Strategic Trade and protectionism - Theories and Empirics

Prof. Pratap Chandra Mohanty
Department of Humanities and Social Sciences
Indian Institute of Technology, Roorkee

Lecture – 27
Effective Protections

Welcome friends once again to the you know trade module on you know it is the NPTEL module on Strategic Trade and Protectionism. We have been trying to explain in the you know present lecture in the you know in these week on purely on strategic you know strategic trade, especially you know protectionism related aspects; where you know largely we need to you know emphasize many aspects of protectionism especially tariff. So, we already unfold the discussion of tariff in the last two lectures.

Now here we are targeting our lecture on the very 29th you know lecture of week number 6 on Effective Protection; even if a tariff is imposed that may not be so effective. So, I mean usually tariff is imposed to protect our industries you know; whether industries you know have industries have come off or actually replaced the imports or not over the time period is very important to discuss.

So, therefore, protectionism, I mean tariffs is not just imposing a percentage of taxes; it is rather important to find out how much it has replaced the import commodities; that will be really strengthening you know the country's trade baskets and its domestic production. So, therefore, effective protection is very important and is the focus of this lecture; so myself Pratap Mohanty, faculty member at IIT Roorkee.

Now before going to start with the you know effective rate of protection, what exactly the protection all about practice in different rounds of WTO. And how India is actually poised with various forms of tariff rates in reality.

In this context we just wanted to emphasize here there are you know Uruguay Round was one of the you know rounds of WTO discussion, where there have been commitment to core tariffs. And also define a bind rate for the I mean of their customs duty rates to a level, which

can be for very difficult which would be very difficult to range further. So, Uruguay Round was actually very successful in that regard.

Then you know Doha round, DD also Doha development round in it is current negotiations which has given lots of you know emphasis on the agriculture and non agricultural market axis.

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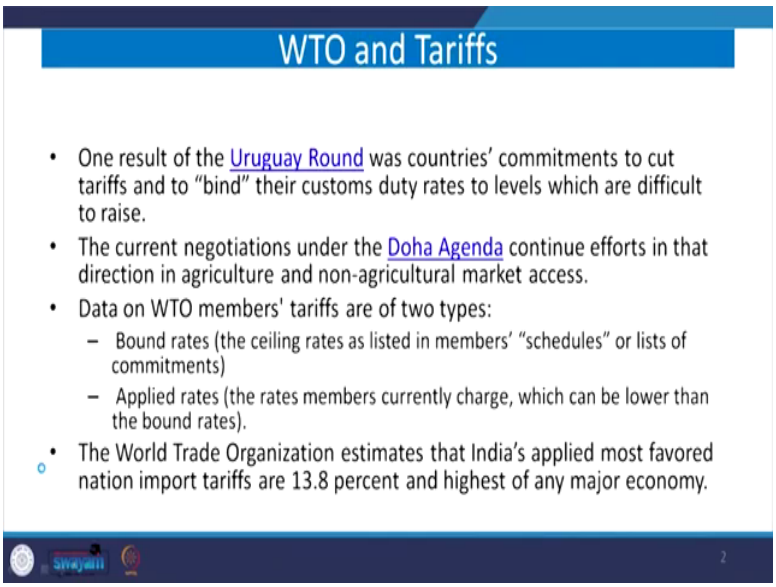

And broadly WTO tariffs are of two types; one you know is called bound rate where optimum limit or the ceiling limits are defined as per the schedules or list of the commitments.

Then another one is the exact rate or that is called applied rates; the rates where the member country is charge usually and which can be lower than the bound rates. WTO in its inception

since 1995 estimates that, India's applied most favoured nation import tariffs are 13.8 percent and highest of any major economy as per the latest WTO estimates.

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So, tariffs on the average 5 percent or less on industrial production in development nations; but are much higher in developing nations, as we have also emphasized in the last lecture.

So, whereas, in you know 2018 Indian government in cooperation with FIEO Federation of Indian Exporters debuted it is you know trade portal called India Trade Portal you can refer to this website, it is given here. And all the data related to restrictions tariff related information or custom information are observe here and these also gives on the basis of HS classification or standardized products classifications; Harmonized Standard based classification HS classification. It publishes applied tariff and other customs rates applicable to imports.

So, India's Trade Portal; I mean this India Trade Portal is the government of India recently you know released, which provides information on you know latest tariff and duty by it is harmonized standard codes as I mentioned. India's tariff also you know is also characterized by many disparities between the WTO boundaries and the most favour nation rates as per the prescription of WTO. And accordingly Indian rates are actually varying as that of other countries.

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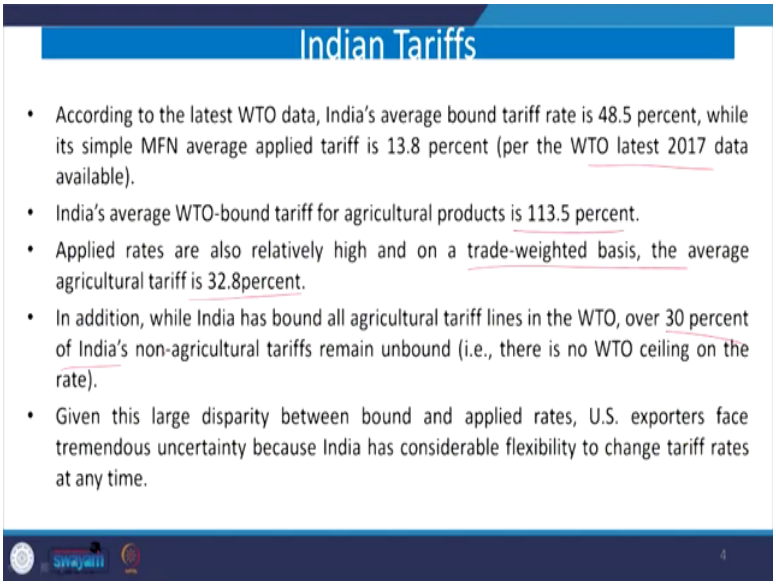

Now as for the latest WTO data, India's you know average bound tariff is 48.5 percent; while its MFN average tariff is only 13.8 percent as per the WTO 2017 data. And the bound tariff for specially for agriculture products is 113.5 percent; because of the fact that India you know has been trying to protect agriculture sector.

Now, applied rates are also relatively high and on a trade weighted basis; the average agriculture tariff is on basically on a trade weighted average basis, the average tariff for agriculture is 32.8 percent. In addition to that, while India has a bound agriculture tariff lines in the WTO discussion; over 30 percent of India's non agriculture tariff remain unbound. So, more than 30 percent of non-agriculture are not attach with any bound rates.

Now given these large disparities bound and unbound rate or agriculture and non-agriculture you know products; US exporters face tremendous you know pressure or uncertainty due to India, and since India has been you know changing its rates considerably in due to some kind of you know flexibility attached with the Indian rates with the norms of WTO.

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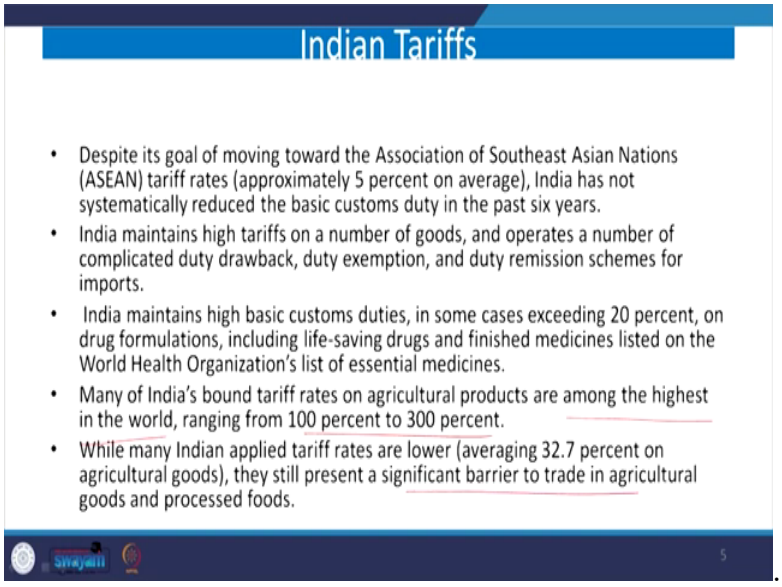

Now, despites its goal of moving towards you know association; I mean Asian tariff rates that is a different tariff rates by Asian Nations Association of Southeast Asian Nations

approximately 5 percent, which is much lower half the rate less than half the rate of the average. India has not systematically reduce its you know customs duty in the last 6 years.

So, India maintains high rates on a number of goods and operates a number of complicated you know due to draw drawbacks, due to exemption and due to remission schemes for imports. So, India maintains high basic customs duties and in some cases exceeding 20 percent on drug formulation; including lifesaving drugs and finish medicines which are listed on the WHO list of essential medicines.

Many of India's you know bound rates on agriculture products are also among the highest in the world; as we say it ranging from 113 percent and if a 100 percent to 300 percent. While many Indian applied tariff rates are lower, you know near about 32 percent on agriculture product, the steel present a significant barrier to trade in agricultural goods and process goods; therefore, protection is at a higher cap so far as agricultural products are concerned.

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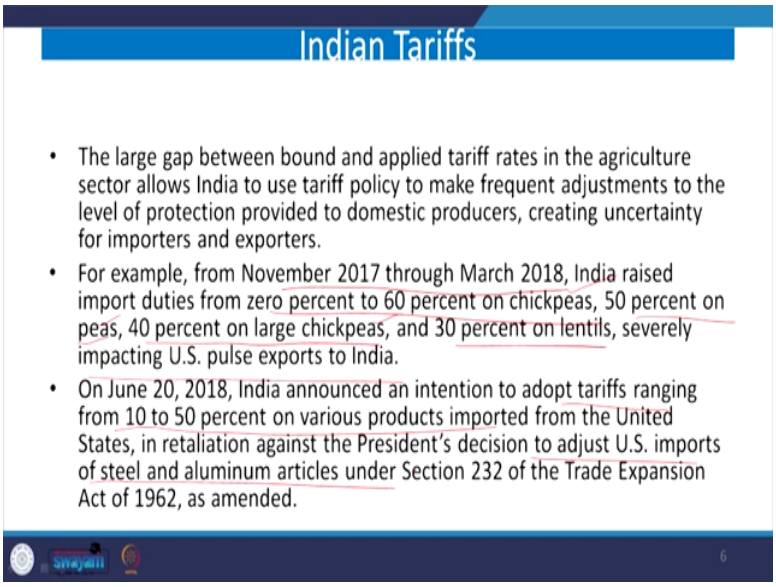

Now, the large gap between bound and unbound or the bound and applied tariff is in the agriculture sector allows India to use tariff policy to make frequent adjustment to the level of protection provided to domestic producers, specially creating uncertainty for importers and exporters.

For example from I mean citing certain facts, in November 2017 through March 2018 over you know 6 months; around 6 month India raised import duty from zero percent to 60 percent in chickpeas, 50 percent on peas, 40 percent on large chickpeas, 30 percent on you know lentils, lentils and severely you know impacting US pulse exports to India. So, these are the facts as for the latest figures.

On 20 June 2018, India announced an intention to adopt tariffs ranging from 10 percent to 50 percent on various products imported from United States, in retaliation against the President's

decision to adjust US imports of steel and aluminum articles under section 232 of in Trade Expansion Act of 1962, as amended.

So, these are the figures quoted from WTO sites, you can refer and clarify accordingly.

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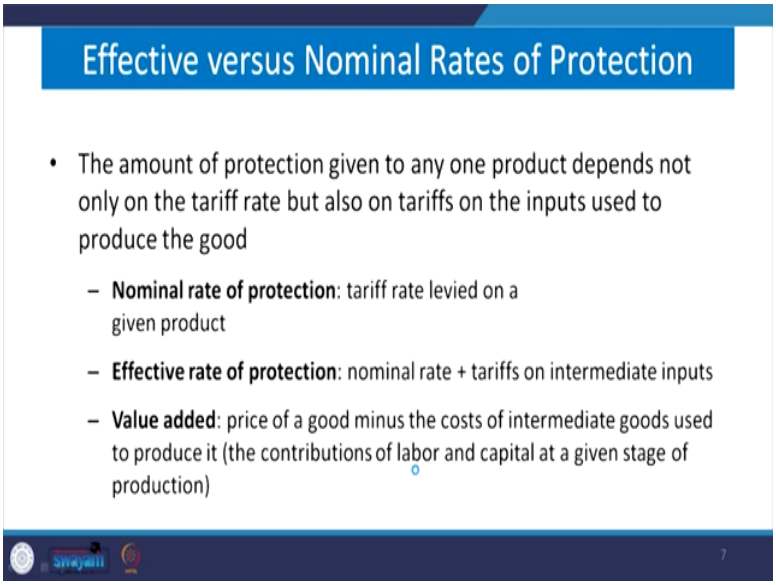

Now, coming to the discussion of effective protection, we are supposed to understand the two concept very clearly; one is called nominal protection, another is called effective protection or the nominal rate of protection or effective rate of protection, sometimes you know these are equal, sometimes these are not equal.

Now, nominal simply the tariff rate, nominal rate is simply defined as the tariff rate levied given products. And the amount of protection given to any one product depends not only on the tariff rate, but also on the inputs used to produce the good. So, therefore, effective

product protection is not just the nominal tariff labelled or charge on the final products, it also relate to the kind of replacement made by the inputs from other countries

Whereas, effective data protection is nothing, but the nominal rate flows the tariff on the intermediate products, these two must be understood. So, we will adapt a value added approach; how much the protection has actually enabled the country to add value, so we will measure through value added approach. Price of a good minus the cost of intermediate goods used to produce it; the contribution labour and capital at a given stage of production, this is quite important for understanding.

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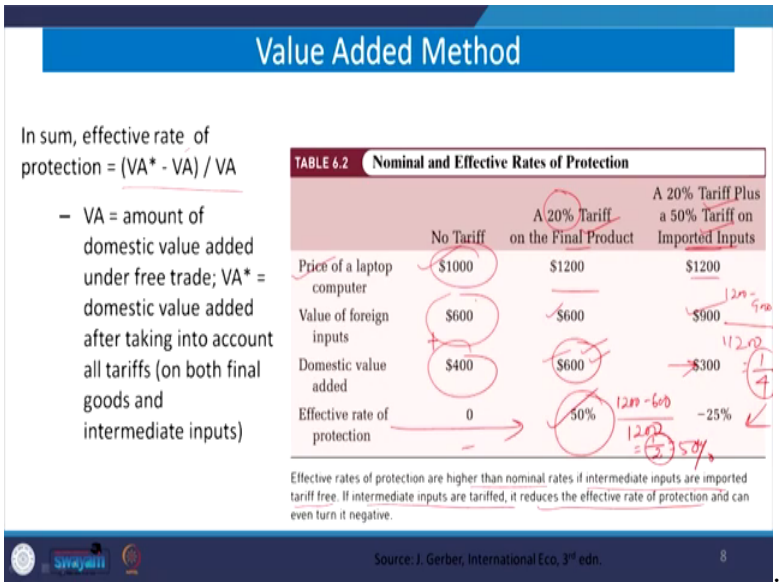

Now, from this you know slide, from this particular page, we can infer one thing; how to calculate the effective protection. We just wanted to say that, it is the value added you know after I mean net value added divided by the value added. So, I mean how to find out the net

value added? Net value added is basically the you know price or the final value of the product after tariff minus the value added total value of the production before tariff, divided by the total value of production before tariff.

If I if we do so, we can find out the impact of protection or the effective rate of protection. So, effective rate of protection is actually measured by the value added star divided by minus value added divided by value added. So, here if the price of a, for an example if the price of laptop is 1000, value of the foreign inputs is 600 and domestic value added is 400; that in this two value of foreign input is 400 plus domestic value added is you know 400. So, the final price is actually 1000; to start with the example, we do not have any tariffs at this moment, so effective tariff is also 0.

Now if there is a 20 percent tariff, say 20 percent simply is called nominal tariff as we say on the final product; that means final product value is 1000, if 20 percent is charge it is 200. So, 1000 plus 200 it is 1200. So, now, it is interesting to note how much value added we have made. So, value added is actually is 600 divided that by the original value. So, you know this is basically 1200 minus 600 divided by 1200.

So, this is protection is actually 1200 minus 600 is the value added domestically divided by; because the foreign inputs is 600, so we have added a value of extra 600 divided by 1200 is basically is equally to half 600 divided by 1200 half, so this is the basically 50 percent. So, 50 percent is the answer so far as effective rate of protection is concerned.

Now let us make another you know case to it by adding taxes for the intermediary goods. We said 20 percent you know tariff the impose on the final good in the in this previous example. Now suppose a 50 percent tariff on imported you know imported inputs; if is there 50 percent, then the 1200 they are now imported inputs we have made, because of that the value added actually reduce to 300 only, ok. Because we have now higher you know inputs. So, 50 percent of inputs are now taxed.

So, now, 50 percent only value added left; there are 600 value added 50 percent is taxed, so only 300 left. So, 300 it is basically how much how to calculate; then 1200, I mean what is this

1200. So, what is the net value added here? So, net value added in the previous example what is positive is 600, but now the inputs itself is actually of 900.

So, 1200 minus 900; so this is basically 300, so divided by of 1200. So, it is one fourth. So, 300 divided by 1200 which is basically 25 percent. Now one fourth is actually protected which is in fact, negative. Why negative? Because of the fact that, our domestic value added is 600 where the cost is actually 900. So, it is a minus 300 is the you know is a negative part attached due to higher tax and the imported inputs imported inputs.

So, effective rate of protection are higher than nominal rates, if intermediate goods are imported with a tariff are imported tariff free; if intermediate are tariffed, it reduces the effective rate of protection and can turn into negative as well. So, this is what is explained.

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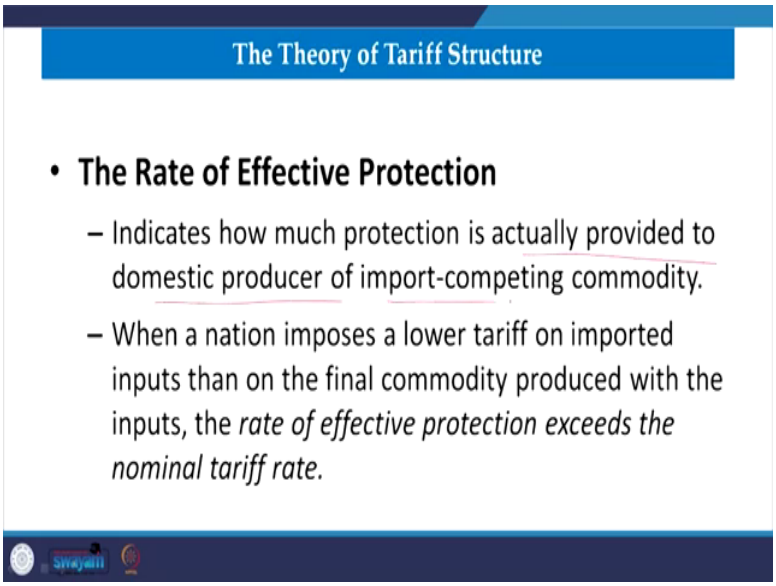

Now so, what do you mean by the rate of effective protection? It simply talks about protection that is actually provided to domestic producers of import computing commodity. When a nation actually imposes a lower tariff on imported inputs; then on the final commodity produced with the inputs, the effective protection usually exceeds the nominal tariff rate.

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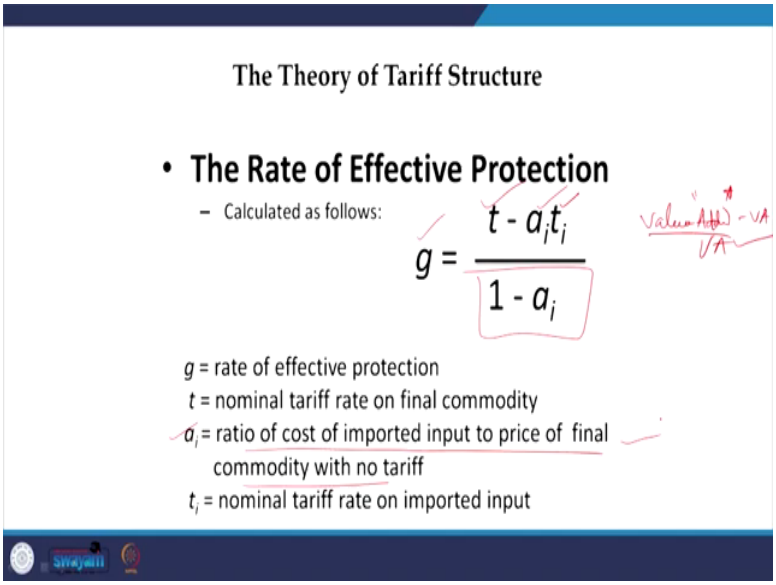

Now, we said value added divided by the value added after tariff, this is value added tariff minus value added divided value added is nothing, but the answer for effective rate of protection. Now here this can be also answer. Here we say g stands for effective rate of protection, this is not t; t is the nominal tariff, t is the nominal tariff which we have discussed and t i is the tariff for the imported inputs and a i is the value added to the percentage of imported input used in the final product.

How much percentage of inputs which are imported to produce the final product? Generally 80 percent of the raw materials to get 100 percent of output; that means 80 percent is the cost which are imported. So, this is 1 minus a i is basically a i is called value added, net value added which is this mentioned here. So, a i is the ratio of cost of imported inputs to price of final commodity with no tariff; if there is no tariff, then this is the cost of actually imported inputs to the final price.

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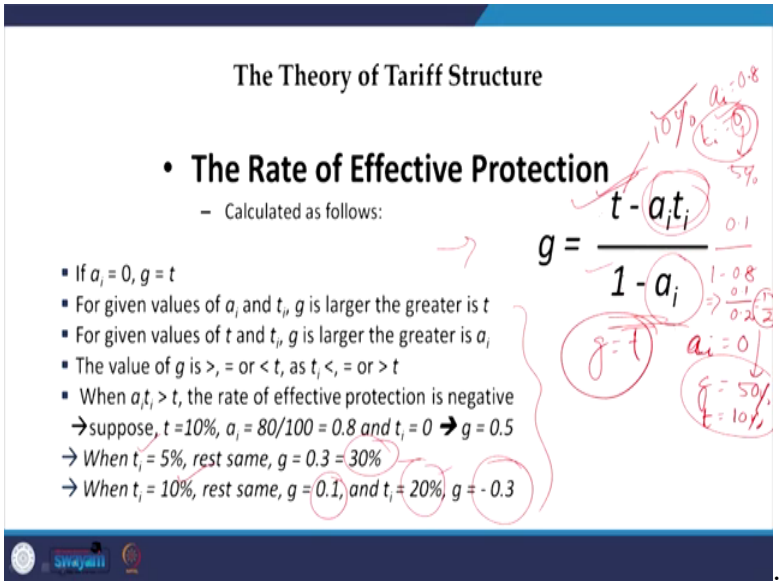

Now, rest of the explanation I have already made. Now given this equation, let us test with certain examples. So, examples are here given like this, if a i is equal to 0; that means, there is no imported inputs to the final price of the product, so that means, there is no you know raw materials you know which are imported. So, a this is this points have to be 0, this points have

to be 0. So, 1 minus 0 here is 1; this only nothing, but g is equal to t when a i is equal to 0, alright.

So that means, whenever there is no imported inputs, so there is no you know effective protection; basically the nominal protection is your effective protection. Now suppose let us start with certain facts. Now if t is equal to let us start with if t; that is the nominal tariff is 10 percent, this is 10 percent and a i stands for 80 percent or 0.8. So, 80 percent and t i is equal to 0; that means, the tariff on the inputs which are from imports, the tariff of imports on the as a raw materials is 0.

So, inputted imported inputs are attached with no tariff rate let it be so; that means, t i is t i is 0 this part is 0. Now a i is 1.1 minus 0.8. So, this is 0.1, this is 10 percent. So, 10 percent this is basically this is equal to 0.1 divided by 0.2 0 point 0.2. So, it is basically half equal to half, so it is nothing, but 50 percent.

So, g is equal to fifty percent. Whenever we have this scenario this you know context, so the effective protection is 50 percent. So, whereas, the nominal protection t is your 10 percent, we have already mentioned here. So, when t is 10 percent, effective protection is actually 50 percent. Now this is because of the fact that, there is you know no tariff for the imported inputs. Now when there is tariff for the imported inputs, let t i be; t i now instead of 0, it let it be 5 percent. So, 0.05, now which is equal to 0.05.

If you apply it in the same equation given all rest the same, g is equal to 30 percent. When basically when t in t i increases, the price for or the tariff on the imported inputs are higher, the effective rate of protection actually declines. So, when t i is higher, t i is higher or a same so; now you can find when it is 10 percent it is now zero, I mean 1 percent or 10 percent. When t i equal 20 percent, when you know it exceeds a limit beyond 10 percent.

Now, when it is 20 percent, now we have got a negative figure; 30 percent I mean negatively affected, I mean effective protection is not there at all rather it is negative, ok. So, it is not

protecting the domestic boundaries when the raw materials prices are actually exceeding than that of the nominal tariff.

So, therefore, it is not to you know go for you know raw materials inputs; better to have you know finish product inputs, when the raw material cost by tariff rate is very high, ok. So, these gives you know complete discussion on effective rate of protection and accordingly we have receive better ideas of how to.

This is broadly the value added method. This is the value added after tariff on the numerator and this is the value added before tariff in the denominator.

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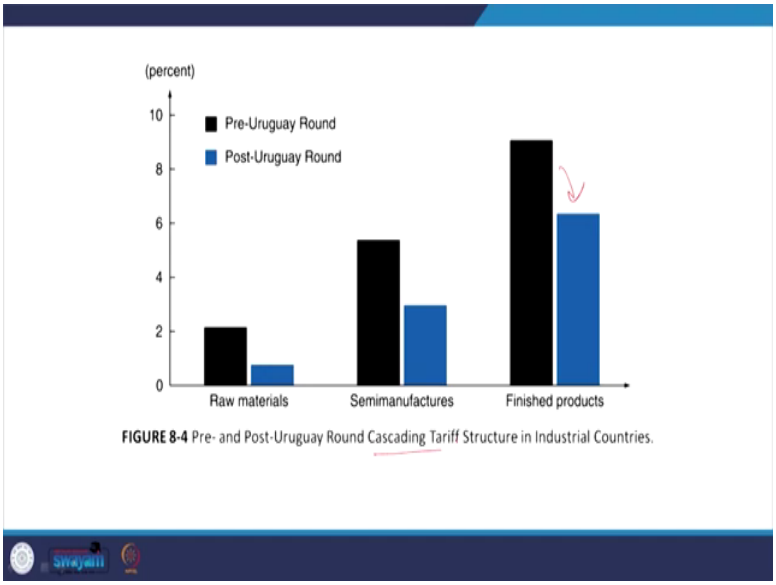

FIGURE 8-4 Pre- and Post-Uruguay Round Cascading Tariff Structure in Industrial Countries.

Now, what are the other discussion? Then other discussions are like you know in the you know as I already discussed in a Pre Uruguay and Post Uruguay round; this is the one we have

discussed in the previous class, where there has been net fall in the tariff structure especially after the Uruguay Round. And it has use cascading tariff effect; because one if one country impose tariff, another is going to gently it later.

So, therefore, there has been agreements to reduce the price over for all the products.

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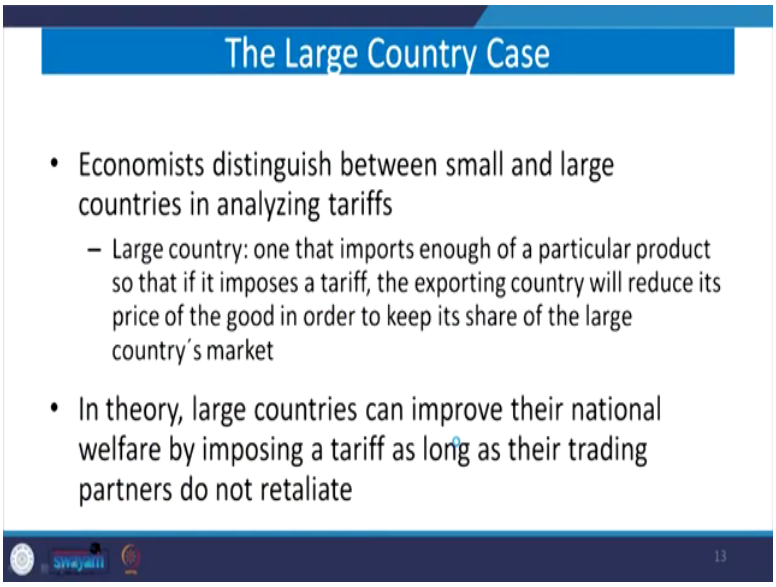

Now, let us have the discussion on you know, so far as effective protection is concerned which rates by which country are very important. Now we have already unfolded the discussion on small country versus large country debate. Now in a previous week we discussed the terms of trade argument; that terms of trade in the small country if imposing a tariff is not going to change the terms of trade on the world prices. Those small countries earning you know certain revenue out of tariff are actually demotivates the prices; the final price settlement is not going to be for the small country, in fact it is rather against to them.

So, now economists distinguish clearly the small country and large country analysis of imposing tariff. So, large country that impose enough of a particular product, so that it impose a tariff and exporting country will reduce its price of the good in order to keep it is share of the large country's market. So, therefore, a large country has huge holding, over imposing tariff; because it can control the supply of the another country or the exporting country like India and China.

So, in theory large country's can improve the national welfare by imposing tariffs; because it contributes to the terms of trade you know arguments positively and as long as they are trading partners do not retaliate, then this is going to be you know positively impacting the welfare of the big country. But if the trading country or the partner country retaliate in other products, then it may not be you know effective.

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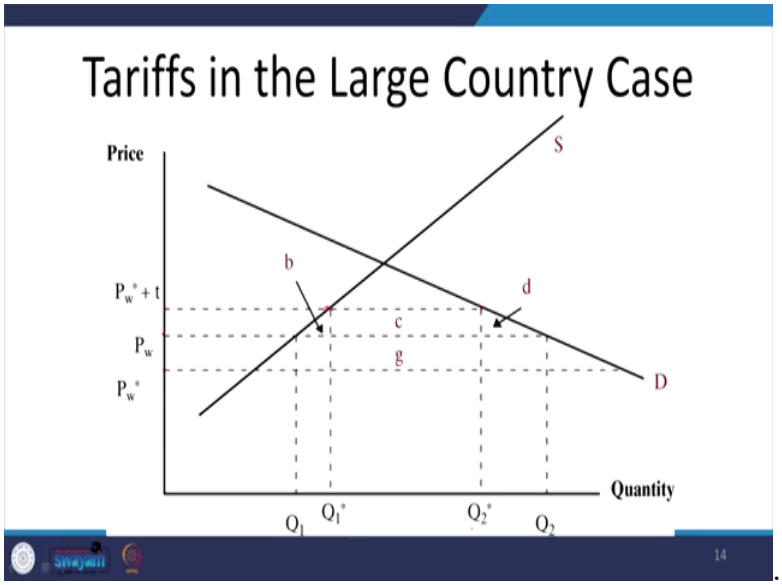

So, so far as the tariffs in the large country case is concerned; we have seen that the you know the world prices after tariff, world prices after tariff is getting affected. So, there will be higher positions, we can have you know P domestic price, world price, before tariff, after tariff there are other possibilities; basically we wanted to say, it constraints the quantity, these are the figures we already discussed.

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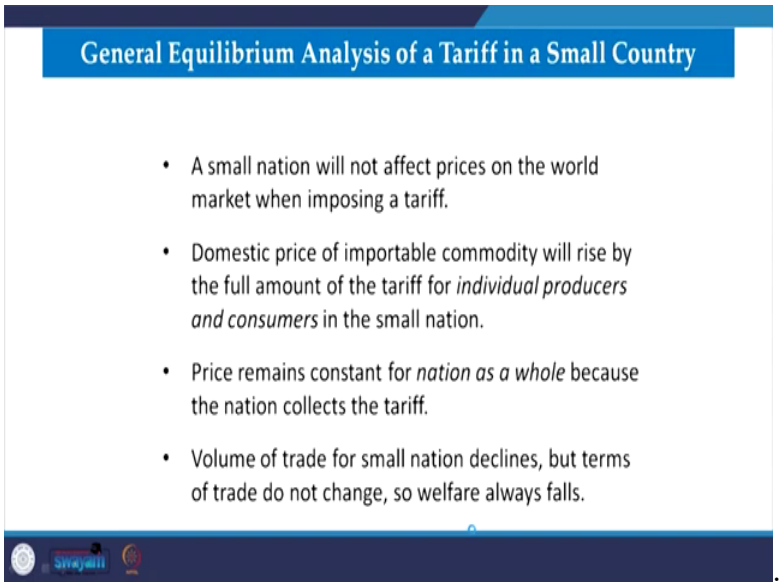

Now, what about the small nation you know debates. And in the small nation context, we need to identify whether the small country can able to you know can able to capture the large country after imposing tariff. Now small country as we know that, it has less capture and will not affect the price in the world market when imposing a tariff. So, the domestic price of the importable commodity will rise by the full amount of the tariff for individual producers and consumers in the small nation.

So, the price actually remains constant for a nation as a whole, because the nation collects the tariff, ok. So, volume of trade for small nation declines; because you know they are charging higher prices, but in the world market they are not going to you know influence the terms of trade, terms of trade do not change, so the welfare actually falls.

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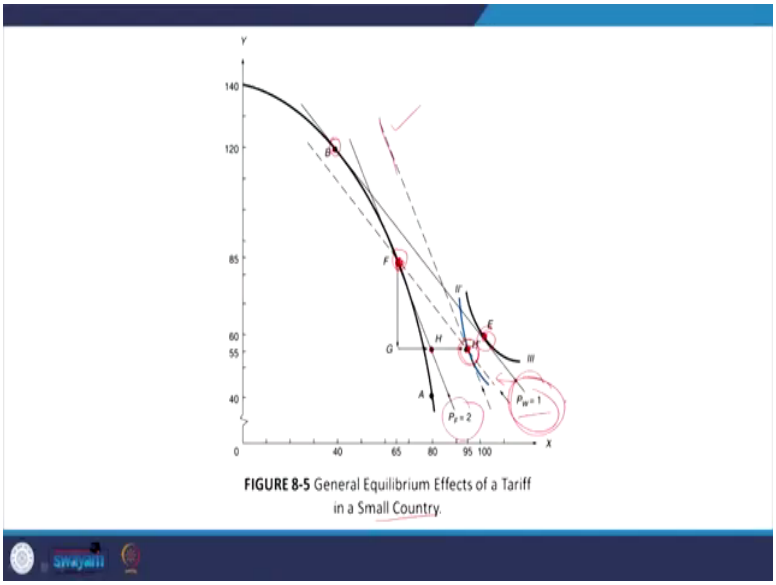

FIGURE 8-5 General Equilibrium Effects of a Tariff in a Small Country.

Now, in this context as I already mentioned in earlier you know week; the general equilibrium set off, there are some adjustment in the trade basket.

Now, if the before trade is here and after trade you know the country is lying somewhere at world prices with you know 1 as a ratio or price is P W is a relative prices. Now the small country; here we are discussing small country context, if imposing double you know 100

percent tariff on the relative prices. Now temporarily the small country might you know, basically it imposes prices.

Now, look at the this, this is the you know before tariff; now after tariff the price within the domestic country will actually rise. So, now, I mean they will come back to the original level of satisfaction or the production possibility frontier at F. Now the price issue is now doubled at 2. Now with this reason what the country will do; country gets you know gets you know higher prices and country collects collect certain you know extent of revenue out of their you know tariffs on the products those are imported; but they cannot able to influence the world prices, I mean the terms of trade, they can simply influence their domestic prices.

So, what is going to happen? Those revenue is collected by the small country; if they simply you know distribute to their consumers, their conception level will might be reaching at a higher point instead of F point F, ok. So, I mean look at the price line, these price line may be valid for a very short period for the short for the small country case. Whereas, as we already said in the larger context for the world market as a whole, this is not going to be changed, the price line still will be maintained at 1, so there will be parallel line.

So, the parallel line will pass through this and they might arrive at 0.8 for final consumption; but actually the end of with a net loss in terms of terms of trade, because that term of trade still parallel to the line as we discussed here at P W at 1. So, therefore, the small country is actually badly affected in this context.

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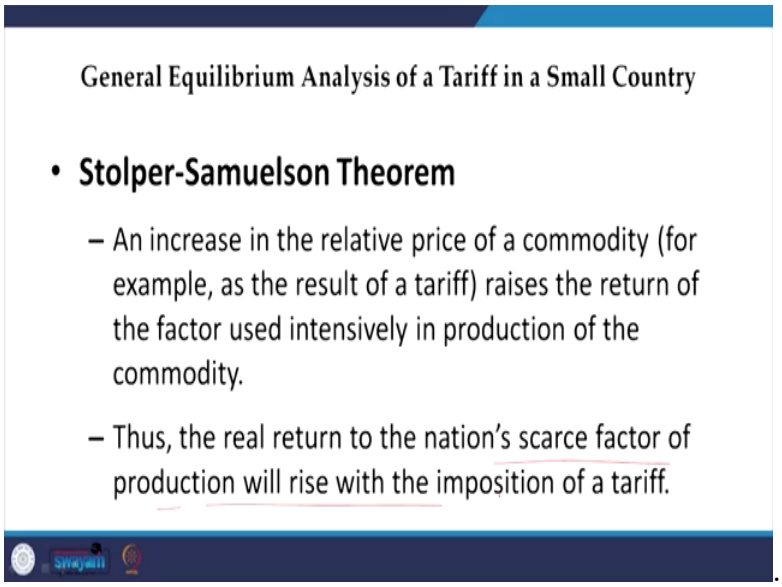

These are the discussion we already made with an Stolper Samuelson Theorem, where the small country relatively suffers. So, an increase in the relative price of commodity raises the return of factors use intensively in the production commodity as they mentioned. They also opined the real return to the nation's scarce factor of production will rise with the imposition of tariff.

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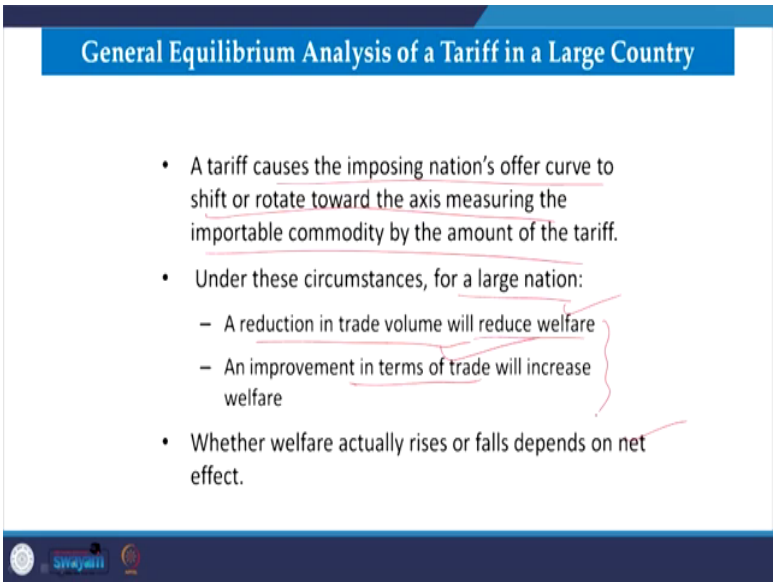

We have already discussed number of times of these; the tariff for a large country rather is different. So there will be shift causes the imposition offer curve to shift or rotate towards the axis measuring the importable commodity by the amount of the tariff.

So, large country can influence the changes, so they can you know under the circumstance a large country a reduction in trade volume will occur and there will be reduction in trade volume; will reduce. If there will be no reduction trade will reduce welfare, but improvement in terms of trade will be absorbed, so far a large country is concerned. Whether welfare actually rises or falls, it actually depends on the net effect, net effect of these two.

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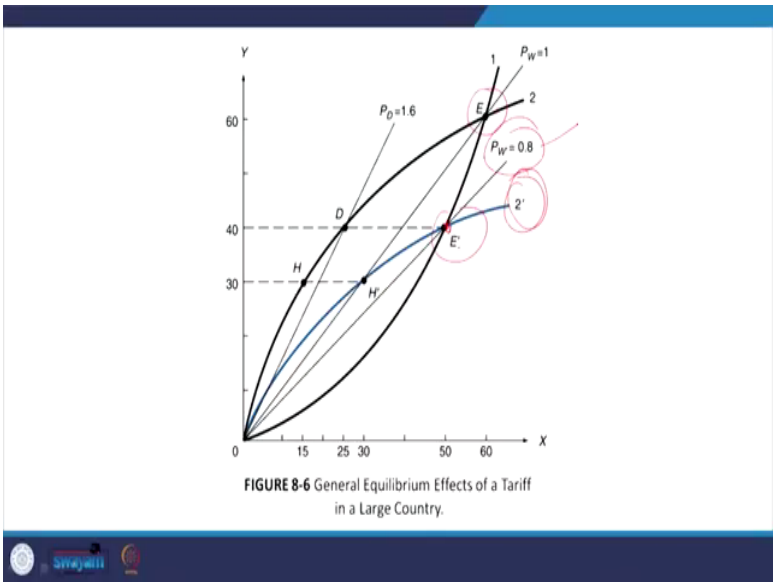

FIGURE 8-6 General Equilibrium Effects of a Tariff in a Large Country.

Now, the general as I just simply said, you know the terms of trade diagram can be explained. And so, there will be new offer curve; offer curve explanation already made in the last week, so the you know the world prices can be influenced and accordingly a new equilibrium point will be settled instead of this, ok.

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So, last part to discuss is identifying the optimum tariff then; then what could be the optimum tariff? Like you know here there are possibility of changes, where one country is going to impose tariff and its offer curve will different. So, the net prices stands at the you know terms of stands at 0.8 as per our earlier example.

Now, so another country might retaliate. So, if they are retaliate, then what is optimum tariff, what is the best tariff then? The optimum tariff simply maximize the net benefit resulting from improvement in the nations terms of trade against negative effect of declining trade volume. So, the terms of trade improve for the imposing nation those of the trade partner deteriorate and reducing the welfare of the trade partner.

So, trade partner will likely retaliate as I once mention and impose its own optimum tariff. World as a whole is made worse off as a gain from optimum tariff are less than the and then losses of trade partners.

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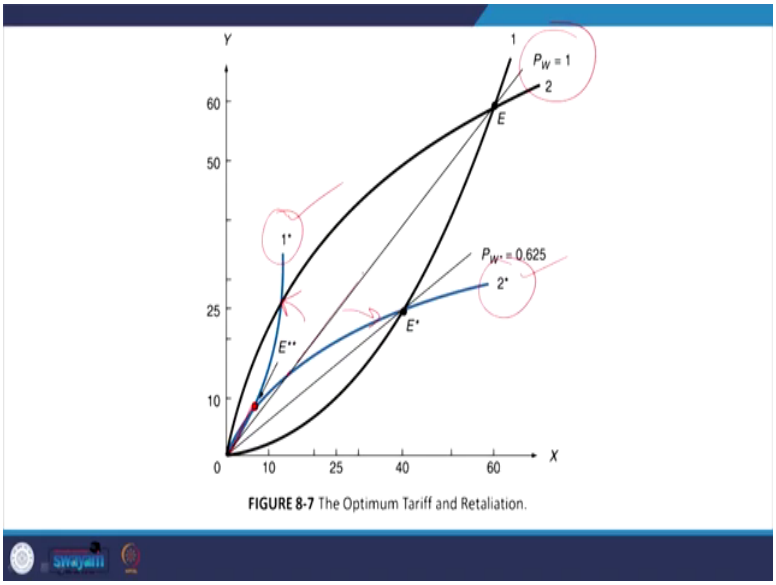

FIGURE 8-7 The Optimum Tariff and Retaliation.

And the optimum tariff is written by all their retaliation; sometimes we have you know this kind of shift, for another country is going to have a shift.

So, finally, they will end off with a solution; that solution will actually define a final you know point of equilibrium. So, both the country will retaliate and they will arrive, usually you know equalization of price is expected; but after retaliation a tariff will be suggested, that tariff is going to be best suited for both the country. But whenever there are two rates different cannot be defined as a equilibrium rate, usually it concerned with the one as the relative price.

So, that will be all about you know guiding you know optimum tariff; optimum tariff is a is derived through general equilibrium setups, it is not easily understood through demand and supply you know arguments. So, therefore, we need to have you know advanced software like Jitta with those data can you know be very useful in explaining optimum tariff.

So, I have largely discussed the effects of tariffs, small country large country effective rate of protection, different types of tariffs. So, we will in the next class we will open the discussion for non-tariff barriers, with this I think I has to stop here.

Thank you.