

Econ 354

Exam on The Good, The Bad, And The Economy by L. Putterman

Greg Dow

April 19, 2015

Please answer all of the following questions. Question 3 is on the back.

1. Here are some questions about concepts.
 - (a) Give two different ways in which an economist could define institutions, discuss how the definitions differ, and say why each definition could be useful in certain situations. Then describe two examples of institutional innovations over the last 100 years that you believe have led to significant improvements in the quality of life for ordinary people in modern societies. Justify your answers.
 - (b) One can define 'homo economicus' as a theoretical person who is (i) rational and (ii) self-interested. Say what an economist would mean by the terms 'rational' and 'self-interested'. What are the arguments for and against using 'homo economicus' as a basis for economic models? How does LP believe that human nature differs from 'homo economicus'? How does LP use evolutionary biology to account for these differences? Give a detailed explanation.

2. Here are some questions about models.
 - (a) Choose one of the following games: (i) the voluntary contribution game; (ii) the ultimatum game; or (iii) the trust game. For the game you choose, answer each of the following questions. What are the rules of the game? What does game theory predict about the outcome of the game and why? What are the main results when the game is played in a laboratory? How does LP interpret these results and why?
 - (b) Choose one of the following two models: (i) the Edgeworth box model; or (ii) the Malthusian population model. For the model you choose, do the following things. First, describe the main assumptions of the model using both graphs and words. Be sure all axes and curves are labeled and explained. Second, identify the main theoretical conclusions, and explain in detail how these conclusions are reached. Third, discuss how the model fits into the overall framework of LP's book.

3. Here are some questions about inequality.
- (a) LP believes that (i) changes in technology can lead to changes in institutions, and (ii) a combination of changes in technology and changes in institutions can lead to changes in inequality. How does he apply these ideas to the shift from foraging to agriculture? How does he apply these ideas to the Industrial Revolution? In each case, give a detailed explanation of LP's arguments, and briefly describe potential criticisms that someone could raise against his arguments.
 - (b) Professor X says that the demographic transition caused the standard of living to rise for the majority of the population in rich countries. Professor Y says that the demographic transition caused economic inequality to rise at a global level. What are the arguments supporting each professor's point of view? Is there any conflict between these two points of view, or could both professors be right? Explain.

BONUS QUESTION (worth 5% of exam grade, a few sentences are enough):

Which of the four books did you like the most? Why?

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December 12, 2014

Please answer all of the following questions. Question 3 is on the back.

- 1(a) In general, what is the difference between a positive statement and a normative statement? Provide one short example (not related to LP's book) of each of the following things: a true positive statement; a false positive statement; a popular normative statement; and an unpopular normative statement. Then describe the main ways in which LP's book involves positive statements, and the main ways in which it involves normative statements.
- 1(b) Professor X says, "If human nature had developed through biological evolution, then all humans would be motivated by self-interest alone. Clearly this is not the case, so there is no connection between human nature and biological evolution." First define what is meant by the concept of human nature, and then explain why Prof X might believe that biological evolution leads to selfishness. What would LP say in response to this statement? LP's response might be complicated so be sure your answer is complete and well organized.
- 2(a) Consider a game with two players, A and B. First, the experimenter gives \$24 to each player. Second, A chooses an amount x to place in an envelope, where $0 \leq x \leq 24$. Third, the experimenter adds the same amount x to the envelope, so now the total amount in the envelope is $2x$. Finally, the envelope is given to B, who chooses some amount y to send back to A, where $0 \leq y \leq 2x$. B keeps the rest.
- Write the utility functions u_A and u_B for the two players algebraically and briefly explain your answer. Then compute the sum of the utilities $u_A + u_B$.
 - Draw a graph with u_A on the horizontal axis and u_B on the vertical axis. Assuming x is chosen to maximize the sum $u_A + u_B$, indicate the set of all points that can be reached through some feasible choice of y , and explain.
 - What would game theory predict about the outcome of this game? Why? Indicate the outcome predicted by game theory on your graph from (ii).
 - What would probably happen if this game were played by real people in a laboratory? How would LP interpret these probable results? Explain.
- 2(b) According to LP, in the modern world what are the strengths and weaknesses of (i) market institutions and (ii) government institutions? How are LP's opinions on these issues related to his opinions regarding human nature? Historically, which probably came first, markets or governments? Justify your answers.

- 3(a) Malthus believed that technological progress could increase food per person in the short run, but that food per person would remain constant in the long run. Using several graphs, describe a model that is consistent with these predictions. Label all axes, curves, important points, etc., and explain the assumptions behind each graph. Then explain the economic reasoning that connects the exogenous variable (technology) with the endogenous variable (food per person) in the short and long runs. Make each step in your argument as clear and logical as possible.
- 3(b) Professor Y says, "It is easy to explain why some countries are richer than others. People in the richer countries are smarter and they work harder." What would LP say in response to this statement? In particular, what alternative explanation for global economic inequality would he give? LP's response might be complicated so be sure your answer is complete and well organized.

BONUS QUESTION (worth 5% of exam grade, a few sentences are enough):

What is the most surprising thing you learned in this course? Why?

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April 17, 2014

Please answer all of the following questions. Question 3 is on the back.

1. Three central topics in this book are progress, institutions, and human nature.
 - (a) Suppose LP says the following: "We could have more progress if we had better institutions. Any potential institutions must respect the limits imposed by human nature. But history shows that institutions can be improved." What goals would LP have in mind when he uses the word "progress"? In what specific ways could better institutions lead to more progress? In what specific ways are institutions limited by human nature? What arguments could LP use to justify his view that institutions have improved in the past and can be improved more in the future?
 - (b) Chapter 5 in LP's book discusses biological evolution. Consider four concepts: (i) natural selection; (ii) group selection; (iii) free riding; (iv) reciprocity. Explain how each of these four concepts is related to human biological evolution, and also why it plays an important role in the book as a whole.
2. Chapter 6 in LP's book discusses a series of economic experiments.
 - (a) In the voluntary contribution game, players are put in groups of four. Each person gets \$10 at the beginning and decides how much of this money to contribute to a group fund. The experimenter then increases the total amount of money in the group fund by 60%. Each person's payoff is \$10 minus their contribution to the fund, plus an equal share (1/4) of the final amount of money in the group fund.
 - (i) What usually happens when this game is played only once?
 - (ii) What usually happens when this game is played ten times?
 - (iii) What usually happens when the experimenter unexpectedly restarts the game for another ten rounds?
 - (iv) What usually happens when each player can punish one or more of the other players after each round, but it is costly to impose the punishment?LP offers an explanation for these results. Describe his explanation and discuss how it accounts for the experimental observations in (i), (ii), (iii), and (iv).
 - (b) Describe the rules of the ultimatum game, say what prediction game theory makes about how people will behave in this game, and say how people actually behave

- in laboratory experiments. What are the main conclusions LP draws from these experimental results? Then answer the same questions for the trust game.
3. Chapters 8-10 deal with economic development and inequality.
- (a) Professor X says: "before the industrial revolution, higher population led to better technology, and better technology led to higher population." Professor Y says: "after the industrial revolution, better institutions have led to more economic development, and more economic development has led to better institutions." For Professor X, carefully explain how she could justify her statements and discuss why these ideas are important. Then do the same for Professor Y.
- (b) According to LP, in the year 1500 income per person in the richest countries was about 3 times higher than in the poorer countries, but in the year 1990 it was 45 times higher. LP also says that the countries with the highest incomes in the year 1500 tend to have the highest incomes or highest economic growth rates today. How would LP explain these observations? Discuss each observation separately, and make your answer as complete as possible in each case.

BONUS QUESTION (worth 5% of the exam grade; a few sentences are enough).

What is the most important new idea you learned about in this course? Why?

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Greg Dow

December 7, 2013

Please answer all three of the following questions. Question 3 is on the back.

1. A major theme of LP's book is that human nature is complex and involves more than just narrow self-interest.
 - (a) Define the idea of human nature. Then define the idea of self-interest. Give two examples of commonplace behavior in which some people act in ways that seem contrary to their individual self-interest. Choose examples where the behavior has significant economic consequences, and carefully justify your answers.
 - (b) A critic of economics says the following: "Economists generally make unrealistic assumptions about human nature. As a result, their models are not very useful." What have economists traditionally assumed about human nature? In what ways are these assumptions unrealistic? How might an economist respond to the critic? What might the critic say in return? Give detailed answers.
2. LP thinks that institutions have changed in response to technological innovation.
 - (a) According to LP, how did institutions change in response to the transition from foraging to agriculture? How did institutions change in response to the industrial revolution? In each case, carefully explain why the institutional changes occurred and how the change in institutions affected economic inequality.
 - (b) Consider two foraging bands called A and B. There are two goods called one and two. Each band has a fixed endowment of these goods. Use an Edgeworth box to explain (i) the conditions under which there would be potential gains from trade between the two bands; (ii) when trade would stop; (iii) what set of points in the box might occur as a result of trade. What variables are exogenous in this model? What variables are endogenous? Explain carefully.

3. LP would probably agree with the following: "Historically, three conditions have been necessary in order to achieve economic progress: technological innovation, institutional innovation, and the demographic transition."
- (a) Give a reasonable definition of economic progress. Then carefully explain why each of the three conditions listed above was necessary to achieve progress. Note that if a condition was necessary, then progress would not have occurred if that condition had been absent, even if the other two conditions were present. Be sure your answers are consistent with this logical use of the word 'necessary'.
- (b) Why does LP think that markets are good? Why does LP think that governments are good? According to LP, what are the main limitations of markets? What are the main limitations of governments? Explain carefully.

BONUS QUESTION (worth 5% of the exam grade; a few sentences are enough).

What is the most important new idea you encountered in this course? Why?

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Greg Dow

April 24, 2013

Please answer all three of the following questions. Question 3 is on the back.

1. Putterman stresses that human nature involves both self-interest and cooperation.
 - (a) Use the 'hawk-dove' game to explain how self-interest could have led prehistoric hunter-gatherer groups to create property rights over territories.
 - (b) Explain why LP believes that the biological evolution of human beings (discussed in chapter 5) led to the following characteristics of human nature: (i) positive and negative reciprocity; (ii) the desire for social approval; and (iii) 'us against them'.

2. There are n people producing food where $i = 1, 2, \dots, n$. Total food output (q) is equal to the sum of the individual effort levels (e_i) so $q = e_1 + e_2 + \dots + e_n$. There is a maximum effort level $E > 0$ which leads to the constraint $0 \leq e_i \leq E$ for each person i . Food output is shared equally so each person gets q/n to eat. A typical person i has the utility $u_i = (q/n) - ce_i$ where $c > 0$ is the cost per unit of effort. We define aggregate welfare to be the sum of the utilities: $u_1 + u_2 + \dots + u_n$.
 - (a) Suppose each person simultaneously chooses her effort level and then the game ends. For each of the statements below, identify algebraic conditions involving c and/or n such that the statement is true. Briefly explain your reasoning.
 - (i) It is a dominant strategy equilibrium for everyone to choose $e_i = 0$.
 - (ii) It is a dominant strategy equilibrium for everyone to choose $e_i = E$.
 - (iii) Aggregate welfare is maximized by having everyone choose $e_i = 0$.
 - (iv) Aggregate welfare is maximized by having everyone choose $e_i = E$.

Use economic concepts to explain why your answers for (i) and (ii) are different from your answers for (iii) and (iv).

- (b) Assume that there is a dominant strategy equilibrium where everyone chooses $e_i = 0$ but aggregate welfare would be maximized by having everyone choose $e_i = E$. The game will be played ten times (everyone knows this in advance). From LP's discussion of the voluntary contribution game in chapter 6, what 'institutions' (or rules) might help to encourage high effort levels? Justify your answer using the experimental evidence presented in chapter 6.

3. Population growth has had an important role in both early and modern economic development.
 - (a) Use some graphs to describe the Malthusian population model. What does this model predict about the effects of technological progress on population and food per person in the short run? In the long run? Explain.
 - (b) What is the demographic transition? How does this idea help to explain the high degree of income inequality across countries in the world today? In what ways is the demographic transition a good thing? Explain.

BONUS QUESTION (worth 5% of the exam grade; a few sentences are enough).

From which book did you learn the most? Why?