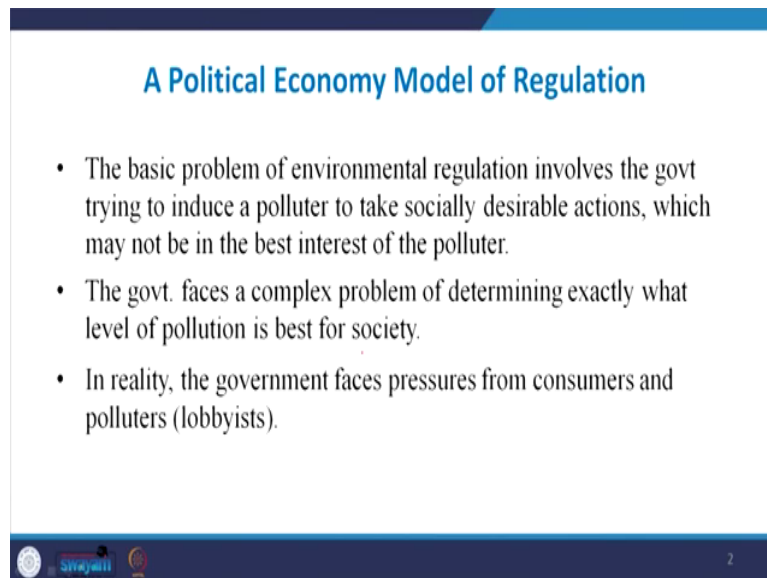


Introduction to Environmental Economics
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Lecture – 51
Environmental Regulations and Basic Regulatory Instruments – II

Dear students, in the preceding lecture I discussed why environmental regulations are required. And I also introduced political economic model of regulation. In this lecture, you will study in detail what is a political economic model of regulation.

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A Political Economy Model of Regulation

- The basic problem of environmental regulation involves the govt trying to induce a polluter to take socially desirable actions, which may not be in the best interest of the polluter.
- The govt. faces a complex problem of determining exactly what level of pollution is best for society.
- In reality, the government faces pressures from consumers and polluters (lobbyists).

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As I already told you that policy making or regulation making is a political process more political process rather than economic process. So, therefore, politics is very very important here and understanding the political economy of regulation is very very critical to know how

regulations are made in the economy. Because there may be many push and pulls from the different kinds of stakeholders when some rules and regulations are formulated.

The basic problem of environmental regulation involves the government trying to induce a polluter to take socially desirable actions. Socially desirable actions are those actions which actually help to improve the welfare of the society. And when these socially desirable actions are taken by the corporate sector or by the polluters certainly these actions may not necessarily be in the interest of the polluters. Why? Because, if these actions are taken by the polluters then additional cost will be imposed on them, and that may affect their economic interest. That is why socially desirable actions may not necessarily be the action that are desired by the corporate sector or by the polluters.

So, government faces a complex problem of determining exactly what level of pollution is best for the society. In fact, it is a major challenge, before the regulator how to decide what level of pollution is socially desirable in a an economy because some level of pollution is desirable. Because the kind of activity associated with the pollution are good kind of activity and the goods or services created through these kind of activity are consumed by the society or society welfare is improved. So, therefore, it is very very difficult to determine, what is the best level of pollution in any economy.

And in reality the government faces many pressures many push and pulls from different stakeholders, and these stakeholders lobbying with the government to protect their own interest. We have environmentalists, they always put pressure that environment should be protected and there should be more strong environmental regulations, but at the same time there are the producers they feel that if environmental regulations are very very strong then their economic interest may be badly affected. Similarly, there are consumers who are affected due to the negligence of the producers while producing the goods and releasing the pollution in the atmosphere.

So, we had a different kinds of stakeholders and how they interact each other's and lobbying with the government is actually examined under the political economic model of regulation.

Now, entire economy can be divided into two sectors; one sector is consumer sector or citizen sector this other is the corporate sector or the producer sectors which can be represented by the companies, companies may be represented by board of directors, managers, employees, stock bondholders, all constitutes the production sector or producers. And consumers and citizens they are the main stakeholders, and second stakeholders are the companies.

So, companies are actually the you can consider polluters. So, we have one group which is known as polluters, we have another group which citizen of the country which are the victim of the pollutions. Now, these two groups, they lobbying with the government to formulate the rules and regulation and you can see citizen are also the voter. So, and they can influence the policymaking through their voting behavior and they vote the members of the parliament and help to formulate the governments. So, they also have the stake or influence on the government through votes.

Similarly, so this A is one form of the lobbying. So, A direction you can see from consumer to awards to legislation. So, this is A line indicates one form of lobbying that is the lobbying of citizens with the government. But you can also see B part that is lobbying from the corporate sectors or lobbying from the companies to the legislature to formulate the policy or program; in such a manner that the interest of the corporate sector is achieved. So, these are the two kinds of stakeholder here and these companies actually produce good products as well as bad products. You can see from here that the employees, managers, board of directors or they represent the company. So, companies are producing good product, so this good product is produced.

And when the companies are producing good product, they also produce bad product or release certain kinds of waste into the atmosphere. So, companies when producing the good product they also generate liquid, solid, gaseous, waste into the atmosphere. And these waste are consumed by the citizens or these waste are actually affect the welfare of consumers or citizens and therefore, these citizens or consumers of any country also put pressure or lobbying with the government to formulate such kind of policy which protect the interests of

these common masses. And you can see from this graph that these citizens are also the employees.

The citizens also provides savings to these corporate sectors which are invested for the further production. So, you can see a two wave flow of things, like you can see from here that bond is stockholders. So, private ownership in the form of bond stockholder. So, citizens also purchase bond stocks of the company, so they are also the stakeholder in the company and they get money in return or dividend or interest and that wage is spent by the consumer to buy the goods.

So, similarly they also supply the labor and get wages and salary from these companies and that wages and salary are spent on producing consuming the goods, and when the citizens consume the goods they also release certain waste. So, waste are released by both; producers as well as consumers and that is why this they lobbying with the government to formulate the rules and regulation that favor each of the stakeholders.

Now, look at the member of the parliament or legislature. So, legislature or member of parliament they also debate in the parliament and take a particular issue. Sometimes citizens also put pressure on the member of parliament; that this is the environmental issues and our locality is badly affected due to this environmental problem due to this externality. So, raise our issues in the parliament and members of parliament also create debate and discussion on many environmental issues in the parliament, and also influence the parliament to formulate the policies.

Sometimes, once the acts are enacted or rules and regulation are enacted by the governments, then government also set up an institutional framework to execute these rules and regulation. And in India for example, we have central pollution control board, but apex body is say ministry of environment and forestry, then we have central pollution control board, we have state pollution control board, we have the state unit, a local units. So, these state pollution control board or central pollution control board through their stock tried to implement the rules and regulation, and also see whether the regulations are followed or not.

And if any company is violating any section of any act environmental act or if not following a particular directive of the government through regulation, then judiciary court the case may be issued against a particular company in the court and court also debate on the issues and if the complainant found genuine then company may be punished by the court. So, this is overall political economy. But very important thing here is that, the lobbying is very very important, that greens and browns, greens means those who always protect or advocate the protection environment they also lobbying with the governments, browns means, the group of the people who are polluting the environment they also lobbying with the governments to make policy in such a manner that their interest is protected.


So, let me now in briefly explain this political economy model of regulation. As I already told you the government consists of three branches, legislation, regulation and judiciary. Legislature passes laws defining what the regulator are to do in controlling the pollution. Regulators or the bureaucracy are charged with the detailed implementation of the legislations laws. Regulator's actions are tempered by the judiciary, if the violation of regulation is done. Legislature may have difficulty in achieving its goals; since it does not directly influence the polluter. So, this is a major problem.

Here the problem is that the legislature cannot directly control and or influence the polluters it is done through indirectly through the regulators and sometimes regulators may be interesting in job security or size of bureaucracy, they control as well as in reducing the pollution control. So, how effectively the bureaucracy work to regulate, the functioning of the company is a big issue in this regard.

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- There are two important lessons from the figure:
 - Imperfect links between the legislature and the pollution generating process. Since the legislature cannot physically control pollution directly, it must rely on indirect means to obtain its ends, and often these indirect means may be less than perfect.
 - Regulation may be excessively costly, may result in considerable cheating, may result in excessive time delays, and may result in too much pollution.
- The legislature is influenced only by citizen welfare (line A) but also by polluters (B).
- Normative theory and positive theory
- Endogenous politics (inclusion of B) and exogenous politics (omission of B)



And in this regard and you are from this regard you can draw two important lessons. First is there is a imperfect link between the legislature and pollution generating process, imperfect link. Since the legislator cannot physically control pollution directly, it must be relying on indirect means to obtain the ends and often these indirect means may be less than perfect. So, this is the major issue that there is imperfect link between legislature which is formulating the regulations and the polluters or pollution generating process. And legislator cannot directly control the activities of the polluters, it rely in directly on the means to protect and that measures or instruments used by the governments are not perfect or they may be inefficient.

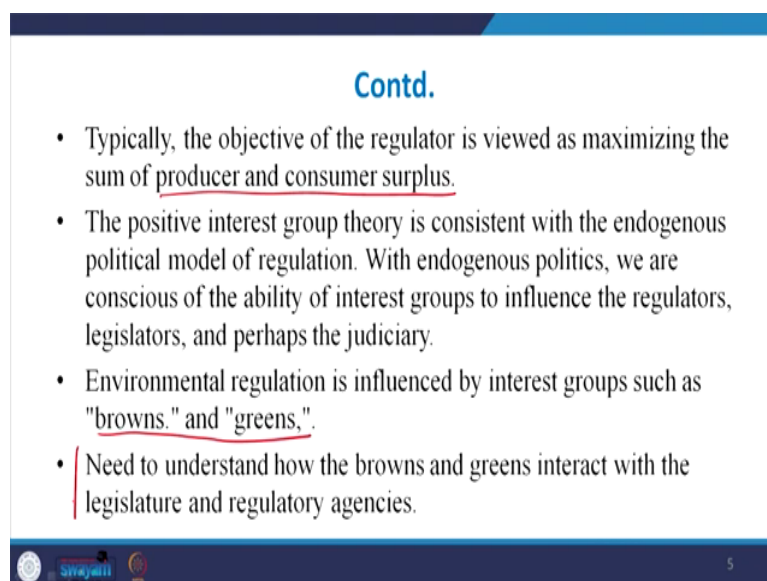
Second lessons, which we can draw from this political economy model of regulation is regulation, may be excessively costly, may result into considerable cheating, may result in excessive time delays and may result in too much pollution. So, it is not necessary that the regulations is cost effective. Many times regulation is very very costly. How it is very costly?

Because, a team of engineers is to be employed to monitor the activities of companies and moreover it is very difficult to decide what should be the level of pollution, whether a particular technology suggested by the regulator to be installed by a particular company or a particular device will be able to check the pollution under control or desired result will be able to be achieved is a big question mark.

Similarly, sometimes company themselves may not share the valuable information to the regulator. So, getting the required information about many aspects of the company is a very very difficult and moreover the results maybe too much pollutions. So, these are the two important lessons, which we can draw from this political economic model.


Legislature is influenced, I already discussed by the citizen welfare that is represented by line A in the figure, but it is also influenced by polluters which is shown by the line B in the graph. And here line A is actually, the normal indicate or represent the normative theory which I already discussed while explaining public interest theory and interest group theory and line B is the representing here positive theory. So, you can also relate these two theory of regulation interest group theory and public interest theory while analyzing the political economic model of regulation. And here line B also tell us indigenus politics and line A tell us exogenous politics. So, if you include line B then it is a indigenus politics and if you exclude the line B from the graph, then it becomes exogenous politics.

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- Typically, the objective of the regulator is viewed as maximizing the sum of producer and consumer surplus.
- The positive interest group theory is consistent with the endogenous political model of regulation. With endogenous politics, we are conscious of the ability of interest groups to influence the regulators, legislators, and perhaps the judiciary.
- Environmental regulation is influenced by interest groups such as "browns." and "greens."
- Need to understand how the browns and greens interact with the legislature and regulatory agencies.

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Typically, the objective of regulator is viewed as maximizing the sum of producers and consumer surplus. So, when regulators formulate any regulation this aspect may be taken into consideration that overall surplus should be maximized producers as well as consumer surplus and we have already discussed these two surfaces.

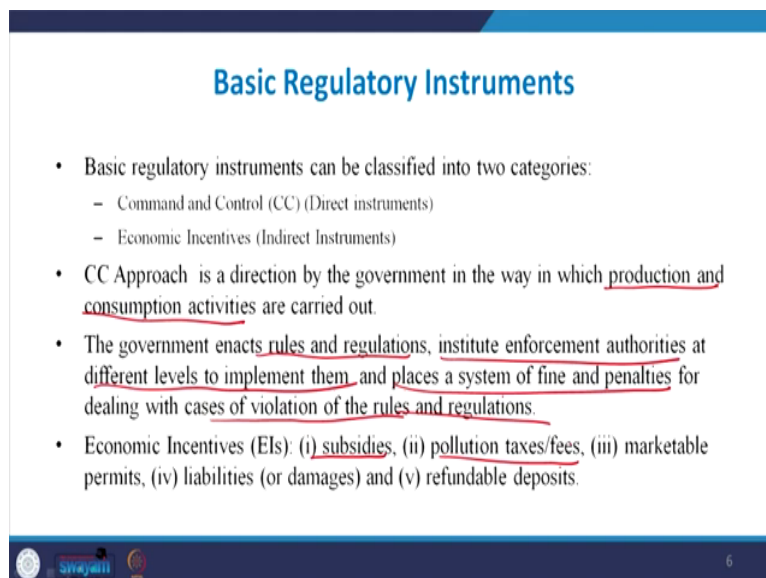
The positive interest group theory is consistent with indigenous political model of regulation, while exogenous politics we are conscious about ability of interest group to influence the regulator, legislator and perhaps the judiciary. So, there may be possibility of influencing the all the three components of the government by the interest groups to formulate or to protect their interest.

Environmental regulation is influence by interest group such as brown and green. So, they not only the brown group which influence the policymakers, but there are also the green groups.

Brown groups are those groups which are polluting the environment and green groups are those who fight for environmental protection like environmentalist and environmental activists; they also put pressure on the government to improve the environmental conditions through strong implementation or effective implementation of various kinds of regulations.

Need to understand how brown and green interact with the interaction and regulatory agencies. So, it is very very important to understand how the browns and greens interact each other. And also influence the legislature or regulatory agencies to protect their own interests, ok.

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Basic Regulatory Instruments

- Basic regulatory instruments can be classified into two categories:
 - Command and Control (CC) (Direct instruments)
 - Economic Incentives (Indirect Instruments)
- CC Approach is a direction by the government in the way in which production and consumption activities are carried out.
- The government enacts rules and regulations, institute enforcement authorities at different levels to implement them and places a system of fine and penalties for dealing with cases of violation of the rules and regulations.
- Economic Incentives (EIs): (i) subsidies, (ii) pollution taxes/fees, (iii) marketable permits, (iv) liabilities (or damages) and (v) refundable deposits.

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So, let me now briefly tell you what are the different kinds of instruments, through which regulation is done by the government? So, broadly the environmental regulations can be classified into two categories, one is command and control policy approach and other is

economic incentives. So, command and control is known as direct interventions in the activities of the polluters. And economic incentives are indirect interventions in the activities of polluters. So, economic incentives are also known as market based approach to protect the environment. So, these are the two basic approaches of environmental protection.

Command and control, command and control approach is a direction by the government in the way in which production and consumption activities are carried out. So, government can control through regulation both the activities; producer's activities as well as consumer's activities to achieve the intended goal of the environmental protections.

Government enacts several rules and regulation. So, enactment of rules and regulation is the part of regulation, institute enforcement of authorities at different levels to implement them. So, institutional framework can be set up to implement these regulation and a place a system of fine and penalties for dealing with the case of violation of rules and regulation. I can cite the recent initiative taken by the government of India, motor vehicle act. So, this is a good example of regulation.

Now, different kinds of fines are being imposed on those who are violating the rules. So, if you if you are not using your seatbelt, fine will be imposed. If you are driving your car and also talking on mobile, fine may be imposed. So, this is this is a kind of regulation. And now how this act motor act is being implemented, how effectively it will implement that will tell us whether the intended objective of this act will be achieved. So, major aim of this act is to reduce the accidental death on the road. But whether it will be effective, there may be other way to achieve the same goals. But it is a good example of command and control.

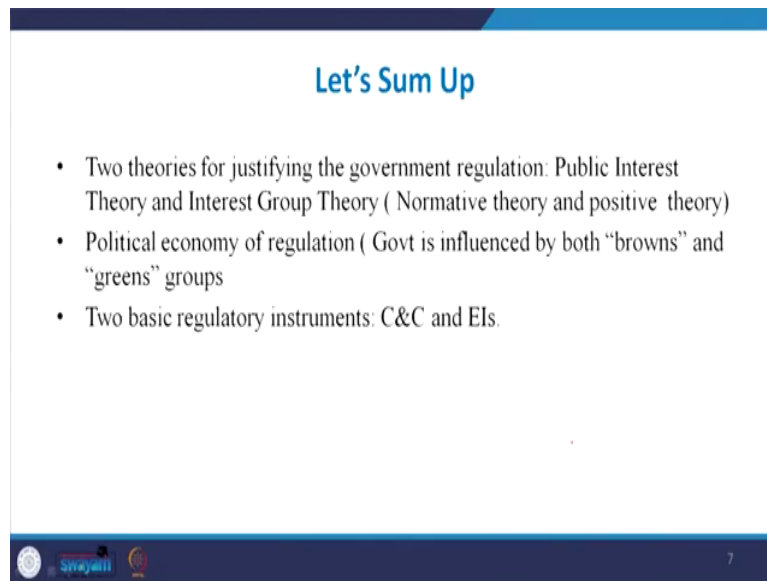
Similarly, we have many rules and regulation, under environment environmental protection act, that is also a kind of command and control. So, center pollution control board may also direct the company to use the specific device technology to produce the goods. And if that technology or device is not used by a particular company that company may be punished under this. So, command and control is one approach.

And second approach is economic incentives. So, instead of controlling each and every aspect of the producers it is better to give the incentive to the producer not to pollute the environment or sometimes these incentives may also be given; so, that the environment protection can be done. So, economic incentives or disincentives can be classified into various categories, subsidy is one of them.

So, government can provide subsidy, like in India subsidies are being provided on solar energy and purpose is to produce more energy through solar system, so that environmental or pollution can be reduced, environmental degradation can be reduced. Or taxes can be imposed tax and fees are other measures that can be adopted by the government. Marketable permits, tradable permits can be given to the company. So, up to certain extent the company can pollute the environment. So, quota or polluting the environment may be given to the company and if company is using beyond the quota then the permits may be purchased from others. So, carbon credit is one of the instruments under this.

Then liability clause can be made. Government can say do whatever you like, but if someone is harmed from your act then it is your liability to pay the compensation or to pay the damage and refundable deposit. So, these are some of the measures. I will take one by one all these measures in the next lecture. I just introduced in this lecture that these are the two approaches of environmental regulation, one is command and control approach and other is the indirect approach or incentives can be given to the company to protect the environment or through incentives the behavior of the firm is changed.

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Let's Sum Up

- Two theories for justifying the government regulation: Public Interest Theory and Interest Group Theory (Normative theory and positive theory)
- Political economy of regulation (Govt is influenced by both “browns” and “greens” groups
- Two basic regulatory instruments: C&C and EIs.

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Let me sum up this topic. In this lecture, I discussed two theories of environmental regulation; public interest theory and interest group theory. And in detail we had discussed the political economy of regulation, government influenced by both the stakeholders, one is brown and other is the greens. And I also just introduced two basic regulatory instruments, one is command and control and other is the economic incentives.

Thank you very much.