

1. Discussion of Problem Set #2

2. Moral Hazard and Summer RAship

Claudio won an ERC grant and decides to hire Aleksandr as a research assistant. Aleksandr has a vNM utility $\ln w - (the cost of effort)$ where w is the wage. Aleksandr's reservation utility is 1. Claudio can make a take-it-or-leave-it offer.

Once they sign a contract, Aleksandr chooses his effort level, Low or High. The low effort is costless while the high effort costs 1. The effort level is not verifiable (so the wage cannot be contingent on it) but the outcome of the project (Good or Bad) is verifiable. The probabilities of the good outcome are $2/3$ (the high effort level) and $1/3$ (the low effort level). Let w_G and w_B be the wage payments when the outcome is good and bad, respectively.

Throughout this question, Claudio's objective function is to minimize the expected wage payment subject to the constraint that he needs to induce Aleksandr to choose the high effort.

- (a) What constraints must w_G and w_L satisfy?
- (b) Which of the constraints are binding? Provide a brief explanation why each of them is binding or not.
- (c) Derive the optimal contract.
- (d) Concetta points out that Aleksandr needs to be paid at least $e(\approx 2.718)$ regardless of the outcome, according to the new EIEF guidelines. Derive the optimal contract. In doing so, determine which constraints are binding or not with brief explanations.