

Assignment #10Due Monday 12/11/06 by 6 p.m. in the Econ 301-1 slot in the Economics Alcove

Please show the calculations used to arrive at your answers. Draw graphs neatly and label axes and points clearly. In general, leave numbers in fractional form while solving problems. Round final answers to the first decimal place if necessary.

- A. John and Robert are stranded on a desert island. They each work fifteen hours a day collecting food. They can either catch sharks (S) or collect breadfruit (B).

John's production possibilities set is described by:

$$S = \frac{1}{3} L_S ; B = \frac{1}{5} L_B ; L_S + L_B = 15$$

Robert's production possibilities set is described by:

$$S = \frac{4}{5} L_S ; B = \frac{2}{3} L_B ; L_S + L_B = 15$$

Where L_S = hours spent catching sharks and L_B = hours spent collecting breadfruit.

- (1) Who has a comparative advantage in breadfruit production? Explain how you figured this out.
- (2) a. Draw the production possibilities set for each person if they decide to operate separately.
b. Draw the joint production possibilities set and indicate the values for the slopes of the different segments.
- (3) a. If societal preferences are described by $W(S,B) = 10S + 15B$, what point on the production possibility frontier will be chosen? Explain why.
b. Draw the Edgeworth box on the same diagram to illustrate possible consumption allocations. What can you say to describe the point within this box that will be chosen by John and Robert?
- (4) a. John and Robert are rescued! Back in America, John decides to be either a free-lance shark fisherman or breadfruit collector. Sharks sell for \$10 each and breadfruit for \$4 each. Which does John become? Explain why.
b. If John and Robert had been splitting consumption equally on the island, is John better, the same, or worse off now that he is back in America? (Assume there are only two things to purchase in America: sharks and breadfruit, and that John works the same number of hours). Explain why.

B. There are four candidates for mayor of Morisville, persons A, B, C, and D. The three members of the city council—Kudakwashe, Richard, and Seth—have to choose the mayor. Their preferences over the candidates are as follows:

<u>rank</u>	<u>Kudakwashe</u>	<u>Richard</u>	<u>Seth</u>
1	D	C	B
2	C	B	A
3	B	D	D
4	A	A	C

- (1) a. Show that the social preferences resulting from majority voting are intransitive in this case.
 - b. By switching two candidates in one member’s list, these preferences can be made such that it can be shown that under the assumption of transitivity in majority voting, D is preferred to A; yet A is preferred to D. Perform the switch and demonstrate that this happens.
- (2) Using the original rankings from (1) a., the council decides to use rank–order voting to choose the mayor.
 - a. Is there a clear winner for mayor, and if so, who?
 - b. Candidate B dies, so the council votes again. Is there a clear winner for mayor, and if so, who?
- (3) Compare the outcomes in (2) to those found using rank-order voting on the rankings in (1) b.
- (4) Can you devise a voting scheme under which C would always win?

C. The Rawlsian social welfare function was developed by the philosopher John Rawls as an assumption underlying his proposed solution to a particular problem: What kind of income distribution would you like the society you are born into to have if you don’t know ahead of time where you will end up in the income distribution?

- (1) Assuming that the Rawlsian social welfare function is the one that each individual in the society trying to maximize, what income distribution will be chosen for the society? Explain why.
- (2) If you were solving this problem for yourself (assume you will continue to live in the U.S.), what distribution of total current U.S. income (about 10 trillion dollars) would you choose for society (about 284 million people)? Explain your answer.
- (3) Would your answer to (2) differ if total income were either larger or smaller? Explain your answer.
- (4) Would you rather live in a society with a Rawlsian social welfare function or a Nietzschean social welfare function? Explain why. Are “winner–take–all” elections Rawlsian or Nietzschean?

D. Write a paragraph (between a third and a half of a page) on each of the following topics. Use original (i.e., not from the book or from class notes, and not the same as anyone else’s) examples.

- (1) Give an example of a production externality and explain how one could either use government intervention to improve the situation or would expect the involved parties to improve the situation themselves.
- (2) Give an example of a consumption externality and address the same issues as in (1).
- (3) Give an example of a “tragedy of the commons” and address the same issues as in (1) and (2).