TARIFF WAR FALLOUT:

U.S. Electronics Manufacturers Worried About Higher Tariffs and Laboring to Mitigate Impacts

An IPC Research Report

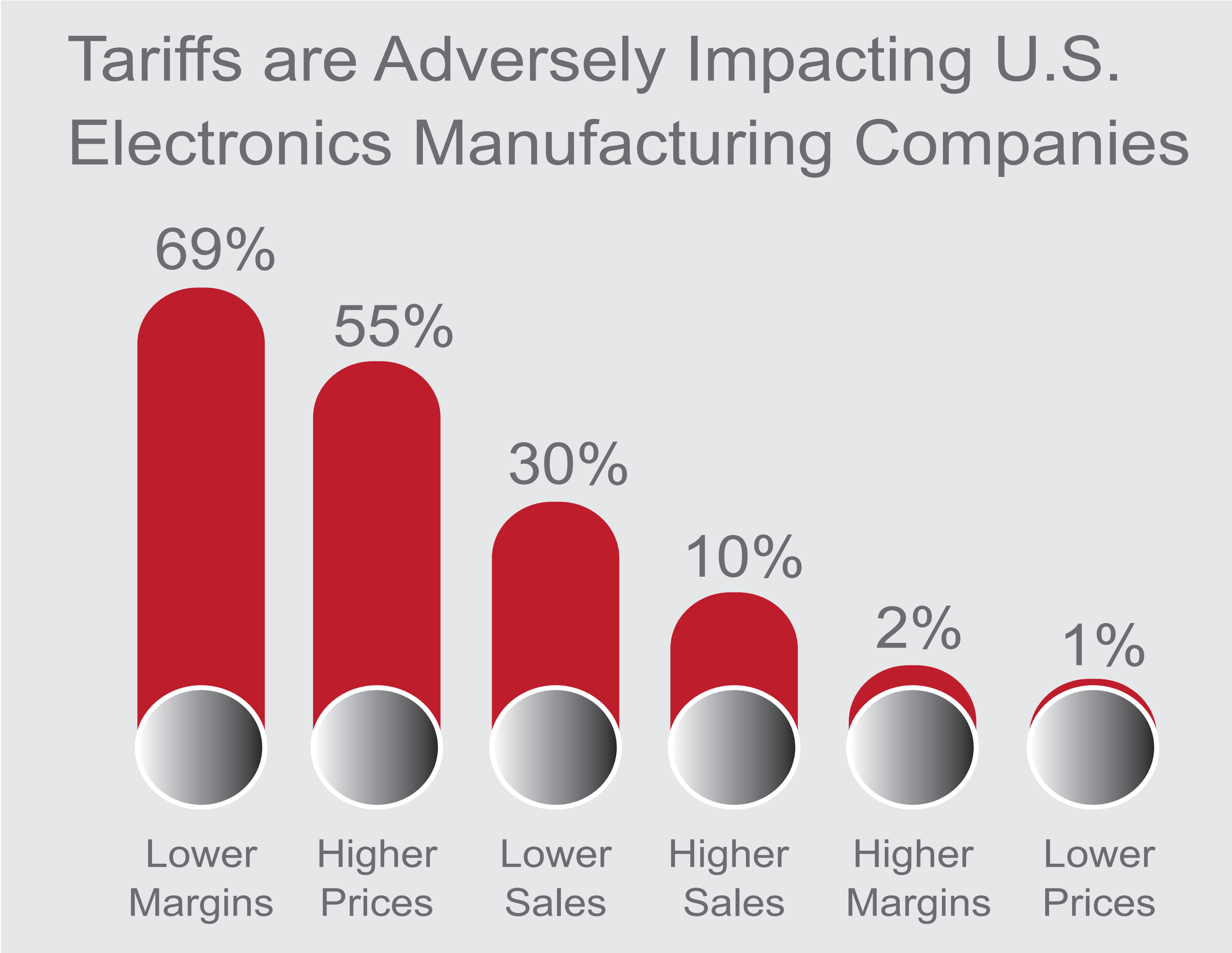
October 2019

EXECUTIVE SUMMARY

Almost 90 percent of U.S. electronics manufacturers say they are concerned about the impacts of higher tariffs, such as those imposed over the past year by the United States and China on the goods imported from each other. Companies are working on a variety of strategies to cope with higher tariffs, including investing less in the United States and hiring fewer workers.

IPC surveyed its U.S. members on this issue between September 25 and October 2, 2019. Here are the highlights of what they told us.

- **The overwhelming majority (86 percent) of U.S. electronics manufacturers are concerned about increased tariffs, and they face a steep financial burden from the tariffs that have been put in place.** On average, companies report they have seen tariff increases on approximately 31 percent of the total dollar value of the products they import. Twenty-five percent of companies report over half of the dollar value of the products they import are facing higher tariffs.
- **U.S. companies are investing less in the United States and hiring fewer workers as a result of higher tariffs.** One in five companies (21 percent) report they are reducing investment in the United States. Roughly 13 percent of companies report they are cutting back on hiring and/or reducing headcount.
- **Tariffs equate to higher costs for U.S. electronics manufacturers.** Fifty-five percent of companies report they are facing higher prices as result of import tariffs. However, more than a third of companies report they cannot increase their prices to cover the cost of higher import tariffs, due to various factors.
- **Tariffs are negatively impacting U.S. electronics manufacturers' profitability.** Some 69 percent of companies report lower profit margins as a result of increased tariffs. More than 80 percent of the companies that say they are reducing investment in the United States also report lower margins.
- **U.S. electronics manufacturers are sourcing inputs from other countries and moving their businesses out of China as a result of increased tariffs.** Fifty-one percent of responding companies report they are now sourcing from countries other than China as a result of increased tariffs on Chinese imports. Nearly one in five companies (19%) report they are moving manufacturing operations and potentially other business interests outside of China.



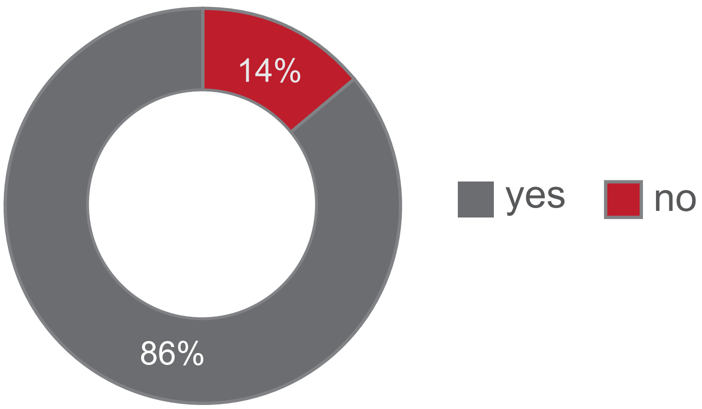
Source: IPC Tariffs Impact Report, October 2019

"The **tariff situation** is creating serious issues with our customers. If we were able to source parts locally or from other countries, it would at least be a solution, but **China** is by far the largest manufacturing country in the world, especially for components. As a result, all we are currently doing is adding cost to the whole process, and I am not even including the **administrative challenges** this has put upon us."
– Electronics Manufacturer

U.S. Electronics Manufacturers are Facing Heavier Burdens Because of Higher Tariffs, and Trying to Find Ways to Respond

The vast majority of electronics manufacturers who responded to our survey say they are concerned about increased tariffs. Companies also report significant burdens from the increase in tariffs. On average, companies report they have seen tariff increases on approximately 31 percent of the dollar value of the products they import. Twenty-five percent of responding companies report more than half of the dollar value of the products they import are facing higher tariffs. Over half of companies (55 percent) report they are facing higher prices as a result of increased tariffs.

Electronics Manufacturers are Concerned about Increased Tariffs



Source: IPC Tariffs Impact Report, October 2019

Electronics manufacturers are responding to increased tariffs in numerous ways. Some 58 percent of companies report they are raising prices as a result of tariff increases. This figure increases to 65 percent when it includes the number of firms that are passing tariff costs to customers in other ways. In many cases, companies are passing tariffs to their customers as separate line items.

> *"Overall, many of the Chinese supply chains (PCBs, FR4 material, component factories) have been established over decades. To expect that to change over a short period of time is not feasible without affecting quality or increasing pricing or lead time."*
> – Electronics Manufacturer

At the same time, more than a third of companies (35 percent) report they are unable to increase prices due to various factors. An additional 25 percent report it would take more than six months to raise prices. It is common for companies in the industry to have long-term contracts with guaranteed prices. This makes it essentially impossible for companies to change pricing, at least in the short-run, as a result of increased tariffs. Some firms noted they cannot increase prices on existing business, but only on new business. Other firms noted they can't raise prices because of competitive threats and pricing from competitors not impacted by tariffs on imports from China.

"Tariffs on Chinese components increase costs for EMS companies in USA and will cause EMS to leave USA."

– Electronics Manufacturer

"Our customer are just starting [to] feel the effect of the tariffs. Our vendors were not initially charging the tariffs, now they are but each vendor does it differently. For example, one vendor charges a flat percentage rate, another just increases their cost, another gives an arbitrary number — we have no way of knowing if they are charging more than the 25%. This causes us more work, confusion for the customer and decreased ordering because the tariff costs are an unknown."

– Electronics Manufacturer

65% of Companies are Raising Prices or Passing Increased Tariff Costs onto Customers, but **35%** of Companies Report They Can't Raise Prices

Tariffs are Negatively Impacting U.S. Electronics Manufacturers' Profitability

The profitability of U.S. electronics manufacturers is being squeezed as a result of increased tariffs. Sixty-nine percent of companies report lower margins as a result of the tariffs; only 2 percent of companies report higher margins.

The tighter margins come at a precarious time for the U.S. economy. Profit margins for U.S. nonfinancial corporations have been declining. After peaking at 15.7% of gross value added in 2015, profit margins have declined to 12 percent in the second quarter of 2019[1].

There are several reasons why increased tariffs are driving margins lower. First, while some companies are attempting to pass tariff costs to downstream customers, companies who can raise prices might not be increasing them to the full extent of the increased tariff costs.

1 Bureau of Economic Analysis, author's analysis

Second, some companies have noted that their costs have increased above the direct costs of the tariffs due to administrative and operational burdens associated with higher tariffs. Examples of these costs and burdens include identifying which of their suppliers have added tariffs; identifying which components are now subject to tariffs and keeping track of changing rules; tracking and allocating tariff costs; and ensuring that tariff costs are captured in price quotes.

Third, competition from companies not subject to higher tariffs may be inhibiting companies from fully capturing the cost of increased tariffs from downstream customers, and in turn resulting in lower margins and profitability. Finally, as was previously noted, many companies cannot raise prices due to long-term contracts. Eighty percent of companies that report they cannot increase prices also report lower margins as a result of tariffs.

Roughly one in three (30%) companies report their sales are lower as a result of tariffs. Some companies may choose to absorb the higher costs associated with tariffs to maintain sales levels. But this approach results in higher costs, which will inevitably hurt margins. Moreover, some companies report that even raising prices is not stopping margin compression and weaker sales.

"As an OEM we have two issues. The tariffs have increased our costs by >15%. Plus the 25% duty from China has stopped all our sales to China."
– Original Equipment Manufacturer

Increased tariffs are likely impacting not only electronics manufacturers but also the entire range of U.S. companies. Wall Street analysts expect earnings of the S&P 500 to decline in the third quarter of 2019 for the first time in three years, with the tariffs and related uncertainties contributing to the trend.

Companies Report Investing Less in the U.S. and Hiring Fewer Workers as a Result of Tariffs

Reduced profitability as a result of higher tariffs is affecting companies' ability to invest in the United States. One in five companies (21 percent) report they are reducing investment in the United States. Roughly 13 percent report they are cutting back on hiring and/or reducing headcount. More than 80 percent of companies that report they are reducing investment in the U.S. also report lower margins. Lower profitability due to increased tariff costs appears to be hindering investment in the U.S.

The negative impact from import tariffs is having an outsized impact on U.S. domestic investment. Business fixed investment in the United States declined by 0.8 percent in the second quarter of 2019. This marks the biggest drop in over three years.[2] Only 17 percent of companies that report they are reducing investment in the U.S. also report they are reducing investment outside of the U.S. Some firms noted they are increasing investment outside of the U.S. as a result increased tariffs on imports.

2 Bureau of Economic Analysis, author's analysis

The negative impact of tariffs on the U.S. economy could be even more severe depending on the shape of capital investment in the U.S. Some companies report they are increasing investment in automation in order to reduce costs as a result of import tariffs. This would suggest some of the capital investment taking place in the U.S. could further reduce workers.

Some companies noted they are reducing production in the United States as a result of import tariffs. Moreover, companies noted they are "laying off personnel and reducing hours for remaining employees" because of reduced production resulting from import tariffs. One company reported laying off 50 percent of its workforce as a result of import tariffs.

U.S. Electronics Manufacturers are Sourcing from other Countries and Moving their Businesses Out of China as a Result of Increased Tariffs

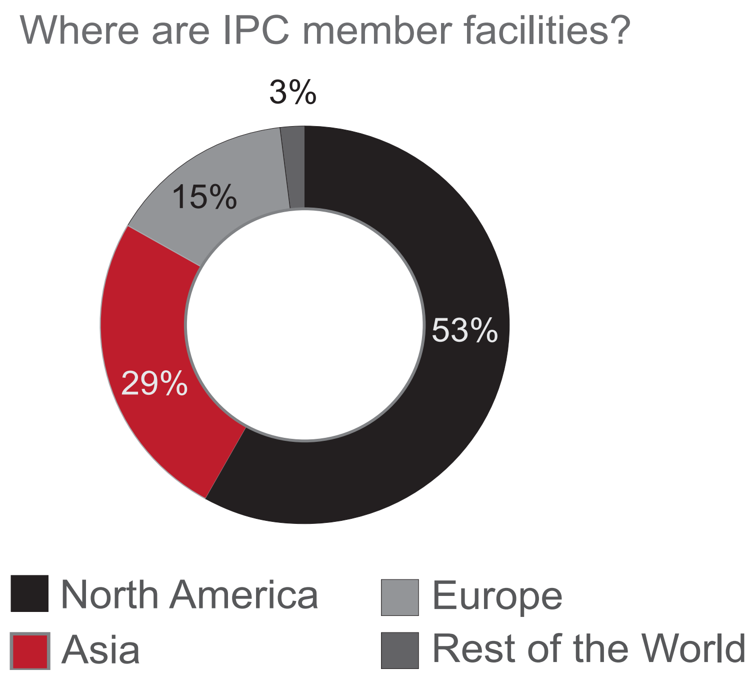
Some 51 percent of responding companies report they are sourcing from countries outside of China as a result of increased tariffs on Chinse imports. Nearly one in five companies (19%) report they are moving manufacturing and potentially other business interests outside of China.

At the same time, some companies noted they are investing in countries outside of the U.S. in order to replace production capacity that they are moving away from China.

IPC's Perspective

An innovative, resilient electronics manufacturing industry is in everyone's interest, because electronic components are at the heart of almost all industries today, from aerospace and military, to automotive, information technology, telecom, manufacturing, retail, and healthcare.

The electronics manufacturing industry, including design, printed board manufacturing, electronics assembly and test, is also highly dispersed globally. Of IPC's more than 5,600 member-company sites worldwide, roughly 53 percent are in



Source: IPC Tariffs Impact Report, October 2019

North America; 29 percent are in Asia; 15 percent are in Europe; and 3 percent are in the rest of the world. A great many of our members depend on complex supply chains that span the globe.

As a result, IPC has long supported a fair, open, and rules-based international trading system. Our industry has longstanding concerns about the unfair trading practices of some nations, including government subsidies, intellectual property violations, and non-tariff barriers to market entry. However, we believe there are better ways to deal with unfair trade practices than the blunt tool of tariffs.

In light of the disruptive impacts of higher tariffs, IPC calls on the governments of the United States and China to de-escalate their tariff war, return to the negotiating table, and conclude agreements that address long-standing issues of concern to both sides. We urge all nations to abide by their pro-trade commitments and refrain from harmful trade conflicts, including tit-for-tat tariffs.

IPC also calls on all members of the World Trade Organization to restore that body's ability to play its rightful role as a norm-setter and arbiter of international trade disputes, so that no government feels the necessity to resort to tariffs to accomplish its objectives.

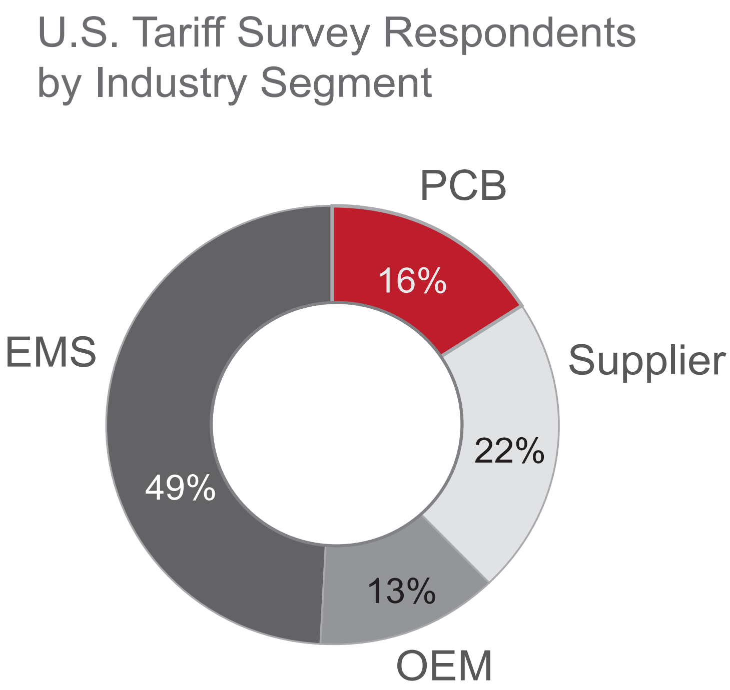
Appendix I: Methodology

Study Objectives

The mission of IPC is to support companies and people in the electronics industry worldwide through standards, education, advocacy and solutions that enhance their competitive excellence and financial success. Currently, the impact of new tariffs on trade between the U.S. and China is one of the industry's major challenges. IPC seeks to understand the impact of these tariffs on U.S. electronics manufacturers and how companies are responding to this new challenge.

About the Survey and Respondents

The aggregate data in this report is based on responses provided by 86 electronics manufacturing companies and suppliers in the U.S. who participated in IPC's "Fast Facts" Tariff Survey between September 25 and October 2, 2019. The survey was sent to contacts in middle and upper management at electronics manufacturing companies, including original equipment manufacturers (OEMs), electronics manufacturing services (EMS) companies, and printed circuit board (PCB) fabricators. It was also sent to industry suppliers in the U.S. The respondents were a self-selecting sample.



All survey responses are from companies operating in the United States. Almost half of the survey respondents represent the contract electronics manufacturing services (EMS) industry. This segment performs an estimated 25 percent of North American electronics manufacturing for original equipment manufacturers (OEMs). The respondents comprise a representative sample of U.S. electronics manufacturing.

IPC "Fast Facts" surveys are designed to provide quick turnaround – typically in two to three weeks – on survey results addressing timely issues of importance to the industry. IPC and its members thank the survey participants who contributed information and insights in a short timeframe for this study.

This report is a product of IPC's market research service and is provided at no charge to the survey participants. For information about the IPC's market research services, please contact the IPC market research team at 1-847-597-2868 or marketresearch@ipc.org.

Appendix II: Verbatim Responses

Respondents offered the following verbatim comments about the various actions they are taking in response to the tariffs. (Some responses have been edited for length and/or grammar.)

Verbatim Comments	Industry Segment
Bring everything to our factory in Tijuana, Mexico, in-bond.	EMS company
Increasing planned investment in NAFTA, but outside of US.	EMS company
We have increased RFQ from non-Chinese sources. And we have negotiated with our Chinese suppliers to offset (reduce or share) the cost of tariffs with reduced prices. This has been successful most of the time."	EMS company
Can only include tariff costs on new business. Repeat business we can't raise prices.	EMS company
Watching: if higher percentage of buy is impacted, (we) will be raising prices, where possible; however, we, like many, have contractual pricing. We anticipate sales will be impacted as tariffs slow economy.	PCB fabricator
Most of CEM (contract electronics manufacturers) we serve took the decision to move business out of US more than out of China. So we keep building, but we deliver to other country.	PCB fabricator
Investing more in USA; no significant reduction in business; long term a positive effect on our business.	PCB fabricator
Engaging with customers to understand if we need an alternative to China longer term.	PCB fabricator
Tariffs are impacting our business in China.	Industry supplier

Survey respondents shared many other insights in their verbatim comments, including additional concerns not addressed in the survey.

Verbatim Comments	Industry Segment
As an OEM we have two issues. The tariffs have increased our costs by >15%. Plus the 25% duty from China has stopped all our sales to China.	OEM
These tariffs will kill our European-based business in US and actually help Asian imports to get footing in Americas. So the tariff increase has a totally opposite result than the whatever the idea was.	OEM
Being a contract manufacturer, we have to buy the components our customers specify, and buying through distribution and not knowing where the components are originating from causes angst for our customers.	EMS company
Chinese manufacturer will find a way to export and not hiking price too much.	EMS company
Customers are pushing us to move our business to our Mexico plant, which is not subject to the tariffs.	EMS company
I am concerned about our internal cost related to the administrative cost in managing tariffs. I.e., which components/companies report tariff cost separate from the unit price? How do we track and/or allocate these costs? Did all tariffs get captured in our quote on new programs?	EMS company
If the tariffs result in better trade negotiations and fairness between China and the USA, then they are a good thing.	EMS company
Manufacturers with U.S. only sites have a competitive disadvantage with the tariffs. Short-term tariffs may not be as impactful as sustained tariffs.	EMS company
Our customers are just starting the feel the effect of the tariffs. Our vendors were not initially charging the tariffs, now they are, but each vendor does it differently. For example, one vendor charges a flat percentage rate, another just increases their cost, another gives an arbitrary number – we have no way of knowing if they are charging more than the 25%. This causes us more work, confusion for the customer and decreased ordering because the tariff costs are an unknown.	EMS company
Overall, many of the Chinese supply chains (PCBs, FR4 material, component factories) have been established over decades. To expect that to change over a short period of time is not feasible without affecting quality or increasing pricing or lead time.	EMS company
Tariffs are a “self-imposed” tax on U.S. manufacturing companies. We say that we’re making the Chinese pay tariffs on products they ship into the U.S., but in reality, WE are paying the tariffs on these products. In 99% of the cases, the products/parts that we import from China are NOT available to buy in the U.S. The technology has long been moved out of the U.S. and will not come back. Let’s stop the insanity and let true economics drive the equation! By the way, where is all the tariff money going? What is our federal government doing with this money?	EMS company
Tariffs on Chinese components increase costs for EMS companies in USA and will cause EMS to leave USA.	EMS company

Verbatim Comments	Industry Segment
The tariff situation is creating serious issues with our customers. If we were able to source parts locally or from other countries, it would at least be a solution, but China is by far the largest manufacturing country in the world, especially for components. As a result, all we are currently doing is adding cost to the whole process, and I am not even including the administrative challenges this has put upon us.	EMS company
Unfortunately, the Tier 1 companies are pushing for price reductions from small CMs, hence we're having to go offshore for cheaper options. We as a company are having to eat some of the tariff cost, so our bottom-line profits are impacted.	EMS company
We have customers that sell their products to customers in China, and they have seen their sales decrease due to the tariffs they have put on U.S. products. Some are very concerned as China is their largest market.	EMS company
We have moved manufacturing from our US-based operation to our Mexico facility. We are using in-bond shipping from China to Mexico to mitigate tariffs when possible.	EMS company
As a PCB fabricator with plant in USA and China, I see an increased business for our US plant, and not really a decrease from import. Our main business has been transferred from US CEM to overseas CEM. Mexico is gaining a lot from that. Of course, Korea and Taiwan PCB vendors are taking a big advantage on that tariff issue.	PCB fabricator
We're booming.	PCB fabricator
We do not import product from China.	PCB fabricator
We need to find a solution to fix the issues of exporting more jobs to China and increase domestic production. Only way we can fight Chinese import is by supporting our domestic manufacturing business. Money raised by tariff need to be used to help domestic business by providing them high-tech manufacturing equipment.	PCB fabricator
As a software business, we are not impacted by tariffs to our COGS [cost of goods sold]. However, we sell our products in China to equipment suppliers. These equipment suppliers are aggressively reducing US content, which impacts our business.	Industry supplier
As an industry supplier, our real issue is not related to higher cost on imported goods but rather higher tariffs on US goods entering China & reduced consumption of our goods by our customers who export into China. Your survey misses the point about exports from US to China.	Industry supplier
Imports do not dramatically impact our company relative to our sales, but the two products we do import from China are impacted by tariffs. Who knows what will happen as they are negotiating? This is symptomatic of how difficult it is to plan ahead. The larger picture is how these tariffs will impact the economy as a whole, and this is my main concern.	Industry supplier
Shifting sources in supply chain to other countries	Industry supplier
Tariffs have also reduced our ability to compete in China, selling US made goods in competition with Chinese-made testers.	Industry supplier
Tariffs hurt.	Industry supplier
Tariffs have positively affected our business, as premium manufacturing products and on-shoring has driven up our sales.	Industry supplier

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