Consider the decision of a young single adult to leave his parents' home and live alone. Let a household's utility function be given by

$$\theta c + (1 - \theta) \ln(n), \text{ with } 0 < \theta < 1,$$

where c and n represents the *per-member* consumption of market and non-market goods respectively. Household production of nonmarket goods is undertaken according to the production

$$n = d^{1-\kappa} l^{\kappa},$$

where l is the total amount of household time that is allocated to household production. Let d be *fixed* (or indivisible) in its amount. The household pays the price q for d. A unit of time spent working in the market is rewarded at the wage rate w. A person has one unit of time. Take the parent's home first. Here there are three adults, each with one unit of time. The youngster must contribute of all his earning to the household. Market consumption is divided equally all household members. When the young adult lives at home with his or her parents, the labor supply decision for the household is determined jointly; i.e., in a cooperative fashion. Next, turn to the case where the young adult lives alone. Suppose that a young adult earns a utility level of b from living *alone*. Now, s/he now picks his/her own level of time spent in housework. Let $b \in [\underline{b}, \bar{b}]$ be a random variable that is drawn from a uniform distribution. Each young adult will therefore have his own level of b. The questions below will be graded *both* upon the analytical ability you demonstrate and the economic intuition you display.

1. Analyze the young adult's labor supply decision when s/he lives alone. Do you have to worry about the possibility of corner solution here?

2. Analyze the parent's household labor supply decision. [Assume that $1 - (1 - \theta)\kappa/(\theta w) > q/(3w)$.]

3. Analyze the decision to leave home. How many young adults live at home?

4. Suppose that over time κ declines in a conjunction with a fall in q. What will happen?

5. Discuss the economics at play here.