

MICROECONOMICS 3

PROBLEMS #9

LAW & ECONOMICS

Problem #1

Peter has a job (a legal one), where he earns 50,000 zloty per year. He can also engage in stealing cars. A fence (i.e. stolen goods receiver) will pay 30,000 zloty for a typical car, the probability of getting caught red-handed is 10% and Peter will then face a 50% chance of being convicted for 5 years imprisonment. Assuming that Peter cares only about the non-discounted value of his future income stream, is it rational for him to attempt to steal?

Problem #2

In the standard economic model of crime and punishment, how does the willingness to commit crimes depend on:

- a) attitude towards risk,
- b) the discount rate,
- c) how easily accessible sources of legal money-making are?

Problem #3

The population of potential criminals is characterized by a diverse threshold expected number of years of imprisonment that would induce them to restrain from committing a crime. It has a uniform distribution on the interval $[0, y^{\max}]$, where y^{\max} is the maximum imprisonment period (in years) admitted by the constitution. E.g. if $y^{\max} = 25$, the criminal is caught and convicted for 15 years of imprisonment in one out of five cases, the expected value of punishment will be $15/5 = 3$ years, therefore $3/25$ of the population of potential criminals will decide to substitute criminal activity by cultivation of the garden. The probability of catching (and convicting) a criminal depends on expenses on police forces per potential criminal x and is given by a convex function $p(x)$. Every year of imprisonment costs the society w and the costs of crime (regardless of whether the criminal is caught) are denoted by c . Provide the social cost function depending on the duration of the punishment y and expenses on police x . Find the optimum x for the case when prisons are maintained from the profits from selling Christmas decorations created by prisoners during their therapy sessions ($w=0$).

Problem #4

A ferry moored to a dock may break loose and wreck nearby boats causing damage of an average value of 100,000 zloty. The probability that a ferry breaks loose is given by e^{-x} , where x is the mooring line diameter (thickness) in cm. The price of the mooring line is 1,000 zloty multiplied by its diameter. What is the socially optimal diameter of the mooring line, below which the owner of the ferry is deemed negligent and liable for the damage caused by the vessel?

Problem #5

In many countries advertising tobacco products is forbidden or subject to restrictions. Some producers argue that these restrictions are ineffective (per se they do not decrease demand) and, therefore, pointless.

- a) If these arguments of the producers are accurate, why do tobacco firms decide to advertise in the first place?

- b) Taking into account the answer to point a), which producers will be lobbying most intensively against advertisement restrictions?
- c) Taking into account the answers to points a) and b), what mechanism can cause that advertisement restrictions influence total consumption, even if watching advertisements indeed does not make anyone use tobacco products (or smoke more than previously)?