[SQUEAKING] [CLICKING] [RUSTLING]

JONATHAN GRUBER: So today, we're going to turn from the analytics and the positive analysis of international trade to the normative analysis of international trade. And we're going to bring our tools of welfare analysis to thinking about how we evaluate international trade. OK? So we're going to start by talking about the welfare impacts of trade, of international trade, and how that helps us think about the debate over free trade.

Now, we showed-- what we're going to start with is the standard model. And the standard model is going to show us that free trade unambiguously raises social welfare. And the intuition-- I'll do that, I'll do the graphics in a second. The intuition is pretty clear, which is international trade allows for new opportunities where people value goods at more than what they cost to produce. Anytime you have a new opportunity, which allows people to value a good at more than it's produced, you raise welfare. It's that simple.

So let's actually see it graphically. Let's go to the market for roses. In Figure 19-1, we have the market for roses under autarky. Remember, our word for no trade. You've got-- and let me be very clear. This figure and the figure I'll show, now with international trade, we have to be very clear on what kind figure we're looking at. This is the figure for the US rose market. We're going to look at different figures for different countries and different goods. So it's important to keep track. This is the figure for the US rose market.

And this is, in Figure 19-1, we have what's that market look like before trade. Well, before trade, you have a domestic demand for roses, a domestic supply for roses, you get a equilibrium price PA and an equilibrium quantity QA, and you end up with a consumer and producer surplus of the type we derived a few lectures ago in a standard market.

Now, let's imagine we open up to international trade, and let's imagine that comparative advantage is such that the US imports roses. Remember, last time we were talking about two-good model, like computers and roses. Now we're just focusing on the market for roses. But let's say that two-good model delivered the outcome that the US would import roses, as it implied last time. What would that do?

Well, imports do not affect domestic demand and supply. Domestic demand has not changed. People still want roses. Domestic supply has not changed. The marginal cost of producing a rose has not changed just because we can now import them from Colombia. What's changed is the equilibrium price, which is now, essentially, we have lowered the price by incorporating a new source of outside supply.

Another way you could do this. it's not-- you could ask, well, where's this new line come from? Imagine, you could if you want imagine a new line, which is below the domestic supply line, which is domestic plus international supply. That would be a line parallel to the red line, and that would intersect domestic demand at the price PW. So think of a new supply curve below that.

But that's not really true. So we don't draw it. But that's a way to think about how we get to this new price, that by allowing in cheap roses, you've lowered the price, and basically, people can now have more roses.

So now at that new price, people want C sub T roses. At that new lower international trade price, people want C sub T roses. OK?

And now we're going to assume that world supply-- here's an important assumption. This is a very important assumption often made in trade models. World supply is perfectly elastic with respect to domestic markets. Let me restate that. We're assuming that world supply is perfectly elastic with respect to domestic markets. That is, this is what we typically call a small open economy model, small country open economy model. We're assuming the US is so small that demand from the US can't actually affect the underlying supply of roses.

Now, that's not true for many markets. The US is that big. But just think about a case where the US is a small enough share of the world market that basically, it's a bunch of-- it's basically like facing a market with a perfectly competitive, perfectly elastic supply curve. So basically, the production, the key point is we're going to assume the production of roses in the US doesn't impact world supply.

And that's probably true in roses because we're small, we're a small producer of roses. So how many roses are US produced didn't really matter for world supply.

It's certainly not true in computers. And it's unclear about oil. Most oil comes from outside the world, but we do produce some oil here in the US. But for roses, it's a pretty fair assumption. It's pretty fair to assume that the domestic supply of roses is trivial relative to the world supply of roses. So we get this flat supply curve.

So what do we get? Well, the US consumers now want-- that should be a Q by the way. That should be a Q sub T. So the US consumers now want-- change that from C sub T to Q sub T. The US consumers now want Q sub T roses. OK. But at that new low price, domestic producers don't want to supply Q sub T. Remember, domestic producers have to respect their supply curve. They only want to produce where price equals marginal cost. So they're going to produce Q sub T.

Oh, I'm sorry. That's what I got backwards. Yes, I'm sorry. That is C sub T. That's what I missed. Scratch what I said earlier. C sub T is domestic quantity demanded. Q sub T is domestic quantity produced. That's what I got wrong. So leave at C sub T. I was wrong about that. Q sub T is domestic quantity supplied. C sub T is domestic quantity demanded. OK?

Consumers at this new low price wants C sub T. Producers want to produce Q sub T. What's the difference? The difference is the roses that come from other countries, which we call imports.

So the dynamics are we open the market to Colombia; because of that, the price of roses falls. At that lower price, consumers want C sub T roses. Producers only want to produce Q sub T roses. What's the difference? The ones we import from Colombia. OK? Questions about that?

Do you understand the basic graph? Because now we're going to use that to look at welfare.

Now let's go to Figure 19-3 and think about what are the welfare impacts of this trade. Well, here what we have is initially we start with domestic supply and domestic demand. Before trade, we have QA roses being sold to THE US a price PA. So the pre-trade consumer surplus, before trade, the consumer surplus, so under autarky, consumer surplus is W and producer surplus is X plus Y. OK? That's the producer-consumer surplus before there's trade.

Now we open up to trade. What happens under trade is now consumers get to consume C sub T. So consumer surplus is now W plus X, W plus X plus Z. Consumer surplus is W plus X plus Z.

Producer surplus has fallen all the way to Y. OK? So basically, what we've done is by expanding the trade, we've done two things. We've transferred X from producers to consumers, but we've added Z. So welfare has gone up. It's the opposite of the deadweight loss case. The deadweight loss case, with a minimum wage or other regulation restrictions, we would transfer, but we'd have an efficiency lost in that transfer.

Here's a transfer with an efficiency gain. This is the opposite of those cases. Remember, before, whenever you saw transfers before, they came along with deadweight losses. Here's a transfer that comes along with a deadweight with a gain. OK? We've now transferred X to consumers, but also given them Z. So consumers win by a lot, and producers lose. And that's the welfare analysis of international trade of imports.

Questions about that? Consumers win. Producers lose. Consumers win because they get a ton of cheap roses. Producers lose because they lose that production to Colombia.

Now, of course, the international trade consists of both imports and exports. Let's look at exports. So now let's turn to the market for computers. OK. Now we have a 19-4, computers. Now here we're going to continue to assume world supply is perfectly elastic. That's probably wrong. The US is big enough to affect the market for computers. But let's just assume the US is small for a second. Makes life much easier.

So what happens is we're initially in autarky at point Q sub A, P sub A. Now, the US says, we're going to send a bunch of the computers we're making in the US and send them to Colombia. What does that do? That means that there's fewer computers in the US. So the price goes up. OK? Supply, there's less supply in the US. The supply curve hasn't changed. Underlying marginal costs haven't changed. It's just that they're taking some of those computers that they used to produce for the US and produce it for Colombia. As a result, you move up the supply curve to the new hire price, PW. That's the new, higher price. Once you open up to trade, that's good for the computer producers. They can now sell to more people.

So now, at that higher price, OK, producers want to produce Q sub T, but consumers only want C sub T. We flipped it. Consumers now want to produce Q sub T. The price is up. They don't produce a lot of computers. Consumers are like, look, computers are more expensive. I don't want the computers. So you end up with Q sub T being produced, C sub T being domestically demanded, and the difference is exports. So it's the flip case. OK, for imports, we open up to , they lower the price of roses, you end up with more consumers wanting more roses than the producers are willing to produce, you get imports.

With exports, we open the market to Colombia, producers in the US produce fewer computers, the price goes up, so you have more computers being produced than people want instead of fewer computers. They raise the price because they can sell at a higher price in the world market. You have more computers being produced than people want, and you end up with exports.

Now, what's the welfare analysis of exports? This is quite interesting. Let's go to Figure 19-5. OK. Under autarky, what is the consumer surplus? Well, under autarky, the consumer surplus is W plus X. And what is the producer surplus? It's Y.

Now what happens under trade? Well, under trade you move from PA to PW. So consumer surplus shrinks. It's only W. Consumers aren't getting as much surplus because they're paying more for computers.

But what's producer surplus now? Well it's X plus Y plus Z.

So we have the flip case. Now we've transferred surplus from consumers to producers, and producers have also gotten Z. So it's a transfer with a gain. You've got consumers losing by X, producers winning by X plus Z. Total social welfare goes up by the area Z.

So this is kind of bizarre if you think about it. Imports increase social welfare and exports increase social welfare. It's kind of crazy, but it's true. Basically, both are true because you are creating gains from trade by opening up to new market. So in either case, you get welfare increases from trade.

This is the fundamental analytics of international trade that economists grow up with. It's whispered to us at bedtime. Free trade is good. Why is free trade good? Free trade is good because it opens up new possibilities for welfare improving trades. It opens up new possibilities for people who value a good to get it at above what it cost to produce it. Full stop. OK?

Now, you might say, well, that is great. And we know everybody listens to economists of course, so that seems the end of the problem. But in fact, it's not. In fact, if you follow the news at all, you'll know that this is not necessarily the consensus view, that there's a lot of debate in the policy world and in the economics world about trade policy.

There's a lot of debate about trade policy. Let's start with the simplest case. Imports are a job killer. Imports are a job killer. Why are imports a job killer? Well, because since we are growing more roses than Colombia and fewer here, producer surplus is down. Fewer roses are grown in the US, so fewer rose workers are needed. So they get fired. There were presumably thousands of people employed in producing roses in the US who now no longer have a job because we get them from Colombia.

So as a result, people say we should limit imports because they're killing American jobs. They always use the word kill. It's very violent. They're not taking away. They're killing American jobs. OK. So we should, that's the area that we should have some limitation trade policy.

So basically, for example, we could impose a tariff. I mentioned this earlier in the course. A tariff is a tax on imported goods. So we could say that any roses that come from Colombia, we will tax them. So a tariff is a specific tax on imports.

Well, as I'll show you in a minute, but I think your intuition could tell you already, this turns out to be a bad idea, because while it does help producers, it hurts consumers more. And to see that, let's go to Figure 19-6

Now we're back to the market for roses. The red and blue lines are autarky. Under world trade, we went down to PW, and we imported the difference between Q1 and C1. OK. Slightly different, slightly different magnitudes here. So once again, under world trade, we went from the original equilibrium down to PW. Producers only produce Q1. So a lot of jobs got lost. Consumers wanted C1. C had a lot of imports.

Now we impose a tariff. Well, what does the tariff do? It raises the price of Colombia-specific roses. In particular, if the tariff was the exact difference between PT-- I'm sorry, between the initial price-- it's not marked here, but PA, where the red and blue lines intersect. If the tariff was the actual difference between PA, the initial, the autarky price, and the world price, then you'd shut down imports. There'd be no reason to import them because you get them for the same price in the US. But that's an uninteresting case. Uninteresting case.

Let's imagine the tariff, but it's not quite as big as the difference between the price, the world price, and the US price. So the tariff now of an amount that raises the price from PW to PT. We put in a tariff, but it's not enough to wipe out Colombia's advantage. It just reduces Colombia's advantage. And why is that a shift up of the line? Because essentially what we've done is we've made the imported roses more expensive. So that raises the price those imported roses face.

So we move now to PT. And we move to new equilibrium where consumers consume fewer roses, C2. Producers in the US-- remember, it's a US diagram-- producers in the US produce more roses, Q2, and we end up with a smaller level of imports. After tariff, the imports have shrunk from C1 minus Q1 to C2 minus Q2.

Questions about the analytics? I know I'm going fast here. This is a new world, so please stop me if there's questions about this. OK.

Now, let's then take that and look at the welfare analysis of tariffs. Well, now we're going to compare a world with free trade to a world with a tariff. With free trade, we are at Q1 and C1. With the tariff, we've dropped to Q2 and C2. What has happened?

Well, by moving from Q1 to Q2, OK, we have increased producer surplus by A. Make sure you see that. Producer goes up by A. Why is producer surplus up by A? Because the price is up from PW to PT and they're selling more roses. Producer surplus is up by A.

Consumer surplus, however, has fallen by BC consumer-- I'm sorry. So consumer surplus has fallen by all of A, B, C, and D. Consumer surplus is down by the entire trapezoid ABCD. That's all come out of consumer surplus. That's all sales that were under the demand curve above the price that are now gone.

So can people see? That whole trapezoid, I've added four letters, but it's really just one trapezoid. That whole trapezoid is gone. OK? Because that's the area under the domain curve above the price that's now no longer there. So consumers have transferred A to producers, but they've lost A plus B plus C plus D.

Now here's the extra wrinkle. C is different than B and D. C is not deadweight loss. Normally you'd say, well, if producers didn't gain it, and consumers lost it, it's deadweight loss. But what have we forgotten here? What's the other party in play here? Why is this not a deadweight loss, rather a transfer? And who's it a transfer to? Yeah?

STUDENT: The government?

JONATHAN GRUBER: Yeah, it's a transfer to the government because the tariffs raise money. Give her a high five there. She got it. Because the government raised money. All right. The government raises money by this tariff, and that's another transfer. So essentially-- and the amount of money the government raised is what? Well, the amount of remaining imports, C2 minus Q2, times the size of the tariff, which is the rectangle C. So what's happened here is consumers have lost A, B, C, D, Producers have gained A. The government has gained C. And B plus D are deadweight loss. So the tariff has overall lowered welfare. We are worse off.

In order to transfer C to the government and A to producers, we've given up as well B plus D. So we're worse off. Society is worse off from restricting that. OK? So the fundamental argument for free trade is once again, a barrier to free trade lowers welfare. This is just a corollary of the previous proof, which showed that free trade maximized welfare. Well, here we're showing how a barrier to free trade-- this is operationalizing-- how does a barrier to free trade lower welfare? OK? Questions about that.

Now, that's why economists like free trade. But it's not the only reason economists like free trade. There's two, there's fundamentally three arguments for free trade. The first argument for free trade is the basic welfare analysis, welfare maximization. The second analysis for free trade is that when you impose that tariff, you're not done. Because what's going to happen then? What's Colombia going to do? What's Colombia going to do? Yeah?

STUDENT: Put tariffs on it.

JONATHAN GRUBER: On US's what? Computers. Remember, our welfare was maximized for exports by opening up the trade to exports. What Colombia is going to say, well, screw you. You got a tariff on my roses. I'm going to have a tariff on your computers. Well, I don't do the example here, but you should be able to go back and show yourself how a Colombian tax tariff on our exports is going to raise the price in Colombia. Imagine a Colombian domestic market. Just like our tariff. So imagine instead of the market for roses in the US, do the market for computers in Colombia. What you'll see is a tariff on US computers will lower the number of computers sold in Colombia. Well, that hurts our producers.

So by imposing this tariff and starting a potential trade war, which isn't nearly as cool as it sounds, OK, by starting a trade war, what we've done is essentially hurt not only our consumers, we've also heard our producers. Remember, the whole idea was to help our producers. But by helping the rose producers, we've now hurt the computer producers. So it's not even clear we raised producer surplus at all. We clearly lowered consumer surplus. It's not clear we raised producer surplus at all. OK?

So first of all, the welfare analysis is even stronger than you think, because you're missing the fact that if there's a trade war, our exporters get hurt too. Second of all, what have we forgotten in our typical American fashion? That there's other people out there in the world that matter, too. And just as free trade makes us better, it also makes other countries better.

So you could redo this whole analysis I've done. You guys have plenty of free time. Do it for fun sometime. Read this whole analysis I've done from Colombia's perspective, and show how opening up to trade to the US made Colombia better off. It increased consumer surplus more than producer surplus for computers. I'm sorry for, yes, for computers. And for roses, society also is made better off. You can do the same flip of the analysis and show that free trade helped Colombia, too. So even if you don't buy the welfare maximization argument, even if you don't buy the trade argument, if you care at all about people around the world, then that's another argument for free trade. You're not only helping us, you're helping everyone else. OK?

I have never seen that as vividly as when I went to Vietnam. I talked about the Vietnam rice example a few lectures ago. Vietnam was in a really horrific war with the US, and it's an incredibly moving place to go for that reason, especially people of my generation who lived through that war. But they love Americans. And they ask, why? They said, because we were a desperately poor, starving country until you opened to free trade in 1994. Bill Clinton is their hero. When you opened a free trade in 1994 and allowed us to export our rice to America, it massively increased our wealth levels. And I saw, I showed you one result of that, there was less child labor in Vietnam. But generally, their standard of living went way up. And it really brought home to me this argument, OK, which is that we can help other countries by allowing free trade too, and we shouldn't forget that. OK?

Now, this has, if you think about it, this kind of smacks of the flavor of the Nash model with non-cooperative and cooperative equilibria. Free trade is a cooperative equilibria where we're all better off by cooperating. We're not explicitly forming a cartel, but we're cooperating to allow free trade. By lowering barriers to trade, we're making everyone better off. Whereas the non-cooperative equilibria is, wow, I don't want my guys to lose jobs, so I'm going to impose a tariff. So you impose a tariff, and we both end up worse off.

So this very much feels like cooperative versus non-cooperative equilibria in the Nash model. And in fact, that's been realized enough over time that there's been more and more movement towards free trade. So if you look at the decades from, really, World War II all the way up to about 2017 was a steady movement towards free trade around the world. There were arrangements. And the way that was done was by a number of rules that were set up to impose free trade.

Essentially, the companies got together and formed a cartel. And they said, look, we're going to make sure we trade freely with each other by setting up rules that don't allow any one country to impose tariffs and start a trade war. So it's like a unilateral disarmament among countries. There were agreements. The World Trade Organization was set up, which it's trying to promote free trade by setting rules that have trade be free around countries. There was, very importantly in the US, NAFTA, the North American Free Trade Agreement, which was, once again, signed in the Clinton administration, which established virtually tariff-free trade between Canada and the US and Mexico. And a number of other free trade agreements were negotiated around the world.

And let me be very clear, what's stunning from my perspective is that it was Democrats as well as Republicans who were into this. When I grew up, Democrats were against free trade and Republicans were for it. That changed. Bill Clinton really led the charge. So really, we had a world where there was a universal consensus for free trade.

Now, I'm not saying-- I shouldn't say universal. There was a lot of movement. Plenty of people were upset about it for various reasons. I remember my sister graduated University of Chicago in 1999, and Bill Clinton was the presidential speaker. And a bunch of people wouldn't shake his hand because they didn't like the free trade deal he'd signed. I thought that was pretty intense.

So basically, it wasn't universal agreement, but certainly there was a large movement in that direction for many, many decades. And that completely reversed. And it was starting to reverse pre-COVID, and it's really reversed post-COVID. And basically, we are now moving away from that. President Trump putting a lot of anti-trade provisions in, particularly a large tariff on Chinese goods. And to be honest, President Biden has kept a lot of it. I mean, he got rid of some of it, but he's kept more than he's gotten rid of in terms of international trade restrictions.

So, it's that we've gone very rapidly from a consensus for international trade to one against. And COVID made it much, much worse. Why did COVID make it much, much worse? Because COVID exposed the problem with international trade, which is it creates interdependencies in production chains. You often heard the term supply chain as a problem. What was going wrong during COVID? Because of free trade, we created production processes that were integrated around the world. And when trade shut down during COVID, those supply processes collapsed.

The most vivid example, semiconductors. Semiconductors are the core of every modern thing we own, from our cars to our phones, to now in toilets and everything. And basically, as I think I mentioned before, 75% of all semiconductors are produced in Taiwan. And we couldn't get them all of a sudden. And the US, and we saw prices for cars go through the roof. I don't know if you know, but during COVID prices for cars went up two or three times. It was largely just because of the shortage in semiconductors. OK?

So now there is basically a lot of people arguing against free trade. And what are their basic arguments? So why do people oppose free trade? Well, one argument is the new one I mentioned, which is supply chain dependencies.

Supply chain dependencies slash national security. So the argument is, look, if 75% of semiconductors are produced within 100 miles of China, and we feel that we might go to war with China, we're pretty screwed if we don't have a domestic semiconductor industry.

Well, how do you make a domestic semiconductor industry? Well, you can do two things. One is you can tax Taiwanese semiconductors. But we don't want to do that because Taiwan is an ally of ours.

The other thing you could do is you could subsidize the American semiconductor industry. Think about the American semiconductor industry. They are doing the same analysis as what we've always done, marginal cost, marginal benefit. They're saying, look, the truth is at the price point for semiconductors today, we can't produce them cheaply enough. So we're just going to let them come from Taiwan.

What if you said to them, you know what? We'll give you a bunch of money if we produce semiconductors. They might say, well, if you give us enough, then we can produce them, even if we can't compete effectively with Taiwan. And that's what we did. We passed the CHIPS plus Science Act, which puts $52 billion aside for US domestic semiconductor manufacturing to try to build that. And a lot of the argument was we don't want to [INAUDIBLE] the supply chains that China may control, and part of the reason is national security. So that's one reason people are opposing free trade.

The second argument is the one where economists have probably fallen down the most, which is we might call this argument non-compensation of the losers.

The basic argument for free trade that I grew up with runs as follows. If you allow imports, consumers will gain more than producers will lose. As long as we take some of that extra and transfer it back to producers, everybody wins.

Let's go up to here. Imagine that we move-- this is with trade. We move to trade. Remember, trade to consumer surplus from W to W plus X plus Z. Producer surplus from X plus Y to Y. What if we took the X from consumers and moved it over here?

Well, then what happens? Consumers are better off. They still have W plus Z. Producers are no worse off. They are the same as they were before. So we can make everybody better off. We can create no losers from free trade by simply taking some of the extra benefits that are created and giving them to the losers. It's theoretically brilliant. It's a great way to argue why free trade is good, because as long as the winners win by more than the losers lose, you can take some of the winners' winnings and give it to the losers, keep them whole, and everybody is better off, or at least no worse off.

The problem is we haven't done that. In theory, it works. In practice, we don't do it. And this has made no more evident than by the fascinating research of my colleague David Autor. David Autor, who's an outstanding labor economist, has looked at what happened around the US due to rising imports from China. And basically, it's a very clever study where he looks at industries. Basically, Chinese imports became much cheaper after we passed the free trade agreement. He looks at industries that were more and less susceptible to Chinese imports and where they're located. And what he found was the industries that were most susceptible to Chinese imports basically got crushed, and those communities lost millions and millions of jobs.

Now, at the same time, life for consumers was great. This is basically how Walmart functions. OK? I've got this sweater here. This sweater you can't really see. It's a nice, mediocre sweater. OK? This sweater probably cost me, I don't know, 30 bucks. When I was a kid, when prices were a third of what they are now, this sweater would have cost me maybe 40 bucks. Would be 120 in today's dollars. Why? Because of imports from China. Because when I was a kid, that had to be made in North Carolina, in our textile mills in North Carolina, and they were more expensive. Now I get it from China. It's cheap. The textile guys no longer have jobs.

Well, the easy answer is tax me on my sweater. Imagine if with this $30 sweater, they imposed a $15 tax. Well, I'd still be way better off than I would have been without trade. This would have been 120 bucks without trade. So I'm still way better off. And that money could have compensated all the textile workers who lost their jobs. Everybody wins. But we didn't do it.

As a result, while theoretically we can make everybody better off, in practice, we haven't. And that has led to a lot of opposition to free trade. OK. This gets into a big issue, which is well, gee, couldn't we just help these textile workers some other way? And we'll talk in a couple of lectures about that. That's about redistribution policy. But in practice, that's what leads the opposition. Yeah?

STUDENT: Even if you don't do [INAUDIBLE], why would the difference in imports and exports balance?

JONATHAN GRUBER: That's a great question. So that's the other argument for free trade. Actually, I should put that as another argument. This is related to the trade war argument for free trade, which is that basically, the idea is economists say, here's another way to think about this. The rose workers lose their jobs. If we train them to be computer workers, then everybody's better off. The rose workers move into a better sector. Computer workers make more than rose workers. Consumers in the US get cheaper roses. Everybody wins.

So one of the ways you could do this is by literally just retraining workers. But that takes money. And we didn't do it. And a lot of workers, turns out, it's hard to become a computer programmer. Or be electrical engineer. I mean, you're all studying to do that. It's hard for these people who didn't grow up with proper education or work in the rose sector to do that.

So as a result, in theory, you can do that in practice. We didn't. So that's one big, that's a second big reason people oppose free trade.

And the third reason people oppose free trade I already talked about last lecture, which is socially damaging comparative advantage. And I talked about that last lecture with the Chinese battery plant and the fact they built this battery plant, and since they have no environmental regulations, the stuff leaked and killed a bunch of people. OK. That's the third issue.

Finally, the last issue, and the most controversial, is trade as a foreign policy tool, which is we have many reasons to be mad at China. There's many reasons Trump was mad at China. Now some were irrational. Trump was upset about our trade deficit with China. As I said, that's just a Pikachu deficit. We shouldn't care.

But Trump had legitimate reasons for being mad at China. For example, we have a larger world trading system under the World Trade Organization that, as I said, is like a club that imposes a set of free trade rules to try to have welfare maximizing trade around the world. China has been violating the rules of that organization repeatedly. Over and over again, China has been doing things which violate the rules.

So for example, it says you can't import any goods into China that aren't-- you can have foreign goods in China, but they must be produced in Chinese factories. Well, that's not free trade. If you say, you can't have computers sold in China by American companies unless you come here and build a factory here in China, you can own in America, but you got to come here and employ Chinese workers and build a factory here, well, that's against the rules of the WTO. That's against the free trade agreement. And China's been doing that for years.

There's also significant industrial espionage. Now, I'm not saying we don't do it too, but there's a lot of evidence of the fact that free trade has opened up the exposure of our companies to other countries, and they've been studying and copying our methods. And that's another reason. That's another kind of bad behavior we should worry about.

These are significant problems. So you might say, well, gee, China's a bad actor. Why not then slap a tariff on them? Why isn't that the right answer? And it turns out it's a bad answer as a way of getting back at this problem for three reasons. There's three reasons why using trade restrictions as a tool of foreign policy makes no sense. OK.

Reason one is the standard welfare analysis, which is, sure, you strike back at China, but along the way you hurt American consumers. Indeed, there was a lot of evidence that the price of goods that were produced using Chinese parts went through the roof once Trump-- not through the roof, but went up a lot once Trump raised his tariffs. So that's the first argument.

The second argument is that it's not even clear how you do this, because what is made in China? Take a car, where the construction of the body is in the US, but all the components come from China. Is that a Chinese good or an American good? And if you impose a tariff on that, you're hurting American car companies that use that as an input in their production, which will kill American jobs. So you're actually-- the idea of a tariff is to protect American jobs. But the tariff doesn't make it more expensive, the inputs that Americans need for their jobs. You actually hurt American jobs. So that's the second argument.

The third argument is you need coordination, which is the US isn't the only party that trades with China. The US is not the only party that trades with China. So suppose you're trading your Pokemon with your friends, but your friend has a bunch of people he's trading with, and you decide because your friend pissed you off, you won't trade with him. He'll just trade the cards to someone else.

Now, he might not get quite as good a deal, but it's not suddenly like he can't trade his cards. He's just got to trade them with someone else. And basically, that's what happened is China just started selling their goods to other countries.

So basically, the reason that this was a bad way to approach our problems with China was it's bad for American consumers, it might be bad for American producers, and it doesn't do much if you don't coordinate internationally. That's why most economists who are smart in this area said we should have serious trade repercussions against China. We should think about barriers to trade with China, but it has to be done in an internationally coordinated way. And that wasn't what was done. So basically, you end up with fairly ineffective trade barriers on China.

Now, the latest attempt of this to use trade as a foreign policy tool was sanctions on Russian oil, not allowing people to buy Russian oil, because the Ukraine war. Once again, this didn't work so well because other countries were still rising. Other countries were still buying. And that's a. And b, this became incredibly painful for Europe, because Europe depended so much on Russia for their fuel. And the question is, can Europe really, are you going to break apart the European Coalition because they don't want to keep placing such high prices for fuel?

On the other hand, if you tell countries they can't export goods to Russia, that might be more effective because that makes life miserable in Russia. Maybe they'll throw off their leader. They probably won't. But that would be another way you could approach it.

So these are really interesting and difficult issues to think through, and exciting to think about how we can once again use the tools of microeconomics to come at this. Questions about that? Yeah?

STUDENT: So I have a question about tariffs, specifically, I guess, [INAUDIBLE] tariffs in that for a country such as-- I don't know, US-- [INAUDIBLE]? It sounded like they're not that effective. But for-- I don't know-- a North Korea or a Cuba, [INAUDIBLE] place tariffs on those countries since they don't necessarily have [INAUDIBLE]?

JONATHAN GRUBER: It's a great point. So the trade war-- you're asking about this argument. The trade war argument is less powerful if you're talking about a tiny country where we don't really sell them much.

Now, North Korea is different. We have sanctions. That's just we won't deal with them. But if you think about a small country, if you think about suddenly we got mad-- and think about Colombia. They don't buy that many computers. So you might say this argument is not super relevant if the country is small. OK, I agree with that.

OK. Let me talk about one other. Since I haven't been controversial enough today, let's talk about one other non-controversial topic, which is immigration.

Immigration. The same set of principles that applies to free flow of goods applies to the free flow of workers. So look at Figure 19-8. Think about producing fruit in the US. OK. Originally, under autarky we have L1 workers producing fruit at a wage of W1. Now if we allow immigration, that shifts out. The supply of workers shifts out. Now we have S2 workers at a lower wage. Well, what does that do to the market for fruit? Well, let's go to Figure 19-9. So this is-- I'm sorry, 19-8 is not the market for fruit. This is unclear. It's a bit unclear. 19-8 is the labor market for people producing fruit. Very clear. 19-8 is the labor market diagram in fruit production. 19-9 is the fruit market.

Well, what's happened? I just showed you in 19-8 that the wage went down. If the wage goes down, marginal cost goes down. So the supply curve shifts out from S1 to S2.

What does that do? It allows more fruit at a lower price. So this is why economists generally favor relatively free immigration. Because by having immigrants come in and do jobs, we allow goods to produce more cheaply, and it creates consumer surplus.

On the other hand, Figure 19-8 is why many people in America don't like immigration, which is the wage falls. So it's, once again, a standard trade-off, much like trade. By allowing immigrants in, we allow more consumer surplus through cheaper fruit, but we lower the wage that workers get in the fruit producing sector. And I don't need to go through the graphs to show you that the former dominates the latter. Overall, we're better off with immigration.

Now, we're only overall better off immigration, however, if we can make some mechanisms to compensate the losers. If we, for example, said, well, look, we're now going to tax fruit, fruits cheaper, we're going to tax fruit and give the money to the former fruit producers, then that would work. But we're not doing it. We're not doing anything to help those fruit producers.

So the question is, how big a problem is this? And there's actually a number of really good studies of how does immigration affect domestic wages and prices. What they find is more immigration does lower prices. What they also find is more immigration doesn't much lower, has, if anything, a negligible effect on the wages of US-born workers. Relatively small effect, which could be for two reasons.

One reason could be because of elasticities. The other could be because they're in sectors that people don't want to work in. People don't want to pick fruit. They don't want to work at the gas station or the 7-Eleven. So basically, this is one reason [INAUDIBLE] wages is because these are jobs people didn't want.

But here's the fascinating fact. One group does get hurt by more immigration-- the previous immigrants. So the people who actually hurt by this, the group for which wages fall are the last generation of immigrants, because they are working in those sectors.

This leads to the fascinating paradox at the heart of a concern in politics that many have on the left, which is, gee, why are immigrants turning against the Democratic Party, turning against free trade, turning against free immigration? Why don't immigrants-- the Democrats are clearly the party of much freer immigration than the Republicans, yet they're losing immigrant votes.

Well, actually, it kind of makes sense if you think about it, because the future immigrants are going to hurt the wages of the existing immigrants. So it kind of makes sense. It's a pull the ladder up behind me argument. Once I'm in, I don't want more people in. Once I've got my job on the fruit picking sector, I don't want more people to come in. They'll lower my wage. So it's perhaps not irrational for some immigrants to oppose additional immigration because they're the one, not US-born people, but immigrants, previous immigrants are the ones whose wages will suffer.

So once again, a subtle but important argument as we think about-- obviously with immigration, there's a ton of other issues we won't get into here that aren't about economics. I'm not claiming this is the endpoint of immigration policy discussion. But it's important to remember that the tools I taught you about trade can be applied broadly, including to the immigration debate. OK? Let's stop there.