

## Lecture 13: Externalities, institutions and optimality (2) - Moving liability, moving victims or moving polluters

- Purpose
  - ▶ demonstrate the policy implications of TC and rights (Coase vs. Pigou)
  - ▶ show the importance and unimportance of the rights structure under differing assumptions about state intervention

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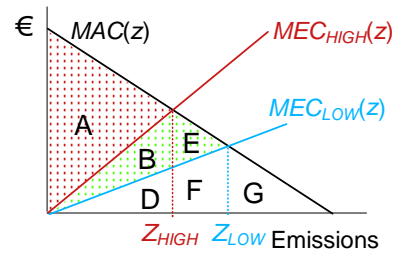
## Outline

- Extensions of Coase
  - ▶ moving the polluters or moving the victims
- The need for state intervention
  - ▶ increased "degrees of freedom" state intervention?
  - ▶ moving liability
- Regulating where overall costs are the lowest
- Coase vs. Pigou
  - ▶ tradable emission permits vs. emission taxes
  - ▶ modifications of the "naive understanding" of TC and rights
  - ▶ polluters pay principle

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## Moving polluters (1)

- Case 1: Moving the polluters to areas with less damage
  - allows for higher pollution levels
  - cost savings: B+E

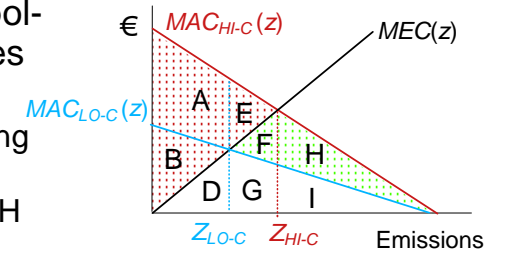


Area	Env.costs	Cleaning costs	Total costs
High damage	B+D	E+F+G	B+D+E+F+G
Low damage	D+F	G	D+F+G
Low - High	B-F	E+F	B+E

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## ... moving polluters (2)

- Case 2: Moving polluters to economies with lower MACs
  - allows for cleaning more
  - cost savings: F+H



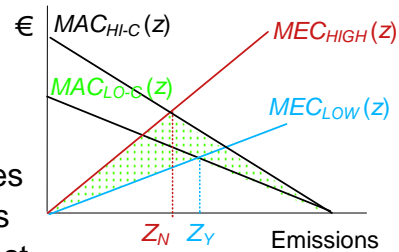
Area	Env.costs	Cleaning costs	Total costs
High cost	D+F+G	H+I	D+F+G+H+I
Low cost	D	G+I	D+G+I
High - Low	F+G	H-G	F+H

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### ... moving polluters (3)

- Case 3: Moving the polluters to economies with low costs and low damages

- ▶  $Z_N$ : high costs - damages
- ▶  $Z_Y$ : low costs - damages
- ▶ produces even larger cost savings (= welfare gains)
- ▶ relative slopes of MACs and MECs determine if  $Z_N > Z_Y$  or  $Z_N < Z_Y$
- ▶ area characteristics and state of the economy (institutions / governance) matter



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### Moving victims (1)

- Suppose the costs of moving the victims is far less than the costs of reducing emissions or moving polluters
  - ▶ provided victims get full compensation is this a problem?
  - ▶ under 1st. welfare theorem, it is not
- Coase (1960) extends this argument
  - ▶ we should tax those with the lowest welfare losses from adjusting towards the optimum  
⇒ assign rights to those with the highest welfare losses

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## ... moving victims (2)

- Coase (continued)
  - ▶ if we fail to make the party with the least welfare losses (costs) adjust, the party with the highest costs may seek "private solution" (bribing the low cost victim to move)
  - ▶ problem: such "bribes" may make more victims move in to collect payments
  - ▶ beware of entry-exit impacts
- Moving victims have some other problems
  - ▶ breaks with our notions of fairness
  - ▶ problematic vis-a-vis developing countries

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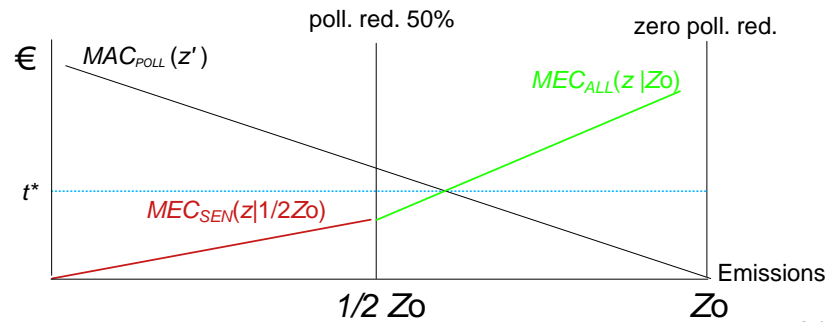
## ... moving victims (3)

- Fairness issues
  - ▶ compensation - full or partial
    - moral hazard when full compensation?
    - non-acceptance if partial compensation?
  - ▶ voluntary exchange
- Problematic vis-a-vis developing countries
  - ▶ poor countries may accept short term beneficial deals ... that inhibit development in the long run
  - ▶ explanation: poor people (and countries?) have higher discount rates/shorter time horizons than those more rich

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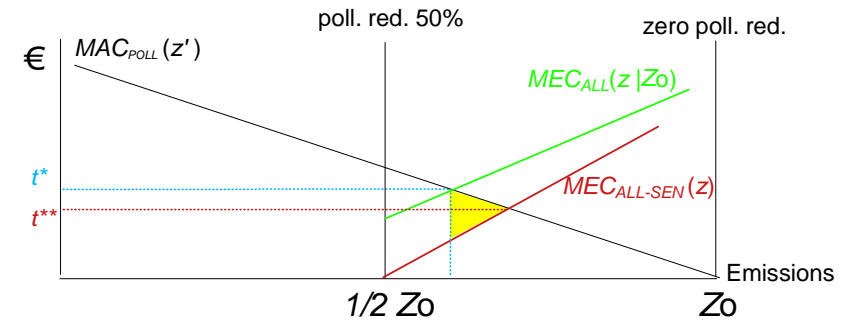
## Polluters and victims (1)

- Assume victims have heterogenous sensitivity to emissions (at 1/2 initial emissions some have no problem with emissions)
- What to do with the most sensitive?



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## ... polluters and victims (2)



- Alternative to polluters reduce emissions
  - ▶ sensitive victims undertake averting behavior  $\Rightarrow$  only "insensitive" victims make up  $MEC_{ALL-SEN}(z)$
  - ▶ room for compensation = shaded area

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### ... polluters and victims (3)

- Appropriate policies  $\Rightarrow$  polluters reduce emissions until  $MEC(z^*) = MAC(z^*)$  - the "aggregate" optimal emission level
  - ▶ for most victims this emission level sufficiently low (= no major discomfort or disutility)
- (Sensitive) victims that still have discomfort that exceed their own  $MAC(z|z^*)$  choose low cost adjustment/adaptation (install smoke filters, move to another location, etc.?)
  - ▶ remaining problem: distribution may not be fair
  - ▶ solution: lump sum compensation to victims

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### Coase vs. Pigou (1)

- The Coasian position
  - ▶ under no TC go to bargaining
  - ▶ with TC, be careful letting government in as it cannot fully know the public's preferences
    - corollary: define the role of government/the state with care = clear limits for what the state can do
- The Pigouvian position
  - ▶ an active state (principal-agent setting) that taxes those who pollute
    - counterpoint: the limit to taxes
    - solution: the state orders polluters to compensate victims

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## ... Coase vs. Pigou (2)

- Coase has frequently been used
  - ▶ as an argument against environmental taxes,
  - ▶ as an argument for tradable permits
- ... but this interpretation is naive:
  - ▶ TC  $\Leftarrow$  on the rights and institutions  $\Rightarrow$  redefining rights and introducing new institutions, TC  $\downarrow$
  - ▶ TP more easily introduced if some body organizes the trade (like comissions this to a stock exchange or similar)
  - ▶ Coase concerned about human welfare in an extended framework = choose what costs the least

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## The polluter pays principle

- The rights structure determines which costs to take into account (= defines what is efficient)
- PPP: an *ethical rule* since having polluters pay is not always the most efficient solution
  - ▶ if PPP is to be used as a policy principle, optimality cannot be determined purely on efficiency grounds
- PPP: about *whose interests are protected by the state*  $\Rightarrow$  normative issues do matter in env.econ.

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## Summary

- Moving victims or polluters one of many possible strategies
  - ▶ possibly large differences in costs from choosing low cost alternatives or environmentally less sensitive areas
  - ▶ low or high costs may depend on rights structure
- Institutional setting important for costs and for possibilities of seeking alternate solutions
- PPP: ethical foundation (little to do with efficiency)
  - ▶ although entry-exit impacts from PPP or provider gets may be important

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## Concept questions

- Moving victims
  - ▶ compensation as a means to break those challenges?
  - ▶ ... and if so: what kind of compensation?
- Environmental policies some times entail extra costs (example: toll gates to reduce car usage and hence pollution levels)
  - ▶ how to take care of these distributional matters?
  - ▶ what principles are you using to make your choice (hint: early Nobel laureate in economics)
- Short vs. long term benefits - is it a problem when transaction is voluntary?

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