

International Trade

We now turn our attention to the topic of international trade. Trade is usually classified as a topic in microeconomics, although as the past few years have shown, it can have important macroeconomic implications. Suppose that we observe two countries trading. If this trade is voluntary, then it surely benefits the people buying and selling the goods and services, otherwise they would decline to engage in the transaction. This simple observation suggests a general predisposition towards allowing trade, including between countries.

The notion of voluntary gains to trade does not, however, rule out cases where countries might want to restrict international trade. There could be impacts on third-parties, including externalities, that justify restrictions. Suppose Country A seeks to trade intercontinental ballistic missiles to Country B in exchange for nuclear warheads in order to turn Country C into liquid hot magma. Free trade, openly allowing parties within countries to trade, is probably a bad idea.

Barriers to trade are obstacles that prevent agents from trading across borders as they would within borders. Some examples include:

1. Outright bans on exports (goods sold from the home country to the foreign country) or imports (goods sold to the home country from the foreign country). Note that one country's import is its trading partner's export.
2. Tariffs. Tariffs are taxes, usually imposed on imports. Historically, they have been significant sources of revenue for governments.¹ Prior to the twentieth century, tariffs were the U.S. government's primary source of income.
3. Quotas. These are limitations of the amount that a country may export. A famous example is the amount of sugar that can be imported into the U.S.

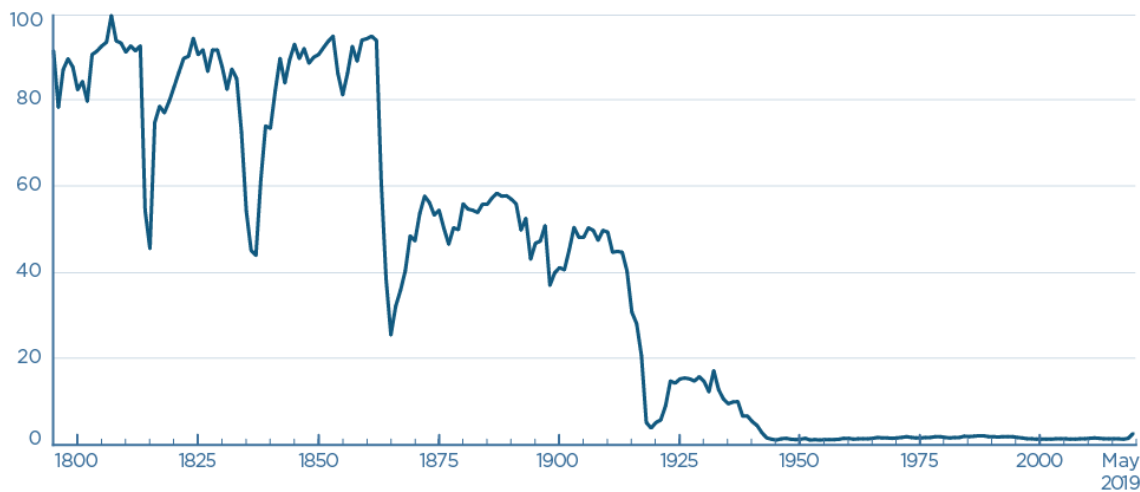
Comparative Advantage

¹Graph courtesy of Chad Brown and Douglas Irwin, Peterson Institute for International Economics

Figure 1: Tariffs as a Share of U.S. Government Revenue

Even Now, Tariffs Are a Tiny Portion of US Government Revenue

US tariff revenue as percent of total government revenue, 1795–May 2019



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Source: See Figure 1 of Chad P. Bown and Douglas A. Irwin's article, "Tariff revenue and Trump tweets — 5 things you need to know," *Washington Post Monkey Cage*, July 16, 2019.

Comparative advantage is a relative concept. It explains which goods a country is relatively good at producing in comparison to other goods and other countries. Consider an example:

The United States has 100 hours of labor. It takes 10 hours to produce computer and 2 to produce textiles (*e.g.* a pair of acid washed jorts). The U.S. can thus produce 10 computers or 50 textiles. We can graph this to show the *production possibilities frontier*.

Graph: US PPF

Consider the concept of opportunity cost. The opportunity cost of producing a computer is 5 textiles. Likewise the opportunity cost of producing a textile is 0.2 computers.

Now consider a potential trading partner, Westeros. Westeros also has 100 hours of available labor. It, however, takes 20 hours to produce computer but only 1 hour to produce a textile. It can thus produce 5 computers or 100 textiles.

Graph: Westeros PPF

In Westeros, the opportunity cost of producing a computer is 20 textiles and the opportunity

cost of producing a textile is 0.05 computers.

Because the U.S. has a lower opportunity cost for computers, we say that it has a comparative advantage at producing them. It is cheaper, in terms of other goods, for the U.S. to produce computers than it is for Westeros. Likewise, it is cheaper (in terms of computers) for Westeros to produce textiles. It has a comparative advantage in textiles.

Trade allows countries to specialize in the production of goods where they have a comparative advantage. Doing so allows global production to be higher. To see this important result, we start with *autarky*, where trade is not allowed and each country must be self-sufficient. Suppose that each country chooses the following:

U.S.: 5 computers, 25 textiles

Westeros : 3 computers, 40 textiles

Note that these are assumptions. There is no special reason to choose these points along the production possibilities curves.

Now assume that both countries completely specialize. The U.S. produces 10 computers and Westeros produces 100 textiles. The U.S. then trades 4 computers for 50 textiles. After trade, we have::

U.S.: 6 computers, 50 textiles

Westeros : 4 computers, 50 textiles

Both countries are able to obtain more of both goods. These outcomes were impossible without trade. Graphically, they were beyond each country's original production possibilities frontier. This shows how trade allows for specialization that leads to higher production of all goods.

Absolute Advantage

In the previous example, neither country is better at producing both goods. There is no *absolute advantage*. Now consider a case where there is. Essos also has 100 hours of labor. It takes 20 hours

to produce a computer and 10 hours to produce a textile. Because the U.S. is better at producing both, it has an absolute advantage:

Graph: Essos PPF

Despite this absolute advantage, there can still be gains to trade. Note that the opportunity cost of producing a computer for Essos is 2 textiles while the opportunity cost of producing a textile is 0.5 computers. Now Essos has the comparative advantage. Again, let us start with autarky and assume the following results:

U.S.: 5 computers, 25 textiles

Essos : 2 computers, 6 textiles

Now allow for trade. Assume that Essos fully specializes in the production of computers, making five of them. The U.S. then produces 3 computers and 35 textiles. The U.S. then trades 3 computers for 8 textiles. This leaves:

U.S.: 5 computers, 27 textiles

Essos : 3 computers, 8 textiles

Both countries are again better off with trade.

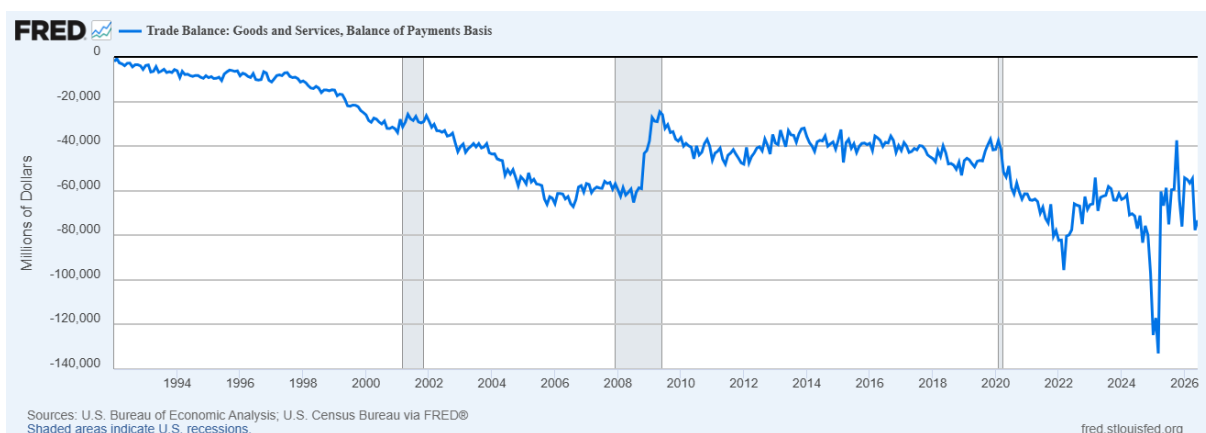
This example can be applied to actual economies. Advanced economies tend to be abundant

in high skilled labor while developing economies tend to be abundant in low-skilled labor. As a result, advanced economies tend to have a comparative advantage in goods that use a lot of high skilled labor. We thus tend to see these economies export these goods while they import goods that use a lot of low skilled labor.

Trade Deficits

At any point in time, a country's exports need not equal its imports. If a country imports more than it exports, this is known as a *trade deficit*. If its exports are greater than its imports, this is known as *trade surplus*. The United States has run a trade deficit (a negative trade surplus) for many years.

Figure 2: U.S. Trade Surplus



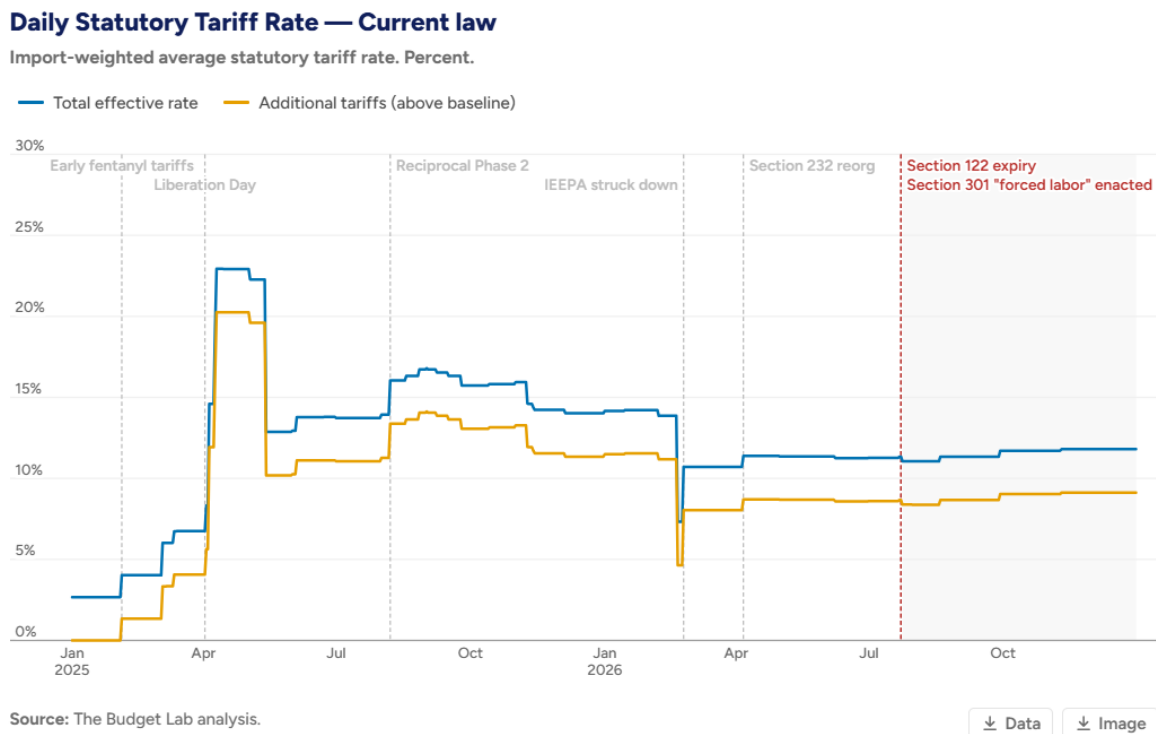
When a country runs a trade deficit, it is obtaining more imports than it exports. In that short-run, this is beneficial to domestic consumers. The downside is that the rest of the world must obtain the home country's assets. If the U.S. buys \$900 billion in imports but sells only \$600 billion in exports, the rest of the world acquires \$300 in U.S. assets. This may be cash that is then used to purchase other assets, such as bonds. This allows the rest of the world to buy more domestic assets later.

Most economists do not consider bilateral (between two countries) trade deficits to be problematic if they are the result of the choices of producers and firms.

Current Issues in Trade

In 2025, the United States imposed major new tariffs against most of its trading partners taking average tariff rates to their highest level in many decades. Although there have been numerous changes since, including a 2026 Supreme Court ruling that invalidated many of the tariffs, overall rates remain well above pre-2025 levels. What might we expect the impacts of such tariffs to be.

Figure 3: Effective Tariff Rates from Yale Budget Lab



1. One concern is that tariffs and other barriers to trade reduce a country's ability to exploit comparative advantage. A country may shift its production towards the production of goods that it is less efficient at producing. In other words, productivity falls. Later, we will see that reduced

productivity often leads to higher inflation in the short-term, and less output in both the short and long-term.

2. Tariffs are typically paid by the importer, the domestic firm that buys the good from its foreign producer and brings it into the domestic country for sale. In most cases the cost of the tariff will be passed onto consumers through higher inflation.

3. Tariffs act much like a sales tax on imported goods. Later, we will see that higher taxes usually lead to lower inflation and less output.

Combining these three effects, we see that imposing tariffs lead to less output with an ambiguous effect on inflation. Whether inflation increases or decreases is an empirical question that cannot be answered with theory alone. We need data.

Because trade barriers reduce the benefits of comparative advantage, most economists have historically been in favor of relatively free trade. It is not true, however, that economists never support higher trade barriers. Here are a few cases where they may be appropriate.

1. Suppose that a country has a comparative disadvantage at producing a critical good (*e.g.* vital for national security) and that under free trade, it is likely to be supplied by countries that are potentially hostile. Trade barriers may make sense to ensure a domestic source of this good and reduce the risk of the supply being cut off in the case of conflict. As of 2026, U.S. policymakers have raised this concern around semiconductors.

2. The Infant Industry Argument. This is an older motivation with some overlap with the last one. Suppose that, with time, a country may develop a comparative advantage but that this will require that it gain experience in this industry. Free trade may prevent this process from playing out and trade barriers may be useful to allow the industry to mature. This argument was used in early American history to support trade barriers on imported European manufactured goods.

3. Revenue. Trade barriers reduce efficiency by reducing the benefits of comparative advantage. Tariffs also, however, provide revenue to the government imposing them. Later, we will see that

all realistic sources of tax revenue create inefficiencies. Income taxes, for example, provide a disincentive to supply labor. Because governments need tax revenue to fund public goods (although there is significant disagreement about the correct funding levels for public goods), it is possible that tariff revenue is the best option.

4. Reciprocal Tariffs. If a trading partner imposes trade barriers against the domestic country, it may make sense for the domestic country to respond with trade barriers of its own.