The Effects of Tariffs on the US Economy

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The Effects of Tariffs on the US Economy
Introduction:

Over the past year and a half, the most recent presidential administration has passed several different new tariffs on aluminum, steel, solar panels, and other goods. The purpose of this paper is to determine how these tariffs may or may not have affected the US economy, and whether this effect has been positive, negative, or neutral. The economic indicators I will be reviewing have been specifically selected to help gauge the overall health of the economy. The indicators are as follows; change in GDP, change in unemployment rate, change in interest rates, change in the trade deficit, and change in stock market figures. A figure I believe to be important, but which was not included in this paper, is the budget deficit. Unfortunately, information on the budget deficit per month was extremely difficult to find, as budget deficit is typically something which is tracked from year to year or quarter to quarter. Another caveat worth mentioning is that even though as of the writing of this paper it has been a year since some of the initial tariffs have been implemented, it is still a little too early to tell what the complete effect on the economy has been as a result. Thus, this paper will be examining more of the immediate effects on the economy, and merely speculating on the long term effects.

Literature Review:

A wide variety of literature was reviewed for this thesis paper. Examples of analyzed literature include scholarly articles, databases, news articles, and primary sources. Below is a brief review of my literature.

Main Findings: The author of this article expresses small concern over the steel and aluminum tariffs. He argues that because the world arguably produces more steel and aluminum than needed, the individual steel and aluminum industries of each country will not last. By enacting protections for the US producers of aluminum and steel, it ensures that the US industry will survive. While these tariffs are controversial and unlikely to be profitable in the short run, they are necessary for retaining US industry in the long run.

Boecking, Felix. "Nationalist Policy and the Import Trade."

Main Findings: This journal article details the importance of tariffs as a source of revenue. This analysis is through the lens of the Chinese government, and briefly summarizes the history of tariffs in the Chinese government. The author concludes that overreliance on tariffs can lead to financial difficulties for a nation.

Ha, Hoi Van, and Tuyen Quan Tran. "International Trade and Employment: A Quantile Regression Approach."

Main Findings: This journal article comments on the link between international trade and unemployment figures. In developing nations such as Vietnam, there was found to be a positive correlation in international trade as a percentage of GDP and overall employment. However,

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when considering firms that were both smaller in overall revenue and hired fewer workers, it was found that these firms actually suffered from increases in international trade.

Layne, Rachel. "President Trump's Steel and Aluminum Tariffs: Winners and Losers." 4

Main Findings: This article discusses the inner workings of the steel and aluminum tariffs. The article goes over all the pros and cons of the tariffs, who is benefiting and who is harmed by these tariffs, and commentary from any relevant parties on the topic. The article also goes into detail on how countries such as Mexico, Canada, and the European Union have taken retaliatory measures against the US, and also briefly goes over just how much metal the United States imports from foreign countries.

Swanson, Ana, and Brad Plumer. "Trump Slaps Steep Tariffs on Foreign Washing Machines and Solar Products." 5

Main Findings: This article reviews the tariffs enacted on washing machines and solar panels. The article goes into detail on how these tariffs can and will affect the solar industry and how various parties involved feel about the situation. Ironically, the article makes mention of how a number of industry leaders in the solar field actually do not support the tariffs, as they are expected to be losing profits in the short term.

Background and Summary of Tariffs:

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Generally speaking, the purpose of tariffs (when imposed by an importing country) is to protect that importing country's producers as well as raise government revenue. A tariff, or tax on imports, effectively increases the price of the imported good. This then causes demand for foreign goods to decrease, and demand for domestic goods to increase. Domestic production then increases, and producers gain a larger producer surplus. This was effectively the rationale behind the implementation of the steel and aluminum tariffs. The US presidential administration was hoping to protect the US steel and aluminum industry and workers against foreign competitors. Thus, it imposed new tariffs. It should be noted however, that tariffs can also cause harm to domestic consumers due to the increase in prices. The figure below illustrates this phenomenon;

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As stated, the implementation of the new tariff increases the domestic price. This is illustrated by the movement from $P_W$ to $P_T$. It should be observed however, that the foreign export price is lowered from $P_W$ to $P_{T^*}$. This change for foreign producers helps to explain the ire created by countries such as China and Canada over the US tariffs. Once domestic price has increased however, domestic consumption of the foreign good falls from $D_1$ to $D_2$ and domestic production rises from $S_1$ to $S_2$. The gain for domestic producers is represented by $a$, and government revenue is represented by $c$ and $e$. Consumer loss however, is represented by $a$, $b$, $c$, and $d$. When deciding whether or not to implement tariffs, the government has to weigh the cost-benefits that are depicted by the above graph. Are domestic producers in dire need of aid? What will the government use the increase in revenue for? How much will the decrease in domestic consumption negatively impact the economy? These are all questions the government must ask when deciding whether or not to implement a tariff.

Another important note on tariffs is that they cause price and quantity to be set at a number other than the true equilibrium value. Whenever a market strays from equilibrium values, it opens itself up to potential distortion and welfare losses. This is caused by domestic producers producing too much of a good, and domestic consumers consuming too little of a good. These losses must be weighed against the trade gain to domestic industry. The following is once more represented by a graph;
The efficiency loss from production distortion is represented by triangle b, and the efficiency loss from consumption distortion is represented by triangle d. The trade gain is depicted by area e. The value of areas b and d must be weighed against the gains from area e before the enactment of a new tariff. The current US presidential administration effectively believed that the gains from e would outweigh the losses from b and d, leading to the first of the new legislation.

The first of the tariffs was imposed on January 22nd, 2018. This tariff followed several months of verbal promises and threats to take economic action in order to help protect US industry from the import of cheap goods from countries such as China or South Korea. The tariff

\[7\] Krugman, Paul R., and Maurice Obstfeld.
was imposed on solar panels and washing machines, and ranged from 30 to 50 percent. After 
the implementation of the tariff, the presidential administration promised that similar tariffs on 
steel and aluminum would be shortly following. Reactions to the tariff were mixed to negative. 
Most harshly opposed to the tariff were the countries of China and South Korea, which both 
threatened to take retaliatory measures. Several industries that would be protected by these 
tariffs welcomed their implementation\(^8\), but many economists and industry leaders expressed 
concern. The concern from economists was that this could drive up prices for consumers and 
hurt American businesses in the short term. Certain members of the solar industry opposed the 
tariffs on the grounds that this would cost the industry a great deal of money and make solar 
energy less competitive with other sources of energy.\(^9\)

On March 1, 2018, the US presidential administration then announced its intention to 
 impose a second set of tariffs. This time it would be a 25 percent tariff on steel and a 10 percent 
tariff on aluminum imports, as was promised several months earlier. The initial tariff was 
imposed on most countries trading with the US, and on June 1, 2018, the tariff was extended to 
include the European Union, Mexico, and Canada. As of the writing of this paper, the only 
countries exempt from this tariff are Australia and Argentina. The announcement of these tariffs 
was once more met by mostly negative criticism. The European Union, Canada, and Mexico all 
took retaliatory measures against the US in the form of counter tariffs and complaints registered 
to the World Trade Organization and North Atlantic Free Trade Agreement. Complaints over 
these new tariffs were based on the concern that these tariffs would boost the price on a 
number of commodity goods, which could in turn cost jobs. Goods such as beer cans, cars, 
soda, and other items using steel or aluminum were expected to increase in cost.\(^10\) These

\(^8\) Swanson, Ana, and Brad Plumer.  
\(^9\) Ibid  
\(^10\) Layne, Rachel.
higher costs would in turn lower demand, causing producers to potentially lay off workers in an
effort to slash costs. While the tariffs were expected to help workers keep their jobs in the
aluminum and steel industries, the overall net gain was thought to be negative. A consulting firm
called the Trade Partnership estimated that as many as 33,464 jobs might be created from
these metal tariffs, but on the converse 179,334 jobs were forecasted to be lost.¹¹ This would
result in one job being created for every job lost. The workers expected to be most harmed by
these tariffs includes workers in mostly low-skill categories. The following table breaks down job
loss by sector.

¹¹ Francois, Joseph, Dr., and Laura M. Baughman. "Does Import Protection Save Jobs?" The
Trade Partnership. March 5, 2018.
### Net Number of U.S. Jobs Impacted by Steel and Aluminum Tariffs (Number)

<table>
<thead>
<tr>
<th>Category</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary agriculture*</td>
<td>-285</td>
</tr>
<tr>
<td>Primary energy</td>
<td>-669</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>-2,612</td>
</tr>
<tr>
<td>Processed food</td>
<td>-1,173</td>
</tr>
<tr>
<td>Beverages and tobacco</td>
<td>-365</td>
</tr>
<tr>
<td>Petroleum and coal products</td>
<td>-5</td>
</tr>
<tr>
<td>Chemicals, rubber, plastics</td>
<td>1,220</td>
</tr>
<tr>
<td>Iron and steel</td>
<td>29,998</td>
</tr>
<tr>
<td>Non-ferrous metals</td>
<td>3,466</td>
</tr>
<tr>
<td>Fabricated metals</td>
<td>-12,802</td>
</tr>
<tr>
<td>Motor vehicles and parts</td>
<td>-5,052</td>
</tr>
<tr>
<td>Other transportation</td>
<td>-2,180</td>
</tr>
<tr>
<td>Electronic equipment</td>
<td>-1,579</td>
</tr>
<tr>
<td>Other machinery</td>
<td>-5,247</td>
</tr>
<tr>
<td>Textiles</td>
<td>-195</td>
</tr>
<tr>
<td>Clothing</td>
<td>-37</td>
</tr>
<tr>
<td>Footwear, leather, footwear</td>
<td>-3</td>
</tr>
<tr>
<td>Wood, paper</td>
<td>-2,142</td>
</tr>
<tr>
<td>Other goods*</td>
<td>-4,075</td>
</tr>
<tr>
<td><strong>Services</strong></td>
<td><strong>-142,305</strong></td>
</tr>
<tr>
<td>Construction</td>
<td>-28,313</td>
</tr>
<tr>
<td>Air transport</td>
<td>-353</td>
</tr>
<tr>
<td>Water transport</td>
<td>-32</td>
</tr>
<tr>
<td>Other transport</td>
<td>1,484</td>
</tr>
<tr>
<td>Trade and distribution</td>
<td>-34,065</td>
</tr>
<tr>
<td>Communications</td>
<td>-3,675</td>
</tr>
<tr>
<td>Financial services</td>
<td>-5,105</td>
</tr>
<tr>
<td>Insurance</td>
<td>-1,934</td>
</tr>
<tr>
<td>Business and professional services</td>
<td>-22,375</td>
</tr>
<tr>
<td>Personal and recreational services</td>
<td>-10,312</td>
</tr>
<tr>
<td>Other services</td>
<td>-37,625</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>-145,870</strong></td>
</tr>
</tbody>
</table>

* Includes forestry products, minerals, and other manufactures.

Source: Authors’ estimates.
The most recent tariff implemented as of the writing of this paper was enacted on July 6, 2018. This would be at a 25 percent rate, and included 818 categories of goods imported from China. Reuters conducted a poll of 60 economists on the aluminum and steel import tariffs. Of the economists surveyed, nearly 80 percent believed that these tariffs would have a net negative impact on the US economy. The rest believed that they would have little or no effect, with no economists believing that there would be an overall positive effect.

Results and Data:

The following graphs and tables depict the data recovered from my analysis of the overall health of the economy before, during, and after the implementation of the tariffs. The vertical lines on each of the graphs correspond to the date of each tariff enactment, thus allowing the reader to see directly how a given indicator changed in relation to the tariff.
The first of the indicators observed was the stock market as measured by the Dow Jones Industrial Average. Generally speaking, while there are clearly a number of noticeable changes in the stock market, whether or not these changes were caused by the enactment of the tariffs is difficult to determine. Furthermore, there is also a possibility that if a given tariff did in fact affect the stock market, there may have been a delay in the effect. This delay could be the length of several weeks, several months, or perhaps even several years, thus making it impossible to observe on the particular graph constructed for this paper. It is also difficult to determine if certain changes were brought about by the tariffs themselves, or simply the announcement of new tariffs to come, or a combination. The reader should note that I did not elect to mark the date of tariff announcements on the graph, only the dates of the actual implementation of each tariff.

13 Dow Jones, MarketWatch,
With these caveats stated, an analysis of the graph can now be conducted. One can easily observe a drop of several thousand points in the stock market following the implementation of the January and March tariffs. It is very possible that these drops were caused by the tariffs themselves. However, there is also a noticeable increase in the stock market following the June and July tariffs. Again, this could very possibly be caused by the enactment of the tariffs.

![S&P 500 Graph]

The second indicator observed is the stock market as measured by the Standard and Poor’s 500 Index. Upon observing the above graph, one can draw a number of similarities between the effects of the tariffs as measured by the Dow Jones and as measured by the S&P

14 Standard & Poor's | Americas.
500. As in the Dow Jones, there appears to be a significant drop in the S&P 500 after the implementation of the January and March tariffs. Also similar to the Dow Jones, there is once more an increase in the stock market following the June and July tariffs.

The next indicator observed is the Federal Funds Rate. The tariffs appear to have no easily visible effect on this particular interest rate. Overall, the FFR displays the continual trend of gradual increase over the months. This is in line with the general health of the US economy, which has been steadily improving since about 2010. As the economy continues to do better and better, the FOMC will naturally be increasing the FFR by small increments. Clearly, the FOMC did not anticipate a need to sharply or even gradually decrease the FFR in response to the new tariffs.

15 “Effective Federal Funds Rate.” FRED.
Next, we can analyze the change in GDP by month. The above graph appears to follow a similar trend to that of the Dow Jones and S&P 500. There appears to be a significant decrease in GDP shortly following the January and March tariffs, and then a more gradual increase following the June and July tariffs.

16 YCharts. "US Monthly GDP:. 
The percent of US unemployment appears to be following a trend of gradual decline. Upon looking at the above graph, one might notice a significant drop in unemployment following the enactment of all the different tariffs. It should be noted however, that unemployment has been experiencing the trend of gradual decline for years (ever since the end of the Great Recession.) While the drops in unemployment could potentially correspond to the new tariffs, it is also possible that these spikes are merely coincidental and only following a trend that has already existed for years.

Furthermore, one must also take into consideration that the effects of the tariff implementation might also be too small to observe on the scope of total US unemployment. For example, the Trade Partnership calculated that the recent tariffs would see a net loss of US jobs

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totaling about 140,000,\textsuperscript{18} while the total US labor force accounts for about 160 millions persons.\textsuperscript{19} A change in employment of 140,000 persons would not account for even a tenth of a percentage point in change to the total unemployment rate (140,000 / 160,000,000 = .000875). A change this small would consequently not be observable on any graph. Thus, one could draw the conclusion that the these tariffs do indeed negatively impact the unemployment rate, but not to a significantly observable degree.

![Trade Deficit Graph]

The final observed data indicator is the US trade deficit. Change in the US trade deficit is the indicator that I expected to see the most significant change in following the tariff implementation. My reasoning for this was based on the fact that tariffs and their effects are

\begin{itemize}
  \item \textsuperscript{18} Francois, Joseph, Dr., and Laura M. Baughman.
  \item \textsuperscript{20} YCharts. "US Trade Deficit:"
closely intertwined with the activities of foreign countries. With these tariffs causing both
efficiency distortion and anger from foreign countries, I would expect significant decrease in the
total quantity of trade occurring between the US and other countries. This decrease would
potentially be observed by changes in the trade deficit.

Concerning the actual analysis of the graph, one can observe a small decrease in the
trade deficit following the January and March tariffs, and a small increase following the June and
July tariffs. Interestingly, this trend is also quite similar to the changes observed in the stock
market and GDP. The trend appears to be observable over a number of different economic
indicators. Whether or not this trend was caused, either directly or indirectly, by the tariffs is
difficult to determine at the present moment. However, I would feel fairly confident in stating that
the decrease in the trade deficit immediately following the January and March tariffs was most
likely caused by the tariffs themselves. For those needing reminding of what the trade deficit
signifies, it is a measure of imports minus exports. Or to put another way, the total value of all
the goods a country is importing minus the total value of all the goods a country is exporting.

Following the January and March tariffs, the trade deficit noticeably decreased. This
means that US imports decreased, US exports increased, or a combination of the two happened
simultaneously. This makes sense to me, as well as being something that I expected. The
purpose of tariffs is to make imports more expensive, thus protecting domestic producers. Thus,
if imports are more expensive and domestic manufacturers are producing more, it checks out
that the US would be importing less and exporting more. However, the more puzzling numbers
are those that follow the June and July tariffs. As one can observe from examining the graph,
the trade deficit actually increases slightly following the June and July tariffs. An explanation for
this occurrence is a little difficult for me to fathom. Perhaps the economy is simply rebounding
from the sharp decrease in imports following the initial tariffs, or perhaps because the United
States and its trading partners have already experienced new tariffs, they were better able to handle and work around the new tariffs without severely compromising the quantity of trade. A third explanation is that the changes in the trade deficit were not affected at all by the tariffs, and the changes which line up with the tariff dates are simply coincidental. Unfortunately, the most we can do at the present moment is to speculate.

Conclusions:

And so, the reader can observe that a number of changes in the US economy have occurred before, during, and after the implementation of the new tariff legislation. One noticeable trend that I observed in a number of different economic indicators was a sharp decline in the economy following the January and March tariffs, and then a slight improvement in the economy following the June and July tariffs. This trend was observed in the Dow Jones, the S&P 500, the GDP, and somewhat in the trade deficit. This was a little bit puzzling, as I would expect that if the initial tariffs were harmful to the economy, then so would be the later ones. There are however a number of possible explanations for this trend. The first explanation is that the tariffs were indeed harmful, as evidenced by the initial decline, and that the small increase several months later was the economy’s way of self-correcting. Such an explanation harkens back to Adam Smith’s concept of an “invisible hand.”21 A second explanation is that the predictions of Babones were indeed accurate, in that these tariffs were indeed harmful at the outset, but in the longer run would help the American economy. I find this explanation a little less tenable, as long term benefits most likely will not be observable for several more years. A third explanation is that these changes in the economy are merely coincidental, and the enacted tariffs had no significant bearing on them at all.

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Thus, we finally return to the question of whether these tariffs overall had an impact on the economy that was positive, negative, or neutral. My answer to this question is that it is unfortunately still too early to tell for certain. Of course, we can observe changes to the economy immediately following the implementation of the tariffs, but because of the difficulty in determining whether or not this connection is one of correlation or causation, it becomes difficult to draw conclusions about the tariffs in even the short run that are not speculative. As for conclusions about the tariffs in the long run, there is simply not enough information available yet, and said information will not become available until more time has passed.

My personal prediction is that these tariffs may indeed save several thousand jobs in the steel and aluminum industries. However, I also believe that the number jobs lost from efficiency distortion will be greater than the number of jobs gained. Furthermore, it is my belief that the retaliatory measures taken by foreign countries may further harm the US economy and decrease overall GDP. As time passes and new developments continue to unfold, I will look forward to further analyzing the issue.
Works Cited:


"Effective Federal Funds Rate." FRED. https://fred.stlouisfed.org/series/FEDFUNDS.


