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The Effects of the Trump Tariffs and the Coronavirus Pandemic on the U.S. Bicycle Industry

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Paul 794.H01: Honors Thesis

Dr. Loris Rubini

I. Introduction

President of Trek Bicycle John Burke states in an interview in May 2020, “I have been in this business for 37 years and I have never seen anything like this before” (Latz, 2020). John Burke is describing the unprecedented situation that surprised the United States bicycle industry in 2020. Bicycle companies spent months worrying about what the increased Trump administration tariffs would mean for the industry, as over 90% of bicycle come from China (Singh, 2019). However, once the coronavirus pandemic (Covid-19) landed in the United States, U.S. bicycle companies experienced an exceptional increase in demand. Burke describes it as “a surge in demand across the market” (Latz, 2020). However, the bicycle industry was unable to keep up with demand leading to severe shortages. I was working as a bike sales specialist during the Summer of 2021 and saw these shortages firsthand. The purpose of this paper is to understand what factors led to this bicycle shortage. I separated my analysis into two main sections. The first section looks at the impact that the Trump tariffs had on the industry and the second section looks at what impact the Covid-19 pandemic had on the industry. I primarily use trade data to gain a general understanding of the industry and its trends on a macro scale. In general, the Trump tariffs decreases the number of bicycles imported into country and left in the industry ill-prepared for a positive demand shock that would come from Covid-19 pandemic. U.S. bicycle companies were unable to sure up supply because Covid-19 interrupted international supply chains. The United States bicycle industry is a highly globalized sector that highly impacted by both the Trump Tariffs and the Covid-19 pandemic, leading to a long-lasting bicycle shortage in the United States.

The next section will cover the details of the data that I collected and the methodology I used to analyze them. Section III will first cover the impacts of the Trump tariffs and then will cover

the specific supply chain issues caused by Covid-19. Finally, section IV will contain the conclusion and limitations of the paper.

II. Methodology

For the analysis of the U.S. bicycle industry, I used data from the United States International Trade Commission (USITC) as my primary source of trade data. According to USITC, one of the organization's core missions is to "provide independent analysis and information on tariffs, trade, and competitiveness...." Independent analysis is critical to my research in this paper as it intersects prominently with the current political climate around trade and the Coronavirus pandemic. Having an independent and nonpartisan agency gives the data more trustworthiness and decreases the likelihood of manipulation. The USITC is also tasked with maintaining the Harmonized Tariff Schedule (HTS). I use HTS code 8712.00 as the trade classification for bicycles in this analysis. HTS 8712.00 is defined as "bicycles and other cycles (including delivery tricycles), not motorized" (Harmonized Tariff Schedule Search, 2022). HTS 8712.00 is broad enough to range from mountain and road bikes to children's bikes, while being specific enough to exclude motorcycles and other motorized products.

I collected data from two trade flows compiled by USITC: Imports for Consumption and General Imports. Imports for Consumption measures "the total merchandise that has physically cleared through U.S. customs immediately or after withdrawal consumption" and General Imports measures "the total physical arrivals of merchandise from foreign countries, whether such merchandise enters the U.S. customs territory immediately or is entered into bonded warehouses or [U.S. Foreign Trade Zones] under Customs and Border Protection custody" (USITC, n.d.). I needed to analyze data from both trade flows to collect data on a wide range of trade statistics. Within the Imports for Consumption trade flow, I investigated calculated duties.

Within the general imports trade flow, I investigated general first unit of quantity, general import charges, general customs value divided by general first unit of quantity, and general CIF imports value.

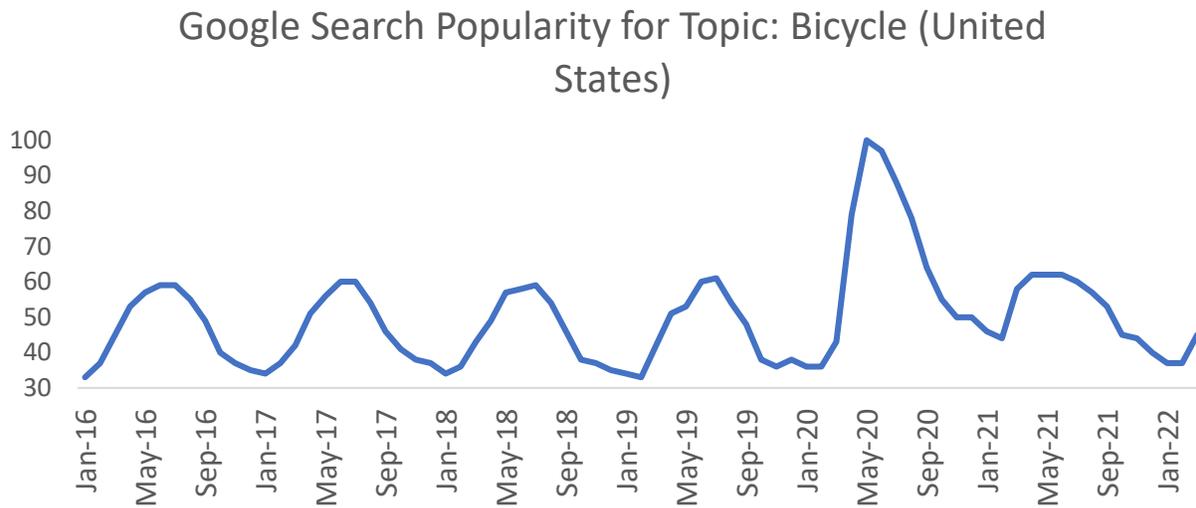
I split my analysis into two sections. The first section focuses on the years leading up to and including when the Trump tariffs were implemented and what effects this has on the U.S. bicycle industry. The time range studied for this section starts in 2016 and the data is reported monthly until February 2020, the month before the start of the Covid-19 pandemic in the United States. This time range gives a couple of years without large disruptions before the Trump tariffs on Chinese imports were imposed. Figures in this section are specifically only measuring imports from China which is the focus of tariff increase and where most bicycle imports originate from (Martin, 2019). The second section shifts its focus to the effects of the Covid-19 pandemic on the U.S. bicycle industry. This data is also collected monthly but continues until December 2021. This allows for the analysis of the direct effects of the pandemic and the perpetuating effects in the months afterwards. For this second section in the analysis, I combined imports from Taiwan and China into the analysis. This is because Giant Manufacturing, the largest bicycle maker in the world, and other manufacturers began moving their production out of China and into Taiwan (Wang, 2019).

There is no price data available, so instead I estimate the price using data from USITC. To analyze bicycle prices, I use figure 6 which depicts General Custom Value divided by first Unit of Quantity. This analysis spans from January 2016 to December 2021. Price is found when total revenue is divided by quantity. Using general customs value as total revenue and first unit of quantity as quantity I can get a relative price. There are limitations to this figure, and they will be covered in the limitations section of the paper.

The USITC data was not the only data used in this paper. The USITC data is effective at capturing changes in supply but does not show demand changes. For demand analysis I used Google Trends data (Figure 1). Google Trends depicts the popularity of a search term or topic over a certain period. The time frame that I selected ranges from January 2016 to March 2022. The numbers depicted are relative to the highest point in the figure. For example, the peak at one hundred is the highest popularity and a value of 50 would mean that the topic is half as popular at that time. Google defines topics as “a group of terms that share the same concept in any language” (Compare Trends Search Terms - Trends Help, 2022). Figure 1 uses the topic bicycle which includes many terms beyond just the term bicycle.

In the next section, I explore my findings regarding the effects of the Trump tariffs on the U.S. bicycle industry and what the industry looked like in the months before the Covid-19 pandemic. After discussing this period, I will look at how the Covid-19 pandemic changed the bicycle industry and created new challenges for them.

Figure 1: Google Search Popularity for Topic: Bicycle in the United States



III. Results

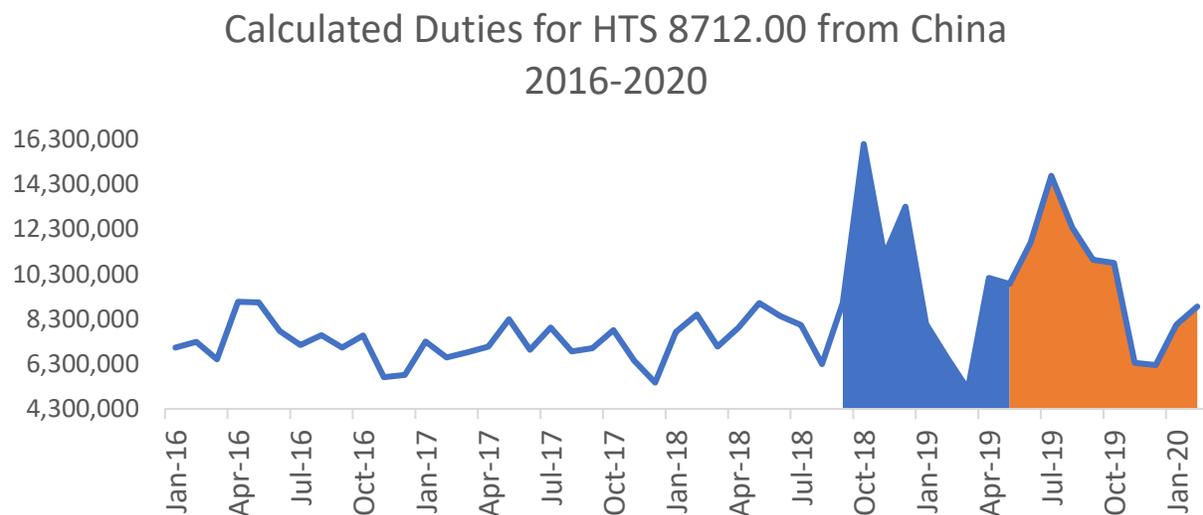
a. *The Trump Tariffs*

According to Reuters, 94% of bicycles were imported from China in 2017 (Singh, 2019). Statistics like this are what caught the attention of President Donald Trump. He believed that China was taking advantage of the United States in international trade and maneuvering around Intellectual property law. In 2018, Trump started the trade war with China, by increasing tariffs on Chinese goods (Bown & Kolb, 2018).

The tariffs on bicycles increased in two waves. To measure the increases in tariffs I created figure 2 to measure fluctuations in calculated duties. Calculated duties simply represent the estimated import duties collected (USITC). In this paper, the calculated duties show duties collected from HTS 8712.00. The first tariff increase took place on September 24, 2018, with an increase of 10% on top of the existing tariffs (Frothingham, 2018). This lines up with the spike of calculated duties in figure 2 from \$9,021,252 in September 2018 to 16,094,467 in October

2018. Calculated duties decrease significantly after the initial spike but then rises again in May 2019. The drop off is likely caused by fewer bicycles being imported due to higher costs. The second increase in calculated duties corresponds with a second hike of tariff rates on bicycles in May 2019. Rates increased by 25% in addition to existing tariffs on which are around 5-11% on bicycles (Frothingham, 2019). In figure 2, the orange highlighted section outlines the first tariff increase until the second wave of increased tariff rates. The blue section outlines the second wave of tariff increases until the month before Covid-19 drastically changes the industry.

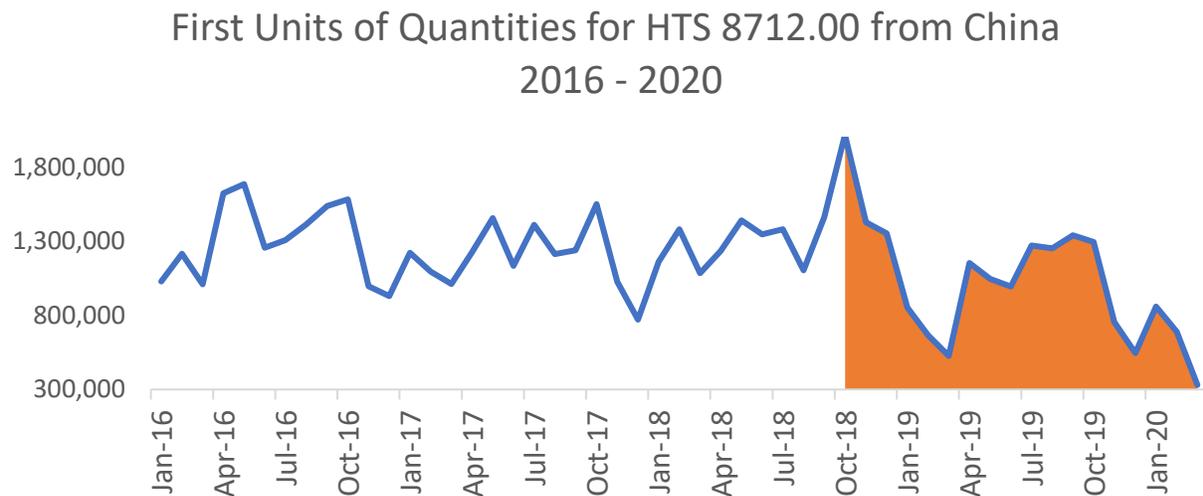
Figure 2: Calculated Duties for HTS 8712.00 from China 2016-2020. Data from USITC.



While calculated duties are increasing due to the Trump tariffs, the quantity of bicycles imported into the country is decreasing. In figure 3, there is a steep drop in the number of bicycles imported into the United States. The start of the downwards spiral takes place in the same month of the first tariff increase, October 2018. This signifies that the Trump tariffs led to a considerable drop in the quantity of bikes in the United States. The orange shaded section of figure 3 shows the period where the tariff rates were elevated by the Trump Administration. After the second wave, there is a 5-year low of bicycle imports from China. This low directly

predates the Covid-19 pandemic. Bicycle companies were moving production out of China due to the increased tariff rates, however, it is unlikely that this production was offset by moving production because it takes time to build factories, start business in another country, source new materials, and make business partners (Wang, 2019 and Singh, 2019).

Figure 3: 1st Unit of Quantities for HTS 8712.00 from China 2016 – 2020. Data from USITC.



The situation of the U.S. bicycle market in the months right before the Covid-19 pandemic is now easier to understand. The Trump administration has increased the tariff rates on bicycles twice in under a year. This reduces the number of bicycles imported into United States. Bicycle importers are importing fewer bikes either because they do not want to pass prices on to customer, there is less demand when prices are passed on to customers or both.

b. Covid-19

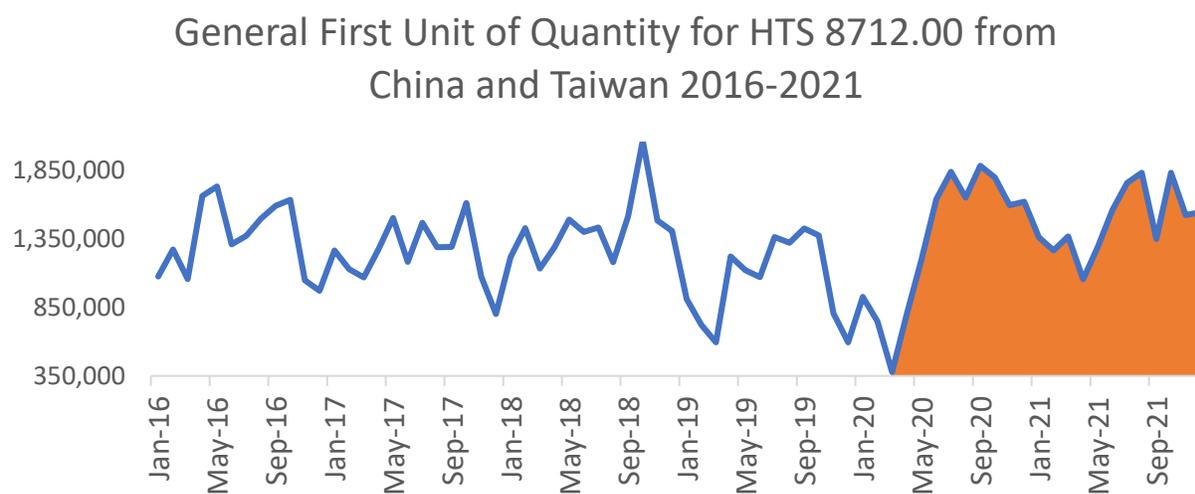
No one could have predicted the positive demand shock that the bicycle industry would experience when the Covid-19 pandemic hit the United States. People were discouraged from using public transportation, and gyms closed to reduce the spread of Covid-19. Many consumers

turned to bicycles as the alternative. Figure 1 depicts the increased interest in bicycles after the start of the pandemic. The bicycle search topic reached an all-time high in the months following the onset of the pandemic in the United States. Bike shops were selling out of their stock unable to keep up with demand (Goldbaum, 2020). The bicycle industry was in a profoundly different position during this period than previous years. The aforementioned reasons in addition to being in lockdown led many consumers to demand bicycles. Unlike many industries (travel, hospitality, restaurants, etc.), the bicycle industry struggled with both a positive demand shock, and a negative supply shock.

Data from the USITC gives many insights into what the industry is experiencing during the Covid pandemic. In figure 1, there is peak interest in the bicycle topic at the start of the pandemic, March 2020. Figure 4 gives insight to how bicycle importers are reacting to the increase in demand. Directly following the 5-year low there is a significant spike in bicycle imports from China and Taiwan. The number of bicycles imported in the U.S. from these two countries skyrocketed from 378,207 units in March 2020 to over 1.8 million units in July 2020. However, articles from this period are already warning readers of long waits and shortages. An article from the New York Times published in May 2018 describes scenes where bicycle retailers have sold out of all their entry-level bikes and are reaching record number of preorders (Goldbaum, 2020). As early as May 2020 bicycle options were already slim, and imports were not keeping up with the demand. Giant Manufacturing ramped up production in China in order to keep up with the positive demand shock only months after moving production out of the country to distance itself from the Trump tariffs (Zhong, 2020). Companies were willing to accept the tariff costs to increase production to keep up with demand.

As bicycle importers tried to keep up with demand, they had to overcome issues beyond the Trump tariffs. The Covid-19 pandemic originated in China and quickly spread within the country. China's government made it a priority to quarantine and slow down the spread of Covid-19. Quarantine in China led to many factories being forced to slow production or even being shut down because they lacked the personnel to run the factory. For example, Giant was forced to shutter their Chinese plants for a month and a half to slow the spreading of Covid-19 (Zhong, 2020). Plants closing slowed down the response of the bicycle industry to the demand increase in the United States.

Figure 4: General First Unit of Quantity for HTS 8712.00 from China and Taiwan 2016-2021. Data from USITC.

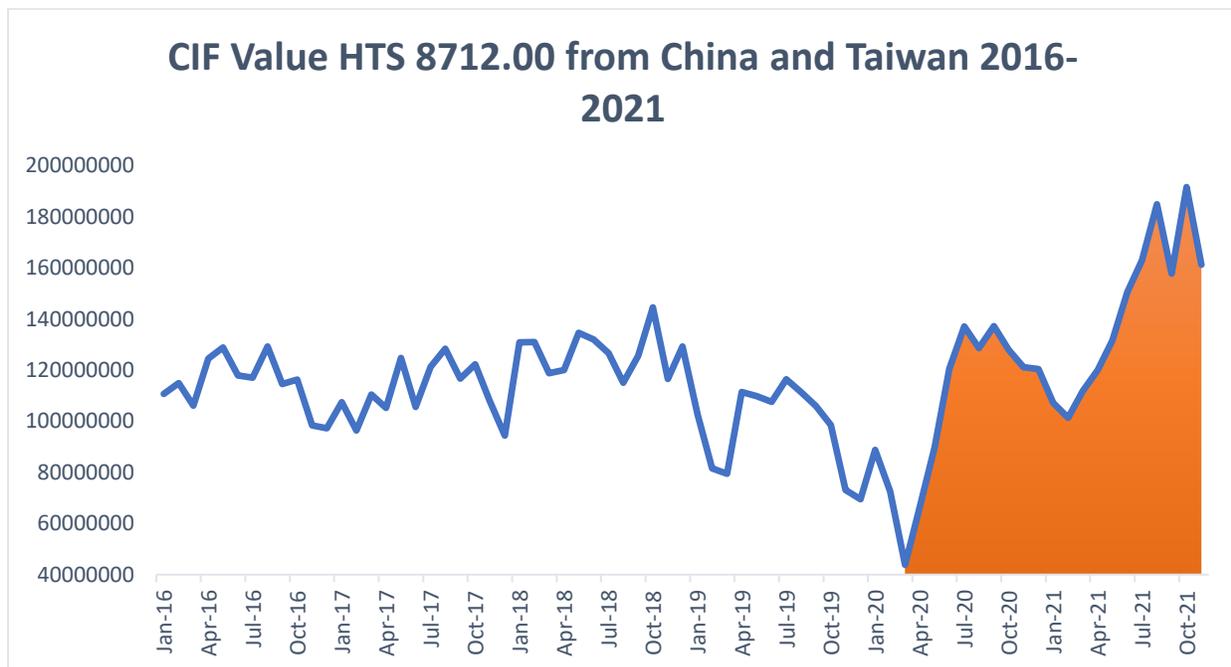


The supply chain issues did not cease with the factories. As bicycle factories resumed production again, importers faced another issue. Ports across the United States were experiencing lengthy delays and cargo ship backups due to the Covid-19 pandemic. An article from the Los Angeles times describes the delays coming from a “perfect storm” where “labor and equipment shortages are colliding with the still-healthy purchasing power of American consumers

(Bloomberg, 2020). Ships backed-up unable to unload their cargo leads to further delays down the supply chain and directly slows the response of bicycle importers.

The impact of Covid-19 on supply chain costs is reflected in figure 5, which measures the CIF value. CIF value comprises of cost, insurance, and freight (USITC). The CIF value is decreasing as the very start of the pandemic presumably because shipping across the board was halted decreasing insurance and freight expenditure. However, once the economy opened again and people began to seek alternatives to activities that were cancelled due to Covid. The CIF value soars up to more than double the value at its trough following the reopening of the economy. One key component of freight costs is container costs. According to Freightos.com, the index for a 40-foot container increased almost 5.8 times from only \$1,762 in July 2020 to \$10,176 in July 2021. The CIF value for bicycles does increase in April 2021 reflecting the increase in shipping freight costs.

Figure 5: CIF Value for HTS 8712.00 from China and Taiwan 2016-2021. Data from USITC.



Finally, how do these two shocks alter the price of bicycles? Interestingly, the data does not support what traditional economic theory would suggest. During a shortage, an economist would assume that price increases as quantity drops, however figure 6 depicts an initial drop in price and then it levels out until Spring 2021. The price does increase in April 2021 which reflects the increase in shipping costs seen in both figures 5 and 7. The supply issue is still present from Covid-19 in Spring 2021 and with the change in weather comes a seasonal demand increase. When the weather is warmer this leads to higher demand for bicycles. This interest is represented by the cyclical nature of figure 1.

Figure 6: General Customs Value/1st Unit of Quantity for HTS 8712.00 from China and Taiwan 2016-2021. Data from USITC.

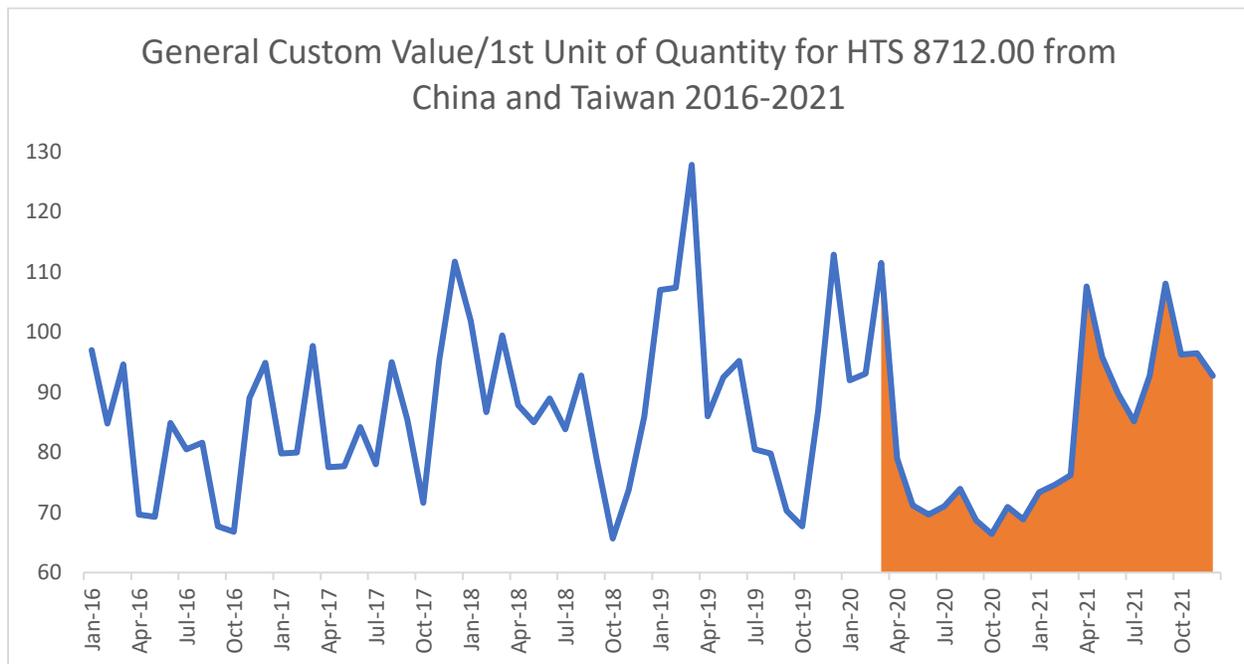
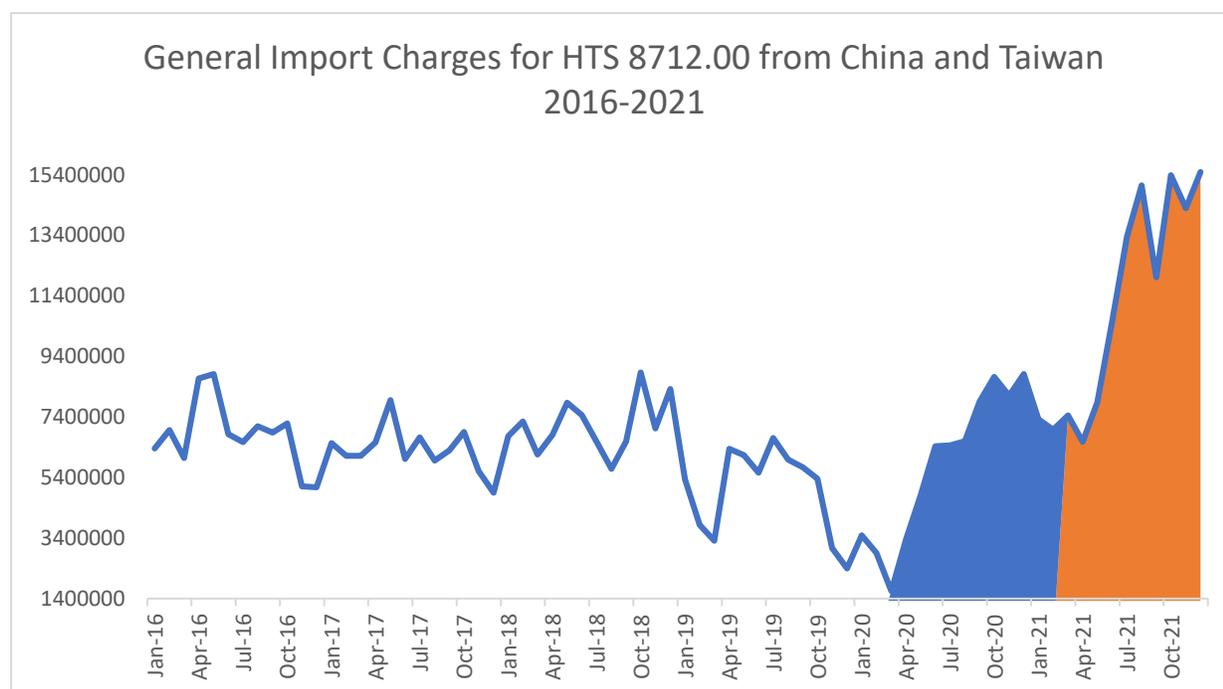


Figure 7: General Import Charges for HTS 8712.00 from China and Taiwan 2016 – 2021. Data from USITC.



IV. Limitations

There are limitations to my analysis given the generality of my data. I will layout the major limitations of my paper here. The USITC data is a thorough source of data regarding national trends, however the data does not divide imports by region or type of bicycle. HTS 8712.00 allowed my analysis to look at the industry as a whole, but it is possible that demand increased more for a certain type of bike (mountain bike) more than others. Unfortunately, my data does not give me this insight. Further analysis should be done using specific order information from a major importer to view this difference. In the same vein, my data does not give me direct information about demand. Google Trend data allows for general interest to be gauged; however, it does not tell me whether these searches lead to bicycle purchases. One specific limitation comes from my choice of HTS code. 8712.00 allows for almost every consumer bike to be

included, but it misses out on one growing sector of the industry, electric bicycles. Electric bicycles grew by 240% in the 12 months leading up to July 2021 (Sorenson, 2021). This could be another reason we do not see an increase in the price figure as electric bicycles are more expensive than a traditional bike. Finally, the Covid-19 pandemic is still affecting the world's supply chain, and this includes the bicycle industry. Further analysis after the shortage has disappeared would give a valuable perspective on what caused the shortage. The final implications of Covid-19 and the trump tariffs are still yet to be determined

V. Conclusion

The United States bicycle industry imports over 90% of its bicycle and bicycle parts from China, representing an industry that is highly reliant on international supply chains (Marten, 2019). This analysis looked at the effects that two major supply and demand shocks have had on this global industry. The increase of tariffs on Chinese imports negatively impacted the industry lowering the volume of bicycles being imported into the country. This left the bicycle industry unprepared for a positive demand shock that would result from the Covid-19 pandemic which created a bicycle shortage. The pandemic exacerbated the shortage through disrupting international supply chains at many crucial steps. Factories were shut down throughout China, freight costs increased to a 5-year high, and ports were closed to prevent the spread of Covid-19. In the first quarter of 2022, Covid-19 is affecting how we live our lives, albeit to a lesser amount than in the past two years and bicycles are available in stores again. It is too early to say that the shortage and supply chain issues are behind us; however, this Summer will be important to the bicycle industry to see if they regain control and fix the shortage.

Reports point to the shortage continuing into 2022 with one business stating that the wait for a new bike “is anywhere between six and 18 months” (Annis, 2022). Understanding the factors

that led to this shortage can help not only the bicycle industry adapt in the future but also other industries that are highly reliant on international supply chains. As the world's supply chains become increasingly globalized, it is important to realize when there has been a failure and to adapt to creating more resilient supply chains and systems. The first step to creating better systems is to identify the problems. With the U.S. bicycle industry, they had become highly reliant on cheap labor from China and offshored almost all their production out of the country. Unfortunately, this made them very susceptible to disruptions caused by trade wars and supply chain delays.

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