

ECO 735 Homework #9

Assigned February 9, 2012

Due February 14, 2012

1. Consider a single person with time separable preferences defined over hours of work, H_t , and consumption C_t , in periods $t = 0, T$, where the subjectively-discounted preferences in each period can be written $(1+\rho)^{-t} U_t(C_t, H_t)$ and where the per-period sub-utilities follow a CES specification

$$U_t(C_t, H_t) = \alpha_t (C_t)^\omega - \beta_t (H_t)^\theta \quad \text{where } 0 < \omega < 1 \text{ and } \theta > 1.$$

Suppose that the person begins in period 0 with an endowment of wealth A and must end in period T with a terminal wealth of 0. Further suppose that the person faces a wage rate of W_t and a constant interest rate of r in each period. For simplicity, assume that prices across time are constant (equivalently that wages are expressed in terms of real prices).

- a. Derive explicit expressions for the optimal (Frisch or λ -constant) labor supply and consumption functions in each period.
- b. Derive an explicit expression for λ .