

**TRADE PARTNERSHIP WORLDWIDE, LLC**

**Estimated Impacts of Proposed Tariffs on Imports from China:  
Cell Phones, Laptops and Tablets, Video Game Consoles and Toy Drones**

**Prepared for**

**The Consumer Technology Association**

June 17, 2019

## **Estimated Impacts of Proposed Tariffs on Imports from China: Cell Phones, Laptops and Tablets, Video Game Consoles and Toy Drones**

President Donald Trump has proposed that the United States impose tariffs of up to 25 percent on imports of approximately \$300 billion in goods imported from China.<sup>1</sup> We assess those impacts below for four consumer electronics products included on the list of products targeted for tariffs: cell phones, laptops and tablets, video game consoles and toy drones.

We have employed a model, described in Appendix A, to estimate the ultimate impacts on U.S. consumers of the proposed tariffs. The model identifies the shifts that would occur from China to other sources of supply, and takes into consideration absorption of the tariff rates along supply chains and up to the final purchaser. The results are presented below. They show that, even accounting for alternative sources of supply, the proposed tariffs would have a substantial negative impact on American consumers.

### **Telephones for Cellular Networks or for Other Wireless Networks (HTS 8517.12)**

This Harmonized Tariff System (HTS) product targeted for tariffs covers cell phones, a product that is ubiquitous in today's economy. According to industry analysts, there is no U.S. production of cell phones.<sup>2</sup> Imposition of the tariffs would therefore cause most if not all sourcing of products currently purchased from producers in China to shift to other countries. China currently accounts for about three quarters of total imports of these products into the United States, so shifting that large a volume of supply to other countries will be difficult and take time. Therefore, U.S. prices of cell phones would rise by more than half of the value of the tariffs.

According to our analysis, prices for cell phones rise across the board. The cost of cell phones imported from China would rise by 22 percent. Overall U.S. prices for cell phones generally (from all sources combined) would rise by 14 percent, or by nearly \$70

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<sup>1</sup> Office of the United States Trade Representative, "Request for Comments Concerning Proposed Modification of Action Pursuant to Section 301: China's Acts, Policies, and Practices Related to Technology Transfer, Intellectual Property, and Innovation," 84 Federal Register 22564, May 17, 2019, <https://www.federalregister.gov/documents/2019/05/17/2019-10191/request-for-comments-concerning-proposed-modification-of-action-pursuant-to-section-301-chinas-acts>.

<sup>2</sup> Production data that may appear in the North American Industry Classification category for this product may be related products, like antennas/towers and other cellular network equipment, or even satellite production. There is a small industry related to refurbished/repared phones, which is likely what is included in the export category for this product, or represents re-exports of phones imported from another country.

for the average retail price of a cell phone today (estimated at \$492<sup>3</sup>). As a result, U.S. consumers are forced to reduce overall purchases by 28 percent.

The biggest winners from tariffs on Chinese cell phones are other foreign producers. Manufacturers in Korea and Vietnam would see annual export revenues grow by about \$1.8 billion and \$1.2 billion, respectively. American consumers, on the other hand, would pay over \$8.1 billion more for cell phones. Low-income households spend nearly twice as much of their after-tax income on telephone equipment as do high-income households.<sup>4</sup> The result, even after accounting for new tariff revenue, is a net \$4.5 billion loss for the U.S. economy, with the burden carried by U.S. consumers.

Change in Price of Chinese Imports	+22.0%
Change in Chinese Production	-4.8%
Change in U.S. Production	0.0%
Change in Prices of U.S.-Made Cell Phones	0%
Change in U.S. Consumer Prices (from All Sources)	+14.0%
Impact on Consumption	-28.0%
Reduction in Consumer Spending Power	\$8.1 bill.
Net Impact on U.S. Economy	-\$4.5 bill.

### **Laptops and Tablets (HTS 8471.30.01)**

This HTS product covers “Portable automatic data processing machines, not over 10 kg, consisting at least a central processing unit, keyboard and display.” For consumers, these are more commonly known as laptops and tablets. According to industry analysts, there is little to no U.S. production of these goods.

Imposition of the proposed duties would largely benefit other foreign suppliers. China currently accounts for over 90 percent of total imports of these products into the United States; its volume of supply is 38 times greater than the next largest supplier – Vietnam. Shifting that large a volume of supply to other countries is not possible, and what shifts do occur will take time and cost significant amounts of money. Therefore, U.S. prices of laptops and tablets would rise significantly.

According to our analysis, prices for laptops and tablets rise across the board. Imports from China will increase in cost by 21 percent. Overall U.S. prices for laptops and tablets generally (from all sources combined) would rise by 19 percent, or by about \$120 for the

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<sup>3</sup> These and subsequent retail price estimates were derived from CTA’s U.S. Consumer Technology Sales & Forecasts, marked up to account for average retail margins.

<sup>4</sup> Bureau of Labor Statistics, “Quintiles of Income before Taxes: Average Annual Expenditures and Characteristics, Consumer Expenditure Survey, 2017,” <https://www.bls.gov/cex/csxresearchtables.htm#allnew>. “Low income families: are those in the lowest 20 percent quintile; “high income families” are those in the highest 20 percent quintile.

average retail price of a laptop today (estimated at \$622), and \$50 for the average retail price of a tablet today (estimated at \$264). As a result, U.S. consumers are forced to reduce overall purchases by 35 percent.

Producers in Vietnam would be the biggest winner from tariffs on Chinese laptops and tablets. Export revenues for Vietnamese manufacturers would grow by about \$220 million. Producers in Taiwan and Mexico would see export revenues grow by about \$200 million and \$108 million, respectively. Even after shifting to other countries, China would remain the dominant supplier, accounting for over 80 percent of total imports of laptops and tablets.

American consumers, on the other hand, would pay more for these products. Higher costs from tariffs imposes on consumers an additional cost of \$8.2 billion more for laptops and tablets. Given negligible U.S. production, American consumers would pay \$785 in new out of pocket expenses for each \$1 in new revenue for American manufacturers. Low-income households spend more than twice as much of their after-tax income on computer equipment as do high-income households. The result, even after accounting for new tariff revenue, is a net \$3.6 billion loss for the U.S. economy, with the burden carried by U.S. consumers.

Change in Price of Chinese Imports	+21.0%
Change in Chinese Production	-7.0%
Change in U.S. Production	+4.8%
Change in Prices of U.S.-Made Laptops/Tablets	+6.5%
Change in Prices to U.S. Consumers	+19.1%
Impact on Consumption	-35.3%
Reduction in Consumer Spending Power	\$8.2 bill.
Net Impact on U.S. Economy	-\$3.6 bill.

### **Video Game Consoles (HTS 9504.50)**

This Harmonized Tariff System (HTS) product targeted for tariffs covers video game consoles and machines.

The impact of higher tariffs would have little positive impact on U.S. producers – and even other foreign producers. According to industry analysts, there is very little U.S. production of video game consoles (U.S. production represents perhaps 1 percent of the market). U.S. trade data reveals that China accounts for nearly all (over 96 percent) of total imports. Imposition of the tariffs suggests that shifting this much Chinese production to any other source would be very difficult given the volume currently sourced from China. Therefore, U.S. prices of video game consoles would rise by nearly all of the value of the tariffs as supply would continue to need to be met by China.

According to our analysis, prices for video game consoles would rise. The cost of video game consoles from China would increase by 21 percent, and by 4 percent for products

from the very few U.S. suppliers that exist. Overall U.S. prices for video game consoles generally (from all sources combined) would rise by 19 percent, or by \$56 for the average retail price of a video game console today (estimated at \$294). As a result, U.S. consumers are forced to reduce overall purchases by a whopping 35 percent.

There are no big winners from tariffs on Chinese video game consoles. American producers' revenues would grow by about \$50 million, while Mexican producers' revenues would grow by about \$30 million. Producers in most other countries would see little change, up or down. American consumers, on the other hand, would pay \$840 million more for video game consoles, or about \$17 in new out of pocket expenses for each \$1 in new revenue for American manufacturers. Even after accounting for new tariff revenue, the result is a net \$350 million loss for the U.S. economy for each year the tariffs remain in effect, with the burden carried by U.S. consumers.

Change in Price of Chinese Imports	+21.0%
Change in Chinese Production	-6.3%
Change in U.S. Production	+7.6%
Change in Prices of U.S.-Made Game Consoles	+3.7%
Change in Prices to U.S. Consumers	+18.8%
Impact on Consumption	-35.0%
Reduction in Consumer Spending Power	\$840.0 mill.
Net Impact on U.S. Economy	-\$348.5 mill.

### **Toy drones (HTS 9503.00)**

The proposed retaliation list includes toy drones. This product is classified in a broad HTS category that covers toys (specifically, 9503.00, "Toys, including riding toys o/than bicycles, puzzles, reduced scale models").<sup>5</sup> Selling at price points that tend to fall under \$500, these are "starter" drones (used for individuals who want to learn to "fly" a drone) and drones meant for children.<sup>6</sup>

China supplies nearly all of this market for drones.

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<sup>5</sup> Industry experts believe commercial drones are imported under different HTS categories. For example, imported military grade drones appear to enter the United States under HTS code 8802.20.00.15. Imports are relatively small (just \$17 million from the world in 2018; China accounted for \$584,000 of that total). This HTS code was covered in List 1 and is now subject to 25 percent duties when imported from China.

<sup>6</sup> For a sense of the products under discussion, see Jonathan Feist, "Best drones for Kids: quadcopters a child can fly," May 2019, <https://www.dronerush.com/best-drones-for-kids-3921/>.

According to our analysis,<sup>7</sup> prices for toy drones rise significantly. Prices for toy drones imported from China increase by 20 percent, and by 13 percent for products from the U.S. suppliers that exist. Overall, U.S. prices for toy drones generally (from all sources combined) would rise by 15 percent, or by \$61 for the average retail price of a toy drone today (estimated at \$404). As a result, U.S. consumers reduce overall purchases by 29 percent. American consumers would pay \$516 million more for toy drones, or about \$9 in new out of pocket expenses for each \$1 in new revenue for American manufacturers. Even after accounting for new tariff revenue, the result is a net \$210 million loss for the U.S. economy for each year the tariffs remain in effect.

Change in Price of Chinese Imports	+19.5%
Change in Chinese Production	-8.6%
Change in U.S. Production	+12.5%
Change in Prices of U.S.-Made Drones	+6.1%
Change in Prices to U.S. Consumers	+14.6%
Impact on Consumption	-28.6%
Reduction in Consumer Spending Power	\$516 mill.
Net Impact on U.S. Economy	-\$210 mill.

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<sup>7</sup> Because neither import nor domestic shipments data are available specific to drones, including commercial drones, we have based our analysis on the price effects of increased tariffs on the broader category in which these goods are classified, namely toys.

## Appendix A Methodology

We employed a modeling strategy for industry-focused globally-linked partial equilibrium analysis of tariff policy.

Based on the Harmonized Tariff Schedule (HTS) items identified in the *Federal Register* notice as proposed for tariffs of 25 percent, when imported from China, we have built a set of product-specific models based on the “global simulation model” framework (GSIM). Francois and Hall (2007) developed GSIM to allow detailed analysis of tariff scenarios across individual products and potentially all major trading countries and blocks. The World Bank and the United Nations adopted the GSIM framework, integrating it into the joint World Bank-UNCTAD trade data portal known as the “World Integrated Trade Solution,” or WITS (see <http://wits.worldbank.org/wits/>).<sup>8</sup> The basic framework employed here can be implemented with a spreadsheet-based interface. We should stress that, in implementation, this set of models is structurally consistent with the recent class of Eaton-Kortum based structural trade models (see Bekkers *et al*, 2015; Costinot and Rodriguez-Clare, 2014 for example).

The basic approach involves specifying global supply and demand for each set of goods produced by a particular country as the sum of individual (national) sources of supply and demand. This is done for goods produced in all regions in the model. We are then able to reduce the solution set of the model to those global prices that clear global markets. Once we have a global set of equilibrium prices, we can obtain national results (changes in prices and quantities). Based on price and quantity changes, we in turn obtain estimates of changes in production, trade, consumer and producer surplus, and real national income that result from the imposition of tariffs on imports from China. Within this context, we work with a non-linear representation of import demand, combined with generic export-supply equations (see Francois and Hall 2007).

### *Data Sources*

Trade data and tariffs are from “World Integrated Trade Solution,” or WITS (see <http://wits.worldbank.org/wits/>) and the U.S. Census Bureau.

Production data (domestic sales) are from country input/output tables and from the Census Bureau’s Annual Survey of Manufacturers. The latest data from that resource is 2016, so all import data are also for 2016.

Trade elasticities are from the Global Trade Analysis Project (GTAP).

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<sup>8</sup> Another application, the MRPE model, is a specialized, scalable extension of the GSIM framework for strategic trade policy assessments at the detailed sector level, developed for the European Commission.

*Country Disaggregation*

Canada	Japan
China	Korea
Dominican Republic	Malaysia
El Salvador	Mexico
Germany	Singapore
Honduras	Spain
Hong Kong	Taiwan
India	Thailand
Indonesia	United States
Italy	Vietnam
Rest of World	