

IN-CLASS DISCUSSION EXERCISE 9: (20 Points Total)
DUE: Thursday, November 30, 11:00am

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Econ 502/Fall 2017

****CAUTION: Late assignments will not be accepted – no exceptions.**

Note 1: Please make an **EXTRA** copy of your exercise to bring to class on the due date for use in class discussion after you turn in your exercise.

Note 2: Unlike previous exercises, for this in-class discussion exercise on a controversial topic it would be best if each student worked through his/her own answers without consultation with others. This will help to ensure a lively discussion during the in-class discussion of answers on the due date.

**From Rugged Individualism to Brother's Keeper:
What Constitutes a "Just" Resource Allocation Mechanism?**

An in-class discussion (moderated by the instructor) will be conducted on the exercise due date that focuses on the four sets of scenario-conditioned discussion questions listed at the end of these exercise instructions.

At the beginning of class on the exercise due date, each student is asked to turn in written answers to these four sets of scenario-conditioned discussion questions. Specifically, these written answers should:

- provide suggested answers for each of the four sets of scenario-conditioned discussion questions, to the extent that the student believes a definite answer can be provided.
- point out any aspects of these scenario-conditioned discussion questions that are found to be controversial, hence difficult to answer in a definite way.

Assignment of Points for In-Class Discussion Exercise:

- Up to four points will be assigned for a student's written answer for each of the four sets of scenario-conditioned questions, for a maximum possible score of 16 points on the written part of this exercise;
- Up to four points will be assigned for a student's participation in the in-class discussion, as follows: 0 (not present); 1 (poor); 2 (satisfactory); 3 (good); or 4 (excellent).

KEY ISSUE:

The four sets of scenario-conditioned discussion questions posed below ask you to consider feasible and/or desirable economic behaviors and outcomes for a series of increasingly complicated resource allocation scenarios. The intent of the questions is to highlight possible differences in value judgements regarding the proper allocation of scarce resources. The key overarching issue is the extent to which resource allocation decisions among private citizens should be constrained by governments through the imposition of legally enforceable rules and regulations.

SCENARIO-1 DISCUSSION QUESTIONS:

Two agents A and B are shipwrecked on islands I_A and I_B , located within shark-infested waters. Islands I_A and I_B are connected by a shallow channel that can be traversed on foot at low tide. Agents A and B have identical human capital and identical preferences (utility functions) for breadfruit consumption. Breadfruit grows naturally on each island (i.e., without need for labor inputs). The natural annual breadfruit harvests on I_A and I_B are H_A and H_B , respectively, measured in pounds (lbs). Due solely to natural differences in soil fertility, H_A is larger than H_B .

- a) Does agent B have a “right” to any of agent A ’s breadfruit harvest H_A ? If not, why not. If so, why, and how much of it?
- b) Would your answer to a) change if you were told that H_B is a starvation level of food for agent B , but H_A is more than enough food for agent A to survive on?
- c) What about the case in which the total harvest $H_A + H_B$ is barely enough to sustain life for *one* agent and *not* enough to sustain life for *both* agents, the so-called “lifeboat ethics” problem? Would this change your answer to a)?

Key Points to Ponder in Addressing Scenario-1 Discussion Questions: Differences in randomly allocated physical endowments (here land) lead to differences in real income (consumption possibilities). Does this violate the “rights” of the less endowed agents? Do agents have any rights to resources “naturally,” i.e., rights simply by virtue of their humanity? For example, do agents have a “natural right” to receive at least the minimum level of resources needed to sustain their life (if this can feasibly be done)?

More generally, under what conditions “ought” property rights in resources be established, and to what degree? For example, should property rights be unconditional? Or should property rights be subject to attenuation conditional on the situation (e.g., use level, ability to defend the property, or existence of unmet needs?)

Note (Webster’s Dictionary): Breadfruit is a round usually seedless fruit that resembles bread in color and texture when baked, born by a tall tropical tree of the mulberry family.

SCENARIO-2 DISCUSSION QUESTIONS:

Two agents, A and B , are shipwrecked on identical 10-acre islands I_A and I_B , located within shark-infested waters. Islands I_A and I_B are connected by a shallow channel that can be traversed on foot during low tide. Each island has naturally growing breadfruit. A special seaweed that enhances soil fertility is abundantly available along the coastline of each island.

Agents A and B have identical preferences (utility functions) for leisure and breadfruit consumption. However, they differ in their human capital. Specifically, agent B is naturally less skilled than agent A at mixing seaweed into the soil due to a congenital health problem (i.e., a health problem present at birth).

Consequently, agents A and B have different breadfruit production functions giving the daily breadfruit amount Q (lbs/acre) that they harvest per acre as a function of their daily average (per acre) labor input AvL . Specifically, let AvL_A and AvL_B denote the average (per acre) person-hours exerted each day to mix seaweed into soil by agents A and B , and let $L^{max} = 10$ person-hours denote the maximum number of person-hours that each of the agents A and B is physically able to devote to this work per day. Then the daily breadfruit amounts produced by A and B per acre, assuming no labor transactions take place between them, are given by:

$$Q_A = [20 \text{ lbs/person-hour}] \times AvL_A, \quad 0 \leq AvL_A \times 10 \text{ acres} \leq L^{max}; \quad (1)$$

$$Q_B = [2 \text{ lbs/person-hour}] \times AvL_B, \quad 0 \leq AvL_B \times 10 \text{ acres} \leq L^{max}. \quad (2)$$

Agents A and B can each physically subsist on their island's fallen semi-rotten breadfruit even if each agent does not work.

- a) Assuming agent A cultivates only I_A and agent B cultivates only I_B , does agent B have a "right" to any of agent A 's breadfruit production?
- b) Suppose agent A offers to cultivate half of I_B in addition to I_A under the following contractual arrangement: Agent A receives four-fifths of the breadfruit production from this half of I_B , and agent B receives one-fifth of the breadfruit production from this half of I_B . Is this a "fair" arrangement?

Key Points to Ponder in Addressing Scenario-2 Discussion Questions: Genetically determined differences in abilities can lead to differences in real income (consumption possibilities). Does this violate the "rights" of the less endowed agents? If not, why not? If so, why so? Under what circumstances, if any, should the more productive agents in a society be allowed to control (make use of) a relatively larger share of the productive physical assets of a society?

SCENARIO-3 DISCUSSION QUESTIONS:

Two agents, A and B , are shipwrecked on identical 10-acre islands I_A and I_B , located within shark-infested waters. The two islands are connected by a shallow channel that can be traversed on foot during low tide. Each island has naturally growing breadfruit. A special seaweed that enhances soil fertility is abundantly available along the coastline of each island.

Agents A and B have identical human capital. That is, agents A and B are equally skilled at mixing seaweed into the soil to enhance soil productivity; and the maximum number of person-hours that each agent A and B is physically able to devote to this work each day is $L^{max} = 10$ person-hours.

Consequently, agents A and B have the same breadfruit production function giving the breadfruit amount Q (lbs per acre) that is harvested each day per each acre of land as a function of AvL (person-hours/acre), the average (per acre) number of person-hours exerted daily to mix seaweed into soil. This common daily breadfruit production function is given by

$$Q = [20 \text{ lbs/person-hour}] \times AvL, \quad 0 \leq AvL \times 10 \text{ acres} \leq L^* \quad (3)$$

Agents A and B can each physically subsist on their island's fallen semi-rotten breadfruit even if each agent does not work.

However, agents A and B have different tastes for leisure (i.e., different degrees of distaste for labor). Agent B finds growing breadfruit much more arduous and difficult than agent A . Specifically, suppressing measurement units for ease of exposition, the utility functions for agents A and B are given by $U_A(Q, AvL) = \ln(Q) - 2AvL$ and $U_B(Q, AvL) = \ln(Q) - 10AvL$.

Suppose agents A and B are utility maximizers, and agent A cultivates only I_A and agent B cultivates only I_B . Then agent A will choose $AvL_A^* = 1/2$ with a resulting daily breadfruit production level $Q_A^* = 10$ (lbs per acre) and utility level

$$U_A^* = [\ln(10) - 1] \quad (4)$$

and agent B will choose $AvL_B^* = 1/10$ with a resulting daily breadfruit production level $Q^* = 2$ (lbs per acre) and utility level

$$U_B^* = [\ln(2) - 1] < U_A^* . \quad (5)$$

a) Are the utility maximization outcomes in (5) “fair”?

b) Does agent B have a “right” to any of the breadfruit produced by agent A ?

Key Points to Ponder in Addressing Scenario-3 Discussion Questions: Genetically determined differences in tastes for leisure can result in different real incomes (consumption possibilities) and utility outcomes. Is this “fair”? If yes, is this logically consistent with the view that differences in real incomes resulting from genetically determined differences in human capital (e.g., health levels, skill levels, predatory capabilities) should be ameliorated by redistribution or even prevented altogether by some form of government regulation? Under what conditions “ought” real income to be redistributed? And if real income is to be redistributed, what “ought” to determine how this redistribution is carried out?

SCENARIO-4 DISCUSSION QUESTIONS:

Two shipwrecked *groups* of agents, A and B , make their way to islands I_A and I_B , located within shark-infested waters. Islands I_A and I_B are connected by a shallow channel that can be traversed on foot at low tide. Breadfruit grows naturally on each island (i.e., without need for labor input). The natural annual harvests of breadfruit on I_A and I_B are H_A and H_B , respectively. Due solely to natural differences in soil fertility, H_A provides abundant food for agent group A but H_B provides only a subsistence living for agent group B .

For the next ten years, each group maintains its own identity as a separate tribe and no interactions take place between the two groups. Each group of agents has children starting at the end of the first year after their shipwreck.

However, at the beginning of the eleventh year following the shipwreck, the two groups A and B decide to hold a joint meeting to see if they would derive any benefit from establishing a common two-island community. The following issues are raised:

- a) Do group A agents have an “ownership right” to island I_A , hence a right to all of the breadfruit produced on I_A ?
- b) How should the land in islands I_A and I_B be distributed among the *children* of agent groups A and B ? Do the children born to agent group A have a “right” to inherit all of the more productive land on I_A from their parents, or should the children of agent group B receive some of this land as well (and how much)?

After this first joint meeting has concluded, an intrepid scientist from group A announces he has found additional evidence regarding the original settlement of the two islands, as follows. Both groups of agents were in fact originally shipwrecked on the less productive island I_B . However, a brave member M of agent group A subsequently discovered the existence of the more productive island I_A by risky and difficult exploration efforts involving swimming through shark-infested waters. Agent M worked hard to create, with rocks, a stable low-tide channel connecting the two islands. Agent M then managed to lead agent group A across this channel to island I_A before dying from infected shark bites.

- c) Assuming this new information is correct, how “ought” this information alter the answers given to a) and b), above, if at all?

Key Points to Ponder in Addressing Scenario-4 Discussion Questions: To what extent, and under what conditions, should parents have the “right” to bequest their property to their children? Should societies impose “inheritance taxes” on children who inherit property from their parents? In what sense, if any, do children “deserve” to inherit the property of their parents? And under what conditions is a “property right” to an asset *first* established? Is it enough to be the first to discover the asset by chance? Is it necessary that this discovery entail some amount of effort? More generally, are property rights “natural” rights? Or are they purely “man-made” constructions?