

Environmental Policy

Policy is a tool to achieve a goal

Types

1) Liability Rules (Laws)

- Determined by courts

a) strict liability

b) Negligence (Due Care)

2) Property Rights

Courts allocate or enforce

Property Rights allow for exchange

Both ① and ②

are decentralized

③ Prescriptive Policy

- command and control (CAC)

mandates behavior

- Ban on use of technologies

- Ban on output

- Quota

Ex: - emission standard $E \leq \bar{E}$

- Ambient standard

- Set Air or water quality

- limit use of inputs

(Pulp mills)

- Technology standards

Require use of certain technology

- catalytic converter (cars)

- unleaded gasoline

④ Incentive based policies

No Mandate

offers economic incentive

- emissions tax or subsidy
- Transferable permits
- Permit Auctions

also Ambient taxes, subsidies, permits

⑤ Voluntary Agreements

Govt works with industry
cooperative solution

also Between governments

Kyoto Accord on greenhouse gas
over 100 countries signed

Canada signed

USA and China did not sign

choosing a policy:

choosing a policy:

- ✓ 1. cost effective
- ✓ 2. efficiency / allocative — productive
- ✓ 3. Incentive to innovate
- ✓ 4. Enforceability?
 - cost of monitoring
 - cost of information
- ✓ (5) Information and Knowledge
- ✓ 6. Fairness? Social Norms

EX 2 people (1) 1000/mo
(2) 5000/mo

"Fair" Tax

x { everyone pays \$100 (1) 10%
(2) 2%

✓ { everyone pays 10%
(1) \$100
(2) \$500

→ Polluter Pays Principle is

' Polluter Pays Principle is
considered fair
"a false economy"

⑦ Morality

C.A.C. (prescriptive)

- setting standards (quota)

earliest cases involved serious
health issues

- urbanization

Types:

- air quality

- emissions

 - ↳ limits the type

 - performance standard
(stock vs flow)

 - # of emissions per period

TBES Technology Based Emission

- 1 BES Technology Based Emission standard

amount of emissions is limited
based on current technology

E - emissions

E_0 - standard (target)

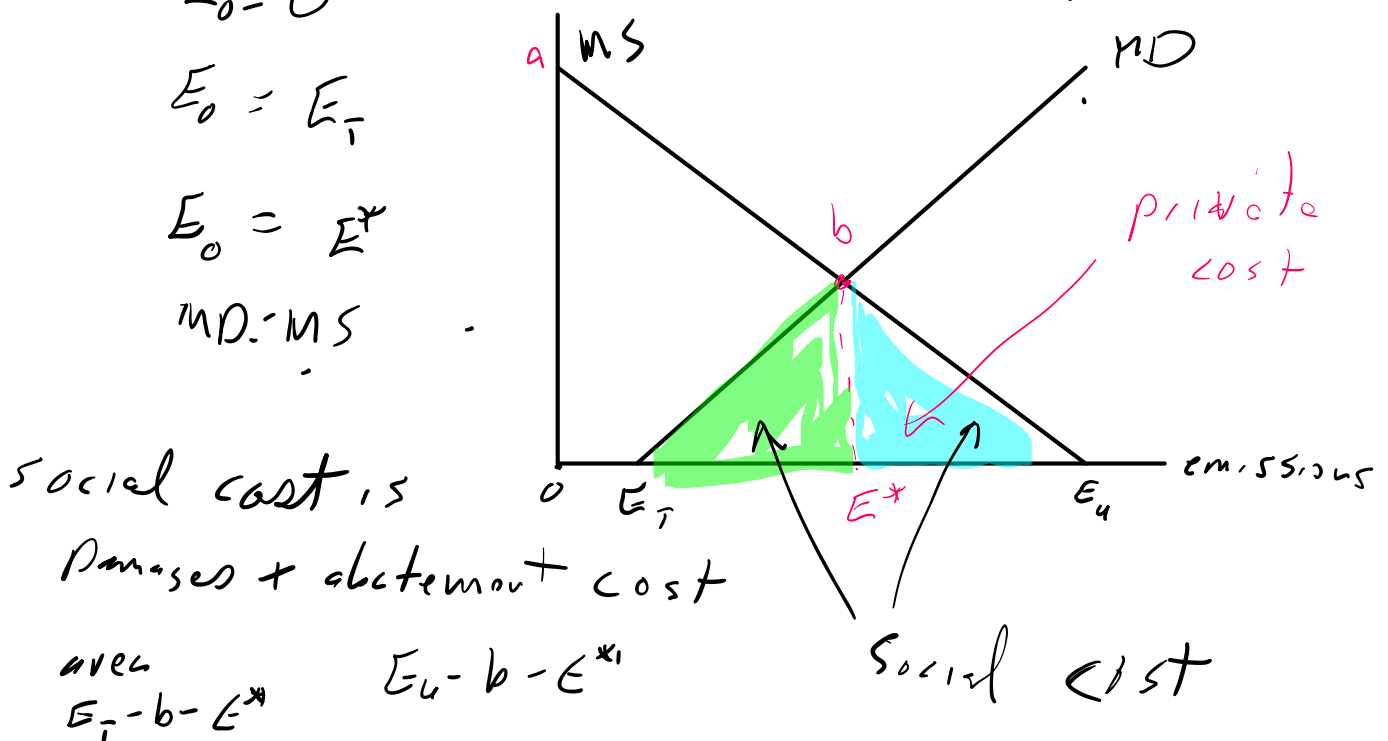
efficiency requires $MD = MS$
(or $MB = MC$)

if $E_0 = 0$

$E_0 = E_T$

$E_0 = E^*$

$MD = MS$



$E_0 = E^*$ is socially efficient
cost effective

This Requires full info

This Requires full info

if all firms are identical

$E_0 = E^*$ is the same

But what if firms are different?

MS functions differ

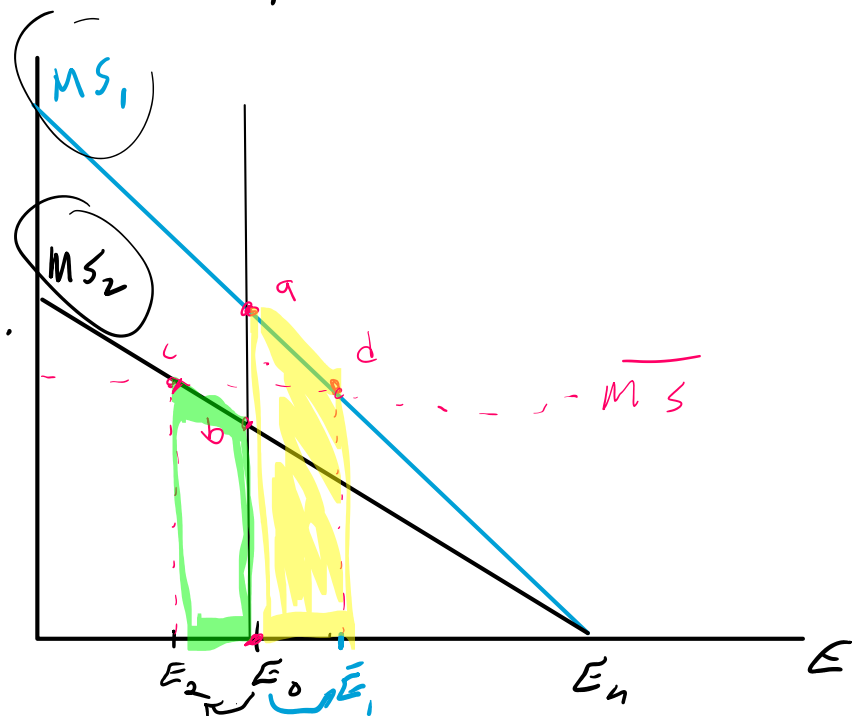
MS₁ firm 1

MS₂ firm 2

E_0 = uniform standard

MS₁ $\neq$ MS₂

Violates
Equimarginal
principle



$$E_1 + E_2 = 2E_0$$

Firm 1 could compensate Firm 2
and still save \$

Individual standard

Firm 1 $E = E_1$

Firm 2 $E = E_2$

viewed as too costly for regulator
 uniform standards have
 lower costs for regulator
 also viewed as "fair"

Incentive to innovate?

Initial position
 is $E = E_0$

$$TAC = E_u - a - E_0$$

if $MS = MS_{new}$

if standard remains
 at $E = E_0$

saved $E_u - a - b$

suppose govt
 decides to Δ standard
 at E_0 $MD \neq MS$

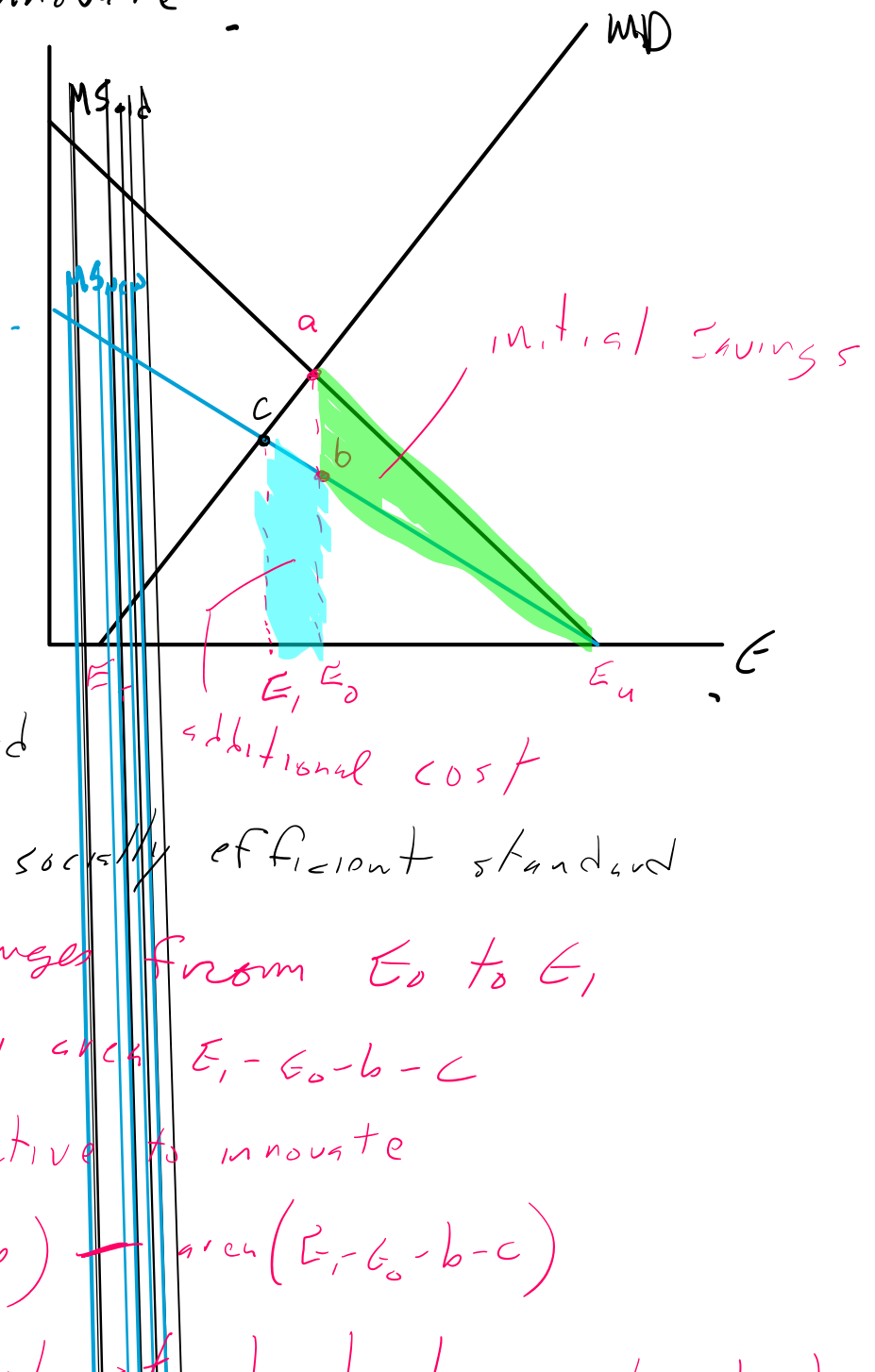
Point C is new socially efficient standard

standard changes from E_0 to E_1

$TAC \uparrow$ by area $E_1 - E_0 - b - c$

Not incentive to innovate

$$\text{Area}(E_u - a - b) - \text{area}(E_1 - E_0 - b - c)$$



in general standards have limited incentives to innovate

Next: Pigouvian taxes (SR and LR)
then emission fees and subsidies