

# FRBSF Economic Letter

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## Inflationary Effects of Trade Disputes with China

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Imports from China are an important part of overall U.S. imports of consumer and investment goods. Thus, tariffs on these imports are likely to have sizable effects on consumer, producer, and investment prices in this country. Tariffs implemented thus far may have contributed an estimated 0.1 percentage point to consumer price inflation and 0.4 percentage point to price inflation for business investment goods. If implemented, an across-the-board 25% tariff on all Chinese imports would raise consumer prices an additional 0.3 percentage point and investment prices an additional 1.0 percentage point.

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*This Letter reflects information about U.S. trade negotiations available through February 21, 2019.*

Since early 2018, U.S. trade disputes have intensified, especially with China. One of many related concerns is the potential effect of import tariffs on U.S. inflation. In the short run, tariffs affect prices through three direct channels: by increasing consumer prices of imported goods, by increasing costs for companies that use imported intermediate inputs, and by increasing costs of investment goods for businesses.

In this *Economic Letter* we assess the direct effect that tariffs on Chinese imports may have on U.S. inflation in the short run. To do so, we combine the most recent data on consumption, production, investment, and trade with information about the current and proposed tariff schedule on imports of Chinese goods. Our analysis builds on our earlier *Letter* (Hale, Hobijn, Nechio, and Wilson 2019).

This *Letter* focuses only on short-term direct effects and does not account for adjustments to the supply, markups, or the responses of importers, domestic producers, and consumers. With that caveat, our estimates suggest that recently implemented tariffs on Chinese goods will directly increase the costs of consumer and investment goods sold in the United States by 0.1 and 0.4 percentage point, respectively.

### Recent tariffs on imports from China

As of January 2019, about \$250 billion dollars of U.S. imports from China became subject to new import tariffs. The tariff schedule started small, but its scope has grown over time. At first, the United States imposed a 20-50% tariff on imports of solar panels and washing machines. Next, the United States imposed a 25% tariff on about \$50 billion of imports from China. Finally, a 10% tariff was levied on an additional \$200 billion of imports from China (Bown and Kolb 2018). As of February 21, the deadline for this publication, and barring a successful resolution to ongoing trade negotiations, this tariff is slated to rise to 25% in March and expand to include all remaining imports from China (White House 2018).

The effect of these tariffs on the U.S. economy and on inflation more specifically depends on how much we rely on imports from China for different categories of goods and services. Therefore, to grasp the effects of tariffs on U.S. prices, we first calculate the contribution of imports from China to U.S. consumption and investment, and then, using those shares, we apply the implemented tariff schedule.

## Measuring U.S. reliance on imports from China

Our earlier *Letter* discussed how raw statistics on imports fail to fully account for the overall U.S. reliance on imports because they miss two important components of prices for imported and domestic goods. First, the prices that consumers pay for imported goods also reflect “local content,” expenses that stay in the United States to remunerate workers and cover transportation costs, rental costs, and profits. Second, goods that are produced in the United States also include imported intermediate parts, or “import content.” Therefore, to properly measure the importance of imported goods for the cost of goods and services bought in the United States, we subtract the local content of imported goods and add the import content of U.S.-made goods to the raw measure of U.S. expenses on imports.

To account for these two factors, we combine information from the 2017 Census Bureau U.S. International Trade Data, the 2016 Bureau of Labor Statistics input-output matrix, and the 2017 personal consumption expenditures (PCE) and nonresidential private fixed investment (PFI) from the U.S. national accounts to provide estimates of U.S. consumers’ import expenses.

Thus, we consider both goods bought by U.S. consumers, either directly or as components of U.S.-made goods, and capital investments by U.S. businesses.

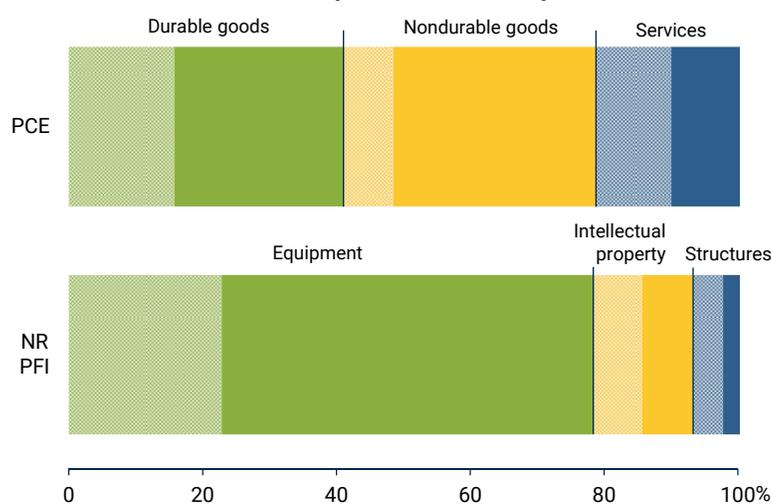
We include investment goods because imported goods from China make up a larger share of the cost for investment goods than for consumption goods. Hale et al. (2019) find that imported goods account for about 11% of U.S. PCE. A similar calculation yields a much larger reliance on imports for investment expenditures—namely, 26% of spending for imports from all countries. Imports from China account for 16% of the import share of U.S. PCE and 21% of all import share of nonresidential PFI. The exact numbers for all calculations are available in the online [Appendix](#).

The distinction between consumer and investment goods, as well as their subcategories, is particularly important when we consider the composition of industries that are subject to actual and proposed tariffs. This allows us to consider what aspect of the proposed tariffs affect consumer and producer prices.

Figure 1 summarizes our calculations by reporting the shares of Chinese imports of main categories of consumer goods and investment goods. The top bar shows that imports from China contribute to all main categories of the PCE, but especially to durable and nondurable goods. The bottom bar shows that imports of investment goods from China are concentrated in equipment and intellectual property.

The figure also shows the shares of PCE and nonresidential PFI categories that are currently subject to the tariffs implemented in 2018 (lighter shaded

**Figure 1**  
Contribution of Chinese imports to consumption, investment



Note: Estimated shares of imports from China to main categories of U.S. personal consumption expenditures (PCE) and nonresidential private fixed investment (NR PFI). Lighter shading indicates portions of each category subject to tariffs through end of 2018.

areas). Nearly half of all U.S. imports of equipment and intellectual property are already subject to tariffs, as well as a large share of durable goods imports. Overall, 34% of the Chinese import contribution to PCE and 42% of the Chinese import contribution to nonresidential PFI are already subject to tariffs.

### Effects of inflation depend on implementation of proposed tariffs

Considering the large share of U.S. imports from China that are subject to the new tariffs imposed in 2018, we next consider the direct effect of these tariffs on prices paid in the United States for consumer and investment goods. The direct effect we quantify is only part of the total impact of tariffs on prices. It captures the increase in the cost of goods that consumers and businesses buy that contain parts that are imported from China.

For our calculations we assume that cost increases due to tariffs are completely passed through to final prices of imported consumer and investment goods. We apply the scheduled tariffs at the detailed product level to the cost share of imports from China in consumer and investment goods in these product categories.

Our calculations show that the implemented tariffs result in an increase of 0.1 percentage point for PCE inflation and of 0.4 percentage point for nonresidential PFI inflation, as shown in Figure 2. Because the bulk of the new tariffs were implemented in the second half of last year, these increases may already be reflected in the inflation data for the fourth quarter of 2018.

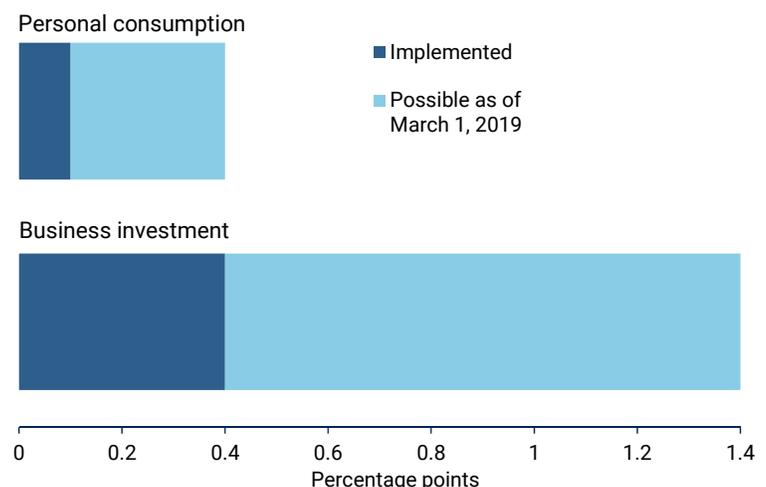
Going one step further, we apply our approach to the remaining imports from China, which may face tariffs if the United States and China do not reach an agreement. If the tariff rate increases from the current 10% to 25% and expands to all other imports from China, the *additional* increase in PCE and nonresidential PFI inflation would be 0.3 and 1 percentage point, respectively. Thus, the *overall* impact on PCE inflation would be 0.4 percentage point and on nonresidential PFI inflation would be 1.4 percentage points.

We base these calculations on the assumption that the underlying structure of trade, production, supply chains, consumption, and price mark-ups remains unchanged. It is important to note that we calculate the effects on price levels, not inflation rates.

Inflation data are likely to reflect these price level changes over a course of a few months. Moreover, our estimates should not be taken as upper or lower bounds of the potential effects of tariffs on prices. In fact, the overall impact may be larger than our estimates if producers that are not affected by tariffs also raise their prices to take advantage of the reduced competition (Amiti, Heise, and Kwicklis 2019). Producers affected by the new tariffs may also increase their prices more than the direct effect of the tariffs would require.

The effects of tariffs on prices may be smaller than our estimates if producers adjust their profits to absorb part of the

**Figure 2**  
How much do tariffs on imports from China affect inflation?



Note: Dark blue portions indicate estimated tariffs implemented as of the end of 2018. Light blue portions of bars indicate estimates of tariffs expected to become effective on March 1, 2019 if no new trade agreement is enacted.

tariff cost. Moreover, consumers and producers could also front-load their imports, buying more now in anticipation of a future tariff increase. In addition, tariffs may lead the U.S. dollar to appreciate in relation to the Chinese renminbi. This will naturally decrease the cost of Chinese imports, offsetting a portion of the price increase caused by the tariffs.

In the medium and long term, businesses may change the composition of their production and supply chains to rely on different sources of inputs and final goods or to relocate production elsewhere. Changing the inputs and production location could eventually allow producers to reduce costs to pre-tariff levels. However, the transition to new locations could be costly, which would increase indirect costs.

## Conclusion

Using recent data on consumption, production, investment, and trade, we compute the direct contribution of imported goods to the U.S. domestic prices of personal consumption and business fixed investment goods. Our calculations account for the local content of imported goods and services and the import content of domestically produced goods and services. In a similar way, we compute the contribution of imports from China to consumption and investment. While the resulting calculations yield the direct effects of tariffs on domestic prices, whether the net indirect effects on domestic prices over the longer run would be positive or negative is less clear.

Our results show that the contribution of Chinese imports to overall personal consumption and business investment may appear small, 1.7% and 5.4%, respectively. However, when faced with tariffs as high as 25% on a broad set of product categories, even these small shares can lead to sizable upward pressures on prices. Tariffs are already in place on 34% of Chinese imports contributing to consumption and 42% of Chinese imports contributing to business investments. Our calculations show that these tariffs are adding 0.1 percentage point to consumer price inflation and 0.4 percentage point to business investment price inflation. If all imports from China become subject to a 25% tariff, our estimates show the overall short-term direct effect on consumer prices and business investment price inflation would increase 0.4 percentage point and 1.4 percentage points, respectively.

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