

**EC337 – Economic Analysis of Legal Issues  
Spring 2013, Boston University**

Instructor: Jeremy Smith

**First Mid-term Practice Test**

Monday, February 11, 2013

This is a 38-minute test. There is a total of 38 points allocated across two questions. Use the number of points allocated to each part as a suggestion for how long to spend on that part. I recommend that you attempt all parts before using more time than is suggested for any one part. If you complete some parts in less than the suggested time, use your extra time to revisit parts you may have had trouble with the first time through and to check your work.

Please read the questions carefully and write your answers in the blue booklets provided. Please follow my instructions at all times.

You only need to identify yourself with your BU ID on the blue booklets. You may keep this question sheet when the exam is over.

1. [24 points total, 7 parts] Consider a large factory with profits of \$1000 per year that emits smoke as a by-product of its operations. It is located outside a small town made up of just five households. The smoke from the factory does damage worth \$80 per year to *each* household. The factory can eliminate all damage caused by its smoke to every household by purchasing a smokestack screen for \$200 per year. Alternatively, each household could avoid the damage it individually faces by purchasing an air filter for \$50 per year. (Assume that the number of households in the town will never grow or shrink.)

a) [2 points] Which party is causing the externality? Explain.

b) [3 points] What is the efficient outcome? Why?

Suppose that the townspeople sue the factory. Assume for now that there are no transaction costs whatsoever.

c) [4 points] Will efficiency be achieved if the court issues an injunction against the factory? Explain.

d) [4 points] Will efficiency be achieved if, instead, the court asserts the right of the factory to emit as much smoke as it wants to without any liability? Explain.

Now assume that a transaction cost exists of the following specific form: before the townspeople can make any collective decision, they must pay \$100 to organize a town hall meeting.

e) [4 points] Now will efficiency be achieved if the court issues an injunction against the factory? Explain.

f) [4 points] Now will efficiency be achieved if, instead, the court asserts the right of the factory to emit as much smoke as it wants to without any liability? Explain.

g) [3 points] Briefly discuss the following statement: “This example proves that following the ‘polluter pays’ principle will always lead to the efficient outcome being achieved.”

2. [14 points total, 4 parts] Consider a dairy farmer and a grain farmer with adjoining properties. The dairy farmer has a single cow and earns \$200 per year from selling the milk. The grain farmer earns \$100 per year from selling crops. The dairy farmer's cow does \$60 of damage per year to the grain farmer's crops. Either farmer could build and maintain a fence between the properties that would prevent the cow from doing any crop damage for \$80 per year.

a) [2 points] What is the efficient outcome? Why?

Suppose that the grain farmer sues the dairy farmer. Assume that there are no transaction costs.

b) [4 points] Will efficiency be achieved if the court asserts the right of the dairy farmer to let his cow roam without any liability? Explain.

c) [4 points] Will efficiency be achieved if, instead, the court finds the dairy farmer liable and orders him to fully compensate for all damage his cow does to the grain farmer? Explain.

d) [4 points] Will efficiency be achieved if, instead, the court finds the dairy farmer liable and orders him to pay *twice* the damage his cow does to the grain farmer? Explain.