Homework 2

due September 25, 2018

Industrial Economics
ICEF, HSE & UoL
Kosmas Marinakis, Ph.D.
www.kmarinakis.org/ie
https://t.me/icef_industrial

Homework must be on the instructor's desk at K9 by 15:10 sharp. Submissions at any other time or manner will be ignored. Any paper which does not resemble work by a student of a world-class institution (not in A4 sheets, not clean, illegible, unnamed, unstapled, unlabeled tasks, final results not in boxes etc.) will be penalized with up to 50 points at the discretion of the grader. Do not submit your work in plastic covers. Copying in homework will be penalized with a 0 in that assignment and an additional penalty of 10 points in the course homework average. Students who give their homework away for others to copy from will be penalized with 0 in that assignment and a penalty of 30 points in their course homework average. Repeated offenders will be terminated from the course.

1. Consider the following model of a vertical relationship between a buyer and a seller. There are two periods and the two parties can trade one unit of an indivisible good in period 2. Let $v > 0$ denote the value of the good to the buyer, $c > 0$ the production cost, and p the trading price.
   (a) The manufacturing of the good requires an investment of $F > 0$ by the seller in period 1. Assume that v, c and F are commonly known. Does $v > c + F$ ensure that the trade in period 2 takes place? [10p]
   (b) Assume that the seller can invest $I \geq 0$ in period 1 (in addition to F) to enhance the quality of the product to the buyer. Specifically, let $vI = 11\,lnI + 1 + 1$. The level of I cannot be specified in a contract because it is not verifiable and therefore such a contract would not be enforceable in court.
      i. What is the efficient level of investment as a function of $(c + F)$? [20p]
      ii. What is the level of investment chosen by the seller if the ex post surplus is to be divided in proportion b: s between the buyer and the seller? Hint: set $\frac{Buyer's\ ex\ post\ surplus}{Seller's\ ex\ post\ surplus} = \frac{b}{s}$ to solve for the trading price. [30p]
      iii. Is higher b or higher s better from efficiency perspective? [10p]

2. Alice owns a restaurant and needs to hire a new waiter. Bob is considering working for Alice. Currently, Bob is working in a job where he can make £20,000 a year without exerting any effort. Alice offers to pay Bob a base salary of £16,000 a year plus tips (which are £10 per table served) if Bob serves at least 1,000 tables over the year. If Bob serves less than 1,000 tables, Alice can see this and she will pay him no base salary. Of course, Bob can still keep his tips. Bob's cost of effort is $Ct = t^2/200$, where t is the number of tables served. Show that Bob will accept this contract and serve exactly 1,000 tables. [30p]

Good afternoon!
Work on the homework by yourself. Some parts of the homework will be easy but others will be challenging. Homework counts for just 15% of your score. If you copy it from someone, you will get 0.1-0.2 more course points (if you are not caught). If YOU solve it by yourself you will get 10 – 20 points more because you will kill in the tests!

BTW here is how a loser thinks: *"I will copy the homework now to receive the grade and I will learn the solution before the test"*. Apart from risking to be caught (and get in deep trouble), this method will never work. Homework is not meant to be read, it is meant to make your brain work and exercise on economic thinking. That is why it is called homeWORK!! Reading problems you have not solved is like watching the marathon on TV and then expect to be able to run the 42 km yourself. Do not be an loser.

Success involves work. Skipping the work, will never make you successful.

Kosmas

Estimated completion time: 90 min
Difficulty level (normalized to UoL standards): 1.4/5 2.5/5
Direct your homework questions to Valeriya Popova