

Final Exam: Kinky Constraints for the Elderly

You have 2:00 to complete the two page exam

According to the House Ways and Means Committee, the “purpose [of Social Security] is to replace income that is lost to a family through the retirement, death, or disability of a worker who has earned protection against these risks.” This purpose has implications for household budget constraints, which we study in this exam using a one period model. Consider an elderly consumer with a wage rate w and assets in the amount a . His utility function $u(c,n)$ is defined over consumption c and work time n , with the usual properties. Assume that consumption is the only possible use of funds for an elderly person.

- (1) In countries like Spain and France - and (to a good approximation) the U.S. before 1960 - social security benefits are in the amount b and, because they are for retirees only, are not paid to anyone with any earnings. Graph social security benefits as a function of earnings.
- (2) Draw the budget constraint for an elderly person. You may assume that benefits are valued the same as earnings.
- (3) Draw some indifference curves in the same diagram as (2). Based on your diagram, can you make any prediction about how much an elderly person will work? What, exactly?
- (4) In the late 1950s, the U.S. government decided that a pension formula like the one you drew in (1) discourages work too much. Suppose, instead of eliminating all benefits with the first dollar of earnings, benefits are reduced \$1 for every \$1 of earnings, until the benefits are exhausted. Graph social security benefits as a function of earnings.
- (5) Draw the new budget constraint for an elderly person. Derive an equation for the budget constraint. How does changing the budget constraint in this way affect work decisions?
- (6) Suppose instead that benefits b are paid to any elderly person who earns less than $x > 0$, and then are reduced \$1 for every \$1 of earnings above x . x is called the “earnings limit” by the Social Security Administration. Graph social security benefits as a function of earnings.
- (7) Draw the new budget constraint for an elderly person. Are your predictions for elderly work any different from (3)? How, exactly?

True, False, or Uncertain. Answer true, false or uncertain to each of the statements below. Your grade will be based on your justification of your answer.

- (1) If the government were to raise \$10 billion by taxing cigarettes, it doesn't really matter whether that tax is collected on a per pack basis or as a percentage of retail sales.
- (2) Because most people have an income that is less than the nationwide average, democratic governments are biased in favor of high income tax rates.
- (3) Government spending increases GDP, just less than dollar-for-dollar.