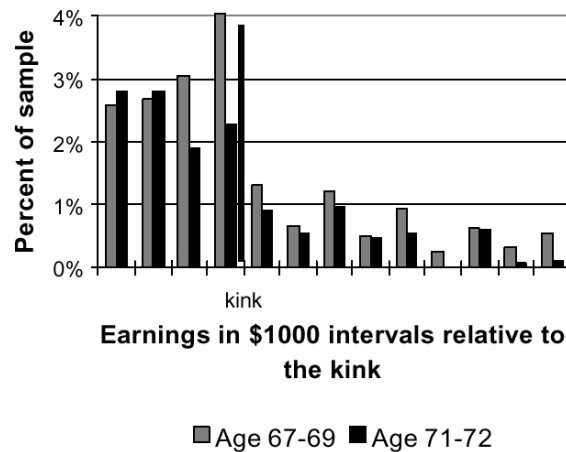


**Ec317**  
**Labour Economics**  
Problem Set 4

1. US Social Security retirement benefits are determined by earnings previous to the retirement decision. However, the base amount of benefits will be reduced for retirees who continue to do some work. This is called the Social security earnings test. The rules are (roughly) as follows: Retirees can earn up to \$5,000 (the earnings test floor) annually and still get the full benefit. For earnings above this amount, retirement benefits are reduced by 50 cents per additional dollar earned until the individual receives no more benefits.
  - (a) Draw the budget constraint in terms of annual hours for a retiree who can earn \$20 an hour and receives \$10,000 in Social Security benefits a year before the earnings test kicks in. Also draw the budget constraint for the same worker if there was no earnings test. Carefully label any kinks in your graph.
  - (b) You can distinguish three regions on your budget constraint for a worker subject to the earnings test. What would be the labor supply response of retirees who choose hours in each of these regions if the earnings test were eliminated? What would be the change in labor force participation?
  - (c) Suppose the earnings test floor is raised from \$5,000 to \$10,000. What are the possible labor supply responses of retirees to this change? How many separate regions of the budget constraint do you have to consider for the analysis now?
  - (d) The following figure shows a histogram of the distribution of earnings for two age groups around the “kink” introduced by the earnings test floor in the 1980s. 67 to 69 year olds were subject to the earnings test at the time (their floor was more like \$7,000, rather than \$5,000) while 71 and 72 year olds were not. What does the figure tell you about the relevance of the earnings test for the labor supply decisions of retirees?
2. Consider the interaction of a welfare program and health insurance in the US. Suppose that employer provided health insurance is currently only available to workers working full time (40 hours or more). Furthermore, the current welfare system provides health-care benefits (Medicaid) to single mothers who qualify for cash welfare payments. In either case, the weekly value of the health benefit is \$50. Welfare pays a weekly benefit of \$200. For every dollar in earnings the benefit is reduced by 50 cents. There are no other taxes. Furthermore, there are two types of single mothers, those facing high wages (\$20/hour) and those facing low wages (\$10/hour).
  - (a) Draw the budget constraints for weekly hours and consumption for the two types of women, labelling any kinks and notches carefully.
  - (b) Assume that employers only offer full time jobs at 40 hours/week or more or part time jobs at exactly 20 hours/week. Describe what distribution of hours worked we might observe among high wage and low wage women.

**FIGURE 3-A**  
1980-81



- (c) How would the introduction of universal free healthcare change the budget constraint? Describe the labor supply responses and the likelihood of participating in the welfare system for low wage and high wage women still assuming that jobs are only available at 20 hours or 40 hours or more.
- (d) What would happen compared to the situation in (c) if employers now started to offer jobs in the range between 20 and 40 hours? Again describe labor supply effects and the likelihood of welfare participation.