Policy Brief

Round 3: 'Trade Discussion' or 'Trade War'?

The Estimated Impacts of Tariffs on Steel and Aluminum

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TRADE PARTNERSHIP WORLDWIDE, LLC/
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This *Policy Brief* updates our March 13 *Brief* to report estimated *net* impacts on U.S. jobs across of U.S. steel and aluminum tariffs imposed June 1, and corresponding tariffs promised by U.S. trading partners.

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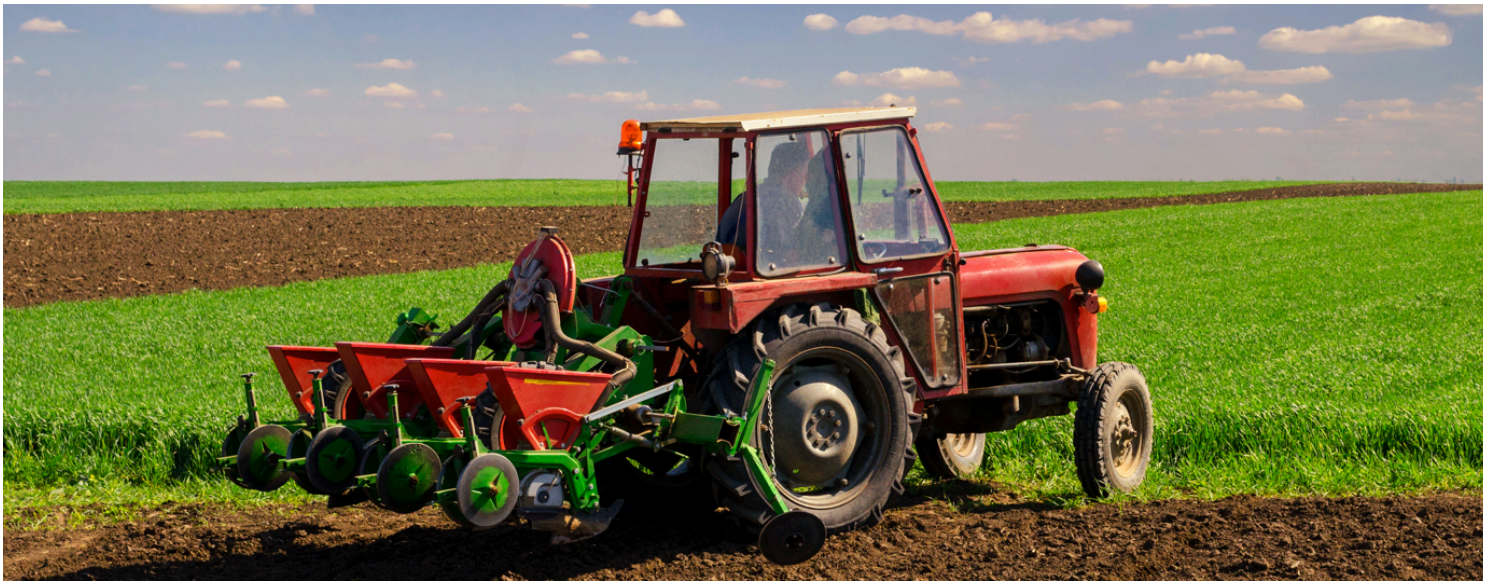
Summary

This *Policy Brief* updates our March 13 *Brief,* which estimated the potential *net* impacts on U.S. jobs across all industries of steel and aluminum tariffs applied to targeted steel and aluminum imports from all countries except Canada, Mexico and Australia. Steel tariffs now apply to imports from all countries except Argentina, Australia, Brazil and Korea; quotas limit imports from Argentina, Brazil and Korea. Aluminum tariffs now apply to imports from all countries except Australia and Argentina; quotas limit imports from Argentina. "Compensation" in the form of tariffs imposed by major U.S. supplying countries on U.S. exports is now actively in process (for the purposes of this paper, we refer to compensation sought through the World Trade Organization (WTO) as "retaliation").



We find that the tariffs and quotas coupled with retaliation would have positive employment impacts on U.S. steel and aluminum producers, as well as a handful of other sectors able to attract capital and labor released from sectors that are harmed by the tariffs and retaliation. However, tariffs, quotas and retaliation would harm the U.S. economy overall, including workers in other manufacturing sectors that use steel and aluminum. Those positive and negative impacts would ripple through the economy, affecting workers in every sector. Briefly, we find:

- The tariffs, quotas and retaliation would reduce U.S. GDP by 0.2 percent annually, in the short term. While U.S. imports would decline, so, too, would U.S. exports.
- The tariffs, quotas and retaliation would increase the annual level of U.S. steel employment and non-ferrous metals (primarily aluminum) employment by 26,280 jobs over the first one-three years, but reduce net employment by 432,747 jobs throughout the rest of the economy, for a total net loss of 400,445 jobs;
- Sixteen jobs would be lost for every steel/aluminum job gained;
- More than two thirds of the lost jobs would affect workers in production and low-skill jobs.
- Every state will experience a net loss of jobs.

Gains for steel/aluminum

+26,280

Total losses elsewhere

-432,747

Net Job Impact

-402,445

Total losses per steel/aluminum job gained

16:1

Background

President Donald Trump March 8 signed Proclamations imposing tariffs of 25 percent on U.S. imports of steel and 10 percent on U.S. imports of aluminum from all countries except Canada and Mexico.[1]

On April 30, he announced tariffs would be postponed until June 1 for Canada and Mexico, pending progress on renegotiating the North American Free Trade Agreement, and Australia, Argentina, Brazil, Korea and the European Union, pending finalization of bilateral consultations with those entities with a view to swapping the tariffs for voluntary export restraints (quotas).[2]

By June 1, only four countries had finalized agreements with the United States: Argentina (quotas for steel and aluminum), Brazil (quotas for steel, tariffs for aluminum), and Korea (quotas for steel, tariffs for aluminum). Australia seems to have escaped both tariffs and quotas.

Consequently, on May 31 the President announced that tariffs would go into effect for steel and aluminum imports from all remaining countries, including Canada and Mexico, except those who negotiated quota swaps for the tariffs.[3] Seven countries and the EU have at this writing announced that they will proceed with the process to ultimately impose tariffs on certain U.S. exports ("compensation" in WTO-speak; "retaliation" in common-speak); more will likely follow in the near future. Those countries accounted for 70 percent of U.S. steel and aluminum imports in 2017. They also accounted for 68 percent of total U.S. goods exports – and represent the six largest foreign markets for American products – in 2017.

Countries that have announced retaliation accounted for 70 percent of U.S. steel and aluminum imports – and 68 percent of total U.S. goods exports – in 2017.

Announced Retaliation

	U.S. Export Value	*Tariff Value*	*Effective Date*
Canada	*$12.8 billion*	*$2.0 billion*	*7/1/18*
India	*$10.0 billion*	*$800 million*	*6/21/18*
EU (1st tranche)	*$3.2 billion*	*$700 million*	*6/20/18*
Russia	*$3.2 billion*	*$538 million*	*6/18/18*
China	*$2.8 billion*	*$641 million*	*4/2/18*
Japan	*$1.9 billion*	*$440 million*	*6/18/18*
Turkey	*$1.7 billion*	*$267 million*	*6/21/18*
Mexico	*not avail.*	*$646 million*	*Not Avail.*
Total so far	*>$35.6 billon*	*$6.0 billion*	

Source: White & Case.

Results

Table 1 shows that the higher steel and aluminum costs that result from the tariffs, quotas and retaliation will have a significant net negative impact on the U.S. economy, eroding anticipated gains from tax reform. Economic growth will drop nearly $37 billion (0.2 percent) annually. Imports and exports both decline.

Table 2 shows that the addition of Canada and Mexico to the coverage of the tariffs, coupled with their promised retaliation, will amplify the net negative impacts of the tariffs, quotas and retaliation on U.S. workers. While employment increases in sectors making steel and aluminum, it declines in most of the rest of the U.S. economy. Sixteen jobs are lost for every one steel and aluminum job gained.

Notable are job losses in steel-consuming sectors, many of which are in Rust Belt and southern manufacturing communities (see Table 3, next page). Steel-consuming industries face annual employment declines of 97,614 in each of the first one to three years the tariffs, quotas and retaliation are in place. Also notable are job losses in agriculture, a prime target of retaliation.

*Steel/aluminum consumers**

-91,614

Agriculture

-6,782

*Other Services***

-312,776

* Beverages (and tobacco), petroleum/coal products, fabricated metals, motor vehicles and parts, other transportation, electronic equipment, other machinery, construction.

** Services sectors shown in the Table except for construction.

Table 1
Estimated Impact of Steel Tariffs, Quotas and Retaliation on the U.S. Economy

Change in GDP (billions of dollars)	-$36.8
Change in GDP (percent)	-0.2%
Change in steel imports (percent)	-44.4%
Change in all aluminum imports (percent)	-12.7%
Change in all imports (percent)	-1.9%
Change in all exports (percent)	-1.0%

Source: Authors' estimates.

Table 2
Net Number of U.S. Jobs Impacted by Steel and Aluminum Tariffs and Retaliation
(Number)

Primary agriculture*	**-6,782**
Primary energy	**+974**
Manufacturing	**-19,931**
Processed food	-7,339
Beverages and tobacco	-2,316
Petroleum and coal products	-220
Chemicals, rubber, plastics	-1,247
Iron and steel	+23,424
Non-ferrous metals	+2,856
Fabricated metals	-12,877
Motor vehicles and parts	-4,917
Other transportation	-4,440
Electronic equipment	+1,246
Other machinery	-4,160
Textiles	+401
Clothing	+1,064
Footwear, leather, footwear	+259
Wood, paper	-3,954
Other goods*	-7,712
Services	**-376,706**
Construction	-63,930
Air transport	78
Water transport	-94
Other transport	-1,052
Trade and distribution	-98,088
Communications	-8,767
Financial services	-11,145
Insurance	-3,983
Business and professional services	-26,590
Personal and recreational services	-35,033
Other services	-128,102
TOTAL	**-402,445**

* Includes forestry products, minerals, and other manufactures.
Source: Authors' estimates.

Table 3
Employment Impact of Steel and Aluminum Tariffs, Plus Retaliation, by State

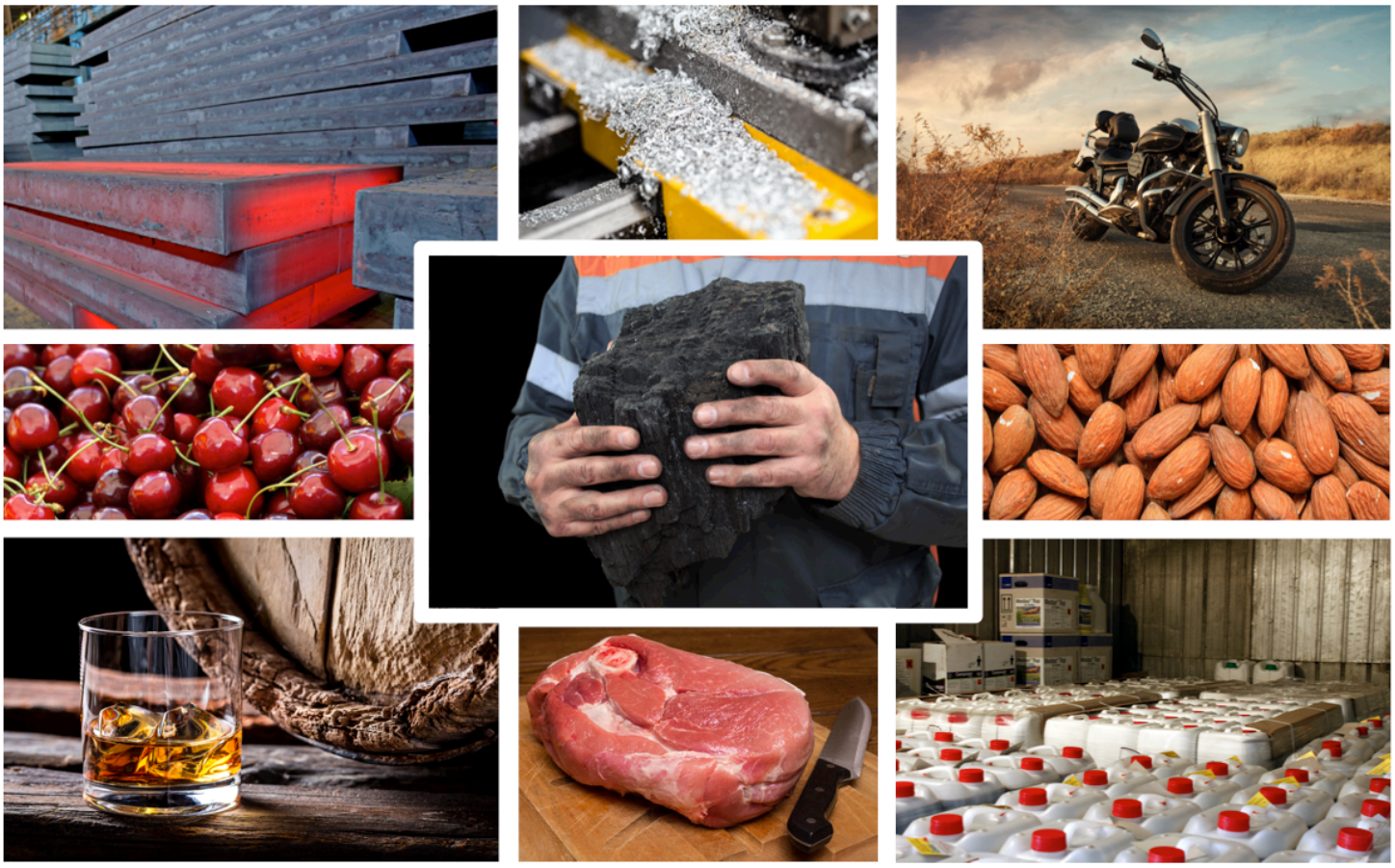
	Steel, Aluminum	Other Sectors	Total Impact		Steel, Aluminum	Other Sectors	Total Impact
Alabama	+1,289	-6,108	-4,819	Montana	+11	-1,534	-1,523
Alaska	+2	-999	-997	Nebraska	+83	-3,019	-2,936
Arizona	+163	-7,973	-7,810	Nevada	+37	-3,645	-3,608
Arkansas	+626	-3,749	-3,123	New Hampshire	+137	-2,026	-1,889
California	+1,214	-50,306	-49,092	New Jersey	+211	-11,152	-10,941
Colorado	+182	-8,006	-7,824	New Mexico	+13	-2,428	-2,415
Connecticut	+208	-5,295	-5,087	New York	+395	-26,284	-25,889
Delaware	+23	-1,263	-1,240	North Carolina	+529	-12,971	-12,442
Dist. of Col.	+2	-1,806	-1,804	North Dakota	+8	-1323	-1,315
Florida	+255	-25,151	-24,897	Ohio	+2,848	-15,889	-13,042
Georgia	+313	-12,888	-12,575	Oklahoma	+265	-4,976	-4,711
Hawaii	+2	-2,031	-2,029	Oregon	+555	-5,577	-5,023
Idaho	+48	-2,261	-2,213	Pennsylvania	+2,739	-16,823	-14,084
Illinois	+1,512	-16,901	-15,389	Rhode Island	+60	-1,418	-1,358
Indiana	+3,410	-9,187	-5,777	South Carolina	+398	-6,091	-5,693
Iowa	+288	-4,946	-4,658	South Dakota	+24	-1,429	-1,405
Kansas	+114	-4,359	-4,246	Tennessee	+588	-8,789	-8,200
Kentucky	+593	-5,745	-5,152	Texas	+1,551	-36,372	-34,821
Louisiana	+301	-6,106	-5,805	Utah	+209	-4,309	-4,100
Maine	+10	-1,958	-1,948	Vermont	+11	-1,048	-1,037
Maryland	+100	-8,037	-7,926	Virginia	+303	-11,172	-10,869
Massachusetts	+167	-10,369	-10,202	Washington	+317	-10,092	-9,775
Michigan	+1,654	-13,019	-11,365	West Virginia	+238	-1,947	-1,709
Minnesota	+419	-8,450	-8,031	Wisconsin	+1,052	-8,709	-7,657
Mississippi	+307	-3,662	-3,355	Wyoming	+3	-859	-856
Missouri	+307	-8,445	-8,138	TOTAL	+26,280	-428,725	402,445

NOTE: the sum of the states does not equal the national total because the national total includes areas not shown above (e.g. U.S. territories).
Source: Authors' estimates.

There are large net employment losses in the states such as Indiana, Michigan, Ohio and Pennsylvania where the steel and aluminum sectors figure prominently.

Services sectors are hit the hardest for several reasons. First, as the largest component of the U.S. economy, services are key inputs into the output of every U.S. sector. As manufacturing, agriculture and energy output decline, so too do services output and related jobs. Second, consumers reduce spending when they are hit by higher costs (of a new car, a new washing machine, etc.) and, for many, lost wages from unemployment. As a result, households pull back on spending; services like education, entertainment and even healthcare are on the front lines of the spending reduction impacts, with additional attendant job losses.

Finally, Table 3 shows that every U.S. state will experience a net job loss as a result of the tariffs and retaliation. California, Texas, and New York are heaviest, but there are large net employment losses in the states where the steel and aluminum sectors figure prominently: Illinois (-15,389), Indiana (-5,777), Michigan (-11,365), Ohio (-13,042), Pennsylvania (-14,084) and Wisconsin (-7,657).



Select U.S. Exports Targeted for Retaliation by Trading Partners

Clockwise from top left: 1) Flat-rolled steel exports from Ohio, Michigan, and Pennsylvania to Canada; 2) Aluminum scrap from California, Texas, and Florida to China; 3) Motorcycles from Missouri, Pennsylvania, and Minnesota to the EU; 4) Almonds from California to India; 5) Herbicides from Iowa to Canada; 6) Pork products from Missouri and North Carolina to China and Mexico; 7) Whiskies from Tennessee and Kentucky to the EU; 8) Cherries from Washington to China; 9) Coal from West Virginia and Alabama to Turkey.

We also disaggregated the employment effects by skill level. High-skilled jobs (managers, professionals, technicians and related workers) account for 32 percent of the net job losses. Low-skilled workers (production workers, machine operators, office workers, administrative workers, sales/shops staff, and farm workers) bear the brunt of the tariffs, accounting for 68 percent of the total job losses.

Conclusion

Higher costs from steel and aluminum tariffs, quotas, and associated retaliation by trading partners would reverberate throughout the U.S. economy in ways that will, on balance, negatively impact U.S. output and employment. While U.S. steel and aluminum jobs would increase, they would come at a high cost to workers in other sectors. Supporters may view the tariffs as the start of a conversation with U.S. trading partners, but those who feel the collateral damage are likely to see them as the start of an alarming trade war. Whatever they are called, tariffs that destabilize the U.S. and global economies are a detriment to national security.

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Methodology

We base our analysis on the Global Trade Analysis Project (GTAP) database. The GTAP database covers international trade and economy-wide inter-industry relationships and national income accounts, as well as tariffs, some nontariff barriers and other taxes. This includes value-chain related linkages across industries and borders. These data are included in a computer-based model of production and trade known as a "computable general equilibrium" (CGE) model. **This is the same model used by the Commerce Department to arrive at the tariff rates it argues will yield increases in U.S. steel production sufficient to bring the industry to 80 percent capacity utilization**.

While our model incorporates the GTAPv10 database, we have updated the data from the 2014 benchmark year to better reflect the U.S. economy in 2016. The base year for our analysis of the imposition of steel and aluminum tariffs is 2016.

We focused on the impacts of imposing the tariffs, quotas and retaliation on the U.S. economy and workforce in the short run (first one to three years the barriers are in place). For this analysis, we recognize that U.S. employment has continued the growth trend that began in mid 2010 (see https://fred.stlouisfed.org/series/PAYEMS), with the economy now appearing to approach full employment. At the same time, wage growth remains relatively flat compared to employment growth. We incorporated data reflecting recent employment and earnings trends and the tightening of the labor market.[4] This is a change from our last *Policy Brief*, which assumed more slack in the labor market due to lingering effects of the last recession. We also examined the employment impacts on workers in different occupation/skill categories in the United States, and across the states.

It is important to emphasize that our employment impact estimates are net. They take into account potential increases as well as decreases in employment as demand increases in some cases for U.S. products, and declines in others. These changes arise not only from the direct impacts of the re-imposition of tariffs, quotas and retaliation, but also the indirect impacts of changes in supply and demand for goods and services generally across the economy. For example, you will see that some sectors that you might not think would benefit from steel tariffs – textiles, for example – show employment increases. This is because declines in production in other sectors releases labor and capital that can now be used more productively in other sectors, like textiles. So output and related employment rise there.

We applied a 25 percent tariff to U.S. imports of the steel products detailed in the Commerce Department's steel national security report, and a 10 percent tariff to U.S. imports of the aluminum products detailed in the Commerce Department's aluminum national security report, excluding imports from Australia. We reduced imports of steel from Korea by 30 percent, the estimate in media reports that the Administration sought to achieve from Korea. We similarly reduced imports from Brazil by 20 percent, and froze imports from Argentina at 2016 levels.

What is covered?

The affected **steel** products fall into one of five categories: (1) carbon and alloy flat products (e.g., sheet, strip, plate); (2) carbon and alloy long products (e.g., bars, rails, rods and beams); (3) carbon and alloy pipe and tube (includes some stainless); (4) carbon and alloy semi-finished products (e.g., slab, ingots, blooms, billets); and (5) stainless products (flat, long, pipe and tube, and semifinished). *See* U.S. Department of Commerce, Bureau of Industry and Security, Office of Technology Evaluation, "The Effect of Imports of Steel on the National Security," an Investigation Conducted Under Section 232 of the Trade Expansion Act of 1962, as Amended, January 11, 2018, https://www.commerce.gov/sites/commerce.gov/files/the_effect_of_imports_of_steel_on_the_national_security_-_with_redactions_-_20180111.pdf.

The affected **aluminum** products are: (1) unwrought aluminum; (2) aluminum castings and forgings; (3) aluminum plate, sheet, strip, and foil (flat rolled products); (4) aluminum wire; (5) aluminum bars, rods and profiles; and (6) aluminum tubes and pipes; and (7) aluminum tube and pipe fittings. *See* U.S. Department of Commerce, Bureau of Industry and Security, Office of Technology Evaluation, "The Effect of Imports of Aluminum on the National Security," an Investigation Conducted Under Section 232 of the Trade Expansion Act of 1962, as Amended, January 11, 2018, p. 7, https://www.commerce.gov/sites/commerce.gov/files/the_effect_of_imports_of_steel_on_the_national_security_-_with_redactions_-_20180111.pdf.

Our retaliation scenario involved further restricting U.S. exports to countries/areas that did not reach an agreement to avoid certain tariffs. For entities with published retaliation lists (e.g., Canada, China, the European Union, India, and Turkey), we limited product coverage to sectors on those lists. For all other countries, an economy-wide tariff was applied based on potential retaliation claims. Clearly, a different set of countries choosing to retaliate, and imposing retaliation on a different basket of goods, will yield results different than those presented in this *Policy Brief*.

Endnotes

1. Presidential Proclamation on Adjusting Imports of Steel into the United States, March 8, 2018, https://www.whitehouse.gov/presidential-actions/presidential-proclamation-adjusting-imports-steel-united-states/; Presidential Proclamation on Adjusting Imports of Aluminum into the United States, March 8, 2018, https://www.whitehouse.gov/presidential-actions/presidential-proclamation-adjusting-imports-aluminum-united-states/.
2. Presidential Proclamation on Adjusting Imports of Steel into the United States, April 30, 2018, https://www.whitehouse.gov/presidential-actions/presidential-proclamation-adjusting-imports-steel-united-states/; Presidential Proclamation on Adjusting Imports of Aluminum into the United States, April 30, 2018, https://www.whitehouse.gov/presidential-actions/presidential-proclamation-adjusting-imports-aluminum-united-states/.
3. Presidential Proclamation on Adjusting Imports of Steel into the United States, May 31, 2018, https://www.whitehouse.gov/presidential-actions/presidential-proclamation-adjusting-imports-steel-united-states-/; Presidential Proclamation on Adjusting Imports of Aluminum into the United States, May 31, 2018, https://www.whitehouse.gov/presidential-actions/presidential-proclamation-adjusting-imports-aluminum-united-states/.
4. According to the U.S. Department of Labor, unemployment increased 1.4 percent from May 2017 to May 2018. (See https://www.bls.gov/opub/ted/2018/real-average-hourly-earnings-up-0-point-2-percent-for-all-private-employees-april-2015-to-april-2018.htm). We use this recent relationship between relative changes in employment and real wages (technically in the form of an aggregate labor supply elasticity) to better reflect current labor market conditions.