Strategic Trade and protectionism Theories and Empirics

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Lecture – 25
Terms of Trade: Determinants and Impacts

Yeah guys welcome once again to the you know NPTEL module on Strategic Trade and Protectionism we are on lecture number 25, week number 5 where you know we have been discussing Terms of Trade and it is connection to the strategy of international trade. Now, in this particular lecture you know I am trying to clarify the concept related to Determinants and Impacts or the effects of Terms of Trade.

You know it has been observed largely that you know the terms of trade has huge implications for the developing country and there are many theories develop accordingly you know like emotionalizing growth rate as I mentioned earlier proposed by Professor Jagdish Bhagwati. But it was way back 1957 - 58 where the theories were developed. Now so, therefore, the lecture name is Terms of Trade: Determinants and Impacts, my name is Doctor Pratap Mohanty Assistant Professor you know department of humanities and social science IIT Roorkee.

Now, in order to understand the impact or the determinants correctly these diagram though we have already discuss so, better to reemphasize further.

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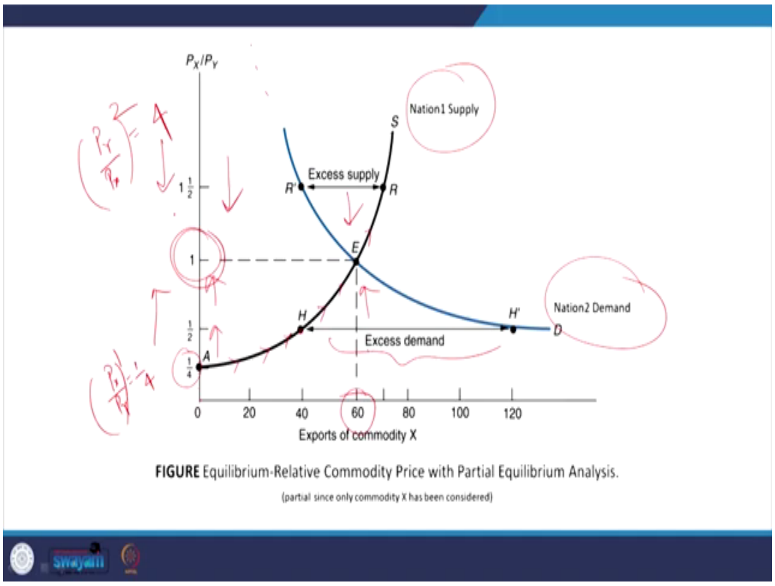

This is in fact, attaches the equilibrium price though we derived from the offer curve arguments; offer curve we have already discuss in this week only that is very helpful in you know generalizing the international equilibrium price or the terms of trade.

From the earlier argument if you remember carefully where we discussed, the relative prices of the commodities and the relative prices of the commodities and the you know commodity X that is being demanded or supplied. Nation 1 we are considering here either net supplier so far it is commodity X is concerned and next nation 2 is actually a country is the net demander.

So, by the endowment argument we discuss earlier which says that nation 2 is more endowed with the X variety of products should be produced. So, then late exporters the relative prices in those countries for those products for commodity X is compared to Y is cheaper.

So, starting with one forth is the relative price when it increases nation 1 is a net supplier is actually ready to export ok. Now, similarly when I mean when the terms of trade; terms of trade is we discussed for nation 1 is of one forth. So, terms of trade in nation 2 is of P Y by P X, I mean since 2 countries we are concerned with this is country 1 and so this is equal to 4. Now, given this therefore, the supply curve actually supply starts at a I mean demand by the country 2 for countries 1 product is near about less very near about 0 it is start from an infinite point.

Now, once when the terms of trade of country 1 you know increases steadily so, the reverse is true where it falls for another country to import. So, therefore, there has been a you know countervailing forces that that helps the countries to define a an equilibrium price.

And therefore, at certain level where X is demand is defined or observed for country you know for the for the commodity X the same gets you know lessened it will get gets squeeze squeezed and reaching at an equilibrium price where equilibrium level of quantity demanded and export I mean imported and exported in international level and that determine an equilibrium terms of trade. And this is usually defined as longer phenomena which we have discussed and accordingly various types of terms of trade and various instrument of measurement were developed.

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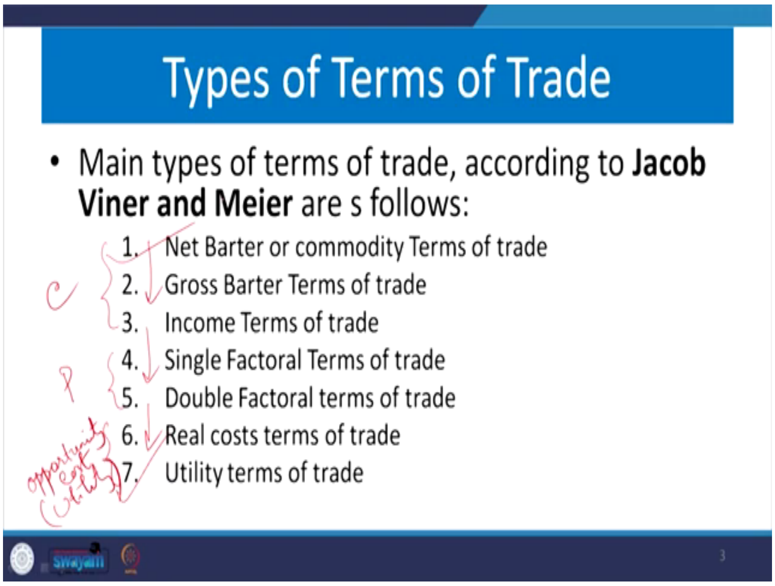

So, therefore, in the last class we talked about different types mentioned by Jacob Viner and you know Gerald Meier where the you know terms of trade are probably these categories and these category.

This is largely on commodity exchange as I have already mentioned, this is largely on productivity; productivity factor or co productivity efficiency, this is largely opportunity cost; opportunity cost of measurement and usually defined in terms of utility a relative utility. So, therefore, this method is hierarchically important you know important and it attaches larger perspectives.

Though each of the you know instrument has it is own shortcomings, but the simplest method of measurement is nothing, but the net barter terms of trade and which is largely use in our discussion in many other discussion. So, now, on in this lecture we are emphasizing on what really influence the terms of trade and after influence you know what really it impacts the terms of trade. If it is higher is it favorable, is it lower is it you know disfavorable or unfavorable.

Now, determinants what it effects, what are the causes, causes of terms of trade, what are the factors of terms of trade? Now, I have mentioned so many factors based on the understanding from various perspective.

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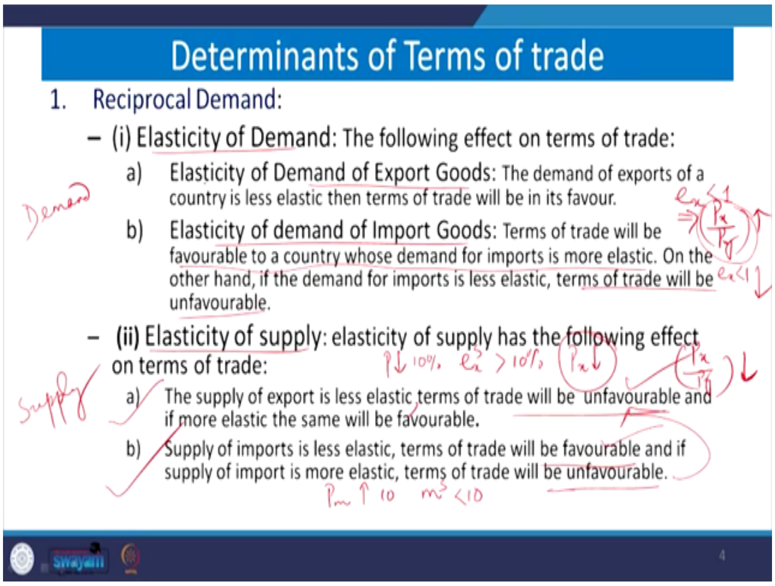

First factor is called reciprocal demand as a factor behind terms of trade. A reciprocal demand one of the reason one of the you know important instrument of reciprocal demand is elasticity of demand.

Elasticity of demand for import as well as export, elasticity of export demand, elasticity of import demand. Now so, how it matters, if the demand for exports of a country is actually less elastic, if elasticity of exports demand of a country is less elastic, then the terms of trade will be in it is favor. What you mean by that?

If elasticity stands for e of exports is less than 1 and that will be good this implies that P X by P Y, P is relatively higher it will be in favor of their country, because of the fact that if your product is inelastic and by charging any form of taxes on it, but tariff on it or any kind of disfavorable you know steps taken by the country or I mean in the country that will not you know reduce the export demand. So, the in the international level your product is actually still demanded, so, that much of demand is still preserved or still you know expected.

So, therefore, if your product is inelastic what do you mean what are the other interpretation of inelasticity? Other interpretations are like your product might be you know relatively different, might be qualitatively different, might attach certain imperfections in international market might be very differentiated or might be you know might be having attach with or might be attached with certain extra features monopolizing characteristics. So, therefore, you know it will attach higher price in the international market.

Similarly if the elasticity of demand if demand for your inputs the terms of trade will be favorable to a country whose demand for imports is more elastic; demand for imports is more elastic suppose our we are importing and that demand is very elastic in nature. So; that means, if price increases; price increases now what is going to happen, if it is I mean just the reverse. If your import demand is very elastic suppose it is our not product import demand of another products. So, the our product in another country and they are and it is and your importable wherever we import. So, basically you know or that is basically export in the international market.

If the import product in the international market or the importable item in your international in international market is very elastic so, that is for sure is going to you know suppose for example, a tax is impose or a tariff is impose on the imports and that will actually reduce the demand for imports ok. So, therefore, for the domestic country it is going to be good and since it is why it is good? Because in so far as you know terms of trade is concerned it will be favorable to the country since it is input elastic.

On the other hand if the demand for import is less elastic; demand for import is less elastic that mean it has monopoly power attached to it and the monopoly power and it is you know effects are derived by another country. So, other country whoever is exporting so, terms of trade will be actually unfavorable. Similarly, this is one side of the story where we are emphasizing demand perspectives.

What about supply? See if supply is elastic supply I mean the supply is itself is very elastic, the supply of exports is less elastic so, the terms of trade will be unfavorable. So, I mean so far as demand is concerned we found that you know it is favorable in some case is if it is you know . So, in another case it is unfavorable if it is then 1. Now, whereas, in the supply case if your supply of export is supply of export is actually our export is elastic in terms of I mean I mean elastic the terms of trade will be unfavorable.

So, now how to interpret it? Actually if your supply of exports is elastic if price increases in international market by you know 10 percent, your export will actually export supply will be more than 10 percent. If your export supply is more than 10 percent then you know it will reduce the price, it will reduce the net price in the international market. So, therefore, the P x by P y will be falling as a native effect. So, therefore, it will be unfavorable if it is more elastic. So, if it more elastic the same will be favorable, I mean just the I mean opposite aspect can be understood.

Now, similarly the supply of imports is less elastic; supply of imports is less elastic the you know if price of imports actually increases by 10 percent the you know the supply import supply is actually less than 10 percent increases, but less than 10 percent the terms of trade will be favorable to the constant country to the constant country it will be favorable.

And because even if price increases more supply is actually not added to the constant country so, therefore, it will be favorable to the constant country. The supply of input is more elastic now if price increases, but the supply actually increases more than that that country will take more advantage. So, therefore, it will be unfavorable the reverse can be also understood here. This is very very interesting you know part so far as determinants of terms of trade is concerned and which is concerned to elasticity of supply and elasticity of demand.

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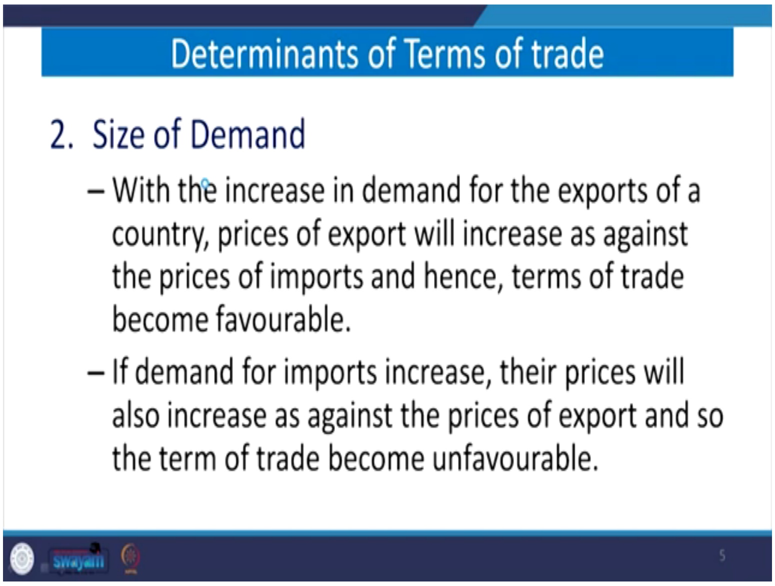

Now, let us check with size of demand the volume of demand really matters, with the increase in trade or increase in demand for exports of a country a prices of exports will actually increase there is against the price of imports and hence terms of trade is favorable. So, therefore, the size of demand really matters not just the elasticity the extent of you know demand is also very important. If the demand for imports increase then it will be certainly I mean unfavorable.

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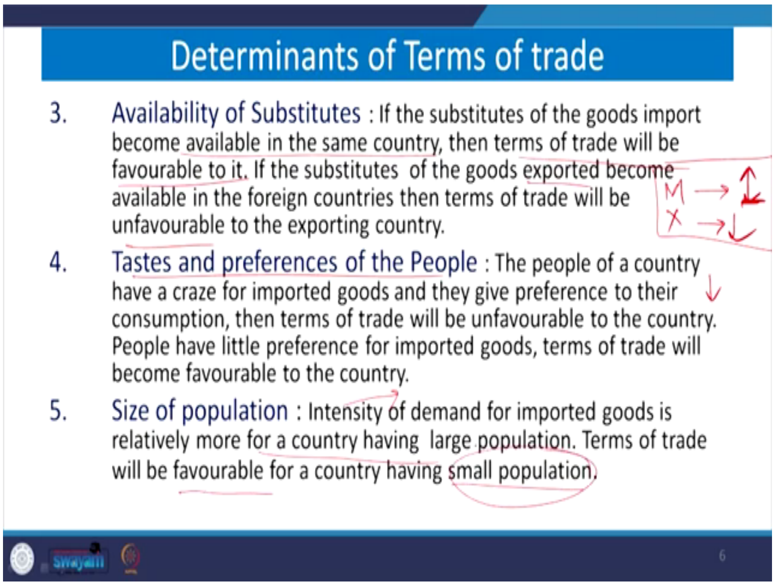

Similarly, if you look at other factors, other factors like other factors of terms of trade like availability of substitutes. Now, if you have more substitutes whatever imports we do if imports have huge substitutes available. So, why should we import on that particular import of that particular commodity. So, the relative price will actually fall in the international market for import. So, that will be favorable to the countries terms of trade. If the substitutes of the goods import become available in the same country, then terms of trade will be favorable to it as I just mentioned.

So, if the substitutes are I mean substitute of the goods exported now import as again say if it is exported and become available in the international market then our terms of trade in international market for it is exports will actually be compared to lesser. So, it will be unfavorable. So, in case of exports in case of imports if substitutes are available this will be unfavorable I mean this will be favorable. In case of exports exportable product and if more substitutes are available for your exportable part of the international market it will be unfavorable, this is what insert can be presented like this.

Similarly, if you look at taste and preference of the people; the people of a country I mean if you look at correctly have a craze for imported goods and they prefers strictly to their consumption of the importable basket. So, therefore, the demand the importable basket more strongly so, it will negate our or it will disfavor or unfavorable to our terms of trade, because we have we have a strong taste and preference for specific product. So, if it is so, it will be a clear unfavorable to our terms of trade. Now, similarly if people have little preference to the imported goods then it will be favorable for sure ok. So, these are the factors.

Similarly if you look at size of population, size I think is one of the most important determinants of for international trade and size really matters size of population matter that defines the market of a of a particular commodity usually India and China referred because of it is very nature of population the you know the population by number is second largest India is the second largest followed by you know followed by China.

And so, size of population themselves define the you know magnitude of demand for importable product. So, intensity of demand for importable goods is actually relatively more for a country which have you know large population. So, therefore, terms of trade will be different and you know terms of trade I mean if it is imported goods intensity of demand for imported good is relatively more intensive.

Now, I am emphasizing the elasticity patterns. So, if it is elastic now if any relative price increases for the importable good it will be favorable to the countries terms of trade since population is more. So, wherever population is more there are high chances of expecting the prices of import to be lesser, because they capture larger population. Terms of trade will be favorable for a country having small population. Now, argument is here now depend upon volume of quantity consumed for importable then it will be disfavorable to the countries terms of trade.

Now, if it is small country then the volume of consumption will be less for the importable product, but if you can have a better bargaining for the importable product and there are large number of substitutes available and our population used to get those substitutes available so, then in that context then it will be favorable. Otherwise largely population demand hugely for the product and if it is small country, then it is favorable for terms of trade.

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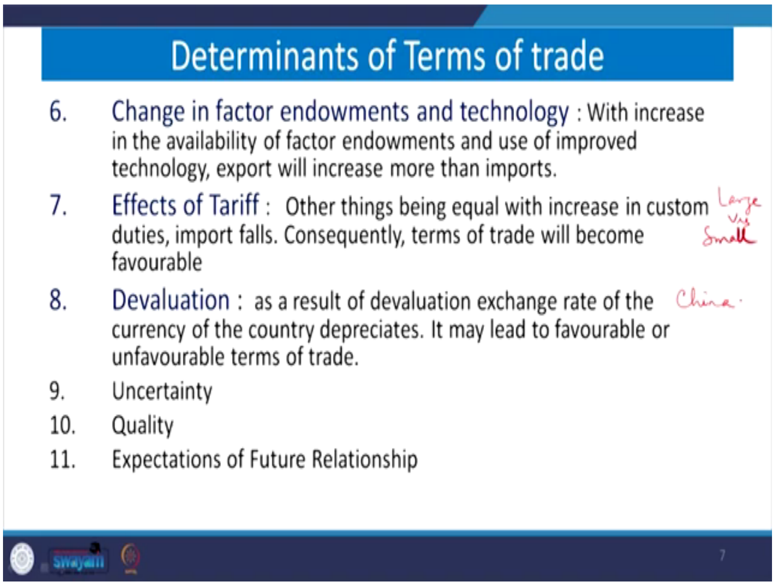

Similarly, there are other factors like changing the factor endowments and technology. Factor endowment or the resources used with increase in the availability of factor endowments and use of improved technology. So, export will rise then as compared to imports so, that will be favorable to the countries terms of trade.

And other things keeping other thing equal effects of tariff if it is their tariff is their tariff for a product again it depends up a small country large country context, large versus small which I have already discussed. Now, if it is I mean country is imposing if the country is imposing duties or in or tariff import falls. So, terms of trade will become favorable since we can able to reduce the imports.

But now look at what is going to happen if it is a large country is compared to small country, if a small country imposes tariff on the imports or large number duties are imposed. Now, the terms of trade is not going to change for the country rest of the world, because of the fact that the country is not I mean can able to influence the prices of the imports or import prices are not changed or the export the terms of trade are not changed. So, therefore, small country is not going to impact and it may a large country big country can have different consequences. So, for certainly if it is the country concern and imports certain things for their country it is it is beneficial so favorable.

So, devaluation so, therefore, these are some strategies imposing tariff or having certain new technologies, innovation these are strategies to derive benefits out of you know out of terms of trade. Devaluation as we know it is the official channel the you know official pattern by which the currency rates are actually devalued reduced. So, devaluation of exchange rate or the exchange rate or the currency of the country depreciates. So, devalue actually depreciate the value of the currency, when we depreciate deliberately what happens?

The exports are usually expected to be higher because of the fact that you know more amount of product can be imported by a rest of the world with the same amount of money. So, the export volume rise so, if it has elasticity content, then total volume income will be more and our product will be demanded so, our prices will rise. So, that leads to you know favorable terms of trade. So, I usually China; China often the case practices devalue their currency a much a time so, that the terms of trade can be kept at a high level. So, otherwise it is unfavorable in some to some extent.

Similarly there are uncertainty if it is attach within the country, uncertainty some kind of disturbances some kind of wrong postulation, some kind of you know risk attached, then it will be often the case of unfavorable to the terms of trade.

Now, what about quality, quality of the product, now though it is very difficult to discuss now in the present days context present days you know market context trade is usually taking place in mostly in differentiated products where the products are qualitative differently, if your products attached with better quality then it is favorable to the terms of trade.

Now, similarly expectations of future relationship, now as a strategy by many partner countries to develop some kind of tie ups, some kind of you know groups, some kind of you know catalyzation, which has made the country to define the bargaining power of their exportable commodities. So, this makes them favorable in the international context. So, far as the product you know bargaining is concerned their product you know competitive advantage is concerned.

So, expectation of future relationship will actually attach future in future if they are attempting, for example, any kind of attempts any kind of news you listen from US that India is going to be have certain deals. So, then with the expectations you know expectations of better tie up. So, there will be expectation of a higher demand for a product that will lead to higher you know terms of trade that will be a favorable useful. Similarly long expectations or bad expectations will lead it to in reverse statue.

So, government policies usually matter a lot. So, a great deal of importance in the present days of research are on political aspects of under determining terms trade. So, if the politics behind many policies implemented or large determining the productivity of the product and or large determining the efficiency of the product or the factors or it has better bargaining power in the international context.

For example, in the present Modi government it has been it is expected or it has been observed that in international forum the policies are becoming more robust and the country is probably capturing you know better space in international markets. So, though they have start with various schemes to promote investors from outside to start of business in various forms to have you know better bargaining power, better terms of trade. So, in the last 5 years the numbers has not been added that much as for the expectations, but still it is you know expected to a better terms of trade so far as terms of trade discussions are concerned.

So, now, what about; what about after discussing all those determinants there are so many other determinants possible, but those are the most important determinants discussed. Now, it attached attaches with number of problems, now if this quality change often we expected better quality of trade, but actually quality changes in between. So, these are not yet captured in so far as the measurement of terms of trade is concerned.

So, you might be ask a question like out of these what could be the determinant, I mean suppose you will you are asked elastic related questions elasticity of demand and elasticity of supply. And it is connection with favorable and unfavorable terms of trade. So, you need to prepare it very correctly to answer the question, because there are certain you know confusions attached to answer the question unless you prepare it correctly it is too difficult to answer precisely.

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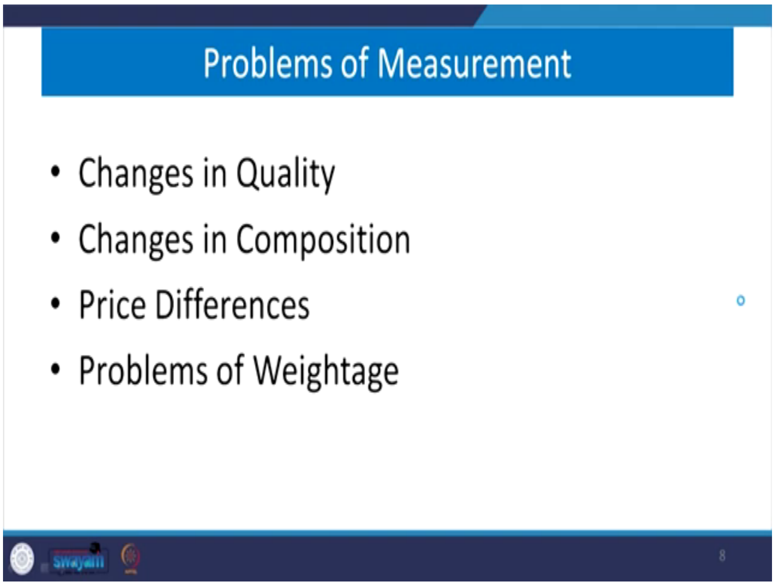

Similarly, quality matters a lot while discussing the measurement and similarly if there is there has been some changes in the composition of the product or composition of the product being imported and exported. If the composition itself you know we imported a product with certain composition of it is raw materials, but it has been found later on that the composition have been changed. So, these are not yet captured by different methods of our measurement. So, these should have been highlighted in the research papers, different research paper actually have been targeting to capture those changes.

If there are price differences also price vary from time to time price you know usually vary. So, this there must be a dynamic you know model to capture the problems. Similarly weightage, what weight to be taken? We were we take weight for certain product to get the average you know our measurement of terms of trade is through the weightage average of export and import, export price to import prices and index of export price to import prices.

But do not you think you know it is just average is not enough weightage average is enough is largely you know suggested, but what weight should be given, who are calculating the weights and is it representing the complete basket now commodity is being imported or exported. So, again there are lots of confusion I did so, therefore, the problems of measurement is identified.

Now, another aspect so far we discussed determinants some you know problems related to measurement and now I am emphasizing on the impacts or the effects of terms of trade, we have already discuss favorable or unfavorable.

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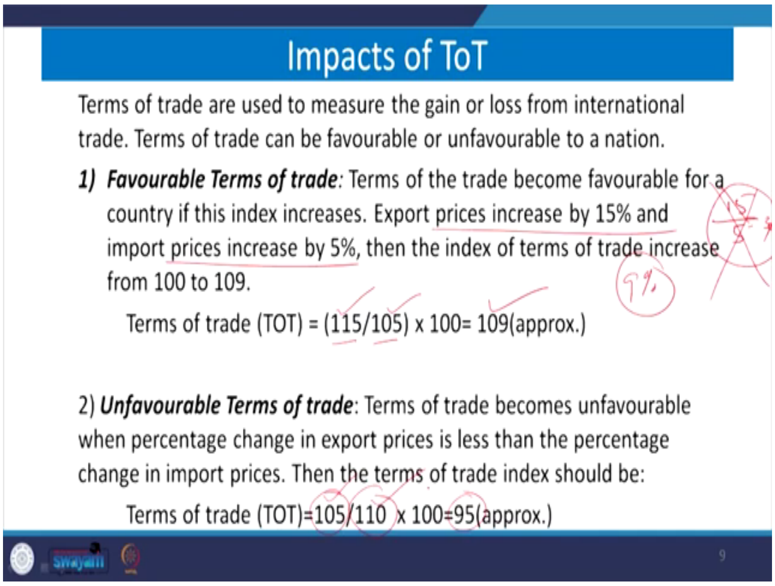

So, usually terms of trade used to measure in terms of gain or loss in the international trade basket. So, either it is interpreting in terms of favorable or unfavorable term.

Now, let us you know understand the concept with an example what is called favorable terms of trade. Now, terms of trade become favorable for a country if that countries index rises. So, x is largely you know corroborated by export prices hike and for in the import prices. Let us have an example if the export prices increases by or a price increases by 15 percent whereas, import prices increases by 5 percent; export price increased by 15 percent whereas, input price increased by 5 percent.

So, in net sense it is favorable you know tot terms of trade to the country export prices increase by 15 percent. So, it is not just terms of trade not just calculated by 15 percent by 5 percent, rather you have to calculate the net change. Then the index of terms of trade increase from 100 to 109 so, what is the index then? Index is actually export price divided by import price in to 100 ok.

Now, the index export price increase is 15 percent. So, let it be original it is 100 now it is 115, now the new import price is 100 to 105. So, now, we have to divide 115 divided by 105, that gives times 100 that gives 109.So, 109 is actually is the rise. So, 9 and as against 9 percent as compared to 100 is a rise in the terms of trade which is favorable to the terms of trade.

So, if you are given an example of calculating terms of trade with the changes you should not just discuss like 15 percent divided by 5 percent which is roughly given 3 percent is a wrong answer it is completely a wrong answer [vocalized-noise and so therefore, accordingly we may define it. So, what about unfavorable is against if it is increased by 5 percent I mean if it is 105 110, now import rises by 10 percent whereas, export rises by 5 percent. So, there it is the result is the boils 95 is less than 100 so, therefore, it is unfavorable.

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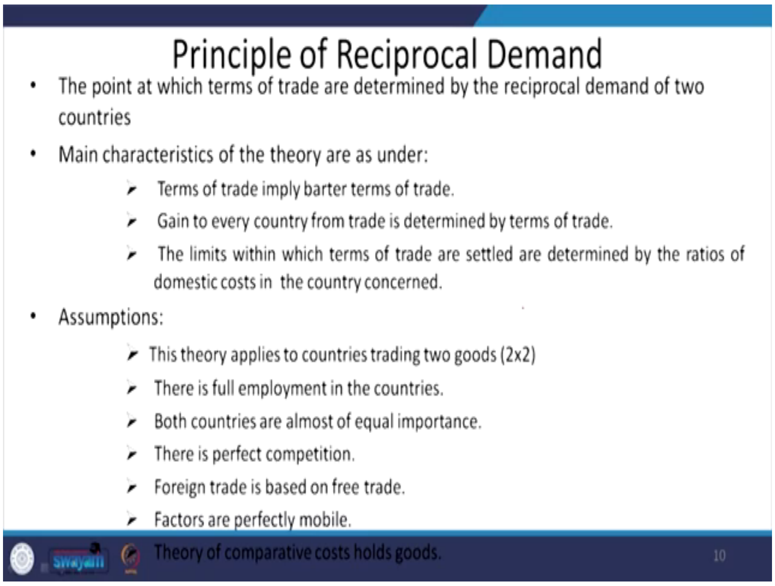

So, I have already discussed these principles of reciprocal demand we need not emphasize this further, because we already discussed earlier as well, but there are a number of assumptions reciprocal demand and it is elasticity we have already discussed.

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Table 7.2 : Trade Performance: Growth in Quantum and Unit Value indices

(Annual per cent change)

	Exports				Imports				Terms of Trade	
	Rupee terms	US$ terms	Quantum	Unit Value	Rupee terms	US$ terms	Quantum	Unit Value	Net	Income
2001-2	2.7	-0.6	0.8	1.0	6.2	2.9	4.0	2.8	-2.1	-1.7
2002-3	22.1	20.3	19.0	2.9	21.2	19.4	5.8	14.3	-9.8	7.8
2003-4	15.0	21.1	7.3	7.5	20.8	27.3	17.4	3.1	3.6	10.4
2004-5	27.9	30.8	11.2	14.9	39.5	42.7	17.2	18.9	-3.5	8.0
2005-6	21.6	23.4	15.1	6.1	31.8	33.8	16.0	14.0	-6.0	8.1
2006-7	25.3	22.6	10.2	13.7	27.3	24.5	9.8	15.1	-1.3	8.7
2007-8	14.7	29.0	7.9	5.1	20.4	35.5	14.1	1.9	2.6	10.9
2008-9	28.2	13.6	9.0	16.9	35.8	20.7	20.2	13.8	2.5	11.3
2009-10	0.6	-3.5	-1.1	1.0	-0.8	-5.0	9.9	-10.0	12.3	11.1
2010-11	35.2	40.5	15.2	13.8	23.4	28.2	8.0	13.0	1.1	16.7
2011-12	28.3	21.3	8.9	20.2	39.3	32.3	-20.9	74.9	-27.2	-20.7
2012-13*	9.1	-4.9	-	-	14.5	0.01	-	-	-	-

Source : Directorate General of Commercial Intelligence and Statistics (DGCI&S). * April-January.
Note: Quantum and unit value indices of exports and imports are with new base (1999-2000=100)

Now, let this one also we have discussed, but let us emphasize again. So, so far as terms of trade are concerned net terms of trade and income terms of trade, net means we are net barter terms of trade now largely from these years still the 12 - 13 as for the DGCIS report as I mentioned earlier. So, we have seen that in many years we have negative; negative terms of trade and so far as income is concerned in that year it is negative in other year it is positive.

But most important indicator is net barter terms of trade largely negative; that means, we are more dependent on imports our import prices are actually you know higher than that of input prices the net change is actually negatively impacting the terms of trade.

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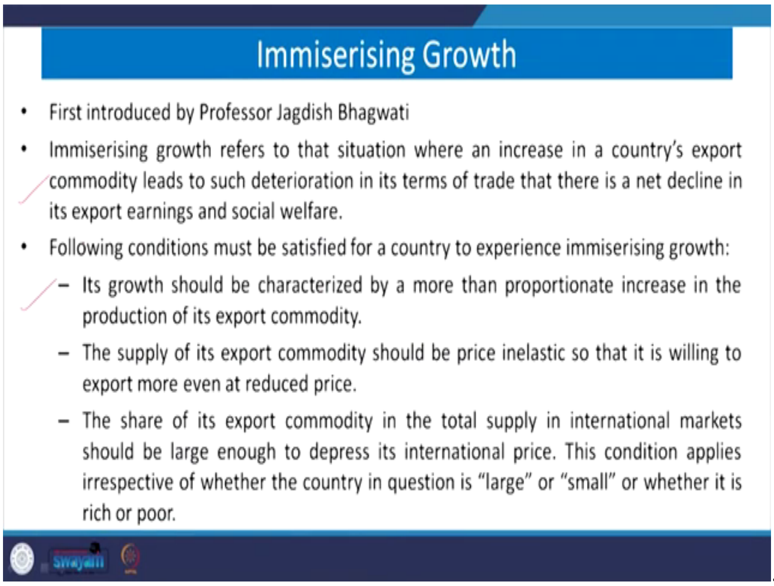

So, last issue to be discussed on immiserising growth rate which you have already discussed, but last one to be emphasize here that Professor Jagdish Bhagwati concern on these and because of his theory on this of you know since developing countries are largely emphasizing or over emphasizing their you know less efficient industries and they have since over producing those product and it has less bargaining power in the international market.

And by which the export price is over the time is continually lesser and thereby you know reduces the welfare because the net earning from the income I mean from the trade is quite less. So, you can go through we have already discussed these earlier you can go through so, there are large evidences of deterioration in the international market.

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Now, recently if you take for example, the terms of trade changes in economic welfare some of the evidences are very important for Chinese context. Now, one of the paper by Han and Zhang 2012 identified the fact that changing trend and causes terms of trade in china and studies the overall movement of you know Chinas national wealth one of the very latest paper very important to refer. Chinese economic growth is not strongly depended on exports, the exports structure of large labor intensive with low price elasticity that mainly lead to the continually decline the terms of trade in China so far as evidences of terms of trade is concerned.

So, the; however, the loss of welfare from the terms of trade decline is not enough to offset the benefits of the economic growth. The economic growth are actually not due to only the export regions there are other region domestic fundamentals are very strong. So, there is no probability even it has been clearly mentioned that there is no probability immiserising growth evidence in Chinese you know growth foreign trade.

So, therefore, terms of trade we have discussed in many forms we discuss in general equilibrium context, partial equilibrium context, we discussed types, we discussed determinants, we discussed effects. So, I hope you have understood. In the next class next week onwards we will be discussing on I know policies, we will so far we discussed theories, empirics on international trade ok. So, many aspects we have discussed. So, policy will be unfolded in next class. So, this I think we have to stop here, we will continue taking next class.

Thank you.