

THE TRUMP TARIFFS: A BAD DEAL FOR AMERICANS

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EXECUTIVE SUMMARY

Presidential candidate Donald Trump's proposed tariffs on China, Mexico and, by implication, Japan would be ineffective in shielding American workers from foreign imports, since producers from other countries would export the same products to the United States. Were such tariffs to be "effective," then the tariffs would impose a regressive consumption tax of \$11,100 over 5 years on the typical U.S. household. The impact would hit poor Americans the hardest: A tariff of 45% on imports from China and Japan and 35% on Mexican imports would cost U.S. households in the lowest 10% of income up to 18% of their (mean) after-tax income or \$4,670 over 5 years.

Table 1: Effect of Trump Tariffs on China, Mexico and Japan on Households over Five Years

Item	All households (\$56,437 mean after-tax Income)	Lowest 10 % (\$5,348 mean after-tax Income)	Second 10 % (\$15,182 mean after-tax Income)	Fifth 10% (\$38,735 mean after-tax Income)	Ninth 10% (\$97,430 mean after-tax Income)	Highest 10% (\$172,669 mean after-tax Income)
Tariff burden (\$)	\$11,100	\$4,670	\$4,830	\$8,430	\$17,390	\$25,005
Percentage of mean after-tax Income	4%	18%	6%	4%	4%	3%

Source: U.S. Bureau of Labor Statistics, Consumer Expenditure Survey, 2015. Calculation of cost increase for imported goods.

Why would the Trump tariffs be ineffective? The analysis examined 30 randomly selected cases over the past 15 years when the U.S. government imposed anti-dumping or countervailing duties on goods and found that, in the aggregate, imports of those goods rose by 25% from the year before the duty order was issued, meaning producers from countries not affected by the duties exported similar goods to the United States. As a result, the duties did not protect U.S. workers or industries from foreign competition. This finding indicates that Donald Trump's proposal to impose tariffs on China, Mexico and Japan would meet a similar fate.

The ineffectiveness of Trump's tariffs on China, Mexico and Japan in protecting U.S. workers from foreign competition means to achieve his goal the only logical alternative would be to impose a similar set of tariffs on all other countries that export to the United States.

A Trump tariff levied on imports from all countries would cost the average U.S. household \$6,112 annually and \$30,560 over a five-year period. This "worldwide" tariff would cost households in the lowest income decile \$2,826 annually or \$14,130 over five years and households in the highest income decile \$12,514 annually, and \$62,570 over five years.

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We find that a Trump tariff proposal against all countries would cost U.S. consumers \$459 billion annually and \$2.29 trillion over five years. Our analysis finds that the Trump tariffs would manifest themselves as a 30.5% increase in the price of competing domestic producer goods and, therefore, as a cut in real wages.

Table 2: Effect of Trump Tariffs on All Countries on Households over Five Years

Item	All households (\$56,437 mean after-tax Income)	Lowest 10 % (\$5,348 mean after-tax Income)	Second 10 % (\$15,182 mean after-tax Income)	Fifth 10% (\$38,735 mean after-tax Income)	Ninth 10% (\$97,430 mean after-tax Income)	Highest 10% (\$172,669 mean after-tax Income)
Tariff burden (\$)	\$30,560	\$14,130	\$15,155	\$24,780	\$46,285	\$62,570
Percentage of mean after-tax Income	11%	53%	20%	13%	10%	7%

Source: U.S. Bureau of Labor Statistics, Consumer Expenditure Survey, 2015. Calculation of cost increase for imported goods.

When we calculate the burden as a percentage of household income, we find that households in the lower income deciles would surrender a higher portion of their income under a Trump tariff than higher income households. A Trump tariff against all countries costs households in the lowest decile 53% of their annual income, while it would cost households in the highest decile 7% of their incomes. The tariffs would cost households in the second income decile 20% of their annual income – a figure that declines as we move up the income deciles. In other words, a Trump tariff against all countries (or even one against only China, Mexico and Japan) would be a regressive tax that burdens lower income households more than higher income households.

The analysis included calculations of the dead loss (net loss to the economy) of potential tariff increases using standard methodology. That included first estimating the reduction in U.S. imports from China, Mexico and Japan for 97 categories of goods under the two-digit Harmonized Tariff Schedule (HTS) and determining 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.) The increase in the tariff rates discussed by the Trump proposal were multiplied by the Armington elasticity. This allowed a calculation of the loss to the U.S. economy for each commodity category and each of the three countries. The methodology was also used to calculate the impact of a worldwide tariff and the effect on U.S. households at different income levels under both the three country scenario and a worldwide tariff.

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The estimates by income decile are conservative in that they do not take into account imports that serve as intermediate goods (goods used to produce other goods). In addition, tariffs targeted against imports from China, Japan and Mexico, as well as a worldwide tariff, would be certain to bring retaliation in the form of tariffs on U.S. exports, which would carry additional economic impacts. Even without retaliation, exports to the three countries would fall by 78% as a result of business losses that the three countries would incur as U.S. imports from them declined.

In total, Trump's proposed tariffs against just China, Japan and Mexico would impose a dead loss on the U.S. economy of \$170 billion annually and \$850 billion over five years. The U.S. economy would suffer a total annual burden in the form of a \$278 billion loss in household purchasing power – akin to a general 3.9% new tax on after-tax income. The annual benefits to producers would be only \$43 billion, or 15% of the loss experienced by consumers.

If Trump decided to impose worldwide tariffs on the products exported by the three countries in order to shut down imports of those products once and for all, then the results would be truly catastrophic for the poor. It would be as if the United States imposed a new tax of 53% on the lowest 10% income decile and a 20% tax on the next lowest decile. It would be equivalent to an 11% flat tax on the after-tax income of U.S. workers. The total burden on consumers would be \$760 billion annually. The dead loss to the U.S. economy would be \$459 billion annually. That would not seem to be a recipe to "make America great again."

TRUMP'S PROPOSALS FOR PUNITIVE TARIFFS

In what would be a radical departure from almost 75 years of U.S. trade policy, Presidential candidate Donald Trump has threatened to impose a 45% tariff on goods and services produced in China. (Campbell, 2016) He also pledges, if elected, to impose a 35% tariff on selected goods from Mexico (Grodin, 2015) and, by implication, a tariff on Japan. In a Republican debate in 2015, Trump declared, "Our country is in serious trouble. We don't win anymore. We don't beat China in trade. We don't beat Japan, with their millions and millions of cars coming into this country, in trade. We can't beat Mexico, at the border or in trade." (On the issues, 2016) Japan has long been an obsession with Trump going back to the 1980s. In June 2015, he said, ""They send their cars over by the millions, and what do we do? When was the last time you saw a Chevrolet in Tokyo? It doesn't exist, folks. They beat us all the time." (Clark, 2015)

Over the course of the campaign, the candidate has repeated the claim that these three nations were the beneficiaries of poorly negotiated trade policies that placed the United States at a disadvantage. His solution is to impose draconian tariffs on China, Mexico and, apparently, Japan. Should such tariffs be enacted, however, there would follow a major disruption in the international order. The entire framework for multilateral trade agreements could be displaced in favor of economic nationalism and the ideas promoted by Adam Smith and David Ricardo would no longer guide trade between nations.

The Trump tariffs would disrupt a process that traces back to the General Agreement on Tariffs and Trade, extends through establishment of the World Trade Organization and the laying of the groundwork for the prospective Trans-Pacific Partnership and Transatlantic Trade and Investment Partnership (Council of Economic Advisors, 2015, pp. 93, 303) now working their way through the negotiation and legislative process.

Trump has dismissed arguments that his proposal would hurt consumers. (Tankersley, 2016) In his view, it won't matter if the tariffs raise consumer prices if they shore up jobs and wages in sectors that compete with imports. We show in this report, however, that the tariffs would inflict huge costs on consumers. Just as surely, however, the proposed tariffs on China, Mexico and Japan are not likely to "protect" against foreign goods unless Trump was willing to impose similar tariffs on a wide array of U.S. trading partners and inflict even more harm to U.S. consumers.

According to the U.S. Bureau of Economic Analysis, China, Mexico and Japan exported \$998 billion of goods and services to the United States in 2015, and the United States exported \$537 billion of goods and services to them, the difference made up by U.S. exports to other countries and by capital inflows to the United States. U.S. trade

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with China, Mexico and Japan comprises a large portion of the U.S. trade with the rest of the world. (Lincicome, 2016) Overall, the Trump tariffs would apply to countries that supply 33% of U.S. imports and buy 24% of U.S. exports.

Economic theory explains that tariffs hurt consumers. While domestic producers gain, consumers suffer a loss in welfare from the higher prices they have to pay for imported goods and for domestically produced goods. And even though tariffs confer benefits on domestic producers, the harm the tariffs do to consumers more than outweighs these benefits, giving rise to a “dead loss” on the entire country. In this study we estimate the magnitude of this dead loss as well as the overall harm to consumers. We also show how a President Trump, determined to protect import-competing interests, might find it necessary to expand the list of countries subject to his tariffs, with even more adverse effects on U.S. consumers.

WHAT THIS REPORT ADDRESSES

We estimate the burden that what we will call the “Trump tariffs” would impose on U.S. consumers in the aggregate and on U.S. consumers by income decile. We consider the strong possibility that the tariffs would be ineffective and then estimate the economic effects that would follow if a 45% tariff were imposed on imports from all countries. We then provide an overview of the current economic conditions that are driving the push to protectionism, including the slow economic recovery. We next provide a review of the economics literature as it bears on the Trump tariffs.

MEASURING EFFECTS

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 consumption.
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 equal to the value to consumers of goods that they no longer consume because of the tariff and the second equal to the cost to society of replacing imported goods with higher cost domestic goods.

Dead loss equals $\frac{1}{2}t^2\eta M$, where t is the tariff rate, η is the elasticity of demand for imports and M is the pre-tariff dollar value of imports. The elasticity of demand equals the percentage shrinkage in imports for every one

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percentage point by which a tariff is imposed or increased. Expressed as a fraction of imports the dead loss equals $1/2$ the tariff rate multiplied by the percentage by which imports fall as a result of the tariff. If a 20% tariff causes imports to fall by 50%, then the dead loss is 5% of imports. We can use the above formula to estimate the dead loss that would result from the tariffs Trump proposes (or threatens) to impose on imports from China, Mexico and Japan.

It is important to understand that the dead loss measures only the combined consumption and the production costs. It does not measure the cost to consumers from having to pay higher prices for goods produced at home.

The dead loss does not account, either, 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. It is not that these gains are unimportant but that they have to be considered apart from the dead loss calculations in assessing the economic consequences of a tariff.

Suppose, for example, the United States imposes a tariff of 20% on widget imports from some other country – call it Glaustark. U.S. widget imports from Glaustark before the tariff equal \$1 million. If, as assumed, widget imports fall by 50%, the elasticity of demand is 2.5 ($= .5/.2$). Applying the formula, dead loss = \$50,000 ($= 1/2 \times .2 \times .2 \times 2.5 \times \$1,000,000$), which is 5% of \$1 million.

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 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.¹ The formula assumes that a tariff on a particular

¹ 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, they 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,

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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 IMPACTS OF THE TRUMP TARIFFS

In this section we assume that the Trump tariffs are effective in the way presumably intended, in that U.S. importers do not replace goods no longer imported from the three countries with goods imported from the rest of the world. Thinking as deal-maker Trump might think, we assume that he would declare victory as U.S. producers (including their workers) captured the benefits of this shrinkage in imports. We estimate the dead loss using the method outlined above using a 45% tariff rate for China and Japan, and a 35% rate for Mexico.²

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

First, we estimate the reduction in U.S. imports from the three countries for 97 categories of goods under the two-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 hierarchy ranges from two-digit codes which apply to a broad category of goods, to ten digit codes for very specific goods and contain over 11,000 individual goods. (USITC, 2016a)

We need the current tariff rate for each of these products and each country in order to calculate the tariff rate increase. As a NAFTA member, the current tariff rate for Mexico is zero, except for a small special category, which includes the re-importation of repaired goods and baggage from international travelers. For imports from Japan and China, we use the U.S. Most Favored Nation (MFN) ad valorem tariff rate, which is the rate charged to members of the World Trade Organization (WTO).

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 calculate the weighted average tariff for the two-digit HTS code by taking the tariff revenue generated for that category and dividing it by the dollar value of total imports for that category. We take the average tariff for all products within the 2 digit HTS category code to yield an average tariff

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 is 4.5 times the dead loss.

² Trump has not articulated a specific tariff rate for Japanese imports. We assume that it would equal the rate that would be imposed on China.

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rate of 4.2% for China, 0.9% for Mexico and 2.9% for Japan. For each country, we subtract the current tariff rate from the proposed Trump tariff rate, to get our tariff rate increase.

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 USITC's U.S. model uses Armington elasticities for the 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).

Once we have the Armington elasticities for each of our HTS commodity categories, we are ready to calculate the reduction in imports that would result from Trump tariffs. To do so, we multiply the increase in the tariff rate under the Trump proposal by the Armington elasticity. However, since the increase in tariff rate increases are so high, calculations for several commodity categories yield a reduction in imports that exceeds 100%, and thus, we cap the reduction at 100%.

Finally, using the equation above we calculate the loss to the U.S. economy for each commodity category and country. We find that the Trump tariffs would impose a dead loss of \$170 billion annually, or \$850 billion over five years, broken down as follows:

- a dead loss of \$102 billion annually, or \$510 billion over five years, on imports from China;
- a dead loss of \$40 billion annually, or \$200 billion over five years, on imports from Mexico;
- a dead loss of \$28 billion annually, or \$140 billion over five years, on imports from Japan.

As pointed out, however, this does not account for the total burden on consumers. That burden comes to \$278 billion annually, when we add to dead loss the benefits that producers and government extract from consumers. The benefit to producers is \$43 billion. Government collects \$65 billion on tariff revenue.

We can distribute the burden on consumers by income deciles by using Consumer Expenditure Survey (CES) data from the Bureau of Labor Statistics of the U.S. Department of Labor. The CES data provides average annual household spending amounts for over one-hundred categories and divides households into ten income levels, from those falling into the lowest ten percent of all incomes to those the falling into the highest ten percent of all incomes.(U.S. Department Labor, 2015)

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We assume that the prices of goods from Japan, China and Mexico would rise by the entire tariff increase under the Trump plan. We also know that imports from these countries makeup 40.2% of total U.S. imports and only 7.6% of total U.S. Personal Consumption Expenditures (PCE). Therefore, we know that the increase in the price of imports from China, Japan and Mexico will not directly translate into an increase in the prices faces by U.S. households. Thus, we need to adjust the calculation of consumer harm to reflect the importance of imports from the three countries relative to the imports from the rest of the world.³ (U.S. Bureau of Economic Analysis, 2015)

First, we map the each HTS commodity category to a PCE product code and then to a CES spending category. We use the sectors from the USITC model to map the HTS commodity codes to the PCE product codes, since the USITC sectors are based on the Bureau of Economic Analysis (BEA) Input-Output (I-O) accounts. We use the descriptors for the CES, PCE and HTS codes to complete the mapping from the PCE to the CES categories.

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. Table 3 displays the results for households organized into income deciles.⁴

Table 3: Annual Effect of Trump Tariffs on China, Mexico and Japan on Households

Item	All households (\$56,437 mean after-tax Income)	Lowest 10 % (\$5,348 mean after-tax Income)	Second 10 % (\$15,182 mean after-tax Income)	Fifth 10% (\$38,735 mean after-tax Income)	Ninth 10% (\$97,430 mean after-tax Income)	Highest 10% (\$172,669 mean after-tax Income)
Annual tariff burden (\$)	\$2,220	\$934	\$966	\$1,686	\$3,478	\$5,001
Percentage of mean after-tax Income	4%	18%	6%	4%	4%	3%

Source: U.S. Bureau of Labor Statistics, Consumer Expenditure Survey, 2015. Calculation of cost increase for imported goods on households.

By our calculation, the Trump tariffs would cost the average U.S. household \$2,220 annually, and \$11,100 over a five-year period. The tariffs would cost households in the lowest income deciles \$934 annually or \$4,670 over five years and households in the highest income decile \$5,001 annually, and \$25,005 over five years. (See Table 2.)

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

⁴ Note that this understates the total burden on households because it omits consideration of the tariffs on intermediate-good imports.

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We find that households in the lower income deciles surrender a higher portion of their income under the Trump tariffs than higher income households. The tariffs would cost households in the lowest decile 18% of their annual-tax income, while costing households in the highest decile only 3% of their after-tax income. The tariffs would cost households in the second income decile 6% of their after-tax income – a figure that declines as we move up the income deciles. In other words, Trump’s ideas about trade could result in the imposition of a steeply regressive tax.

There are other effects to consider. Our analysis assumes that the Trump tariffs would manifest themselves as an 11% spike in the price of competing domestic producer goods and therefore as a cut in real wages for consumers of those goods. But suppose that prices don’t jump by this amount because of unwillingness by the Federal Reserve to accommodate the price spike with a sufficiently expansive monetary policy or because employers take advantage of a weak labor market by trying to push down nominal wages. This could lead to further shrinkage in the labor-force participation rate and to increased burdens on safety-net laws that benefit the unemployed.

WHAT ABOUT U.S. EXPORTS TO CHINA, MEXICO AND JAPAN?

Thus far, we have focused on the effect the Trump Tariffs would have on U.S. imports from China, Mexico and Japan. However, the tariffs also would affect U.S. exports to these three countries as explained in the section “Economic Theory in Review” below.

Table 4: The Effect of Trump Tariffs on U.S. Exports to China, Mexico and Japan

Country	Pre-Tariff U.S. Exports (\$, 000s)	Change under Trump Tariff (%)	Drop in U.S. Exports (\$, 000s)	Post-Tariff U.S. Exports (\$, 000s)
China	\$116,186,262	-79%	(\$91,835,411)	\$24,350,851
Mexico	\$236,377,371	-76%	(\$180,007,028)	\$56,370,342
Japan	\$62,471,831	-86%	(\$53,854,6)	\$8,617,178
Total	\$415,035,464	-79%	(\$325,697,093)	\$89,338,371

Source: United Nations Comtrade database, 2015

Assuming the Trump tariffs would be effective and imports from China, Mexico and Japan fall, then the supply of U.S. dollars used to pay for the imports in the foreign exchange market will fall, in turn, causing the dollar to appreciate, or become stronger, against foreign currencies.

The stronger dollar will cause the price of U.S. tradable goods to rise relative to similar goods from other countries, and thus become less competitive in global markets. As a result, U.S. exports will fall under the Trump tariffs.

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We estimate that the value U.S. exports would decrease by the same percentage that imports from China, Mexico and Japan would decrease under the Trump tariffs. Table 4 displays the results.

U.S. exports totaled \$415 billion in 2015, according to the Comtrade database from the United Nations. We estimate that the Trump tariffs would cause exports to fall by 79%, 76% and 86% for China, Mexico and Japan respectively. In dollar terms, U.S. exports to these countries would decrease by a total of \$326 billion and exports would fall to only \$89 billion.

WILL TRUMP'S TARIFFS WORK?

Trump plans to levy higher tariffs on goods from China, Mexico and Japan in an effort to protect American industries. Thus far, he has not mentioned increasing tariffs on goods from other countries. However the absence of tariffs on other countries would allow importers to switch purchases from China, Mexico and Japan to those countries not subject to the new duties.

The Peterson Institute for International Economics studied President Obama's decision in 2009 to impose higher tariffs on certain passenger vehicle and light truck tires imported from China. The administration imposed the tariffs under Section 421 of the Trade Act of 1941, which provides a mechanism to implement transitional safeguards from Chinese imports after China's admission into the World Trade Organization. The Obama Administration imposed additional tariffs on imported tires from China on declining scales that began at 35% in the first year, 30% in the second year and 25% in the third year. (Hufbauer & Lowry, 2012)

The Peterson Institute found that "evidently, the safeguard tariffs caused a significant decline in U.S. imports of Chinese tires during a period when total tire imports were increasing, reflecting the substitution of greater imports from other countries for fewer imports from China in 2010 and 2011." (Hufbauer & Lowry, 2012, p. 3) China also retaliated with tariffs of between 50.3% and 105.4% and countervailing duties of between 4.0% and 30.3% on U.S. chicken parts. Exports of U.S. chicken parts to China subsequently fell by 90%, or \$1 billion. (Hufbauer & Lowry, 2012, p. 3)

The safeguard tariff is not the tool that the U.S. government typically uses to protect U.S. industries from imports. Fortunately, for the purpose of considering how U.S. importers might frustrate the purpose of the Trump tariffs, it turns out that there are other tools that the United States does typically use to penalize other countries for "unfair" trade practices. The United States has a long history of using these tools to impose punitive tariffs on goods found to have entered the United States through "unfair" trade practices.

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Title VII of the Tariff Act of 1930 established the anti-dumping and countervailing duties programs in the United States. Congress updated the statute with Public Law 103-465 to conform to the Uruguay Round of international trade agreements. The law allows U.S. industries to file complaints with USITC and the Department of Commerce against imports that are sold below fair value, or “dumped” into the United States or imports that benefit from “countervailing subsidies” from foreign governments. Under the law, anti-dumping and countervailing subsidies are unfair trade practices. (USITC, 2016b)

After receiving a complaint, the U.S. Commerce Department investigates the matter to determine if the dumping or subsidies are taking place, and quantifies the amount of the dumping or subsidy. If the Commerce Department finds that dumping or subsidies are occurring, then the USITC determines if the U.S. industry is materially harmed by the practice. If both agency’s findings are positive, then the U.S. Department of Commerce issues either an anti-dumping or countervailing duty order to offset the effect of the dumping or subsidy. The anti-dumping or countervailing duties are then imposed by customs officers from the U.S. Customs and Border Protection. The orders last for five years, unless the agencies find that the dumping or subsidies continue after the order ended. (USITC, 2016b)

The U.S. Department of Commerce imposes several anti-dumping and countervailing duty orders per year, thus permitting us to determine if the Peterson finding for tires is just one example of widespread instances in which U.S. importers are able to circumvent the purposes of the law. We collected data for 30 anti-dumping or countervailing duties orders since 2000. The data consist of the type of order anti-dumping duties (AD) or countervailing duties (CD), the target countries, the product name and the range of duty rates, which can be different between companies and countries. We also collected data of total U.S imports for the HTS codes listed in the order for the year prior to the order, the year the order was issued and the year after the order. We then calculated the percentage change in imports from the year before the order was issued to the year after it was issued. (International Trade Administration, 2016)

The purpose was to determine whether, in general, the duties were effective in discouraging imports of goods on which they were imposed or whether importers avoided harm by just switching their purchases to other countries. Our premise is that if a duty imposed in retaliation for an “unfair” trade practice does not reduce imports, it does nothing to protect the import-competing firms affected by the practice. We made our determination by finding whether total imports of the product subject to the new duty fell during the year following the duties imposition. If they did not fall, the duty can be assumed to have been ineffective for protecting U.S. producers.

For 9 of the 30 duty orders, total imports of the product fell in the year after the effective date of the order. For the other 21 duty orders, imports either rose or were flat after the effective date of the duty order. In the aggregate,

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imports rose by 25% from the year before the duty order was issued. This provides evidence that the Trump tariff proposal would only divert trade from China, Mexico and Japan to other countries, and, therefore, not be effective in protecting U.S. industries from foreign competition.

Table 5: Past Anti-Dumping and Countervailing Duty Actions

Order Type	Countries	Product	Duty Rate Range (%)	Effective Date	Total Imports Year Before Order (\$,000's)	Imports Year of Order (\$,000's)	Imports Year After Order (\$,000's)	Percent Change in Imports (%)
AD/CD	China, Argentina	Honey	32.56 - 183.80	5/1/2001, 2/1/2001	7,255	8,024	10,178	18
AD	China	Pure magnesium	24.67 - 305.56	11/19/2001	42,533	10,102	4,254	-68
AD	India, Kazakhstan, Venezuela	Silicomanganese	15.32 - 247.88	5/23/2002	113,380	111,165	132,647	8%
AD/CD*	India, Taiwan	Film plates (PET film)	2.05 - 24.14	7/1/2002	261,744	265,197	271,955	2
AD/CD**	Hungary, Portugal	Sulfanilic acid and other aniline derivatives	29.8 - 74.14	11/8/2002	117,346	86588	6880	-76
AD	China	Saccharin	249.39 - 329.94	7/9/2003	4,982	23	163	-82
AD	China	Barium carbonate	34.44 - 81.3	10/1/2003	5,479	4,245	4,471	-10
AD	China	Cast iron or steel, fittings for pipes	7.35 - 15.92	12/12/2003	67,680	74,260	94,300	18
AD	China	Refined brown aluminum oxide	135.18	11/19/2003	47,484	35,506	47,942	0
AD	Japan	Electrical insulators of ceramics	105.8	12/30/2003	66,937	54,403	72,138	4
AD/CD*	Brazil, India, Mexico, Thailand, South Korea	Iron or steel stranded wire	12.91 - 118.75	1/28/2004	194,315	297,445	354,193	35

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Order Type	Countries	Product	Duty Rate Range (%)	Effective Date	Total Imports Year Before Order (\$,000's)	Imports Year of Order (\$,000's)	Imports Year After Order (\$,000's)	Percent Change in Imports (%)
AD	China, Malaysia, Thailand	Polyethylene retail carrier bags	2.26 - 122.88	8/9/2004	776,653	947,147	1,263,673	28
AD	China	Furfuryl and tetrahydrofurfuryl alcohol	136.86	8/6/2004	6,650	9,055	16,686	58
AD	China	Hand trucks	26.49 - 383.60	12/2/2004	158,802	191,158	214,538	16%
AD/CD*	China, India	Carbazole violet pigment 23	5.51 - 217.94	12/29/2004	9,167	11,087	10,454	7
AD	China, Russia	Magnesium metal	18.65 - 141.49	4/15/2005	152836	140072	88434	-24
AD	Finland, Mexico, Netherlands, Sweden	Purified carboxymethylcellulose	6.65 - 25.29	7/11/2005	78,887	79,858	83,059	3
AD	Japan	Super alloy degassed chromium	139.22	12/22/2005	8,568	15,093	17,012	41
AD	China	Artist canvas	77.90 - 264.09	6/1/2006	22,708	19,539	27,648	10
AD	China	Activated carbon	61.95 - 228.11	4/27/2007	76,143	76,220	103,826	17
AD	China	Steel wire garment hangers	15.83 - 187.25	10/16/2008	80,156	96,912	67,659	-8
AD	Australia, China	Manganese dioxide	149.92	10/7/2008	38,389	37,647	41,996	5
AD	China, Brazil, UAE	Film plates	3.49 - 76.72	10/10/2008	319,127	349,834	286,099	-5

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Order Type	Countries	Product	Duty Rate Range (%)	Effective Date	Total Imports Year Before Order (\$,000's)	Imports Year of Order (\$,000's)	Imports Year After Order (\$,000's)	Percent Change in Imports (%)
AD	China	Cast nonmalleable iron, fittings for tubes or pipes	6.34 - 75.5	4/7/2003	25,423	24,720	29,362	7
AD	Ukraine	Ammonium nitrate	156.29	9/12/2001	83,444,978	117,112,710	104,153,718	12
A	China	Sodium and potassium phosphate	62.23 - 94.5	7/22/2010	35,243,024	32,927,547	40,631,916	7
AD/CD	China	Stainless steel, sinks and wash basins	27.14 - 76.53	4/11/2013	168,740,924	183,578,299	216,836,771	13
AD	China	Carbon electrodes	132.9 - 159.64	2/26/2009	302,689	188,617	0	-100
AD/CD	India	Matches	66.07	8/4/2009	6,269	5,415	6,541	2
AD/CD***	China, Vietnam	Wind towers	44.99 - 70.63	2/15/2013	818,724	108,450	247,586	-45
Total					291,239,252	336,866,338	365,126,099	25%
*CD for India, **CD for Hungary, ***CD for China								

Source: USITC. (2016b). Import Injury. *Antidumping and Countervailing Duty Investigations*. https://www.usitc.gov/trade_remedy.htm

The anti-dumping and countervailing duty orders contain a list of companies and the specific duties that apply to them in each affected country. For several duty orders, we collected a list of companies that produce a specific product in either China, Mexico or Japan and companies that produce that same product in other countries. Table 7 displays the results. The results show the relative ease with which companies in other countries could increase their production and supply the imported products subject to the Trump tariffs. These data provide additional confidence that the Trump proposed tariffs on China, Mexico and Japan would be ineffective in shielding American industries from foreign imports.

THE TRUMP TARIFFS IMPOSED ON ALL COUNTRIES

Once Trump realizes that the targeted tariffs are ineffective, he could expand the scope of the tariffs to encompass all countries. Using the same methodology above we calculate the loss to U.S. consumers.⁵ We find that Trump tariff proposal on all countries would cost U.S. consumers \$760 billion annually and \$3.8 trillion over five years. The annual benefit to producers would be \$129 billion. Government would collect \$172 billion in tariff revenue. The dead loss would be \$459 billion.

As before, it is possible to translate a worldwide tariff into cost per household income decile. A 45% tariff levied on imports from all countries would cost the average U.S. household \$6,112 annually, and \$30,560 over a five- year period. (See Tables 2 and 6.) The Trump tariff would cost households in the lowest income decile \$2,826 annually or \$14,130 over five years and households in the highest income decile \$12,514 annually, and \$62,570 over five years. Households in the other income deciles fall in between the two figures. The total annual burden would be 1.66 times the dead loss of \$458 billion. Again, this is an underestimation because it omits consideration of imports that serve as intermediate goods.

Table 6: Annual Effect of Trump Tariffs on All Countries on Households

Item	All households (\$56,437 mean after-tax Income)	Lowest 10 % (\$5,348 mean after-tax Income)	Second 10 % (\$15,182 mean after-tax Income)	Fifth 10% (\$38,735 mean after-tax Income)	Ninth 10% (\$97,430 mean after-tax Income)	Highest 10% (\$172,669 mean after-tax Income)
Annual tariff burden (\$)	\$6,112	\$2,826	\$3,031	\$4,956	\$9,257	\$12,514
Percentage of mean after-tax Income	11%	53%	20%	13%	10%	7%

Source: U.S. Bureau of Labor Statistics, Consumer Expenditure Survey, 2015. Calculation of cost increase due to Trump tariff imported goods on households.

When we calculate the burden as a percentage of household income, we find, as before, that households in the lower income deciles surrender a higher portion of their income than higher income households. A 45% Trump tariff on all imports would cost households in the lowest decile 53% of their annual income, but only 7% of the income of households in the highest decile.

⁵ Here we assume that all domestic production competes with imports from all countries. We then multiply the pre-tariff consumer expenditures by the applicable Trump tariff and subtract 1/2 the dead loss to get the total burden.

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Our analysis assumes that the Trump tariffs would manifest themselves as a 30.5% spike in the price of competing domestic producer goods and therefore as a cut in real wages.

Table 7: Examples of Companies in Other Countries Producing Same Products as China, Mexico & Japan

Steel Concrete Reinforcing Bars	Steel Wire Rope	Large Residential Washers	Color Television Receivers	Canned Warm Water Shrimp
China	China	Mexico	China	China
Indonesia: Sakti Bhirma Krakatau Poland Stalexport Republic of Korea Dongkuk Steel Mill Co. Hambo Iron & Steel Co. Korea Iron & Steel Co.	India Usha Martin Malaysia: Kiswire	Korea Daewoo Electronics LG Electronics Samsung Electronics	Malaysia Funai Electric	Brazil Empresa ⁶ Netuno Central ⁷ Exportadora ⁸ Norte Pesca
Carboxymethylcellulose (CMC)	Glycine	Light-Walled Rectangular Pipe and Tube	Electrolytic Manganese Dioxide	Raw Flexible Magnets
Mexico	Japan	Mexico, China	China	China
Finland Noviant OY Netherlands Akzo Nobel Noviant B.V. Sweden Noviant AB	Korea Korea Bio-Gen India Paras ¹³ Abhiyan Media Advanced ¹⁴	Turkey Guven Boru Profil ⁹ MMZ Onur Boru Profil ¹¹ Korea Nexteel Co. Dong-A Steel Pipe Co. HiSteel Co.	Australia Delta EMD ¹⁰	Taiwan Kin Fong Magnets Magruba ¹² JASDI Magnet

⁶ Empresa de Armazenagem Frigorifica

⁷ Central de Industrializa[ccedil

⁸ Exportadora de Produtos do Mar (Produmar)

⁹ Guven Boru Profil Sanayii ve Ticaret

¹⁰ Delta EMD Australia Pty

¹¹ MMZ Onur Boru Profil Uretim San.

¹² Magruba Flexible Magnets Co., Ltd

¹³ Paras Intermediates

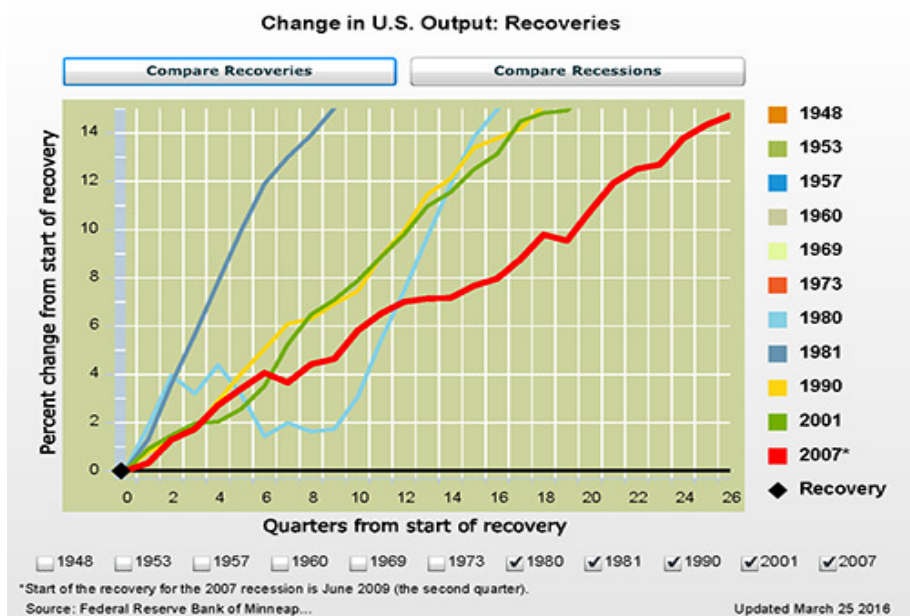
¹⁴ Advanced Exports/Aico Labs

THE PROBLEM OF SLOW ECONOMIC GROWTH

It is worth asking whether the problems with the U.S. economy are broader than the problems that are being suffered by U.S. producers that compete with imports from the three countries singled out by Trump. The growing protectionist sentiment among the population and politicians is part of a response to the slow economic recovery that emerged from the Great Recession from December 2007 to June 2009. Despite a generous mix of monetary and fiscal policy by the Federal Reserve Bank and the federal government, growth has remained elusive by the typical measures. Public spending and lower interest rates have failed to improve the labor participation rate or GDP growth, which remains stuck below the historical norm of 3%. By 2016 the economy regained most of the jobs it lost during the recession. But wages remain mostly flat. In addition, the recession engendered what is now a chronic problem: the lowest labor-force participation rate since 1977. While this can be explained in part by the advent of retirement among Baby Boomers, not all of it is demographic. A case has been made that higher than usual government subsidies have caused a reduction in the supply of labor (Mulligan, 2012) and the introduction – or ramping up – of safety-net benefits has encouraged workers to withdraw from the labor force. (Ohanian)

Despite a nominally low unemployment rate of 5% and low gasoline prices, the economy has yet to recover in a vigorous way. This most recent recovery has been the slowest in the post-World War II. During 2015 (fourth quarter of 2014 to the fourth quarter of 2015), real GDP increased 2.0%, compared with an increase of 2.5% during 2014. Real GDP measured in 2009 dollars is only 10% higher than the pre-crisis peak of 2007. Other indicators also point to a sluggish recovery: As of December 2015 the number of employees increased only by 2.2% since November 2007. (Papadimitriou, Nikforos, & Zezza, 2016) Nearly seven years after the end of the Great Recession, voters continue to believe that the economy is the foremost issue facing the next president. According to Gallup, 71% of the population believes the country is headed in the wrong direction. (Auter, 2016)

To better understand the depth of the Great Recession of 2008, economists at the Federal Reserve Bank of Minneapolis have examined past recessions (Federal Reserve Bank of Minneapolis, 2014). They have concluded that the recovery from this latest recession has been exceptionally weak in terms of economic growth, i.e. percentage change in GDP, compared with the previous 10 recessions. Figure 1 below contrast the recoveries from 1980, 1981, 1990, 2001 and 2007. Post-Great Recession employment growth showed similar lagging trends.

Figure 1

The 2007-09 recession was the deepest of the postwar recessions. While the deepest previous recession took 46 months to restore employment to its previous peak, employment continued to decrease for 77 months after the latest recession ended in 2009. Employment increased only after six years into the recession.

There appears to be a large group of workers classified as “part-time for economic reasons.” (Economist, 2015) As of March 2016, the number of workers pleading for more hours remained unchanged since November 2015 at 6.1 million. The Federal Reserve Bank of Chicago finds that part-time workers would rather have more hours than higher hourly wage rates. (Aaronson, 2014, p 3). This slack in the labor market has restrained the Federal Reserve Bank from normalizing monetary policy.

ECONOMIC THEORY IN REVIEW: ANALYZING ARGUMENTS FOR PROTECTIONISM

Finally, it is worth asking just where in the canons of economic theory, Trump could turn to defend his tariff threats. Trump would probably claim that his ideas don't need validation from the likes of economic theorists who never made a deal in their life. However, any honest examination of threats to impose draconian tariffs on countries that represent of a large portion of U.S. trade must begin with a recognition of the fact that there would be losers as well as winners from any such policy. The purpose of economic theory is to assess and compare the gains and losses that would occur under different policy changes. Trade policy is, let's agree, an instrument used by government to advance the interests of citizens. How does economic theory, then, help us understand whether the tariffs under consideration would or would not advance those interests/

The idea that foreign trade should be seen as instrument to be employed in the service of the state goes back hundreds of years. In 1664, Thomas Mun, who served as director of the East India Company, outlined a position that comported with the mercantilist sentiments of his time:

Although a Kingdom may be enriched by gifts received, or by purchase taken from some other Nations, yet these are things uncertain and of small consideration when they happen. The ordinary means therefore to increase our wealth and treasure is by *Foreign Trade*, wherein we must ever observe this rule; to sell more to strangers yearly than we consume of theirs in value. (Mun, 1951, p. 171)

Later, Adam Smith in 1776, and David Ricardo in 1821 revealed a flaw in this line of thinking. The flaw lay in the confusion seen in Mun's statement between the notion of unlimited wants, on the one hand, and the means by which we best satisfy those wants, on the other.

Insofar as our wants are unlimited, we naturally wish to be as wealthy as, within reason, we can. The accumulation of "treasure" is not, however, the purpose of foreign trade. That purpose, rather, is to satisfy consumer wants more effectively than would be possible if there were only domestic trade. In that context, treasure becomes the means, rather than the end, of trade. People trade with other people, and nations trade with other nations, in order to have more goods than they could have without trade. It is from goods, not treasure, that we are able to satisfy our wants. The shoemaker can have more bread if he makes shoes and sells them to the baker, than if he tried to bake his own bread. Likewise, the baker can have more shoes if he sells bread to the shoemaker, than if he tried to produce his own shoes.

As Adam Smith observed in Book IV of his *Wealth of Nations*, the same principle applies to trade between nations:

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What is prudence in the conduct of every private family, can scarce be folly in that of a great kingdom. If a foreign country can supply us with a commodity cheaper than we ourselves can make it, better buy it of them with some part of the produce of our own industry, employed in a way in which we have some advantage. The general industry of the country ... will not thereby be diminished ... but only left to find out the way in which it can be employed to the greatest advantage. (Smith, 1976, pp. 478-479)

In the same vein, Ricardo wrote that “no extension of foreign trade will immediately increase the amount of value in a country, although it will very powerfully contribute to the increase in the mass of commodities, and therefore the sum of enjoyments.” (Ricardo, 1911, p. 77) He produced a mathematical example – one that would go down as a landmark advance in economic thought – that showed how two countries could gain by trading those products in which each had a comparative advantage for those in which it had a comparative disadvantage.¹⁵

Ricardo showed that (1) it is the quantity of goods available to its people to buy that matters for a country’s well-being and (2) trade makes it possible to make more goods available to people. His simple demonstration of this principle drove a stake through the heart of mercantilist doctrine. What we sell to “strangers” – i.e., exports – are the cost of engaging in trade, not the goal of trade.

Ricardo left unexplained how free trade would determine how much one country had to export in order to obtain imports from another country – the question of the terms on which the country will trade with the other. Later, John Stuart Mill took up this subject and, at the same time, reinforced the principles laid down by Smith and Ricardo. Said Mill, in discussing the benefit to a country from the goods it imports: “The only direct advantage of foreign commerce consists in the imports. The vulgar theory disregards this benefit and deems the advantage of commerce to reside in exports: as if not what a country obtains but what it parts with, by its foreign trade, was supposed to constitute the gain to it.” As for exports, the goal of the country should be to produce “an exportable article in excess of its own wants from no inherent necessity, but as the cheapest mode of itself with other things.” (Mill, 1923, pp. 578-579)

Mill allowed that the terms on which a country trades with another “will adjust itself to the inclinations and circumstances of the consumers on both sides in such manner that the quantities required by each county, of the articles which it imports from its neighbor, shall be exactly sufficient to pay for one another.” In general, a country

¹⁵ Ricardo illustrated his argument with an example of two products, cloth and wine, and two countries, England and Portugal, each of which is better off with trade than without. Portugal has an absolute advantage in the production of both goods, meaning that it can produce both with less labor than England. But Portugal has a comparative advantage only in wine, meaning that it sacrifices less cloth to produce another unit of wine than does England. Conversely, England has a comparative advantage in cloth, meaning that it sacrifices less wine to produce another unit than does Portugal. When Portugal ships wine to England in exchange for cloth, both countries end up with more of both goods than they would without trade.

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“gets its imports cheaper, the greater the intensity of the demand in foreign countries for its exports. It also gets its imports cheaper, the less the extent and intensity of its own demand for them.” (Mill, 1923, pp. 587, 591)

These arguments represent the core ideas by economists, to this very day, on trade theory. Any policy aimed solely at promoting exports (and, by implication, discouraging imports) is based on a mistaken idea of the purpose of trade. That purpose is not to promote exports but to acquire imports at the lowest possible cost in terms of exports. Economists have, at the same time, long recognized that there a number of valid counterarguments to the argument for free trade. Smith himself recognized “two cases in which it will generally be advantageous to lay some burden upon foreign, for the encouragement of domestic industry.” Of these, “The first is when some particular industry is necessary for the defence of the country.” The second “is when some tax is imposed at home upon the produce” of domestic industry. (Smith, 1976, pp. 484-487) Other arguments that have surfaced over time follow here.

The terms of trade argument. We begin with an argument for taxing imports or exports that is based on the opposite of the Trumpian logic. Suppose that the United States is the sole importer of a good that it buys from many smaller countries. The United States is such an important importer of that good that it pays a higher price for the good the more of it that it buys. In the parlance of economics, the United States has monopsony power over the good. U.S. importers could push down the price they pay if they formed a cartel and bought the good as a single buyer. Barring that, the U.S. government could achieve the same end by putting a tariff on imports of the good, thus suppressing U.S. demand and the price Americans pay.¹⁶ Note that for the tariff to be effective it would have to apply to U.S. imports from all countries that can supply it with the taxed good. Were the United States to tax only one country – say, Mexico – or even two or three of many countries from which U.S. importers could get the good, the tariff would be ineffective for improving the terms of trade.

There is a parallel argument for taxing exports. Suppose that the United States is the sole exporter of a good that it sells to many smaller countries. The United States is such an important seller of the good that it gets a lower price for the good the more it that it sells. It has monopoly power over the good. U.S. exporters could push up the price they were paid if they formed a cartel and sold the good as a single seller. Barring that, the U.S. government

¹⁶ Suppose that the price paid by U.S. importers for a widget is \$10 when the United States imports 1,000 widgets but rises to \$11 when it imports 2,000 units. Without a tariff, U.S. importers will buy the 2,000 units as long as they place a value of at least \$11 on each widget purchased. The \$11 price, however, understates what it costs consumers to buy each of the second 1,000 units. That's because, in expanding consumption from 1,000 to 2,000 units, they push up the price for the first 1,000 units by \$1, meaning that when they buy 2,000 units, the cost of each of the second 1,000 units is not just \$11 but \$12. If importers value these units by only \$11, they would be better off not buying them. So suppose the government imposes a 9% tariff on the good. Then, importers would have to pay \$10.90 per unit if they bought 1,000 units and \$12 per unit if they bought 2,000 units. They would not buy the second 1,000 units and would be better off insofar as they valued the second 1,000 units by only \$11 a unit.

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could achieve the same end by putting a tax on exports of the good, thus suppressing U.S. exports and pushing up the price that foreigners have to pay.¹⁷

If Trump really wanted to make better “deals” for the United States, he would look for opportunities to improve the U.S. terms of trade by taxing imports over which the United States has monopsony power and taxing exports over which it has monopoly power. The problem, from his mercantilist point of view, however, is that a country improves its terms of trade by reducing the volume of goods that it has to ship to other countries in order to obtain a unit of imports. This not the kind of deal he is talking about. In reality, he wants to do just the opposite of what the terms-of-trade argument calls for. He wants to worsen the terms of trade for the United States by causing it to import less and export more.

To be sure, the monopsony argument is not the only possibly valid argument for limiting imports. And even that argument has weaknesses. In effect, it assumes that the United States could exploit foreign sellers without fear of retaliation in the form of punitive tariffs on U.S. exports – just one of the ways in which foreigners could retaliate against a Trump-managed tariff policy.

The factor-price-equalization argument. According to this argument, it is possible for the United States as a whole to be better off with trade than without it, even as trade makes (at least some) U.S. workers worse off. This scenario begins with the assumption that there are two inputs or factors of production, labor and capital, and that the United States is relatively more endowed with capital than the rest of the world. Without trade, workers benefit from this state of affairs because labor is scarce relative to capital and thus receives “a good wage.” If trade opens up, U.S. consumers will benefit just as Ricardo explained, but the expansion in trade will cause the production of U.S. goods that use a lot of capital relative to labor to expand as the production of U.S. goods that use a lot of labor relative to capital contracts. (Stolper & Samuelson, 1941, pp. 68-69) This causes the ratio of labor to capital to rise in the production of both exports and import-competing goods, thus causing wages to fall. The government could therefore prevent a fall in wages by taxing imports. The tax would leave consumers worse off than they would have been with free trade, but it will raise wages back toward their pre-trade levels.

¹⁷ Now suppose that the United States exports widgets. The price is \$10 when the United States exports 1,000 widgets but falls to \$9 when it exports 2,000 units. Without any restraint on their sales to foreigners, U.S. exporters will sell the 2,000 units as long as the cost of producing the last widget is no greater than \$9. The \$9 price, however, overstates what the firm gets for selling the second 1,000 units. That’s because, in expanding production from 1,000 to 2,000 units, they push down the price for the first 1,000 units by \$1, meaning that the revenue received by selling each of the second 1,000 units is not \$9 but just \$8. If the cost of producing each of these 1,000 units is \$9, they would be better off not selling them. The government can address that problem by imposing a 9% tax on the good. Then, exporters would be left with \$9.10 in after-tax revenue per unit if they sold 1,000 units but only \$8.19 if they sold 2,000 units. They would not sell the second 1,000 units and would be better off insofar as the cost of producing each of those units was \$9.

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The problem with this line of attack is that it assumes that “labor” consists of some homogeneous collection of workers, with no difference in skills or other relevant attributes to distinguish one worker from another. It is in fact true that certain workers have seen a shrinkage in their wages and work opportunities in recent years, some, no doubt, because of trade. These are largely low-skill workers concentrated in import-competing sectors, such as apparels or shoes. When this sector shrinks owing to competition from imports, the low-wage workers employed in them find that their already poor circumstances get even worse. These are the workers to whom Trump is appealing. They stand in contrast to high-skilled workers who have been doing better, both absolutely and relatively, and who are concentrated in high-tech export sectors like aircraft manufacturing. These are the workers whose circumstances are improved with trade and who would suffer if Trump’s policies were implemented. Economist Douglas Irwin sums up the matter this way:

The perception that imports destroy good, high-paying jobs in manufacturing is almost completely erroneous. It is closer to the truth to say that imports destroy bad, low-wage jobs in manufacturing. This is because wages in industries that compete against imports are well below average, whereas wages in exporting industries are well above average. (Irwin, 2015, p. 139)

Below we consider how the destruction of low-wage jobs in manufacturing has accelerated in recent years, adding strength to Trump’s argument against trade, in particular, with China.

The Currency Manipulation Argument. Trump believes that currency manipulation by foreign governments provides another example of how the United States is getting “killed on trade.” The idea is that a country can promote exports (and discourage imports) by deliberately devaluing its currency, making the currency cheaper to foreigners and making the currencies of other countries more expensive to home-country residents. China is, in particular, a strong object of Trump’s ire on this matter. (Trump, 2016)

Trump did not invent this argument. The International Monetary Fund prohibits currency manipulation. An official at the Congressional Research Service has argued that currency manipulation violates international rules against subsidizing exports. (Sanford, 2011) In their article, “Currency Manipulation and World Trade,” Robert W. Staiger and Alan O. Sykes, both of Stanford University, show how complaints about currency manipulation by China began to escalate long before Trump came on the scene. Barack Obama complained about it when he was running for president, as did Ben Bernanke during his tenure as chairman of the Federal Reserve. (Staiger & Sykes, 2010, p. 584)

As Staiger and Sykes explain, however, a country cannot reduce the foreign-exchange price of its currency without simultaneously increasing the home-country price of its goods. China cannot reduce the dollar price of the yuan without increasing the yuan price of Chinese goods.

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Suppose a dollar buys 6.5 Chinese yuan and that the yuan price of a pair of pants made in China is ¥150. At the current exchange rate, the pants cost \$23.08. Now China devalues the yuan to 7 per dollar, so the dollar price of the pants temporarily falls to \$21.43. This will cause Americans to buy more Chinese pants. We are not done, however. The rise in the demand for Chinese pants will cause the yuan price to rise, say, to ¥161.54. Then the dollar price will go back to \$23.08, just what it was before the devaluation. Staiger and Sykes point out that a devaluation is equivalent to putting a uniform tax on imports and subsidy on exports, the result of which would be to cancel the expansive effect of the increase in exports with an equal and opposite, contractive effect on imports. (Staiger & Sykes, 2010, p. 619)

Writing for the *American Spectator*, Donald Boudreaux points out that “movements in the nominal yuan exchange rate have almost no long-term impact on global flows of exports and imports . . . The exchange rate that matters is the real exchange rate, i.e., the nominal exchange rate adjusted for local-currency prices in both countries.” (Boudreaux, 2016) In the foregoing example, we find that the devaluation would do China no good, because after prices adjusted to the increase in demand for pants, it would still cost Americans \$23.08 to buy them from China.

We should not exaggerate the speed with which prices will adjust so as to bring the real exchange rate back to what it was before the devaluation takes place. Prices will not adjust synchronously with exchange rates. In fact, there is likely to be some price “stickiness” that slows the adjustment in prices so that the devaluation will make the country’s products at least temporarily cheaper.

Even more unrealistic, however, is the idea that every devaluation is a conscious attempt to expand exports at the expense of the rest of the world. Writing in the *Wall Street Journal*, Benn Steil and Emma Smith point out that, of late, China has been dealing with a massive capital outflow, putting Chinese monetary authorities in the position of having to prop up the yuan against unwanted pressure for it to fall in value. (Steil & Smith, 2016). The reality is that the day-to-day interventions by the monetary authorities in any country will have the effect of bringing about exchange rate adjustments or of creating a state of affairs in which the monetary authorities must either accede to or resist an exchange rate adjustment that was no part of their policy design. It is not so much that currencies are “manipulated” but that unplanned and unwanted capital flows and changes in local economic conditions bring about changes in exchange rates that might temporarily cause exports to rise and imports to fall – or, just as likely, the other way around.

Adjustment Problems. In Ricardo’s trade model, there are two sectors, wine and cloth, and two countries Portugal and England. Without trade, each country consumes only what it produces, but with trade, Portugal ships wine to England, and England ships cloth to Portugal with the result that both countries can consume more of both products

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than they did before trade. For this to happen, cloth production in Portugal must contract, permitting resources to shift into wine production, and wine production must contract in England, permitting resources to shift into cloth production. This model and most subsequent models assumed that resources released from the contracting sector would flow smoothly into the expanding sector.

But what about distributional effects? While economic theory (see Stolper and Samuelson) came to recognize that trade would push down wages in a capital-rich country like the United States, the evidence, until very recently, suggested that the effects on wages and income distribution of expanding U.S. trade were small.

In a recent article, David H. Autor, David Dorn, and Gordon H. Hanson argued that things changed with the emergence of China as a major exporter of manufactured goods. (Autor, Dorn, & Hanson, 2016, p. 3) China's expansion provided evidence of growing adverse effects on manufacturing workers exposed to competition from Chinese imports. Of these, high-wage workers have been able mitigate their losses by migrating to industries less exposed to foreign competition, but low-wage workers have suffered earnings losses and layoffs. "The evidence suggests that trade adjustment is a slow-moving process, and that its costs fall heavily on trade-exposed local markets rather than being dispersed nationally." (Autor, Dorn, & Hanson, p. 33)

The broader question, however, is what China's story says about the future, given that the world abounds with countries like China that could be rescued from economic stagnation under the right leadership. If the United States faces growing challenges for industrial supremacy from the rest of the world, is it really the best strategy to react to those challenges by imposing punitive tariffs on those countries?

Trump's strong-arm tactics could have the effect of pushing the United States into autarky (economic self-sufficiency) while the once undeveloped world zooms into dominance as its leaders succeed in making them more competitive. If Donald Trump's efforts had that effect, he would end up betraying the very American interests he wants to serve.

Other arguments. Two other arguments come from Adam Smith. The first of his arguments for laying "some burden upon foreign, for the encouragement of domestic industry" still has an element – though a diminishing one – of legitimacy. It was certainly true that 18th century warfare created the danger that an enemy country would shut off imports through naval blockades, a possibility that argued for the protection of domestic goods critical for national survival. (The same thing was true in the 20th century, through World War I, during which the British blockade of Germany was instrumental in the Allied victory.) Today, that argument carries little weight, except insofar as our most worrisome import is foreign terrorists.

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Smith's second argument continues to carry theoretical, if not practical, weight. Now called the "second-best" argument for tariffs, it recognizes that a tariff may be called for when there is an existing distortion in the price system, introduced, for example, when a tax is imposed on the domestic production of some good. If the domestic tax cannot be removed, a tariff will reduce the harm done by the tax by shifting some consumption back to the domestic good and away from imports.

Next there is the "infant industry" argument: Tariffs can help a budding home-country firm survive long enough to compete in the global marketplace. The argument is that firms need to achieve a critically large volume of production in order to bring down their average production costs and thus the prices they charge for their products. A tariff can protect them from foreign competition long enough to put them on their feet. Once the firm reaches a large enough size, the tariff can be removed.

A related argument comes under the heading of "strategic trade policy." Writing in 1983, Barbara J. Spencer and James A. Brander considered the state of affairs that exists when, with government help, a domestic firm can capture a large enough share of the global market of some good to be able thereafter to exercise monopoly power over its production. (Spencer & Brander, 1983, pp. 707-708) Paul Krugman famously illustrated this possibility with the example of U.S.-based Boeing and European-based Airbus vying for dominance in the global aircraft market. If the United States can help Boeing achieve dominance at the expense of Airbus, and do so by suppressing America's demand for Airbus planes, then the United States will benefit from Boeing's monopoly power. (Krugman, 1987, pp. 135-137)

This last argument seems to fit Trump's narrative at least insofar as we could see his emphasis on "deal making" as intended to turn trade policy toward America's strategic advantage. The question is whether the blind application of tariffs on countries thought to be "killing" the United States on trade represents a path toward strategic trade policy. A company that offers promise for global dominance would not be in the business of making sneakers or men's underwear but rather high-tech products like airplanes or integrated circuits. If the United States is going to operate strategically in world trade, it can't hamstring itself by trying to save sectors that offer hope for neither financial return nor global dominance.

CONCLUSION

This report began with the observation that candidate Trump's threats to impose draconian tariffs on China, Mexico and possibly Japan represent a sea change in U.S. trade policy. These intentions are not mere bluster. The imperial presidency over the last decade has claimed a variety of authority over issues such as trade. (Jenkins, 2016) The Trump plan would upset a world order built on multinational negotiations that have steadily reduced trade barriers since World War II.

It is not enough, however, to reflect on what those tariffs would do to multinational institutions. Rather, it is necessary also, and perhaps more urgently necessary, to reflect on what they would do to the U.S. economy. The task we set out for ourselves in examining the Trump tariffs was twofold: (1) to identify their effects on the U.S. consumers, should the tariffs be imposed, and (2) to consider whether they would be effective in accomplishing what they were aimed to do, that is, protect U.S. import-competing firms and their workers from possible harm done to them by imports from the three countries. We found that that tariffs would impose far larger burdens on consumers than they would confer in the way of benefits to these firms and their workers. We also found that attempting to help producers by imposing tariffs on just a few countries singled out for punishment would probably end in failure insofar as the goal is to help firms and workers displaced by imports from these countries.

One might observe that Donald Trump is not alone among politicians in attacking the once-unassailable argument that free trade was good for the United States. All the remaining contenders in the presidential contest have found it necessary at times to depict trade as a problem, rather than a solution to a more dynamic economy. So, while it is easy to dismiss Trump as a 21st century mercantilist in the grip of long-defunct ideas, the fact is that the arguments made by Smith, Ricardo and Mill in favor of trade have been challenged for some time now.

Economists have long recognized how a capital-abundant country like the United States would be likely to experience decreases in real wages as it opened up trade with other, more labor-abundant countries. And, while this factor-equalization argument seemed at first not to describe a genuine problem for the United States, it has gathered more force with shrinkage in import-competing industries. The evidence of distress among low-wage workers brings back to life the concern that, while trade may be "theoretically" good for the country as a whole, it can produce problems for low-wage workers in competing sectors.

We reviewed this argument, as it is presented in the recent economic literature. We also reviewed a number of arguments for protectionism that have a firm standing in that literature or that attract support among non-economists. It is a stretch to see how Trump could invoke any of these arguments to support his ideas on tariffs.

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One of his favorite arguments – that the Chinese are manipulating the exchange rate to benefit their exporters – is easily debunked. Most of the other arguments – for example, that tariffs can be used to improve a country's terms of trade, or develop an infant industry, or correct for existing distortions in the price system, or provide some strategic advantage to U.S. exporters – would not appear to be what motivates Trump or what his tariffs could accomplish.

It is one thing to observe a problem related to trade and quite another to see how a policy aimed at deterring trade would make things better. Indeed, problems linked to imports seem to blend in with the general problem that United States has suffered throughout its pallid recovery from the last recession. The Trump tariffs could be seen as evidence that the U.S. policymakers cannot figure out how to reinvigorate economic growth and, besieged with voter unhappiness are gravitating to nostrums like restricting trade and raising the minimum wage, neither of which will address the underlying problem.

In any event, it turns out that the worst thing that could happen to low-income Americans is for the Trump tariffs to work. We find that the proposed tariffs against China, Japan and Mexico would impose what amounts to 18% additional tax on the poorest 10% of U.S. households and 6% on the next poorest. The richest 10% would be the least affected American income earners. The U.S. economy would suffer a total burden in the form of a \$278 billion loss in household purchasing power – akin to a general 3.9% new tax on after-tax income. On the plus side, a small portion of this burden would be redistributed to U.S. producers, who would benefit from the new tariffs. But that leaves a dead loss of \$170 billion of consumer income that would simply vanish owing to the distortions in the price system created by the tariffs. And, on the negative side, it is not clear that a substantial new tax on household income would simply transfer 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.

But would the Trump tariffs work? The conclusion is that a President Trump would find that his attempt to be “very, very tough” with China, Japan and Mexico would do nothing to help U.S. producers or their workers.

We reviewed 30 randomly chosen cases in which the United States imposed antidumping or countervailing duties as a result of what were determined to be unfair trade practices, and we found that they generally led U.S. importers to switch purchases to countries that were not affected by the duties. We also identified ten product lines in which the three countries face competition elsewhere in the world.

What if Trump decided to impose worldwide tariffs in order to shut down imports of those products once and for all? Then the results would be truly catastrophic for the poor. It would be as if the United States imposed a 53% new

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tax on the lowest 10% income decile and a 20% tax on the next lowest decile. It would be equivalent to an 11% new flat tax on after-tax income. The total burden on consumers would be \$760 billion annually.

Some might believe that economists still caught in the classical tradition of Smith, Ricardo and Mill would do well to rethink their theories in the light of the circumstances that have propelled Donald Trump to threaten draconian tariffs on certain countries. But it turns out that it is Trump who might want to rethink his economics – lest he find himself defeating his own purposes or simply having nothing to show for his effort.

To be sure, the Trump “dirigisme” approach (where the government directs the economy) has appeal to both right and left. Former presidential candidate Patrick Buchanan (“production comes before consumption”) has celebrated the Trump candidacy, which he believes is predicated on a Hamiltonian rebirth of economic nationalism. (Buchanan, 2016)

The longtime progressive critic of laissez-faire, Jeff Madrick, is eager to term globalization as a “folly writ large.” Where Buchanan exalts Hamilton, Madrick criticizes David Ricardo and his modern-day successors, including Milton Friedman and Paul Samuelson, who called the idea of comparative advantage “the one undisputed and nontrivial idea in economics.” (Madrick, 2014, p. 175) Indeed, contrary to Madrick, that idea does remain the one undisputed and nontrivial idea that economists have come up with. (Klein & Stern, 2006) Nothing proves that better than Trump’s heavy-handed approach to dealing with the problems that are affecting a broad swath of American businesses and workers – an approach that tries to overturn comparative advantage only to look badly conceived on close examination.

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