Econ 354

Exam on "Order Without Law" by Robert Ellickson

Greg Dow March 22, 2022

Please answer all of the following questions.

1. A farmer and a rancher are neighbors. If there is no fence, the rancher's cattle will cause damage d to the farmer. A fence can prevent this damage and will cost c, where $0 < c < d$. Only the rancher knows how to build a fence (notice that this is different from what I assumed in class). Assume transaction costs are zero.

(a) Draw a graph with the farmer's income y_1 on the horizontal axis and the rancher's income y_2 on the vertical axis. (i) When the rancher is liable for damage, show the starting point with no fence, explain whether a fence is built, and show the outcome on your graph. (ii) When the rancher is not liable for the damage, answer the same questions using the same graph. Label all important points and lines, and carefully justify your reasoning.

(b) In what ways are RE's observations of Shasta County consistent with your answers in (a)? In what ways are they not consistent with your answers in (a)? How does RE explain his observations? Is his explanation convincing? Carefully justify your reasoning.

2. Here are some questions about Ellickson's theory of social norms.

(a) Draw a payoff matrix for a specialized labor game with the payoffs $A > B > C > D > E$. Assume the highest possible aggregate welfare is A+D. Let $t \geq 0$ be a transfer from one player to the other. Explain why a transfer is needed to achieve A+D. What range of t values would achieve this goal? Is the promise to pay t credible? Justify your answers.

(b) Describe the strategy RE calls "Even-Up". How is this strategy related to Axelrod's TFT strategy? How is it related to a trigger strategy? What exogenous variables would likely be important in determining whether the people in a community will use the "Even-Up" strategy? Justify your answers.

3. Here are more questions about Ellickson's theory of social norms.

(a) One criticism of RE is that his hypothesis is difficult to test. Give two reasons why this might be true. Then describe one of the case studies from Part II of the book (not Shasta). Discuss whether RE's hypothesis provides a convincing explanation for the social norms observed in this case. Justify your answers.

(b) Describe a norm among undergraduate students at SFU with the following two features: (i) it is socially desirable to have most students obey the norm and (ii) individual students are sometimes tempted to violate the norm. Do you think people mainly follow the norm in order to be a 'good person' or to avoid potential punishments? Justify your answers.

Econ 354

Exam on "Order Without Law" by Robert Ellickson

Greg Dow March 30, 2021

1. Assume there is a farmer (person 1) and a rancher (person 2). Only the farmer knows how to build a fence, building a fence is costly to the farmer, and aggregate welfare is maximized if the fence is built.

(a) According to the Coase Theorem, what determines whether or not the fence is built? What determines the distribution of income between the two people? In your answer, discuss Figure 2 in my introductory notes on the RE book (March 10).

(b) According to Ellickson's hypothesis about norms, what determines whether or not the fence is built? What determines the distribution of income between the two people? In your answer, discuss Figure 3 in my notes on chapters 9-16 of the RE book (March 21).

2. Imagine a community where random individuals meet in pairs from time to time. Each time two people meet they play a prisoner's dilemma game involving workaday affairs.

(a) According to RE, what two characteristics does the community need to have in order to develop social norms supporting cooperation? According to Dow, what two additional characteristics may be necessary? Briefly explain why each condition is important.

(b) RE believes that the "Even Up" strategy is a good description of social norms in Shasta County. Discuss whether "Even Up" is consistent with each of the following views of social norms: (i) functionalism; (ii) interest groups/power; (iii) genetics/evolutionary psychology; (iv) rational actor theories. Briefly justify your answers.

3. Here are some questions about specific social norms.

(a) In Shasta County there is a social norm that the owner of cattle is always responsible for any damage they do. How does this differ from what the law says? Why does RE think that following this norm yields higher aggregate welfare than following the legal rules?

(b) In chapter 11, RE describes the social norms in the nineteenth-century whaling industry. Explain why he believes the norms in this industry maximized aggregate welfare. Then discuss whether the lack of effective norms against overfishing contradicts his theory.

From: Gregory Dow <gdow@sfu.ca>
Subject: ECON 354 EXAM ON ROBERT ELLICKSON
Date: November 23, 2020 at 2:26:30 PM PST
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1. Imagine that Coase and Ellickson are having a debate about ranchers and farmers.

(a) Assume transaction costs are zero. What points would they probably agree about? What points would they probably disagree about? Carefully explain the arguments each person would make.

(b) Assume transaction costs are high. Answer the same questions as in part (a).

2. Ellickson relies heavily on Shasta County as a basis for his theory of social norms.

(a) Describe the main norms about animal trespass in Shasta. Then describe the main norms about how the costs of fences are shared. If RE's hypothesis is right, these norms should maximize aggregate welfare. Do you believe this is likely to be true? Why or why not?

(b) There also appears to be a norm that whenever someone suggests closing the range, the ranchers (both traditionalists and modernists) fight against it. Explain why this behavior probably does not maximize aggregate welfare. Do you think this observation conflicts with RE's hypothesis about social norms? Why or why not?

3. A game theorist would define a Nash equilibrium to be a situation where no individual person wants to change their behavior, given the current behavior of everyone else.

(a) Consider two situations: (i) everyone wears a mask and the risk of getting covid-19 is low; (ii) no one wears a mask and the risk of getting covid-19 is high. Do you believe either of these situations is a Nash equilibrium? Do you think a game where people choose whether or not to wear masks is a prisoner's dilemma? Explain carefully.

(b) Suppose there is a perfectly effective vaccine against covid-19. Assume that if at least 80% of the population is vaccinated, the virus can no longer spread and it will disappear. If less than 80% of the population is vaccinated, the unvaccinated people can still get the virus. The costs of getting vaccinated vary

across individuals; for some people it is low, for some it is moderate, and for some it is high. Discuss the ways in which this is similar to, and different from, RE's specialized labor game. Would RE's way of solving the SLG work in this case? If not, what other solution(s) might work? Explain carefully.

Econ 354, Greg Dow, March 23, 2020
Exam on Robert Ellickson, "Order Without Law"

All questions have equal weight. Your answers should be clear, specific, and complete.

1. Explain why RE went to Shasta County, what he expected to find there, and what he actually did find there. Your answer should address the following topics:

(a) the Coase Theorem

(b) open and closed range

(c) norms about animal trespass and fences.

2. A short version of RE's hypothesis is: "close knit groups tend to develop social norms that maximize the aggregate welfare from workaday affairs."

(a) Explain the meaning of each of the key terms in the hypothesis.

(b) Describe the strategies Tit for Tat (TFT) and Even Up and explain why RE thinks they are relevant for his hypothesis.

(c) Describe an example from the book that does NOT involve cattle ranching and say why RE thinks his hypothesis applies to that example.

3. For each of the following statements, give specific reasons why a reader of RE's book might say it, and discuss whether you think it is an important problem with the book.

(a) "RE sometimes argues that people follow norms due to morality, but also sometimes argues that they follow norms due to self interest."

(b) "RE sometimes argues that people are rational actors, but also sometimes argues that they are not."

(c) "RE claims his hypothesis could be tested, but in practice this would be very difficult or impossible."

Econ 354

Exam on Order Without Law by R. Ellickson

Greg Dow March 21, 2016

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

1. In the introduction to his book, Ellickson discusses the Coase Theorem.

(a) Consider a farmer and a rancher. Assume they can easily bargain with each other if necessary, and assume the rancher does not know how to build a fence but the farmer does. Use a graph to explain why a fence will be built regardless of the rule of liability. Then use your graph to explain why the conclusion might change if bargaining is impossible. Finally, state the Coase Theorem and say why both parts of your answer are consistent with the theorem.

(b) Why did Ellickson think Shasta County would be a good place to test the Coase Theorem? What evidence does he give for his conclusion that social norms were more important than the law? How does he explain the fact that ranchers fought against range closures, even though he believes that the difference between open and closed range had little practical effect on the ranchers? Justify your answers.

2. Consider a prisoner's dilemma game with two players and the payoffs $w > x > y > z$. Each player must choose whether to cooperate (C) or defect (D).

(a) Assume the game is only played once. In a Nash equilibrium, neither player can get a higher payoff by changing his or her strategy, given the strategy of the other player. Suppose the law says that if player 1 cooperates and player 2 defects, then player 2 must pay the compensation $t = x - z$ to player 1. No compensation is paid in any other situation. Under this legal rule, are there any strategy combinations that are definitely not a Nash equilibrium? Is there any strategy combination that could be a Nash equilibrium? Under what conditions would this occur? If there is a Nash equilibrium, does it maximize aggregate welfare? Explain.

(b) Consider the original payoff matrix without the compensation payment in part (a). Assume total welfare is maximized when both players cooperate, and assume the game is played more than once. Explain why RE believes a cooperative social norm would tend to develop in this case. Then discuss why each of the following factors might make a cooperative norm less likely to develop: (i) large group size; (ii) errors in observing the behavior of other players; (iii) a low weight on future payoffs relative to present ones; (iv) payoffs that change frequently over time.

3. Ellickson argues in favor of the hypothesis that close-knit groups develop social norms about workaday affairs that maximize the aggregate welfare of the group.

(a) Choose one real-world example from the book that does not involve cattle. Give a detailed description of the group and its norms. Why does RE believe that the group is close knit? Why does he believe the norms are about workaday affairs? Why does he believe the norms maximize aggregate welfare? Explain carefully.

(b) You go to Atsahs County and observe the following social norms: (i) the victim of animal trespass always bears the cost of any damage; and (ii) the neighbor with the fewest animals always builds a fence. How could you use these observations to argue that Ellickson's hypothesis is false? How could RE defend his hypothesis in spite of your observations and arguments? Feel free to be creative in imagining what RE might say.

Econ 354

Exam on Order Without Law by R. Ellickson

Greg Dow March 19, 2015

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

1. One way to express the Coase Theorem is to say that when transaction costs are zero, people will always reach the Pareto frontier regardless of their starting point.

(a) When someone assumes that transaction costs are zero, what does this mean? Give a detailed explanation. Then use a graph to explain why bargaining might be necessary in order to reach the Pareto frontier, and how the frontier is actually reached if transaction costs are zero. Now suppose instead that transaction costs are positive. Use a graph to explain how the rule of liability could affect whether or not the Pareto frontier is reached.

(b) Consider the issue of animal trespass in Shasta County. What are the legal rules about liability in such cases? Discuss both open and closed range. What are the social norms in such cases? Discuss both substantive and remedial norms. Why does RE believe that his observations of Shasta County are inconsistent with the Coase Theorem? Why does RE believe that his observations are consistent with the "Even-Up" strategy? Explain your answers.

2. Consider a game with players A and B. Each person can either work (W) or shirk (S). The payoffs from WW are (2, 2); the payoffs from WS are (1, 3); the payoffs from SW are (6, 2); and the payoffs from SS are (3, 3). In each case the first letter of a strategy combination refers to player A and the second letter refers to player B. Likewise, the first payoff number refers to A and the second refers to B.

(a) Draw the payoff matrix, prove that there is a dominant strategy equilibrium, and say what it is. Which strategy combinations are Pareto efficient? Which strategy combination maximizes aggregate welfare? Is this game a prisoner's dilemma? Explain your answers.

(b) A strategy combination is called a Nash equilibrium if A does not want to change strategies given what B is doing, and B does not want to change strategies given what A is doing. Suppose one player can pay compensation $t \geq 0$ to the other. We want to have a Nash equilibrium in which aggregate welfare is maximized. Who pays compensation to whom? What is the lowest level of t that is consistent with such a Nash equilibrium? What is the highest level of t that is consistent with such a Nash equilibrium? Could any problems arise if the highest value of t is chosen? Carefully explain your answers using a payoff matrix and a graph.

3. RE believes that when close-knit groups engage in workaday affairs, they tend to develop social norms that maximize the aggregate welfare of the group.

(a) State RE's definition of a "close knit group". Then describe two additional factors that other social scientists might want to include in the definition and explain why these factors could potentially be important. What theoretical arguments does RE use to justify his claim that good social norms tend to develop over time? Aside from Shasta County, what evidence does RE use to show that this happens in the real world? If someone wanted to test RE's hypothesis about social norms, would they have to observe aggregate welfare directly, or could they test his hypothesis indirectly without such observations? Explain.

(b) Define a bad social norm to be a norm that makes most members of a social group worse off than they would have been with a different norm. Based on your own knowledge or experience, describe one social group that has (or had) a bad social norm. (Note: do not identify any persons or organizations by name.) Discuss the general nature of the social group, what the bad norm was, why you think another norm would have been better, and why you think the bad norm continued to exist over time. Does your example provide strong evidence against RE's hypothesis that norms tend to maximize aggregate welfare? Justify your answer.

Econ 354

Exam on Order Without Law by R. Ellickson

Greg Dow November 10, 2014

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

1. Players 1 and 2 confront a specialized labor game. If player 1 works and player 2 shirks, the payoffs are (D, A). If both work, both get B, and if both shirk, both get C. If player 1 shirks and player 2 works, the payoffs are (A, E). Assume A > B > C > D > E.

(a) Draw the payoff matrix. What additional algebraic condition would RE include in order to obtain a specialized labor game? Explain why this further condition is important. Then draw a graph showing the payoff of player 1 on the horizontal axis and the payoff of player 2 on the vertical axis. Label each of the four points associated with a strategy combination from the payoff matrix, and show the four corresponding lines along which aggregate welfare is constant. What is the slope of each line? Why?

(b) RE thinks player 2 should offer a gift in the amount of t = B - D to player 1 that will be provided if and only if the strategy combination is (work, shirk). Using a graph like the one in part (a), label the resulting point on your graph and explain how this gift might solve the specialized labor problem. What other gift amounts could also solve the problem? Explain. Under what conditions (if any) do such gifts represent a credible commitment? Explain.

2. RE advances the hypothesis that social norms about workaday affairs in close-knit groups tend to maximize aggregate welfare.

(a) Describe the "Even-Up" strategy from chapter 12, and carefully explain how each feature of this strategy is related to RE's description of the social norms in Shasta County. Why does RE think "Even-Up" (or something similar) is likely to evolve for workaday affairs in close-knit groups? Are his reasons convincing? Explain.

(b) Choose one of the real-world examples in Part II or Part III of the book (whales, bees, photocopying, apartment rentals, etc.). Describe the situation and the social norms that arose. Why does RE argue that this example supports his hypothesis? Could a critic argue that this was not a good test of his hypothesis? Explain.

3. RE studied Shasta County because he was interested in the Coase Theorem.

(a) Your friend is an economics student who has never heard of the Coase Theorem. Tell him what the theorem says, and define the three most important concepts in the theorem. Using a graph, carefully explain why the theorem is true.

(b) In chapter 2 we saw that ranchers fought vigorously against range closures. Does this contradict the Coase Theorem? Why or why not? Does this contradict RE's hypothesis that social norms maximize aggregate welfare? Why or why not?

Econ 354

Exam on Order Without Law by R. Ellickson

Greg Dow March 17, 2014

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

1. A farmer (person 1) and a rancher (person 2) are neighbors. Person 1's utility is u_1 and person 2's utility is u_2. Utilities are measured in dollars. From their normal business activities, the players have incomes of y_1 and y_2. If there is no fence, the rancher's cattle cause damage d to the farmer. This damage can be avoided by building a fence. It costs the rancher c to build a fence, and it costs the farmer e to build a fence, where $c < d < e$. Start from a situation where no fence exists.

(a) Assume the rancher is not legally responsible for the damage done by cattle. This is a close-knit group, these are workaday affairs, and social norms maximize total utility. According to Ellickson, will a fence be built? If so, who will build it? Will any gifts be made? If so, who gives the gift and who receives it? Using a graph, show the utility point(s) that could occur. Label all axes, points, and lines. Explain your reasoning clearly and completely.

(b) Now assume the rancher is legally responsible for the damage done by cattle, and transaction costs are zero. According to Coase, will a fence be built? If so, who will build it? Will any compensation be paid? If so, who pays the compensation and who receives it? Using a graph, show the utility point(s) that could occur. Label all axes, points, and lines. Explain your reasoning clearly and completely.

2. Here are some questions about Shasta County.

(a) Describe what the law says about who is responsible for damage done by animals in open range and closed range (assume an animal has wandered onto a neighbor's land). What legal remedies are available to the victim? Does the law distinguish between ordinary animal trespass and damage from highway collisions involving animals? Explain.

(b) Describe the social norms in Shasta County relating to damage done by animals (assume the animal wandered onto a neighbor's land -- you don't need to discuss highway collisions). Discuss both substantive norms (how people are supposed to behave in everyday life) and remedial norms (what people can do to punish someone who violates a substantive norm). Ellickson believes that these norms have lower transaction costs than other possible norms, and he also believes that they lead to lower transaction costs than if everyone relied on the legal rules from part (a). What arguments could Ellickson use to support these ideas?

3. Here are two more questions.

(a) Ellickson's central hypothesis is that norms about workaday affairs in close-knit groups tend to maximize aggregate welfare. Describe two problems that can arise in defining or measuring "aggregate welfare", and say why these problems could make it hard to test Ellickson's hypothesis. Now imagine that you are Ellickson, and you believe your hypothesis really can be tested. Give two possible responses to these criticisms.

(b) Choose any chapter of the book that was NOT discussed in class. Be sure that the chapter you choose is <u>not</u> primarily about Shasta County, game theory, whether Ellickson's hypothesis can be tested, or other material emphasized in the lectures. For the chapter you choose, answer the following questions: (i) What topics did Ellickson discuss in the chapter? (ii) What were his main arguments? (iii) How was the chapter related to the rest of the book? (iv) How important were the ideas in this particular chapter to Ellickson's overall argument in the book? Explain.

<u>Note</u>: it doesn't matter whether you remember the chapter number or the title of the chapter, but your discussion must be detailed enough for us to figure out what chapter you are talking about.

Econ 354

Exam on Order Without Law by R. Ellickson

Greg Dow November 8, 2013

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

1. Consider Ellickson's case study of Shasta County in Part I of the book.

(a) Chapters 3 and 4 involve animal trespass and fences. Describe what the law says about these topics. Then describe what local social norms say about these topics. Are social norms in Shasta County consistent with predictions based on the Coase Theorem? Why or why not?

(b) Chapter 5 involves highway collisions with animals. What do the local ranchers believe the law says about this topic? How do they believe insurance companies behave in relation to this topic? According to RE, what does the law really say? According to RE, how do insurance companies really behave? Explain why the ranchers might not have accurate information about these topics.

2. Chapter 8 is called "Shortcomings of Current Theories of Social Control".

(a) RE starts off chapter 8 by talking about 'legal centralism'. What does this mean? Why does RE criticize it? RE then discusses three theories about social norms: (i) functionalism; (ii) interest groups; (iii) genetic hard-wiring. Briefly summarize each theory and identify its limitations (according to RE).

(b) Chapter 10 is called "A Hypothesis of Welfare-Maximizing Norms". Carefully describe the theory of social norms RE presents in this chapter. Be sure to discuss what RE believes about the content of social norms and how he thinks they arise. Also discuss the kinds of situations to which his theory applies. Finally, discuss some potential problems with his theory.

3. Consider a specialized labor game with two players, where each player can either 'work' or 'shirk'. Let the payoffs satisfy $A > B > C > D > E$. Assume aggregate welfare is maximized when player 1 shirks and player 2 works. We will call this strategy combination SW. Note that this is the opposite of the case we discussed in class, so think carefully as you answer the following questions.

(a) Draw the payoff matrix for the game. What inequality must hold in order for SW to maximize aggregate welfare? Why? What is the dominant strategy equilibrium for this game? Why?

(b) Suppose player 1 gives compensation $t > 0$ to player 2 when SW occurs (there is no compensation in any other situation). Draw a new payoff matrix that includes the compensation t. Find the minimum and maximum values of t that can be used to achieve SW and give a detailed explanation of your results.

(c) Draw a graph with player 1's utility on the horizontal axis and player 2's utility on the vertical axis. Show the points corresponding to the payoff combinations (A, D), (B, B), and (C, C); you can ignore the case (E, A). For each of these three points, show a line passing through the point along which total utility is constant. Label the Pareto frontier on your graph, and label the set of points on the frontier that are Pareto improvements starting from the dominant strategy equilibrium.

(d) Draw a separate graph like the one in part (c) and label the points corresponding to the minimum and maximum values of t you identified in part (b). Then give a detailed explanation of your results.

Econ 354

Exam on <u>Order Without Law</u> by R. Ellickson

Greg Dow March 22, 2013

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

1. Consider Ellickson's case study of Shasta County in Part I of the book.

(a) Describe the main social norms about animal trespass (ch. 3) and fences (ch. 4). Then suppose someone claims that these norms maximize aggregate welfare. Do you think this claim is mostly true or mostly false? Justify your answer.

(b) RE argues that the cattle ranchers in Shasta County sometimes behaved in ways that were <u>not</u> economically rational. Explain why RE believes this, and describe the non-economic motives that might have influenced the ranchers' behavior.

2. Two ranchers are neighbors. Each rancher must decide whether or not to build a fence around her own land. The payoffs measured in dollars are as follows.

		B	
		build	do not build
A	build	5, 5	5, 9
	do not build	9, 5	3, 3

(a) Draw a graph with A's payoff on the horizontal axis and B's payoff on the vertical axis. Indicate the points that correspond to each of the four strategy combinations above and show the additional points that could be obtained by having one person give money to the other. Define the Pareto frontier and label it on the graph.

(b) Assume the game is played once. Does it have a dominant strategy equilibrium? Explain. Now assume instead that the game is played many times and both of the ranchers use the strategy "Even-Up". How would the history of the relationship in past periods influence a rancher's actions in the current period? Explain.

3. An oil refinery emits pollution that causes damage to people who live nearby.

(a) Assume only one person lives near the refinery, the damage done to this person is d, and it would cost the refinery c to stop polluting, where $c < d$. Under legal rule (i), everyone has a right to clean air. Under legal rule (ii), the refinery has a right to pollute. Use the Coase Theorem to argue that under certain conditions the legal rule does not affect whether pollution occurs. Would the person living next to the refinery care which legal rule is used? Explain your reasoning.

(b) Now assume N people live near the refinery where N is a large number. Each of these individuals suffers damage d/N from pollution, so the total damage is d as in part (a). Is it likely that the legal rule would have an effect on whether pollution occurs? Is it likely that social norms will evolve to maximize aggregate welfare? Explain your reasoning in each case.

Econ 354

Exam on Order Without Law by R. Ellickson

Greg Dow March 17, 2011

Answer ALL THREE of the following questions.

1. Early in his book, Ellickson talks about the Coase Theorem.

(a) State the Coase Theorem and then state Ellickson's hypothesis from Part II of the book. Carefully define the key concepts in each case.

(b) What are the main ways in which the Coase Theorem and Ellickson's hypothesis are similar? What are the main ways in which they differ? Explain carefully.

2. Consider a specialized labor game with two players where the payoffs are $A > B > C > D > E$. Assume $A + D > 2B$. Each player can either 'work' or 'shirk'.

(a) Suppose aggregate welfare is maximized if person 1 shirks and person 2 works. Draw a table showing the payoffs to each person from each strategy combination. Next, suppose person 1 pays person 2 an amount $t \geq 0$ when player 1 shirks and player 2 works. What is the smallest value of t that gets player 2 to work? What is the largest value of t that gets player 1 to shirk? Explain your reasoning.

(b) Draw a graph with player 1's payoff on the horizontal axis and player 2's payoff on the vertical axis. Label the point that occurs if the game is only played once. Then draw the utility possibility frontier and label the points on this line that are associated with the values of t from part (a). Explain your reasoning.

3. Consider the following situations involving social norms.

(a) What is the main substantive norm about animal trespass in Shasta County? What is the main substantive norm about building fences? Does Ellickson think these norms are consistent with the strategy of "Even Up"? Why or why not?

(b) Professors at SFU need chalk when they lecture. A good norm would be for each professor to leave the chalk in the classroom when they are finished, so the next professor can use it. However, each professor is uncertain whether there will be any chalk when they arrive at the next classroom, so they take the chalk from their previous classroom. This is not a Pareto efficient norm because everyone has to carry chalk around. Does this observation show that Ellickson's hypothesis about social norms is incorrect? Why or why not?

Econ 354

Exam on Order Without Law by R. Ellickson

Greg Dow November 15, 2010

Answer ALL THREE of the following questions.

1. Early in his book, Ellickson talks about the Coase Theorem.

(a) Give a short statement of the Coase Theorem and define the principal theoretical concepts that are involved. Why is the Coase Theorem a logical starting point for Ellickson? How does the rest of his book relate to the Coase Theorem?

(b) Consider a simple externality problem involving a rancher and a farmer. If there is no fence, the rancher's cattle will cause damage d to the farmer. The rancher is legally liable for this damage. The farmer can build a fence which costs $c < d$ but the rancher doesn't know how to build a fence. Use a utility graph to show why a fence might be built and what range of outcomes could occur. Then explain why the fence might not be built if transaction costs are too high.

2. The title of Ellickson's book is "Order Without Law".

(a) What does Ellickson mean by "order"? How can order be achieved without using the law? Are there situations where achieving order does require law? Explain.

(b) Ellickson uses game theory to justify his hypothesis that close-knit groups tend to develop social norms that maximize total welfare in workaday affairs. Carefully explain these game theory arguments and discuss any limitations they may have.

3. Consider the hypothesis described in question 2(b).

(a) In part I, Ellickson describes the social norms among ranchers in Shasta County. In part II, he gives examples of social norms in several other situations. Taken as a whole, are these case studies (i) strongly supportive of Ellickson's hypothesis? (ii) weakly supportive? (iii) not supportive at all? Justify your answer.

(b) Suppose a skeptical social scientist has read the book but still does not believe the hypothesis is true. What further empirical research could Ellickson do in order to convince the skeptic that the hypothesis is true? What problems would Ellickson encounter in carrying out this research? How could he deal with these problems?

Econ 354

Exam on Order Without Law by Robert Ellickson

Greg Dow November 8, 2007

Please answer all of the questions.

1. Consider the following payoff matrix.

		Rancher: Build	Rancher: Don't
Farmer	Build	$10 - c_F + t$, $20 - c_R - t$	$10 - c_F + t$, $20 - t$
	Don't	10, $20 - c_R$	$10 - d$, 20

The cost to the farmer of building a fence is c_F and the cost to the rancher is c_R. If neither builds a fence, the rancher's cattle cause damage d to the farmer where $0 < c_F < c_R < d$. The rancher can pay $t \geq 0$ to the farmer if the farmer builds a fence.

(a) Suppose the law says that the rancher must compensate the farmer for the damage d, if it occurs. According to the Coase theorem, will a fence be built? If so, who will build it? What values of t could occur? Explain your answer using a graph.

(b) Suppose now that the law is irrelevant and the rancher does not have to compensate the farmer for the damage d. However, the rancher can still provide a voluntary gift worth t to the farmer if the farmer builds a fence. Assume social norms maximize aggregate welfare. Will a fence be built? If so, who builds it? What values of t could occur? Explain using a graph. If your answer differs from part (a), say why.

2. In Part II of the book, Ellickson discusses a strategy called "Even-Up".

(a) Describe the main features of this strategy. Then explain how "Even-Up" differs from (i) "Tit for Tat" (TFT) and (ii) a trigger strategy. What advantages could "Even-Up" have in the real world in comparison to these alternatives?

(b) Do you think "Even-Up" is a good description of the norms about cattle trespass and fence building in Shasta County? Why or why not? Next, choose one of the case studies from Part II or III of the book, describe the basic facts of the situation, and say whether you think "Even-Up" is a good description of the relevant norms. Carefully justify your answers.

3. Choose a situation you have personally observed that involved (i) a close-knit group (ii) engaged in workaday affairs where (iii) norms helped guide individual behavior.

(a) Describe the situation and carefully explain why (i), (ii), and (iii) were true. Give as much detail as possible about the content of the norms, and say how you know.

(b) Do you think the norms were followed mainly due to feelings of duty, morality, etc., or because people believed it was in their self-interest to obey the norms? Do you think the norms maximized aggregate welfare, at least approximately? If you wanted to test this hypothesis, how would you do it? What difficulties might arise if you actually tried to carry out such a test? Carefully justify your answers.

Econ 383

Exam on Order Without Law by Robert Ellickson

Greg Dow November 12, 2003

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

1. The Coase Theorem says that if transaction costs are zero, rules about legal liability have no effect on the allocation of resources.

(a) Some people think that to solve problems involving animal trespass, ranchers must be legally liable for the damage done by their animals. Why would Coase disagree? Give a detailed explanation, using a graph if possible.

(b) A brief summary of Ellickson's view is that "Coase is right for the wrong reasons." Evaluate this statement. In your answer, be sure to comment on any evidence from Shasta County that supports Coase's theory and any evidence that conflicts with it.

2. Consider a food collection game where payoffs are measured in calories consumed.

		2	
		hunt	gather
1	hunt	3,3	4,2
	gather	2,5	2,1

(a) Does player 1 have a dominant strategy? Does player 2? If the game is only played once and there is no compensation from one player to another, what outcome would you predict? Is this outcome Pareto efficient? Explain.

(b) Draw a graph with the payoff of player 1 on the horizontal axis and the payoff to player 2 on the vertical axis. Show each of the four points from the payoff matrix. Now suppose either player can give food to the other, and draw lines indicating the feasible payoffs. In order to maximize total welfare, what strategies would have to be chosen, who would have to offer a gift, and how large does the gift have to be?

3. Some SFU professors keep library books in their offices longer than necessary. This is inconvenient for other professors who want the same books. All

professors would be better off if everyone returned books immediately, but unfortunately it is a dominant strategy for each individual professor to keep books too long.

(a) Does this situation involve a close-knit group and workaday affairs? If you aren't sure, discuss how you could try to find out. Do you think efficient norms about returning library books would tend to evolve over time? Why or why not?

(b) Pick a case study from the later chapters of the book (not Shasta County). In what ways is this case similar to the problem involving library books? In what ways is it different? To which case is Ellickson's hypothesis more likely to apply? Explain.

Econ 383

Exam on Order Without Law by Robert Ellickson

Greg Dow November 14, 2001

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

1. Ellickson mentions the Coase Theorem several times in his book.

(a) State the Coase Theorem and say what it means. Then use a graph to show why it is true. Carefully explain your reasoning. What are the major assumptions needed for the theorem to be valid? What would happen if the assumptions did not apply?

(b) Does Ellickson believe that the Coase Theorem gives correct predictions about the behavior of people in Shasta County? Apart from the accuracy of its predictions, does Ellickson believe that the Coase Theorem gives a correct explanation for the behavior of these people? Use evidence from the book to justify your answers.

2. In Part II of the book, Ellickson discusses a strategy called "Even-Up".

(a) Describe the kinds of games in which this strategy might be used, and say how the strategy operates. Use a payoff table or matrix to explain your answer. What are the main advantages and disadvantages of Even-Up? Why does Ellickson believe it would commonly be used for workaday affairs in closely knit communities?

(b) Ellickson claims that this strategy (or something similar to it) was used to deal with conflicts in Shasta County. Evaluate this claim. What evidence supports this view? Is there any evidence from Shasta County suggesting that at least some people were not using this strategy? How do you think Ellickson might account for evidence of the latter kind? Overall, do you think Even-Up offers a satisfactory description of the norms Ellickson found in Shasta County? Explain.

3. Choose one of the case studies from Part II or III of the book (not the Shasta case).

(a) Briefly describe the basic facts of the situation. What is the physical environment, who are the people involved, what are they trying to do, how do they interact with one another, and what are the main social norms that have developed among them?

(b) Do people obey the norms in part (a) primarily due to feelings of duty, obligation, guilt, shame, or similar emotions? That is, do they follow the norms as a result of self-control? Or do they obey the norms due to self-interest, because they rationally expect that anyone who violates the norms will be punished? Justify your answer.

(c) Often it can be costly to discover whether someone has violated a social norm, or to impose a punishment on them if they have (this may require time, effort, money, or other resources). A free rider problem can therefore arise where each member of the community leaves it to others to look for violations, or waits for someone else to impose a punishment when a violation occurs. Explain how the people in part (a) handled this problem, and comment on their success or failure in dealing with it.

Econ 387

Exam on Order Without Law by Robert Ellickson

Greg Dow November 9, 1999

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

1. A key idea from Part I of the book is the difference between open and closed range.

(a) Briefly describe the legal differences between open and closed range.

(b) Ellickson says these legal differences were not very important for people's behavior in Shasta County. What evidence does he give to support this view?

(c) Despite the evidence from part (b), some ranchers fought strongly to prevent open-range land from becoming closed. Ellickson says that this happened in part because the ranchers had false beliefs about certain things. What were these beliefs?

(d) Ellickson says that close-knit groups evolve welfare-maximizing norms to organize their workaday affairs. But (i) the ranchers were a close-knit group; (ii) opposing range closures seemed to be an important norm for this group; and (iii) if Ellickson is correct about their false beliefs, the ranchers were persistently acting contrary to their own workaday interests by spending time and effort fighting against policies that actually had no effect on them. So it could be said that the Shasta County case provides evidence against Ellickson's hypothesis. Discuss.

2. In explaining the Coase Theorem and again for Ellickson's hypothesis I mentioned that payoffs or utility units could be transferred from one person to another through compensation of various kinds (by means of dollars, time, or gifts, for example).

(a) Why are such compensation payments important for the Coase Theorem? Would Coase's conclusions differ if such payments were impossible? Explain.

(b) Why are such compensation payments important for Ellickson's hypothesis about welfare-maximizing norms? Would Ellickson's conclusions differ if such payments were impossible? Explain.

3. Choose one of the case studies from Part II or III of the book (not the Shasta case from Part I).

(a) Briefly describe the basic facts of the situation. What is the physical environment, who are the people involved, what are they trying to do, how do they interact with one another, and what are the main social norms that have developed among them?

(b) In what ways, if any, does the evidence from this specific case support Ellickson's view that close-knit groups develop welfare-maximizing norms to govern workaday affairs? In what ways, if any, does the evidence conflict with this view? Are there reasonable alternative explanations for the behavior of the people involved? Overall, would you say that this case provides strong support for RE's hypothesis? Weak support? Or no support? Carefully justify your answer.

Econ 387

Exam on Order without Law by Robert Ellickson

Greg Dow November 12, 1998

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

1. Ellickson devotes Part I of his book to a description of some social norms found in Shasta County. In Part II he develops a general hypothesis based on this research.

(a) What are the principal norms in Shasta County dealing with trespassing by cattle? What are the principal norms about building and maintaining fences? In each case you should briefly describe both the 'substantive' and 'remedial' norms.

(b) The hypothesis Ellickson developed in Part II of the book can be summarized as follows: "close-knit groups will develop welfare-maximizing norms to govern their workaday affairs". Explain why he believes the norms from part (a) are consistent with this hypothesis.

2. Coase and Ellickson agree that under certain conditions, resources will be allocated efficiently. However, they disagree about the process through which this occurs.

(a) Why does Coase think that resource allocation decisions will be efficient? What are the main reasons why this might not happen, according to Coase?

(b) Why does Ellickson think that resource allocation decisions will be efficient? What are the main reasons why this might not happen, according to Ellickson?

3. The Ostrom book gives several examples where people have successfully devised institutions to manage common pool resources. But she also provides examples of failures, where institutions of this kind did not develop and natural resources were seriously overused or destroyed.

Do these failures contradict Ellickson's hypothesis? Explain why someone who is skeptical about Ellickson's approach might view these cases as evidence against his hypothesis. Then say how a supporter of the Ellickson hypothesis would respond to examples of this kind. Which view do you find more persuasive? Why?