

From the pages of [Jim Prevor's Perishable Pundit](#)



[Daniel A Sumner](#) is the Frank H. Buck, Jr. Distinguished Professor in the Department of Agricultural and Resource Economics at the University of California, Davis, and with a graduate student, [Tristan M. Hanon](#), they recently published a paper titled, [Economic Impacts of Increased Tariffs that have Reduced Import Access for U.S. Fruit and Tree Nuts Exports to Important Markets](#). The focus of the paper is an attempt to analyze

the costs to US producers of fruit and nuts of tariffs that various countries, most notably China, have imposed in reaction to tariffs imposed by President Trump. The gist of their findings is expressed here:



In summary, we find the trade losses for the commodities under consideration to be about \$2.64 billion per year using the export value lost as a measure. Alternatively, using the potential impact on price in remaining markets as the measure of loss, the magnitude is about \$3.34 billion.

Professor Sumner's work is invaluable. He also serves as the director of the University of California, Agricultural Issues Center, and he has performed commendable public service as Assistant Secretary for Economics at the United States Department of Agriculture, a Senior Economist at the President's Council of Economic Advisors and was Deputy Assistant Secretary at the USDA.

Although he is well known for his work on agricultural trade issues, his work on [water resource management](#) is irreplaceable. Professor Sumner has also been kind enough to invite this Pundit to speak at the [California Agribusiness Executive Seminar](#) where he coordinated the 2012 and 2014 programs as executive director. He has also been kind enough to speak before an executive share group that this Pundit facilitates.

In addition to his scholarly and governmental achievements, which are hard to overstate, Professor Sumner happens to also be a really nice guy. We've noted over the years that he includes many graduate students as co-authors on his papers and is generous with his time

with industry institutions. He also is a mentor to a whole generation of agricultural economists. Pundit readers will note that one of his advisees, Brad Rickard, now the Ruth and William Morgan associate professor at Cornell, has been profiled in these pages many times, including [here](#), [here](#), [here](#), [here](#), [here](#), and [here](#).

Though the paper's math and logic are perfect, we think public policy discussion on this issue would benefit from a second paper, asking a broader question.

We've written on this issue before in a piece for *The Weekly Standard*, titled [Understanding the Economics of Trump's Trade War](#), in which we explained the situation:

Now, the president's China tariffs are, indeed, leading China to respond. The trade "war" is on, and the target is mostly farm commodities. The Wall Street Journal recently explained it [this way](#):

"The U.S. Farm Belt helped deliver Donald Trump to the White House, drawn to his promises to revive rural America and deregulate industry. Now, [the president's global trade offensive](#) is threatening the livelihoods of many farmers."

Tariffs, though, have a dramatically different impact when used as weapons against individual countries than when used against the entire world. If China retaliates against, say, U.S. apples, and comparable apples are grown in, say, British Columbia, following the imposition of tariffs by China, the business will shift. The Canadian apples will go to China and the U.S. apples will go wherever the Canadian apples had been going.

When dealing with commodities, whether the tariff is 5 percent or 5,000 percent, the impact of the tariff is equal only to the difference in freight between shipping to China from Canada rather than from the U.S.

Of course, additional shipping costs can raise prices, and this may depress demand and hurt U.S. farmers. Typically, though, this impact is quite small. A box of apples might contain 88 apples, so even an increase in freight by \$2.00 a box only comes out to a bit more than two cents an apple. The image being portrayed in much of the media—of markets closing to U.S. commodities and farmers having to dump enormous volumes of produce—is thus unlikely. The invisible hand of the market will reallocate commodities across the globe to maximize efficiency in the face of any tariff.

There are, of course, many complications... most notably that produce is often not a "true" commodity, which by definition is replaceable. There is no market for "apples" but, rather

for specific varieties, grades, brands, etc. So the commodity is not apples; it is Size 88, Washington Extra Fancy grade, Red Delicious, etc. Indeed, there would be an excellent dissertation for some earnest UC Davis grad student to assess the detail of the replaceability of each individual variety, etc.

This UC Davis paper, though, does not go into that detail but presumes fruits and nuts as commodities, like oil or soybeans — and, of course, these commodities have limits as well. There is light crude and heavy crude, different sulfur levels etc.

The point though is that, to the extent we are discussing true commodities, tariffs imposed against one country — say the United States — operate very differently than tariffs imposed against the whole world — like the infamous [Smoot-Hawley tariffs](#) during the 1930's. If China imposes a 100% tariff on all imported produce, it literally doubles the cost of imported produce. However, if China imposes a 100% tariff on produce imported only from the US, it may raise the price of produce inconsequentially as the tariff may simply cause a reallocation of global production of produce.

Professor Sumner and Mr. Hanon are, of course, aware of the issue. They explain:

The third consideration is that some production from non-U.S. sources that would otherwise compete in global markets with U.S. produce may now be diverted to China and the other newly high-tariff markets. If such replacement were significant, it might open new markets for U.S. produce and therefore reduce the impacts.

But this point is not broad enough. Yes, of course, if Canada was shipping apples to Japan and Korea, and the US was shipping to China, and China's tariffs against US apples made Canadian apples a better deal (lower landed cost post-tariff), the Canadian apples would switch to China and the US apples would switch to Japan and Korea.

That is what is meant by: *“some production from non-U.S. sources that would otherwise compete in global markets with U.S. produce may now be diverted to China.”* But the restriction of this dynamic to production *“from non-U.S. sources that would otherwise compete in global markets with U.S. produce”* is too limiting.

If we assume the apples we are comparing are a true commodity, then apples that are now consumed domestically, in their country of production, will be sold abroad instead. So, if Canada exported not a box and consumed all its apples domestically, but a tariff made US apples non-competitive, then the Canadian apples would be shipped to China and the US apples to Canada.

So, in analyzing the impact of a tariff, the relevant point of comparison is not what percentage of US production of a commodity was exported to China, it is what percentage of *global production* of that commodity was exported to China.

Again, this only applies in the context of a commodity. So, if Iranian and American pistachios are a commodity, then if China makes the total landed cost of US pistachios higher than Iranian by imposing tariffs, the market in China will shift to Iranian pistachios. The pistachios will come from Iranian sales intended for Iran's biggest customers — say Germany, Iraq, Kazakhstan, UAE, India, Spain and Russia — or from domestic Iranian consumption — and those markets will switch to the American product or, in the case of Iran itself, where trade with the US is restricted, perhaps Turkish product, which will now have a lower landed cost than the Iranian.

Of course, if they are not a commodity — if US pistachios bring, say a premium price because of better quality — then the analysis won't apply. It may well be that the Chinese market is willing to pay a premium for the higher quality of California pistachios and the Iraqi market is not —but that is not a claim or explanation in the UC Davis paper.

It is important to note that different commodities are situated differently. Roughly 80% of the almonds grown in the world are California-grown, and around 70% of those almonds are exported.

A tariff against US almonds comes reasonably close to a tariff against all almonds. So, the losses that Professor Sumner and Mr. Hanon identify are reasonable to expect.

We would argue, though, that on most fruits where US production is a much smaller share of global production - the US accounts for less than 5% of global apple production, for example — the market will respond much more robustly than our friends at UC Davis expect.

In fact, we hope UC Davis will come out with a supplementary paper because we would argue that calculating the likely impact from tariffs against US agricultural products really requires a deep dive into assessing the degree to which these are replaceable commodities.

Italy exports about the same value of apples that the US does. So to the degree apples are commodities, it is a simple replacement calculation. To the degree US apple exports are driven by, say, unique varieties — for example McIntosh and Empire to the UK, or unique quality, say top Washington fruit to China where they have loads of lower quality domestic production — then the tariffs may be more costly to US producers.

Also other trade restrictions — say European restrictions on diphenylamine (DPA) or wax containing morpholine — may prevent the free transfer of fruit around the world to compensate for China's purchases of non-US fruit. This is just another way of saying that fruit is often not a true commodity. It would be a fantastic service if some UC Davis researchers would analyze this to ascertain the degree to which such legal requirements would hinder the natural global flow of trade that would normally follow from a tariff imposed on a US commodity.

There is a lot to learn from all this. One big lesson is that tariffs against a single country have a kind of tipping point. If China imposes tariffs of one percentage point on US apples, it may have only minor impact on trade, principally the difference caused by lower consumption due to a 1% increase in costs. But at some point, the tariff raises the total landed cost to a level where other producing areas are competitive. From that point on, tariff increases are irrelevant. So, if the tipping point is 5%, then at that point trade shifts to other sources of origin. After that, they can raise tariffs to 500%, 5000%, etc., and it becomes meaningless.

Government intervention in trade can lead to many odd results. This Pundit used to export and import produce, and on the exact same day, we had many trailers of California lemons going to Scandinavia while we were importing Spanish lemons into the East coast of the US. How was this possible? Simple — [citrus prorate](#) used to place limits on the amount of lemons that could be shipped each week into the domestic fresh market. This limit made producers willing to export their citrus at a significantly lower price. So, the governmental act, which was [suspended](#) in 1994, simultaneously raised the domestic price — which made it feasible for the Spanish producers to export to the US — and lowered the price for export — which made it feasible to beat out Spain on shipping to Scandinavia.

What this tells us is how flexible markets are at taking advantage of opportunities. So, if China raises the price umbrella in its market by pricing US producers out, then non-US producers will flood the Chinese market, and US producers will flood the foreign and domestic markets that had products originally destined for China. Analyzing the cost to US producers of tariffs imposed on the US can't actually be done without assessing alterations in trade flows caused by the tariffs.

Of course, in the long term, things could be different. Non-US producers might plant more trees and be able to supply both China, other export markets and their domestic markets more efficiently than US producers. So US share of global production might fall. But this takes a long time and involves producers undertaking the political risk that China might one day drop its tariffs and make the new investments uneconomical.

Besides, the long term impact of leaving the US to put low-cost fruit into different markets is difficult to predict.

As the Soviet Union began to dissolve, this Pundit found himself buying many loads of Mexican watermelons to sell to Finland in the dead of winter. It was odd as we had little demand anywhere for watermelons at that time of year. So why did Finland, of all places, want watermelons?

Well, after World War II, The Soviet Union pressed Finland into [an agreement](#) that required Finnish/Soviet trade to balance each year. Finland is an advanced western country, and there were loads of things that the Soviets wanted to buy from Finland. There were not, however, many things Finland wished to buy from its much larger and more powerful neighbor.

But the deal required parity in purchases, and Finland always found itself with credits to spend. Rather than just get nothing for its credit, Finland found there was a [microclimate in the Crimea where they grew watermelons](#). So the Finnish government took the watermelons and sold them to the people of Finland for almost nothing.

This agreement started in 1951. The Soviet Union ceased to exist on December 31, 1991. During those 40 years, the Finns developed a taste for watermelon — so much so that when the cheap melons disappeared, they were willing to pay to import the watermelons from Mexico to maintain watermelon in their diets.

So, sometimes, losses that are experienced when low cost fruit is sold into a market actually function as a kind of sampling and, long term, can actually lead to new markets and increased demand.

None of this, of course, implies that tariffs are good or that they won't harm producers. It only argues that the impact is often difficult to assess with many variables, both short and long term.

We are fortunate to have institutions such as UC Davis and academics such as Professor Sumner and Mr. Hanon to help us think things through.