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The Economic Impact of Steel and Aluminum Tariffs

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A trade war has been brewing between the U.S. and many other countries under the Trump Administration. What started as tariffs on 18 products in January 2018 has grown to encompass more than 10,000 products.¹ Two of the most contentious tariffs – 25% on steel and 10% on aluminum – could affect economic sectors and national economies.

The U.S. has imposed additional duties on steel and aluminum imported into the U.S. from most countries.² President Trump enacted the import duties by proclamation at the conclusion of an investigation under Section 232 of the Trade Expansion Act of 1962, which allows for the imposition of tariffs on goods imported “in such quantities or under such circumstances as to threaten to impair the national security.”³ These tariffs stand at 25% for steel and 10% for aluminum. The U.S. has exempted Argentina and Australia from the additional import duties for both steel and aluminum, and exempted Brazil and South Korea from only the steel tariff, starting June 1, 2018.⁴ The tariffs have spurred retaliatory action from several trading partners, notably Canada, Mexico, China, and the European Union (“EU”),⁵ none of which have exemptions.

The aim of the tariffs is to protect domestic steel and aluminum by raising the price of imported materials, thereby making U.S. products more competitive. While the U.S. steel and aluminum industries, their suppliers, and their employees would likely benefit, U.S. industries that use steel and aluminum as inputs would face higher costs, which would lead to higher end-use prices to consumers and lower demand.

The automotive industry is often used to gauge the economic impact of higher input costs because it is the second largest consumer of steel and aluminum behind the construction industry. Recently, General Motors Co., Ford Motor Co. and Fiat Chrysler Automobiles lowered their profit outlooks for 2018 saying that increased steel and aluminum prices due to tariffs will adversely impact their bottom lines.⁶

Quantifying the Economic Impact of Steel and Aluminum Tariffs

To provide a tangible, quantitative view on how steel and aluminum tariffs will impact the U.S. and other countries in the long term, research organizations utilized the Global Trade Analysis Project (“GTAP”) model, a dynamic international trade and finance model.⁷ The GTAP model can analyze international trade across 57 different industries and 140 countries around the world. KIOGA evaluated the results and looked at two different tariff scenarios – one without (“Scenario 1”) and one with (“Scenario 2”) economic retaliation from the U.S.’s trade partners facing the tariff.

Under the first scenario, Scenario 1, steel and aluminum tariffs were implemented. The GTAP sectors “Ferrous Metals” and “NonFerrous Metals” were shocked by the tariffs. Because ferrous metals are a broader category than steel, and non-ferrous is broader than aluminum, research groups reviewed the specific Harmonized Tariff Schedule⁸ codes impacted by the tariffs and found the average value of imported goods now subject to the tariff as a fraction of the overall ferrous metals import value to be 69%. Therefore, a 25% steel tariff was applied to 69% of the ferrous metals import value in GTAP. Similarly, aluminum imports impacted by the tariffs constituted an average 38% of all non-ferrous metal imports. As such, a 10% tariff was applied to 38% of the non-ferrous metals import value in GTAP.

The total decrease in U.S. sales output because of the tariffs across all industries is \$11.6 billion. The tariffs would result in an expansion of the U.S. steel and aluminum sectors, increasing their outputs by about \$9.8 billion and \$0.8 billion, respectively. As expected, industries which use steel and aluminum as production inputs would experience decreased output.

Because of the tariffs, these U.S. sectors would pay higher prices for steel and aluminum, leaving them less viable on domestic and international markets. The heavy manufacturing and vehicle manufacturing sectors would experience the largest reduction in sales output because of the tariffs, with sales output falling by about \$6.9 billion and \$5.5 billion, respectively. The total decrease in output within manufacturing and construction is larger than the increase for steel and aluminum.

The GTAP results also show, as expected, steel and aluminum output in other countries would contract, with Mexico and Canada experiencing the largest declines in percentage terms. The U.S. would be the only region with a significant increase in steel and aluminum output.

In the second scenario, Scenario 2, Scenario 1 was supplemented by including announced retaliatory tariffs by China and other countries on U.S. goods spurred by the U.S. imposition of steel and aluminum tariffs, such as those on soybeans, other agricultural goods, and motor vehicles by China,⁹. A second round of retaliatory tariffs, implemented by the U.S. on Chinese imports was also incorporated.¹⁰ The model also assumed that it would take 10 years, or by 2028, for the world's economies to fully adjust to the trade tariffs.

Under Scenario 2, China would experience the largest decline in 2028 GDP followed by the U.S. Scenario 2, which incorporates the existing steel and aluminum tariffs as well as retaliatory tariffs from both China and the U.S., causes both the U.S. and China's forecast GDP to decline. In contrast, forecast GDP would increase minimally in Mexico and Canada and increase more substantially in the EU. In addition, the Rest of the World would experience an increase in total GDP of \$689 billion; however, the decline in Chinese and U.S. GDP would offset these increases, as the net impact on world GDP would be a reduction of \$61 billion in global GDP. Thus, Scenario 2 results in winners and losers, with some being intuitive and others being less so:

- U.S. steel and aluminum industries would clearly benefit while U.S. annual GDP growth would decline by 0.26 percentage points through 2028 as compared to a case with no tariffs.
- China, embroiled in the largest cycle of retaliatory tariffs with the U.S., would see its annual GDP growth contract by 0.19 percentage points through 2028 as compared to a case with no tariffs.
- A reordering of world trade patterns occurs as Mexico, Canada, the EU, and the rest of the world would benefit both from reduced international steel and aluminum steel prices due to lower U.S. demand and from substituting trade between the U.S. and China with their own.

Impact on Oil Country Tubular Goods (OCTG)

U.S. protectionism on imported steel and aluminum continues to be a frustrating issue that is constantly evolving. As unfortunate as the tariffs are, quota deals such as the one the Trump administration negotiated with South Korea - which sets a 70% cap on the average volume of imports for 2015-2017 - are even worse. It is one thing to pay more for steel, it is something else entirely not to be able to bring it in at all. The years 2015-2017 were terrible years for oil country tubular goods (OCTG), such that a 70% quota on that average works out to 30% of what was imported in 2014. If that deal becomes the pattern, it is very problematic. U.S. steel companies are cheering the administration's moves while opening mills and cranking up production, but new output is unlikely to come fast enough, nor will it necessarily meet all oil and gas industry demands for OCTG. Moreover, although the Commerce Department has received over 21,000 product applications, only 42 tariff exclusions had been granted. Also,

every company has to apply for the exclusion for every diameter of pipe. Once you go through the process, your application goes to a pool and waits for steel industry comments. We don't know what happens if the steel companies say 'We can make that steel.' Exemptions should be granted for when businesses need steel products from overseas for energy production. But more importantly, there should be an oil and gas industry-wide exception from the tariffs to support the Trump administration's energy dominance agenda.

Conclusion

The analysis and results from these studies - which considers the generalized macroeconomic effect of tariffs on metals and specific retaliatory actions – is not exhaustive. Future iterations of this analysis could consider, for example, additional retaliatory tariffs, focusing on other industries or examining the GDP results for other countries under different scenarios (such as the impact to Brazil, India, Thailand, and Pakistan from U.S. policy regarding sugar import quotas or tariffs). With trade and tariff policy-related news changing daily, continued analysis designed to better understand the impacts must be both detailed and dynamic.

¹ <https://www.nytimes.com/interactive/2018/07/11/business/trade-war.html>

² <https://www.strtrade.com/news-publications-steel-aluminum-232-tariffsexemption-050218.html>

³ <https://www.bis.doc.gov/index.php/other-areas/office-of-technology-evaluationnote/section-232-investigations>

⁴ <https://www.cbp.gov/trade/programs-administration/entry-summary/232tariffs-aluminum-and-steel>

⁵ This includes the 28 current members of the EU, <https://www.igiglobal.com/dictionary/eu-28/58384>

⁶ <https://www.wsj.com/articles/big-auto-makers-trim-forecasts-1532561679>

⁷ More information on GTAP can be found here:
<https://www.gtap.agecon.purdue.edu/about/project.asp>

⁸ <https://www.usitc.gov/tata/hts/index.htm>

⁹ <https://www.cnbc.com/2018/06/15/china-announces-retaliatory-tariffs-on-34-billion-worth-of-us-goods-including-agriculture-products.html>

¹⁰ <http://thehill.com/policy/finance/400791-trump-to-hit-china-with-16b-in-tariffs-on-aug-23>