

Econ 354

Exam on "The Evolution of Human Societies" by A. Johnson and T. Earle

Greg Dow

February 1, 2022

Please answer all of the questions.

1. JE want to explain how societies developed from small and simple to large and complex.
 - (a) What are the key concepts or variables in their theoretical framework? What are the key cause and effect relationships? How does their theory answer their question? Make your discussion as clear and complete as possible.
 - (b) Choose one case study from Part I, one from Part II, and one from Part III. Describe each society briefly, and then discuss how comparisons among the three societies could be used to illustrate JE's theoretical framework from part (a) of this question.

2. Choose one case study from Part I (family-level groups) that you did not use in question 1.
 - (a) Give a reasonably complete description of this society's natural environment, production technology, and social organization.
 - (b) Choose one of the following four economic models: cost minimization, risk aversion, food storage, or local resource depletion. Use graphs and/or algebra to explain the assumptions, the economic reasoning, and the conclusions for the model. Then discuss whether or not the model is relevant for the society in part (a) of this question, and justify your answer.

3. We discussed how economic ideas could be used to explain (i) the origins of warfare; (ii) the origins of inequality; and (iii) the distribution of income between elite and commoner classes. Choose one of these three topics.
 - (a) For the topic you chose, describe the corresponding theoretical framework Dow presented in class. State the key assumptions and identify the endogenous and exogenous variables. Then (depending on which topic you chose) explain how a change in exogenous variables could lead to (i) a change from peace to war; (ii) a change from equality to inequality; or (iii) a change in the distribution of income between elites and commoners.
 - (b) Choose one society in Part II or Part III of the book that might fit the theory from part (a). Do not use a case you already discussed in question 1. Describe the natural environment, technology, and social organization. Then carefully explain why you think the economic theory from part (a) might be useful in understanding this society.

From: Gregory Dow <gdow@sfu.ca>
Subject: ECON 354 EXAM ON JOHNSON AND EARLE
Date: February 9, 2021 at 10:26:09 AM PST

1. This question is about the Johnson and Earle book as a whole.

(a) According to J&E, why did human societies tend to become larger and more complex over time? Describe the theoretical framework J&E use to answer this question. Define the key variables and clearly explain the cause-and-effect relationships among them.

(b) Choose one case study from Part I (chapters 2-4), one from Part II (chapters 5-8), and one from Part III (chapters 9-13). For each of the three societies, briefly describe its natural environment, its food technology, and its social institutions. Then discuss how J&E would use the theory from part (a) to explain the differences among these three societies.

2. Choose one case study from Part I (chapters 2-4). DO NOT use the same case you discussed in question 1.

(a) For the society you chose, describe its natural environment, its food technology, and its social institutions. Then describe TWO significant economic problems people in the society face, and explain why each problem is important.

(b) For ONE of the two economic problems you described in part (a), choose a relevant model from the lecture notes. Discuss the main assumptions, the economic reasoning, and the main conclusions. Then discuss how the model applies to the society from part (a).

3. In his lecture notes, Dow develops some theoretical ideas to explain the origins of warfare and inequality in small-scale societies.

(a) Describe Dow's theory of warfare. What conditions does he think are necessary in order for warfare to occur? Carefully explain why each individual condition is necessary, and why together these conditions would be sufficient. Then discuss whether the evidence from Part II (chapters 5-8), when taken as a whole, tends to support or conflict with Dow's theory.

(b) Describe Dow's theory of inequality. Carefully explain the steps leading from full equality to the existence of elite and commoner classes. Once elites and commoners exist, what determines the distribution of income between them? Finally, discuss whether the evidence from Part III (chapters 9-13), when taken as a whole, tends to support or conflict with Dow's theory.

From: Gregory Dow <gdow@sfu.ca>
Subject: ECON 354 EXAM ON JOHNSON AND EARLE
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1. The theoretical framework presented by J&E is unclear in certain ways. When answering parts (a) and (b) of this question, use both J&E's theoretical ideas and the evidence from their case studies to explain your points.

(a) Some people might think that J&E treat population as an exogenous variable. Other people might think they treat population as an endogenous variable. Discuss the arguments for each point of view.

(b) Some people might think that when J&E are explaining the origins of the state, they are integration theorists. Other people might think they are conflict theorists. Discuss the arguments for each point of view.

2. Economists like models where someone maximizes or minimizes something subject to a constraint.

(a) Choose one model of this kind that was discussed in my lecture notes. Carefully describe (in words!) what is being maximized or minimized and the constraints involved. Then describe the main predictions the model makes about observable behavior, and explain the reasons for these predictions. Finally, discuss one interesting complication that could be added to the model, and explain how this might change the predictions.

(b) Choose one case study from J&E for which the model in part (a) would be relevant. Give a general description of the natural environment, the production technology, and the social organization of the society. Is there any evidence that the predictions of the model from part (a) are correct (or incorrect) for this society? Are there any ways in which the model could be modified to provide a better fit with the facts about this particular society? Explain.

3. The societies in Part I of J&E have no warfare and very little inequality. The societies in Parts II and III sometimes have warfare, inequality, or both.

(a) How do J&E explain the development of warfare? Describe their theoretical reasoning and illustrate this reasoning using one case study from Part II or III. Then describe the ways in which their explanation is similar to, and different from, the explanation for warfare suggested by the course instructor.

(b) How do J&E explain the development of inequality? Describe their theoretical reasoning and illustrate this reasoning using one case study from Part II or III (use a different case from the one in part (a) of this question). Then describe the ways in which their explanation is similar to, and different from, the explanation for inequality suggested by the course instructor.

Econ 354

Exam on "The Evolution of Human Societies" by A. Johnson and T. Earle

Greg Dow

February 3, 2020

Please answer all of the questions.

1. Choose one of the four economic models we discussed for family-level groups (Part I).
 - (a) Explain the main assumptions of the model. Then use graphs and/or algebra to explain the main conclusions of the model. Finally, give one comparative static prediction based upon the model, and explain your reasoning.
 - (b) Choose one society from Part I to which the model in part (a) could be applied. Describe the natural environment, technology, and social organization. Then explain why you think the model in part (a) applies to this society. If an anthropologist wants to find out whether the comparative static prediction from part (a) is correct, would this be possible? How?
2. Consider the theoretical framework used by Johnson and Earle.
 - (a) According to J&E, local groups (Part II) solve social or economic problems that individual households cannot solve for themselves. What are the four problems that J&E emphasize? How could each problem arise? How might a larger-scale society solve the problem? Use one example from Part II to illustrate your answer. Discuss which problem(s) the society faced and how these problem(s) were solved.
 - (b) According to J&E, what is the difference between a chiefdom and a state (Part III)? What do J&E believe are the most important conditions leading to the creation of states? Explain their reasoning. Did elites in early states do anything useful for commoners? What factors would probably have affected the standard of living for commoners? Justify your answers.
3. In class we discussed some ideas about (i) how to explain warfare; (ii) how to explain the emergence of inequality; and (iii) how to explain income distribution between landowners and workers. Choose one of these three topics.
 - (a) For the topic you chose, say how an economist might think about the issue. Describe a set of assumptions that might be reasonable, and discuss how economic logic could be used to provide explanations or predictions. Use graphs when possible. Try to make your answer clear, detailed, and complete.
 - (b) Choose one society in Part II or Part III of the book that might fit the theory from part (a). Do NOT choose a case you already discussed in an earlier question. Describe the natural environment, technology, and social organization. Then carefully explain why you think the economic theory from part (a) might be useful in understanding this society.

Econ 354

Exam on "The Evolution of Human Societies" by A. Johnson and T. Earle

Greg Dow

February 1, 2016

Please answer all of the questions.

1. Part I of the J&E book is about family groups, Part II is about local groups, and Part III is about regional polities.
 - (a) For each part of the book, choose one society and describe its natural environment, food technology, and social organization. If you don't remember the name of the society, give enough information that we can determine what case you are discussing.
 - (b) J&E have a theory to explain how humans developed from small simple societies to large complex ones. Explain their theory carefully. Are the three societies you discussed in (a) consistent with J&E's theoretical ideas? Why or why not?

2. Two common economic issues for foraging groups are risk and storage.
 - (a) Assume a forager is risk averse and draw a graph showing how utility depends on food. Then describe a situation in which two foragers would both be better off if they always shared their food equally. Explain the economic logic in detail. What assumptions are you making about the food outputs of the two foragers? Why is this important?
 - (b) Assume a forager cares about food consumption today and food consumption tomorrow. She has some food wealth today, and must decide how much of it to save for tomorrow. For the case where the interest rate is zero, how does the forager decide what amount of food to consume in each period? Explain the economic logic in detail. How does your conclusion change when the interest rate is (i) positive; or (ii) negative? Why?

3. In class we discussed a model of how inequality could emerge in a society.
 - (a) Using graphs, explain how (i) everyone in a region can start with equal food; and then (ii) people can have equal food within each group but some groups are better off than others; and finally (iii) inequality can arise among the individual members of each group.
 - (b) Suppose an elite owns land and commoners supply labor. Use supply and demand graphs to describe how the distribution of food would be determined. Then provide one example of a comparative static conclusion that could be obtained from this model, and discuss the economic logic carefully. Finally, choose one case from J&E to which this model might apply (do not use a case you discussed in question 1), and give a short justification.

Econ 354

Exam on "The Evolution of Human Societies" by A. Johnson and T. Earle

Greg Dow

January 29, 2015

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

1. Here are some "big picture" questions.
 - (a) Define the concept of subsistence intensification, and carefully explain what causes this process (according to J&E). Next, define the concepts of political integration and social stratification, and carefully explain what causes these two processes (again, according to J&E). How are these three concepts reflected in the organization of the book? Explain.
 - (b) How would J&E distinguish between a chiefdom and a state? According to J&E, what are the main factors that contribute to the formation of a state? In what ways could J&E be considered "integration theorists"? In what ways could they be considered "conflict theorists"? Justify your answers.

2. Here are some questions about Part I of the book. Note: make sure you discuss different societies from the book when answering parts (a) and (b).
 - (a) Choose one of the following models: (i) allocating time between two food resources; (ii) dealing with risks to the supply of food; or (iii) deciding whether to consume food today or store it for tomorrow. Use graph(s) to explain the main assumptions and conclusions of the model, and give one comparative static prediction based upon the model. Explain in words why this prediction makes economic sense. Then describe one society from Part I to which the model could be applied, and discuss whether any of the assumptions of the model could be changed in order to more accurately reflect the facts about this society.
 - (b) Consider the model we discussed in class where people have to decide how long to keep gathering food in one area before they move their camp somewhere else and start again. For this model, answer the same questions as in part (a) above.

3. Here are some questions about Parts II and III of the book.
- (a) Describe the theoretical factors that could influence whether or not warfare occurs in a society like the ones in Part II. Explain why each factor is important. Note: assume we are only talking about displacement, not raiding or conquest. Then (i) choose a specific society from Part II that does have war, and discuss whether the facts about this society are consistent with the theory; and (ii) choose a specific society from Part II that does not have war, and discuss whether the facts about this society are consistent with the theory.
- (b) Consider a stratified society like the ones in Part III, with landowners who control access to land but do not work, and commoners who work but do not own land.
- (i) Suppose commoners must pay rent to landowners in a land market, but can keep the rest of the food they produce. There is a fixed total amount of land and a fixed population of commoners. Use a supply and demand graph to show how the rental price for land would be determined. Explain who is on the supply side and the demand side, and why you are drawing the curves the way you do. Now assume the amount of land increases because new territory has been discovered, but the commoner population does not change. Use your graph to explain the effects of this change on the food incomes of landowners and commoners, and justify your reasoning in words.
- (ii) Suppose instead that landowners must pay a wage to commoners in a labor market, but the landowners keep the rest of the food produced by the commoners. There is a fixed total amount of land and a fixed population of commoners, exactly as in part (a). Use a supply and demand graph to show how the wage would be determined. Explain who is on the supply side and demand side, and why you are drawing the curves the way you do. Assume the amount of land increases as in part (a), while the commoner population does not change. Use your graph to explain the effects of this change on the food incomes of landowners and commoners, and justify your reasoning in words.
- (iii) Does the effect of the additional land differ depending on whether there is a land market or a labor market? Explain carefully.

Econ 354

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Greg Dow

September 29, 2014

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

1. The societies in Part I of JE (family-level groups) have to solve the following problems: (i) how to divide their time between different ways of getting food; (ii) how to deal with risks to their food supply; and (iii) how much food to store for future consumption.
 - (a) Choose one society from Part I. Describe its natural environment, its food technology, and its social organization. Then explain in as much detail as possible how this society solves the problems (i), (ii), and (iii) listed above.
 - (b) Choose only one of problems (i), (ii), or (iii). For the problem you choose, describe an economic model from the lectures that addresses this problem. What are the important assumptions? What are the important conclusions? Explain the logic that connects the assumptions to the conclusions using algebra, graphs, or both. Finally, give an example of a comparative static prediction that can be obtained from the model, and explain.

2. In class we discussed the relationships between total product (TP), average product (AP), and marginal product (MP) for a territory with fixed land and variable labor input, where the output is food.
 - (a) Assume that as labor input increases, AP first rises and then falls. Draw a graph for TP that is consistent with this assumption and explain your reasoning. Then say whether MP is less than, greater than, or equal to AP when (i) MP reaches a maximum; (ii) AP reaches a maximum; (iii) TP reaches a maximum. Justify your answers using graphs.
 - (b) Chief 1 controls territory 1 and chief 2 controls territory 2. Territory 1 has better land than territory 2. Assume the chiefs have to compete for labor. Each chief offers a wage (w_1 or w_2) that will be paid to any commoner who produces food at that chief's territory. Let n_1 and n_2 be the number of commoners working at each territory and let N be the total number of commoners in the region. Carefully explain using algebra, graphs, and words how w_1 , w_2 , n_1 , and n_2 are determined in equilibrium. Do you expect inequality between the commoners and the chief at the same territory? Do you expect inequality between the commoners working at territories 1 and 2? Do you expect inequality between the chiefs of territories 1 and 2? Explain your answers.

3. Note: in this question, (a) asks for a comparison between Parts I and II of JE, while (b) asks for a comparison between Parts II and III.
- (a) Choose one society in Part II. Describe the ways in which this society is larger or more complex than the societies in Part I. How would JE probably explain this? Be sure that the explanation takes account of the specific facts about the society you chose (different societies could be large or complex for different reasons).
- (b) Choose one society in Part III. Describe the ways in which this society is larger or more complex than the societies in Part II. How would JE probably explain this? Be sure that the explanation takes account of the specific facts about the society you chose (as above, different societies could be large or complex for different reasons).

Econ 354

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Greg Dow

January 27, 2014

Answer all three of the following questions.

1. Consider two problems: (a) minimizing the total time used to obtain food subject to a constraint on the total food needed; and (b) maximizing the total utility from food consumption over two time periods subject to a constraint on the total food available. In answering the following questions, use both graphs and words.
 - (a) For model (a), say why it is necessary to set the marginal cost of one food source equal to the marginal cost of the other food source. Then explain how to find a solution where this is true and the constraint is satisfied. Finally, explain how the solution would change if bad weather made one food source harder to get but had no effect on the other food source. Provide an economic interpretation.
 - (b) For model (b), say why it is necessary to set the marginal utility of food in one time period equal to the marginal utility of food in the other time period. Then explain how to find a solution where this is true and the constraint is satisfied. Finally, explain how the solution would change if someone invented a way to make food grow while it is being stored. Provide an economic interpretation.
2. Here are some questions about parts II and III of the book.
 - (a) In part II, we see levels of organization that go beyond the individual household. According to J&E, what are the four main reasons for this? For each of the four reasons, explain their argument and use an example from the book to illustrate it.
 - (b) In Part III, elites own land and commoners do not. What are the elites probably maximizing? What constraints do they probably face? Assuming that elites and commoners interact through a competitive market, use a graph to show how food consumption for commoners is determined. Then use a case study from the book to show how this model could explain some observed facts. Justify your answer.
3. Johnson and Earle are concerned with the 'big picture' in human social evolution.
 - (a) Describe the introduction of the book (chapter 1). What are the main concepts J&E present? What things are they trying to explain? What are the main cause and effect relationships in their theory? What role does economics play, if any?

- (b) Describe the conclusion of the book (chapter 14). First use a sentence or two to say what it is about. Then summarize two arguments J&E make in this chapter. Indicate whether you agree or disagree with each argument and briefly say why.

Econ 354

Exam on "The Evolution of Human Societies" by A. Johnson and T. Earle

Greg Dow

September 27, 2013

Answer all three of the following questions.

1. We discussed models of the following situations: (i) allocating time between two different food sources; (ii) sharing food in order to reduce risk; (iii) storing food today so it can be consumed tomorrow; and (iv) deciding how long to continue foraging in one area before moving to a new area.
 - (a) Explain one of these models in detail. Define the important variables, say which are exogenous and which are endogenous, explain how the endogenous variables are determined, and explain how changing one of the exogenous variables would affect the endogenous variables. Use a little algebra and at least one graph.
 - (b) Give one example of a society to which the theoretical model in part (a) can be applied. Describe the natural environment, technology, and social organization. Then explain how the model helps to understand observed economic behavior.
2. Two important topics in the book are warfare and land ownership.
 - (a) In words, describe a theoretical framework that can explain why some societies in Part II have warfare while others do not. For each concept or assumption that you mention, say what role it plays in the overall theory. What does the theory predict about the conditions under which warfare is likely or unlikely? Explain.
 - (b) Suppose members of the elite own land but commoners do not. Draw supply and demand graphs for each of the following cases: (i) commoners rent land from elite individuals; (ii) elite individuals pay commoners a wage to work on their land. In each case, say who is on the demand side and who is on the supply side. Use your graphs to show what happens if the number of commoners rises but the amount of land stays the same. Then use economic reasoning to interpret your results.
3. Your friend would like a short summary of the Johnson and Earle book.
 - (a) Tell your friend what the book is about. What things are the authors attempting to explain? How do they explain them? What are the main causes, and what are the main effects? What are the main limitations or weaknesses of their theory?
 - (b) Briefly describe one society from each part of the book (do not repeat cases you already used earlier in the exam), and describe the main ways in which the three societies differ. Do you think these examples are consistent or inconsistent with the theoretical ideas from part (a)? Carefully justify your answer.

Econ 354

Exam on "The Evolution of Human Societies" by A. Johnson and T. Earle

Greg Dow

February 1, 2013

Answer all three of the following questions.

1. Your friend says "People in small-scale hunter-gatherer or agricultural societies are not economically rational like modern people. They just follow their cultural traditions."
 - (a) Using one of the societies from Part I of J&E and one of the models from the lectures, defend the idea that people in the society are behaving in an economically rational way. Describe both the society and the model in enough detail that your friend is likely to be convinced.
 - (b) In some of the societies in Part II of J&E, the leader of a local group invites people from neighboring groups to big parties where the leader gives away large amounts of food and other goods. Your friend claims that this is not compatible with the leader's self-interest. Defend the idea that this behavior is consistent with self-interest on the part of the group leader. Justify your answer in enough detail that your friend is likely to be convinced.
2. Consider an oasis (territory 1) surrounded by a desert (territory 2). The average product curve for food output at the oasis first rises and then falls. The average product curve in the desert is horizontal. The maximum average product that can be achieved at the oasis is higher than the average product in the desert. The total number of people is n .
 - (a) Suppose everyone is free to live wherever they want. What would you predict about the number of people in each territory? What would you predict about the level of food per person in each territory? Explain your answers using a graph.
 - (b) Suppose a chief decides how many people can live at the oasis. Anyone can leave and go to the desert if they want. (i) If everyone living at the oasis has to get the same amount of food, how does the chief choose the number of people allowed to live at the oasis? (ii) If some people at the oasis can be given less food than others, how does the chief choose the number of people allowed to live at the oasis? Explain your answers using graphs.
3. Consider production risk, warfare, capital investments, and trade.
 - (a) Explain how each of these four factors could encourage the formation of large societies.
 - (b) How would you rank the relative importance of these four factors in explaining the evolution of large societies? Justify your answer using both logic and evidence.

Econ 354

Exam on "The Evolution of Human Societies" by A. Johnson and T. Earle

Greg Dow

January 27, 2011

Answer all three of the following questions.

1. In chapter 1, J&E discuss "subsistence intensification", "political integration", and "social stratification".
 - (a) Define each of these terms. Then explain how each is related to economic ideas (if any).
 - (b) In the theoretical framework used by J&E, each of these three variables is endogenous. What are the main exogenous variables in their theory? How do they use their exogenous variables to explain change over time in the three endogenous variables? Give a detailed description of the cause-and-effect relationships involved.
2. Choose one of the following economic models discussed in class: (i) minimization of the time cost of achieving a given amount of food; (ii) maximization of expected utility by a risk averse person; (iii) maximization of total utility by a person who can store food; (iv) maximization of average utility per day by a group of people who decide when to move.
 - (a) For the model you chose, describe the main assumptions, the main conclusions, and the economic reasoning that links the assumptions to the conclusions. Use a combination of graphs and algebra to explain your answer.
 - (b) Give an example of a society in the J&E book where you think the model can be applied. Describe the natural environment of the society, the technology used, and why the model is relevant to the behavior of the people in that society.
3. Part III of J&E is about chiefdoms and states.
 - (a) Suppose that a chief, along with a relatively small number of relatives and friends, can exclude other people from using a valuable territory. Using economic concepts, explain how this can lead to (i) inequality across groups at different locations; and (ii) inequality within a group at a given location. Does this process seem consistent with the evidence from the book? Why or why not?
 - (b) Consider a chiefdom or an early state. Give one example from J&E of a situation where the elite did something that was probably beneficial to both the elite and the commoners. Then give one example from J&E of a situation where the elite did something that was probably beneficial for the elite but harmful to the commoners. In each case, justify your answer by explaining carefully why the elite would be better off and why the commoners would be better (or worse) off.

Econ 354

Exam on "The Evolution of Human Societies" by A. Johnson and T. Earle

Greg Dow

October 4, 2010

Answer all three of the following questions.

1. Choose one of the economic models discussed in class in connection with Part I of J&E (the material on family-level groups).
 - (a) Carefully describe the model using both graphs and algebra. What is being maximized or minimized? What are the constraints? What happens in equilibrium and why?
 - (b) List the exogenous and endogenous variables in the model from part (a), and justify your answers. Economists say that they are doing 'comparative statics' when they change one of the exogenous variables in a model and look at the effects on an endogenous variable. For the model in (a), give one example of a comparative static effect. Explain carefully.
2. When J&E discuss the 'subsistence economy', they mean production and consumption of food within individual households. When they discuss the 'political economy', they mean the production of food surpluses by commoners in order to support the activities of a non-food-producing elite.
 - (a) Choose one society from Part I of the book (family-level groups), one from Part II (local groups), and one from Part III (regional polities). In each case, describe the activities of the people in the subsistence economy, say whether there is a political economy, and if so, describe the main activities of the elite.
 - (b) Some societies in J&E have little or no economic inequality, while others have a lot of inequality. Your friend wants to know how economic inequality began in small-scale societies. What do you say? Use both logic and evidence in developing your answer.
3. Consider the following two points of view on the issue of warfare.
 - (a) A pessimist says: "Many of the societies in the book have some type of warfare. Since warfare is risky and costly, rational people would not engage in it. The explanation must be that humans are genetically programmed to engage in warfare." Comment, using both logic and evidence.
 - (b) An optimist says: "Several of the societies in the book have little or no warfare. This shows that people can make rational decisions about whether or not to engage in warfare. If we knew more about the economic reasons for warfare, it might be possible to prevent it." Comment, using both logic and evidence.

Econ 354

Exam on The Evolution of Human Societies by A. Johnson and T. Earle

Greg Dow

September 27, 2007

Answer all three of the following questions.

1. Choose ONE of the following models: (i) optimal time allocation between hunting and gathering; (ii) expected utility, risk aversion, and food sharing; (iii) consumption and saving with food storage; or (iv) the optimal timing of a move to a new campsite.
 - (a) Describe the crucial assumptions of the model and use a combination of graphs and algebra to explain how it works. State the main conclusions derived from the model.
 - (b) Choose one of the societies described by J&E and explain how the model applies to that society. Does the model seem consistent with the actual behavior of the people in the society? Are there any important features of the society that seem inconsistent with the model? How could the model be made more realistic? Explain.

2. The societies in Part II of J&E often have Big Men, while the societies in Part III often have chiefs. In general, Big Men have to show good leadership skills to obtain their positions and they can easily be replaced if they perform badly. Chiefs usually inherit their positions from their parents and can use military force to stay in office.
 - (a) An integration theorist says: “the change from Big Man to chief was caused by the emergence of social and economic problems that a chief can solve, but a Big Man cannot. Solving these problems was beneficial for most members of society.” Use evidence from J&E to discuss the strengths and weaknesses of this perspective.
 - (b) A conflict theorist says: “the change from Big Man to chief occurred because chiefs have opportunities to pursue their own interests and those of their close relatives at the expense of most other members of society.” Use evidence from J&E to discuss the strengths and weaknesses of this perspective.

3. A key theme in J&E is the emergence of economic inequality in complex societies.
 - (a) Consider a stratified society where the members of an elite own land and there are many commoners who do not own any land. The commoners can keep the food they grow but must pay rent to the landowner. Use a supply and demand graph to explain how this rent is determined. Then discuss (i) the effects of an increase in population density; and (ii) the effects of an increased supply of land. How would your answers change if the

landlords instead kept the food produced by commoners, but had to pay a wage to the commoners working on their land? Explain.

- (b) Suppose we think of the state as a profit-maximizing firm that owns all the land in a society and wants to maximize the difference between total food output (which it collects) and the amount of food it gives to commoners. If commoners can easily run away to other nearby states, what determines the total amount of food given to the commoners? How would your answer change if you found out that the society was surrounded by desert, so that running away was impossible? Explain.

Econ 383

Exam on The Evolution of Human Societies by A. Johnson and T. Earle

Greg Dow

September 29, 2003

Answer two of the following three questions. Do not answer all three.

1. Clyde Reed has a theory about the origins of agriculture: (i) before 11,000 years ago, the earth's climate was too unstable for agriculture; (ii) after this, the climate stabilized and in some places agriculture became more attractive than foraging; (iii) once people settled down in one place they started to make long term investments in agriculture (clearing land, setting up irrigation systems etc.); (iv) they also started to have more children; (v) as population grew, there was more labor relative to land, so the standard of living fell and people became poorer.
 - (a) Compare this with Johnson and Earle's theory about the origins of agriculture. In what ways is it similar? In what ways is it different?
 - (b) Which parts of Reed's theory are consistent with empirical evidence from the book? Which are not? Are there parts of Reed's theory for which evidence is unavailable?

2. To maximize or minimize the total amount of something, it is usually necessary to equate the marginal costs or marginal benefits from several different activities.
 - (a) Give two examples of such models. In each case, state what is being maximized or minimized, what decisions are being made, and what constraints exist. Then explain why marginal costs or marginal benefits must be equalized.
 - (b) For each of the models in part (a), give an example of a society from the book that fits the assumptions of the model and briefly justify your answer.

3. In the faraway land of Aibmuloc one group of people lives on the coast and another lives in the interior. Coastal people get most of their food from a fish called nomlas, which usually appears in large quantities at predictable times of the year. However, some locations are better for catching nomlas than others, and occasionally the fish fail to arrive. Dried nomlas can be stored for a long time, but this requires the cooperation of many families. People in the interior of Aibmuloc gather a variety of wild foods, but food locations are unpredictable and excess food cannot be stored. Neither group relies on agriculture or pastoralism.
 - (a) How would you expect the coastal and interior groups to differ in their population densities? Strategies for reducing risk? Attitudes about territorial boundaries? Use of

warfare? Political organization? Degree of economic inequality? Are the coastal and interior people likely to trade with each other? Justify your answers.

- (b) A visiting anthropologist discovers that the coastal people sometimes have big parties called latchpots where a chief competes with other chiefs to give away food. The chief who gives away the most food attracts the most followers. How would you interpret this custom from an economic perspective?

Econ 383

Exam on The Evolution of Human Societies by A. Johnson and T. Earle

Greg Dow

October 1, 2001

Answer two of the following three questions. Do not answer all three.

1. Two basic ideas in economics are optimization and equilibrium.
 - (a) Choose one of the case studies from the book to show how human behavior can be explained by optimization. Describe the society, its natural environment, and the behavior to be explained. Then present an economic model which shows how this behavior results from the maximization or minimization of something. State clearly what the major assumptions of the model are, and what the major conclusions are. Briefly say whether you think the model leaves out anything important.
 - (b) Choose a different case study to show how human behavior can be explained by the idea of market equilibrium. Your answer should have the same form as in part (a).

2. A major puzzle in economic anthropology is why most human societies eventually made the transition from foraging (gathering wild plants and hunting wild animals) to agriculture (growing domesticated plants) and pastoralism (herding domesticated animals).
 - (a) Based upon your reading and the class lectures, say how Johnson and Earle would explain this transition.
 - (b) Some (but not all) of the societies in Part I of the book were pure foraging groups. Most of the societies in Part II relied on a combination of foraging and agriculture. All of the societies in Part III focused almost entirely on agriculture, with little or no foraging. Use one case study from each of these three sections of the book to show how the process in part (a) might have operated in practice. You don't need to go into great detail about each case. However, you should discuss whether or not the evidence supports the Johnson and Earle theory, and justify your answer.

3. One of the central themes of the Johnson and Earle book is that as human societies became larger and more complicated, they also displayed more economic inequality.
 - (a) Illustrate this point by comparing the level of economic inequality found in three of the case studies: one from Part I on family-level groups, one from Part II on local groups, and one from Part III on chiefdoms and states. You don't have to describe every aspect of

each society. Just discuss the nature and extent of the differences in the standard of living among members of each society.

- (b) What reasons do Johnson and Earle give for the development of inequality? Which reasons do you think are most important? Justify your answer.

Econ 387

Exam on The Evolution of Human Societies by A. Johnson and T. Earle

Greg Dow

September 30, 1999

Answer two of the following three questions. Do not answer all three.

1. Part I of the book is about family-level groups.
 - (a) Choose one of the societies from Part I. Describe an important economic problem facing this society. Why was it a problem? What strategies did the members of the society use in solving the problem (or in trying to solve it)?
 - (b) Describe an economic model that is relevant to the problem in part (a). What are the key assumptions of the model? What does it predict? Why? Are the assumptions and predictions consistent with the facts about the society in part (a)? What are the main limitations or weaknesses of the model? Are there important characteristics of the real economic problem which are not adequately represented in the model?

2. Part II is about people who live in local groups or villages. Compared to part I of the book, these societies have somewhat larger population sizes, more emphasis on control of territory by clans or other groups, and usually leadership by “Big Men”.
 - (a) How might you explain the increased importance of group territories in these cases? What difference does it make whether “Big Men” can control access to territories by outsiders? How might economic inequality tend to develop in such societies?
 - (b) In addition to territoriality and (sometimes) greater inequality within societies, there is a tendency for the societies in part II to engage in warfare. However, this does not occur in every case. Based on your reading and class discussion, state several conditions that are either necessary for a local group society to engage in chronic warfare, or that tend to increase the probability of warfare. Explain your answer, and briefly illustrate your reasoning using cases from the book.

3. Part III is about chiefdoms and states. The elites in these societies typically inherit their economic and political privileges, and the societies themselves are large in both population size and land area.
 - (a) Throughout the book, Johnson and Earle argue that the following factors drive the evolution of complex societies: risk management, competition for scarce resources, technology or capital investment, and trade. Based on your reading of individual cases, which factors do you think are most important in explaining the emergence of a

permanent ruling elite? Why? Explain your answer, and briefly illustrate your reasoning using cases from the book.

- (b) In most chiefdoms and states the elite controls access to land, or owns it directly. Why do you think this is true? Does this fact shed any light on the reasons for the evolution of these large-scale societies? In particular, does it shed any light on the relative importance of the four factors mentioned in part (a)?

Econ 387

Exam on The Evolution of Human Societies by A. Johnson and T. Earle

Greg Dow

October 1, 1998

Answer two of the following three questions. Do not answer all three.

1. Easter Island is a small island in the Pacific Ocean. It was first settled by a small group of Polynesians around 400 AD. At that time there were large palm forests on the island. The earliest settlers used the wood from these trees to make canoes for fishing and also hunted birds living in the forests. The standard of living was high. Around 900 AD the area covered by forest began to diminish noticeably. By about 1100 AD the people on the island began to carve very large stone statues which are still scattered around the island. There is evidence that during this period there was more reliance on agriculture for food, and less protein in the average person's diet. Soil erosion became severe and agricultural yields per unit of land started to decline. By about 1400 AD the last forests were gone. Around the same time population hit a peak of roughly 10,000 people. By 1500 AD there was widespread warfare, as indicated by the presence of many weapons and fortifications, and substantial social and economic inequality. When Europeans arrived in the 1700s, warfare had ended but the population had fallen to 2000 people, all with a very low standard of living.

What do you think happened on Easter Island? Based on your reading of Johnson and Earle, and the ideas presented in lectures, sketch out a possible interpretation of these events. Try to make your interpretation fit the facts listed above, and carefully explain why each step in the process led to the next one.

2. There are many examples in the Johnson and Earle book of rational people deciding how to allocate scarce resources in a way that best achieves their goals. Describe a situation of this type, and briefly sketch the nature of the society you have in mind. Identify the scarce resource, the goal of the individual, family, or social leader, and any relevant constraints. Then explain how an economist might set up a model of the situation. State the key assumptions of the model, the economic logic involved, and the predictions or conclusions derived from the model. Use graphs or algebra where necessary to explain your reasoning.
3. Johnson and Earle have a theory of the evolution of human societies. What they are trying to explain is the transition from family-level foraging groups to (eventually) large-scale states with substantial economic and political inequality. There are many intermediate steps in this evolutionary process: local groups, "Big Man" societies, chiefdoms, and so on. Societies have sometimes arrived at one of these stages and then remained stable afterward, without further increases in scale or complexity.

What factors do Johnson and Earle think are important in pushing this evolutionary process along? What forces might lead a society toward greater political integration and increased economic stratification? Do larger-scale societies always arise for the same set of reasons or are different factors important in different cases? After you outline their theory, briefly evaluate it. Is it logically coherent? Does the evidence support it? Are there important things their theory does not explain?