and asset holdings as a function of the exogenously given parameters.

   (b) Now suppose that $w_t = \bar{w}$ for t even and $w_t = \underline{w}$ for t odd, where $\bar{w} > \underline{w}$. Solve this problem fully for the sequences of consumption, labor, and asset holdings as a function of the exogenously given parameters.

   (c) Suppose instead that $w_t = \bar{w}$ for t odd and $w_t = \underline{w}$ for t even, still with $\bar{w} > \underline{w}$. Solve this problem fully for the sequences of consumption, labor, and asset holdings as a function of the exogenously given parameters.

   (d) Consider again the case where $w_t = \bar{w}$ for t even and $w_t = \underline{w}$ for t odd. Suppose now that there is a no-borrowing constraint ($a_{t+1} \geq 0$ for all t). How do the consumer's choices change, if at all?

   (e) Next, consider the case where $w_t = \bar{w}$ for t odd and $w_t = \underline{w}$ for t even, again with a no-borrowing constraint. How do the consumer's choices change, if at all?

   (f) In the context of all the five cases above, consider the following two experiments: (i) w_0 goes up by ϵ percent (where ϵ is small), but all other wages stay the same; and (ii) w_{16} goes up by ϵ percent (where ϵ is small), but all other wages stay the same. Discuss (for all of the five models) how labor supply would change as a result. In particular compare case (i) to case (ii).

2. Read Prescott's "Why Do Americans Work So Much More Than Europeans?" (up-moodled) and critically discuss (i.e., make comments, for or against) the following assumptions/aspects of his methodological approach: (i) the specification and calibration of the utility function; (ii) the specification and calibration of the key items in the government's budget; and (iii) Prescott's (implicit) measure of the empirical success of the analysis. On each point, use no more than five sentences.