CH 11, KOLSTAD (PART1)

REGULATING POLLUTION

SCHEMATICS OF PPT

1. Why regulation is required?
2. What is political economy of regulation?
3. What are the different kinds of regulatory frameworks for environmental pollution?
4. What is Command and Control regulatory framework in detail?

WHY ECONOMIC REGULATION IS REQUIRED ?

Basic theories of regulation

- Public Interest Theory - regulation is for promotion of Public interest. Why?

A. Imperfect competition

B. Imperfect Information

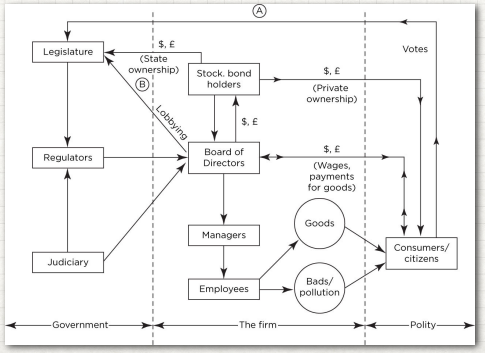
C. Externalities

- Interest group theory - regulation is for promoting interests of particular groups in society (Rent seeking by interest groups)

A. Imperfect Competition - eg of natural monopoly wherein govt has to ensure no entry or exit on one hand and to ensure price regulation to protect against monopoly pricing
B. Imperfect info - since info is expensive , govt must intervene to set quality standards
C. Externalities - In case of -ve externalities - govt must step in. (Market failure)

POLITICAL ECONOMY MODEL OF REGULATION

- Environmental regulation Problem - Govt tries to induce polluter to take socially desirable action (not in the best interest of the polluter)



Economy has three sectors - govt, firm and polity. The govt has three branches - legislature (makes laws), Regulators (implement the laws) and judiciary (oversees implementation). There are different goals in addition to pollution control) for the various branches and inter-linkages between these:

- Legislature - faces pressures from both the consumers (line A - as they cast their votes) as well as the firm (through lobbying line
- Regulators - concerned about job security etc in addition to regulation of pollution
- Firm - Concerned about pleasing stockholders, employees and the regulators -> Regulators (principal) cannot completely control the polluter (agent) -> Principal Agent problem
- Consumer - consumes both goods produced by the firm and the pollution

Inter-linkages -> Complexities in decision making for regulators

A. Links between legislature and pollution generating processes imperfect - cannot physically control the pollution directly but uses indirect ways to do so (which are imperfect) - Principal agent problem

B. Legislator may not act as an efficient benevolent maximiser of social well-being - legislature may be influenced by well being of polluter as well (line B)

- Thus, when political influence of polluter of legislature is included (line B) -> endogenous politics and is consistent with Positive interest group theory (It is *positive - 'what is' in nature)*
- *When line B is omitted* -> exogenous politics and consistent with Public Interest theory (It is normative in nature -'what should be'

A. Regulation may be costly and may lead to cheating.

There also exist other linkages like influence over judiciary, influence of employees over the firm etc which are not included in this simplistic model but it conveys the complexities of the decision making process

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REGULATORY INSTRUMENTS (IMP)

- **Command and control (CC)** - Regulator specifies the particular steps individual polluters *must* take to solve pollution prob. It may include fines for non-compliance*.
- **Economic Incentives** - Provides rewards to polluters to do what is perceived to be in public interest. Eg : Fees, marketable permit and liability (to be done in detail later)

* Fines here are differentiated from economic incentives that aim to reward for abatement. Here, fines aim to punish for non-compliance to procedure set by the Regulators. It is like a centralised planning system.

COMMAND AND CONTROL*

- May take several forms. Some are mentioned here.

1. Specific Pollution Control Equipment requirement - Eg: Clean Air Act (US) requires regulator to determine min pollution control performance of new sources of pollution and specify "control technology guidelines"**
2. Emission limit specification- limits specified for particular kinds of plants and pollutants. Eg: For new cars, each new car may not emit more than x gm of CO per mile driven (US)

* Regulator collects all the necessary information to decide physical actions to control pollution and then commands the polluter to take set of physical steps. This is the dominant form of environmental regulation

** specifies the kind of pollution control to be used (say in tire manufacturing) - what kind of machine to be used etc

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ADVANTAGES

1. Gives more flexibility in regulating complex environmental processes thereby providing greater certainty about the final pollution level resulting from the regulation. Eg:

- In uncertain real life, one is always unsure of how polluter will respond to economic incentives -> CC gives greater pertaining about actual pollution that will be emitted.

2. Simplifies monitoring of regulation compliance - Regulation often states that a particular equipment must be used-> monitoring implies simply checking whether that particular machine is being used.

DISADVANTAGES

1. Information cost is very high (say because, Regulator determines overall pollution control performance for each plant type and industry) - so this regulation is expensive
2. Reduced Incentives to find better ways to control pollution - Since the regulator often specifies the plant and equipment, there may be no incentive to invest in determining better processes and cheaper ways to control pollution
3. Cannot ensure that MC of pollution control is equalised across different polluters generating the same kind of pollution*(Equimarginal principle may not be necessarily satisfied)

* Only if MC of pollution control are equalised across polluters for each kind of pollution, we can say that cost of pollution control are minimised. Else, current pollution control is costly. Now this equalisation can occur if and only if regulators correctly assess each firm's control costs - very difficult and costly in real life when there are hundreds of firms

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DISADVANTAGES

4. Polluter pays only for pollution control and not for residual damages that are still emitted even after controls are in place.This is because CC policies do not impose controls on the price of the product.

- Eg:

Paper manufacturer can either use recycled paper (pollution free) or virgin wood (polluting).

Ideally for efficient regulation, proper pollution controls must be in place + damages from remaining pollution must be included in the price of pulp.

Since, this is not generally a part of CC framework, the price of pulp will be lower than what it should have been(if residual damages caused by using virgin wood were included in its MC and its P) -> essentially giving a subsidy to the polluter -> use of virgin word would be more than what is desired.

Residual damages are damages that still remain even after pollution controls have been set up. You may think of it as some level of pollution will be emitted in production process. A producer may have a choice between less/no pollution raw material or a polluting one though (as mentioned in the example)