



*A podcast about the economics of trade & policy*  
with Chad P. Bown

## Episode 199. How trade economists busted corruption at the port

[Episode webpage](#)

December 10, 2023

Transcript

(lightly edited)



**Chad Bown:** Tariff revenue in a lot of developing countries is super important. Governments use tariffs as a source of tax revenue to fund the social programs that their citizens so desperately need. Schools, doctors, roads, bridges and other parts of a government's economic development strategy often depend on tariff revenue collected from imports coming off a container ship at a port.

At the same time, corruption is a big problem in a lot of these same developing countries, especially when it comes to imports at these ports. At customs, government officials often scheme to take that precious tariff revenue away from the general public and keep it for themselves.

But how do they do it? And can they be stopped?

This episode explores one such corruption scheme in Madagascar. We tell the incredible story about how customs officials defrauded Madagascar's government, how they were caught by a group of really creative trade economists, and what happened next.



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To do all that, I will be joined by a very special guest.

**Ana Fernandes:** Ana Fernandes, World Bank.

**Chad Bown:** Ana Fernandes is a Lead Economist in the research group at the World Bank. She is a trade economist and one of the world's leading experts on customs. Today, Ana is going to describe some of her team's research into detecting and combatting corruption in Madagascar.

**Chad Bown:** Hi, Ana.

**Ana Fernandes:** 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:** Ana, to start, tell us about Madagascar.

**Ana Fernandes:** Madagascar is a large island off the coast of Mozambique in the Indian Ocean, and it's known for its amazing wildlife and for its vanilla exports. But it's also one of the poorest countries in the world.

When you think about what it imports, it imports almost everything, because it has very little domestic manufacturing, and it needs to get all the goods from foreign countries. It actually imports a lot of food from France but also most manufacturing goods and oil.

**Chad Bown:** Madagascar imports a lot of different types of goods. How important is tariff revenue for Madagascar – i.e., the duties it collects on those imported goods?

**Ana Fernandes:** Tariff revenue is super important. In Madagascar, specifically, tariffs collected at the border from imports, they account for half of government total tax revenue. That's huge. For the United States, for example, this share is less than 2 percent.

Poor countries like Madagascar rely heavily on tax revenue. They need it for all their social programs, education, etc.



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But they generally collect less tax revenue than rich countries. One reason is that they have large informal sectors. They can't really collect income taxes. They have weak bureaucrats, so they can't really go after people to pay their taxes.

So, they end up being very dependent on easier taxes to collect. And tariffs, because they are charged at the border when goods come in, they are those easier taxes to collect. That's why we see, in the case of Madagascar, this 50 percent of total tax revenue coming from tariffs.

As countries get richer, tariffs become progressively less important because they can collect income taxes, consumption taxes, and other types of property taxes.

**Chad Bown:** On *Trade Talks* we hear a lot about tariffs, but mostly in theory. You have a lot of experience studying how tariffs are assessed and collected in practice.

How does an imported good like food or oil or some manufactured product, just off a container ship, clear customs at a port in Madagascar? Who are the key people involved, and what is the process?

**Ana Fernandes:** Here is Customs Clearance 101. Some steps in the process begin before the ship arrives into the port. And before I describe the steps, let's just keep in mind the two or three key economic agents we're going to be hearing about:

- There's the customs official, i.e., the customs inspector.
- There's the broker, and the broker is a private sector agent who is acting on behalf of an importer.
- The importer is a company or an individual who decides to purchase, say, a computer.

What happens in the very first step is, once the purchase is made, the customs broker is going to enter into the electronic system the information about this import. I.e., I'm going to be using the words "declaration," "import declaration," "transaction," or "shipment" for a computer that's going to come in.

The broker is going to enter information about this shipment. He's going to say what is *the good* that's coming in, what is *the value* of the good, and what's *the quantity*. And this is done electronically.



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**Chad Bown:** How closely are these customs declarations being tracked? Is every import shipment being inspected?

**Ana Fernandes:** It's really not possible for Madagascar customs to inspect every single shipment that comes in. There are just not enough inspectors, and there's not enough time.

What they do is something that has been introduced in most countries around the world, which is to use risk analysis. Once they have this declaration information, they have a model – i.e., a secret model – that they put the information through.

And that model is going to tell them the risk of tax fraud for this declaration. If the risk is big, this IT system is going to indicate that that particular shipment should go through a physical inspection. It's called the “red channel” and is something like you see at airports. There's a red channel and a green channel. This risk analysis is one thing happening in the IT system.

Another thing that is happening and that is absolutely crucial in all our work is that the IT system is going to assign a particular inspector to assess this particular declaration.

Once the goods arrive, the inspector gets to work. He's going to look at the documents. He's going to look at the cargo itself, if there's a red channel inspection to be done. He's going to determine if the value is adequate, if the taxes are adequate, what are the taxes to be paid, and if there is any potential infraction. Once tariffs are paid and the goods are cleared, they go to the final company that imported them.

The critical step in all of this is this assignment of the inspector to a particular declaration.

**Chad Bown:** We'll come back to the assignment of the inspector to the customs declaration in a minute. But first, you also said that the risk assessment model is secret.

You have been working on customs and importing for a long time. Even if the exact model is secret, what are the key things that customs would be looking out for that they would likely consider in their risk assessment model?

**Ana Fernandes:** For this risk model, we did try to obtain information from customs officials on what was included. They kept it secret, but we know from analysis in other countries and from talking to customs specialists the types of information they use are really the basics of the import declaration.



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For example, what products are there? Certain products are more prone to be either misreported or undervalued. So, they will get a bigger weight in the risk (fraud) model.

The tariff liability – i.e., the value of the good multiplier by the tariff rate – is definitely an element that's also used in the risk in the risk model because if there are higher stakes, they are going to be more vigilant about such shipments.

They also have some sort of reference prices that they compare an incoming declaration to a menu of prices. And if it's very divergent, that's also a red flag.

An example of a reference price could be for a computer. They might have an indication that a computer should be around \$1,000 in value. So, if there's a declaration where it indicates the goods imported are computers, but each is worth only \$50, then that's a red flag.

They also use information on who is the importer. Some importers may have committed fraud in the past. That fraud is not eliminated from their record. They will be a high-risk economic agent.

It's all these elements that allow them to determine if a particular declaration is at a high risk of tax fraud.

**Chad Bown:** There are all of these risks of tax fraud in theory. But are there particular features of Madagascar that might make it more likely for corruption to take place at its ports?

**Ana Fernandes:** The environment is really conducive to corruption in Madagascar for several reasons.

The first reason is that there are very high stakes and very few players. For the main port, Toamasina, which is really our focus in this study, there are only about 16 inspectors working every year. And this Toamasina port accounts for more than a third of the country's total tax revenues. This means, if you make the calculations, that each official collects 1.3 percent of total tax revenues in the country. What this means is that if one particular official is a rotten apple, he can hurt the country's macroeconomic performance. This is quite a big impact.

The second reason is that Toamasina is a really small place. There are 16 inspectors on average. They deal with about 46 brokers. And they work together. They do the business of importing the goods and clearing the goods. But they also socialize outside of business.



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The third reason is that the fear of being caught in any illegal activity or corruption scheme is really low. There are really no sanctions for improper conduct in Madagascar.

In fact, we did a survey of customs inspectors when we were starting this project. And based on the survey, only 6 percent of them said that non ethical behavior was punished. You can get away with engaging in corruption. You're not going to be caught.

The fourth reason is that the customs inspector job is actually highly coveted, but this is a little bit of a puzzle.

The jobs are very well paid, about \$10,000 per year, which is very high by Madagascar standards. And in addition to being secure, the jobs also can provide inspectors with additional bonuses and performance rewards, if they catch a lot of fraud. This would suggest that these guys should act with integrity as they can get a bonus for doing it.

But that's not the case at all. And that is because they can make a lot more than their salaries if they cheat. Some inspectors could easily double or triple their annual salary if they engaged in some bribing and some corruption scheme.

Think of an example of an import shipment worth \$1 million and let's imagine there's a tariff of 10 percent on this shipment. This would mean a total tariff revenue of \$100,000 if the import value was properly declared.

But if the broker and the inspector engage in a scheme that allows the broker to pay a lower tariff – let's say to pay only \$50,000 – then there's \$50,000 on the table that these two guys can split. This provides a really strong incentive for inspectors and brokers to collude and pay lower tariffs.

**Chad Bown:** How do they do it? How does the government official – the inspector – and the broker collude to collect and turn over less tariff revenue?

**Ana Fernandes:** You're really asking me how to cheat customs. 😊

Essentially there are two major ways. The first way is to under report the value of a product. Think about the example of a broker who is entering the information on a brand-new Mercedes-Benz being imported. And let's say he enters that the car is worth \$20,000 in value. But in reality, this is a top-notch car whose value is \$50,000. When the inspector gets this declaration, just by looking at the document, if he's aware of car prices, which generally he would be, he can immediately detect undervaluation. So, he has an option.



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If he's honest, he's going to adjust the value upward to \$50,000 and the broker is going to pay the right amount of tariff.

If he's a crook, but he still wants to avoid being caught, he may adjust the value just a little bit. I.e., he'll adjust it to \$30,000 and then they can split the difference because it's still an undervaluation.

The other possible way to cheat customs would be to misreport the actual product being imported. So, again, with my example of the Mercedes Benz, let's imagine the broker writes that in the declaration, it's actually a motorcycle coming into Madagascar, for which the tariff rate is 5 percent, but if it was the Mercedes Benz, it would be 10 percent.

Again, this would be one way to cheat customs. It's easier to catch. If there's a physical inspection, you're going to see what was really coming into the country.

But in Madagascar, the type of fraud that's most common is really the undervaluation. Based on the observed fraud that's actually caught in Madagascar, 70 percent is the result of underreporting of values.

I gave you a very easy example. But imagine that what was coming into Madagascar was a complex or obscure chemical compound. How do you even know how to value it? It's very easy to see how undervaluation can go undetected.

**Chad Bown:** Let's turn to your research. When you first started researching Madagascar, were you working on fraud and corruption?

**Ana Fernandes:** Our Madagascar adventure started with an entirely different project. We were brought in to do an evaluation of a reform in the trade facilitation area, but that didn't go anywhere. But in doing that, we gain unprecedented access to this really rich data on all import declarations coming into Madagascar over five years.

For each one of them, we knew everything: the inspector that was handling the declaration, the broker that lodged it, the importer that was making the import. We knew a lot of sensitive information like risk scores, inspection results, fraud records, modifications to import values and taxes made by the inspector. This was amazing data that we had never seen for any other country.



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In the process of getting the data and getting into this work, we also began to interact, quite extensively, with (Madagascar's) Customs management. They were very reform oriented, and they knew there was corruption going on, but they couldn't get a handle on it.

At the same time, there was a visit to the country by two of my coauthors, and they did have lots of conversations with inspectors. One of them, I remember, told them that he had been there seven months, but there were certain brokers whose declarations he had never handled. And another one said, "Oh, I never get the good declarations."

This really got us to think about how inspector assignment to declarations was being done and what was going on in terms of pairing of brokers and inspectors.

**Chad Bown:** The government bosses in Madagascar are worried about corruption. And based on your team's conversations with inspectors, it seems like something fishy is going on. Some of them are just never assigned to certain brokers – despite there only being 16 inspectors and 40-something brokers. Furthermore, some of them also never seem to be assigned to the import shipments that are really valuable – the *good* declarations – where the potential tax revenue collections would be high. This makes you and your team suspicious that there is corruption taking place.

OK, I can't wait any longer. Tell me the punchline. How were they doing it?

**Ana Fernandes:** The corruption that we uncovered was taking place through the use of the IT system. So, the way the process of customs clearance is supposed to happen is that it has this step where the IT system assigns an inspector to a particular declaration. According to the official rules from this IT system – which is an ASYCUDA (Automated SYstem for CUstoms DAta) IT system coming out of Geneva, and it's used in more than 100 customs agencies around the world – these official rules indicate that the assignment of a declaration to an inspector should be random.

What was happening was that this random assignment was being manipulated by an IT guy who was overriding this randomization procedure. He would use an IT administrator account and would uncheck all the inspectors that were not colluding with a particular broker whose declaration was coming in. So, if the declaration is coming in, the system sees just one particular inspector checked as being active. Of course, it's going to assign the declaration to that inspector.





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Then these three agents are in on the corruption scheme. The inspector is going to treat this declaration differently. In the end, it's going to be about clearing it faster, not finding fraud, and allowing it to pay lower tariffs.

So, there's going to be some money to be divided among the IT guy, the inspector, and the broker.

**Chad Bown:** Amazing! So that is the ultimate scheme – it involves the inspector and broker colluding, and they are being allowed to collude because the IT guy overrides the IT system that is supposed to randomly pair inspectors and brokers to make sure these bad guys don't always work together. But at this stage you did not know that – i.e., this would only be confirmed later in the story.

How did you use economics and these official rules to figure out that this is what was going on?

**Ana Fernandes:** What we knew was that – these official rules of this random assignment – we knew what was supposed to happen in Madagascar. And these official rules nicely lend themselves to a statistical formula that was quite easy for us to calculate, and it would basically give us a prediction of how often an inspector should be paired with a given broker.

We had the theory based on the random assignment of how often they *should* be paired. And then with our great data, we were able to calculate how often they *were actually* paired, and we could compare the two.

And we detected important discrepancies. What we found through our new methodology was that there was excess interaction between certain brokers and certain inspectors. This was happening in about 10 percent of the overall set of import declarations during our three-year period.

In terms of how many of the inspectors were involved in any of these suspicious pairings – we found that there were 10 of them, out of a total of 16. And for brokers, 14 of them, out of a total of about 45, were involved in the suspicious pairings.

**Chad Bown:** You were suspicious, and you had a theory of the case – which is of the suspicious pairings between a handful of government inspectors and a handful of brokers. Were you ever able to corroborate the theory that these pairings were excessive?

**Ana Fernandes:** Yes. We, we were able to get some corroboration of this because there was a visit to Madagascar from the audit team of the ASYCUDA IT system.



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They came in and they detected that in Madagascar, the IT administrator account was excessively used. They had never seen this in any other country, and that was the way the IT department guy was able to override the random assignment and actually assign the inspector he wanted to a particular declaration from the broker he was colluding with.

Ultimately the corruption scheme that we uncovered was between three groups of people: Customs inspectors, brokers, and the IT guy.

**Chad Bown:** Incredible. OK, you eventually learned from the ASYCUDA auditors that you were right, but in real time, again all you had was the theory of the case, but you don't yet have proof that these 10 inspectors and 14 brokers that the IT guy was pairing up too frequently had actually done anything wrong.

**Ana Fernandes:** Identifying the suspicious pairs was a key first step, but it didn't prove anything. We were not observing any bribes. All we knew was that there were discrepancies between random assignment and actual assignments.

We had to take two extra steps. We put on our detective hats to try to prove that this was revealing of a corruption scheme.

The first step was to look at the declarations of these suspicious pairs to see if they actually were at a much higher risk of tax evasion. They had potential higher tax revenue losses, they had higher risk scores, and so they really were more risky.

The second step was to find evidence that these inspectors were not treating these declarations in the same way as the average declaration – i.e., they were giving them preferential treatment. They were clearing them faster, they were less likely to detect fraud in these declarations, less likely to adjust their values upward or their tariffs upward.

These declarations remained undervalued and undertaxed. And this preferential treatment was even stronger for those declarations with a lot of tariff revenue at stake.

**Chad Bown:** How much tariff revenue was at stake? How big economically was this corruption scheme?

**Ana Fernandes:** The lost tariff revenue was quite important. On average for the declarations that were from these suspicious pairings, their tariff revenue would have been 26 percent higher if the corruption scheme was not in place. Summing it all up across all declarations from these suspicious pairings, the taxes collected in Toamasina would have been 3 percent higher if



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the corruption scheme was not in place. This is important for a country like Madagascar where any fiscal revenue is absolutely crucial to fund social programs.

**Chad Bown:** So, you and your team – a group of trade economists – find evidence of corruption at this port in Madagascar and can explain exactly how the customs inspectors are cheating to pull off the scheme. What did you do next?

**Ana Fernandes:** Our analysis didn't remain in our desks. We were frequently in touch with the Madagascar Director General and his team, and we presented, in fact, various versions of our findings. But once we had the final findings, they were extremely keen to use them as tools to be able to pursue the perpetrators of corruption. They always knew something was going on, but they just didn't have the tools, and our analysis was a tool that they could use.

They triggered their own internal investigations. And the interesting thing is that our analysis actually pointed to specific inspectors. We even could tell them the inspectors' names, but they still had to go through internal investigation, and they ended up identifying four inspectors that were heavily involved in this scheme.

And they suspended the head of the IT department.

Most importantly, they instituted a new system to assign declarations to inspectors. Instead of doing it in house, they outsourced it (or delegated it) to a third party – i.e., an independent company – that was going to receive the information and make the assignments.

**Chad Bown:** Did getting rid of the IT guy and outsourcing the randomization of the pairing of the inspectors and brokers to a third-party company work? Did it solve Madagascar's corruption problem?

**Ana Fernandes:** The outsourcing to the third party for randomization worked, but only for a little while – i.e., about four months. They found a new way – with IT again colluding with brokers and inspectors to manipulate the system.

This time, what they decided to do was to keep some of the import declarations for themselves in customs and not release them to the third party. The third party would assign, randomly, inspectors to 93 percent of the declarations, while the other 7 percent would remain in house in customs, and the IT guy could assign whatever inspector he wanted to whatever declaration.

And we found out about this new scheme because we were getting two sets of data. We were getting the full set of declarations from customs every day, and we were getting the full set of



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declarations that the third party received every day. When we compared the two, there were these 7 percent that were being kept in customs and not given to the third party.

**Chad Bown:** You have these clues that corruption may have returned. What did you do next?

**Ana Fernandes:** The fact that we found some declarations not being given to the third party, again, didn't really prove any corruption was going on. We had to once again do the analysis of what these declarations were that were being withheld by customs. How did they compare to the others?

And we found, again, very clear evidence that these declarations had a higher risk of tax evasion, and they were given preferential treatment by inspectors. They were left more undervalued. They had larger tax revenue losses.

What this means is that, again, this group of three – the IT manager, inspectors, and brokers – replicated with a new way, the same magnitudes of the initial corruption scheme. Our calculations based on data, in fact, show that the amount of tax revenue losses was roughly the same with this new scheme as it was with the initial scheme.

**Ana Fernandes:** This evidence for us was a little bit bittersweet. On the one hand, this new scheme – and the fact that, again, we began to see suspicious pairings – it was vindication that our initial approach really worked, and it was really detecting corruption!

On the other hand, it also showed that it's really hard to root out systemic corruption.

**Chad Bown:** This cat and mouse game of corruption and fighting corruption seems like it could go on forever. Was that the end of the story?

**Ana Fernandes:** Again, we continued to have these important interactions with customs management in Madagascar. So, we turn this information over to them. This new type of IT manipulation became known to them and they were able to try to correct it through the use of new and improved IT infrastructure.

That's where our involvement with the Madagascar Customs stopped. Since then, we know there have been big changes in government officials, and not necessarily the same reform-minded individuals remain in place. The reform process in Madagascar customs may have stalled despite all this evidence on corruption.



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**Chad Bown:** Stepping back, what do you think are some of the big lessons from Madagascar's effort to fight corruption in customs and trade?

**Ana Fernandes:** I can think of three key lessons. The first key lesson is that corruption can be detected using administrative data. We were actually very proud that the Madagascar Director General was invited to present our methodology at the World Customs Organization Annual Congress.

A second key lesson is that IT solutions are not a panacea in the fight against corruption. IT can be captured by bureaucrats, so you need a lot of oversight, and you need a lot of vigilance.

You also need to change the incentives – i.e., in our example, to really help inspectors resist participating in lucrative fraud schemes. And you need harsher penalties that are credibly enforced. Even if you cannot root out corruption you should at least be able to eliminate its most egregious manifestations.

And the third key lesson is that changing the behavior of a few government officials can have macro-level fiscal implications. As we saw in the example of Madagascar, each inspector was responsible for 1.3 percent of the country's total tax revenue. If he collects all the tax revenue that he should, the Government can have more resources to work with.

**Chad Bown:** Ana, as my last question, I want to ask you about the big picture. You have spent a huge part of your career studying not only corruption at customs but also trade facilitation at customs. Trade facilitation involves getting rid of the red tape and administrative barriers that can slow down international trade and make it less attractive.

What are some of the tensions between corruption and trade facilitation confronting these customs agencies?

**Ana Fernandes:** One thing I've learned after several years of working on customs in a variety of developing countries is that customs agencies really have a dual function. On the one hand, they are supposed to facilitate trade. On the other hand, they're supposed to collect tariff revenue, and that's particularly important in countries like Madagascar that are so dependent on this revenue. And there are many tradeoffs.

In this Madagascar example, we actually showed that the corrupt inspectors were facilitating trade! They were clearing the declarations of their paired brokers faster.



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Yet they were collecting less tax revenue. So, all these tradeoffs are important to keep in mind whenever we do work on customs and customs reforms in developing countries.

It may be that for a more advanced economy, the tariff revenue is no longer such an important function of the customs agency and so trade facilitation is all that matters. But for other countries these two functions are there and sometimes in contradiction.

**Chad Bown:** Ana, thank you very much.

**Ana Fernandes:** Thank you very much for inviting me.

## **GOODBYE FOR NOW**

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

A huge thanks to Ana Fernandes at the World Bank. Do check out Ana's article with Bob Rijkers, Cyril Chalendar and Gael Raballand titled "Corruption in Customs." It has just been published in *The Quarterly Journal of Economics*, and I will post a link to the paper on the episode page of the *Trade Talks* website.

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

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<insert super funny double underscore joke here>. ■

## **Read more...**

- Chalendar, Cyril, Ana M Fernandes, Gael Raballand, and Bob Rijkers. 2023. [Corruption in Customs](#). *Quarterly Journal of Economics* 138, no. 1: 575–636.