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The Trade War: A One-Year Assessment

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1 Introduction

"I am a Tariff Man," tweeted President Donald J. Trump on December 4, 2018, putting a strange exclamation point on a year in which the President followed through on the protectionist rhetoric he cultivated since the 2016 campaign. Making good on this campaign promise, however, harmed virtually all Americans while failing to positively impact the industries supposedly being protected.

Anyone who maintains that a $75 billion income tax cut helps the economy must also agree that a tariff hike of $45 billion or more must harm the economy. This study looks back on the unprecedented developments in international trade that happened in 2018.

While economists across the political spectrum often disagree on the most fundamental policy questions, they almost uniformly oppose protectionism. At the time of this writing in March 2019, the data showing the damage this trade war has done are starting to come in.

Amiti et al (2019) report statistical evidence that the 2018 tariffs and retaliatory measures taken by U.S. trading partners have increased both input and final consumer prices, disrupted global supply chains, and resulted in deadweight loss of billions of dollars over and above the tens of billions of dollars in new taxes filling government coffers. Fajgelbaum et al (2019) reach similar conclusions about the volume of global trade and losses to the U.S. economy.

We take a higher-level view to understand in the most basic terms the mechanisms by which the 2018 tariffs have directly harmed American consumers and firms. After a summary of the actions taken by the Trump Administration and foreign governments in retaliation, we turn to what has been lost due to the tariffs, and what if anything has been gained. We find that:

- The 2018 tariffs directly claw back a quarter or more of the savings American households and firms realized from the 2017 cuts in individual and corporate tax rates.
- U.S. importers passed a large portion of the new tax burden they directly faced onto consumers.
- While protectionists claim that tariffs are necessary to shield important domestic industries from competition, data from the steel and aluminum industries provide no evidence that these sectors have realized any gains.

Tariffs are sometimes politically easier to swallow than other tax increases because the costs seem indirect and diluted throughout the economy while the supposed benefits seem more direct and carry a degree of sympathy. Our analysis shows that this intuition is flat wrong. Tariffs cost American households and firms billions, and fail to provide help to ailing industries promised by their proponents.

2 The Year of the Tariff

Campaign Promises Kept

President Donald Trump made the idea that America was being victimized by its trading partners a key plank of his successful 2016 campaign. While he repeated this theme throughout the campaign, the speech he gave in Pennsylvania on June 28, 2016 entitled "Declaring American Economic Independence" most clearly defined his view.

Espousing ideas that flew in the face of centuries of economic thought, candidate Trump made clear that he did not view international trade through the lens of commerce, where thousands or even millions of individuals and firms do business. Instead, world trade was about negotiation, with world leaders using carrots and sticks to regulate commerce between their citizens and the strongest and shrewdest leaders coming out on top. The speech also played on voters' fears, suggesting that nefarious political and corporate elements within the United States had made deals with foreign countries that enriched themselves at the expense of middle-class Americans.

"I want you to imagine how much better our future can be if we declare independence from the elites who've led us to one financial and foreign policy disaster after another," said Trump. He then offered a seven-point plan for international trade under his prospective administration. In addition to withdrawing from agreements and appointing the "toughest and smartest" negotiators, he directly or indirectly threatened the imposition of tariffs four times, including three separate threats against China alone.

The U.S. Chamber of Commerce did not need more than a single tweet to succinctly capture the mood of American business after the radical campaign speech. "Under Trump's trade plans, we would see higher prices, fewer jobs, and a weaker economy," it said, while citing a Moody's forecasting study indicating that a trade war could bring about a recession and the loss of millions of jobs.

The speech, both in overall philosophy and specific proposals, set the tone for the tariffs imposed, threatened, removed, and imposed again during the first two years of the Trump Presidency.

Initial Moves

The "toughest and smartest" trade negotiators included Secretary of Commerce Wilbur Ross, accused of multiple conflicts of interest due to his financial holdings, and White House National Trade Council Director Peter Navarro, who has been called everything from a "charlatan" by Dan Ikenson of the Cato Institute to a "mercantilist" by Nobel laureate Angus Deaton. The latter is an economic view encouraging protectionism that was largely debunked in the 18th century.

While 2017 was relatively quiet on the tariff front, 2018 was anything but. On January 22, 2018 the administration proposed its first tariffs on solar panels and washing machines whose value in imports totaled just over $10 billion the year before.

The solar industry was not impressed: "The actual number of jobs added because of solar tariffs will be negligible... the number of jobs likely to be lost because of these tariffs is 23,000," said Abigail Ross Hopper, President of the Solar Energy Industries Association.

Hopper captures a continuing theme in the Trump Administration's imposition of tariffs--supposedly protected industries receive negligible help while suffering the overall consequences of tariffs shared by all American businesses and consumers. The job losses referenced by Hopper referred to her industry's use of steel and aluminum. Sadly, the appliance tariffs that started 2018 would be a mere warning shot in what would become an unprecedented year for the restriction of global trade.

Steel and Aluminum

The administration's announcement of tariffs on steel and aluminum (at rates of 25 and 10 percent, respectively) on March 1 continued the march toward a possible trade war. The steel and aluminum tariffs did not come without warning. In April 2017, the President instructed Secretary Ross to investigate the importation of steel and aluminum under Section 232 of the ironically named Trade Expansion Act (1962). The section referenced specifically invokes national security as a reason to limit the importation of goods that fail such investigations.

In February 2018, Secretary Ross announced that the importation of steel and aluminum did indeed carry national security concerns, and two weeks later, the tariffs were formally announced on March 1.

Leaders across American industry reacted with grave alarm over the next two days. MillerCoors brewhouse released a statement condemning the tariffs, tweeting: "Like most brewers, we are selling an increasing amount of our beers in aluminum cans, and this action will cause aluminum prices to rise. We buy as much domestic can sheet aluminum as is available, however, there simply isn't enough supply." Campbell's Soup stated that the move would "result in higher prices on one of the safest and more affordable parts of the food supply."

The American Petroleum Institute suggested the tariffs would hinder future energy supply capabilities: "the U.S. oil and natural gas industry, in particular, relies on specialty steel for many of its projects that most U.S. steelmakers don't supply." A Ford spokesperson commented that the tariffs "could result in an increase in domestic commodity prices -- harming the competitiveness of American manufacturers."

Contrary to the narrative that domestic producers of protected goods should support the tariffs, major American aluminum producer Alcoa sounded more nervous than grateful when asked about the measures: "vital trading partners, including Canada, should be exempt from any tariff on aluminum. The industry has an integrated supply chain and actions should not penalize those that abide by the rules."

Dangerous Standoff with China

For the rest of 2018, the administration focused on many goods but one country, China, and threatened to ignite a trade war large enough to single-handedly drag the global economy into recession.

On April 2, China announced retaliatory tariffs stemming from the U.S. tariffs on steel and aluminum. The impacted items accounted for $2.4 billion of Chinese imports from the U.S. in 2017 and included aluminum and agricultural products.

In April 2017, the Trump administration initiated an investigation of over one thousand additional Chinese products under Section 301 of the Trade Act of 1974 with a focus on potential violations of U.S. intellectual property rights. A day after China announced its aluminum and agricultural tariffs, the U.S. administration announced the results of these investigations and took the largest step yet on the path to a potential trade war.

The April 3 list from the Trump administration of products under consideration for 25 percent tariffs included over 1,300 products with a 2017 import value of almost $50 billion. Eighty-five percent of the targeted goods were intermediate or capital goods used by U.S. manufacturers, with the machinery, appliance, and electrical equipment industries hardest-hit.

A series of adversarial negotiations between U.S. and Chinese leadership ensued that reflected President Trump's nationalistic view of world trade. For several days in early April, both countries' leadership ratcheted up the list of goods being considered for protectionist tariffs, and a trade war between the world's two largest economies appeared imminent.

Tensions briefly appeared to ratchet down in May, when the two governments held talks and U.S. Treasury Secretary Steven Mnuchin indicated tariffs were "on hold." The President's own rhetoric, on the other hand, had the opposite effect, saying in a May 17 press conference, "China's become very spoiled … because they always got 100 percent of whatever they wanted from the United States. But we can't allow that to happen anymore."

On June 15, the US. government released a revised list of Chinese products potentially subject to tariffs under the intellectual property provisions. The percentage of goods relied upon as inputs by U.S. companies rose even further in this list from 85 percent to 95 percent. Chinese authorities immediately announced a retaliatory list of U.S. goods focusing on automobiles and agriculture, particularly soybeans. The first phase of tariffs from each nation's list went into effect of July 6.

The American Soybean Association summed up the tense mood throughout the economy: "Nobody is a winner today. In the midst of a down farm economy and down farm prices, this uncertainty has led to a drop of market prices. Adding additional export market uncertainty through [retaliatory tariffs means] will see the effects of this for year to come… China is a vital and robust market we cannot afford to lose."

The next several months showed that this tense mood was unfortunately justified. On September 24, after a complicated back-and-forth of threats, proposed lists of products, and counter-threats, the U.S. and China both formally enacted tariffs on enormous lists of additional goods. The U.S. placed a 10 percent tariff on Chinese goods with import value $200 billion over and above the previous round, once again including intermediate goods used by U.S. manufacturers but now also including more final consumer goods. China enacted tariffs of between 5 and 10 percent on an additional $60 billion worth of U.S. intermediate goods and capital equipment.

Businesses around the U.S., from manufacturers to farmers, expressed their outrage. General Motors summed up concerns shared by many industries: "tariffs on auto imports may jeopardize both economic fortitude of companies [which] directly supports the economic strength of the nation and contributes to the [US] security posture." Honda added that, "The key point is that tariffs, no matter how short-lived, are enormously disruptive to the stability of a business and reduce the value business can provide to customers and contribute to society."

Again reflecting concerns of American farmers hit with retaliatory tariffs from China, the American Soybean Association said, **"**If this trade war is not resolved soon, we will see irreversible consequences… we're talking about the viability of our long-term relationship with the China market."

On December 1, the two countries agreed to a 90-day "truce," agreeing not to enact any new tariffs during that period. However, tariffs on hundreds of billions of dollars worth of goods remained on both sides.

The costs of these measures, in terms of taxes directly paid by U.S. importers and exporters' loss of market share abroad, are immense.

3 Cost to Americans

Tariffs are nothing more than a tax on importers of foreign goods. Such a tax reverberates throughout the economy, causing both lower corporate profits which reduce output and employment, and higher consumer prices, lowering the buying power of ordinary American families and further slowing the economy.

We estimate the cost of the Trump Administration's 2018 tariffs by applying their rates to total imports from 2017. If they work as intended, the tariffs will change behavior, causing fewer imports, but using 2017 data provides a reliable estimate of the magnitude of the tax increase.

We estimate a cost to taxpayers from the 2018 tariffs as they are currently in place of $45 billion. Were the tariff on the last round of Chinese goods to increase from 10 percent to 25 percent (as they were set to do before the December 1 "truce"), the total cost would increase to an estimated $75 billion per year. Finally, to capture the risk of an escalating trade war, we estimate that if the U.S. government imposed a 10 percent tariff on all other imported Chinese goods, this cost would rise to approximately $101.8 billion.

The 2018 tariffs are not only the linchpin of the Trump administration's global trade policy; they are also important matters of fiscal and tax policy. Congress's Joint Committee on Taxation estimated that the administration's income and corporate tax cuts would save American households and firms $75 billion and $129 billion in 2018, respectively.

Even as they stand at $45 billion, the 2018 tariffs are the Trump Administration's second-largest change to American tax policy and claw back a quarter or more of the 2017 tax cuts. On balance, the administration's policy transfers wealth from businesses that rely on imported materials and intermediate goods to

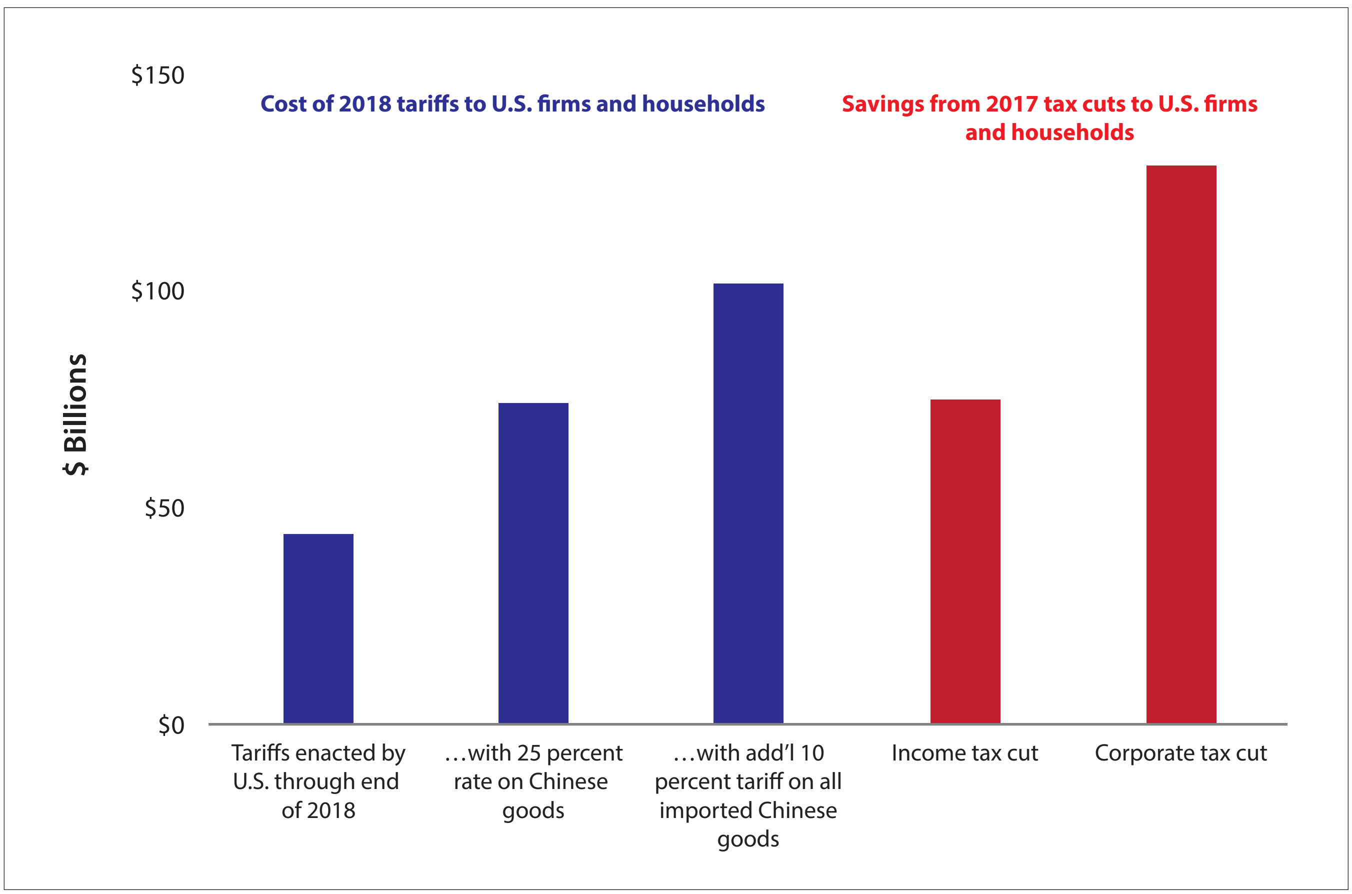

Chart 1. Cost of 2018 tariffs to U.S. firms and households versus savings from 2017 tax cuts

Effective Date	Covered Products	Rate Increase	Import Worth	Tariff Burden
Jan 22, 2018	**Initial Tariffs**			
	Solar panels Four year safeguard tariff rate begins at 30% (decreasing 5% p.a.)	**30%** (decreasing 5% p.a.)	**$8.5 billion**	**$2.6 billion**
	Washing machines Three year safeguard tariff rate begins at 20% (decreasing 2% p.a.) for the first 1.2 million imports; 50% tariffs on imports above that amount (decreasing 5% p.a.)	**20%** (decreasing 2% p.a.) **50%** after first 1.2 million imports (decreasing 5% pa)	**$1.8 billion**	**$0.5 billion**
Mar 23, 2018	**Steel & Aluminum Tariffs**			
	Steel	**25%**	**$29 billion** (steel, 2017)	**$7.25 billion**
	Aluminum	**10%**	**$17 billion** (aluminum, 2017)	**$1.7 billion**
Jul 6, 2018	**Tariffs on Chinese Imports: Phase 1**			
	Section 301 List 1 tariffs take effect, impacting 818 tariff lines.	**25%**	**$34 billion**	**$8.5 billion**
Aug 23, 2018	**Tariffs on Chinese Imports: Phase 2**			
	Section 301 List 2 tariffs take effect, impacting items across 279 tariff lines.	**25%**	**$16 billion**	**$4 billion**
Sept 24, 2018	**Tariffs on Additional Chinese Imports**			
	50% of listed items are intermediary goods, 24% consumer goods.	**10% (until Jan 1, 2019)** (On Jan 1, 2019 rate increases to 25%)	**$200 billion**	**$20 billion**
	Total			**$44.5 billion**
	Total with 25 percent rate hike			**$74.5 billion**
	Total with 10 percent tariff on all other Chinese imports			**$101.8 billion**

those that do not. We can think of the cuts and tariffs together as a sort of free-trade tax.

Who in the economy bears the cost of a tariff? The short answer is, "everyone." Importers of products, almost always American firms, write the actual check. But just like any tax, the incidence, or who bears what fraction of the final harm, depends on a host of factors. Importers can absorb some or all of the cost as a loss to profits, or raise prices on their customers. If those buyers are consumers, then they have borne part of the tariff's cost. If those buyers are other firms, then we can ask the same question all the way down the supply chain to final consumers.

Borusyak and Jaravel (2018) put the cost of the tariffs in another perspective. If the tariffs were passed entirely along to end consumers, who did not change their buying patterns, they would cost a family earning the median income about $100 per year, with that figure ranging across income categories from $46 to $261. The recently released studies by Amiti et al and Fajgelbaum et al both provide robust statistical evidence that this passthrough has indeed taken place.

Whether firms or end consumers, someone in the American economy will pay for every dollar taken by the 2018 tariffs. If the administration believes that its 2017 individual and corporate tax cuts stimulated the economy, then the 2018 tariffs did equivalent economic harm.

Administrative and Organizational Costs

The 2018 tariffs imposed additional burdens beyond the direct cost of taxes. Often overlooked are the administrative and organizational costs of tariffs. Shortly after the Trump Administration announced the initial tariffs, an exemption process through which firms could apply for relief on particular products was introduced. Each application for an exemption was predicated on a product-by-product basis, therefore often requiring scores of exemption applications by a single firm.

The applications themselves were detailed, and required at a minimum the following information:

- Identification of the particular product in terms of the physical characteristics (e.g., dimensions, material composition, or other characteristics) that distinguish it from five other products within the covered eight-digit subheading.

- The 10 digit subheading of the HTSUS most applicable to the particular product requested for exclusion.

- Requestors must provide the annual quantity and value of the Chinese-origin product that the requestor purchased in each of the last three years.

- Whether the particular product is available only from China. In addressing this factor, requestors should address specifically whether the particular product and/or a comparable product is available from sources in the United States and/or in third countries.

- Whether the imposition of additional duties on the particular product would cause severe economic harm to the requestor or other U.S. interests.

- Whether the particular product is strategically important or related to "Made in China 2025" or other Chinese industrial programs.

The review process for the tariff exemption applications have been described as a "lengthy [and] opaque". Additionally, as reported in the Wall Street Journal, compliance costs of both applying for exemptions and collecting tariffs on specified goods will, for many firms, include fees to avoid penalties and regulatory entanglements: "Products often don't fit exactly within categories on tariff lists, and legal help may be needed to figure out what should be included."

Considering the high stakes involved, many firms have spent valuable executive and managerial time focusing on tariff compliance and policy developments. W. W. Grainger, a $17B NASDAQ-listed provider of industrial supplies and equipment, indicated the following changes to its operation in light of the tariffs:

> With respect to tariffs, we have deployed a cross-functional task force to gain a clearer understanding of the tariff impact, as well as to execute mitigating actions. The team meets daily, reporting to senior leadership at least weekly. Some of their actions include validating tariff increases, working with suppliers to minimize the cost impact including identifying alternative supply and evaluating pricing actions while ensuring that our pricing stays market-based.

Richard Galanti, CFO of wholesaler Costco detailed some of his firm's tariff-related diversions as well:

> What actions are we exploring and taking in some short-term and some long-term? Accelerating shipments before tariffs go into effect, recognizing there's a limited ability to do so. Everybody's trying to. Working with suppliers to see what can be done to reduce and/or absorb some of the costs, and in some cases reducing order commitments on certain impacted items. Alternative country sourcing, sure, but again, it's where possible and feasible, it's a limited ability, and it takes time.

These costs - administrative, organizational, and legal - spread across hundreds of firms, each involving costs associated with compiling and processing thousands of pages of paperwork as well as the interruption of and interference with standard management and executive functions - are especially inimical to the economic health of firms, representing not only large but essentially unseen costs.

Impact on Financial Markets

Given their tax, administrative, and compliance burdens, the 2018 tariffs likely had negative repercussions for financial markets and overall output and employment in the economy. However, these effects are notoriously difficult to establish in a rigorous statistical matter amid the complexity of the economy as a whole.

We investigated the impact of the tariffs on stock prices for companies likely negatively impacted, including users of steel and aluminum and firms with a high level of sales concentrated in China. We used event studies, a common empirical technique that estimates the "abnormal return" or change in a stock's price on days when tariffs were announced over and above the market as a whole.

Our results were mixed: certain events produced statistically significant abnormal returns for certain stocks, but these returns were not consistently statistically significant at conventional levels.

This lack of a definitive result does not mean there was no negative impact. Any given firm has a long list of unique factors influencing the path of its stock's price, making the regularity of results across firms hard to establish. Event studies also render the most accurate results when the event in question is a bona fide surprise, while in virtually all cases markets were already rife with speculation before specific tariffs were announced.

4 Failed Protectionism

Proponents of the 2018 tariffs maintain that the negative impacts of a tax increase are a cost Americans must pay to protect or even save vital industries on the brink of collapse due to bad actors abroad. For example, the protectionist Economic Policy Institute, writing in December, characterized the administration's tariffs as saving a domestic aluminum industry that in 2017 was "hanging on by a thread" due to growth in Chinese "excess capacity."

If tariff proponents see gains to certain industries as justifying economy-wide costs, asking just how much those industries have benefited is important. If tariffs "successfully" protect an industry, we should see greater domestic production, along with jobs and investment, and fewer imports. Domestic companies in the industry should also see greater profits.

Amiti et al and Fajgelbaum et al both look at monthly import data from 2018 for a wide range of product categories and find reductions in the months after the tariffs. These declines in the volume of global trade add to the estimates of deadweight loss put forward by both sets of authors. These losses are part of the plan, no matter how flawed, for those who support tariffs. Interestingly, when we take a high-level look at the steel industry, where almost a year of post-tariff data is available, the evidence that tariffs have had the impact intended by protectionists is less compelling. While tariffs are a bad economic idea even when they help domestic industries, our analysis questions whether those enacted in 2018 succeeded in their stated objective.

The U.S. Department of Commerce issues quarterly reports on imports and production of steel. The graph below shows production statistics presented in those reports.

Domestic production did increase in 2018, up about six percent from the previous year. However, such a change is well in line with routine fluctuations seen just in the past five years, including a four-percent increase in 2017 and a ten-percent decrease in 2015. Furthermore, U.S. production as a share of production worldwide increased by less than one tenth of one percentage point in 2018, suggesting that the increase in absolute production levels took place worldwide rather than just in the U.S. as a result of new tariffs.

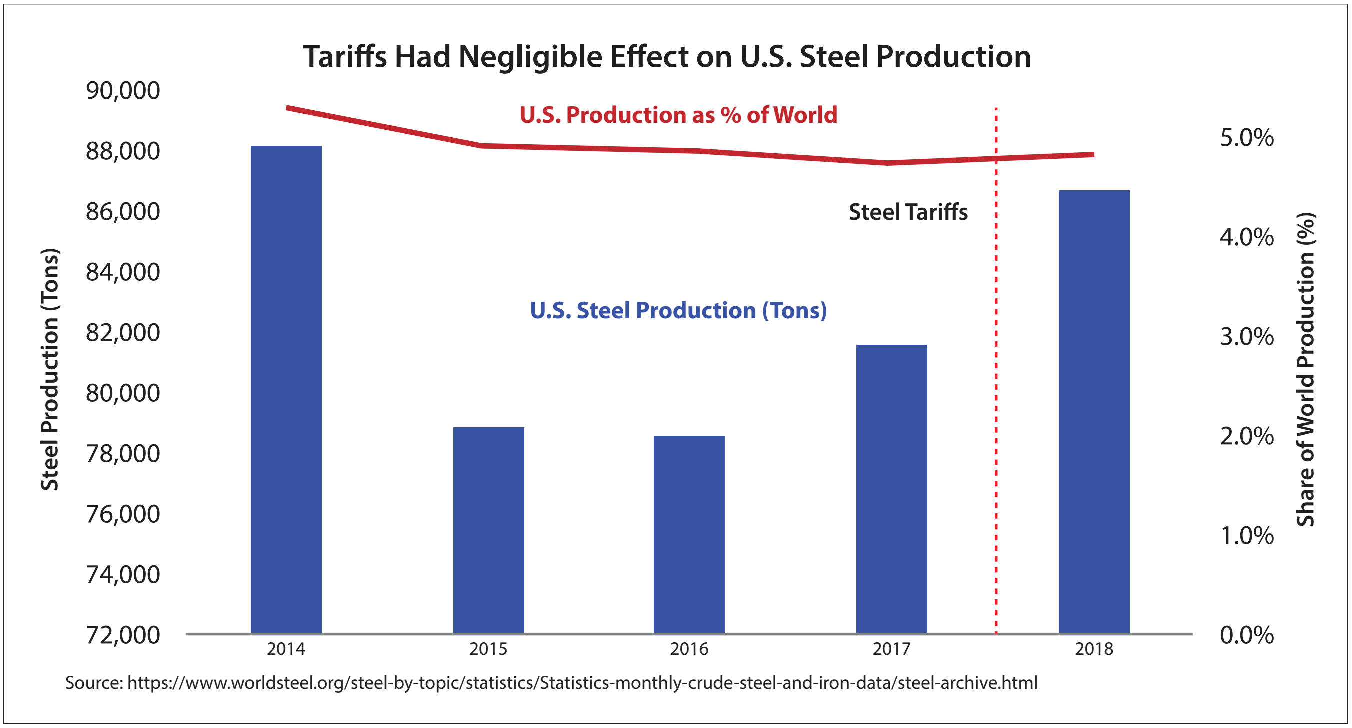

Chart 2. U.S. domestic steel production in tons and as a share of global production, 2014 – 2018

We see a similar result from total steel imports into the United States. As the chart below shows, imports fell ten percent in 2018, but this drop was well in line with standard year-to-year fluctuations.

Data on 2018 aluminum production and imports are not yet readily available, but an economic report somewhat ironically meant to underscore the benefits of tariffs helps illustrate how limited those benefits are in size. The report authored by Economic Policy Institute Senior Economist Robert E. Scott states that since the aluminum tariffs came into effect, domestic producers have "made commitments to create thousands of jobs, invest billions of dollars in aluminum production, and substantially increase domestic production."

But what does this windfall to the U.S. aluminum production industry look like? The EPI reports that between the inception of the tariffs and year's end, domestic producers have invested $137 million, created 1,075 jobs, and increased domestic capacity by 663,000 metric tons when imports totaled over 5 million metric tons last year. These benefits add up to a mere fraction of the likely $2 billion cost to the American economy of the aluminum tariffs.

We would also expect the changes in production and imports associated with a newly-protected industry to lead to improvements in leading companies' performance. In the case of steel and aluminum, we have not seen such results. The graphs below track the stock prices of leading U.S. steel and aluminum producers.

Between President Trump's election and the time of this writing, six of eight stocks we track failed to perform as well as the S&P 500 index.

Between the enactment of steel and aluminum tariffs on March 23, 2018, and the time of this writing, six of eight stocks we track again failed to perform as well as the S&P 500. In fact, the large subsequent drops experienced by five of the companies' stocks are consistent with the tariffs not having the positive impact for those companies that investors expected at the time of their enactment.

Aggregate data from the economy as a whole also fails to show evidence that the 2018 tariffs impacted the overall trade deficit. At the time of this writing, the U.S. Department of Commerce reported that this flawed but often-cited measure soared to an all-time high of $891 billion in 2018, while imports from China reached a record $419 billion.

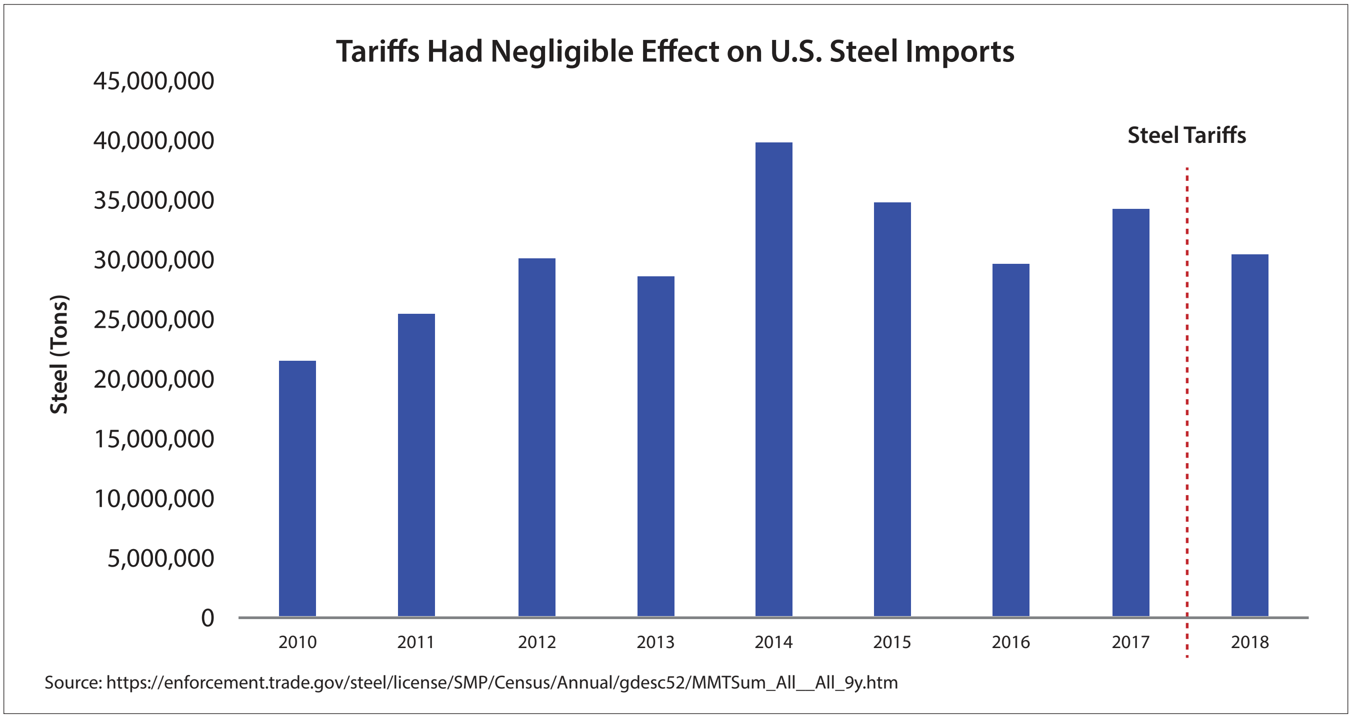

Chart 3. U.S. steel imports, 2010-2018

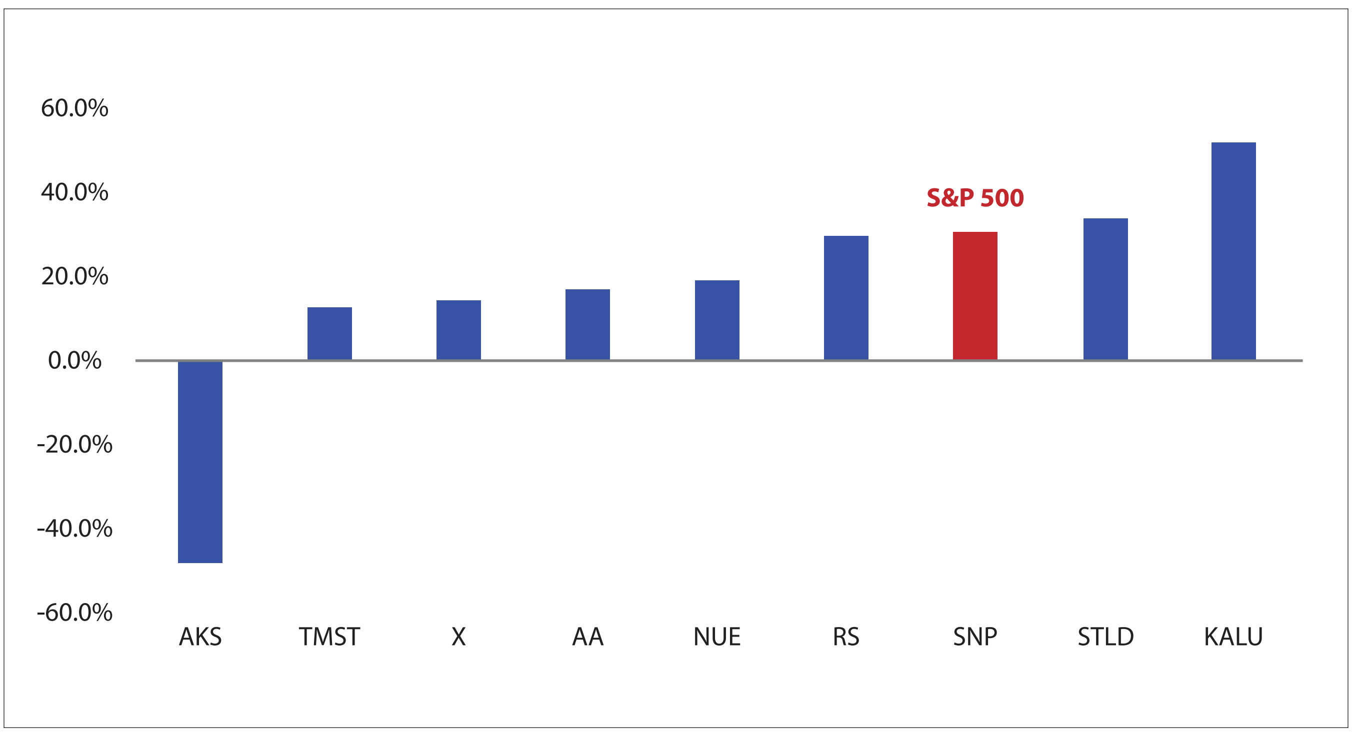

Chart 4. Steel and producers change in stock price since President Trum's election, November 8, 2016 to February 26, 2019

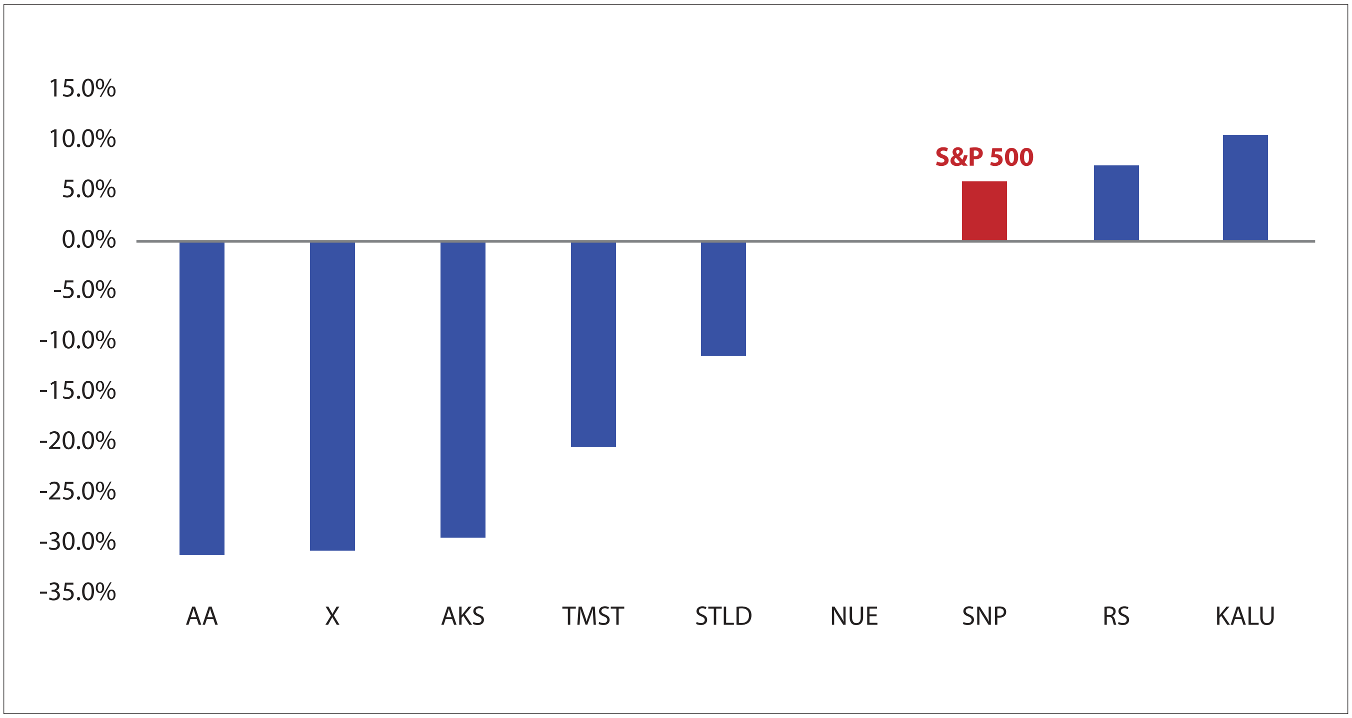

Chart 4. Steep and aluminum producers change in stock price since enactment of tariffs, March 22, 2018 to February 26, 2019.

5 Conclusion

Basic economic theory rejects the idea that specific industries and workers can be helped by tariffs enough to justify the overall harm to the economy. But our analysis questions whether, at least in the case of the 2018 tariffs, anyone is helped at all.

The lack of impact of tariffs on production and imports in the steel and aluminum industries further calls into question the other frequent argument given by tariff proponents; that they are merely a temporary bargaining chip designed to force trading partners into line. If imports in affected industries continue unabated, the threat on which this supposed strategy depends has no teeth.

We have not attempted to quantify the economy-wide harm in terms of lost jobs or output, nor the harm done to domestic firms by retaliatory tariffs abroad. These effects are difficult to separate from due to countless other factors at play in the economy. They would become more obvious, and all the more damaging, if the administration's tariffs led to a full-on trade war, grinding much of global commerce to a halt.

The U.S. and China seemed on the brink of such a catastrophe multiple times in 2018, before seemingly stepping back from the brink with the December 1 "truce." The possibility that this administration will once again ratchet up tensions, this time irrevocably, cannot be ignored. While we hope that the following year will bring less to write about, the 2018 tariffs damaged the economy and the spectre of even more flawed policy looms large.

This report benefitted from the insights and comments of many AIER colleagues, and in particular, the outstanding research assistance of Micha Gartz

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