TRADE talks

A podcast about the economics of trade & policy

with Chad P. Bown

Episode 191. Brazil's trade opening and its toll on workers and crime

Episode webpage

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Transcript

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Chad Bown: Brazil is amazing.

Brazil is a country of over 200 million people, by far the largest in Latin America. After decades of being relatively closed off from the world, in the 1990s Brazil suddenly opened up to international trade.

Brazil is also a puzzle.

Brazil has a lot of inequality. Its workers have had a mixed experience with globalization. Brazilians also suffer from a lot of crime – according to the United Nations, Brazil often has the most murders of any country and one of the highest homicide rates in the world.

This episode tackles some serious questions. Are trade, inequality, and crime interrelated? If so, how and what can policymakers do about it?

To try to answer all of that, I will be joined by a very special guest.

Rafael Dix-Carneiro: Rafael Dix-Carneiro, Duke University.

Chad Bown: Rafael Dix-Carneiro is an economics professor at Duke University. Rafael is Brazilian, he studies trade, workers, and crime, and today he is going to share some of his research into how all of this matters for Brazil and policymakers everywhere.

Hi Rafael.

Rafael Dix-Carneiro: Hi, Chad.

Chad Bown: You are listening to an episode of Trade Talks, a podcast about the economics of trade and policy. I'm your host, Chad Bown, the Reginald Jones Senior Fellow, at the Peterson Institute for International Economics in Washington.

THE EPISODE

Chad Bown: Rafael, let's jump right into it. Tell us a little about yourself, starting with where and when you spent your time as a kid.

Rafael Dix-Carneiro: I grew up in Brazil. I was born in the late 1970s. So I grew up in Brazil in the 1980s and the 1990s. And, more specifically, I grew up in Rio. It's a place with amazing landscape – beach town, great forest, great nature, very relaxed atmosphere in general, but very big social and economic problems. And this is something that shaped me as an individual and as an economist later – i.e., a country with very high inequality, lots of urban poverty, and lots of crime.

Chad Bown: What was Brazil like in the 1980s when you were growing up?

Rafael Dix-Carneiro: Brazil in the eighties, was a country that was very closed. So we had decades of import substitution industrialization. The government was subsidizing many firms to produce things in Brazil. There are famous examples of the Brazilian computer, the Brazilian car, the Brazilian hi-fi stereo company. And these are things that many of us had at home.

My dad had a hi-fi system made by a Brazilian company. Someone down the street had a Gurgel, which was the Brazilian car. I don't know if anyone among us had a Brazilian computer, but that was a thing. For many years, we had a Brazilian computer manufacturer.

Chad Bown: You were a kid when Brazil started going through this transition of opening up to trade – what happened?

Rafael Dix-Carneiro: There was a trade liberalization episode in the 1990s. It was announced in March 1990 by the new president. And you could really see this night-to-day in the supermarket. Before liberalization, it was more like a Soviet style. You would see just one brand of spaghetti or one brand of olive oil in the supermarket.

And all of a sudden you have this explosion of products. You have multiple brands of olive oil, multiple brands of spaghetti, chocolate, Lindt chocolate. This is something, was super new, for us in Brazil. And me as a kid, I loved it.

But there was also something that we started to see which was new brands of cars in the street. In particular, we could see Peugeots and Renaults, which were things that we couldn't see. We could only see Volkswagen, Fiats, and Fords back in the 1980s – these were being produced in Brazil, and then the Peugeots and Renaults were being imported.

Chad Bown: What was Brazil's macroeconomic situation like in the 1980s, how did that change over the next couple of decades, and what other major policies did Brazil implement during this period?

Rafael Dix-Carneiro: In the 1980s and 1990s, Brazil was going through a very serious period of hyperinflation. I used to go to the supermarket and, every single day, people were changing price tags. That was a job. The guy was literally, every single day, changing price tags.

Brazil was a middle income country in the 1980s and was still solidly a middle income country after liberalization. It is also true that Brazil went through many reforms, in the 1990s, beyond trade liberalization, and many of these reforms are credited with having pushed Brazil into a position of highlight. In the 2000s, *The Economist* had a famous cover with Christ the Redeemer taking off – that was during the commodities boom.

In the 1990s, there was trade liberalization. We also started a very ambitious privatization program. Many fiscal policies started to be in place so that the government was not able to spend without limits. Hyperinflation was tamed as well in the 1990s. All these policies were thought to have given Brazil the right framework to be able to sustain growth.

Chad Bown: Let's get into the details of Brazil's trade policy. You mentioned Brazil opened up to trade in the early 1990s, but before that had been closed for decades and was pursuing import substitution industrialization. How did that begin to change in the late 1980s?

Rafael Dix-Carneiro: In the 1980s, the economic environment was a mess. Between 1985 and 1990, we had five finance ministers – each one with a very bold economic plan to tame hyperinflation, and each of these plans failed. In 1990, we had a new president, and he had a new economic plan and it was pretty much shock therapy.

In March 1990, there was a package of policies that were announced by decree. And one of these policies was trade liberalization. So trade liberalization happened from night to day, by decree, out of the blue.

Before the shock therapy, Brazil was very closed. But Brazil was already going through some reform in its trade protection structure. There were quotas and other nontariff barriers. But these were in the process of being tariffied in a process known in Portuguese as *tarificação*. But there was no idea of liberalizing trade before this president. The idea was just to make the protection structure more transparent.

Chad Bown: Brazil is converting its quotas and other non-tariff barriers into more transparent tariffs in the 1980s. When the new President came into office, what was the level of Brazil's tariffs and what happened under his shock therapy policy in 1990?

Rafael Dix-Carneiro: The average tariff back in 1990 was about 31 percent. There was a lot of dispersion in tariffs across goods. Some sectors such as auto manufacturing, rubber, and apparel had very high tariffs.

The implication of that is that many of these industries faced very large tariff cuts. For instance, the auto manufacturing industry or the apparel industry faced very large tariff declines and therefore they were now exposed to very strong foreign competition and they had to adapt to this new scenario.

On the other hand, there are other sectors, mostly agriculture, which had very small tariffs to start with, and the tariffs they faced didn't change at all.

Chad Bown: When a country like Brazil opens up to trade, what do our basic economic models suggest would happen?

Rafael Dix-Carneiro: There was a reason why these tariffs were high. They were protecting these sectors in which Brazil did not have comparative advantage. Once you lift these tariffs, imports in these sectors are going to increase so that import-competing sectors will tend to shrink and shed workers. But at the same time, our theories would predict that other sectors, such as agriculture, would expand and absorb some of these workers.

Chad Bown: Is that what happened in Brazil?

Rafael Dix-Carneiro: Not really. There is some research in Brazil (and other countries who also liberalized trade around the same time) that uncovered the puzzle – i.e., that sectors that were adversely affected by tariff declines and therefore were facing increased import competition, didn't see workers flowing out of these sectors and into sectors that were favorably affected and growing in terms of exports.

Chad Bown: There is this puzzle that workers are not moving away from sectors in Brazil facing a lot more competition from imports – maybe clothing and apparel – and into Brazil's export sectors that are growing, like agriculture.

How did you investigate what explains this puzzle?

Rafael Dix-Carneiro: Brazil is a very large country. Different regions of the country are mostly producing very different goods. Some regions are going to be mostly specialized in auto manufacturing. Some other regions are going to be specialized in agriculture. Some other regions are doing a little bit of apparel, a little bit of cars, and so on.

Therefore, because trade liberalization affected sectors to very different degrees, it should have affected different regions in very different ways as well.

So that is our point of departure for looking at the data.

Chad Bown: To examine what happened to Brazilian workers, there are lots of different outcomes you can look at – things like employment, wages, and inequality. Where did you start?

Rafael Dix-Carneiro: We started looking at employment. And the idea here is that regions that were producing cars or apparel – products that face larger declines and tariffs – they faced a larger economic shock compared to regions that were primarily agricultural, because these regions didn't really face any decline in tariffs.

The consequence of this is that we would have expected employment in the apparel or auto town to go down relative to employment in the agricultural town. And we would also have expected that unemployment would have gone up in the auto or apparel town, because this was the region that was more disrupted from import competition.

Chad Bown: What do you find?

Rafael Dix-Carneiro: Consistent with our theory, we do find that employment in these regions that were hard hit by import competition goes down relative to, you know, other regions that were not affected by the tariff declines.

That is not necessarily surprising. What is surprising is that this effect materialized over many years. Employment declined in these hard hit places in the short run, but this process lasted for 10 to 15 years!!!

Chad Bown: For workers and jobs, things went badly when Brazil opens up to trade and things stayed bad for a very long time. Looking at fifteen years after the trade liberalization started, employment in the regions hard hit by tariff liberalization had never recovered. Employment had stabilized at this new lower level.

What about wages for these Brazilian workers? What do the basic economic models predict should have happened to worker wages, and what did you find?

Rafael Dix-Carneiro: The theory would go as follows: in the very short run, people cannot move from hard hit places to positively affected places.

The effect of that is that, as firms shut down because of import competition, wages decline in the very short run.

But also, workers were being shed – they were being fired from their factories, and therefore employment decreases. But over time – as people start to become able to move to other places – or so the theory says, that would put upward pressure on wages. The theories would predict that wages would recover in the long run.

But the impact, the negative impact on employment, would have been persistent.

So we found that wages are negatively affected in the short run. They recover very slightly two to three years after that. But then they start a process where they keep declining over time. And they only stabilized after 15 years and at a much lower level.

These results were very surprising to us. We didn't quite believe in these results initially. Our objective was to only depict how the economy evolved over time after the shock.

But over time we were really convinced that these results were reflecting true effects.

Chad Bown: To summarize this puzzle then: A full 15 years after Brazil began its trade liberalization, workers in regions affected by the biggest tariff cuts continue to be doing worse than other workers in Brazil. Fewer of them are employed, and those that do have jobs are being paid relatively lower wages.

What were some of the theories that you looked at that might help explain this puzzle?

Rafael Dix-Carneiro: We started thinking about a few theories. The first theory is that, maybe tariffs were reduced, but imports took a while to respond. And because imports took a while to respond, these import pressures evolved over time very slowly, and in principle, that could explain some of the patterns that we documented. We looked into that, but it was not really the answer.

Then we started looking into theories of city declines – e.g., theories that explain why cities like Detroit have been declining for many decades and never recovered. We also looked into this and it didn't seem to be the explanation either.

Another potential explanation that people brought up to us is that maybe we were capturing some of the export boom consequences. But again that was not the culprit.

Chad Bown: The data just did not support any of those three theories behind why Brazilian workers got stuck. These workers were not willing to move from one region to another.

So what evidence did you find that can explain why things were so bad for Brazilian workers?

Rafael Dix-Carneiro: Typically in our economics models, a tariff reduction is going to affect firms once and for all, for the amount of labor they want to employ. However, we found evidence that these firms are going to be adjusting their labor force dynamically over time.

And there are two reasons for this. The first reason is these firms are employing machines initially, and even though they are facing stronger import competition. They keep using these machines, they keep using workers to, use these machines, but then over time, some of these machines are going to break. And as these machines are going to break, it's not worthwhile to replace them, because, now they can only get a much lower price for their product. Over time, they're going to start demanding less workers because they have less installed capacity. So over time, firms that face import competition are going to be employing less and less workers over time, beyond the initial impact.

Chad Bown: Workers are becoming less productive over time because firms that face more competition from imports don't bother to replace their machinery once it gets worn out, and this hurts worker productivity and contributes to workers being paid a lower wage.

But I cut you off – you said there was a second reason.

Rafael Dix-Carneiro: The second reason is that now we start to have these regions that have less and less employment. And there's plenty of evidence in economics that says that whenever we have less people working in a region, productivity of that region tends to go down.

And the reason is that with less people in the region, there is less flow of ideas or less diffusion of ideas. People don't really know how to solve a problem. And whenever someone finds out how to solve a problem, this is harder to diffuse because we just have fewer people around in the region.

As employment gradually declines in this hard hit region, productivity in that region declines as well. And that leads to a lower firm demand for workers.

The theory behind this idea comes from agglomeration externalities. And the idea here is that when we have vibrant cities with lots of people, they meet up for coffee, they exchange ideas, they learn how to solve a problem, and they transmit that knowledge forward.

Here we have agglomeration externalities in reverse. We have less people, we have less people meeting, we have less transmission of knowledge, and therefore less productivity for the region overall.

Chad Bown: You have this result that a worker hurt by trade has a spillover effect and hurts another worker in that same region. I want to talk about one of the policy implications of that result. In the United States, we have TAA - a Trade Adjustment Assistance program - that is a labor market policy designed to help workers hurt by import competition. TAA is narrowly focused. It provides benefits to workers only at the companies and industries directly facing competition from imports.

For a setting like Brazil, does it make sense to limit the policy only to those workers who are directly impacted by import competition?

Rafael Dix-Carneiro: This policy is going to help these workers who are eligible for TAA, but it's not going to help the restaurant workers next door who also lost their business and their employment because they cannot service the apparel factory anymore. The effects of trade spill over to other industries – local services, for instance.

Therefore, if you want to help all workers negatively affected by a trade shock, you want to have a more, a broader definition (of affected workers), potentially at the local level.

Chad Bown: Thus far, you have described results on worker employment and wages in Brazil in what is called the formal sector. But Brazil also has a sizeable informal sector. In the informal sector, firms also employ workers, but there the firms skirt the rules. They may not pay the minimum wage or provide benefits or unemployment insurance for workers who get laid off. How important is the informal sector in Brazil overall?

Rafael Dix-Carneiro: The informal sector is a source of great concern in Brazil. It employs about 50 percent of the labor force. Informality is much more prevalent in sectors such as agriculture and services, but you still see quite a bit of informality in manufacturing.

There is this notion in Brazil that people need to get by. Therefore, informality should not persecuted. The statistical agency in Brazil for many years has focused on measuring informality in the country. And there is a very specific question in household surveys that is asked that is used to measure informality, at least on the worker side.

Chad Bown: Informality in Brazil is not stigmatized and the Brazilian government actually collects detailed information on it. When you looked at data on how increased trade impacted Brazil's workers in both the formal and informal sectors, what do you find?

Rafael Dix-Carneiro: Trade leads to some disruption in the short run. Some of these workers spend extended periods of time unemployed. Eventually they find new work, but they only find new work in informal jobs. This is interesting because it looks like the informal sector worked as a fallback sector to these trade displaced workers.

Chad Bown: What are the policy implications of that result?

Rafael Dix-Carneiro: One possibility is that if the Brazilian government had cracked down on the informal sector around that time, It could have prevented the reallocation of trade displaced workers to the informal sector. And that could have led to a larger and longer impact of these local shocks on unemployment.

So things could have been even worse for the workers.

Chad Bown: The next part of your research on Brazil involves crime. In particular, let's talk about homicides.

Rafael Dix-Carneiro: Brazil is a very violent country. Thirty two of the fifty most violent cities in the world are in Brazil. Brazil has about fifty thousand homicides a year and very high homicide rates.

Given all that, we wanted to investigate if this economic hardship that was induced by the trade liberalization shocks was translated into crime activity.

Chad Bown: What do you find?

Rafael Dix-Carneiro: We found that regions that were more exposed to import competition experience increases in homicides in the five to seven years following trade liberalization. However, these impacts subsided in the longer run.

The next step then is to try to understand the mechanisms through which these import competition shocks were translated into higher criminal activity.

Chad Bown: Right, though going back to your childhood stories, it's not like people started killing each other because of trade – like they were fighting over who gets the newly available Peugeots or spaghetti or Lindt chocolate. So then, what are some of the potential channels through which more competition from imports could lead to more crime?

Rafael Dix-Carneiro: There are many theories on the determinants of crime. Crime could be affected by labor market conditions, such as wages and unemployment. It could be affected by inequality. It could be affected by the provision of public goods, such as the quality of schools or the amount of police on the street.

All of these things could be affected by import competition. And indeed, we find that labor market conditions, inequality, or the provision of public goods (i.e., public safety, or quality of schools measured by the number of high school dropouts) – all of these variables are affected by our import competition measure.

However, there's only one thing that has an impact similar to the impact of import competition on crime, and that's unemployment. All of the other things are affected in such a way that the short run impact is smaller than the long run impact.

And that allows us to pinpoint unemployment as the key mediator between the effect of import competition on crime.

One interesting thing that comes out of this research is that import competition not only affects workers directly exposed to the shock through losing their jobs, but it also affects other people who have nothing to do with it, through social developments, such as increases in crime.

Our research highlights a new adjustment cost to trade shocks.

Chad Bown: Earlier you described evidence that a worker hurt by import competition also ended up hurting other workers in their region through lower productivity and wages. That was one bad spillover. Here the new competition from imports generated a second negative externality (or bad spillover) on local communities through increased crime. Let's unpack this result a little bit more.

You also said that the Brazilian regions more exposed to import competition have an increase in homicides that lasts for five to seven years. But at that seven year point, the effect goes away, and more import competition no longer leads to higher crime.

Rafael Dix-Carneiro: The reason is that the effect of import competition on unemployment follows the same pattern. The effect of import competition on unemployment is strong up to five or seven years. And after that these trade displaced workers eventually find employment, but only in the informal sector.

Chad Bown: What are the policy implications of that?

Rafael Dix-Carneiro: Here, one policy implication would be that if the government had cracked down on the informal sector during that period, potentially the effect of import competition on unemployment would have been more severe and long lasting, and that would lead to stronger impacts on crime.

Chad Bown: This research is amazing, but are there caveats to your approach? Put differently, what are some of the ways your results could be misinterpreted?

Rafael Dix-Carneiro: There are many caveats of the research that we just talked about. The methodologies that we employed only speak to relative impacts.

And of course, to make the exposition easier, we many times made it sound like these are absolute effects. Employment in Brazil as a whole went down, wages in Brazil as a whole went down, but that's not the right reading.

The right reading is that wages in places like Rio grew less fast than wages in places that are agricultural and not exposed to import competition. We typically speak about relative effects.

Even though this research cannot tell us whether trade was good or bad for Brazil as a whole, it does tell us that trade affected regions of the country in very different ways. It is informative about the inequality consequences of trade. And one thing that I'd like to add is that it turns out that it was the initially richer places in Brazil that were harder hit by trade liberalization.

Trade tended to decrease inequality across regions in the country. And we show that 25 percent of the decline inter regional inequality between 2000 and 2010 was driven by trade liberalization.

Chad Bown: Trade tended to decrease inequality across regions in Brazil.

To wrap things up, I wanted to ask for your advice. Despite all of this research, what do we still not know and what do researchers need to work on to really help policymakers better understand the roots of these social problems as well as what to do about them?

Rafael Dix-Carneiro: So some of my work suggests that governments should be very proactive in helping workers who lose their jobs because of trade, but also workers in the communities that are mostly affected by import competition.

Of course, there's still the question of what is the best way of helping some of these workers? There's a large literature on active labor market policies in developing countries that are mostly inconclusive. It is unclear whether any of these active labor market policies that are typically implemented, such as helping workers to find new jobs or giving them new training are going to be effective at all. So, yes, we definitely need more research on this topic.

Chad Bown: Rafael, Thank you very much

Rafael Dix-Carneiro: Thank you very much, Chad. It was a great pleasure.

GOODBYE FOR NOW

Chad Bown: And that is all for *Trade Talks*.

A huge thanks to Rafael Dix-Carneiro at Duke University. We have discussed three or four of Rafael's research articles with various coauthors – including Brian Kovak at Carnegie Mellon University. To read more of the details, I will post links to this research on the episode page of the *Trade Talks* website. That is www.tradetalkspodcast.com .

Thanks to Melina Kolb, our supervising producer. Thanks to Sarah Tew, on digital. As always, thanks to Collin Warren, our audio guy.

Do follow us on Twitter or X for now, we're on @Trade__Talks. That's not one but two underscores, @Trade__Talks.

<insert super funny double underscore joke here>. ■

Read more…

- Dix-Carneiro, Rafael, and Brian K. Kovak. 2017. Trade Liberalization and Regional Dynamics. *American Economic Review* 107, no. 10: 2908-46.

- Dix-Carneiro, Rafael, and Brian K. Kovak. 2019. Margins of labor market adjustment to trade. *Journal of International Economics* 117: 125-142,

- Dix-Carneiro, Rafael, Rodrigo R. Soares, and Gabriel Ulyssea. 2018. Economic Shocks and Crime: Evidence from the Brazilian Trade Liberalization. *American Economic Journal: Applied Economics* 10, no. 4: 158-95.