

Petroleum Economics and Management
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Module - 07
Petroleum Discoveries and Structural Changes
Lecture - 29
Structural change and resource discovery

Hi everyone, I am Dr. Anwesha Aditya your instructor for the course Petroleum Economics and Management. So, welcome back to our course we are in module 7 which is a very interesting module in our course where we are discussing Petroleum Discoveries and Structural Changes. So, lecture 29 of our course or that is the 1st lecture in module 7 is regarding Structural change and resource discovery that is we are going to discuss in today's class.

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The slide is titled "Concepts Covered" and lists three items: "Resource Curse", "Dutch Disease", and "Symptoms". The slide features a background graphic of a tree with various icons on its branches, including a gear, a lightbulb, a smartphone, and a document. There are also faint logos of the Indian Institute of Technology Kharagpur. A small video inset in the bottom right corner shows the instructor, Dr. Anwesha Aditya, speaking.

So, if you just look at our course structure you will see that we have devoted almost 6 7 lectures to this module because it's a very important and relevant part in our course to understand what happens when resource is natural, resource is suddenly discovered. It is not specific to petroleum, it happens for other type of resource also, but it's very relevant for the OPEC countries and also the other non-OPEC countries which are major exporter of oil.

So, what happens when oil or any natural resource is suddenly discovered? So, you may think that apparently one may feel that the country will become rich, they will have a good very good standard of living, the country will excel as far as their economic growth and development is concerned.

Now, unfortunately the answer is not always yes, the countries may not experience all these when natural resource is suddenly discovered. Rather a country may run into a stagnation, inflation, unemployment, rising labour unrest, political unrest and that is known as the resource curse phenomena. Often, we see that the if country is endowed with natural resource, those countries are not very good performers as far as the development parameters like education, health, political stability, these are concerned.

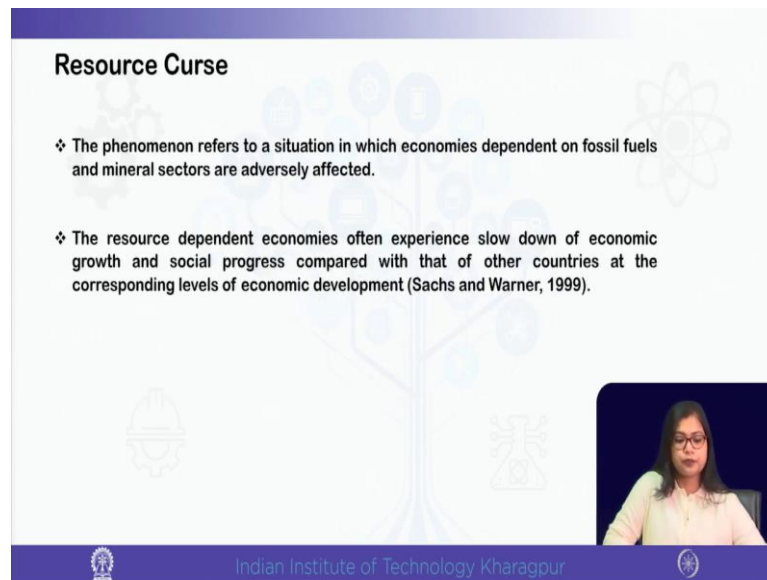
So, this is called the phenomena of resource curse. So, first in today's class we will be discussing about what do we mean by resource curse. The name actually it started from when natural gas was discovered in the Netherlands, so hence the name Dutch disease. So, we will also discuss what do we mean by Dutch disease, what are the symptoms of Dutch disease.

So, these are the contents in today's class resource curse, how it happens, the chain of events when a resource is discovered, then why we call it a Dutch disease and what are the symptoms of Dutch disease.

In the subsequent lecture of this module. I am giving a broad overview of the module 7, we will be studying a theoretical model ok, a very simple theoretical model to see what happens if there is a sudden discovery of natural resource. So, we will be seeing this chain of events that we will discuss in today's class in terms of the theoretical model. And for starting the theoretical model we also need some basic concepts of economics, so which will be discussed in the upcoming lectures.

So, we need to know about the peak production possibility frontier, we need to know about production function, the laws of production. So, those will be the contents in the upcoming lectures of this module. So, after that we will be studying the theoretical model and then also, I will be showing you some empirical evidences, some country experiences of the resource endowed countries whether they actually experienced a Dutch disease or resource curse or not.

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Resource Curse

- ❖ The phenomenon refers to a situation in which economies dependent on fossil fuels and mineral sectors are adversely affected.
- ❖ The resource dependent economies often experience slow down of economic growth and social progress compared with that of other countries at the corresponding levels of economic development (Sachs and Warner, 1999).

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So, let us start today's class by defining what do we mean by resource curse. So, the resource curse phenomenon it refers to a situation in which the economies dependent on fossil fuel and mineral sector are adversely affected ok.

So, Sachs and Warner (1999), there is a very famous paper by Sachs and Warner in 1999 where they pointed out that the resource dependent economies often experience slow down of economic growth and social progress as compared with the countries at their corresponding level of economic development.

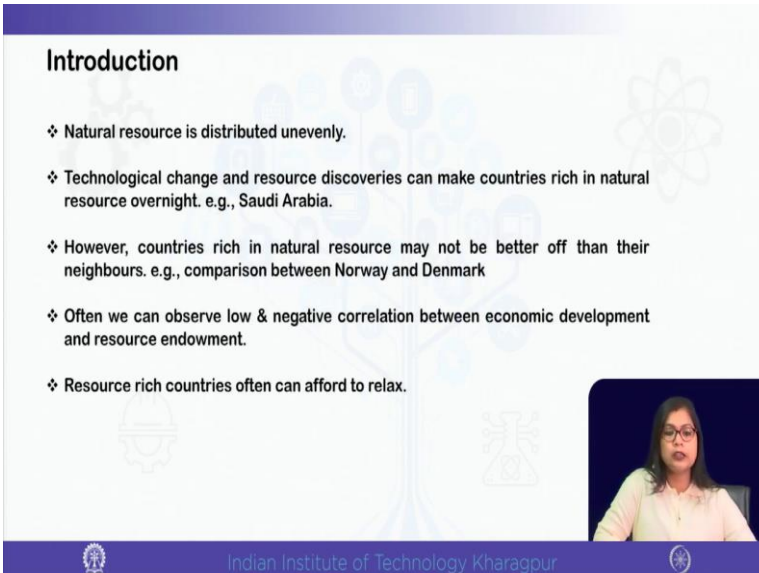
See the World Bank classifies the countries according to their level of economic development like developed countries, developing countries and less developed countries. Now, according to the Sachs and Warner if we find out the countries which are in the same level of economic development, we see that the countries which are endowed with natural resource they experience slow down of economic growth and social progress which is very counter intuitive right.

Because you may think that suppose two countries if you compare, they belong to the list of say developing countries. Now, if in country A has a sudden discovery of natural resource. So, one may think that then country A must be exporting the resource because we know that these natural resources are in scarcity. There is increased demand for the natural resource in the world market.

So, if the country is the domestic demand may be less. So, the country will be exporting that natural resource. So, we already discussed that export is a major source of foreign exchange earnings. So, the countries will become rich, then the country should experience faster growth, but unfortunately that is not the case.

We see that if two countries belonging to the same level of economic development one discovers natural resource suddenly that country will experience a slowdown of economic growth and social progress compared to the other countries in the same level of economic development.

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Introduction

- ❖ Natural resource is distributed unevenly.
- ❖ Technological change and resource discoveries can make countries rich in natural resource overnight. e.g., Saudi Arabia.
- ❖ However, countries rich in natural resource may not be better off than their neighbours. e.g., comparison between Norway and Denmark
- ❖ Often we can observe low & negative correlation between economic development and resource endowment.
- ❖ Resource rich countries often can afford to relax.

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So, this is what we call as the resource curse phenomenon. Now, what why it happens? So, before that let us see some evidences. So, see what happens as we already know that why the natural resources why they are in scarcity, why the prices are high because we know that resource is not distributed evenly right.

Like the OPEC countries the middle-east countries they have huge endowment of oil, but what about India? We know that our domestic endowment of oil is very low. So, there is unequal or uneven distribution and that is naturally that is not deliberate action by any human, ok so that is natural. So, natural resource is distributed unevenly.

Now, technological change and resource discovery can make countries rich in natural resource overnight. Like if you take the example Saudi Arabia; Saudi Arabia was a poor

province in the Ottoman region inhabited by the nomads. Oil was suddenly discovered in Saudi Arabia it exported oil and became rich overnight. But often what happens? This oil rent or the oils generated for exporting oil that is not distributed that is not distributed evenly.

So, there is unequal distribution leading to inequality in the economic, dual economy right. So, countries in natural resources may not be better off than their neighbours. So, if we compare between Norway and Denmark. So, initially Denmark was means Norway discovered natural resource, but Denmark perform better, but Norway is also if you know compare with other OPEC countries Norway is obviously, it ranks very high in the human development index right.

So, World Bank and the we have the Human Development Index presented by the World Bank they consider a lot of development parameters right. See there is a difference between growth and development. Economic growth occurs when GDP is growing ok. If you consider the rate of change of GDP, so that is growing that means, economic is growing. So, that is called economic growth.

So, this is just the rate of change of GDP, so if that is rising the rate of change of GDP is rising, so economy is growing. So, that is economic growth, but development is a much wider concept. You obviously, need the economy to grow to for the economy to be developed, but growth will not ensure a developed economy.

Why? Because an economy can grow, but if the benefit of the growth is not percolated across different sections of the people if there is wide inequality, if the benefit of growth is enjoyed by very few then that growth is not leading to development right. So, we should have a more equal distribution, the country should be good in education in health if the life expectancy is less, if the infant mortality is high.

So, these are not the indicators of good economic development, if the level of literacy is low there is gender inequality. Now, it is even we have the gender equality adjusted human development index right. So, even Norway, Denmark they are very good performers as far as their human development indices are concerned, but when natural resource was discovered in Norway at that point of time, Denmark was a better performer than Norway.

But of course, given that Norway was already a developed country, Norway could handle the resources much better than other Middle East countries right. So, as we proceed, we will discuss more. So, if a resource is discovered in a developed country, the country is already developed. So, the country will have the proper human capital to manage the resource prudently because you see our name of the course is petroleum economics and management.

So, it is not only important to have the resource, but we have to manage the resource very prudently like in case of see the COVID pandemic we saw when the oil price due to the demand side shock, the WTI oil future contract price became negative because there was lack of proper storage capacity.

So, the companies were willing to pay the buyers if the buyers were taking the supply right. So, managing the resource prudently is very important. So, if one is a manager in a petroleum company. So, the objective should not be always to increase the capacity or increase the output, but the objective should also be to create enough storage capacity.

Because we have to manage the resource which is in extreme scarcity very carefully ok. So, coming back to our discussion of resource curse often what we see in reality? We find out low and negative association between economic development and resource endowment. So, that means, the resource endowed countries may not be a good performer as far as the development indicators like education, health, gender equality, this political stability these are concerned.

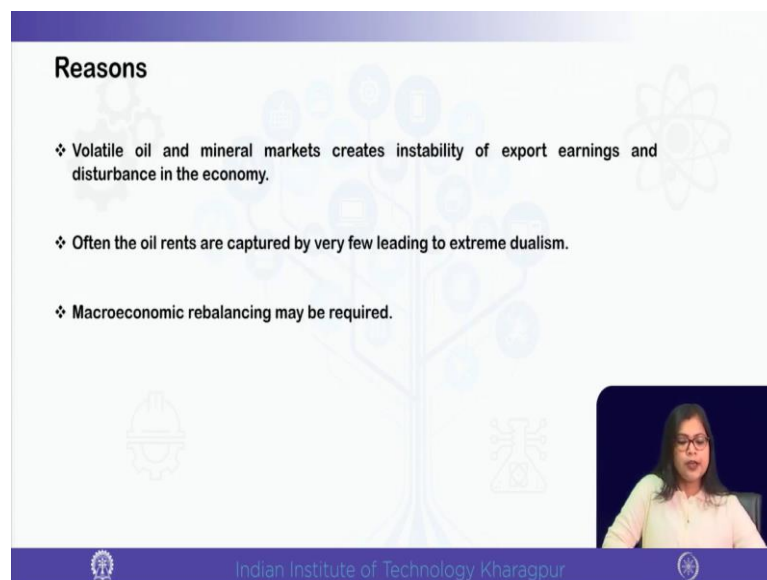
One reason can be the resource rich countries can afford to relax you see already they know that they are rich. So, what happens sometimes they get dependent on oil and they are oil or other natural resource and that resource sector dominates the overall economy they can afford to relax.

So, they do not have enough incentive to develop the other sectors. Now, finally, you see the natural resources the exhaustible resources they are non renewable they are in a limited quantity. So, if a country becomes very dependent and the country keeps on using the resource keeps on depleting the resource and earn a foreign exchange out of that.

So, countries economic growth is driven by that resource a time will come where the country will run out of the resource right or it may also happen that there is some substitute in the global market for that resource. So, due to technological improvement innovation if there is a substitute of that resource what will happen?

The price of that resource will fall and then the resource dependent country will suffer right. So, often, but this resource rich countries they are found to be reluctant to develop the other sectors. Because getting dependent on the resource and earning revenues and profits out of that can be a very easy way out ok.

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Reasons

- ❖ Volatile oil and mineral markets creates instability of export earnings and disturbance in the economy.
- ❖ Often the oil rents are captured by very few leading to extreme dualism.
- ❖ Macroeconomic rebalancing may be required.

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So, what are the reasons of the resource curse? It's because of the volatile oil and mineral markets creates instability of export earning and disturbances in the economy right. Because what happens? If you are supposing an exporter of oil and we have already seen we have discussed in detail how the oil market is subject to lot of uncertainty right. In 2012 we saw that oil price was rising so much, the peak oil for proponents they were very pessimistic about the future use of oil.

But then again you see they were proved wrong by the shale oil revolution because they did not about know about the shale oil revolution was coming up. So, in 2014 when US supplied shale oil price suddenly declined or change its pattern rising pattern it started declining. So, the oil market is subject to lot of volatility and which is beyond the control of the oil rich country right and that creates instability of export earnings.

So, suppose if you plan to earn some amount of revenue from exporting oil and then there is a sudden decline in oil price. So, what will happen? Your revenue earning will also be affected and if you are too much dependent on that sector because often, we see that this Middle-East countries especially they have to import lot of medicine, pharmaceutical products, chemical products, aircraft, other high technology product from other countries.

Because they lack human capital, physical capital they earn they are foreign exchange earnings from selling oil and they use that foreign exchange reserve to buy the other necessary goods like pharmaceutical products the examples we took right. So, if there is a volatility in the oil or mineral market that will create instability of export earning and that will create disturbance in the economy.

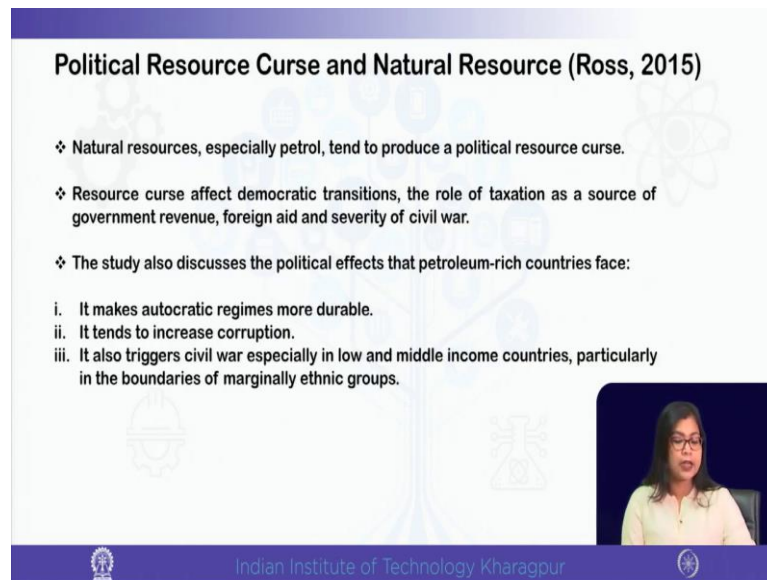
So, often the oil rents are also captured by very few, right? If the profits or the rents coming out of the oil sector or the resource sector is not distributed evenly. So, obviously, you can understand easily that will create huge inequality in the economy those who enjoy the rent they will be very high and those who cannot enjoy the rent they will be very poor right.

Because the government cannot extract the rent from those who are enjoying and can distributed evenly ok because those who enjoy the rent, they will have lot of power to influence the policies also. So, often we need macroeconomic rebalancing proper policies are required, so that those who are enjoying the rent they should be taxed and from those tax amounts the poor people should be subsidized or the health education should be provided to the poorer section of the society to eliminate the inequality.

Because with growing inequality there will be lot of consequences like corruption like a bribing and crime because empirical evidences show that as inequality increases crime rate also increases. So, we need macroeconomic rebalancing to counteract the situation of dualism because the government should interfere and put in place proper tax policies.

So, that the profits or the rents of the rich people who are getting rich overnight by selling oil or the other natural resource and those should be distributed evenly to the poorer section of the society to eliminate the problem of dualism and the consequence effects of dualism.

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Political Resource Curse and Natural Resource (Ross, 2015)

- ❖ Natural resources, especially petrol, tend to produce a political resource curse.
- ❖ Resource curse affect democratic transitions, the role of taxation as a source of government revenue, foreign aid and severity of civil war.
- ❖ The study also discusses the political effects that petroleum-rich countries face:
 - i. It makes autocratic regimes more durable.
 - ii. It tends to increase corruption.
 - iii. It also triggers civil war especially in low and middle income countries, particularly in the boundaries of marginally ethnic groups.

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Now, Ross (2015) pointed out that often the natural resource curse comes with a political resource curse as well. So, what is that? Natural resources like petroleum often tend to produce a political resource curse. Now, this resource curse affects the democratic transition the level of democracy is often adversely affected the role of taxation you see just now I talked about taxation.

So, resource curse affects the democratic transition the role of taxation as a source of tax revenue or the government revenue foreign aid and the severity of civil war. So, Ross (2015) also discussed the political impact of the resource rich countries. What are those impacts? For example, it makes the autocratic regime more durable because the rich people those who enjoy the rent, they want to have they do not want a democracy right in democracy, the majority's option opinion will be taken into account.

So, obviously, in the economies where the very few people enjoy the rent they obviously, will not want a democratic scenario because in democracy then the government will come in and will hear the voice of the majority of the people and will put in proper tax policy.

So, this the rent enjoyed by the very few will be distributed to the poorer sections obviously, they will not want that. So, this political resource curse often makes the autocratic regimes more long lasting. It tends to increase corruption that is understandable because the very few rich people they want to have their power. So, they

will bribe the politicians and the bureaucrats often and that leads to increase in corruption because they do not want a more transparent political system or democratic system.

It also triggers civil war especially in the low east and Middle East countries we have talked a lot about the geopolitics how the Middle East countries often enter into war and this is one of the reasons because other countries also want to have influence on these Middle East countries who are rich in their oil endowment. Especially we see that in the boundaries of marginally ethnic group there are lot of war and violences ok.

In the low and Middle East countries so, these in terms are often considered as political resource curse as pointed out by Ross (2015). So, natural resource curse is not limited to only a resource curse, but there are other political consequences also like the democratic situation is lost increase corruption, increase possibility of civil war among the marginal ethnic groups.

So, you can easily understand that if the countries are engaging into this type of scenario obviously, the level of economic development will not be high right.

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Dutch Disease

- ❖ The term is used to describe the shrinkage of the manufacturing sector in the Netherlands after the discovery of natural gas in 1959.
- ❖ Symptoms of Dutch disease include stagnation in industrial production, decline in corporate investment and growing unemployment
- ❖ Root cause: large exports of natural resources, pushing up both wage and exchange rate and reducing competitiveness, with declining government income from gas production.

The slide includes a graph with handwritten annotations. The vertical axis is labeled $e = \$/\text{₹}$ and the horizontal axis is labeled $\text{₹}/\text{₹}$. A downward-sloping line is labeled $\text{₹}/\text{₹}$. A vertical line is labeled $\text{₹}/\text{₹}$. A horizontal dashed line is labeled $e_0 = 40$ and $e_1 = 30$. A vertical dashed line is labeled $\text{₹}/\text{₹}$. A small inset video shows a woman speaking.

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Now, here is another related concept which is called a Dutch disease it means the same, but the name is Dutch disease. So, the term Dutch disease is used to describe the shrinkage of the manufacturing sector in Netherlands after the discovery of natural gas in

Netherlands in 1959. So, what happens? In 1959, natural gas was discovered in Netherlands, but after few years we saw that the manufacturing sector declined in Netherlands.

So, this is referred to as the Dutch disease. So, what are the symptoms of Dutch disease? We will be starting in depth the means stage by stage occurrence how it happens in a theoretical model now in today's class we are just giving you a brief overview of what are the symptoms, what are the causes and what are the chain of events ok. So, what happens?

There is a stagnation in industrial production that means, if there is a discovery of natural resource in an economy, so industrial production in the other sectors stagnant. The country becomes so dependent on the natural resource. See if a resource is discovered what you need? We discuss that if you need more labour, capital you need more workers to extract the resource.

Now, the workers alone cannot extract the resource you need capital also you need investment fund. Now, see in a resource rich resource constraint economy, if you remember in the very initial classes of our lecture, we defined economics. So, economics deals with scarcity of resources and how to allocate these resources in the most efficient way right. So, whether it's a rich country or a poor country all the economies in the world are subject to constraint of resource right.

Now, if a natural resource is discovered to extract and to produce the natural resource also you need some of the other factors of production right. Now, if you are devoting some factors of production to extract that natural resource so, what will happen? Your availability of factors of production for other sector will fall because at a given point of time the country has limited amount of a resources like labour, capital it's not only physical capital, but also investment fund or the amount of money right.

So, if you are devoting those human and physical capital in extracting the resource you have less resources for the other sector industrial production, so industrial production will decline. Corporate investment will also fall as I was telling because you need investment for the extracting the resources also so, investment for the industrial development will also fall and that will lead to growing unemployment.

Because empirically we see that these resources are not very labour intensive why? Because you need some labour some physical some high skill and low skill labour is required to extract resource, but less as less compared to manufacturing production in manufacturing you need more labour.

So, resources being relatively less labour intensive so, when you employ more resources in more labour and capital in extracting the newly discovered resource and you are replacing the resources from the manufacturing sector so, there will be growing unemployment. Also, you see the movement from resource or labour let us say from one sector to another sector I am saying it very easily, but it's not done that easily.

Because when the workers are migrating from one sector to another sector there may be a specific skill requirement right. So, the worker may need to go through some training so, in between that time period the worker may remain unemployment right. So, the there will be problem of unemployment when the workers are moving from one sector to another sector because it's very easily said then it can be done. So, this is on the job training because you have some job specific skill requirement.

So, this skill acquiring the skill also takes time so, in between this time period when the worker has to acquire the skill required for that particular sector so, the there will be unemployment ok. So, what are the main causes of the Dutch disease? What happens you see as we already discussed let us say the take the example of Saudi Arabia when petroleum was discovered it was a poor country.

So, the level of economic activity was less in Saudi Arabia agriculture and manufacturing production especially was very low. So, what they did? They exported they sold the petroleum that was discovered to outside world because the domestic use of petroleum was very limited, but they found that there is huge demand for petroleum. So, they sold the petroleum products and they became rich.

So, by selling what you do? Now when you sell something abroad as I pointed out you earn dollar or foreign exchange ok. Now, dollar is the internationally accepted currency so, I am referring to dollar when I am in foreign exchange ok. So, the country is earning dollar right.

So, when you earn dollar what will happen? There will be excess supply of dollar right. With excess supply you already know the price falls, so that means, your domestic currency will become costlier and dollar the price of dollar will fall in your domestic country ok.

So, currency that is called a currency appreciation so, that means, your domestic currency in terms of the foreign currency dollar will become costlier. Now, you see what happens your exchange rate appreciates and that is not the end of the story because say you had very small amount of manufacturing and agriculture production like we know that Saudi Arabia and other middle-east countries they export a lot of dry fruits like dates.

So, in those products what will happen? If their currency become stronger their local currency, so those products will become costlier in the foreign market so, that will lead to reduction in their competitiveness ok. So, that products become less competitive suppose India let us say for example, India is buying a particular product from two countries A and B.

So, if country A's currency becomes costlier with a no change in the exchange rate of country B's currency. So, what will happen? If the India will then produce the means, buy the good which is of same quality more or less from the country in which there is no currency appreciation. If in country A there is a currency appreciation country A's currency becomes costlier, so India will not buy the good from country A so, that is what basically happens ok.

So, if the country is exporting, I mean, too much of foreign exchange too much of oil country will earn lot of dollar. So, that will increase the supply of dollar. So, in our last module we will be discussing about exchange rate here just for your brief understanding of how the exchange rate is affected. Suppose, I will just briefly plot the demand and supply of dollar ok.

So, this and I plot the exchange rate which is your rupee by dollar exchange rate in the vertical axis because you know we always plot price on the vertical axis and quantity on the horizontal axis. So, if you plot the demand for dollar and the supply of dollar sorry this is your demand for dollar and this is the downward sloping is the demand for dollar and the upward rising is the supply of dollar ok.

So, if you are now selling more of oil so, you are earning more dollar so, you have newer dollar supply curve will be like this dollar supply dash. So, you see your earlier suppose the initial exchange rate was E_0 was suppose say 40 rupee per dollar ok. Now, the exchange rate becomes what? Say this is now 30 rupee per dollar E_1 is say 30 ok. So, what happens? You see at E_0 , 1 dollar was equivalent to 40 rupee, at E_1 , 1 dollar is equivalent to 30 rupee.

So, that means what? Your domestic currency has become stronger right. Now, if your domestic currency becomes stronger now in other markets what is happening? Suppose you are exporting debts or are the any other good. So, in those in the other good market what will happen? In the global market when you are exporting demand for your product falls right because if the other countries there are other exporters also.

So, in the country in which you are exporting that importing country will obviously, buy from the cheaper source. So, if your domestic currency becomes stronger your demand for product for the other markets will fall. So, that means, your other sectors will shrink and that is what happened in the Netherlands also one was you see one was we already discussed there will be a resource reallocation if you are devoting resources more in the natural resource sector you have less resources for the other sectors of the economy.

And the other thing for responsible for shrinkage of your manufacturing or other type of activities will be your reduced competitiveness due to exchange rate appreciation. Because you are earning so much from selling dollar your dollar supply increases your foreign domestic currency becomes stronger you experience reduced competitiveness.

Also, your wage rate will also increase for the reasons we discussed because if you need more workers in extracting the natural resource that will increase the demand for factors of production wage rate will also increase ok. And the government income from the natural resource production will also fall, you see. So, these are the chain of events or the root cause for the Dutch disease.

So, you do not have enough domestic demand you export you are more foreign exchange that causes appreciation of your currency and reduced competitiveness in other markets; in other markets your market share falls. And you have less labour and capital to devote to other sectors that also is responsible for shrinking of all other non resource activity.

Then your wage rate also increases because you need more factors of production or labour in the natural resource sector. So, all these leads to what? Gradually you see your all other non resource activities are shrinking right. Because of this increase in wage rate, because of the resource reallocation across sectors because of exchange rate appreciation.

So, all things together your all non resource activities are shrinking. So, that means, what? That means, you are getting gradually dependent on the resource sector only. Now, if you are too much dependent on the resource sector what will happen? Some point of time you run out of the resource or if the price of the resource falls in the world market, so you are adversely affected.

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Chain of Events following Resource Discovery

- ❖ Rich natural resource sector increases the demand for labour and capital increasing the wage and rate of return to capital.
- ❖ The trade surplus generated by resource exports leads to currency appreciation.
- ❖ The ultimate consequence is reduced competitiveness and shrinkage of all non-resource tradable sectors.

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So, that is what we are basically discussed you see. The chain of events that we have mentioned in this PPT I have already discussed. So, that means, rich natural resource sector increases the demand for labour and capital which increases the rate of return to capital and the wage rate. Then, the trade surplus generated by selling the exports, selling the resource abroad means the natural resource abroad that creates lot of export revenue earning and that leads to currency appreciation.

And the final consequence is reduced competitiveness and shrinkage of all non resource traded activity. So, you are getting completely dependent and see the non resource traded

activities are shrunked why? Traded activities are shrinking because of your reduce competitiveness.

Now, if your you run out of the natural resource so, what will happen? If you run out of the natural resource or the price of the natural resource falls, you do not have foreign exchange or you have less amount of foreign exchange to buy for other very necessary import goods like say medicine.

Because often we see that like the middle-east countries they are dependent on the rest of the world for many food items and necessary products like medicine right. So, if you do not have these goods in your domestic country you have to buy them from abroad. Now, if you are too much dependent only on your resource sector and the resource sector you run out of the resource or the price of resource falls so, you are gone. So, you cannot even consume the other goods right.

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- ❖ In the extreme scenario, this results in the emergence of a mono-economy, almost completely dominated by the resource activity.
- ❖ It often causes social tensions and lack of governance.
- ❖ Oil wealth yields large resource rents.
- ❖ If the rent is not distributed among larger section of the society that may lead to corruption and increased inequality.

So, in the extreme scenario this leads this finally, leads to an emergence of a mono economy; mono economy means it is dominated the economy is entirely dominated by a single sector and almost completely dominated by the resource activity. And it often causes social tension and lack of governance, it leads to lot of rents as we already discussed with empirical evidences.

So, we discussed about the oil rent and if the rent is not distributed properly as we have already discussed it leads to lot of corruption increased inequality, increased crime, violence, political instability.

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❖ Different interest groups within the nation and beyond attempt to capture the resource rents. This may lead to destructive internal and international conflict, illegal activities like production and trade of narcotics.

❖ Empirical evidence reveals that heavy resource dependence are commonly better handled in economically mature societies. For instance, Norway.

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And there will be different interest group not only within the domestic country, but also beyond the domestic country. So, that means, of even foreign countries would also try to capture the resource rent and this is the main crux behind the geopolitics the politics we see around the Middle East countries.

And this leads to destructive internal and international conflict, inter illegal activities like production and trade of narcotics because you see this inequality huge amount of inequality gives rise to lot of an illegal activity like trade of narcotics. So, empirical evidence reveals that heavy resource dependence is commonly better handled in economically mature societies like we took the example of Norway in the initial phase of our class because when oil was discovered in Norway; Norway was already a developed country.

So, it could manage the resource very prudently as compared to the Middle East countries. So, what we can see is that if a resource is discovered in a developed country, so that resources managed much prudently than if it is discovered in some means low income, middle income countries or less developed countries.

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Conclusion

- ❖ Resource endowment may be detrimental for a country's growth and development.
- ❖ Resource endowment may also lead to political resource curse.

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So, what we discussed in today's class? We discussed the very famous hypothesis of resource curse and Dutch disease. So, we found that resource endowment always may not be good rather it may be detrimental for a country's growth and economic development.

Even in the income may be going the growing the exchange rate may be means the country will be earning higher amount of foreign exchange reserve, but that may not be ultimately good for the country. Because countries currency may appreciate and other sectors other traded sectors can face reduction in the competitiveness and ultimately that will be harmful for countries level of economic development.

Because it leads to lot of inequality in the economy and illegal activities lack of political stability and governance. And these countries the resource endowed countries are often not very good performers as far as their economic development is concerned. So, development is a wider concept as we all discussed in today's class, so you need economy to grow for development, but growth will not ensure development. We can term development as an inclusive growth.

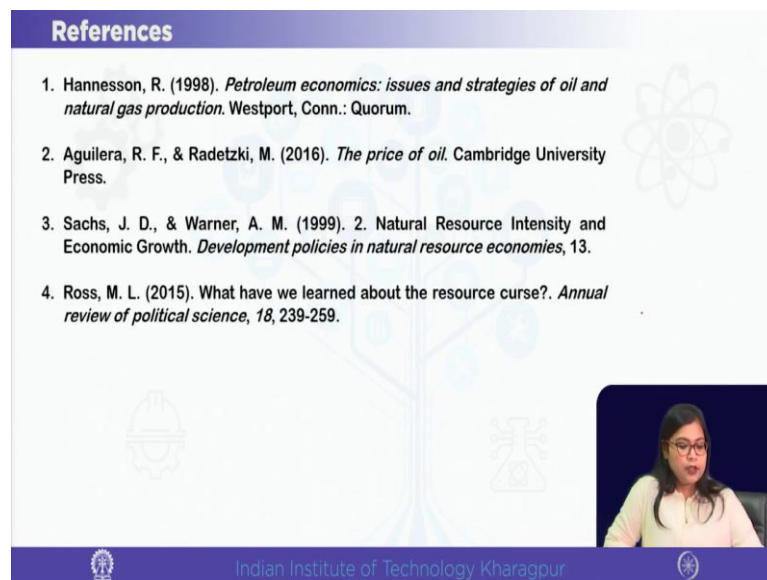
So, if the economic growth bypasses a large section of the society, so that is not a development. So, but when the benefit of the growth is percolated across the larger section of the society then only the economic can develop. But often unfortunately the

resource endowed countries their oil the rents arising out of the resource is often enjoyed by very few.

So, we see lot of dualism and the countries are not very good performers ok. So, that is what the resource curse hypothesis is and we also discussed about Dutch disease and we saw that how resource endowment can also lead to political resource curse, lack of democratic regime and a more autocratic regime.

So, we also discussed with some empirical evidences. So, in the subsequent lectures as we already mentioned we will be studying the theoretical model to discuss the resource curse and Dutch disease and we will also present some empirical evidences.

(Refer Slide Time: 37:00)



References

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3. Sachs, J. D., & Warner, A. M. (1999). 2. Natural Resource Intensity and Economic Growth. *Development policies in natural resource economies*, 13.
4. Ross, M. L. (2015). What have we learned about the resource curse?. *Annual review of political science*, 18, 239-259.

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So, these are the references that we followed these two papers, Sachs and Warner and the Ross these are two very interesting papers apart from the two-petroleum economics book that we are following.

So, thank you very much we look forward for a more intense discussion in module 7.