

GROUP EXERCISE

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The purpose of this project is to illustrate the need to consider *simultaneously* the issues of efficiency and distribution in real policy making. The exercise builds on Sterner and Coria, (2012) Policy instruments for environmental and natural resource management. Particularly relevant are chapters 4 - 15 and the corresponding lectures. This exercise is designed help you grasp more clearly the concepts and operating mode of the various policy instruments described in the course.

The exercise is framed as concerning the paper industry in Germany (but could of course apply to any similar large scale somewhat oligopolistic industry). The German government has decided to try to cut emissions from the paper industry for a long time and is now losing its patience. Emissions of biological waste are destroying rivers with drinking water and fish and creating an unbearable stench for those who live along the rivers. Total emissions are almost 400 ton/year and their goal is to cut emissions by 250 and they believe this can be done through a tax of \$40 per ton. However they know that taxes can lead to resistance from industry so they have called together a panel of experts from various companies. Most of you are the board members of ten companies A to J (see appendix for some basic data). The task of each group is to write a memo (or lobby if you like) and present this to the EPA (and there will also be representatives for the government, environmental NGOs etc). You realize this is a serious problem and that cleanup will be required. The government is fully decided to act—however it seems that they have not yet decided which instrument to use: Thus you might be able to influence that particular decision! The purpose of the exercise is for you to consider the pros and cons for your own company of the various types of instrument that the regulator could select.

Consider particularly the following instruments:

- Equal abatement of 25 tons each
- Equal % reductions
- Regulation with BACT (Best Available Control Technology) e/q below 0,0536
- Tax of 40 for each ton of emission
- Auctioned permits
- REP (refundable emission payments of 40/ton refunded in proportion to current output).
- Permit trading “grandfathered” with respect to historic output or emissions (based on the year 2000 or 2015).
- Voluntary Agreements.
- "Norwegian" REP- reference in proportion to abatement costs (Fee of 25 and refund of 70%)
- Maybe other instruments.

Please assume that due to the current world conditions there will be hardly any economic growth at all in the next couple of years and thus we are making calculations for some years during which the demand for paper and other relevant conditions are expected to be the same as now. Calculate first total costs of abatement with equal allocation and with market allocation. Next calculate the costs for your and for other companies of each instrument. You might think you know your own firm data more accurately and have just a somewhat less certain estimate of the parameters for your competitors. You might also think you need more

data. You may make the assumptions necessary as long as you state them clearly. Each paper company has its history, its special circumstances in term of ownership, ties to the state, labor relations, and product specialization. These things are very important when lobbying but this is left to your imagination. The video lectures also found in the Environmental Economics topic section will give more background to this exercise as they will present the different policy instruments. Each group is expected to send in a report and present in a “debate” session. Present the analysis for each firm as a basis for your recommendations: You are expected to recommend clearly an instrument you prefer and some instruments you can accept and some you cannot accept. You must carry out a brief presentation of your position in a clear and convincing way to the minister.

THE REPORT

The report should include both the calculations and a statement of what instrument you prefer and why. It should be no longer than 10 pages (single space, Times New Roman 12).

Minimum structure of the report

Analysis of the environmental issue and its costs for business. Focus particularly on the relative costs to different firms and thus the effect on competitiveness.

Discussion of your criteria for selecting an instrument. Suggested policy instrument and motivation. Suggest also your second or third preference and the instruments that must be avoided.

Discuss your lobbying strategy: How are you going to get the environmental ministry to agree to your viewpoint? Do not write as if this were an exam. Write as you would if you were in a real job in a real company.

DEBATE SESSION

Presentations should be 7-8 minutes each. Please prepare a (first) part of your presentation on the actual calculations, but be prepared to drop this part since normally only the first presentation (which will be drawn randomly) actually needs to explain the calculations. After that, every group will be asked to explain their choice of policy instruments, basing their analysis on their calculations but without going into all the details of the excel calculations, unless they disagree or feel that they particularly need to present some special point. - Within each group, you are free to choose how you want to present the results. Try to make this professional and also somewhat entertaining so that we have a nice and interesting session together. If you chose to send only one representative to present, the other members should still be able to answer questions regarding the calculations and participate in the discussion. Please notice that there will be a maximum of 10 minutes per group including the time it takes to change from one group to the next, upload files etc. - Most of the credits for this exercise will be allocated on the basis of group achievements. Thus normally all the members in each group get the same number of points. However some extra points may be granted to those

who participate with special insight and skill in the exercise. If your group has members who have not participated enough, or who have played a very crucial role, you are free to contact me about this on their behalf.

BASIC DATA

Groups A-J have a paper company each as described (very briefly) below. Note that the interpretation of the parameters is that $MC = c + d \cdot a$. For instance, the marginal cost of Christchurch Paper Ltd is $MC = 10 + 3a$.

| Firm | Year | Emissions | Output | MC-c | Mc-d |
|----------------------------------------|-------------|------------------|---------------|-------------|-------------|
| ABB paper Delhi | 2000 | 55 | 323 | | |
| | 2015 | 47 | 520 | 15 | 1 |
| BABCOX paper and pulp Delhi | 2000 | 123 | 421 | | |
| | 2015 | 50 | 312 | 10 | 1,2 |
| Christchurch Paper Ltd Delhi | 2000 | 29 | 465 | | |
| | 2015 | 30 | 156 | 10 | 3 |
| DRESDNER paper Delhi | 2000 | 43 | 82 | | |
| | 2015 | 37 | 96 | -10 | 2 |
| ENRON paper Calcutta | 2000 | 65 | 323 | | |
| | 2015 | 60 | 356 | 0 | 0,9 |
| Faraday Co Ltd Calcutta | 2000 | 80 | 821 | | |
| | 2015 | 76 | 760 | 0 | 4 |
| Granada Calcutta | 2000 | 80 | 410 | | |
| | 2015 | 50 | 380 | 0 | 0,85 |
| Hapsburg Calcutta | 2000 | 40 | 200 | | |
| | 2015 | 74 | 195 | 0 | 0,9 |
| Illias Calcutta | 2000 | 95 | 300 | | |
| | 2015 | 25 | 300 | 0 | 4,42 |
| Java Calcutta | 2000 | 90 | 840 | | |
| | 2015 | 12 | 190 | 0 | 4 |
| Sums | 2000 | 650 | 3265 | | |
| | 2015 | 700 | 4085 | | |