International Economics

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Lecture No. # 40

Good afternoon. Today, we are going to discuss, the impact of migration and a foreign direct investment, the returns to the different factors of production. And the output and productivity in the economy, these are very sensitive issues at least in some countries or one can say in most of the countries migration of Labor.

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And foreign direct investment is a very burning issues, in Europe and U S there is also host of other issues, like the incoming of illegal immigrants. And the entire issue of migration of Labor is sometimes focused on, it is impact on the wages of the skilled and unskilled Labor in the economy. So, we are going to discuss the movement of Labor between countries, that is migration of Labor how does it have an impact on the host economy. And then, we are going to discuss the foreign direct investments, coming into the country how does that, have an impact on the returns to the different factors of production and output.

Next we will discuss the gains from Labor and capital flows and at the end, we will give the conclusions.

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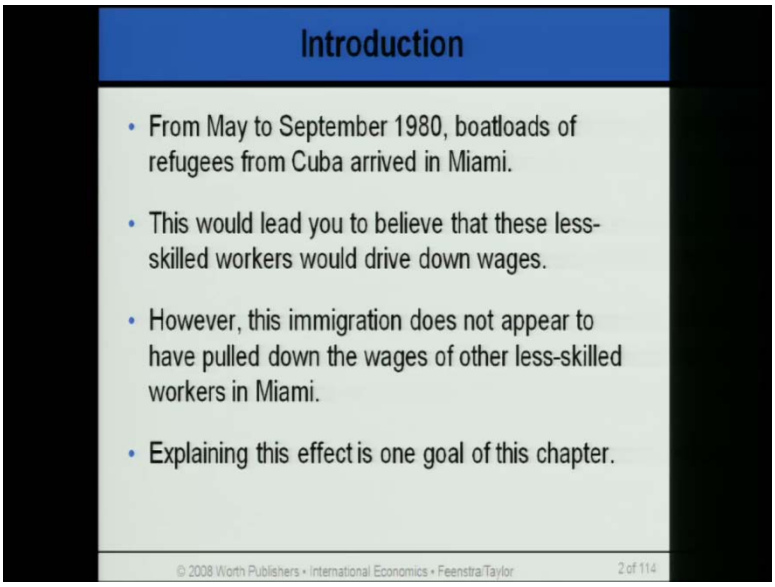

Now, what is interesting is to note that, from May to September 1980, a huge set of refugees landed from Cuba to the U S state of Florida, they refugees, they were all legal immigrants from Cuba. According to the signed agreement around 3500 cuba where supposed to come to the United States, but when this event took place around 1, 25,000 Cubans arrived into the U S and specially they came to the city of Miami in (( )). So, naturally in the U S people were concerned, because immediately the population of Miami increased.

And therefore, these were basically unskilled workers. So, the concern was that it would depress the wages, for the unskilled Labor in the city of Miami. But if you look at a longer time period what happened was that, it did not have much impact on the wages of the less skilled workers. So, how could one explain these phenomena when there is a increased supply of Labor, there is no impact on wages, the changes which takes place is in terms of the output, so, can this be explained by any analytically. Now, we are students of economics, if we have to explain this phenomena, it will become; you have to scratch your mind, because you have demand and supply, you have demand for Labor, you have supply of Labor, if the supply of Labor increases, it will depress the wages, but that was not happening here.

So, explaining this effect is one goal of this chapter, this is from feenstra and Taylor, is an interesting chapter and also interesting to discuss these sensitive and core issues.

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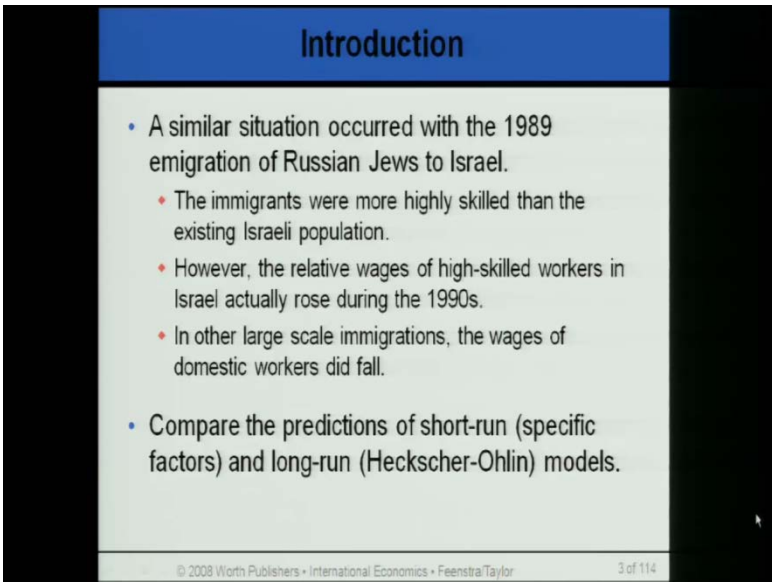

Similarly, a similar situation occurred with the 1989 emigration of Russian Jews to Israel. Now, these were skilled scientific personnel moving from Russia to Israel, again the concern was that, as soon as these Russian Jews will come to Israel, it will depress the wages of the skilled Labor in Israel. But then that, did not happen, the wages of the domestic workers did not fall in the long run, the only changes that took place were in terms of the output. So, one need some explanation of these things happening, because similar set of issues can also be related to India, because you know that, there are so many Bangladeshi immigrants coming into India.

So, at least in the north east, there is a concern that, when these Bangladeshi immigrants come to certain states or they move to Bihar or Delhi it will depress the wages further down, at least for the unskilled intensive jobs, but does that really happen. Does it really have an impact on wages in the long run, may be in the short run, there will be an impact that the wages will go down, but in the long run there will be a compositional change in the outputs of the commodity.

So, to explain this, we resort to two models, one is the specific factor model and the other is the Heckscher-Ohlin model, the latter is basically will resort to the rybczynski effect, which is one of the offshoots of the Heckscher-Ohlin model. Please, recall the

rybczynski effect, an increase in supply of a factor keeping constant, the relative prices, relative wage rates and the capital Labor ratio. Increases the output of the good, which uses the expanding factor intensively and decreases the output of the other commodity, that is the rybczynski effect. So, the long run effects will be captured or can be explained by one of the offshoots of the Heckscher-Ohlin model, that is the rybczynski theorem.

And the short run can be explained by the specific factor model, please recall the specific factor model, it was a model where you had three factors of production. You had land which was mobile, you had Labor which was mobile, you had two other factors capital which was specific, land which was specific. So, there were two goods produced, one used capital and Labor, another used land and Labor. Labour was mobile between countries while, capital and land was specific it was a short run model, because you assume, that capital cannot move from one sector to another sector. Similarly, land which is one of the factors of production cannot be used in the production of another good.

So, you had the short run specific factor model, it is also called the Ricardo-Viner model. So, what happened, remember in this model, if the price of the manufacturing good increased it would lead to an increase in output of the manufactured good. But then, for increasing the output of the manufactured good Labor has to move from land specific output that is agricultural sector to the manufacturing sector. So, output of the manufacturing sector will go up, but when the wages will; when the Labor will move from here to the manufacturing sector, there are two things, which happen. One the nominal wages go up, because the demand for Labor goes up, but then the M P L marginal productivity of Labor in the manufacturing sector goes down. The marginal productivity of Labor in the other sector, which is the agricultural sector, goes up.

So, one cannot say with certainty that, what happens to the returns to the mobile factor, because on the one hand the marginal productivity of Labor declines in the manufacturing sector, in the other sector marginal productivity of Labor increases. But then capital, which is specific to the export industry it gains, because it has now more of Labor. So, marginal productivity of capital goes up, while the marginal productivity of land goes down, because Labor moves from the agricultural sector to the manufacturing sector, that was the broad results that we found that an. So, the final conclusion of the specific factor model was that, the factor which is specific to the export sector gains and

the factor which is specific to the import sector loses. So, capital gained, land lost and the returns to the mobile factor were ambiguous, one did not know with; one cannot know with certainty what will happen to the returns to the mobile factor. Now, this is happening despite the nominal wages going up, in both the sectors. So, this was about the specific factor model.

Now, the same model can be explained to understand the impact of the migration of Labor at least in the short run. Now, first I will try to give an analytical explanation of what will happen if migration of Labor takes place, say from a foreign country to the home country. Now, I am assuming home to be capital rich and the developing country to be Labor rich. And the developing countries are rich in Labor, they have lower wages. So, if the Labor is migrating from developing country to developed country, there are two reasons, one they are looking for a good living for their future and second they see that in developed nation, they get; they will get higher wages. So, there is an incentive for moving from the developing country to the developed part.

Now, at least in the short run, please see what will happen. Now, when the Labor moves to the home country it gets absorbed in these two sectors, one is the manufacturing sector which is capital specific and another is the agricultural sector which is land specific. Now, see what happens, if you have increase in Labor, you know from the law of diminishing marginal productivity that as Labor increases, the marginal productivity of Labor goes down.

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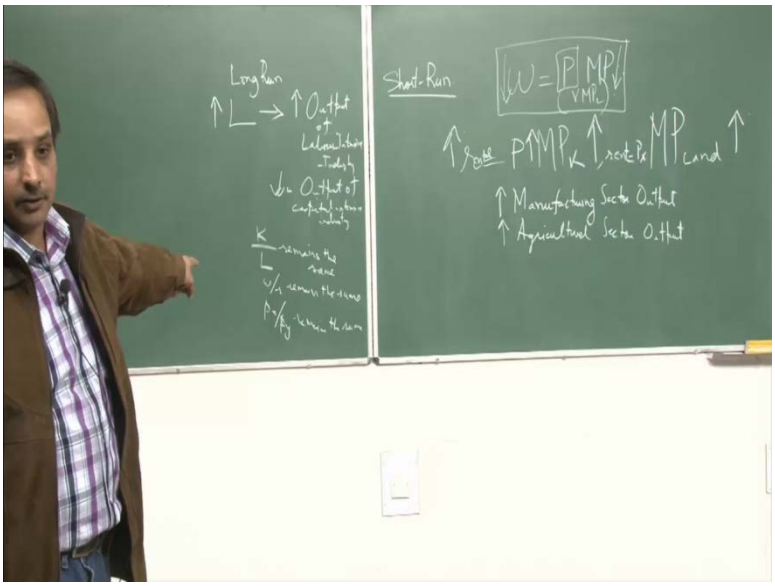

So, marginal productivity of Labor goes down in both the sectors. And recall that, in equilibrium, you have wages equal to V M P L. Now, when the migration takes place, the Labor comes in both manufacturing and the agricultural sector, this goes down. There is no changes in the prices, because prices are determined according to demand and supply, this goes down so, the wages in both the sector goes down. So, this is in the short run, you will see a decline in wages and what will happen to the marginal productivity of capital and land. Now, you can see when the Labor comes in the manufacturing sector capital gets a support Labor comes in. So, the capital and the land gets the support, so the marginal productivity of capital and marginal productivity of land it goes up.

So, then in the short run you will always see that when migration takes place. The capital owners and the land owners are supportive of the migration which takes place, from the developing countries, to the developed world. At least in the short run so, this can explain the decline in wages at least in the short run and I will explain what happens in the long run. In the long run I claim that there will be no impact on the wages, there will be no impact on the prices, there will be no impact on the capital Labor ratio only the output composition will change, that is provided that if say the Russian scientist move to Israel.

The skilled intensive good output of the skilled intensive good will go up. And that is provided Israel get some projects outside, it is not that they come in by there has to be

some explanation that when you increase the output there has to be some new projects. And this new projects are that is real is open, so and the other countries are open. So, it gets the new project, so the output goes up, but any case what I am saying in the short run what happens is the wages go down, but the marginal productivity of capital it goes up, the marginal productivity of land goes up. So, r is P into M P k the rent is P into M P marginal productivity of land. So, the rental that is the return to capital goes up, because M P K goes up the rent goes up, because marginal productivity of land goes up.

So, this is what happens in the short run, if one uses the Ricardo-Viner or the short run specific factor model. And look at what happens to the output of the manufacturing and output of the agricultural sector both go up. So, in the short run you see increase in the manufacturing sector output. And you see an increase in the agricultural sector; output. This is what happens, in the short run what will happen in the long run, something else happens, because there are long run is a substantial time, before which Labor gets absorbed. So, what will happen is that, when Labor gets absorbed it will be absorbed in the Labor intensive industry.

Now, I am talking of a model, where both capital and Labor are perfectly substitutable. So, in this case when, so I am back to Heckscher-Ohlin type of model so, I am now trying to explain the predictions that will happen in the long run. So, in the long run what will happen is that the adjustments will take place. And eventually, all the Labor which has migrated from this gets absorbed in the Labor intensive industry. So, when Labor goes up, it would require more of capital so, how wills the capital come, the capital will come from the other industry. So, then the resulting impact is that the k by l ratio in this industry adjusts, in such a way that once these changes have taken place. The capital Labor ratio eventually, is the same of what it was before; I am saying capital Labor ratio.

So, see the trend first all the Labor now gets absorbed in the Labor intensive industry, it is different from the short run impact. Where the Labor got absorbed in both the industries, one was capital specific another was land specific, but here it gets absorbed in the Labor intensive industry. Because more Labor is has come to this industry, it will require more of capital. If it requires more of capital, that capital and Labor will come from the other industry, which is the capital intensive industry.

So, the output of that industry will go down and here because it has more of capital more of Labor, the output of the Labor intensive industry will go up. But at the end K by l ratio in both the industries will remain the same. If they remain the same W by R ratio will remain the same the marginal productivities will remain the same. So, that is what happens that, in the long run you would see that the output when there is a migration of Labor taking place, output of the Labor intensive industry goes up. And the output of the capital intensive industry goes down, relative wage rates remain the same, relative prices remain the same, the marginal productivities remain the same.

So, this is a similar, this is what the rybczynski theorem had predicted that, as I said I will repeat it an increase in supply of a factor keeping prices constant, increases the supply of increases the output of the commodity, which uses the expanding factor intensively and a decline in, the production of the other commodity. So, if this is the explanation in the long run where, in the long run you would see that, if with an increase in Labor, you would see an increase in the output of Labor intensive industry. And a decline in output of capital intensive industry, K by L ratio remains the same, W by R ratio remains the same, relative prices remains the same.

So, this is the rybczynski, impact this can explain what happened in Israel, what happened in the U S. So, then one need to do an empirical exercise, that whether this, rybczynski effect does it really happen in the other economies. So, I will try to first explain this. And then once we can explain the migration of Labor then similar exercise can be done for the foreign direct investment coming in. Now, there is a whole debate going on, in India and in the parliament whether FDI is beneficial for us. Now, the same analysis you can do for the foreign direct investment coming in, you can use the specific factor model to analyze what happens, to the foreign direct investment coming in, and what will happen in the long run.

So, here the only difference is that, if you are analyzing long run if there is an increase in K, it will increase the output of the capital intensive industry and it will decrease the output of the Labor intensive industry, where K by L remains the same, w by r remains the same P x by P y remains the same. So, if someone has to explain the benefits of the foreign direct investment, then one needs to do an empirical exercise. That whether the output of the capital intensive industries, has indeed gone up or the output of Labor

intensive industries, have gone down and whether relative wage rates K by L P x by P y has remained the same.

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So, some empirical exercise needs to be done, now in the short run you can resort to the Ricardo-Viner model that is the specific factor model, what happens if there is an increase in capital. Now, because it is a specific factor model there are two sectors manufacturing and agriculture. Manufacturing is capital specific agriculture is land specific. So, if the capital comes in it will come into the manufacturing sector, can you think what will happen to the marginal productivity of Labor and capital. Now, the Labor which is absorbed in the manufacturing sector will get more capital. So, the marginal productivity of Labor here will go up and the marginal productivity of capital, because more capital is coming in may go down.

But then when you have increased capital output has to go up, in the of the manufacturing sector. If output has to go up, then the Labor from here the other sector agriculture sector, has to move from this sector to the manufacturing sector. So, when the Labor moves out the marginal productivity of land it goes down right. So, marginal productivity of land going down, marginal productivity of capital going down, but then marginal productivity of Labor in the manufacturing sector goes up. So, this is what happens in the short run.

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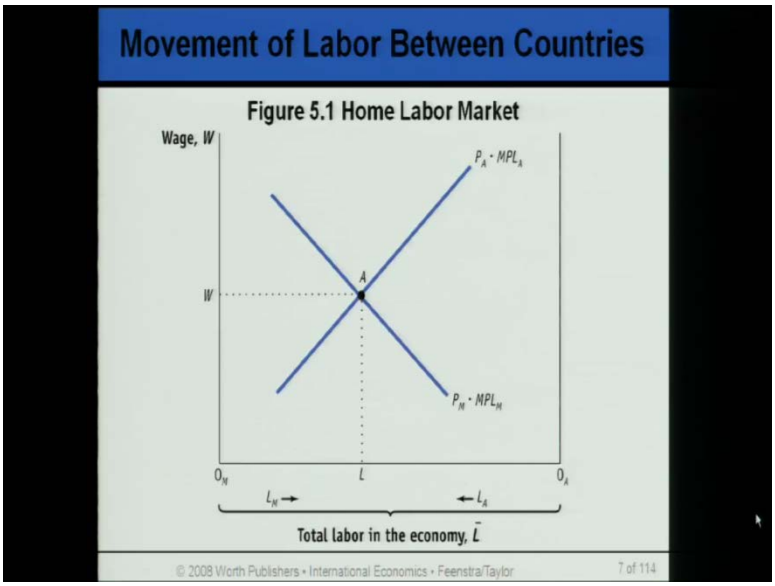

So, then how do we explain? So, I will tell you the familiar, if you recall again coming back to the specific factor model. How wages are determined you have the downward sloping demand curve, which is P M into M P L M. Which is the value of marginal productivity of Labor in the manufacturing sector, from your under graduate micro economics course, this is the demand curve for Labor, which is called the V M P L. And if you increase Labor in the manufacturing sector, because M P L goes down, so it is downward sloping. And if you move from right to left, the marginal productivity of Labor in the agricultural sector, also goes down, wherever they intersect this is how the wages are determined.

And because there is free movement of Labor and Labor is the mobile factor you will have only one wages, you have one wage rate in the economy. Now, given this Labor market see what happens, if this total Labor in the economy goes up, from 0 A to this particular 0 A increases and it goes here. So, when it goes here, this particular upward sloping P A into M P L A you will see a shift of this curve.

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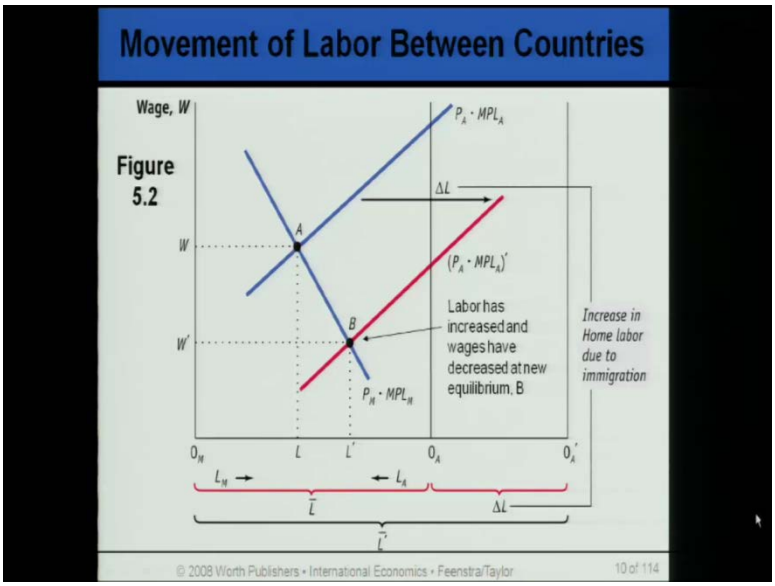

Now, there is an increase in home Labor due to immigration, so this axis increases from 0 A to 0 A dash. Now, if this axis goes, it increases this curve shifts down, when this curve shifts down you can see what happens to the wages it goes down, but when wages goes down, you will see that there is an increase in Labor, which is been absorbed in the manufacturing sector. And there is an increase in Labor, which is absorbed in the agricultural sector.

So, that is what I said in the short run, when Labor gets absorbed in both the sectors marginal productivity of Labor goes down, so the wages go down. And the diagrammatic explanation is done through this diagram. So, you see the net effect that there is a decline in wages, but then this Labor which has been, which has migrated it is been absorbed in both the sectors. So, this is the short run impact, so if you invite foreign Labor from outside, you can say with certain certainty, that wages will of course, go down at least in the short run.

In the long run something else happens, the entire Labor gets adjusted there are modifications. And it gets absorbed entirely in the Labor intensive industry, which would require more of capital, capital will come from the other industry, Labor will come from the other industry. So, then the output of the Labor intensive industry will go up. So, then you would see, the adjustments taking place and there will be no change in the relative

wage rates, no change in the capital Labor ratio only the change will be in the output mix.

So, is it not interesting sometimes these debates go on in the parliament; they talk about the long run effect the short run effect. So, there is something in economics which can explain the phenomena, which can say that when Bangladeshi immigrants come to India. There is a possibility that in the long run, they may increase the output of the unskilled intensive goods. And there will be no change in the wage rates, but these are very, very sensitive issues, because you are inviting foreign people you are inviting people from outside, who do not know about your culture. So, there are host of other issues I am only talking of the economic issues.

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Now, let us look at some application between 1870 and 1913, 30 million Europeans, left their homes in the Old World to immigrate to the New World. Remember Australia, Argentina, Latin America, South Africa. They basically, they are Europeans who migrated from Europe to say America to Latin America, Argentina then South Africa, Australia. So, they and the maximum increase, in the U S population was around 17 percent. So, it will be interesting to know whether the wages, declined in the new world. And you will see that the in 1870 the real wages in the New World were, nearly 3 times higher than in Europe. So, at least in the short run when, the whites came to these new lands America or Argentina or Australia the real wages went down.

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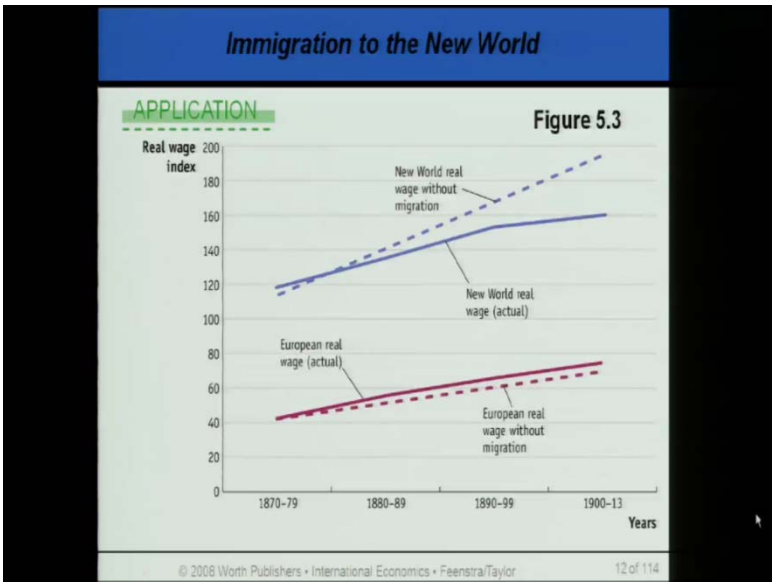

So, you can see this is the so, they have stimulated, this is the New World real wage without migration. If no migration would have taken place, the real wage would have been something like this, but because people emigrated from Europe to Australia and America. The New World real wage rate is lower than this, again short run, in the long run there are adjustments taking place. And for Europe you can see the real wage actual, is higher than the European real wage without migration. So, without migration it would have been lower, because now people have emigrated from Europe, so there the wage rates went up. So, here demand and supply works, if the supply decreases it leads to an increase in the wage rate, so this is part of the economic history.

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Now, we no longer see large scale migration from Europe to the New World. Instead, we see a migration from the developing countries to the wealthier ones. In many case, the immigration includes a mix of low skilled workers and high skilled workers. In the U S much of the recent debate focused on the issue of illegal immigration. There are about 12 million illegal immigrants in the U S. This often obscures the fact that the majority of the immigrants are legal. And what is interesting at least in the U S, this combination of legal and illegal immigrants in the U S, creates a U shaped pattern between the number of immigrants and their education level.

Because if you analyze U S most of the immigrants which come, they get absorbed in highly skilled or highly unskilled jobs, not that they get absorbed in the middle levels. Why because the proportion of population of foreigners, in the unskilled intensive jobs and in the skilled intensive jobs are higher than, the U S citizens which are born with that particular skill set. So, what I am trying to say is that, due to it is profile in the U S, there are more foreign born immigrants in that particular sector, in the unskilled intensive sector and in the skilled intensive sector.

The most skilled intensive are the ones, who are Ph.D. s Indian and that too who have done quite well. So, they are the ones who immigrate there, and I am talking of the cream. And on the other hand, there are people who have migrated from the developing nation who are very unskilled. And so you have a peculiar pattern so, when migration

takes place from developing to the U S, the wages of highly unskilled sector, in the unskilled like sector goes down. And the wages in the most skilled intensive jobs goes down, not in the middle because in the middle there is U S people right.

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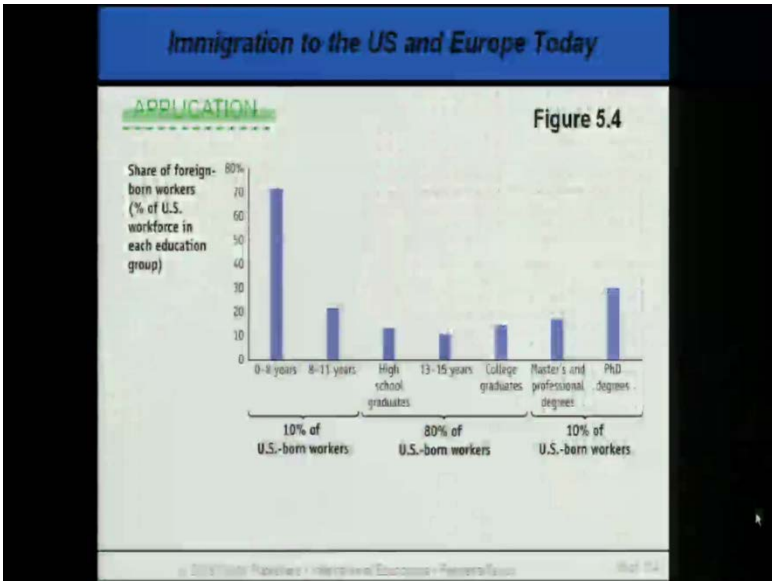

So, that is very peculiar thing happening, now you can see this is the share of foreign born workers, percentage of U S work force in each educational group. What is interesting to be noted is from 0 to 8 or 8 to 11 years, there are only 10 percent of them are U S born workers, 90 percent are foreign born workers. And people who complete high school graduates, who have 13 or 15 years of schooling or who are college graduates, they are 80 percent of them are U S born. And again the people, who do masters and professional degrees and Ph.D.s 10 percent of them are U S born workers, the most of them are foreign born.

So, what happens is that, when the Labor migrates, to the U S it gets absorbed either here or here. So, then the wages in here goes down and the wages, who are involved in teaching Ph. D. s there it goes down. So, this is something like a U shaped phenomenon that you see in the U S. So, it will be interesting to see something similar whether in India something similar happens.

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So, the category of workers without a high school degree has the large largest percentage of foreign born workers. And the group of workers with Ph.D.s has the next largest percentage of foreign born workers. The middle educational level which comprises about 80 percent of the U S labor force has the lowest percentage of foreign born workers.

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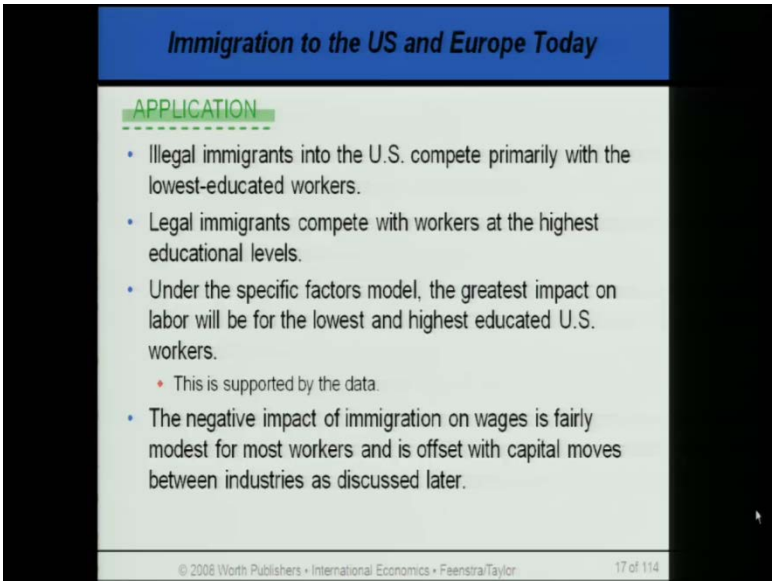

So, then, the illegal immigrants into U S compete primarily with the lowest educated workers. Legal immigrants compete with workers at the highest educational levels, you know about all Mexicans, who are trying to immigrate to the U S. So, they compete with

the lowest educated and the Indians and the Chinese, they move, they compete with the highest education levels. So, under the specific factor model the greatest impact on Labor will be, for the lowest and the highest educated U S workers, this is supported by the data. So, the negative impact of immigration on wages is fairly modest for most workers and is offset with capital moves, between industries as discussed later or.

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We have already discussed what happens in the. Now, I talked about the other effects of immigration in the short run, U S and Europe have both welcomed foreign workers in specific industries: agriculture high tech. Now, remember in the short run, the people who gain are the capitalists and the land owners, because the marginal productivity of land and marginal productivity of capital goes up. So, they are supportive of the immigration which takes place, at least in the short run, because immigration increases rentals on capital and land.

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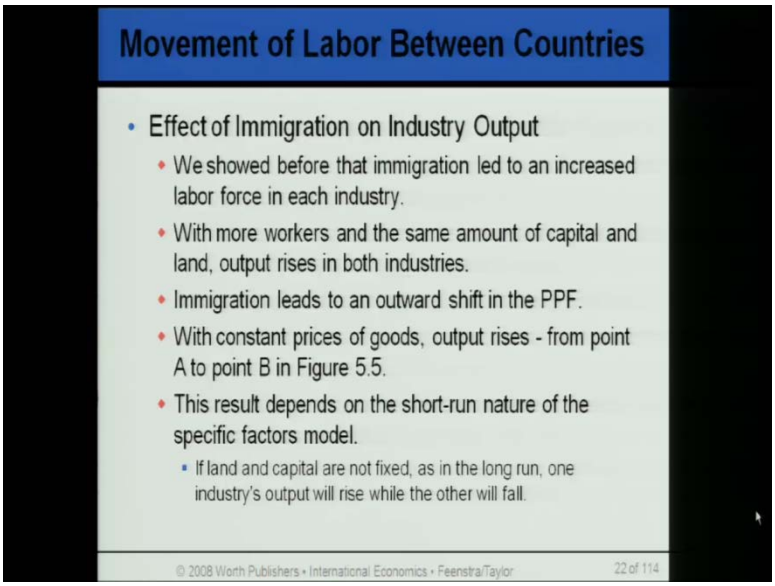

What about effect of immigration on industry output, we showed before that immigration led to an increased Labor force in each industry.

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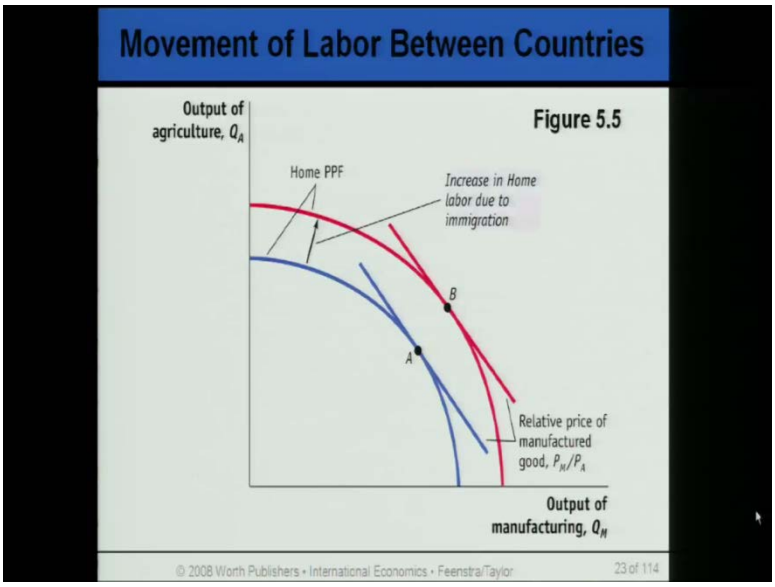

So, the output of both the industries would go up, if you wish to analyze it, through the P P F. You will see that the increase in home Labor due to immigration shifts, the P P F outside, so there is an increase in output of both manufacturing and agriculture in the short run. In the long run there will be an increase in output of one while there will be a decrease in output of the other industry.

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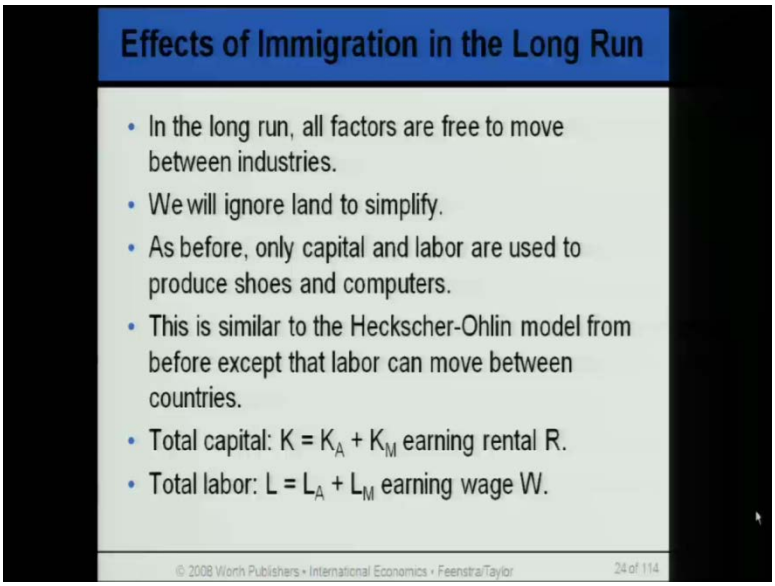

So, I will end up here we will see the effects of immigration in the long run tomorrow. And for that we will resort to the rybczynski theorem, which is one of the offshoots of the Heckscher-Ohlin model.