

7. A firm emits $M > 0$ tons of pollutants. The benefit function of the firm (in \$) is $B(M) = 30M - M^2$. The damage from pollutants to society (in \$) is $D(M) = 0.5M^2$.
- Assume that the firm maximizes its (private) profit without considering social costs. How many tons of M does it emit?
 - What is the socially optimal level of M , i.e., considering both private and social benefits and costs.
 - What tax rate (\$/ton) should the government use to attain this level of emissions.
 - What are the private and social net benefits before and after the tax?
 - How much tax revenue does the regulator collect?
8. You are using an Excel spreadsheet to decide how to allocate your time and money. You're thinking of going to graduate school for three years at a cost of EUR 5,000 per year in cash plus EUR 15,000 per year of foregone net earnings. If you do so, you will increase your earnings (net of taxes) by EUR 15,000 per year for the five years after graduation.
- Assuming a discount rate of 5 percent, should you go to graduate school? Show your numbers. (NB: All spending/earning starts NEXT year, but calculate values in today's money.)
 - Now you have a talk with your friend, who tells you that school is really much more fun than work. This talk leads you to assign an additional EUR 5,000 in value to your school years. His talk also makes you reconsider your job ideal of a high-paying job after graduation (money isn't everything!), so you are looking at making only EUR 5,000 per year of extra money. Should you go to graduate school? Show your numbers.
 - After completing this tedious but rewarding calculation, you are approached by a consulting firm that wants you to write a report on the impact of climate change on education. They are worried that some impatient students will see climate change as an end of the world scenario and drop out of school to party. Is the discount rate of those students higher or lower than yours? Explain your choice.
 - The consultants also want you to interpret a report saying that only the best prepared people, governments and countries will survive the turmoil of climate change. Does that imply a discount rate that's higher or lower than yours? If the Dutch government wants to move people towards that discount rate, then what are TWO ideas that it can use to promote that sort of long term thinking? (This is an open ended question.)