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AN ANALYSIS OF TARIFF COSTS AND REGULATORY SAVINGS UNDER TRUMP ADMINISTRATION POLICIES

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**EXECUTIVE SUMMARY**

President Donald Trump's tariff policy has reduced the economic benefits of the Trump administration's deregulation efforts by 29 percent and the additional anticipated tariffs on Chinese imports will eliminate all remaining economic gains from the administration's deregulation actions, according to an analysis of trade and regulatory policies. These findings are a reminder that tariffs are a form of business regulation that can be at least as economically harmful as other forms of regulation.

The harm done by tariffs can be measured in two ways – as a burden on the overall economy (called a “dead loss”) and as a burden on consumers. The burden on consumers is larger than the dead loss, since the dead loss measures the burden on consumers minus the gains from tariffs enjoyed by import-competing domestic firms and government through the collection of tariff revenue. We focus primarily on the dead loss from tariffs, since that is the most commonly used measure of the economic harm they do.

Among the findings in this analysis:

- The Trump administration has removed dozens of regulations that have impeded business activity in the United States and, by doing so, contributed to the economic expansion that has marked his time in office. But the administration has also imposed wide-ranging tariffs, thus also creating a drag on the economy.
- According to the Office of Management and Budget (OMB), there were economic savings from deregulation of \$37.5 billion for Calendar Years (CY) 2017-2018 and of \$9 billion from January 1, 2019 through June 30, 2019, for a total saving of \$46.5 billion.
- However, between January 2017 and June 30, 2019, these regulatory savings were offset by a dead loss from tariffs of \$13.6 billion. Subtracted from the \$46.5 billion in benefits from deregulation, the tariffs leave a net savings to the economy of \$32.9 billion. That is, the tariffs caused 29 percent of the gains from deregulation to be lost through June 30, 2019. (See Table 1.)
- By December 31, 2019, the dead loss of the tariffs imposed under the Trump administration will total \$32.1 billion. That will negate most of the \$46.5 billion in savings from deregulation identified to date by OMB.

*An Analysis of Tariff Costs and Regulatory Savings***Table 1: Economic Effects of Tariffs and Deregulatory Policy: January 1, 2017 to June 30, 2019**

Item	2017-2018	January 1, 2019 – June 30, 2019	Total
Dead Loss (\$, 000s)	7,784,011	5,811,854	13,595,865
Savings from Deregulation (\$, 000s)	37,500,000	9,000,000	46,500,000
Net Savings to U.S. economy (\$, 000s)	29,715,989	3,188,146	32,904,135

Source: Office of Management and Budget 2018, National Foundation for American Policy, Beacon Hill Institute calculations.

**Additional Annual Impact of Tariffs on the U.S. Economy**

- On June 15, 2019, the U.S. finalized an increase in tariffs from 10 to 25 percent on \$200 billion worth of U.S. imports from China. That increases the dead loss to the U.S. economy by \$16.6 billion annually.
- In response to Chinese tariffs on \$75 billion American products, the Trump administration announced that it will increase tariffs by 5 percentage points on all Chinese products. The increase from 25 to 30 percent on the first \$250 billion in imports from China will go into effect on October 1, 2019. The dead loss imposed on the economy will increase by \$9.4 billion.
- President Trump announced the imposition of 10 percent tariffs on the remaining \$272 billion in imports from China. With the recently announced increase of 5 percentage points on all Chinese products, the tariffs will be imposed at 15 percent. The tariffs on the \$272 billion worth of goods will be imposed in two stages. The first round covering \$112 billion in Chinese goods went into effect on September 1, 2019, and will increase the dead loss to the economy by \$6.6 billion per year. The Trump administration announced a delay on the remaining \$160 billion in Chinese products until December 15, 2019. The dead loss imposed on the economy from the December 15 list will increase by \$10.1 billion per year.
- If a trade agreement cannot be reached with China, the president has readied his administration to increase tariffs from 15 to 30 percent on the same \$272 billion in imports from China. In this scenario, the dead loss imposed on the economy would increase by \$26.7 billion per year. *Imposing these tariffs in addition to those already imposed would leave an annual dead loss to the economy from the Trump administration's tariffs of \$77.9 billion, more than the \$46.5 billion in regulatory cost savings as of June 30, 2019.*
- President Trump has also threatened the imposition of 25 percent duties on all imports of automobiles and automotive parts. If implemented, the dead loss to the economy would increase by \$43.1 billion per year. In the worst-case scenario, whereby potential tariffs of 30 percent went into effect on all goods from China and 25 percent on all automobiles and automotive parts, the dead loss would be \$121.1 billion per year.

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**Table 2: Summary of Tariff Costs and Regulatory Savings Under the Trump Administration**

ECONOMIC COSTS OF TARIFFS	REGULATORY SAVINGS
<p>\$709 million (annually) – Tariffs on solar panels and washer machines ranging from 15% to 50%. (Announced January 22, 2018.)</p>	<p>\$46.5 billion – January 20, 2017 through June 30, 2019.</p>
<p>\$4.2 billion (annually) – Trump tariffs on steel and aluminum ranging from 10% to 25%. (Announced March 8, 2018.)</p>	
<p>\$3.6 billion (annually) – Trump tariffs of 25% on \$50 billion in imports from China. (Announced July 10, 2018.)</p>	
<p>\$16.6 billion increase (annually) – Increase in tariffs from 10% to 25% on \$200 billion worth of U.S. imports from China. (Finalized June 15, 2019.)</p>	
<p>\$9.4 billion increase (annually) – Increase in tariffs from 25% to 30% on first \$250 billion (\$50 billion plus \$200 billion) worth of U.S. imports from China. (Effective as of October 1, 2019.)</p>	
<p>\$16.7 billion increase (annually) – The Trump administration will impose 15% tariffs on remaining \$272 billion in imports from China. (Tariffs on first \$112 billion went into effect September 1 and the other \$160 billion on December 15, 2019.)</p>	
<p>\$26.7 billion increase (annually) – If negotiations with China are unsuccessful, the Trump administration could increase tariffs from 15% to 30% on the same \$272 billion in imports from China. (Planned)</p>	
<p>\$43.1 billion increase (annually) – The Trump administration has threatened to impose 25% duties on all imports of automobiles and automotive parts. (Planned)</p>	
<p><b>TOTAL Dead Loss of tariffs imposed from January 20, 2017 to June 30, 2019 – \$13.6 billion</b></p>	
<p><b>TOTAL Dead Loss of tariffs imposed by December 31, 2019 – \$32.1 billion.</b></p>	
<p><b>TOTAL Dead Loss (annually) – \$77.9 billion with 30% tariffs on all Chinese products in addition to current tariffs.</b></p>	
<p><b>TOTAL Dead Loss (annually) – \$121.1 billion if all tariffs are implemented in addition to current tariffs.</b></p>	<p><b>TOTAL Regulatory Savings – \$46.5 billion</b></p>

Source: National Foundation for American Policy summary of effects of tariff costs and regulatory savings. Note: A report from OMB in 2019 or 2020 will indicate whether or to what extent there have been additional regulatory savings after June 30, 2019.

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*An Analysis of Tariff Costs and Regulatory Savings***Burden of Tariffs on U.S. Consumers**

- By December 31, 2019, the burden on consumers from the tariffs imposed under the Trump administration will total \$167.7 billion, meaning the administration's tariffs will have cost the average household \$1,315 over a two-year period.
- On an *annual* basis, when adding the tariffs in effect and the tariffs set to go into effect by the end of 2019, the costs of the tariffs to consumers will be \$259.2 billion. That is, the tariffs will cost the average household \$2,031 per year, and will be recurring so long as the tariffs stay in effect.
- If all tariffs threatened by the Trump administration are imposed, combined with the current tariffs in place, the annual cost to U.S. consumers would be \$461.1 billion and the cost for the average household would be \$3,614. This figure includes a threatened increase to 30 percent on the remaining \$272 billion in imports from China (increasing the burden on consumers by \$50.6 billion annually and the cost per typical U.S. household by \$396) and potential 25 percent tariffs on all automobiles and automotive parts (increasing the annual burden to consumers by \$151.3 billion or \$1,186 per year for the average U.S. household).
- The president has pointed to the revenue raised (from U.S. consumers and producers) from the administration's tariffs. However, we found that subsidies provided to American farmers alone represent 159 percent of the revenue raised under the tariffs levied by the Trump administration through June 30, 2019. According to our analysis, the Trump administration's tariffs have thus far raised \$17.6 billion. In 2018, the U.S. provided farmers with \$12 billion in subsidies to help relieve some of the burden from retaliatory tariffs. On May 23, 2019, President Trump announced another \$16 billion in subsidies for American farmers, for a total of \$28 billion in government subsidies provided just to farmers.
- Retaliatory tariffs from foreign countries have significantly reduced U.S. exports. We estimate U.S. exports covered by retaliatory tariffs fell by \$17 billion in 2018, and halfway through 2019, the loss to U.S. exports totaled \$13.97 billion, for a combined total of \$31 billion in lost exports. With China increasing tariffs on \$60 billion American products, in addition to announcing tariffs on \$75 billion U.S. products and halting all U.S. agriculture imports, the loss in U.S. exports will rise.

Deregulation efforts by the Trump administration have provided a boost to the economy. However, this analysis shows the gains to date are expected to be entirely nullified by the tariffs imposed by the Trump administration, illustrating that tariffs can be a potent and economically destructive form of business regulation.

## SAVINGS FROM TRUMP DEREGULATION

The number and costs of federal regulations rose significantly under the Obama Administration. During Barack Obama’s presidency, there were 284 “major” rules introduced out of a total of 23,627 new rules – far more than any preceding administration. “Major” regulations are designated as having economic impacts exceeding \$50 million. The Heritage Foundation estimates the annual costs of federal regulations totaled \$122 billion by the end of Obama’s presidency.

According to OMB Director Nick Mulvaney, these regulations “were hurting Americans; farmers, small businesses and other job creators.” Thus far, the Trump administration has made good on much of its promise, embarking on an aggressive deregulation campaign, in turn “unleashing economic freedom.”

**Table 3: “Major” Obama Administration Regulations Removed Under President Trump**

Regulation	Category	Agency	Status	Date
Clean Power Plan	Environmental	EPA	Repealed	6/20/2019
Nondiscrimination provisions in the Affordable Care Act	Health	HHS	Repealed	6/20/2019
CAFE Standards	Environmental	EPA, DoT	Repealed	10/11/2018
Dealer Markup Guidance	Financial	CFPB	Repealed	5/22/2018
Net Neutrality	Telecom	FCC	Repealed	5/16/2018
Fiduciary Rule	Financial	DoL	Repealed	5/11/2018
Arbitration Rule	Financial	CFPB	Repealed	10/25/2017
Title IX Guidance on Transgender Student Rights	Education	DoEd	Repealed	10/19/2017

Source: [Brookings Institution Deregulation Tracker, 2019](#).

On February 2, 2017, the Trump administration enacted Executive Order 13771, mandating federal agencies to identify and repeal at least two regulations for every new regulation that is imposed. Specifically, the repeal of two regulations must offset, at least, the costs of issuing any new regulation. Additionally, the implementation of new

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regulations require the costs to be “prudently managed and controlled through a budgeting process.” Under the order, the Trump administration has eliminated many duplicative and redundant regulations that are costly and hinder economic growth. The administration has already repealed eight “major” regulations, among many others, from the Obama administration. (See Table 3.)

According to the OMB’s *2018 Regulatory Reform Report: Cutting the Red Tape, Unleashing Economic Freedom*, the Trump administration has eliminated 12 regulations for each new regulation announced. In Fiscal Year (FY) 2018, the administration completed 176 deregulatory actions while only issuing 14 new major regulations. Since the beginning of 2017, the administration has withdrawn or delayed 2,253 regulations, with 648 regulations being withdrawn or delayed in FY 2018. According to OMB, President Trump’s deregulatory efforts provided savings to the U.S. economy of \$33 billion from the beginning of 2017 through the end of FY 2018. OMB projects that the Trump administration will remove \$18 billion in regulatory costs in FY 2019. Thus, we calculate savings of \$37.5 billion for Calendar Years (CY) 2017-2018 and of \$9 billion from January 1, 2019 through June 30, 2019, for a total saving of \$46.5 billion.<sup>1</sup>

**TRUMP ADMINISTRATION TRADE POLICIES**

President Trump made clear his opposition to current international trade agreements, promising to turn American trade policy in a direction more favorable to domestic producers. Trump has kept that promise, raising several barriers on U.S. imports from countries around the world. Overall, the Trump administration has levied tariffs on U.S. imports valued over \$300 billion. The largest portion of the tariffs is on \$200 billion worth of Chinese products. The president recently finalized an increase in duties on the \$200 billion in U.S. imports from China from 10 to 25 percent, as of June 15, 2019. U.S. trading partners have retaliated by imposing tariffs on U.S. exports valued over \$144 billion dollars.

Throughout 2018, President Trump introduced tariffs in six steps, imposing duties on Chinese imports and imports from the rest of the world. In January 2018, the president initiated his first round of tariffs, imposing duties between 20 and 50 percent on \$10 billion worth of solar panel and washer machine imports. In March 2018, the second round of tariffs was levied on aluminum and steel imports, raising duties of 10 and 25 percent, respectively. Canada, Mexico, and the European Union were exempted under the second round. However, a third round of tariffs took place in June, which included all imported steel and aluminum products. In August, the Trump administration doubled tariff duties on aluminum and steel imports from Turkey. However, President Trump recently announced an agreement to remove aluminum and steel tariffs on imports from Canada and Mexico.

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<sup>1</sup> A report from OMB in 2019 or 2020 would indicate whether or to what extent there have been additional regulatory savings after June 30, 2019, due to administration policies.

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The Trump administration then shifted its focus almost entirely toward China. President Trump imposed a fourth round of tariffs in July 2018, imposing 25 percent duties on \$34 billion of imports from China. Trump finalized another wave of tariffs in August 2018, imposing 25 percent tariffs on another \$16 billion in goods from China. On September 18, 2018, the administration subjected \$200 billion worth of products from China to a 10 percent tariff. The trade dispute between the U.S. and China has since intensified, with President Trump recently finalizing an increase on the \$200 billion of imports from China (up to 25 percent). Any Chinese products on the \$200 billion list were exempt from the new increase until June 15, 2019. Overall, \$250 billion in imports from China are now subject to 30 percent tariffs (following the addition of 5 percentage points in response to retaliation from China).

Thus far, the United States and China have failed to reach a new agreement on trade, with further trade restrictions appearing inevitable. If a trade agreement cannot be worked out, President Trump has threatened to increase tariffs from 15 to 30 percent on the remaining \$272 billion in imports from China. President Trump recently announced tariffs of 10 percent (later raised to 15 percent) on \$112 billion Chinese products, effective on September 1, 2019. The Trump administration delayed the imposition of 10 percent tariffs (later raised to 15 percent) on the remaining \$160 billion in Chinese goods until December 15, 2019.

The Trump administration has also considered placing tariffs on all U.S. automobile and automotive imports, with duties up to 25 percent. President Trump also threatened to place import duties of 25 percent on automobile imports just from Canada. Earlier this year, President Trump threatened Mexico with import duties starting at 5 percent, rising 5 percent each month until they would reach 25 percent in October. However, the U.S. announced an agreement with Mexico on immigration, thereby postponing new trade restrictions between the two countries.

Countries affected by President Trump's trade policy have imposed retaliatory tariffs on U.S. exports. In retaliation for U.S. tariffs on aluminum and steel, Canada and Mexico raised tariffs on American exports. Canada imposed duties between 10 and 25 percent on the value of U.S. exports equal to the amount of Canadian aluminum and steel subjected to American tariffs (\$12.8 billion). Mexico reciprocated by imposing tariffs between 20 and 25 percent on \$3 billion U.S. exports. Canada and Mexico have recently agreed to eliminate retaliatory tariffs against the U.S. in exchange for the removal of aluminum and steel tariffs. In June 2018, Turkey responded to American tariffs by imposing duties ranging from 5 to 70 percent on \$1.8 billion U.S. exports. Also, in June, India responded to American tariffs by imposing duties between 5 to 100 percent on \$10.7 billion U.S. exports. The EU imposed import duties of 10 to 25 percent on \$3.2 billion U.S. exports, in retaliation for U.S. tariffs.

China placed tariffs on \$3 billion U.S. exports in retaliation for aluminum and steel tariffs, with duties ranging from 15 to 25 percent. In response to U.S. tariffs on \$50 billion in Chinese exports, China reciprocated by levying 25 percent duties on \$50 billion of U.S. exports. On September 18, 2018, in response to U.S. tariffs on \$200 billion

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worth of products, China imposed 5 to 10 percent import tariffs on \$60 billion of American goods. In April 2019, China responded to a 15 percent increase on \$200 billion in exports to the U.S. by increasing duties between 20 and 25 percent on \$60 billion of American products. In response to U.S. duties on the remaining \$272 billion in Chinese products, China has announced that it will stop all U.S. agriculture imports.

The volume of U.S. exports subject to retaliation is likely to increase if the U.S. continues to impose trade barriers. Several countries are already considering imposing or increasing import duties on U.S. exports in response to current tariffs. These retaliatory tariffs impose a burden on the U.S. economy – a matter that we take up below.

## **COSTS THROUGH THE IMPOSITION OF TARIFFS**

We estimated the dead loss to the economy and the burden imposed on U.S. consumers and on the average household by the Trump administration's tariffs. We estimate the economic effects that have

1. accumulated from the current administration tariffs through 2018 (from 2017),
2. accumulated under the administration's tariffs in 2019, up until June 30, and
3. incurred given the 25 percent duties on \$200 billion imports from China.

Once we obtain our estimate of the economic costs imposed by the current tariffs, we match it against the OMB estimated savings of deregulation to calculate the total net savings to the economy.

## **METHODOLOGY**

Our analysis includes calculations of the dead loss (net loss to the economy) of tariff increases using standard methodology. That includes first estimating the reduction in U.S. imports as a result of the current tariffs imposed by the Trump administration for 97 categories of goods under the two-digit Harmonized Tariff Schedule (HTS) and then determining the Armington elasticities for each of these 2-digit HTS category codes. (The Armington method is based on an assumption that the U.S. demand for a good depends on the country or origin.) We used the increase in the tariff rates, the quantity of imports and the Armington elasticities to calculate the dead loss to the U.S. economy for each commodity category from the countries affected by the Trump administration's tariffs (China and the rest of the world.) The methodology was also used to calculate the economic effects of an increase (to 25 percent) on \$200 billion of Chinese products and additional tariffs on the remaining imports from China. Once again, we use the methodology to calculate the economic effects of potential tariffs on all automobiles and automotive parts.

## MEASURING THE EFFECTS OF TARIFFS

A tariff has five principal economic effects:

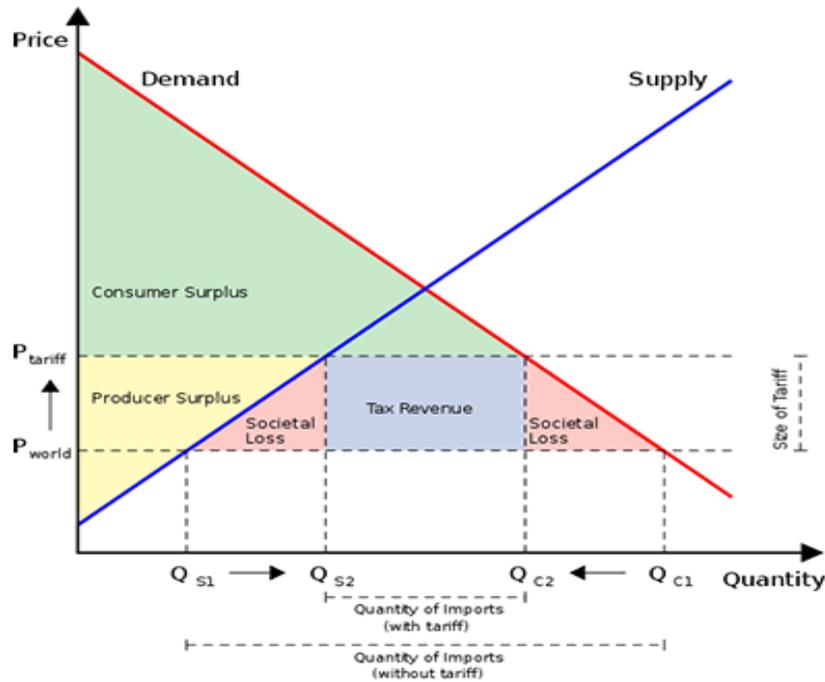
1. It shifts demand away from imported goods and toward domestically produced substitutes for the same goods, putting upward pressure on prices and downward pressure on the real wages (wages adjusted for inflation) of workers. The resulting higher prices and lower real wages impose a burden on consumers.
2. It confers benefits on domestic producers and their workers.
3. It causes the home-currency to appreciate, and thereby shrinks exports.
4. It raises some revenue for the government (as long as it isn't so high as to drive imports to zero).
5. It imposes a "dead loss" or excess burden on the economy.

Dead loss is a net loss to the economy. It equals the burden imposed on consumers minus the benefit to home-country producers and minus the tax revenue raised by government. This dead loss consists of a consumption cost and a production cost. The first is equal to the value to consumers of goods that they no longer consume because of the tariff, and the second is equal to the cost to society of replacing imported goods with higher cost domestic goods.

In algebraic form, the formula is  $DL = \frac{1}{2} \Delta P \Delta M$ , where  $\Delta P$  is the change in the price of an imported good that results from the imposition of the tariff, and  $\Delta M$  is the change in imports. This dead loss is the net loss to the economy that results from the imposition of the tariff, that is, the total loss to consumers minus the gain to producers and the tax revenue yielded by the tariff. It can be seen also as the sum of two costs: the "consumption cost," which is the value of the import no longer bought by home country consumers and the "production cost," which is additional cost to home-country producers of replacing units of the good that are no longer imported.

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**Figure 1. Supply and Demand under a Tariff**



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The standard supply-demand curve above demonstrates what happens when a tariff is imposed. First, the tariff increases the domestic price from  $P_{world}$  to  $P_{tariff}$ . At the same time, the quantity of domestically provided goods expands from  $Q_{s1}$  to  $Q_{s2}$ , increasing producer surplus by the size of the yellow area above  $P_{world}$ . However, consumers in turn respond by buying fewer items represented in the shift from  $Q_{c1}$  to  $Q_{c2}$ . The government collects revenue (equal to the blue area). As the diagram illustrates, the loss to society is the sum of the pink areas.

The dead loss does not account for the benefits that might accrue to the country through protectionism. It does not account for the wage increases and improved job prospects that U.S. workers might enjoy as the tariff shifts production to more labor-intensive goods. Nor does it measure the gains that might result from an improvement in the country's terms of trade or from a temporary improvement in its trade balance or in its strategic advantage over other countries.

Suppose, for example, the United States imposes a tariff of 20 percent on widget imports from some other country – call it Glaustark. U.S. widget imports from Glaustark fall by 100,000. If widgets previously cost \$1.00, they now cost \$1.20. The dead loss is  $\frac{1}{2} (\$100,000) \times .20 = \$10,000$ .

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Again, we need to keep in mind that this is the net loss to society, after we take into account the gains to producers and the revenue collected by government as a result of the tariff. Those gains impose costs on consumers that ordinarily outweigh the dead loss by several factors. To see why, let's consider just how producers benefit.

In this example, producers benefit in two ways. First, they get a higher price for what they were selling U.S. consumers before the tariff. If they were providing 50,000 widgets at \$5 apiece, they now sell those same widgets at \$6 apiece, for a gain of \$50,000. If they produce an additional 50,000 widgets because of the tariff, that's another \$25,000 in benefits, for a total of \$75,000 in benefits. These benefits, plus the tariff revenue collected by the government, come entirely at the expense of consumers. In this example, also, the government collects \$100,000 in tariff revenue, which, when combined with the \$75,000 in benefits to producers and the dead loss, brings the total loss to consumers to \$225,000, which is 4.5 times the dead loss alone.<sup>2</sup> The formula assumes that a tariff on a particular product is a tariff on that product, whatever its origin. The formula breaks down if importers can get the same product tariff-free from other countries.

**ECONOMIC IMPACT OF THE TRUMP ADMINISTRATION'S TARIFFS**

In this section we assume that the Trump administration's tariffs were effective in reducing imports, in that U.S. importers did not replace goods from countries subject to the tariffs with goods imported from the rest of the world. In other words, we assume that electronic goods from Vietnam, for example, will not replace electronic goods from China. We further assume that U.S. producers (including their workers) captured the benefits of this reduction in imports.

In order to accomplish the task, we must make a few calculations.

First, we estimate the reduction in U.S. imports from the world and China for 97 categories of goods under the 2-digit Harmonized Tariff Schedule (HTS). Congress enacted the HTS in 1988 to replace the previous tariff list. The HTS is a hierarchical system of identifying all traded goods that enter the United States that could be subject to a duty or quota. It is based on the international Harmonized Commodity Description and Coding System (HS). The

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<sup>2</sup> The tariff is assumed to cause widget imports to fall from 200,000 to 100,000 units. Suppose that Americans consumed 250,000 widgets before the tariff and now consume only 200,000. Imports still account for half of these units, the other half coming from domestic production. If U.S. producers previously supplied 50,000 units but now supply 100,000 units. They gain from the higher price they get for the units previously sold plus what they gain from selling an additional 50,000 units. The gain on these additional units is only a fraction of what producers get by selling these new units at the new price of \$6, inasmuch as producer costs rise as production expands. We assume that the gain is only one-half what they would get if costs didn't rise. Then their total gain is \$75,000 (= \$50,000 + 1/2 \$50,000). Government gets to collect \$100,000 in tax revenue. The total loss to consumers is \$225,000 (= the benefit to producers + government revenue + dead loss = \$75,000 + \$100,000 + \$50,000). The loss to consumers is 4.5 times the dead loss.

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hierarchy ranges from two-digit codes, which apply to a broad category of goods, to ten-digit codes for very specific goods. Overall, the hierarchy contains over 11,000 individual goods. (USITC, 2016)

In order to calculate the tariff rate increase, we need the 2017 tariff rate for each of these products that applies to the countries covered by the tariffs. The United States International Trade Commission (USITC) provides a list of tariff rates for over 11,000 products with an eight-digit HTS code (USITC, 2015). We take the average tariff for all products within the 2-digit HTS category code to yield an average tariff rate for imports from the world and China.

Next, we determine the Armington elasticities for each of these 2-digit HTS category codes. The Armington method is based on an assumption that the country of origin of a product distinguishes it from other countries. Thus this distinction implies that products of an industry which come from different countries are imperfect substitutes for each other. (Armington, 1969). The use of the Armington model is important since conventional trade theory has long assumed the goods in an industry from one nation or another are perfect substitutes. We use import, or Armington, elasticities for three-digit HTS code from C. Broda, J. Greenfield and D. Weinstein for the United States. We calculate an average of the three-digit HTS codes that fall under each two-digit HTS code (Broda, Greenfield, & Weinstein, 2006).

Once we have the Armington elasticities for each of our HTS commodity categories, we are ready to calculate the reduction in imports that resulted from the Trump administration's tariffs. To do so, we need to convert our dollar value data into quantity data and then apply the Armington elasticities by HTS category. For simplicity, we assume a price of \$1 for all goods. Thus, we can calculate the quantity by dividing the total value of expenditure by the price. The total value of expenditure does not change with different assumptions of price.

Armington elasticities do not strictly measure the direct relationship between the price increase and change in imports, but rather the change in the ratio of imports to domestically produced goods that results from a change in the ratio of imported prices to the domestic prices.

We use the equation,  $\ln(M/D) = \sigma \ln[\beta / (1-\beta)] + \sigma \ln[P_D / P_M]$ , where  $\sigma$  is the Armington elasticity,  $M$  is the quantity of the imported good,  $D$  is the quantity of the good produced domestically, and  $\beta$  is the current weight of the imported good relative to the domestic good (Blonigen & Wilson, 1999). We use this equation to estimate the change in the ratio of imports to domestic goods when the ratio of the price of domestic goods to imported goods changes. We use these results to estimate the change in imports that have resulted from the Trump administration's tariffs from 2017 through 2018, and for 2019 (up until June 30). And again, we repeated this step to calculate new and planned tariffs on Chinese products and on all automobiles and automotive parts.

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Finally, using the dead loss equation above, we calculate the loss to the U.S. economy for each commodity category and country. From 2017 through 2018, the Trump tariffs have imposed a dead loss of \$7.784 billion on the economy. By the conclusion of 2018, the per month dead loss of the tariffs increased to \$968.642 million. Through June 30 of this year (2019), we estimate that the current Trump tariffs have imposed a dead loss of \$5.812 billion on the economy. Through Phase 1, the Trump tariffs have imposed a dead loss of \$13.596 billion.

**Table 4: Economic Effects of Trump Administration Tariffs through June 30, 2019**

Item	2017 - 2018	January 1, 2019 – June 30, 2019	Total
Dead Loss (\$, 000s)	7,784,011	5,811,854	13,595,865
Dead Loss per month (\$, 000s)	648,667	968,642	N/A
Cost to Consumers (\$, 000s)	47,718,933	40,517,700	88,236,634
Total Cost to Consumers per month	3,976,577	6,752,950	N/A
Total Cost per household (\$)	374	461	692

As pointed out, however, this does not account for the total burden on consumers. From 2017 through 2018, the burden of the Trump tariffs is \$47.719 billion, when we add to dead loss the benefits that producers and government extract from consumers. The benefit to producers is \$29.697 billion. Government has collected \$9.172 billion in tariff revenue over the same period.

From January 1, 2019, through June 30, 2019, the burden on consumers has totaled \$40.518 billion. The gain to domestic producers, so far, is \$25.010 billion. Government has collected \$9.172 billion.

When we add together the overall effects of the Trump tariffs, the dead loss to the economy is \$13.596 billion. The burden faced by consumers has totaled \$88.236 billion. In total, the benefits to producers is \$54.708 billion. Government has collected \$18.345 billion.

We assume that the prices of goods from the countries targeted by the tariffs would rise by the entire tariff increase. For example, a one percent increase in tariff rate increases the price of imported goods by one percent. We also know that imports from the countries that are targeted by the tariffs make up a fraction of total U.S. imports and of total U.S. Personal Consumption Expenditures (PCE) for the applicable sectors. Therefore, we know that the increase in the price of imports from affected countries will affect the prices faced by U.S. households for that sector.

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Thus, we need to adjust the calculation of consumer harm to reflect the importance of imports from affected countries relative to total U.S consumption of the effected products.<sup>3</sup> (U.S. Bureau of Economic Analysis, 2018)

The USITC's U.S. model has 128 commodities/sectors and maps them to the 41 commodities in the USITC's Global Trade Analysis Project computable general equilibrium model. We map the 128 elasticities from the USITC model to our 97 HTS commodity categories using the commodity descriptions (Donnelly, Johnson, & Tsigas, 2004).

Note that many of the HTS commodity categories consist mostly, if not exclusively, of industrial uses or inputs. For example, HTS code 26 refers to ores, slag and ash, which are used in the production of finished goods but would not be measured as part of household consumption. We exclude these HTS categories from our calculation of the effect on households. In doing so, we are underestimating the effect of the tariffs on consumer costs.

We can distribute the burden on consumers by typical household using data from the U.S. Census Bureau. The U.S. Census Bureau data provides us the number of total annual households in the U.S. (U.S. Census Bureau, 2019).

By our calculation, from 2017 through the end of 2018, the Trump tariffs cost the average U.S. household \$374. In 2019, the cost per household increased to \$461 annually. Since the Trump tariffs have been in effect, the total cost per household is \$692.

## **ECONOMIC IMPACT OF NEW AND PLANNED TARIFFS**

The impact of the Trump administration's tariffs is evident, with the costs to the economy and consumers bound to increase. As noted, President Trump, on June 15, 2019, finalized an increase on \$200 billion in U.S. imports from China, from 10 to 25 percent. On October 1, 2019, the tariffs on the first \$250 billion worth of U.S. imports from China will increase by 5 percentage points to 30 percent. President Trump recently announced 10 percent (later raised to 15 percent) tariffs on the remaining \$272 billion in imports from China. The Trump administration has delayed tariffs on \$160 billion in Chinese imports until December 15. Tariffs of 15 percent went into effect on the first \$112 billion on September 1. (On August 23, 2019, the Trump administration announced that it would increase tariffs on all imports from China by 5 additional percentage points.) If a deal with China cannot be agreed upon, President Trump has threatened to increase tariffs from 15 to 30 percent on the same \$272 billion in Chinese goods imported to the U.S. Further, the president has threatened to levy tariffs of up to 25 percent on all imported

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<sup>3</sup> We assume that the fraction of domestic production that competes with imports from Korea equals the fraction of all imports that come from Korea. We then multiply the pre-tariff expenditure by consumers by the applicable tariff and subtract 1/2 the dead loss to get the total burden.

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automotive and automotive parts. In each of the mentioned scenarios, the economic effects will grow substantially. Table 5 below displays the increase in economic impacts from the new and threatened tariffs.

**Table 5: Increase in Economic Effects of New and Planned Tariffs on Imports**

Item	25% on \$200b imports from China	30% on \$250b imports from China	15% on remaining \$272b imports from China	30% on remaining \$272b imports from China	25% on all automobiles and automotive parts
Annual Dead Loss (\$, 000s)	16,649,509	9,373,383	16,717,096	26,681,105	43,063,733
Annual Cost to Consumers (\$, 000s)	64,666,563	23,145,987	123,014,535	50,588,454	151,314,565
Annual Benefit to Producers (\$, 000s)	57,382,673	14,197,980	106,315,866	27,435,055	107,977,832
Cost per household (\$)	506	181	964	396	1,186

Source: U.S. Census Bureau, 2019

With the recent increase to 25 percent (from 10 percent) on \$200 billion in U.S. imports from China, the dead loss to the economy will increase by \$16.6 billion per year. The burden to consumers will increase by \$64.7 billion per year, translating to an increase of \$506 per typical household. The benefit to producers will increase by \$57.4 billion per year. Government collection of tariff revenue will increase by \$11.4 billion per year.

As discussed, the Trump administration announced that it will increase tariffs by 5 percentage points on all Chinese products. The increase from 25 to 30 percent on the first \$250 billion in imports from China goes into effect on October 1, 2019. The dead loss imposed on the economy will increase by \$9.4 billion. The burden to consumers will increase by \$23.1 billion per year, or \$181 per average household. The benefit to producers will increase by \$14.2 billion per year. Government collection of tariff revenue will increase by \$5.3 billion.

As recently announced, 15 percent tariffs on the remaining \$272 billion in imported goods from China will increase the dead loss by \$16.7 billion per year. The burden to consumers will increase by \$123 billion per year, equating to an increase of \$964 per average household. The benefit to producers will increase by \$106.3 billion per year. Government collection of tariff revenue will increase by \$9.6 billion annually.

If the U.S. were to levy 30 percent tariffs on the remaining \$272 billion in Chinese products, the dead loss imposed on the economy would increase by \$26.7 billion per year. The burden to consumers would increase by \$50.6 billion

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per year, equating to an increase in the cost per typical household of \$396. The gain to domestic producers would increase by \$27.4 billion. Revenue raised by the tariffs would increase by \$3.5 billion per year.

And if the U.S. were to impose 25 percent duties on all automotive and automotive parts, the dead loss would increase by \$43.1 billion per year. The burden to consumers would increase by \$151.3 billion per year, translating to an increase of \$1,186 in the annual cost per household. The benefit to domestic producers would increase by \$108 billion per year. Government collection of tariff revenue would increase by \$242.7 million per year.

**WHAT ABOUT THE EFFECTS ON U.S. EXPORTS?**

Thus far, we have focused on the effect of the current and planned Trump tariffs have had on U.S. imports from countries affected by the tariffs.

We estimate that U.S. exports covered by retaliatory tariffs fell by \$17.082 billion in 2018. By the end of the 2018, the per month loss in U.S. exports increased to \$2.588 billion. And, halfway through 2019, the loss to U.S. exports totaled \$13.976 billion. With China increasing tariffs on \$60 billion American products, the loss in U.S. exports will rise. See the results displayed in Table 6.

**Table 6: Effect of Retaliatory Tariffs on U.S. Exports from January 2018 through June 2019**

Item	2018	January 1, 2019 – June 30, 2019	Total
Change in U.S. Exports (\$, 000s)	(17,081,727)	(13,975,959)	(31,057,686)

Source: United Nations Comtrade database, 2018

Certain U.S. industries, such as that of American soybean farmers, have suffered under retaliatory tariffs. China, one of the U.S. top soybean importers, has imposed tariffs on American soybean exports, causing U.S. soybean stockpiles to soar. And, with trade tensions between the U.S. and China worsening, China has decided to buy even less American soybeans. According to S&P Global, from May 30, 2018 through May 30, 2019, total U.S. soybean exports to China was down 53 percent. The effects to the farming industry, particularly the soybean industry, have been dire.

President Trump has decided to provide relief to reeling industries by allocating a portion of tariff revenue to offset losses brought about in retaliation to U.S. import duties. In 2018, the U.S. provided farmers with \$12 billion in tariff revenue to help relieve some of the burden. On May 23, 2019, President Trump announced another \$16 billion in

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tariff revenue to be directed to American farmers. Such subsidies have helped to offset some of the damage to American farmers, but they alone are greater than the entire revenue raised under the Trump tariffs. Moreover, the revenue is derived from what is really a consumption tax on Americans.

On August 4, 2019, China announced that it would halt agriculture imports from the U.S. in response to the announcement of 10 percent tariffs on \$272 billion Chinese products by the United States. Also, on August 23, China announced new tariffs ranging from 5 to 10 percent on \$75 billion U.S. products.

## CONCLUSION

Deregulation efforts by the Trump administration have provided a boost to the economy through a reduction in prices and an increase in hiring by American firms. Furthermore, the Trump administration has made it more difficult to pass costly regulations, subjecting new regulations to a more thorough reviewing process.

However, President Trump has imposed tariffs on imports from a variety of countries. The president has imposed tariffs on over \$300 billion in U.S. imports with more to come.

This report analyzed the impacts of the Trump administration's tariffs on the U.S. economy and U.S. consumers. We found that the Trump tariffs have imposed significantly larger burdens on consumers than they have conferred in the way of benefits to import-competing domestic firms and their workers. Also, it is important to recognize that any benefit to producers through the reallocation of tariff revenues comes at the expense of U.S. consumers. Therefore, at the very least, these results underestimate the burden on consumers.

We also analyzed the effects of retaliatory tariffs imposed by foreign countries on U.S. exporters. Tariffs from foreign countries have significantly reduced U.S. exports, and have therefore reduced the producer surplus under the Trump tariffs.

Economists acknowledge that while trade may be good for the country as a whole, it can produce problems for low-wage workers in import-competing sectors. These dislocations can be handled best through means other than imposing tariffs. Nonetheless, the consumer surplus generated by liberalized trade outweighs the losses to import-sensitive industries.

The U.S. economy, from 2017 through 2018, has incurred a total burden from higher tariffs in the form of a \$47.7 billion loss in household purchasing power. And now, halfway through 2019, the Trump administration's tariffs have cost consumers another \$40.5 billion. One advantage, if any, is the small portion of the burden that is redistributed

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to U.S. producers, who have benefitted from the tariffs. But that has left a dead loss of \$7.8 billion of consumer income that simply vanishes from 2017 to 2018, owing to the distortions in the price system created by higher tariffs on imports on the world and China. In 2019 (up until June 30) the dead loss has been \$5.8 billion.

Overall, the tariffs imposed under the Trump administration have cost consumers \$88.2 billion and imposed a dead loss to the economy of \$13.6 billion. It is not clear if the tariffs on household income have transferred purchasing power from consumers to beleaguered workers. Our analysis assumes that prices would rise by the amount of the tariff. Nominal wages might fall, with predictable negative effects on labor participation.

With tariffs on the initial \$200 billion in U.S. imports from China increasing to 25 percent, the effects on the economy and consumers will drastically increase. American consumers, who have shouldered the burden of the tariffs, will see their annual cost increase by \$64.7 billion. The dead loss will increase by \$16.7 billion annually. The cost per household will increase by \$506. The benefits conferred to domestic producers will be significantly higher when compared to the burden experienced by consumers.

With the imposition of new tariffs and the possibility of threatened tariffs to be implemented, the economic effects will grow far more severe.

Tariffs on the first \$250 billion (\$200 billion plus \$50 billion) in imports from China will increase by 5 percentage points to 30 percent, effective as of October 1. The dead loss imposed on the economy will increase by \$9.4 billion annually. The burden to consumers will increase by \$23.1 billion per year.

On September 1, 2019, the Trump administration imposed tariffs on \$112 billion Chinese goods. The Trump administration announced the delay in placing tariffs on the other \$160 billion Chinese goods until December 15. In total, 15 percent tariffs on the remaining \$272 billion in imports from China will increase the dead loss by \$16.7 billion per year. The burden to consumers will increase by \$123 billion annually, equating to an increase of \$964 per average household.

In a scenario where the U.S. raises duties of 30 percent on the remaining imports from China, the increase in the dead loss imposed on the economy would be \$26.7 billion per year. The burden on consumers in this scenario would increase by \$50.6 billion. The cost per typical U.S. household will increase by \$396.

If the U.S. followed through with the imposition of 25 percent duties on all automotive and automotive parts, the dead loss experienced by the economy would increase by \$43.1 billion per year. The burden to consumers would increase by \$151.3 billion per year, translating to an increase of \$1,186 per year.

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Thus far, the Trump administration policies have provided *net savings* to the U.S. economy of \$32.9 billion from regulatory and trade policy. However, with the tariff increase on \$200 billion Chinese products to 25 percent, more of these savings will be stripped away. Moreover, we find the imposition of additional tariffs, such as 30 percent on the first \$250 billion in imports from China and 15 percent on the remaining \$272 billion in imports from China, will nullify much of the savings from deregulation. Further escalation of trade barriers will not only eliminate any savings from deregulation but exact a significant cost to the U.S. economy.

## APPENDIX

Using the Arlington elasticities, we obtain the reduction in imports from the affected countries that results from the tariff increase. We obtain the reduction in imports in countries who have imposed retaliatory tariffs, and then sum those results to obtain the reduction in U.S. exports. We assume that the reduction in the volume of imports is split evenly between a reduction in U.S. consumption and an increase in domestic production of import-competing products. To calculate the dead loss, we multiply the tariff increase (our price increase) by one-half both the reduction in consumption and the increase in domestic production.

The total burden on consumers consists of the dead loss, the increase in government tariff revenue and the gain to domestic producers. We calculate these effects individually and sum them to obtain the total burden on consumers.

The gain to domestic producers derives from two sources: (1) the increase in domestic supply due to the tariff increase, and (2) price increase for existing domestic production of the tradeable goods. The gain to domestic producers from (1) is reduced because domestic production cost (marginal cost) increases as domestic production increases along the upward sloping domestic supply curve, which accounts for half of the dead loss. Therefore, we multiply the increase in domestic production by the tariff rate increase and then by  $\frac{1}{2}$  to account for the increase in marginal costs.

Domestic producers gain from the higher price due to the tariff under (2). Some imports are focused on a very narrow product within the two-digit HTS code. For example, for the HTS code 2: Meat and edible meat, all imports from China are within HTS code 2089025: Frog legs, fresh, chilled or frozen. It is unlikely, that an increase in tariffs on frog legs imported from China will have an impact on the price of other meats, such as pork and chicken. Furthermore, there is no data source for production of frog legs in the United States. Therefore, we separately adjust the price increase due to the tariff by the ratio of imports from the world and China to total domestic production for each HTS code and multiply the result by the quantity of domestic production. We need comparable data for U.S. domestic production for each 2-digit HTS code.

We use the product descriptions to match the Personal Consumption Expenditures (PCE) products to the HTS codes and used the PCE dollar value as a proxy for domestic supply (U.S. Bureau of Economic Analysis, 2018). For capital type goods, we used the Private Fixed Investment (PFI) by Product Type as our proxy for domestic supply (BEA, 2018). For world and Chinese imported goods that were not a good match for either the PCE or PFI, we used the value of total shipments from the U.S. Census Bureau's Annual Survey of Manufacturers ("U.S. Census

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Bureau," 2017). From each consumption, investment or shipment figures, we subtracted the total U.S. imports for each HTS category using Comtrade data to obtain our estimate of domestic production (*U.N. Comtrade*, 2018).

The increase in tariff revenue is straightforward. We multiply the new quantity of imports from the world and China by the corresponding tariff increase for each of the HTS codes and sum the total.

We use the estimate provided by the Office of Management and Budget of \$33 billion in regulatory savings through FY18 (ending September 30). We then use the projected regulatory savings estimate of \$18 billion in FY 2019 and extrapolate to obtain regulatory savings of \$37.5 billion from Calendar Year (CY) 2017 through CY 2018, and \$9 billion from January 1, 2019 through June 30, 2019. We then sum these figures to arrive at the total savings from deregulation of \$46.5 billion. In order to estimate the net savings from President Trump's regulatory and trade policy, we simply take our estimate for the savings of deregulations above and subtract our estimate of the dead loss imposed by the Trump tariffs in each year.

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