

# How Did the 2018–19 U.S. Tariff Hikes Influence Household Spending?

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U.S. tariffs on imports from other countries rose significantly in 2018 and 2019, particularly on imports from China. The average tariff rate on imports from China increased by more than 15 percentage points from January 2018 to December 2019 and affected more than \$350 billion of imported goods. Although higher tariffs may raise costs for both foreign and domestic firms, recent studies suggest most of the burden fell on U.S. businesses and consumers due to higher prices and fewer imports (Fajgelbaum and others 2020; Amiti, Redding, and Weinstein 2019, 2020).

Tariffs do not affect all categories of goods evenly, nor do all households spend the same share of their income on tariff-affected goods. As a result, the ultimate effect of tariff increases on household spending may differ across households. However, measuring these effects is challenging, as it requires combining two distinct data sets that define goods categories differently. The Consumer Expenditure Survey administered by the Bureau of Labor Statistics provides detailed data on hundreds of household spending categories, but these categories generally do not match the descriptions of goods in trade data from the U.S.

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International Trade Commission's Harmonized Tariff Schedule, making comparisons difficult.

In this article, we link expenditure and tariff data and construct a tariff intensity measure to evaluate the degree to which each category of household expenditures has been exposed to recent tariff increases. We find that the tariff increases in 2018–19 may have generated uneven effects across different types of households. Specifically, we find that low-income households are more exposed to tariff increases than high-income households; younger households are more exposed than older households; Black households are more exposed than white or Asian households; and Hispanic households are more exposed than non-Hispanic households. In addition, we find that the tariff increases led to only a small shift in household spending from categories that were more exposed to tariff increases to categories that were less exposed to tariff hikes by the end of 2019.

Section I provides an overview of the key changes in U.S. trade policies during 2018–19. Section II reviews recent research on the effect of tariff increases on the U.S. economy and shows that U.S. consumers and importers have borne the greatest cost. Section III introduces our measure of tariff intensity and shows that the tariff increases had different effects on households by income level, age, race, and ethnicity.

## **I. Overview of Trade Policies in 2018–19**

In 2018, the United States increased tariffs on a wide range of imported goods. One of the main purposes of these tariff hikes was to encourage domestic firms to rely less on foreign producers and instead increase domestic production and manufacturing jobs (Zumbrun and Davis 2020). Indeed, the share of U.S. employment in the manufacturing sector had declined from 26 percent in 1970 to 9 percent in 2017. In addition, the U.S. trade deficit in goods, which measures the difference between the amount of goods the United States purchases from foreign countries and the amount of goods the United States sells to foreign buyers, nearly doubled from 2000 to 2017. By the end of that period, China accounted for nearly half of the U.S. total trade deficit in goods.

The changes in U.S. trade policy in 2018–19 were unprecedented in both size and scope. In general, tariffs were implemented in two

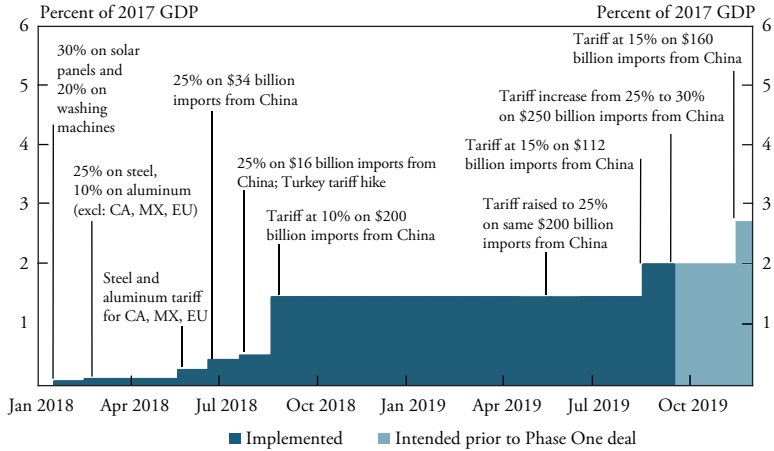
stages. Chart 1 shows that the first stage began in January 2018, when the United States applied 30 percent and 20 percent tariffs to solar panels and washing machines, respectively, from a wide range of countries. These tariffs were quickly followed in March 2018 by 25 percent and 10 percent tariffs on steel and aluminum, respectively. These tariffs applied to imports of those goods regardless of their country of origin, though several countries were initially exempted from the tariff.<sup>1</sup>

The second stage began in July 2018 and involved multiple rounds of tariff hikes mostly on imports from China. The Trump administration began this stage by imposing a 25 percent tariff on \$34 billion of imports from China. In August, the administration imposed another 25 percent tariff on an additional \$16 billion of imports from China. These tariffs mainly targeted intermediate goods, such as semiconductors and plastics. Following the U.S. announcements of the July and August tariff hikes, China responded by imposing their own tariffs on an equivalent value of U.S. goods.

In response to China's retaliatory tariffs, the Trump administration expanded the scope of tariffs on Chinese imports. In September 2018, the United States imposed a third tariff covering another \$200 billion of imports from China. Although this tariff was initially only 10 percent, it was broader in scope, applying to consumer goods such as luggage and home appliances. Indeed, Chart 2 shows the accumulated value of consumer goods targeted by tariffs (blue bar) rose from a level of around zero during the July and August tariffs to \$42 billion after the September tariff, which represents 17 percent of total imported goods from China covered by tariff increases at the time.<sup>2</sup> Following failed trade negotiations with China, the Trump administration raised the tariff on these items from 10 percent to 25 percent in May 2019.

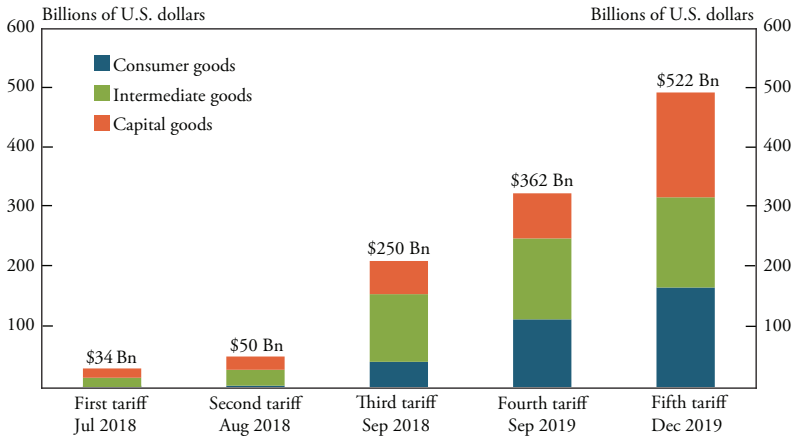
In September 2019, the Trump administration introduced a new 15 percent tariff on \$112 billion of additional imports from China. This tariff also applied to a substantial number of consumer goods, including clothing and shoes, increasing the direct effect of the trade war on U.S. consumers. The Trump administration also scheduled for December 2019 another 15 percent tariff on \$180 billion of imports from China—mainly capital goods, such as textile machinery, but also further consumer goods, such as computers and other electronics. If implemented, this tariff would have brought the total amount of

Chart 1  
U.S. Tariff Timeline



Note: Canada, Mexico, and the European Union (CA, MX, and EU in the chart) were initially exempted from the tariffs on steel and aluminum.  
Sources: Peterson Institute for International Economics and authors' calculations.

Chart 2  
Composition of Imported Goods from China Covered in Each Round of Tariff Hike



Notes: The sum of the value of the components may not equal the total value of each bar, as some items were later exempted from tariff increases. In addition, the fifth tariff was not implemented due to the “Phase One” trade deal reached between the United States and China in January 2020.  
Sources: U.S. International Trade Commission and authors' calculations.

Chinese imports facing tariffs to over \$500 billion. However, the administration canceled this tariff—and reduced the September tariff from 15 percent to 7.5 percent—in anticipation of a trade deal between the United States and China. The “Phase One” trade deal was finalized on January 15, 2020.

Overall, the 2018–19 tariff hikes mainly targeted imports from China. By the time the Phase One trade deal was reached in early 2020, the United States had imposed tariffs on 65 percent of imports from China—12 percent of total goods imported to the United States.<sup>3</sup> In addition, over 75 percent of the Chinese imports targeted by tariffs were either consumer goods or intermediate goods. The magnitude of the tariff changes in 2018–19 suggests they likely had a meaningful effect on U.S. importers and consumers. But who bore the greatest cost—U.S. importers, Chinese exporters, or U.S. consumers?

## **II. The Effects of the 2018–19 Tariffs on U.S. Importers and Consumers**

The unprecedented scale of tariff increases in 2018–19 has spurred many studies of the effects of these tariff changes on the United States. These studies have largely focused on how increased tariffs on imports from China affected import prices, import quantities, and economic welfare. They find, overall, that the increases in tariffs on imports from China in 2018–19 reduced imports from China, raised costs for U.S. importers, and caused welfare losses to the U.S. economy.<sup>4</sup>

One consistent finding in recent studies is that U.S. imports declined substantially in response to higher tariffs. For example, Fajgelbaum and others (2020) use monthly data from the U.S. International Trade Commission from January 2017 to April 2019 and find that imports of a given product from a country targeted by U.S. tariffs fell 31.7 percent on average, though total imports of this product from all countries fell only 2.5 percent. In other words, imports from untargeted countries increased, but not enough to offset the decline in imports from targeted countries.

Another consistent finding is that U.S. importers and consumers have borne nearly all the costs from increased tariffs. Fajgelbaum and others (2020) show that the prices of imports targeted by tariffs in 2018–19 did not fall, implying the higher tariff rates completely passed

through to duty-inclusive prices. Cavallo and others (2021) confirm this finding, showing that a 20 percent tariff is associated with a 1.1 percent decline in the price charged by foreign suppliers and an 18.9 percent increase in the total price (including the tariffs) paid by U.S. importers. Fajgelbaum and others (2020) estimate the resulting losses to U.S. consumers and firms that buy imports to be \$51 billion, or 0.27 percent of GDP. After accounting for tariff revenue and gains to domestic producers, the aggregate real income losses are \$7.2 billion, or 0.04 percent of GDP.

Finally, some evidence suggests tariffs have also protected U.S. producers from foreign competition, enabling them to raise prices and markups. Amiti, Redding, and Weinstein (2019) estimate that the 2018–19 tariffs raised the average price of U.S. manufacturing goods by 1 percentage point, which is sizable given that the average inflation rate over the last 10 years was below 2 percent. However, few studies directly estimate the effect on consumer prices. One exception is Cavallo and others (2021), who find that retailers absorbed most of the increase in the cost of affected imports by earning lower profit margins—but their microdata also show that retailers increased their import shipments from China, substantially expanding their inventories before tariffs were implemented. The authors speculate that if the tariffs remain in place, pressure on these retailers will likely rise.

Together, these studies suggest that recent increases in tariffs reduced U.S. imports and that the costs have been passed through entirely to U.S. importers, retailers, and consumers. Although the tariffs caused some increases in consumer prices and manufacturing prices, most of the costs appear to have been absorbed by U.S. firms, at least by the end of 2019.

### **III. The Effects of the 2018–19 Tariffs on Different U.S. Households**

Although recent studies show that the higher tariffs have partly passed through to U.S. households, they do not show whether households adjusted their spending in response to these tariffs. Given the price increases in certain categories of goods, households may have switched their spending to less exposed categories of goods. In addition, recent studies have not assessed whether certain types of

households were more affected by tariff hikes than others. Differences in tariff exposure across households seem likely: for example, older households may spend relatively more on health services, which were not targeted by tariffs, while younger households may spend relatively more on sports equipment, which was targeted by tariffs. An accurate assessment of potential shifts in spending or differences in exposure by household requires us to take into account the whole distribution of expenditures as well as the degree to which different types of expenditures are exposed to tariff hikes.

As a first step, we combine detailed household expenditures data with tariff data to construct a measure of different expenditures' exposure to tariffs, or "tariff intensity." Specifically, we map 16,475 import products with 10-digit Harmonized Tariff Schedule (HTS) codes to 598 spending categories in the Consumer Expenditure Survey (CEX) based on Universal Classification Codes (UCC).<sup>5</sup> Each UCC expenditure category contains one or more HTS products. The tariff intensity for each UCC expenditure category is thus defined as the share of HTS products targeted by tariff increases within the expenditure category.<sup>6</sup> Table 1 shows a few examples of UCC expenditure categories along with the count of HTS products in those categories and their corresponding tariff intensities. For example, the household spending category for nonprescription drugs (UCC 550210) contains 133 HTS products, none of which was exposed to tariff increases in 2018–19. Therefore, the tariff intensity for this category is 0. As another example, the household spending category for watches (UCC 430110) contains 190 HTS products, 185 of which were targeted by tariff increases in 2018–19; thus, the corresponding tariff intensity is  $185 / 190 = 0.97$ , indicating 97 percent of goods in that category were affected by tariffs.<sup>7</sup> If more products within an expenditure category are exposed to tariff increases, the tariff intensity measure for that category will rise.

Once we have a tariff intensity measure for each expenditure category, we then group these categories by tariff intensity to assess whether households have shifted their spending from categories that are more exposed to tariff hikes to categories that are less exposed to tariff hikes. Specifically, we combine all UCC expenditure categories into one of three groups: high intensity (categories with a tariff

*Table 1*  
**Examples of UCC Expenditure Categories  
 and Corresponding HTS Products**

UCC expenditure categories	Count of HTS products	Count of HTS products exposed to tariffs	Tariff intensity
Nonprescription drugs (550210)	133	0	0
Vitamin supplements (180720)	37	1	0.03
Office furniture for home use (320901)	19	3	0.16
Computers and computer hardware for nonbusiness use (690111)	167	35	0.21
Boys' suits, sport coats, vests (370311)	236	213	0.90
Other photographic supplies (610220)	72	66	0.92
Plumbing supplies and equipment (240311)	49	45	0.92
Jewelry (430120)	64	59	0.92
Global positioning system devices (600903)	14	13	0.93
Watches (430110)	190	185	0.97

Sources: U.S. International Trade Commission, Bureau of Labor Statistics (BLS), and authors' calculations.

intensity above 0.9), medium intensity (categories with a tariff intensity from 0.1 to 0.9) and low intensity (categories with a tariff intensity below 0.1). The high-intensity group includes expenditures such as jewelry and some clothing, while the low-intensity group primarily contains health-care-related expenditures such as dental services and prescription drug insurance.

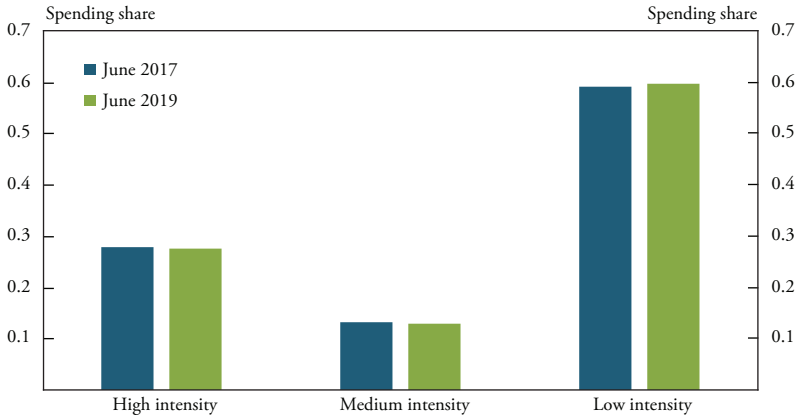
Chart 3 shows that the share of household spending in each group remained relatively stable from 2017 to 2019, suggesting households in the aggregate did not adjust their spending in response to the tariff increases. Indeed, the spending share for the high-intensity group and medium-intensity group dropped by only 0.2 and 0.3 percentage points, respectively, from June 2017 to June 2019, when most tariffs increases had been implemented. The spending share for the low-intensity group increased 0.4 percentage points over the same period.

Three factors could explain the relatively small shift from the high-intensity to low-intensity group. First, households may not have been able to substitute an expenditure in the high-intensity group with an expenditure in the low-intensity group, as the high-intensity group includes mainly goods, while the low-intensity group includes mainly services. Second, households may have taken more time to change their spending patterns than the relatively short window depicted in Chart 3. Third, the



*Chart 3*

### Spending Share over Different Tariff-Intensity Categories: 2017 versus 2019



Sources: U.S. International Trade Commission, BLS, and authors' calculations.

pass-through of tariff increases to consumers may have been too small to generate a large substitution effect. Indeed, the latest available CEX data are from 2019, when some tariff hikes had just taken effect.

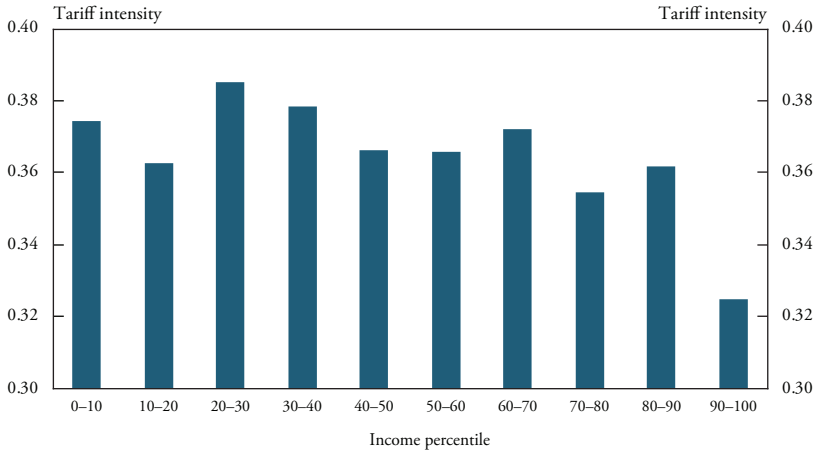
#### *Did the tariff hikes affect certain types of households more than others?*

In addition to evaluating whether households adjusted their spending in response to tariff hikes, we also use our tariff intensity measure to examine whether different types of households were more or less exposed to those hikes. Specifically, we calculate the tariff intensity for each household based on their spending distribution over different UCC expenditure categories. A household with a higher average tariff intensity devotes a larger share of their total spending to categories influenced by tariff increases.<sup>8</sup> We compare the tariff intensity levels for different households by income, age, and race and ethnicity.

We find that tariff intensity differs across these groups of households, suggesting some are more exposed to tariff hikes than others. Specifically, we find that low-income households are likely more exposed to tariffs. Chart 4 shows that tariff intensity in general declines with income levels. For example, the tariff intensity for households in

## Chart 4

## Tariff Intensity by Income Percentile



Sources: U.S. International Trade Commission, BLS, and authors' calculations.

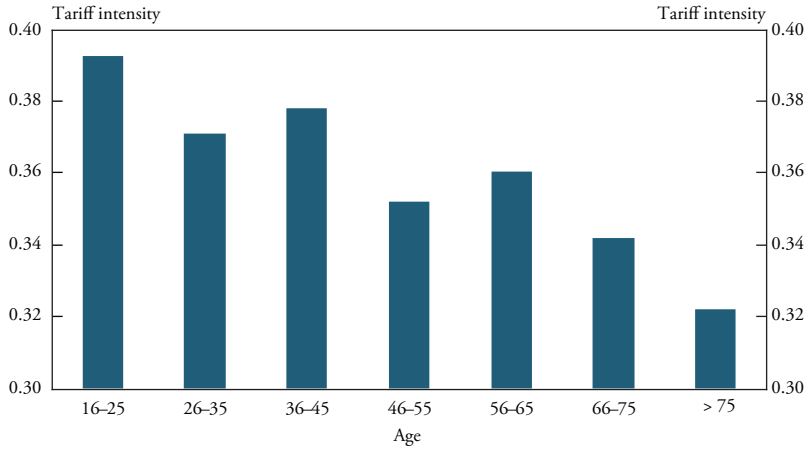
the 20th to 30th income percentiles is 0.06 (0.39 – 0.33) higher than for households in the 90th to 100th income percentiles. In other words, the share of spending on tariff-affected categories is 6 percentage points higher for households in the 20th to 30th income percentiles than for households in the 90th to 100th income percentiles. One main driver of this difference is that households with higher income spend relatively more on services, which are less exposed to tariffs.

We also find that tariff intensity declines with age. Chart 5 shows that younger households face a higher tariff intensity than older households. In particular, the tariff intensity for households age 16 to 25 is 0.39, while the tariff intensity for households age 75 and up is 0.32, suggesting that younger households are more exposed to tariffs than older households. This discrepancy reflects that younger households spend more on goods categories that experienced larger tariff increases, such as vehicle purchases and household furnishings and equipment.<sup>9</sup>

In addition, we find a relatively large difference in tariff intensity among different racial and ethnic groups. For example, Chart 6 shows that Black or African American households are more exposed to tariff increases than white households, while Asian households are less exposed. Similarly, Chart 7 shows that Hispanic or Latino households are more exposed to tariff hikes than non-Hispanic households.

Chart 5

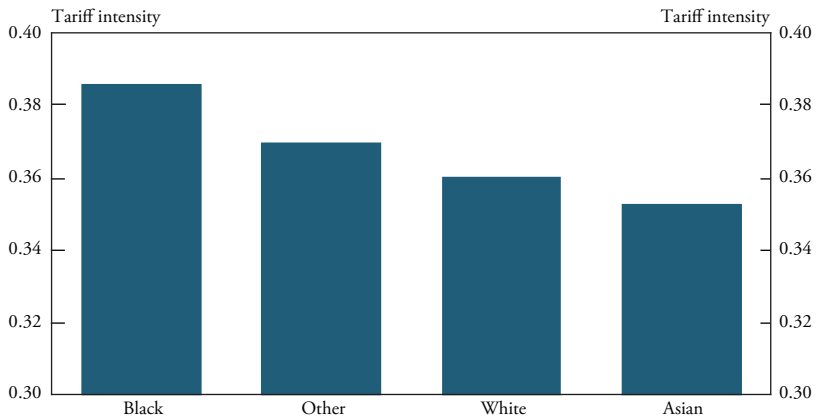
Tariff Intensity by Age Cohort



Sources: U.S. International Trade Commission, BLS, and authors' calculations.

Chart 6

Tariff Intensity by Race

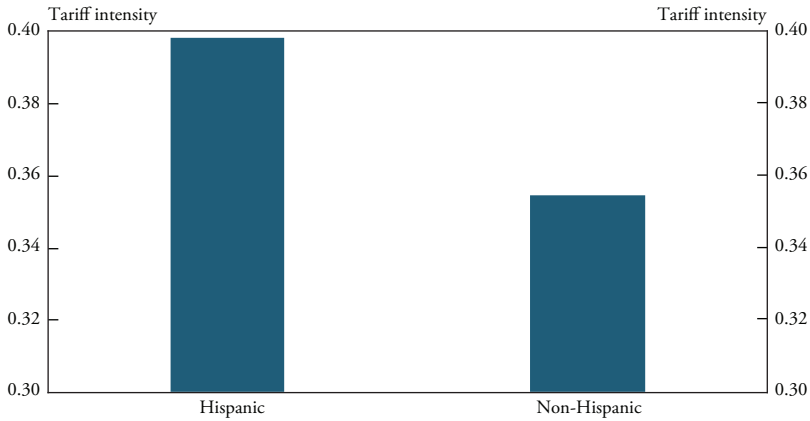


Note: The "Other" race category includes households who identified in the CEX as Native Americans, Pacific Islanders, or multi-racial.

Sources: U.S. International Trade Commission, BLS, and authors' calculations.

## Chart 7

## Tariff Intensity: Hispanic versus Non-Hispanic Households



Sources: U.S. International Trade Commission, BLS, and authors' calculations.

These differences are likely related to income differences across racial and ethnic groups. According to the CEX, in 2019, the average annual pre-tax household income of Black households was 34 percent lower than that of white households (including “other races”) and 47 percent lower than that of Asian households, while the average income of Hispanic households was 25 percent lower than that of the non-Hispanic households. As discussed previously, higher-income households spend relatively more on services, which were not affected by tariff increases. Consistent with this interpretation, Black households had a 2 percentage point lower average annual share of spending on services than white households and a 3.7 percentage point lower share of spending on services than Asian households.<sup>10</sup>

## Conclusions

The costs of the large-scale tariff increases in the United States during 2018–19 were largely passed through to U.S. importers and, to a lesser extent, consumers by the end of 2019. We construct a measure of households' exposure to these tariffs by matching detailed data on tariff-affected goods to household expenditure categories. By comparing expenditure shares in categories with different exposure to tariffs before and after the tariff increases, we show that households did not substantially alter their spending in response to tariff hikes by the end

of 2019—though this could change if the higher tariffs remain in effect longer and if retailers start to raise prices more on tariffed goods.

In addition, we show that the effects of the 2018–19 tariff hikes have been uneven across households of different ages, income levels, and racial and ethnic groups. In particular, we show that low-income households were more exposed to the tariff increases than high-income households, younger households were more exposed than older households, Black households were more exposed than white and Asian households, and Hispanic households were more exposed than non-Hispanic households. These findings suggest that researchers may need to take differences across demographic groups into account when evaluating the effects of tariff increases on the U.S. economy, as aggregate effects may underestimate the pass-through to certain U.S. households.

## Endnotes

<sup>1</sup>Countries were given exemptions for various reasons, and some of these exemptions were temporary. Canada and Mexico were given exemptions because the countries were re-negotiating NAFTA. The European Union (EU) was given an exemption after retaliation threats, while Korea, Argentina, and Brazil were given permanent exemptions (but faced quotas). In June 2018, the exemptions ended for the EU, Canada, and Mexico.

<sup>2</sup>This level increased further in the fourth round of tariffs to nearly \$115 billion; if the fifth round of tariffs had been implemented, the level would have reached more than \$150 billion. These values are based on imports from China in 2017.

<sup>3</sup>Tariffs on imports from China have been largely unchanged since January 2020, though the expiration of some tariff exemptions may have slightly increased the realized tariffs on imports from China. In addition, due to the COVID-19 pandemic, the U.S. Trade Representative has exempted certain medical products from Section 301 tariffs since March 2020.

<sup>4</sup>When a government implements higher tariffs, it usually generates higher revenue if the quantities of imports do not decline too much. When the increased tariff revenue cannot cover the induced costs to importers and consumers, however, higher tariffs lead to a welfare loss to the home economy. In addition, higher tariffs can also lead to welfare losses to the economy targeted by tariffs, as they reduce total exports from the targeted economy and, accordingly, revenue.

<sup>5</sup>See the forthcoming Research Working Paper by Nie and Yang for more details.

<sup>6</sup>In calculating tariff intensity, we include the scheduled fifth round of tariff increases on imports from China. In a robustness check not included in this article, we show that excluding this round (which was not implemented due to the Phase One trade deal) does not change our main findings regarding differences in tariff exposure across groups of households, though it slightly lowers the tariff intensity level for an average household.

<sup>7</sup>Services are generally not exposed to tariffs, and the HTS codes do not include services. We therefore set the tariff intensity to be zero for UCC services categories.

<sup>8</sup>Our analysis focuses on how tariffs directly affect households through expenditures. However, tariffs may affect households through other channels, such as the income channel. For example, if higher costs due to higher tariffs cause firms to reduce hiring or wages, households' income will decline.

<sup>9</sup>In the first 11 months of 2019, younger households spent 18 percent of total expenditures on vehicle purchases and household furnishings and equipment, which is twice the share for older households.

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<sup>10</sup>This calculation is based on aggregation at the UCC level. As all services categories have a tariff intensity of zero, and most goods categories have a positive tariff intensity, we use categories with zero tariff intensity as a proxy for services categories.

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