Environmental & Resource Economics
Professor Sabuj Kumar Mandal
Department of Humanities and Social Sciences
Indian Institute of Technology, Madras
Daly's Operational Principle of Sustainable Development and Impact of Environment Regulation on Firm's Competitiveness Part 3

So, welcome to our discussion on Environmental Economics. In our last class, we discussed about Sustainable Development that means, we said that growth with accountability towards the environment is actually what is required. So, countries must grow, but they should grow at, in such a way that they are on a sustainable path.

Now, this accountability is something which does not come automatically, because productive units at the micro level if we think the firms, the individuals, they have no incentive to be responsible for the environment, why? Because, there is a conflict between private cost versus social interest.

Society wants to get clean environment, but the cost has to be bared at the individual or private level that is why the impact that means, what do we need to ensure that growth is sustainable productive units they must be accountable for the environment, since that accountability does not come automatically, we need to impose regulation.

So, we need to impose regulation government or policymakers should impose regulation on the productive units to reshape their behaviour and the moment we impose regulation, then a question comes to our mind that what would be the impact of this regulation. So, that is why this module what we are going to discuss is basically impact of environmental regulation on firm's competitiveness.

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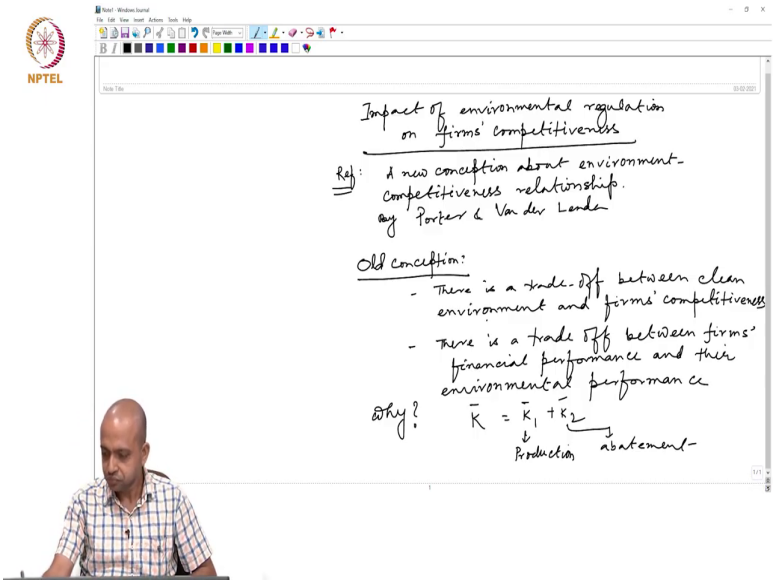

Impact of firm's or impact of environmental regulation on firm's competitiveness and for this topic, we are going to use a particular journal article for our reference and the reference would be, this is not available in your textbook. So, you have to clearly keep this thing in mind, the reference for this topic what we are going to discuss, we will use two journal articles.

The first article that we are going to discuss about today's, in today's class that is a new conception about environment competitiveness relationship. This is the article name by Michael Porter and Van Der Linde. This is the journal article.

Now, as the name suggests, name of this article says a new conception about the environment competitiveness relationship. Now, since the article says it is a new conception that means, there must be some old conception about this relationship. What is that old traditional conception. So, let me write the traditional or old conception about this environment competitiveness relationship. The old conception says that there is a trade-off between environment and competitiveness.

That means society cannot achieve both the things simultaneously, society cannot achieve clean environment and high degree of competitiveness from its productive units simultaneously, if the society wants the firm's to be more competitive, then society must sacrifice the quality of environment.

On the other hand, if the society wants to enjoy clean environment, then the firm's should sacrifice their competitiveness. That means we can say that there is a trade-off between clean environment and environmental quality and this type of trade off we have already studied in our principles of economics as well.

So, old conception is there is a trade-off between clean environment and firm's competitiveness, this is the trade-off. So, that means, indirectly we can write that there is a trade-off between, there is a trade-off between firm's financial performance and their environmental performance.

Now, the question is, why? Why such trade off? This is the question, why it is not possible for the firms or the productive units at the micro level to be environmentally sound and also exhibiting high degree of financial performance that is the question, why the society cannot achieve clean environment and competitiveness together.

The reason is, the moment we impose regulation then the firms they need to divert some of their productive resources for pollution abatement, pollution abatements it is not free, it involves some amount of cost. So, that means imposition of environmental regulation, compels the firms to divert some of their productive resources for pollution abatement which could otherwise be utilized for the production of goods and services.

Firm have a fixed amount of capital and that capital, let us say that a firm has a K bar amount of capital and that can be used by K 1 bar and let us say K 2 bar. This is something which you have already discussed in the context of environmental Kuznets curve. So, let us say K 1 is, K 1 bar is used for production of goods and services, production and this is used for abatement, pollution abatement.

So, that means when there is no regulation this entire K bar amount of capital, the firms could have used only for production purpose. After imposition of regulation, for production purpose, the availability of capital is only K 1 bar, because K 2 bar is diverted for abatement, that is the reason what we are saying that since imposition of environmental regulation compels the firm to divert some of their productive resources for pollution abetment, they will become less competitive compared to other firms, in other states or other countries, elsewhere who are actually not subjected to this type of regulation that is the idea, that is the traditional view that explains this trade off.

That they cannot achieve clean environment that means environmental performance and financial performance it cannot be achieved simultaneously, you must sacrifice one to achieve the other that is reason. Now, Michael Porter, he actually stood against this traditional wisdom and came up with some hypotheses later on, which became popularized as Porter hypothesis in the literature.

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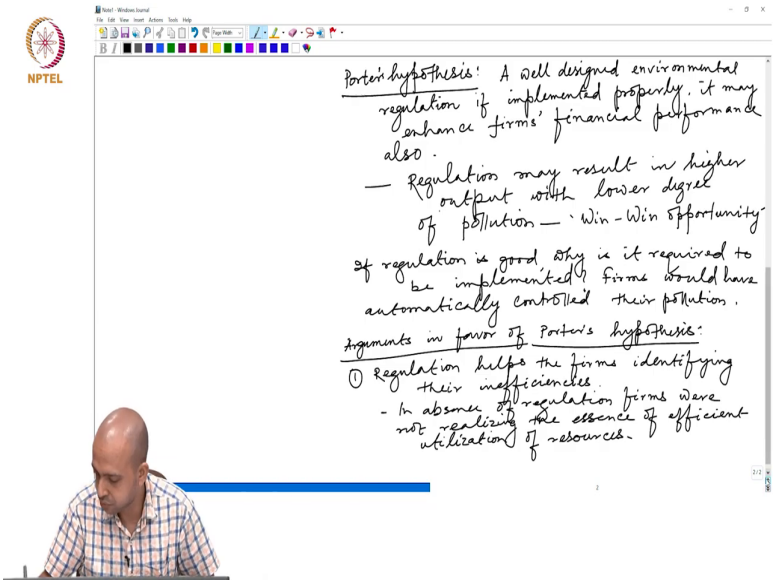

Porter hypothesis. What is this hypothesis? Michael Porter said actually that a well-designed environmental regulation if implemented properly it may enhance firm's financial performance also. That means, a regulation results in higher output with lower degree of pollution that means, it may result in an win-win situation, so regulations brings in win-win opportunity.

So, that means it helps firm's to achieve actually a higher amount of output compared to the situation of no regulation and it will result in lower amount of pollution also. So, society can actually achieve both the things together, if the regulation is well designed and properly implemented.

So, Michael Porter stood against the traditional wisdom which says that there is a trade-off. He said no, actually there is no such trade-off society or the firms can achieve both the things together and regulation may bring in win-win opportunity for the firms, if such regulation is well designed and properly implemented.

That result, that generated a lot of debate and scepticism among economists, among the opponents, the moment Michael Porter came up with this hypothesis, then people started questioning about this hypothesis, they said, if regulation actually, if pollution abatement is actually good for the firms or regulation is actually good for the firms, why is it required?

They would have already abetted the pollution, if pollution abatement results in higher degree of output and there is no such trade-off, why do you require that regulation? It is like a free lunch that means, there are a number of let us say 10 rupees notes or 100 rupees notes lying on the road and people are not picking it up, somebody has to tell you go and pick, look at there some 100 rupees or 10 rupees are lying on the road, do you think it is reasonable?

If something is good people would have already done that, if there are 10 rupees, 100 rupees notes lying on the road, why do you require somebody to tell? People would have, somebody would have already picked it up. So, they started asking this question that means, they said if the question they ask, if regulation is good, why is it required to be implemented, implemented.

So, they said that firms would have automatically controlled their pollution that is what they said. Now, Michael Porter said yes, regulation is good, but all the good things people may not adopt automatically. If something from some force from the outside is not imposed, there is no guarantee that people they themselves, firms they themselves automatically will control for all the pollution, if there is no such regulation.

And he basically came up with a number of arguments to establish his hypothesis and those reasons, those arguments are very, very important for us to understand, we will discuss those arguments in favour of Porter's hypothesis one by one. So, this is arguments, arguments in favour of Porter hypothesis.

So, argument number one, what Michael Porter said that a regulation helps the firms identifying their inefficiencies. So, the first argument is regulation helps the firms identifying their inefficiencies. For example, let us say that a firm is using coal to produce cement, when regulation is not imposed firms may not be realizing the way it is utilizing coal to produce cement, there are a lot of inefficiencies in the coal utilization.

So, the moment regulation is imposed and they are mandated, the regulation says the firm can emit, the cement company can emit only 20 Kgs of CO_2 per tonne of cement, then that will

compel the firm to look into, is there any efficiency in my energy utilization, is there any inefficiency in my oil utilization, so on and so forth.

So, regulation then helps the firm identifying their possible areas of inefficiency and once the firms identify the inefficiency, the firms can start efficient utilization of resources with no or insignificant additional cost and once energy is utilized efficiently, that will immediately result in less pollution.

So, what will happen, firm's cost of energy will come down that will result in more output and firm's emission of carbon dioxide gas also will come down, but that was not possible earlier, they were not realizing I can give you another real life example, suppose this class is scheduled on 11 o'clock, then what I observed that student will, some students will come at 11:5 and 11:10 and every day I have to say that please come on time.

Then one day what the instructor decides exactly on 11 o'clock, the instructor will close the door. So, no further entry is possible at after 11 o'clock, then the students will be thinking, students will start identifying is there any way by which I can efficiently utilize my time, maybe I need to go to mess at a different time where there is less crowd, maybe I need to start from my hostel itself instead of chit chatting with my friends a little early. That will reduce my time.

Maybe I need to sleep early at night and get up early, so that I can finish all the morning walks early, that will save a couple of my hours. So, if at all there are inefficient ways by which I am utilizing my time, the students will start identifying those, once the restriction is imposed. One the regulation is imposed in the firm that no further entry into the classroom is allowed after11 o'clock, that the students were not doing it earlier.

They were not realizing the essence of efficient utilization of time and same thing happening in this context, in absence of regulation. So, in absence of regulation, firms were not realizing the essence of efficient utilization of resources and that is actually the first reason what Michael Porter said that regulation helps the firms identifying possible areas of inefficiency on which the forms are operating.

Once they identify the resources inefficiency, they can immediately improve upon. So, that will save the cost of energy, cost of energy at the same time that will result in lower amount of pollution. So, that is the first reason for achieving both things together.