CHAPTER 23

Seven questions about tariffs that everyone should know the answer to[1]

Arnaud Costinot and Andrés Rodríguez-Clare
MIT and CEPR; UC Berkeley and CEPR

US protectionism is back, again. Or maybe not.

We have no idea what US tariffs will look like in a few months, or even in a few weeks from now. We suspect few people do.

But we believe that there are many questions about tariffs that can be answered through a combination of theory and data. In this chapter, we discuss seven that everyone should know the answers to.

1) WHAT IS (ALWAYS) BAD ABOUT TARIFFS?

A tariff is a tax. It creates a wedge between the price paid by the domestic buyer of a foreign good and the price received by its foreign supplier. If the United States imposes a 50% tariff on a $20 doll from China, then this wedge is $10: US buyers of Chinese dolls must pay $10 more than Chinese producers receive, with the US government collecting the difference.

The basic case against tariffs is the same one as against any tax. If the US government creates a $10 wedge between the prices paid by US buyers and received by Chinese producers, then some mutually beneficial transactions will no longer take place. A US buyer who would have been willing to buy a doll for up to $25 will stop buying it if the price goes to $30. The welfare loss for this hypothetical buyer is $5 – this is the difference between her willingness to pay ($25) and the price of a doll in the absence of a tariff ($20).

Tariffs distort production too. If the US price of a doll goes up to $30, a domestic firm that can produce it for $25 will now be willing to sell it too. It will pocket a profit of $5. From an efficiency perspective, the problem is that there was a better technology that could have been used to produce the same doll and generate profits of $10 instead, namely, by importing it from China for $20. The difference between the maximum profit of $10 and the realised profit of $5 measures the associated welfare loss for the United States.

1 This is a revised version of the chapter published in the first edition of the eBook.

In the aggregate, the total welfare loss from these consumption and production distortions can be computed by adding up the previous monetary amounts across all US consumers (with different marginal willingness to pay) and all US firms (with different marginal costs of production). Graphically, this corresponds to the areas of Harberger's famous triangles.

2) WHAT IS (POTENTIALLY) GOOD ABOUT TARIFFS?

The current US administration has put forward multiple rationales for its tariffs. One of the most prominent ones is its desire to reduce trade imbalances between the United States and its trading partners. It is hard not to interpret this goal as pure mercantilism, arising from a mistaken belief that exports are good, imports are bad, and so trade deficits should be reduced. This is nonsensical. Exports are the price countries must pay to gain access to imports – not the other way around. "Liberation day" tariffs, motivated by the magnitude of bilateral trade imbalances between the United States and other countries, are textbook policy lunacy.

There are, however, other reasons why a tariff may help.

Tariffs as a tool for efficiency

Imperfect competition, unemployment, pollution. These are classical sources of distortions. If the US economy is socially efficient to start with, then a tariff can only create distortions. But if other distortions are already present, then a tariff could potentially help correct them.

It is certainly not obvious why taxing dolls from China may improve aggregate efficiency in the United States. But what about high-tech sectors? Are incentives for innovation optimal to start with? Could the US government foster productivity in some sectors by expanding their size, above and beyond what markets participants may be able to internalise? Likewise, are US high-tech firms taking into account the impact of their import decisions on geopolitical risk and the rise of China as a new hegemon? If not, there is an efficiency rationale for tariffs in the United States.

The same general logic applies to global carbon emissions and climate change. Buyers of beef from Brazil or palm oil from Indonesia may not internalise that imports of such goods contribute to deforestation and increase carbon emissions. In that case, there is again an efficiency rationale for taxing these imports.

Tariffs as a tool for redistribution

Another reason why a tariff may help is because it offers an opportunity to offer bigger 'slices of the pie' to some preferred constituents in society. The US government may decide to raise tariffs because it wants to redistribute gains from international trade away from, say, college-educated workers and towards high-school graduates. If this is the goal, raising the US price of Chinese dolls may again not matter much, but if the prices of all

manufacturing products in the US were to go up because of across-the-board tariffs, could these price increases be passed through to the wages of US manufacturing workers? If so, this opens up the possibility of trade protection as redistribution.

The US government may also decide to raise tariffs because it wants to redistribute gains from international trade towards the United States and away from foreigners, even if this lowers the size of the global pie. This can be viewed as another form of trade protection as redistribution, now operating between rather than within countries. This is the basis for the classical optimal tariff argument. By imposing a tariff on Chinese dolls, the United States may lower demand for these products and, in turn, cause a decline in the price it pays to Chinese producers. This may, in turn, allow the United States to lower the price of what it buys relative to what it sells, improving its terms of trade.

3) SHOULD A COUNTRY (SOMETIMES) USE TARIFFS?

In the presence of distortions, tariffs might improve aggregate efficiency. They might also help achieve a country's preferred redistributional objectives. Does it follow that, in such situations, tariffs should be used?

Targeting principle, and its limits

The conventional wisdom among many trade economists is that the answer to the previous question is no. One key reason is that better, more targeted instruments are always preferable. Even if tariffs can help lower global carbon emissions, a carbon tax that directly targets the level of these emissions should be preferred. Likewise, even if tariffs can help raise wages for manufacturing workers, it is a blunt instrument to provide such a boost. According to this conventional wisdom, trade protection is acupuncture with a fork. The Targeting Principle calls for using needles instead.

This is a fundamental observation. It ties to some of the most influential results in economics, from the Second Welfare Theorem to Diamond and Mirrlees' (1971) Production Efficiency Theorem. But it should also be clear that the needles called upon by the Targeting Principle may be much finer than whatever tools are available to policymakers in practice. We therefore do not think that 'free trade forever and always' is the only message about trade policy that economists are meant to convey to the outside world.

A global carbon tax should be preferred to green tariffs, but can such a tax be enforced in Amazonia? Does a country have access to labour taxes that can vary across workers depending on their education, sector, or region of employment? If not, tariffs may be part of an optimal second-best toolkit, both in order to correct distortions and to redistribute, as discussed in Costinot and Werning (2023).[2]

2 The general idea in Costinot and Werning (2023) is that even in the presence of income taxation, tariffs may be used as a form of predistribution. Crucially, optimal tariffs are not necessarily zero, but depend instead on the estimated impact of imports on earnings across the income distribution.

Trade wars

Another key reason why trade economists worry about one country unilaterally imposing tariffs, especially when they are massive and implemented with complete disregard for the rules of the world trading system, is that such tariffs could be retaliated against. It is true, in theory, that a country may improve its terms of trade by imposing tariffs if the rest of the world does not. But in practice, how long will China or the European Union sit idle and simply let the United States get a bigger share of the global pie? Trade wars happen. And when they do, one can expect all countries to be worse off, as we further discuss below.

4) HOW DO WE KNOW WHETHER (A PARTICULAR SET OF) TARIFFS ARE GOOD OR BAD?

Before turning to data and what tariffs actually do, it is useful to ask where one should look for smoking guns of whether a tariff is good or bad. The answer, not surprisingly, depends on what issues tariffs were meant to remedy in the first place. For instance, if production externalities make some sectors too small, then success is about whether tariffs can make them bigger. Of course, the more difficult questions in such situations are: How big are these externalities? And in turn, how far should one go in promoting particular sectors? Likewise, in the case of geopolitical considerations, it is not obvious how one would systematically assess the success of US tariffs, or export controls in strategic industries, in affecting the behaviour of another hegemon.

When it comes to tariffs as redistribution, the data to look at in order to evaluate success are more straightforward, but differ depending on whether the goal of US tariffs is redistribution within the United States, aimed at helping manufacturing workers, or redistribution between the United States and the rest of the world, aimed at extracting a bigger slice of the overall gains from international trade.

If the goal of US tariffs is to affect redistribution within the United States, then tariffs should affect the prices paid by US consumers and US firms. Without such a price signal, why would US manufacturing firms be willing to expand and bid up US wages? In contrast, if the goal of US tariffs is to affect redistribution between the United States and the rest of the world, then tariffs should affect the prices received by foreigners. If foreign exporters continue to sell their products in the United States at the same price, how is the United States supposed to get richer?

Consider again the example of a 50% US tariff on a $20 Chinese doll, creating a $10 wedge. Do US buyers now pay $30 instead of $20, while Chinese sellers still receive $20? Or do US buyers continue to pay $20, while Chinese producers now receive $10? Under the first scenario, redistribution is a purely domestic affair, with US consumers and US retailers on the losing end. Under the second scenario, redistribution occurs at the global

level, with foreigners paying for the tariffs. The sharp tariff hikes during the first Trump administration offers an opportunity to find out where, between these two extremes, the real-world incidence of tariffs lies.

5) WHAT WAS THE IMPACT OF THE 2018 TRUMP TARIFFS?

No evidence that foreigners paid for the tariffs

One might have expected foreigners, and China in particular, to pay for the 2018 tariffs by receiving lower prices for their exports. Research by Amiti et al. (2019) and Fajgelbaum et al. (2020) gives no support to that idea. For the few months following the implementation of the tariffs, the authors find no significant difference in the evolution of prices received by foreign exporters, regardless of whether or not they were directly targeted by tariffs.

This is a striking result. It is important, however, to remember the limitations of this empirical analysis. In particular, it does not settle whether the tariffs made the United States richer at the expense of making its trading partners poorer. This analysis focuses on the variation in US import prices across different products and foreign countries. But whether the United States actually gained, and whether foreigners ultimately paid for the tariffs, depends on how US import prices moved relative to its own export prices – that is, the evolution of the US' terms of trade – a question this analysis leaves unanswered.

This is the standard 'missing intercept' problem. The tariffs might have caused the average level of US import prices to go up or down relative to the average level of US export prices, for instance because it caused the US dollar to fluctuate and, in turn, US wages to adjust relative to those in the rest of the world. Unfortunately, there is simply not enough variation to estimate this type of general-equilibrium response econometrically.

Small aggregate welfare losses

Using estimates of the direct impact of tariffs on prices and quantities, and ignoring indirect general-equilibrium effects, one can compute the area of Harberger triangles associated with consumption and production distortions. When doing so, Fajgelbaum et al. (2020) conclude that the welfare loss for the United States was 0.06% of US GDP.

When using a quantitative model to evaluate the full general-equilibrium response of the US' terms of trade, they find that this small welfare loss is turned into a tiny welfare gain if foreign retaliation is ignored, and a 0.04% welfare loss when it is taken into account. Using a different quantitative model, Caliendo and Parro (2022) reach a broadly similar conclusion, with a welfare loss of 0.1% of GDP.

No evidence that US manufacturing benefited

Another common justification for higher US tariffs has been to bring back manufacturing jobs. One may think that this is a reasonable response to the sharp decline in US manufacturing employment during the 1990s and 2000s, a decline partly attributed to the so-called China Shock, as documented by Autor et al. (2013) and Acemoglu et al. (2016). If tariffs bring back manufacturing jobs, one would imagine that this extra demand for

US manufacturing workers would further boost their wages and, ultimately, benefit them. There is, however, no evidence indicating that the 2018 tariffs were successful in bringing back manufacturing jobs.

Autor et al. (2024) find that commuting zones specialising in newly protected sectors did not experience any measurable change in employment, while regions exposed to retaliatory tariffs – particularly those tied to agriculture – suffered clear employment losses. At the sectoral level, manufacturing employment did not increase in response to protection, while agriculture employment declined in response to foreign retaliatory tariffs. Although protected manufacturing sectors saw increases in output per worker and domestic prices, these gains did not translate into job growth. A key reason is that tariffs raised the cost of imported intermediate inputs, undermining competitiveness. This mechanism is consistent with the findings of Flaaen and Pierce (2024), who estimate that the small positive employment effects of import protection were more than offset by larger negative effects from higher input costs and retaliatory tariffs.

6) ARE GLOBAL TARIFFS UNFAIR TO THE UNITED STATES?

A prominent narrative from the Trump administration is that the world trading system is fundamentally biased against the United States. Stephen Miran, who chairs the Council of Economic Advisers, has declared that he wants to "reconfigure the global trading and financial systems to America's benefit" (Miran 2024). In a recent op-ed in the *Financial Times*, Peter Navarro, a senior counsellor for trade and manufacturing, wrote: "The international trade system is broken — and Donald Trump's reciprocal tariff doctrine will fix it. This long-overdue restructuring will make both the US and global economies more resilient and prosperous by restoring fairness and balance to a system rigged against America".[3] But is it?

If the narrow question is whether the average tariff imposed by the United States is lower than the average tariff imposed by its trading partners, there is an element of truth to the previous claims. In 2017, before the tariffs were imposed, the average US tariff was around 1.5%, whereas the average foreign tariff on US exports was 3.5%.

We find, however, the overall magnitudes more striking than the direction of the bias – 3.5% versus 1.5% is a small difference in a world of small tariffs. Perhaps the world could be slightly better off, on average, if US and foreign tariffs were both zero. Perhaps the United States could be slightly better off if it were to impose a 3.5% average tariff, while foreign tariffs were 1.5% on average. But we suspect that few economists would look at these numbers and imagine that there are potentially huge benefits for the United States from blowing up the world trading system.

3 "Donald Trump's Tariffs Will Fix a Broken System", *Financial Times*, 23 May 2025 (https://www.ft.com/content/f313eea9-bd4f-4866-8123-a850938163be).

As part of the same narrative, it is argued that non-tariff barriers make the issue even worse. We do not deny that some product standards, like the European Union's decision to ban imports of hormone growth beef, might not only serve legitimate objectives in terms of public policy, but also protectionist ones. Quantitatively, though, it is hard again to imagine large potential gains from removing such barriers for the United States, and for its manufacturing sector in particular. One also often hears that the European Union has a value-added tax (VAT) of around 20%. This sounds like a bigger deal, but is such a tax protectionist? The answer is a clear no. Unlike an import tariff that discriminates between domestic and foreign producers selling in the EU, a VAT uniformly affects all producers and does not create incentives for European buyers to buy European rather than American.[4]

7) WHAT IS (REALLY) BAD ABOUT TRADE WARS?

We have already mentioned estimates of the welfare costs from the 2018 US-China trade war that range from 0.04% to 0.1% of US GDP. These small numbers reflect, to a large extent, the fact that the United States is less open than many other countries. The ratio of US imports to US GDP is only about 15% because a significant fraction of trade occurs between US states rather than with the rest of the world. This basic observation implies that the welfare gains from trade in the United States are smaller than in most other countries and, in turn, that the welfare costs from a trade war are not as high.

Looking ahead, would shutting down all trade between the United States and the rest of the world be much more costly? In Costinot and Rodriguez-Clare (2018), we discussed model-based estimates of the overall gains from trade that range from 2% to 8% of GDP. There is, of course, considerable uncertainty around all these numbers. Trade models used to compute them rely, like any other quantitative model in economics, on strong assumptions. What may be true today about US imports, when they sit at 15% of US GDP, may no longer be true as this share starts shrinking dangerously close to zero. Critical inputs from abroad, like rare earth minerals, may make the magnitude of gains from trade much larger than these models predict, at least in the short run before domestic substitutes are developed or, in the case of rare earth minerals, before they are extracted again in the United States.

Although it is important to recognise that the economic gains from trade may be much larger than what quantitative models predict, we also do not expect a trade war to bring the United States all the way back to autarky. With this in mind, welfare losses that are of the order of a few points of GDP may provide a useful benchmark for the US economy.

4 While US exports to the European Union face VAT and EU exports to the United States do not, implying an import tariff and export subsidy respectively, this border adjustment is not protectionist. A tariff-export subsidy pair of equal size is neutral: it raises EU price levels but does not distort relative demand between domestic and US goods – an application of Lerner Symmetry (Costinot and Werning 2019).

While this is definitely nothing to spit at, it is not an existential threat either. The end of international cooperation on the big issues of the day – war, poverty, climate change – could be.

The 1930s are often given as the poster child for a great trade policy disaster. This is not because US tariffs, and the retaliatory response from US trading partners, raised the cost of living for US consumers – though they certainly did. The reason why the trade war from the 1930s has remained in the history books is because by eroding international cooperation, it might have contributed, albeit indirectly, to the onset of World War II. This cost is much larger than a few points of GDP.

As recently as 23 May, President Trump declared "the European Union [...] was formed for the primary purpose of taking advantage of the United States on TRADE." It was not. As Martin et al. (2008) remind us: "the main objective of the European trade integration process was to prevent the killing and destruction of the two World Wars from ever happening again". This is a lesson worth remembering.

REFERENCES

Amiti, M, S J Redding and D E Weinstein (2019), "The Impact of the 2018 Tariffs on Prices and Welfare", *Journal of Economic Perspectives* 33(4): 187–210.

Autor, D, A Beck, D Dorn and G Hanson (2024), "Help for the Heartland? The Employment and Electoral Effects of the Trump Tariffs in the United States", NBER Working Paper No. 32082.

Caliendo, L and F Parro (2022), "Trade Policy", in *Handbook of International Economics,* Vol. 5, 219–295.

Costinot, A and A Rodríguez-Clare (2018), "The US Gains from Trade: Valuation using the Demand for Foreign Factor Services", *Journal of Economic Perspectives* 33(2): 3–24.

Costinot, A and I Werning (2019), "Lerner Symmetry: A Modern Treatment", *American Economic Review: Insights* 1(1): 13–26.

Costinot, A and I Werning (2023), "Robots, Trade, and Luddism: A Sufficient Statistic Approach to Optimal Technology Regulation", *The Review of Economic Studies* 90(5): 2261–2291.

Diamond, P A and J A Mirrlees (1971), "Optimal Taxation and Public Production I: Production Efficiency", *American Economic Review* 61(1): 8–27.

Fajgelbaum, P D, P K Goldberg, P J Kennedy and A K Khandelwal (2020), "The Return to Protectionism", *The Quarterly Journal of Economics* 135(1): 1–55.

Flaaen, A and J R Pierce (2024), "Disentangling the Effects of the 2018–2019 Tariffs on a Globally Connected U.S. Manufacturing Sector", *Review of Economics and Statistics* 106(1): 1–15.

Martin, P, T Mayer and M Thoenig (2008), "Make Trade Not War?", *The Review of Economic Studies* 75(3): 865–900.

Miran, S (2024), *A User's Guide to Restructuring the Global Trading System*, Hudson Bay Capital.

ABOUT THE AUTHORS

Arnaud Costinot is the Ford Professor of Economics at the Massachusetts Institute of Technology. He specialises in international trade. His research includes work on the theory of comparative advantage, the welfare gains from trade, and trade policy. He earned his PhD in Economics from Princeton University in 2005. He is a CEPR Research Fellow and a NBER Faculty Research Associate. He was elected a member of the Econometric Society in 2021 and of the American Academy of Arts and Sciences in 2023.

Andrés Rodríguez-Clare is Professor of Economics at the University of California, Berkeley, a Research Associate at the NBER, and a Research Fellow at the CEPR. He is also Visiting Professor at the University of Nottingham and Visiting Scholar at the Federal Reserve Bank of San Francisco. He received his PhD at Stanford in 1993. He was Associate Professor at the University of Chicago, served as Chairman of the Council of Presidential Advisors in Costa Rica (1998–2002), worked at the Inter-American Development Bank (2002–2005), and was Professor at Penn State before joining Berkeley in 2010. His research focuses on trade, industrial policy, and multinational production.