



Stockholm  
University

Department of Economics

**Course name:** Law & Economics I  
**Course code:** EC 2105  
**Type of exam:** Retake exam  
**Examiner:** Lars Vahtrik  
**Number of credits:** 7,5 credits  
**Date of exam:** Sunday 10 April 2016  
**Examination time:** 3 hours (9:00-12:00)

**Write your identification number on each paper and cover sheet (the number stated in the upper right hand corner on your exam cover).**

**Use one cover sheet per question.** Explain notions/concepts and symbols. If you think that a question is vaguely formulated, specify the conditions used for solving it. Only legible exams will be marked. Question 4 is a credit question. If you have handed in assignments during the course you may choose to answer this question anyway if you aim at a higher score. Note that in this case the score on the exam will be counted regardless of your score on the assignments!

**No aids are allowed.**

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The exam consists of 4 questions. Each question is worth 25 points, 100 points in total. For the grade E 45 points are required, for D 50 points, C 60 points, B 75 points and A 90 points.

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Your results will be made available on your "My Studies" account ([www.mitt.su.se](http://www.mitt.su.se)) on Thursday 28 April at the latest.

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**Good luck!**

### Question 1

Consider the company BIKES that is one of several companies on a perfectly competitive market where bikes are produced. The production of bikes imposes external cost on the city where the factory is situated. BIKES does not take into consideration the externality in the production, thus the resulting production is inefficiently high. Assume that there are two production technologies that BIKES can choose between; one is old and gives rise to high externalities and the other is new and gives rise to lower external costs. When using the old technology BIKES profit is \$1,000 per year. If the new technology is used the profit the first year is \$500 since there is a cost involved with installing the new technology. After the first year the yearly profit is \$1,100.

- a) Draw a graph where you indicate the marginal private costs line (MPC) and the two marginal social cost lines (MSC) representing the two technologies. Draw the price line and indicate the quantity produced if BIKES maximize profit and does not internalize the external cost. (5p)
- b) Assume that the city goes to court to have damages awarded in order to make BIKES internalize the externality. The court can either award temporary or permanent damages. The court has calculated the value of past and future damage to be \$4,000. Recall that permanent damages are a lump-sum payment, no further payment is necessary. The temporary damages will amount to \$1,000 if the old technology is used and \$800 if the new technology is used. Consider the hypothetical situation where the city, if temporary damages are awarded, will sue for additional temporary damages every year in four years (in total five years). What will BIKES total payoff for the five years (profit - damages) be, assuming that
- i) permanent damages are awarded
  - ii) temporary damages are awarded,
- under the two technologies? In this specific case, should the court award temporary or permanent damages if the aim is to create incentives for adopting the new technology? Why? (10p)
- c) Discuss problems and benefits with both temporary and permanent damages. What types of costs do they impose? Discuss in what situations the two types of damages are efficient? (5p)
- d) If the externality imposed by BIKES was private instead of public, what type of remedy would be the most efficient? Why? (5p)

## Question 2

An investor can invest in high reliance or low reliance upon the agent's future performance. The extra investment in high reliance is made outside the contractual agreement with the agent. The payoffs for the investor and the agent with no enforceable contract are given by

		Agent	
		Perform	Breach
Investor	Invest & low reliance	1 1	-2 2
	Invest & high reliance	1.5 1	-4 2

The agent can appropriate the original investment but not the additional investment. As shown in the matrix, the additional investment in high reliance costs 2, which amounts to a total investment of 4. Calculate and explain the meaning of the "tipping point" or critical value of  $p$  (the probability that the agent performs). Show and explain why and when a contract with simple (or naïve) expectation damages may cause an inefficient outcome. Discuss this issue both regarding the investor's incentive to invest and the agent's incentive to perform. Suggest a solution to the problem and show that your solution guarantees an efficient outcome of the contract. **(25p)**

## Question 3

- a) A thief (B) has stolen a jacket from a student (A). B later sells the jacket to a person (C) who has no knowledge of that it is stolen. A later sees C wearing his jacket and calls the police who arrests C. C explains that he has bought the jacket from B and even shows a receipt, although B's name is false. Please discuss from an economic perspective whether the law should protect A or C in the current situation. **(10p)**
- b) One of the consequences for A when the jacket was stolen was that A had a USB-stick with the latest version of A's essay on it in one of the pockets. A had a back-up copy, but it still was many hours of work that disappeared when the jacket was stolen and A had to rewrite large parts of the essay. A also got a cold from being forced to wear A's spring jacket instead of a warm winter jacket in January. When B finally was tracked down and brought to court to be punished for the theft, A also sued for damages. Please discuss whether B should be liable to pay any damages to A for the injuries A suffered. **(10 p)**
- c) A asks the lawyer for a fee estimate for handling the dispute with B. The lawyer asks if A wants to pay an hourly fee, fixed fee or a contingency fee. Discuss the pros and cons with the different fee structures. **(5p)**

**on 4 (Credit Question)**

The vaccine manufacturer ACME (A) pollutes a nearby commercial greenhouse TOMATOES (T). A could eliminate their pollution by installing special scrubbers (cleaning equipment) at a cost of 300. Similarly, T can eliminate pollution by installing filters on its ventilation system at a cost of 100. A's profit without scrubbers is 1000. T's profit is 500 with no pollution (and not installing filters), and 100 with pollution (no filters or scrubbers). Hence, in the absence of filters and scrubbers A's pollution reduces T's profits by 400.

- a) The situation is illustrated in the payoff matrix below. A and T simultaneously choose between installing scrubbers or not and between installing filters or not respectively. Suppose A has the right to pollute and assume that high transaction costs precludes a cooperative solution. What is the non-cooperative equilibrium? Indicate the solution in the payoff matrix. Is it efficient? Explain! (A's payoffs is the first in each cell) **(5p)**

		TOMATOES (T)	
		No filter	Filter
ACME	No Scrubbers	1000, 100	1000, 400
	Scrubbers	700, 500	700, 400

- b) Suppose a court entitles T compensatory damages from A if A pollutes without installing scrubbers (A only has to pay damages if A does not install scrubbers and T does not install filters). Redraw the above payoff matrix and find the new noncooperative equilibrium. Compare the efficiency of this equilibrium to that under a). If it is different, explain why and what this implies for efficiency. **(10p)**
- c) Let us now assume that transaction costs are low and that A and T can cooperate. Find the cooperative solutions for the cases where
- A has the right to pollute,
  - T has the right to compensatory damages (as in b)). How does efficiency differ between i) and ii) (if at all)? How does the distribution of payoffs between A and T differ between cases i) and ii) (if at all)? Explain your results and relate them to the Coase theorem. **(10p)**