

Problem Set #3
Due October 5, 1998

1. Jack takes a job as a water carrier that pays him \$14 per hour instead of a safer job that pays \$12, even though he knows that, across the country, fourteen water carriers have died from falls in the last ten years. Over that period of time, about 800 men and women have been employed (full time – 40 hours/week, 50 weeks/year) as water carriers.

Based on this information, calculate a value for Jack's life that could be used to measure the benefit to him of a public policy that would make Jack safer. Is this value an upper bound or a lower bound for the value that Jack places on his life?

2. The village of West Deadweight, population 3000, currently spends \$45,000 a year cleaning its streets. Information from other villages of similar size suggests that, if this expenditure were to be doubled, the improved appearance of the village would cause property values to rise by 10%. The average home in West Deadweight is now valued at \$60,000, and there are on average four people in each home. The village collects annual property taxes equal to 0.2% (two tenths of one percent) of the home values, in addition to taxes that it collects from other sources. The nominal interest rate is 7%, and prices of both homes and goods are rising at 4% a year.

If the only choices are to leave its street-cleaning expenditures unchanged or to double them, which should it do? [Note: Not all of the information provided here is needed for you to answer this question.]

3. Suppose that money could be collected from the rich in Hong Kong without distorting anyone's behavior, but that the only way to use that money to help the country's poor is to subsidize their consumption of noodles (remember them?), which the rich do not eat. Using the same information about the Hong Kong noodle market that appeared in Problem Set No. 1, question 3, answer the following:
 - a) If the noodle subsidy is \$2 per bowl, financed by a levy on the rich, how much do the poor gain for each dollar collected from the rich and paid out as subsidy? What, therefore, is the "leaky bucket ratio" for this policy?
 - b) Repeat part (a) for noodle subsidies of \$4 and \$6.
 - c) Graph the leaky bucket ratio as it varies with the size of the subsidy. Optional: Why does this graph look the way it does?
4. (Very optional) Who is Jack's co-worker?