

Aluminum tariffs have led to a strong recovery in employment, production, and investment in primary aluminum and downstream industries

Report • By [Robert E. Scott](#) • December 11, 2018

Summary: This report presents new economic research showing that the aluminum tariffs have brought back thousands of American jobs, sparked reinvestment in manufacturing, and contributed billions of dollars to the U.S. economy. And contrary to what some have claimed, the steel and aluminum tariffs have had no significant negative impacts on employment or output in U.S. manufacturing or other domestic industries.

One and a half years ago, the U.S. primary aluminum industry was hanging on by a thread. Between 2010 and 2017, 18 of 23 domestic aluminum smelters shut down, eliminating roughly 13,000 good domestic jobs. In 2016, there were three alumina refineries supplying U.S. smelters; by 2017, only one remained in operation.¹ In 2017 the Commerce Department launched Section 232 investigations to determine whether aluminum (and steel) imports were a threat to national security.²

This report demonstrates that after the Section 232 tariffs were imposed on aluminum (and steel) on March 8, 2018, the domestic producers of both primary aluminum and downstream aluminum products have made commitments to create thousands of jobs, invest billions of dollars in aluminum production, and substantially increase domestic production. Specifically:

- U.S. primary aluminum production is projected to increase by 67 percent (500,000 tons per year) between 2017 and the end of 2018. Three smelters are being restarted, and another has announced a capacity expansion. Seven smelters in total will be in operation by the end of 2018. These restart and expansion projects will create over 1,000 new jobs and generate over \$100 million in new investment.
- Since Section 232 tariffs were imposed, 22 new and expansion projects have been announced in downstream aluminum industries producing extruded (rod and bar, pipe and tube, and extruded shapes) and rolled (sheet and plate) products. These new and expanded facilities will employ over 2,000 additional workers, generate \$3.3 billion in new investments, and add nearly 1,000,000 tons of annual rolling and extrusion capacity to the downstream, domestic aluminum industry.
- In the year-to-date period of January through October 2018 (compared with the same period in 2017), shipments of all extruded products are up 6.3 percent (279.8 million pounds), and total sheet and plate shipments have increased by 4.6 percent (336.4 million pounds). Those figures are for total North American shipments (including the United States and Canada). Industrial production data show that these trends are even stronger in the United States.

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- The Federal Reserve’s industrial production data provide estimates of real output, based on measures of physical output, or (where output data are not available), total production-worker hours, by industry. U.S. output of raw alumina and refined & processed aluminum increased 9.8 percent between February 2018 (before tariffs were imposed) and October 2018 (data are for the four-digit North American Industry Classification—NAICS—code 3313). Output of rolled and extruded aluminum products increased 9.1 percent from February to September 2018. Therefore, domestic (U.S.) producers appeared to outperform continental production for the U.S. and Canada, referred to above.
- To date (February through October 2018), U.S. employment in the aluminum industries (primary and downstream) has increased slightly (by 300 jobs) since the tariffs were imposed. Aluminum production is highly capital-intensive, and restarting closed facilities is a costly and time-consuming process. Planned restarts and capacity expansions in both primary aluminum and downstream rolling and extruding mills will create more than 3,000 jobs, as shown below.

When the tariffs on steel and aluminum imports were imposed, critics claimed that while they would save thousands of jobs in primary metals industries, hundreds of thousands of jobs would be eliminated in the rest of the economy. These critics referenced a 2018 study by the Trade Partnership.³ I said at the time that the Trade Partnership forecast was wildly exaggerated and that the impacts of the tariffs would be quite minor.⁴ This report demonstrates that, to date, there is no evidence of the negative downstream effects claimed in the Trade Partnership study to be found anywhere in the U.S. economy. In total, the U.S. manufacturing sector has added approximately 176,000 jobs (including 2,700 in iron and steel production) since February 2018, the month before the tariffs took effect.⁵ In the rest of the economy, approximately 1.4 million jobs have been created in this same period. Looking more specifically at the industries aluminum producers supply, there remains no evidence that the imposition of tariffs on aluminum (or steel) have had the kinds of negative employment impacts—in downstream manufacturing or other parts of the economy—that were predicted by critics of aluminum tariffs.

Background

In the spring of 2017, when the U.S. Department of Commerce and the president were considering action in a Section 232 National Security Investigation into the threats posed by steel and aluminum imports, the entire domestic aluminum industry was hanging on by a thread. The threat was, and continues to be, principally driven by the growth of excess capacity and overproduction in China and elsewhere. Chinese primary aluminum production capacity increased nearly 1,500 percent from 2000 to 2017, and China is responsible for 82 percent of the total increase in global aluminum production capacity between 2000 and 2017.⁶ This growth has been fueled by massive Chinese government subsidies and other market-distorting practices. As the Chinese expansion exploded, primary aluminum production in other regions, such as India and the Persian Gulf States,

also increased through similar types of subsidization at a time when smelters in the United States were being idled.

The continued expansion and maintenance of excess capacity both inside and outside of China has suppressed global aluminum prices, transmitting injury directly to domestic aluminum producers in the United States. Aluminum is a global commodity, and prices are primarily driven by total global supply and demand, regardless of where the aluminum is produced, sold, or stored. The U.S. aluminum market effectively imports the adverse price and volume effects of China and others' excess capacity and production via changes in London Metal Exchange (LME) prices.

Collapsing prices have decimated U.S. primary aluminum production, capacity, and employment. The LME market price of aluminum fell 39 percent between 2007 and 2016. In an industry with high fixed costs, most domestic producers have not survived this prolonged, steady price collapse. Between 2000 and 2017, 18 of 23 domestic smelters shut down and more than 13,000 good domestic production jobs disappeared.⁷

Today, after the imposition of tariffs of only 10 percent, domestic production in both the primary aluminum (including both alumina refining and secondary smelting and alloying of aluminum) and downstream aluminum rolling and extruding industries is up; these producers are hiring and expanding, adding capacity, making large investments, and increasing production, as is shown in this report.

These outcomes belie claims by critics, including widely quoted economists from the Trade Partnership firm,⁸ along with a wide array of pundits, journalists, and representatives of many firms in downstream industries, who argued that the Section 232 tariffs would have a devastating negative impact on wide range of domestic industries. For example, according to *Bloomberg*, Ford Motor Co. "began the year by warning that rising costs for raw materials like steel and aluminum, coupled with unfavorable exchange rates, would add \$1.6 billion to its costs this year."⁹ Of course, increases in the real value of the dollar, which has gained 5.4 percent this year, raise the cost of everything that domestic automobile manufacturers import from the rest of the world (including finished vehicles and parts), and changes in the cost of metals is a tiny fraction of their overall costs.¹⁰ Nonetheless, data reviewed here demonstrate that the steel and aluminum tariffs have had no significant, industry-specific or economywide negative impacts on employment or output in U.S. manufacturing or other domestic industries.

Positive impacts of the aluminum tariffs on the aluminum industries

U.S. primary aluminum production will increase by 67 percent (500,000 tons per year) between 2017 and the end of 2018.¹¹ Research conducted for this report reveals that three smelters are being restarted and another has announced a capacity expansion. Seven smelters in total will be in operation by the end of 2018.¹² These restart and expansion projects will create over 1,000 new jobs and generate over \$100 million in new investment,

as shown below.

Table 1 summarizes the specific data on the four significant U.S. projects (the one expansion and three restarts of aluminum smelting and casting operations). It shows that these investments will increase domestic capacity by 663,000 tons, at a cost of at least \$137 million, and they will ultimately create at least 1,075 new jobs.

Downstream aluminum rolling mills and extrusion operations in the United States (products not benefiting from tariffs) have nonetheless continued to prosper in the wake of the imposition of primary aluminum tariffs, as shown by continued expansion, investment, and hiring plans in the downstream sector. Table 1 lists 22 separate announcements of new and expanded aluminum rolling mill and extrusion operations. These 22 projects will create 2,000 new jobs, with a capital investment of \$3.3 billion. They will increase downstream capacity of these plants by at least 980,000 tons on an annual basis.

Figure A demonstrates why U.S. primary and downstream producers are restarting or expanding operations. It shows that demand is growing for both primary and refined aluminum produced in the United States and Canada. Shipments of aluminum extruded products increased by 279.8 million pounds (6.3 percent) year-to-date in 2018 (comparing shipments between January and October 2018 relative to the same period in 2017). Shipments in all segments in this market increased significantly in 2018, including rods and bars, up 62.9 million pounds (15.3 percent); pipes and tubes, up 17.9 million pounds (5.0 percent); and other extruded products, up 199.1 million pounds (5.4 percent).

Figure B shows that shipments also grew strongly in aluminum sheet and plate production year-to-date through October 2018, relative to the same period in 2017. Total sheet production has increased 336.4 million pounds (4.6 percent). Non-heat-treatable sheet increased 166.1 million pounds (4.6 percent) year-to-date through October. All other sheet and plate (including heat-treatable) increased 203.5 million pounds (14.2 percent). The only category of shipments that declined in the entire industry was can stock, which declined 33.3 million pounds (1.0 percent). This segment is discussed further below.

Figures A and B report trends on shipments of downstream aluminum products from plants throughout North America. More detailed data on U.S.-only industrial production of aluminum and aluminum products is available from the Federal Reserve's Industrial Production database.¹³ **Table 2** summarizes data on comparative industrial production estimates for the steel and aluminum industries. The Federal Reserve industrial production data provide estimates of real output, based on measures of physical output, or (where output data are not available) total production-worker hours, by industry.

Overall U.S. production of primary and downstream aluminum products (NAICS 3313) increased 9.8 percent between February and October 2018 (before and after the tariffs took effect). Production of downstream products only (aluminum sheet, plate, and other rolling and drawing and extruded products) increased 9.1 percent in the same period. Overall, domestic (U.S.) producers appeared to outperform continental production for the U.S. and Canada (shown in Figures A and B).

On the other hand, nonferrous production (other than aluminum products) declined 4.9

Table 1

U.S. aluminum restarts and expansions since 232 implementation

Primary aluminum production				
Company	Description	Additional capacity	Investment	Jobs created
		Metric tons (MT)	(Millions of dollars)	
1. Century Aluminum	Sebree, Ky., casthouse expansion	90,000	\$7	50
2. Century Aluminum	Hawesville, Ky., smelter restart	150,000	\$100	300
3. Magnitude 7 Metals	New Madrid, Mo., smelter restart	263,000		450
4. Alcoa	Warrick, Ind., smelter restart	160,000	\$30	275
	Subtotal	663,000	\$137	1,075
		Metric tons (MT)	(Millions of dollars)	
1. Ellwood Group	Ellwood City, Pa., greenfield secondary billet casthouse	70,000	\$60	34
2. Benada Aluminum	Sanford, Fla., extrusion press			35
3. Hydro	Hydro, Schuylkill County, Pa., extrusion press		\$100	60
4. JW Aluminum	Russellville, Ark., St. Louis, Mo., and Williamsport, Pa., foil processing investment		\$33	
5. Braidy Industries	Ashland, Ky., sheet and plate rolling mill		\$1,500	600
6. Novelis	Guthrie, Ky., greenfield rolling mill	200,000	\$300	125
7. Granges	Newport, Ark., rolling mill restart	20,000	\$26	100
8. JW Aluminum	Goose Creek, S.C., rolling mill expansion	80,000	\$225	50
9. Matalco	Multiple locations: greenfield billet and slab secondary casthouses	340,000		
10. Arconic	Nash, Texas, rolling mill restart		\$14	285
11. Granco Clark	Belding, Mich., extrusion expansion			15
12. Pennex Aluminum	Leetonia, Ohio, brownfield extrusion expansion			45
13. Gateway Extrusions	Union, Mo., extrusion plant expansion		\$15	

Table 1
(cont.)

Primary aluminum production				
Company	Description	Additional capacity	Investment	Jobs created
14. Elixir Extrusions	Douglas-Coffee County, Ga., extrusion press		\$8	130
15. Granges	Huntington, Tenn., rolling mill expansion		\$110	100
16. Aleris	Lewisport, Ky., expanded rolling mill		\$400	
17. Logan Aluminum	Logan County, Ky., brownfield rolling mill expansion	270,000	\$408	250
18. Service Center Metals	Prince George, Va., extrusion plant expansion		\$45	58
19. Superior Extrusion	Marquette, Mich., extrusion press		\$11	30
20. Bonnell Aluminum	Niles, Mich., extrusion press		\$18	
21. Mid-states Aluminum	Fond du Lac, Wis., extrusion press		\$20	37
22. Magnode	Trenton, Ohio, extrusion press		\$13	50
	Subtotal	980,000	\$3,305	2,004
	Total (primary and downstream aluminum)	1,643,000	\$3,442	3,079

Source: See table notes at end of report.

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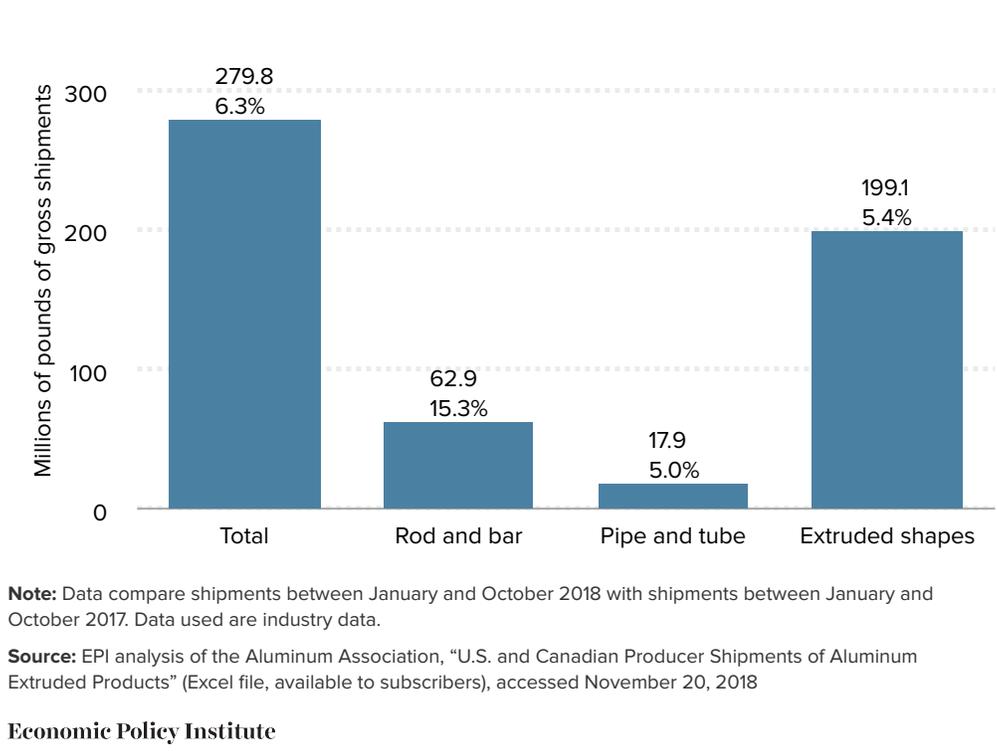
percent in the same period. (Copper is an example of another nonferrous product.) The decline of this sector, relative to aluminum production, reflects, in part, the beneficial effects of the tariff on the domestic aluminum industry. Foundry production (both ferrous and nonferrous) increased 7.4 percent. Overall iron and steel production, by contrast, increased 6.7 percent in the same period. It is noteworthy that the 232 tariffs in steel (at 25 percent) were much higher than the 10-percent tariffs in aluminum, yet output rose faster in the aluminum sectors.

Beer industry claims

The decline of the can stock sector, shown in Figure B, merits further examination, in part because the beer industry in particular has aggressively promoted claims that the 10-percent aluminum tariff would cost more than 20,000 jobs, despite the fact that the industry's private consultant report that serves as the source of the claim actually acknowledges that the aluminum used in beverage cans represents only 5.7 percent of

Figure A

Growth in U.S. and Canadian shipments of aluminum extruded products, year-to-date (October 2018)



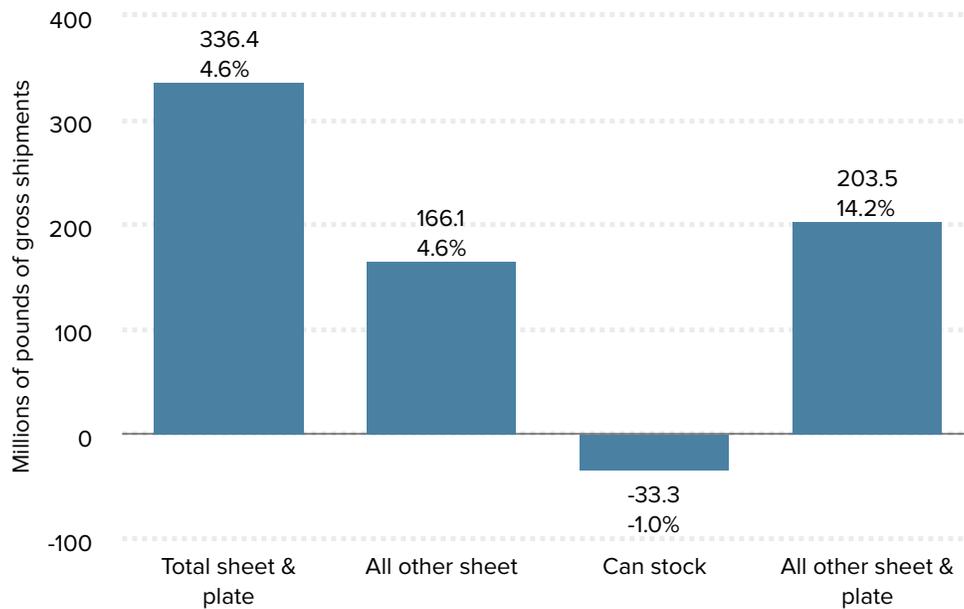
the manufacturers' cost of beer in cans.¹⁴ Aside from the obvious fact that 10 percent of 5.7 percent is equal to less than six-tenths of one percent of production costs—which is immaterial in an industry that can afford to spend tens of billions of dollars annually in advertising on sports and other televised programs—the analysis that produced this estimate ignores several basic economic trends at work in the processed food and beverage industries.

First, sales of can stock have followed a steady declining trend for at least a decade, as shown in **Figure C**. The figure plots total U.S. and Canadian can stock shipments against a trend line, which follows a clearly negative declining trend. The driving logic behind this trend simply reflects, in part, growing consumer preferences for fresh (and frozen) foods and products over canned products. Aluminum tariffs have no discernable effect on this trend rate of decline after February 2018; in fact, can stock shipments in four of the eight months between March and October lie above the trend shipment rates shown in **Figure C**.

The other factor that is driving market sales in the beer industry is growing demand for craft and imported brews, as shown in the Beverage Information Group's *2018 Beer Handbook*.¹⁵ Furthermore, as shown in **Figure D**, overall U.S. employment in breweries, wineries and distilleries has increased steadily since the end of the Great Recession in 2009. Although sales of beer have been in decline, production of craft beer, wine, and distilled products is much more labor-intensive than mass production of popular beers, which are an industrial product. Thus, employment in this industry is growing despite the

Figure B

Growth in U.S. and Canadian shipments of aluminum sheets and plate, year-to-date (October 2018)



Note: Data compare shipments between January and October 2018 with shipments between January and October 2017. Data used are association data.

Source: EPI analysis of the Aluminum Association, “U.S. and Canadian Producer Shipments of Sheet and Plate” (Excel file, available to subscribers), accessed November 20, 2018

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trend decline in consumption of popular beer. Thus, Figure D reflects no evidence of distress or job loss shown as a result of the aluminum tariffs. The structural decline of the popular beer industry is strictly a product of changing tastes and structural change *within* that industry.

Examining the beer industry claims of harm from the aluminum tariffs in more detail, most of the job losses claimed in the industry’s private consultant report were in downstream distribution sectors, with 91 percent of the 20,300 jobs lost in “retailing, supplier and induced” segments.¹⁶ As shown below, there is no evidence of job losses to date in these broader segments of the economy. Much like the aggregate modeling analysis by the Trade Partnership, referenced above, such models bear no relationship to observed impacts of the aluminum tariffs on the domestic economy to date.¹⁷ This report concludes with an examination of these broader claims about the impacts of the steel and aluminum tariffs on the U.S. economy.

Table 2

Change in U.S. aluminum and steel production from February to October 2018

(Industrial production index, 2012 = 100)

Industry	NAICS code	2018		Percent change
		February	October	
Alumina & aluminum production & processing	3313	103.0	113.0	9.8%
Aluminum sheet, plate, other rolling & drawing*	331315, 331318	104.4	113.9	9.1%
Nonferrous (except aluminum) production & processing	3314	93.7	89.1	-4.9%
Foundries (ferrous and nonferrous)	3315	97.3	104.5	7.4%
Iron and steel products**	3311, 3312	95.3	101.8	6.7%

* Industrial production data are through September only and includes rolling, drawing, and extruding (NAICS 331315 and 331318).

** Industrial production data are for blast furnaces and iron and steel mill products (NAICS 3311 and 3312).

Note: Weights are based on annual estimates of value added.

Source: EPI analysis of Board of Governors of the Federal Reserve System, *Industrial Production and Capacity Utilization—G.17*

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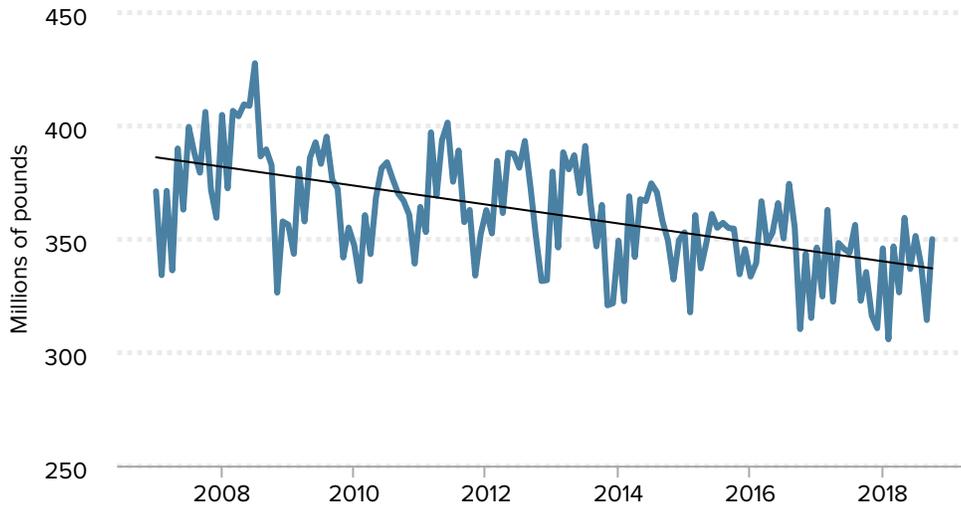
Overall impacts of the steel and aluminum tariffs on U.S. employment

Table 3 compares two studies that estimate the likely employment impacts of the steel and aluminum tariffs with the actual performance of the economy between February and October of 2018. The table covers total U.S. employment in 32 detailed and 2 aggregate industries, and overall nonfarm employment in the domestic economy.¹⁸ The Trade Partnership produced two studies of the effects of the steel and aluminum tariffs. The first, published in March, covered the tariffs only, and the second, published in June, considered the possible impacts of retaliation on U.S. employment, by industry.¹⁹

In an earlier report I critiqued the first of these studies and explained why the actual impacts of the tariffs would be quite minor and why the study should be treated as an outlier in studies of tariffs, not as a guide to policy decision. In particular, the study results were “driven overwhelmingly by a nonstandard modeling assuming: that growth in the U.S. economy is constrained by aggregate demand.” This not how the vast majority of such studies are done, and it certainly is not justified in an economy that has been growing steadily for the past eight years and that has had an unemployment rate of 4 percent or less for the past seven months.²⁰ Finally, the macroeconomic effects of tariffs on aggregate demand are ambiguous, not clearly contractionary, as the Trade Partnership

Figure C

U.S. and Canadian can stock shipments, January 2007–October 2018



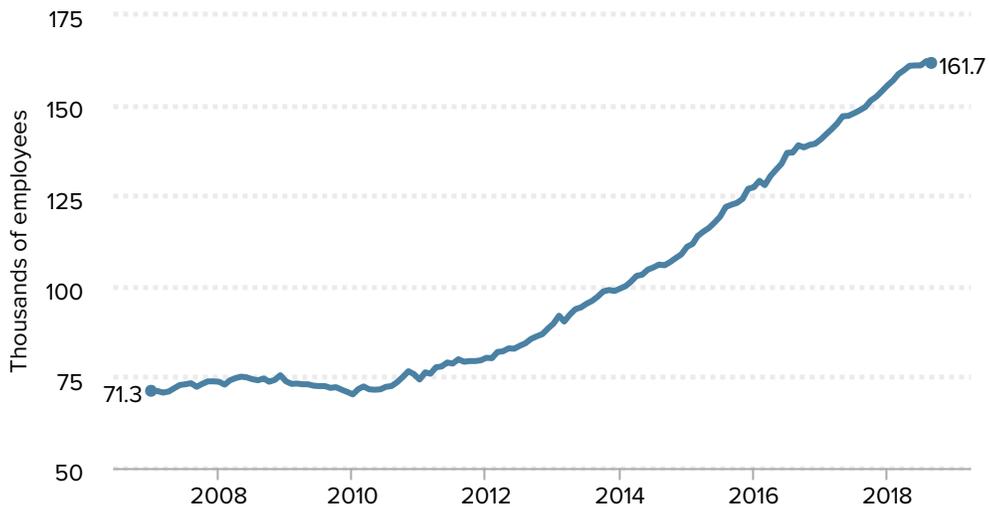
Note: Data are association data.

Source: EPI analysis of the Aluminum Association, “U.S. and Canadian Producer Shipments of Sheet and Plate” (Excel file, available to subscribers), accessed November 20, 2018

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Figure D

U.S. breweries, wineries, and distilleries employment, January 2007–September 2018



Source: Bureau of Labor Statistics, Current Population Survey, public data series aggregated from basic monthly CPS microdata and accessed through the Labor Force Statistics database and series reports, accessed November 8–December 7, 2018

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Table 3

U.S. employment impacts of steel and aluminum tariffs (jobs gained or lost)

	Predicted change		Actual change
	Trade Partnership study (tariffs only)	Trade Partnership study (retaliation impacts)	February–October 2018 (except as noted)
<i>Primary agriculture</i>	-285	-6,782	N/A
<i>Primary energy</i>	-669	974	42,000
Manufacturing	-2,612	-19,931	176,000
Processed food	-1,173	-7,339	22,200
Beverages and tobacco*	-365	-2,316	8,900
Petroleum and coal products	-5	-220	-500
Chemicals, rubber, and plastics	-1,220	-1,247	17,400
Iron & steel including ferrous foundries**	29,998	23,424	2,700
Nonferrous metals	3,466	2,856	-1,300
Alumina & aluminum 3313***			300
Other nonferrous including nonferrous foundries***			-1,600
Fabricated metals*	-12,802	-12,877	28,600
Motor vehicles and parts*	-5,052	-4,917	8,500
Other transportation equipment*	-2,180	-4,440	26,900
Electronic equipment	-1,579	1,246	24,300
Other machinery	-5,247	-4,160	30,800
Textiles	-195	401	-2,000
Clothing	-37	1,064	-5,800
Footwear and leather***	-3	259	-4600
Wood, paper	-2,142	-3,954	10,200
Other goods*	-4,075	-7,712	9,700
Services**	-142,305	-376,706	1,407,000

Table 3
(cont.)

	Predicted change		Actual change
	Trade Partnership study (tariffs only)	Trade Partnership study (retaliation impacts)	February–October 2018 (except as noted)
Construction**	-28,313	-63,930	151,000
Air transport	-353	78	3,000
Water transport	-32	-94	1,000
Other transport	1,484	-1,052	102,700
Trade and distribution	-34,065	-98,088	-22,600
Communications	-3,675	-8,767	10,000
Financial services	-5,105	-11,145	7,600
Insurance	-1,934	-3,983	12,300
Business and professional services	-22,375	-26,590	415,600
Personal and recreational services	-10,312	-35,033	513,200
Other services*	-37,625	-128,102	213,200
Total	-145,870	-402,445	1,625,000
Total nonmanufacturing	-143,258	-382,514	1,449,000

* Actual employment data for February–September 2018.

** Construction employment included in “Services,” as in the Trade Partnership’s tariffs-only study; does not match BLS total for service employment.

*** Footwear and leather was included in miscellaneous goods and other, under industry code 32-32900.

+ Iron and steel includes NAICS 3311, 3312, and 33151 (ferrous foundries).

++ Includes primary alumina production, secondary aluminum smelting and alloying, and rolled and extruded products (NAICS 3313-13, -14 and -18).

+++ Includes other nonferrous metals (such as copper) and nonferrous foundries (NAICS 3314 and 33152).

Note: Actual change (column 3) covers only nonfarm employment.

Sources: Joseph Francois and Laura M. Baughman, *Does Import Protection Save Jobs? The Estimated Impacts of Proposed Tariffs on Imports of U.S. Steel and Aluminum*, Trade Partnership, March 2018 (column 1); Joseph Francois, Laura M. Baughman, and Daniel Anthony, *Round 3: ‘Trade Discussion’ or ‘Trade War’? The Estimated Impacts of Tariffs on Steel and Aluminum*, Trade Partnership, June 2018 (column 2); Bureau of Labor Statistics, Current Population Survey, public data series aggregated from basic monthly CPS microdata and accessed through the Labor Force Statistics database and series reports, nonfarm data, accessed November 8–December 7, 2018 (column 3)

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report implies. Despite this critique, the Trade Partnership economists doubled down in their most recent study, as shown in Table 3, nearly trebling their estimates of the jobs likely to be lost due to the steel and aluminum tariffs.

Now, with the benefit of hindsight, we have an opportunity to compare the Trade

Partnership predictions with the actual performance of the economy in the wake of the tariffs. To date, history has not been kind to their predictions.

The Trade Partnership studies claimed that while the tariffs would save thousands of jobs in primary metals industries, hundreds of thousands of jobs would be eliminated in the rest of the economy. This report also demonstrates that, to date, there is absolutely no evidence of such negative downstream effects to be found anywhere in the U.S. economy. In total, the U.S. manufacturing sector has added 176,000 jobs (including at least 2,700 in iron and steel production) between February and October 2018. In addition, 300 jobs were added in (total) aluminum production, and 1,600 jobs were lost in other nonferrous production (for example, copper production).²¹

It is also important to note that 8,500 jobs have been added, to date, in the motor vehicle and parts sector, in contrast with the predictions of both Trade Partnership studies and the industry complaints cited above.²² Outside of manufacturing, an additional 1,449,000 jobs have been created in this same period. With respect to the claims of the beer industry, for example, 513,200 jobs have been added in “personal and recreational services,” a category that includes food services and drinking places, which, alone, gained 120,000 in this period.²³ If jobs were lost in beer retailing due to the 0.6 percent increase in the cost of cans, it would be hard to find any evidence of those losses in this industry. There is absolutely no evidence that the imposition of tariffs in the aluminum (or steel) industries have had the kinds of negative employment impacts—in downstream manufacturing or other parts of the economy—that were predicted by critics of the aluminum tariffs.

Conclusion

This report has demonstrated that, to date, the aluminum tariffs have had their intended effect: The domestic producers of both primary aluminum and downstream aluminum products have made commitments to create thousands of jobs, invest billions of dollars in aluminum production, and substantially increase domestic production since Section 232 tariffs were imposed on March 8, 2018.

Acknowledgments

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Endnotes

1. Robert E. Scott, [testimony before the U.S. Department of Commerce on aluminum imports](#), Washington, D.C., June 22, 2017.

2. Section 232 provisions allow for the imposition of tariffs if the Commerce Department finds that

imports are threatening America's industrial base. See U.S. Department of Commerce, Office of Public Affairs, "[Secretary Ross Releases Steel and Aluminum 232 Reports in Coordination with White House](#)" (press release), February 16, 2018.

3. Joseph Francois and Laura M. Baughman, *Does Import Protection Save Jobs? The Estimated Impacts of Proposed Tariffs on Imports of U.S. Steel and Aluminum*, Trade Partnership, March 2018.
4. Robert E. Scott, *Estimates of Jobs Lost and Economic Harm Done by Steel and Aluminum Tariffs Are Wildly Exaggerated*, Economic Policy Institute, March 2018.
5. Employment effects data in this report are through October 2018, except as otherwise noted.
6. Robert E. Scott, *testimony before the U.S. Department of Commerce on aluminum imports*, Washington, D.C., June 22, 2017.
7. Robert E. Scott, *testimony before the U.S. Department of Commerce on aluminum imports*, Washington, D.C., June 22, 2017.
8. Joseph Francois and Laura M. Baughman, *Does Import Protection Save Jobs? The Estimated Impacts of Proposed Tariffs on Imports of U.S. Steel and Aluminum*, Trade Partnership, March 2018.
9. Keith Naughton, "[Ford Calls Rising Steel, Aluminum Prices 'Significant Headwind'](#)," *Bloomberg*, August 8, 2018.
10. Robert E. Scott, "[Opinion: GM Cutbacks a Result of Overvalued Dollar](#)," *Detroit News*, December 1, 2018.
11. CRU, *Aluminum Market Outlook*, "Table 2.8, North American Production," 2018.
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13. Board of Governors of the Federal Reserve System, *Industrial Production and Capacity Utilization—G.17*, last updated March 23, 2018.
14. John Dunham & Associates, *The Impact of Potential Aluminum Import Tariffs or Quotas on America's Malt Beverage Industry*, prepared for the Beer Institute, Washington, D.C., March 2018.
15. Beverage Information Group, "[Beer Volume Declines Continue, Despite Gains in Craft and Imported Brews](#)" (press release), October 10, 2018.
16. John Dunham & Associates, *The Impact of Potential Aluminum Import Tariffs or Quotas on America's Malt Beverage Industry*, prepared for the Beer Institute, Washington, D.C., March 2018.
17. Joseph Francois and Laura M. Baughman, *Does Import Protection Save Jobs? The Estimated Impacts of Proposed Tariffs on Imports of U.S. Steel and Aluminum*, Trade Partnership, March 2018.
18. Estimates of agricultural employment are only available on an annual basis. No comparative data are available yet for trends in farm employment. Employment data for some sectors (NAICS four-digit and lower) is only available through September 2018, as shown in Table 3.
19. Joseph Francois and Laura M. Baughman, *Does Import Protection Save Jobs? The Estimated Impacts of Proposed Tariffs on Imports of U.S. Steel and Aluminum*, Trade Partnership, March 2018; Joseph Francois, Laura M. Baughman, and Daniel Anthony, *'Trade Discussion' or 'Trade*

War? The Estimated Impacts of Tariffs on Steel and Aluminum, Trade Partnership, June 2018.

20. Robert E. Scott, *Estimates of Jobs Lost and Economic Harm Done by Steel and Aluminum Tariffs Are Wildly Exaggerated*, Economic Policy Institute, March 2018. Unemployment data are from the Bureau of Labor Statistics, *Labor Force Statistics from the Current Population Survey*, “Unemployment Rate (Seasonally Adjusted), 16 Years and Over,” October 2018 data (Excel sheet, accessed December 4, 2018).
21. The Trade Partnership studies did not distinguish the subsectors of aluminum and other nonferrous metals, which are of interest in this study.
22. Recently announced auto industry plant closures have more to do with the expected impacts of the overvaluation of the U.S. dollar and the impacts of the overall economic policies of the Trump administration than with the steel and aluminum tariffs. See Robert E. Scott, “*Opinion: GM Cutbacks a Result of Overvalued Dollar*,” *Detroit News*, December 1, 2018.
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Table notes

Table 1, U.S. aluminum restarts/expansions since 232 implementation, February 2018–October 2018

The sources for each plant announcement are as follows:

Primary aluminum plants

Century Aluminum (Sebree, Ky.): Century Aluminum Company, “*Century Aluminum Announces Expansion of Sebree Casthouse*” (press release), November 28, 2018. **Century Aluminum (Hawesville, Ky.):** Michelle Fox, “*Trump’s Tariffs Allow Us to Invest \$100 Million and Hire Hundreds: Century Aluminum CEO*,” *CNBC*, March 1, 2018. **Magnitude 7 Metals (Marston/New Madrid, Mo.):** Scott Seal, “*Magnitude 7 Metals to Reopen Old Noranda Aluminum Smelter, Create 450 Jobs*,” *Delta Dunklin Democrat*, March 13, 2018. **Alcoa (Warrick, Ind.):** Alcoa Corporation, “*Alcoa Corporation Plans Partial Restart of Aluminum Smelter at Warrick Operations*” (press release), July 11, 2017.

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