

GLOBAL TRADE WATCH

GLOBAL TRADE WATCH 2018*

Trade Amid Tensions

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Overview: Trade Amid Tensions

Global trade growth slowed in 2018 amid a weakening of economic growth in China and the Euro Area and rising trade protectionism. The volume of trade grew by 3.8 percent, down from 5.4 percent in 2017, but has shown signs of stabilizing in the first quarter of 2019. However, the U.S. tariff increases implemented in early May and China's response might change the outlook.

Trade policy developments are mixed. Restrictive trade measures imposed during 2018 affected 3.8 percent of world merchandise trade—nearly three times the share affected in any of the years since the global financial crisis of 2009. Tit-for-tat tariffs between the United States and China alone affected 2.0 percent of world merchandise trade in 2018. In May 2019, the United States increased the tariffs implemented in September on imports from China of approximately \$200 billion to the levels originally threatened for January 2019, and China announced its plans to retaliate. Yet, 2018 also saw positive trade policy developments, with the signing of a number of regional trade agreements (e.g., African Continental Free Trade Area; Comprehensive and Progressive Trans Pacific Partnership; U.S., Mexico, Canada Agreement).

The tariffs have changed trade flows in affected goods. China's imports from the United States of goods targeted by tariffs dropped by 8 percent in 2018 compared with 2017, whereas U.S. imports from China of goods affected by tariffs grew by 9 percent because of strong domestic demand and in anticipation of tariff increases. In the first quarter of 2019, China's imports from the United States of goods affected by tariffs declined by 40 percent on a year-on-year basis while U.S. imports from China of targeted products dropped by 24 percent.

Retaliatory tariffs by the United States and China diverted trade from each other to many developing countries, including Brazil, India, Malaysia, Mexico, and Vietnam. Soybean exports from Brazil to China soared by \$8 billion in 2018 (an increase of nearly 40 percent), offering one of the most significant examples of trade diverted by U.S. and Chinese tariffs.

Tariffs did not affect all goods in the same way. For example, U.S. imports of products such as electrical connectors from China—which a specific company tends to manufacture for a specific business in the United States—increased by 1 percent year on year from August through December 2018. Trade in such goods tends to be more resistant to tariff shocks because they cannot be easily substituted. In contrast, U.S. imports from China of hard-disk-drive units, which are more easily substituted, declined by as much as 85 percent, shifting in part to the Philippines. The evidence shows that the United States targeted “stickier” products than China, resulting in smaller effects on trade volumes.

Ongoing trade tensions affected importers in United States and China significantly. While trade fell in targeted products, prices at the border did not change as compared with non-targeted products. For example, in the United States, roughly half of products targeted by tariffs saw an increase in the price charged by Chinese exporters and half saw a price decrease, similar to the distribution of price changes of non-targeted products. Results are similar for China. The evidence indicates a high pass-through of tariffs to import prices for most products in both the United States and China, at least in the short run. Going forward, if traders believe the tariffs will be in place for a long period, exporters may reduce prices to stem import declines.

The effects on global poverty have been muted. But if trade tensions continue to intensify and cause a slump in investor confidence, the effects could be significant—up to 30.7 million people could be

pushed into poverty measured as income levels below \$5.50 a day, and global income could fall as much as \$1.4 trillion in a worst-case scenario. Developing countries other than China would bear roughly half of the global income loss.

Even though trade in stickier inputs tends to be relatively resilient in the short term, if trade tensions are not resolved, existing global value chains are likely to be disrupted in the longer term. Tariffs applied by the United States on imports from China are biased so far against intermediate goods. As a result, a Computable General Equilibrium model predicts that U.S. imports of intermediate goods from China would decline in the longer term by over 40 percent, with the U.S. likely to reallocate its sourcing of intermediate inputs to other trading partners in Asia and Europe, and to Canada and Mexico. These switches could result in adjustment costs in the sectors and locations affected by trade diversion.

The early evidence for 2018 and the first quarter of 2019 points to some useful lessons: Trade tensions and tariff increases hurt the countries directly involved the most, although they could have long-term consequences for all countries because of the increase in uncertainty; other countries would do well to stay out of the fight, and continue with trade deals that preserve and improve open markets; and a managed trade deal between the two countries involved, especially one involving promises to increase bilateral purchases, is likely to divert trade away from other countries. It is in the long-term interest of industrial and developing countries for trade tensions to be resolved through a multilateral approach and World Trade Organization reforms.

Chapter 1: Trade Developments in 2018 and Early 2019

1.1. Trade Flows and Trade Policy Developments

Goods trade volumes slowed in most regions compared with 2017 because of softening economic growth in Europe and Asia and the resurgence in protectionism. After growing at 5.4 percent in 2017, goods and services trade volumes grew at only 3.8 percent in 2018. Gross domestic product (GDP) growth was only slightly lower, at 3 percent. The sluggish trade performance in 2018 resembles that of the 2012–2016 period. The stronger performance in 2017 stands out as an outlier (figure 1A).

Services trade values have been more resilient than goods trade values in recent years but grew at a similar pace in 2018. Services trade values (excluding transportation services) fell less than goods trade values during the Great Recession and have grown faster subsequently, although in 2018, services and goods trade values grew at a similar pace (figure 1B).

Goods trade volume was particularly weak in the fourth quarter of 2018, reflecting weaker industrial production in the European Union and China and the accumulation of trade-tension effects. According to preliminary data, goods trade volumes grew at approximately 4 percent year on year in the first three quarters, before slowing to less than 2 percent in the fourth quarter, a rate last seen in 2016 (figure 1C). Goods trade volumes dropped by 0.5 percent year on year in the first two months of 2019, but signs of stabilization emerged toward the end of the first quarter, reflecting in part the stimulus-driven recovery in China (World Bank 2019a).

Advanced and emerging markets made similar contributions to demand for imported goods in the last two years. In 2012 and 2013, global imports were supported mostly by the contribution of emerging markets, while the opposite was true during 2014–2016. The years 2017 and 2018 saw more balanced contributions (Figure 1D).

Goods trade volumes slowed in most regions compared with 2017:

- In the Euro Area, goods trade volumes were almost flat in 2018 for the first time since 2012 (figure 1E), as weaker internal and external demand dampened growth. Trade sluggishness in the Euro Area was broad based across partners and goods, albeit with some differences; bilateral trade values (in current euros) have been particularly weak between the Euro Area and the United Kingdom in light of Brexit uncertainty, whereas the Euro Area's exports to the United States grew faster than in 2017.
- China's export and import volumes declined throughout 2018, particularly toward the end of the year. This weak performance reflects the country's macroeconomic slowdown as well as U.S.-Chinese trade tensions (figure 1F).
- Developing countries in Europe and central Asia experienced sluggish trade volume growth throughout the year, whereas exports accelerated more rapidly in Latin America, Africa, and the Middle East (A1).
- Fueled by supportive internal macroeconomic and fiscal conditions, U.S. trade growth remained robust in 2018, with increased imports despite the implementation of restrictive trade policies throughout the year (section 2.2 and figure A1).

FIGURE 1: Global trends in international trade flows and developments in trade policy

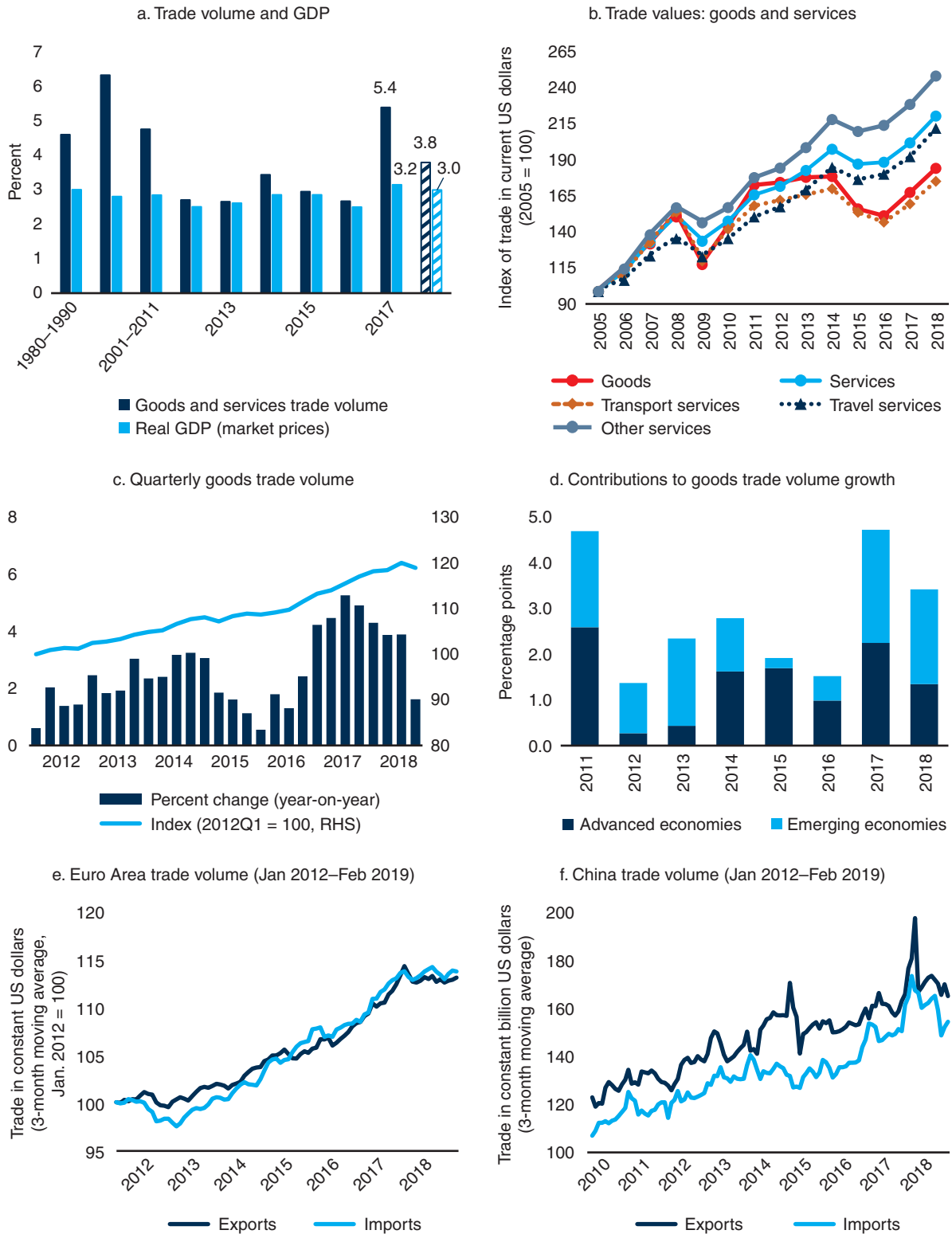
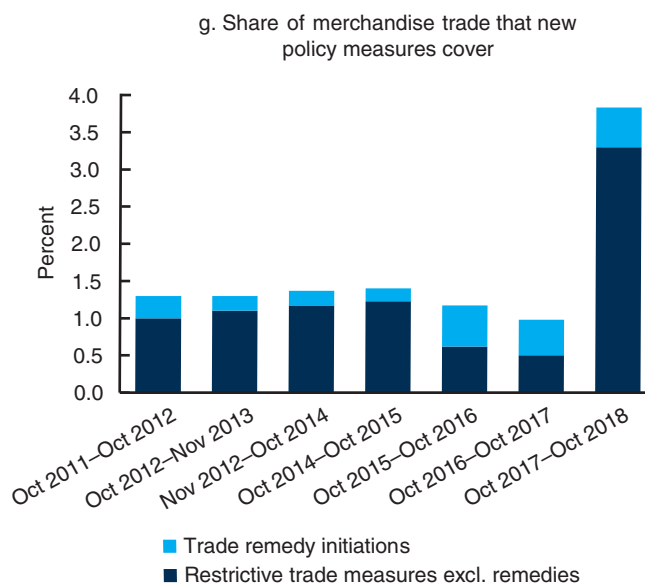


FIGURE 1: (Continued) Global trends in international trade flows and developments in trade policy



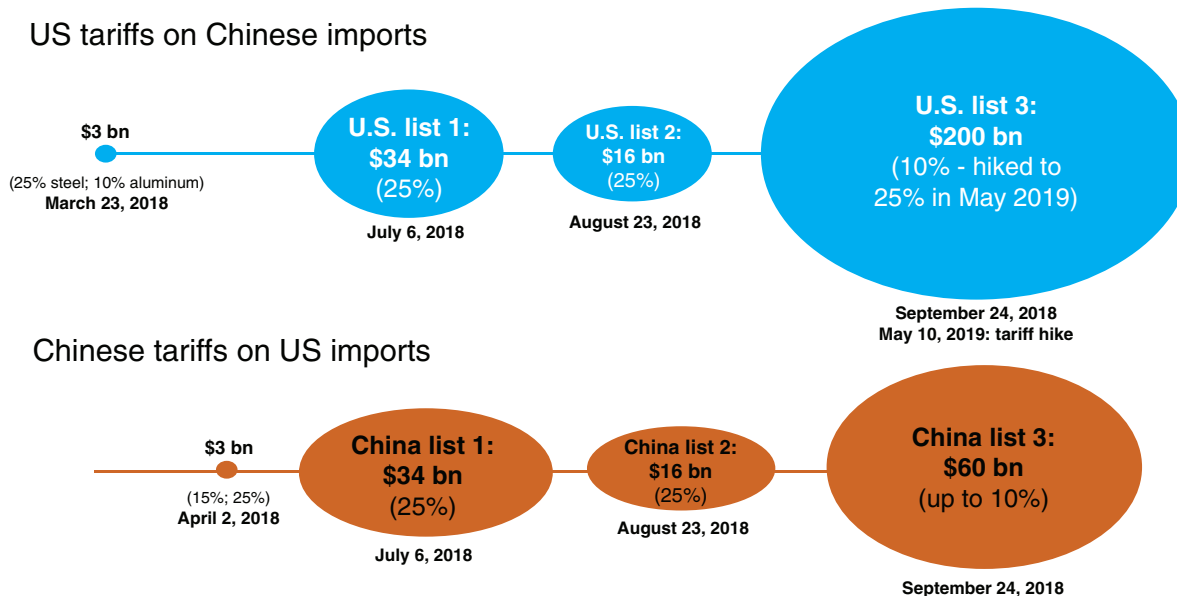
Sources: World Bank (WB) World Development Indicators, WB Global Economic Prospects, CPB World Trade Monitor (April 2019), World Trade Organization (WTO) international trade statistics, WTO “Overview of development in international trading environment”, and authors’ calculations.

Notes: Trade volumes are based on constant U.S. dollars, and trade values are based on current U.S. dollars. A-C: Trade (growth) is the average of (growth rates of) imports and exports. B. Services growth in 2018 is WTO estimate based on quarterly data. F. Missing data for March and April. G. Restrictive trade measures excluding remedies include import measures (e.g., tariffs, customs procedures, tax, quantitative restrictions), export measures (e.g., duties, quantitative restrictions), and other measures (e.g., local content measures, other than local content measures). Trade remedy measures include anti-dumping measures, countervailing duties, and safeguard measures. GDP, gross domestic product.

Protectionism surged in 2018, with newly implemented restrictive trade measures covering 3.8 percent of world merchandise trade. This is more than three times the share in the post-crisis years (figure 1G). More than 80 percent of the new measures were applied to imports (as opposed to exports), and two-thirds of these came in the form of tariffs.

Trade tensions between the United States and China are the principal cause for the rise in protection. Tariffs that the two countries imposed on each other in 2018 covered more than half of their bilateral trade (approximately 70 percent of U.S. exports to China and almost half of U.S. imports from China). The United States imposed three rounds of tariffs on three lists of covered goods in July, August and September 2018. China retaliated with almost simultaneous tariffs on three lists of its own (figure 2). In May 2019, the United States increased the tariffs implemented in September to the levels originally threatened for January 2019, and China announced plans to retaliate. The United States also imposed tariffs on other countries covering solar panels, washing machines, steel, and aluminum, sparking retaliation from affected trading partners. Table A1 lists the U.S. tariffs and other restrictive measures, the retaliatory response that they triggered, and the approximate trade values affected.

FIGURE 2: United States-China trade tensions timeline



Several positive trade policy developments also occurred in 2018, especially involving developing countries. Examples include:

- the signing of the African Continental Free Trade Agreement and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership in March 2018;
- the signing of the United States-Canada-Mexico Agreement in November 2018;
- the renewal of the Generalized System of Preferences program of unilateral preferences for developing countries by the United States in April;
- China’s unilateral liberalization of more than 1,500 tariff lines starting November 2018.

1.2. Changes in Trade Patterns due to United States-China Trade Tensions

In 2018, the United States imposed tariffs on approximately 13 percent of its overall imports—representing more than \$300 billion—and other countries retaliated on more than \$120 billion.¹ U.S. tariffs applied mostly to imports from China, which saw almost half of its exports to the United States targeted by tariffs. China retaliated by imposing tariffs on more than \$100 billion in imports—almost 70 percent of its imports from the United States. Other countries retaliated as well, applying tariffs on close to 2 percent of U.S. exports—approximately \$20 billion in goods.

The 2018 tariffs led to declines in affected trade. During 2018, the overall effect of tariffs was stronger for U.S. exports of affected products but somewhat muted for U.S. imports (table 1) because of sustained economic growth in the United States throughout the year and increased purchases of some tariff-affected products in anticipation of threatened hikes in tariffs.² This led to an increase in

¹ All analysis from this point on is based on trade values in current U.S. dollars.

² An additional factor is the different selection of products that the United States and China targeted, as explained in Section 3.

TABLE 1: United States–China bilateral trade: percentage change 2017 to 2018 and 2018Q1 to 2019Q1

	2018 vs. 2017			2019Q1 vs. 2018Q1		
	All goods	Tariff-affected	Not affected	All goods	Tariff-affected	Not affected
U.S. imports from China	6.9	9.4	4.5	-13.4	-23.9	-1.9
U.S. exports to China	-7.4	-15.7	13	-18.8	-24.1	-6.6
China imports from United States	0.8	-8.3	17.3	-31.8	-39.8	-14.4
China exports to United States	11.3	14.4	9.1	-8.5	-11	-6.6

Sources: U.S. Census, China Customs, authors' calculations

the U.S. trade deficit with China in 2018. In the first quarter of 2019, all tariff-affected flows between the United States and China declined greatly, and the bilateral trade deficit was 12 percent lower than in the same period in 2018.

1.2.1. United States

Tariffs that the United States imposed in 2018 affected more than \$300 billion of its imports (figure 3A). Most of these imports came from China, which saw almost half of its exports to the United States affected.

By the end of 2018, U.S. tariffs had led to significant declines in the affected imports.

- Tariffs imposed in January 2018 on solar panels and washing machines resulted in negative import growth on a year-on-year basis in the last three quarters of 2018 (figure 3B).³ Affecting all trading partners, these tariffs have diverted trade away from foreign producers to domestic ones, causing a rise in U.S. prices of affected products. For example, the U.S. consumer price index aggregate for major appliances—which includes washing machines—increased by approximately 10 percent immediately after the implementation of tariffs on washing machines (Figure 2 in Amiti et al. 2019).
- Tariffs on imports of steel and aluminum imposed in March and June 2018 led to weak growth in imports in the second quarter and declines in the third and fourth quarters and in the first quarter of 2019 (figure 3B). These tariffs too have diverted trade toward domestic producers and led to price increases and differences from world prices (for steel, World Bank 2019b; for aluminum, World Bank 2019c).
- Tariffs imposed on Chinese goods translated into negative growth in the third and fourth quarters for tariffs on imports of products on U.S. list 1 imposed in July and negative growth in the fourth quarter for tariffs on imports of products on U.S. list 2 imposed in August. Imports of products on both lists declined further in the first quarter of 2019 (figure 3C, D). See section 3.1 for an analysis of prices of products affected by U.S.-Chinese bilateral tariffs.
- Imports from China affected by tariffs on list 3 (implemented in September) continued to grow in the fourth quarter of 2018 because of expectations of an increase in tariffs from 10 percent to 25 percent in 2019 but declined in the first months of 2019 (figure 3E).

³ See table A2 for details on measures, month in which they were implemented, tariff rate, and import coverage.

FIGURE 3: Effect of U.S. tariffs on U.S. imports

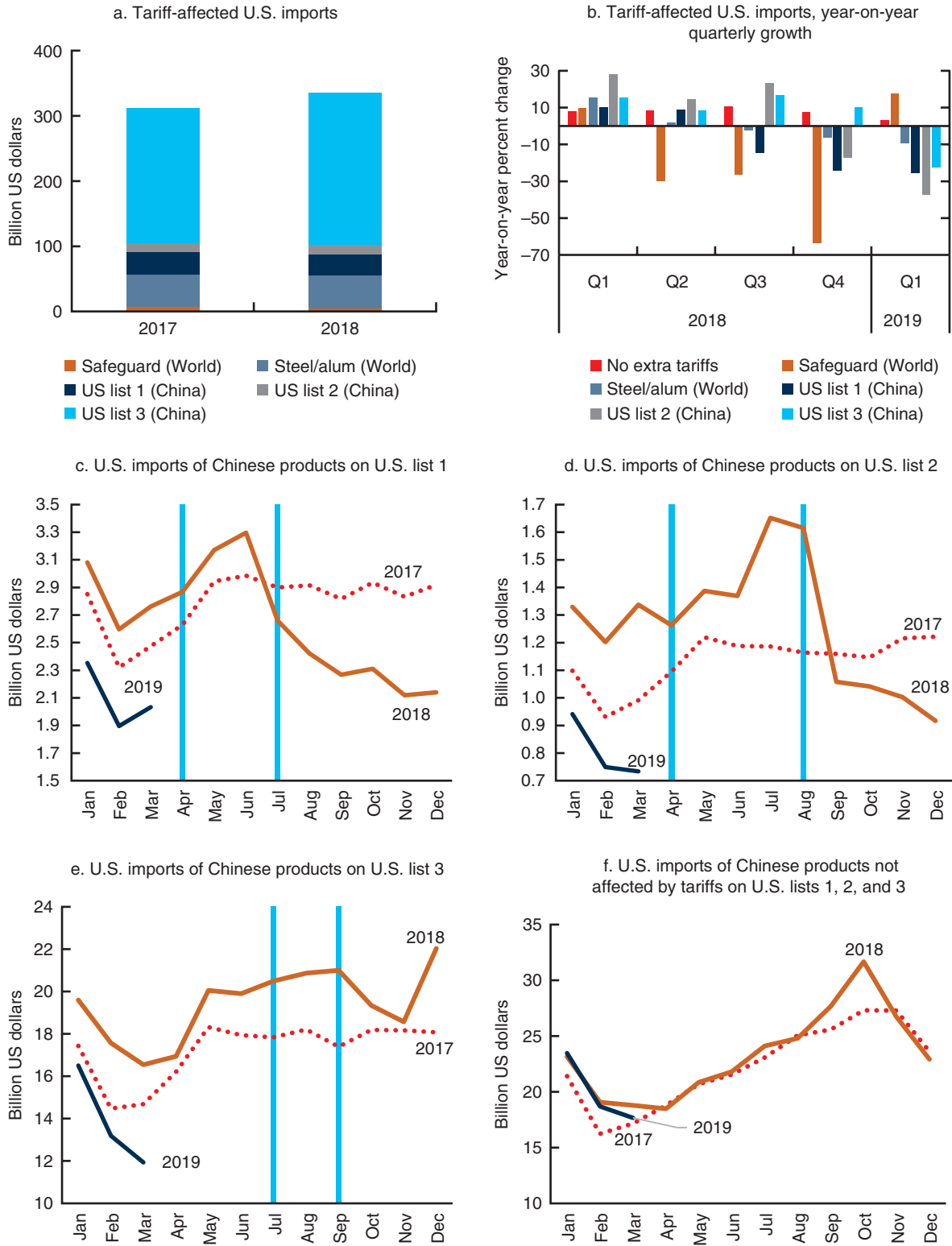
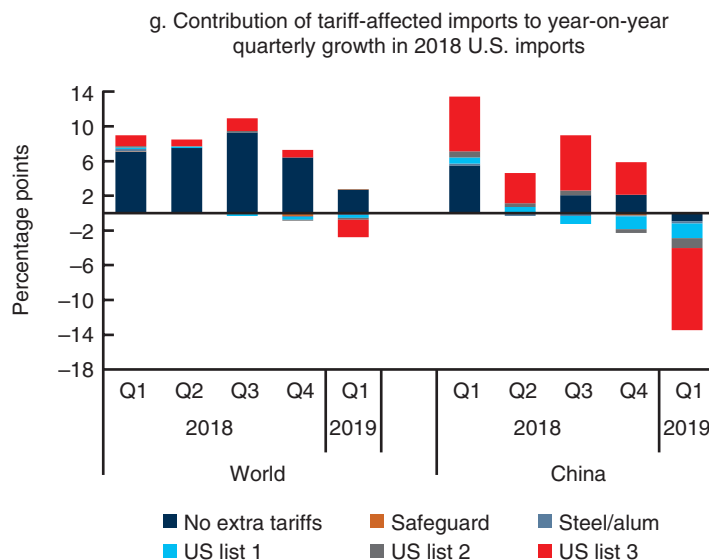


FIGURE 3: (Continued) Effect of U.S. tariffs on U.S. imports



Sources: U.S. Census and authors’ calculations.

Notes: Based on goods CIF (Cost, Insurance and Freight) imports in current U.S. dollars. Vertical lines in C-E denote month of tariff announcement and implementation. “Safeguard” refers to imports from all countries of solar panels and certain washing machines affected by safeguard tariffs imposed in January 2019 after Section 201 investigation. “Steel/alum” refers to imports from all countries of steel and aluminum products affected by tariffs imposed in the first half of 2018 after Section 232 investigation. U.S. lists 1, 2, and 3 refer to imports from China affected by tariffs imposed in July, August, and September of 2018, respectively, after the Section 301 investigation. See Table A1 for details.

- With the exception of an acceleration in September and October, imports from China of products not affected by any new tariffs grew in 2018 at a pace similar to that in the previous year, and this dynamic continued in the first quarter of 2019 (figure 3F).

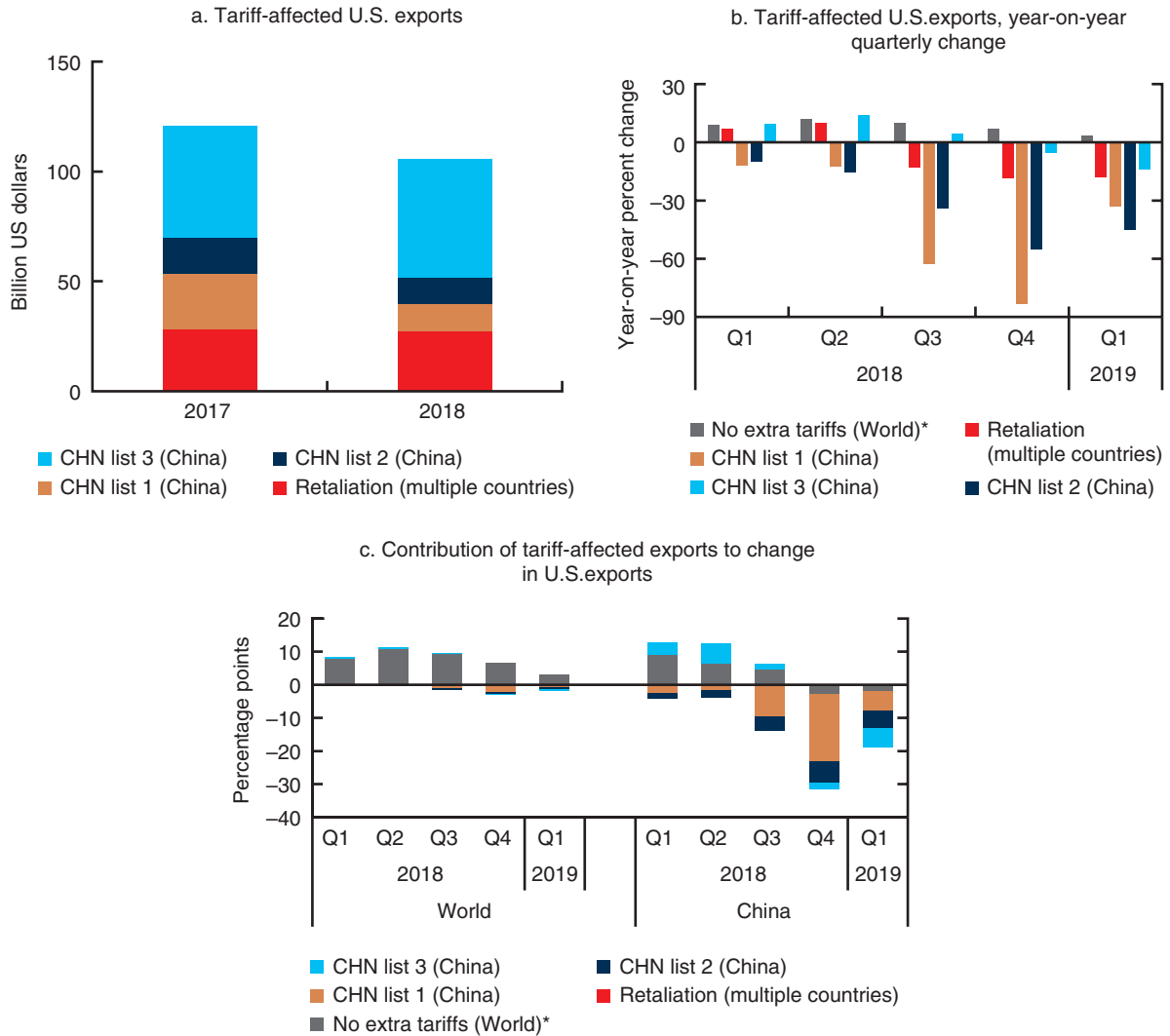
Strong U.S. demand meant that tariffs reduced U.S. import growth by less than 1 percentage point in the fourth quarter, the most affected quarter of 2018, but this changed in 2019 (figure 3G). Despite the declines in tariff-affected imports, growth in overall U.S. imports remained strong throughout the year, at 8.5 percent. In addition, the threat of even higher tariffs in 2019 sustained imports of tariff-affected products, particularly those on list 3. As a result, the negative contribution to growth in total imports from China in 2018 was less than 1 percentage point over the whole year and amounted to 2 percentage points in the fourth quarter. This changed in 2019 as Chinese imports dropped 13 percent, due mostly to the sharp drop in imports of products on U.S. list 3.

Retaliatory tariffs resulted in a fall in U.S. exports for all affected products in 2018. U.S. tariffs elicited retaliation from Canada, China, the European Union, India, Mexico, the Russian Federation, and Turkey (table A1). The already-implemented retaliatory tariffs targeted 8 percent of total U.S. goods

exports totaling more than \$120 billion in 2017. The value of exports subject to tariffs declined to approximately \$100 billion in 2018, accounting for 6.5 percent of total U.S. goods exports (Figure 4A). More specifically:

- Retaliation for U.S. steel and aluminum tariffs resulted in year-on-year negative growth for affected U.S. exports to tariff-imposing countries in the third and fourth quarters of 2018 and the first quarter of 2019 (figure 4B).

FIGURE 4: Effect on U.S. exports of retaliatory tariffs against United States



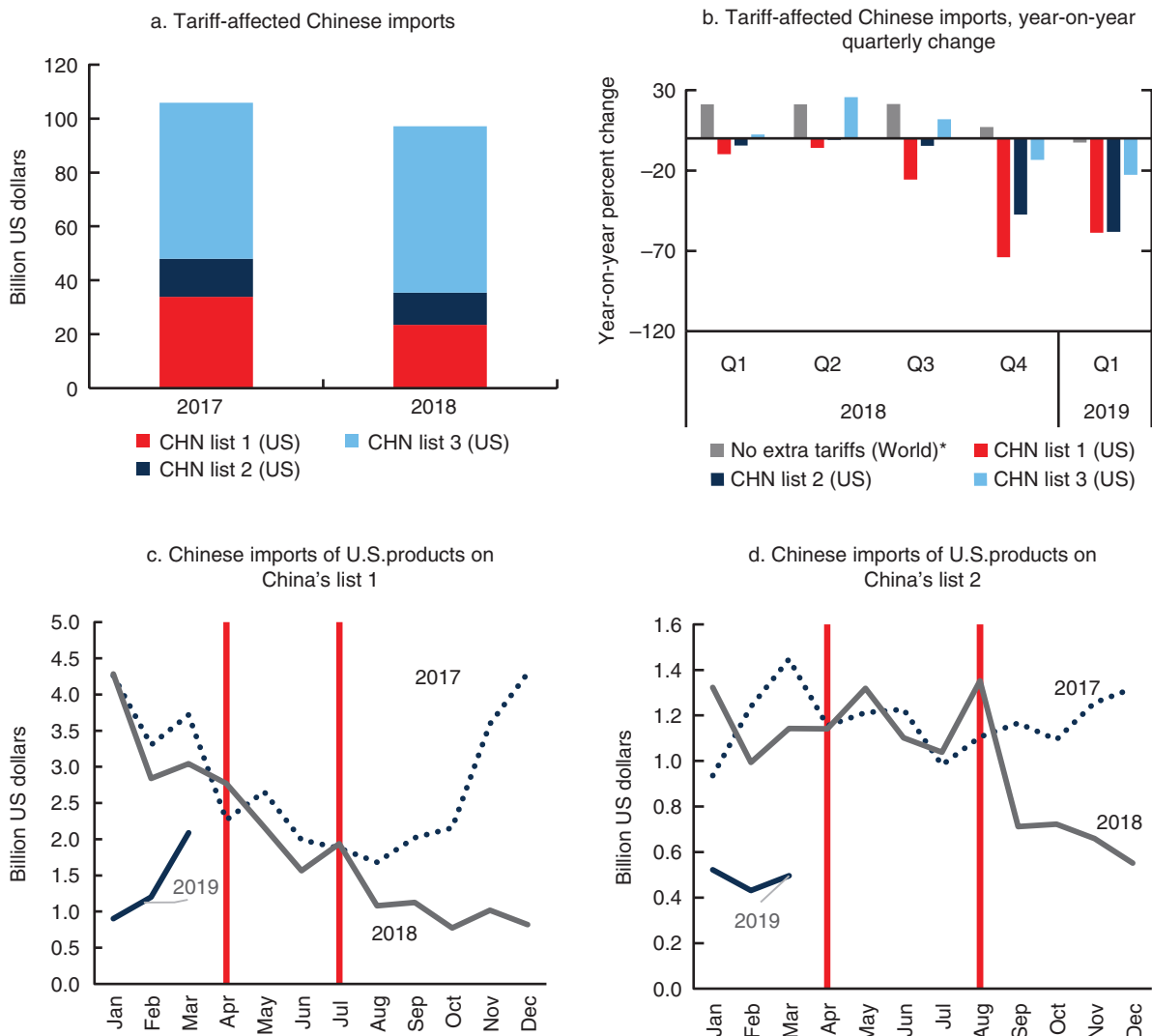
Sources: U.S. Census and authors' calculations.

Notes: Based on FOB (Free On Board) exports of goods in current U.S. dollars. Lists 1, 2, and 3 refer to imports of HS Nomenclature 2017 6-digit product codes that include products affected by tariffs imposed by China in July, August, and September 2018, respectively, in retaliation for U.S. tariffs associated with the Section 301 investigation. See table A1 for details.

*Includes products on China's \$3 billion retaliation list against the United States that are not on lists 1-3.

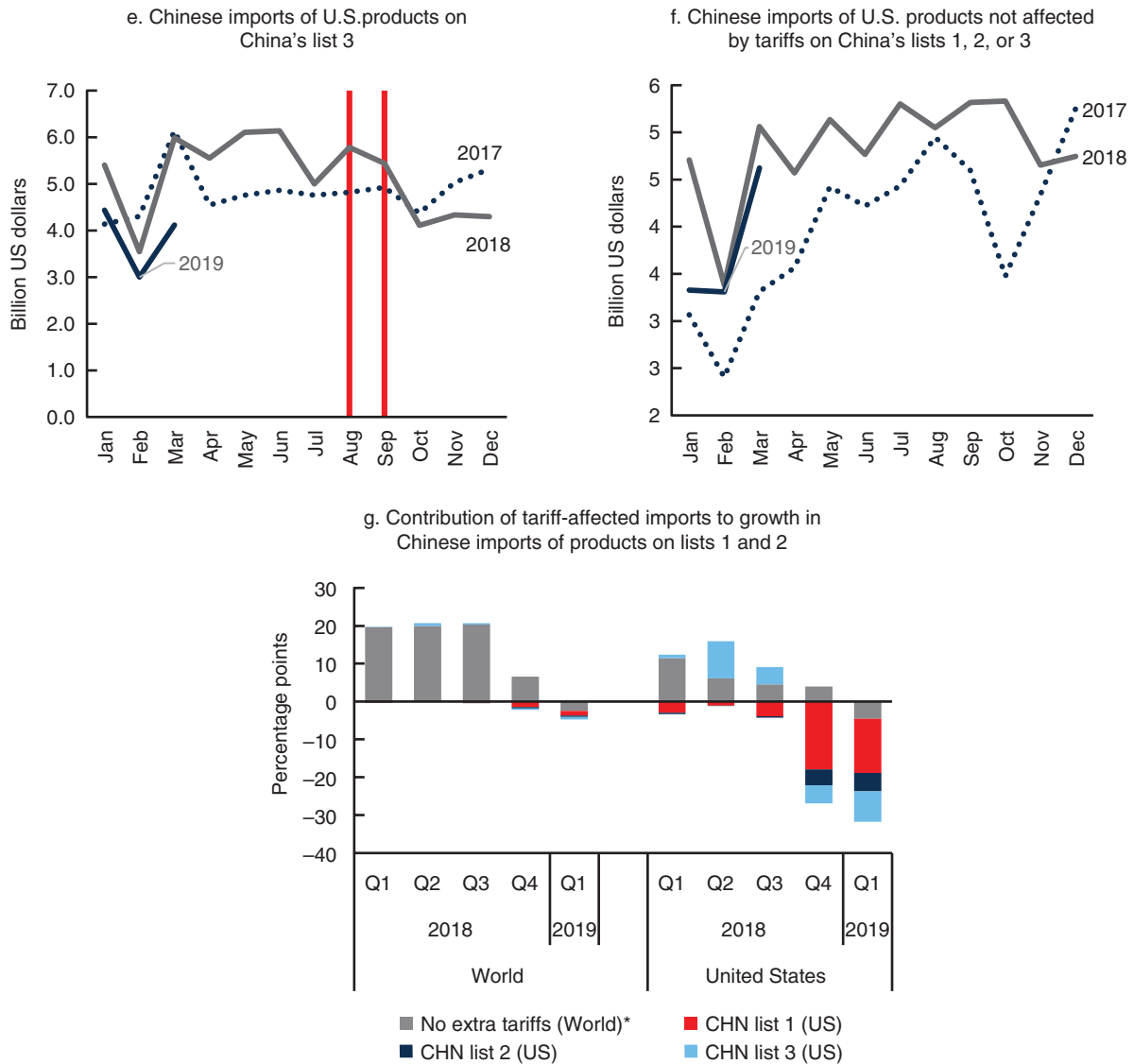
- U.S. exports to China of products on lists 1 and 2 dropped in all quarters of 2018 from the same periods in 2017, but the declines were much larger in the third and fourth quarters of 2018 (after the months when tariffs were imposed: July for list 1, August for list 2) and continued to be large in the first quarter of 2019 (figure 4B, figure 5C, D based on Chinese reporting).
- U.S. exports affected by Chinese tariffs on list 3 products imposed in September declined in the fourth quarter and more sharply in the first quarter of 2019 (figure 4B, figure 5E based on Chinese reporting).
- U.S. exports to China of products not on any of the three lists were sluggish toward the end of the year, especially from September to November, pointing to generally reduced demand from China (figure 5F based on Chinese reporting).

FIGURE 5: Effect of Chinese tariffs on China’s imports from United States



(continues on next page)

FIGURE 5: (Continued) Effect of Chinese tariffs on China’s imports from United States



Sources: China Customs Statistics and authors’ calculations.

Notes: Based on goods CIF imports in current U.S. dollars. Vertical lines in C-E denote month of tariff announcement and implementation. CHN lists 1, 2, and 3 refer to imports of HS 2017 8-digit product codes affected by tariffs that China imposed in July, August, and September 2018, respectively, in retaliation for U.S. tariffs associated with the Section 301 investigation. See table A1 for details.

Overall, the largest drag on U.S. export growth from retaliatory tariffs occurred in the fourth quarter of 2018. Total U.S. goods exports in current U.S. dollars grew approximately 7.6 percent from 2017 to 2018, with tariff-affected goods reducing overall export growth by merely 1 percentage point (and by 3 percentage points year on year in the fourth quarter, figure 4C). In contrast, U.S. exports to China declined in 2018 by 7.4 percent and in the first quarter of 2019 by 19 percent, because of the significant drag from tariff-affected imports from the third quarter of 2018 on.

1.2.2. China

In 2018, China imposed tariffs on almost 70 percent of its imports from the United States (more than \$100 billion (figure 5A), approximately 5 percent of China's overall imports).

Chinese tariffs led to significant declines in affected imports. Specifically:

- Tariffs on imports of products on China's list 1 imposed in July and on China's list 2 declined on a year-on-year basis in all quarters examined but at a sharper rate in the second half of 2018 and the first quarter of 2019 (figure 5B-D).
- Imports from China affected by tariffs on goods on list 3 (implemented in September) declined in the fourth quarter of 2018 and the first quarter of 2019 (figure 5E).
- Around the end of 2018, imports from the United States of products not affected by tariffs on any of the three lists were weaker than in the previous period, mirroring China's macroeconomic slow-down (figure 5F).

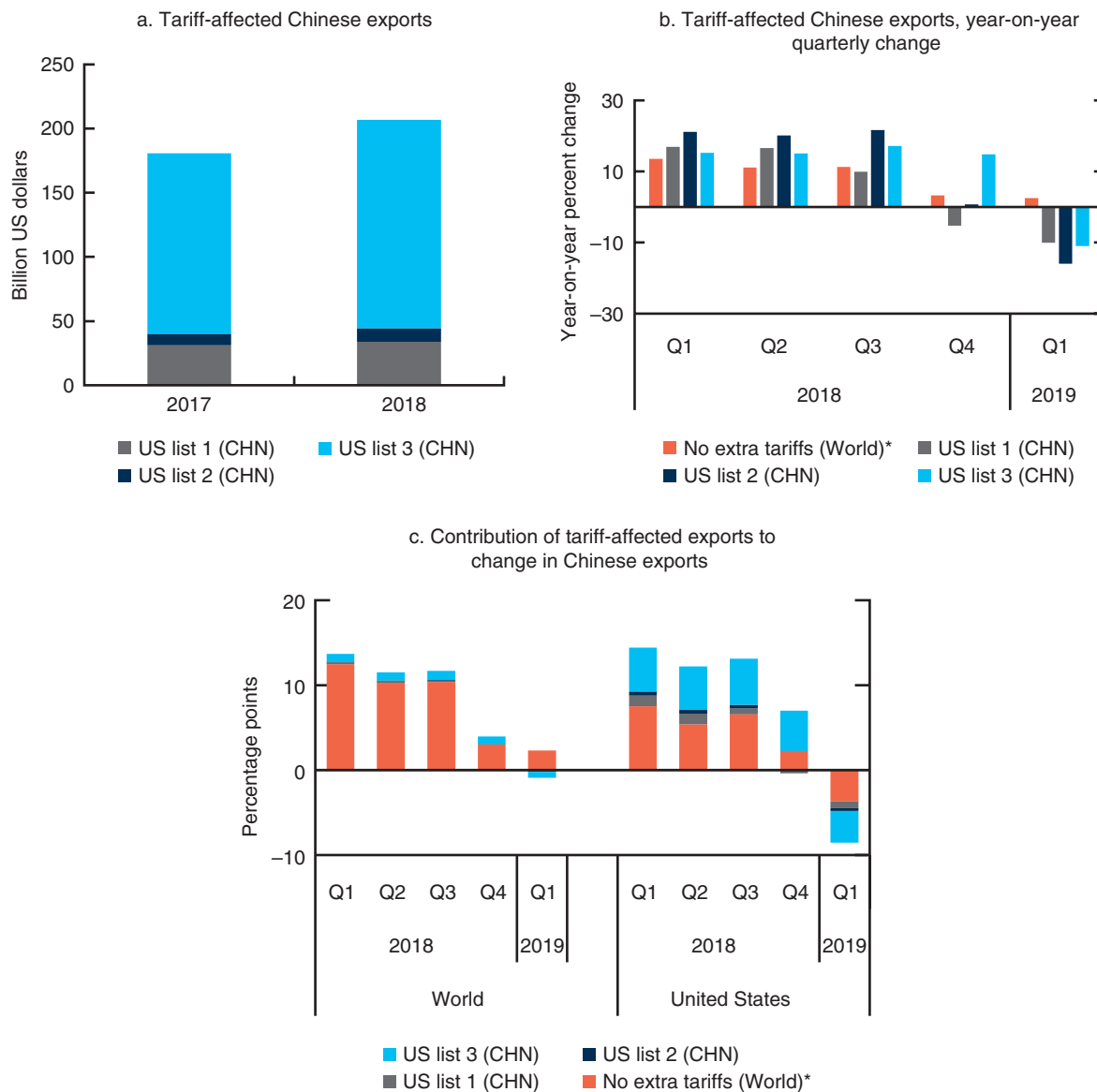
Tariffs reduced China's import growth by approximately 2 percentage points in the fourth quarter of 2018 and the first quarter of 2019 (figure 5G). China's imports from all destinations grew by almost 16 percent in 2018 but declined by close to 5 percent year on year in the first quarter of 2019 because of a drop in all imports, those affected and not affected by tariffs. China's imports from the United States declined by more than 30 percent year on year in the fourth quarter of 2018 and the first quarter of 2019, mostly because of a decrease in imports of tariff-affected products.

The United States imposed tariffs on half of China's exports to the United States (8 percent of China's exports to the world), and the value of exports to the United States subject to tariffs increased by 10 percent, from approximately \$180 billion to more than \$200 billion in 2018 (figure 6A).

- China's exports to the United States of products on lists 1 and 2 declined in the fourth quarter of 2018 from the same period in 2017 and more sharply in the first quarter of 2019 (figure 6B; Figure 3C, D, based on U.S. reporting).
- China's exports to the United States affected by U.S. tariffs on list 3 products imposed in September were resilient in the fourth quarter of 2018 but declined in the first quarter of 2019 (figure 6B; Figure 3E based on U.S. reporting).
- China's exports to the United States of products not included on U.S. lists 1, 2, and 3 have continued to grow, albeit at a slower rate in the fourth quarter of 2018 and the first quarter of 2019 than in the same periods in the previous years (figure 3F based on U.S. reporting).

Overall, China's exports have been resilient to U.S. tariffs in 2018 but declined significantly in the first quarter of 2019. China's multilateral exports grew by 10 percent in 2018, and China's exports to the United States grew by 11 percent. In the first quarter of 2019, China's exports to the

FIGURE 6: Effect of U.S. tariffs on chinese exports



Sources: China Customs Statistics and authors' calculations.

Notes: Based on goods FOB exports in current U.S. dollars. U.S. lists 1, 2, and 3 refer to imports of HS 2017 6-digit product codes that include products affected by tariffs imposed by the United States in July, August, and September of 2018, respectively. See table A1 for details.

*Includes products targeted by safeguard tariffs and steel/aluminum tariffs that are not present on lists 1-3.

United States declined by 8.5 percent on a year-on-year basis because of the decrease in U.S. imports of tariff-affected products and of products not affected by tariffs (Figure 6C).

1.2.3. Other Countries

U.S.-Chinese trade tensions have diverted trade, with developed and large developing countries the biggest beneficiaries.⁴ We examined the 15 countries with the largest increases in exports to China or the United States of products on U.S. and Chinese lists 1, 2, and 3.

- Exports of products on lists 1 and 2 accounting for a total of \$100 billion in tariff-affected bilateral U.S.-Chinese trade were examined by comparing the second half of 2018 and first quarter of 2019 with the same period a year before. Brazil stands out with its gains from exporting soybeans to China. Other economies that benefited from trade diversion are the European Union, Canada, Malaysia, India, and Mexico, among others (figure 7a).⁵
- Exports of products on list 3, covering \$260 billion in tariff-affected bilateral U.S.-Chinese trade were examined by comparing the first quarter of 2019 with the corresponding quarter of 2018.⁶ Countries with large increases in exports include South Korea, Australia, Taiwan, Mexico, and Vietnam (figure 7b).

The market for soybeans illustrates the extent of trade diversion resulting from U.S.-Chinese trade tensions. China's share of U.S. soybean exports dropped from 63 percent in the second half of 2017 to 3 percent in the second half of 2018 (figure 8A), and the U.S. share of Chinese imports of soybeans dropped from 28 percent in the second half of 2017 to 2 percent in the second half of 2018 (figure 8B). The significant drop in demand from China, the world's largest soybean importer, caused the price of soybeans in the United States to decline sharply during 2018, with the drop from April to September 2018 falling short of the 25 percent tariff rate by merely 5 percentage points (figure 8C). The United States increased soybean exports to other countries, including the European Union, Argentina, and Mexico, but still experienced a \$4 billion loss. China imported more soybeans from Brazil than from the U.S. but fell short of the previous period's purchases by approximately \$2 billion. In the fall of 2018, EU soybean imports from the United States replaced imports from Brazil, tilting the balance of the formerly equal annual import shares of the two countries (~30 percent each) in favor of the United States (figure 8D). Brazilian soybean producers gained from the price increase that the increased demand from China triggered but did so at the expense of Brazilian soybean consumers.

⁴ Greater scrutiny is required to establish causality with certainty.

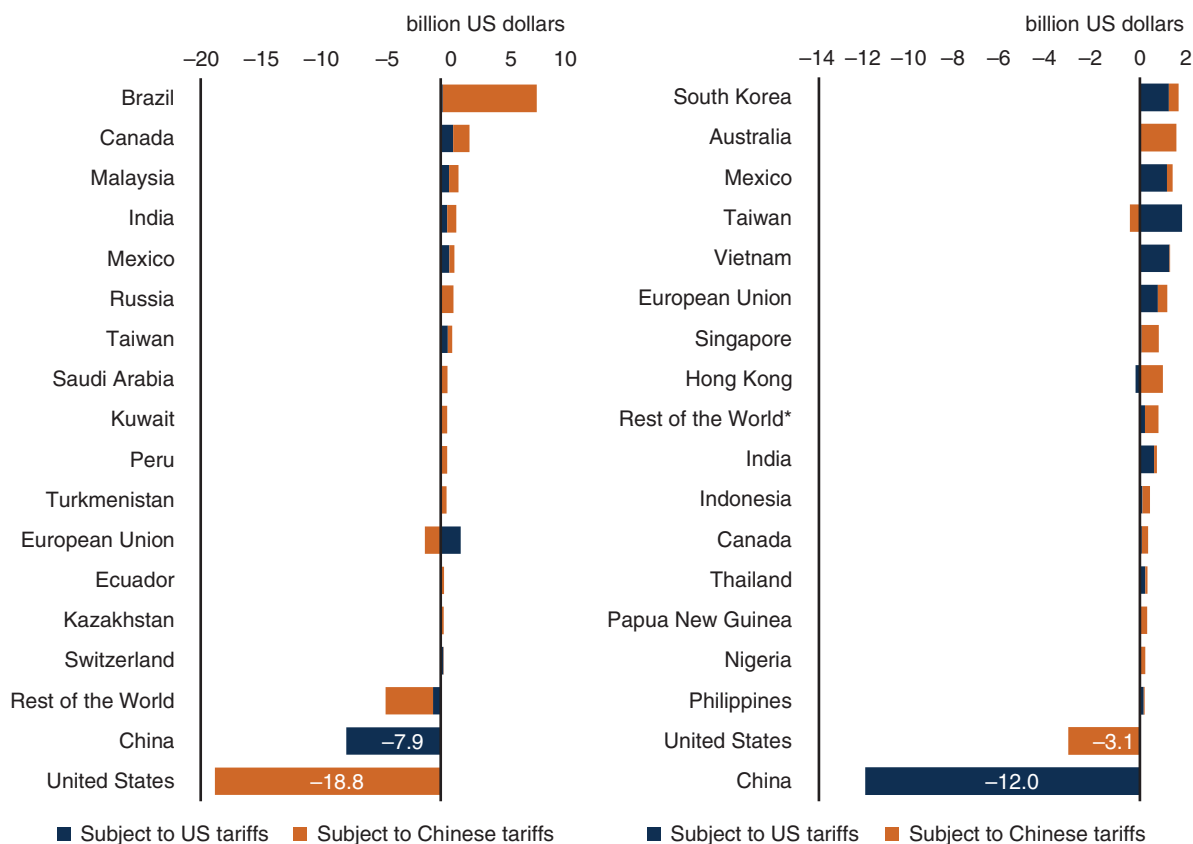
⁵ See also <http://blogs.worldbank.org/trade/how-are-trade-tensions-affecting-developing-countries>.

⁶ The last quarter of 2018 was excluded from the analysis to avoid the confounding effect due to the rise in U.S.-Chinese bilateral trade affected by the 10 percent tariffs imposed in September that were expected to be raised in January 2019.

FIGURE 7: Changes in exports of tariff-affected products to the United States and China: China, United States, and the 15 countries with the largest gains

a. Change in exports of products on U.S. and Chinese lists 1 and 2 (Aug 2018–Mar 2019 vs Aug 2017–Mar 2018)

b. Change in exports of products on U.S. and Chinese lists 3 (Jan–Mar 2019 vs Jan–Mar 2018)

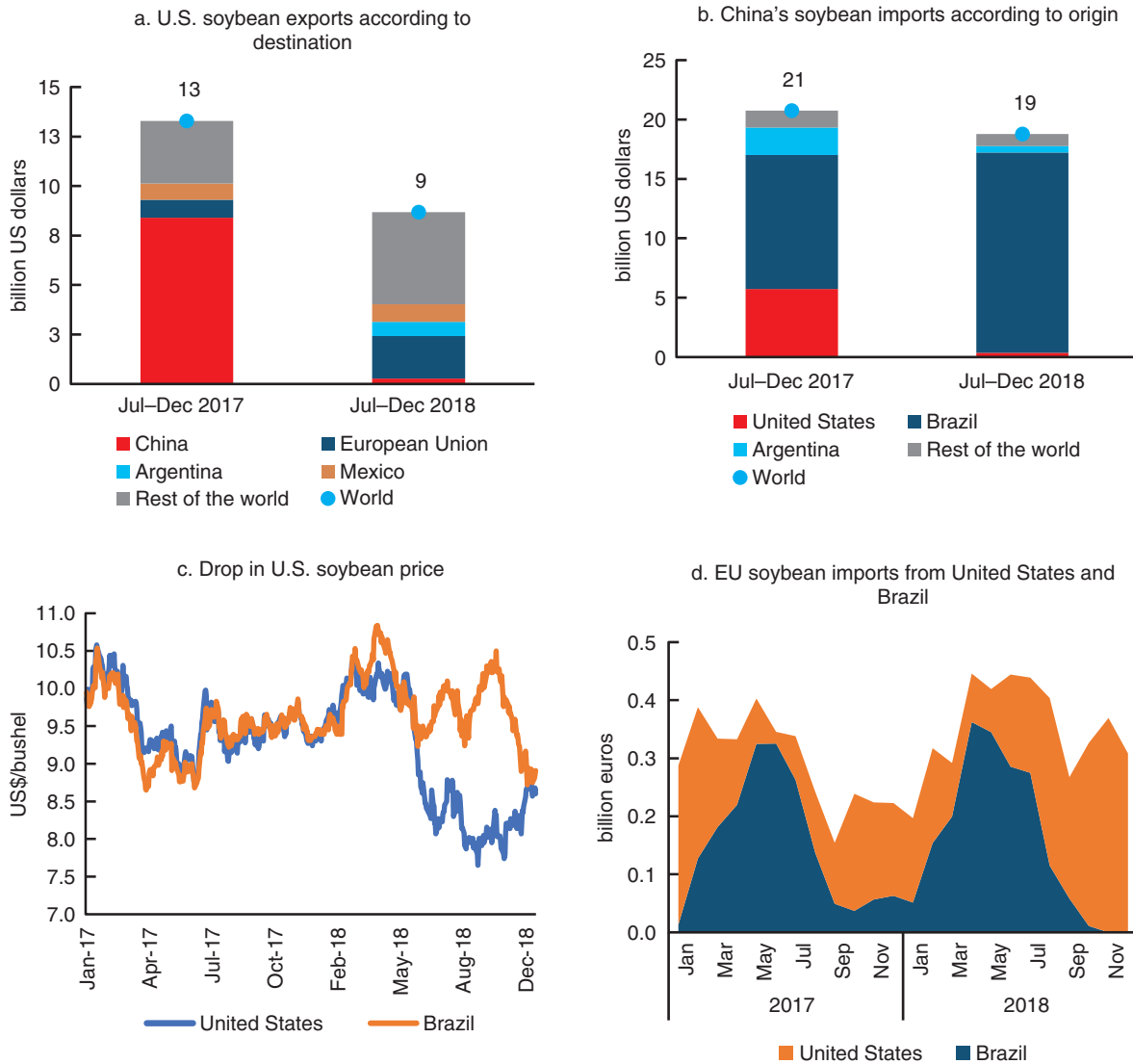


Sources: U.S. Census Bureau, China Customs Statistics, UN Comtrade, and authors' calculations.

Notes: Blue (red) bars refer to products on the U.S. (Chinese) lists of goods affected by new tariffs. Products for which Chinese (U.S.) shares in U.S. (Chinese) imports are less than 5 percent were excluded.

* Chinese imports of gold (HS 710812) from Switzerland removed because of large decline (~\$5 billion).

FIGURE 8: Changing soybean trading patterns



Sources: U.S. Census, China Customs Statistics, and authors' calculations. World Bank (2019a) based on Bloomberg, U.S. Department of Agriculture and World Bank.

Notes: C. Last observation: Dec 19, 2018.

Chapter 2: Implications of U.S.-Chinese Trade Tensions

2.1. Short-Term Effects

The response to tariff shocks varies according to product. The relationship stickiness indicator identifies products where trade between firms tends to be persistent.⁷ Higher degrees of relationship stickiness correspond to lower probabilities of switching suppliers and longer firm-to-firm trade relationships. This inertia may be associated with technological reasons (e.g., inter-firm trade relations dictated by the specifics of a product, such as in the case of Foxconn – Apple) or economic reasons (e.g., because of search costs incurred when looking for alternative suppliers). The implication in the context of U.S.-Chinese trade tensions is that trade in products that are relationship sticky take more time to respond to a tariff shock than trade in products that are not.⁸

Tariffs affected bilateral trade in 2018, but this effect was smaller on relationship-sticky products such as vehicle parts and components and concentrated in non-relationship-sticky products such as soybeans. The United States imposed tariffs on sticky products more than China. Products with less relationship stickiness experienced on average faster and larger declines in import values due to the U.S.-Chinese trade tensions than products with greater relationship stickiness. The inertia of sticky products is apparent in the case of U.S. imports from China affected by the tariffs (figure 8A, C, E) and China's tariff-affected imports from the United States (Figure 8B, D, F). For example, U.S. imports from China of products on U.S. list 1 declined on average by 23 percent from August to December 2017 to August to December 2018; imports of nonsticky products dropped by 31 percent, whereas those of sticky products fell by 15 percent. Declines in imports exceeded 50 percent in one-fourth of nonsticky products, but only in one-tenth of sticky products.⁹

The United States imposed tariffs on products that were stickier and for which China's share of U.S. imports was not large, whereas China targeted less-sticky products for which the U.S. share of Chinese imports was large. Differences between the selection of tariff-affected products in the United States and China depend on various factors. First, because of the nature of bilateral trade relations, China imports mostly agricultural, homogeneous, less-sticky products from the United States, whereas the United States imports more manufactured, differentiated, stickier products from China. In some sense, the menu is very different between the two, as is apparent in figure 9A-F. Second, in the case of U.S. tariffs set on earlier tranches of products, the share of imports from China is not large (figure 9G). In contrast, China first targeted products with a large U.S. import share but that were non-sticky and hence more substitutable and were important exports for the United States (figure 9H). These differences help explain the changes in trade quantities and prices.

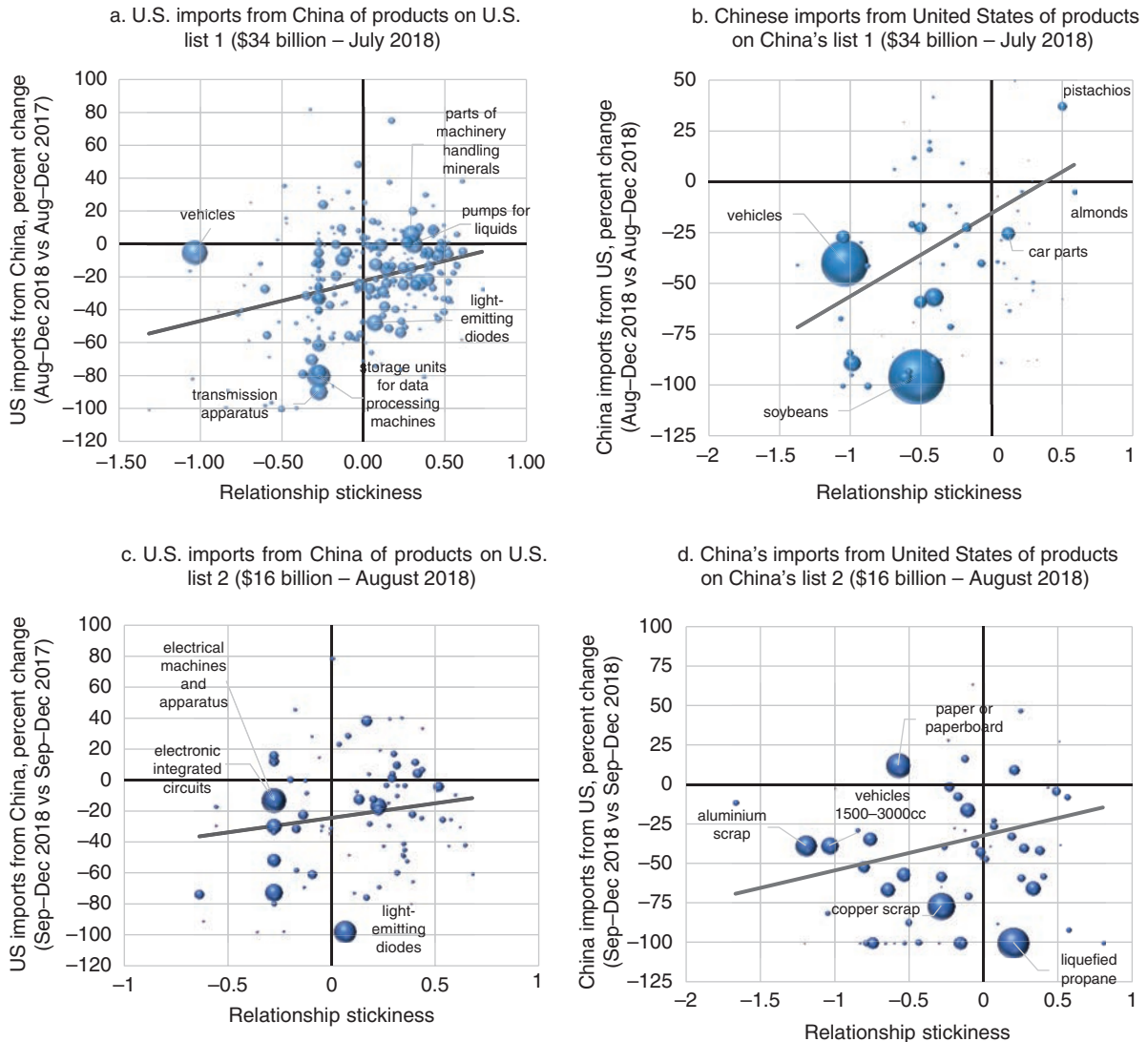
The declines in U.S. and Chinese import values in tariff-affected products were mostly due to declines in quantities and to a lesser extent to declines in the prices that exporters charged.

⁷ Relationship stickiness is a newly introduced indicator of stickiness in business relationships (Martin et al. 2018).

⁸ Multiple sets of trade elasticities have been used in the literature to assess heterogeneous response of products to tariffs. UNCTAD (2018) used substitution elasticities, import demand elasticities, and export supply elasticities to estimate the effect on international trade of the 2018 tariffs that the United States and China implemented.

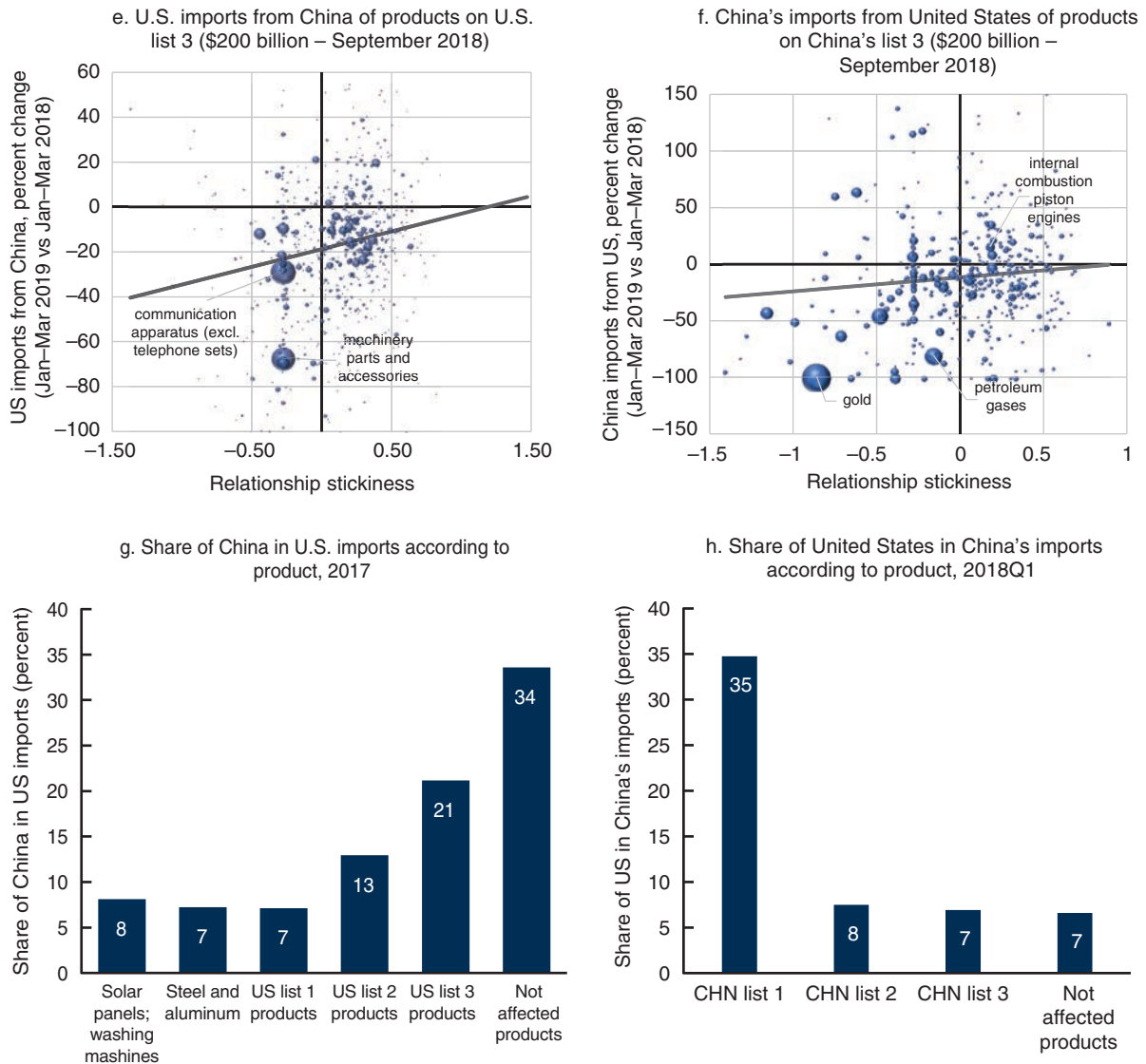
⁹ Not all products behave as expected. Some that are not relationship sticky, such as vehicles, have not seen large declines in imports, probably because of legal reasons, for example in the form of binding contract clauses that the indicator of relationship stickiness does not capture (figure 9A).

FIGURE 9: U.S.-Chinese bilateral import values according to product



(continues on next page)

FIGURE 9: (Continued) U.S.-Chinese bilateral import values according to product



Sources: U.S. Census, China Customs Statistics, and authors' calculations.

Notes: Data points represent tariff-affected products aggregated to 6-digit HS 2017 level. Dot sizes are proportional to import values in the initial period. Dot sizes may not be comparable across charts. Based on CIF U.S. imports in current U.S. dollars. Linear fitted lines are depicted in all charts. In A and C, several outliers and dots with U.S. imports in the initial period of less than \$5 million were removed. In B and D, dots with Chinese imports in the initial period of less than \$1 million were removed.

Although quantities and prices declined for some products that the United States and China imported, on average there is no evidence of a significant reduction in unit values (net of tariffs). Moreover, although products that are affected by tariffs behave differently from others when value and quantity imported are examined, they do not show a dissimilar pattern in terms of export prices. This suggests that, in general, U.S. and Chinese exporters did not reduce their markups significantly in response to tariffs, indicating that U.S. and Chinese importers have mostly paid the price of tariffs. Figure 10 illustrates these points. For example, approximately 70 percent of the products on U.S. lists 1 and 2 have declined in value and quantities, compared with just half of the products not included on any of the three U.S. lists (figure 10A and 10E). In contrast, unit values excluding tariffs displayed a very similar pattern for products that were targeted and those that were not, declining by about half for both types of products.¹⁰ Similar conclusions emerge from inspecting products imported into the United States from China and included on U.S. list 3 (figure 10C) and products imported into China from the United States and included on Chinese lists 1, 2, and 3 (figure 10B, D, F).¹¹ Going forward, if the tariffs are viewed as permanent, exporters may be more inclined to lower prices.

2.2. Long-Term Effects

Continuing trade tensions pose significant economic risks, primarily through a possible loss of investor confidence. Estimates from a global trade computable general equilibrium model (Freund et al. 2018) show a range of likely effects of trade tensions on global exports and income according to three different scenarios: (Scenario 1) Chinese-U.S. tariff increases on bilateral trade as of September 2018 covering \$250 billion of U.S. imports from China and \$110 billion of Chinese imports from the United States; (Scenario 2) a 25 percent surcharge on all products traded between the United States and China¹²; and (Scenario 3) a 25 percent tariff on all products traded between the United States and China plus a decline in investor confidence, resulting in a 0.5-percentage-point drop in the investment-to-GDP ratio at a global level.

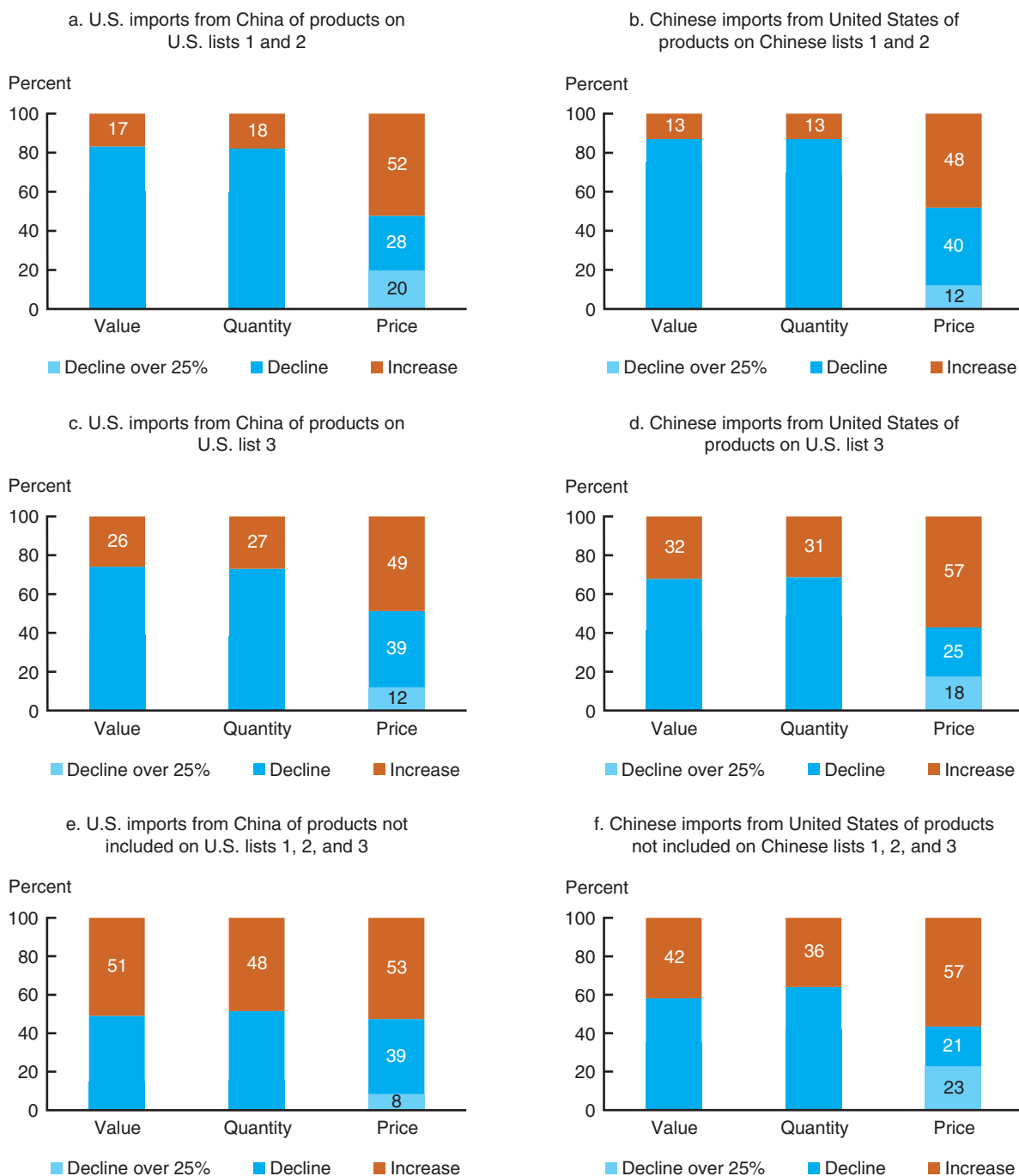
Under the most pessimistic scenario, trade tensions would reduce global income by 1.7 percent. Under Scenarios 1 and 2, several developing countries would be expected to achieve some net gains in terms of total exports and income in line with the effects observed to date. The early evidence based on U.S. import data (figure 6) appears to be broadly consistent with the expected outcomes of Scenario 1, under which several developing countries (Mexico, Malaysia, Vietnam) would be expected to achieve net gains (figure 11), but if tensions continue and result in a slowdown in investment and economic activity, the consequences would be severely negative for all countries. Estimates under this scenario suggest that, by shaking investor confidence, the escalation in trade tensions could reduce global exports by up to 3 percent (at a cost of \$674 billion) and global income by up to 1.7 percent (\$1.4 trillion)—with losses in all regions. Roughly half of the global income loss of 1.7 percent would

¹⁰ This observation is consistent with the findings on “pass through” in Fajgelbaum et al. (2019) and Amiti et al. (2019).

¹¹ Comparison of the first quarters of 2019 and 2018 allows the behavior of products on list 3 to be examined as well, given that imports of these products increased toward the end of 2018 because of anticipated tariff hikes. Figure A2 shows the same information as figure 9 but comparing the fourth quarter of 2018 with that of 2017.

¹² The imposition of 25 percent surcharges on all goods on lists 1, 2, and 3 on May 10, 2019, brings the current level of restrictions closer to Scenario 2, which represents an upper bound estimate of effects of higher tariffs because it extends surcharges to all U.S. imports from China and assumes full retaliation by China.

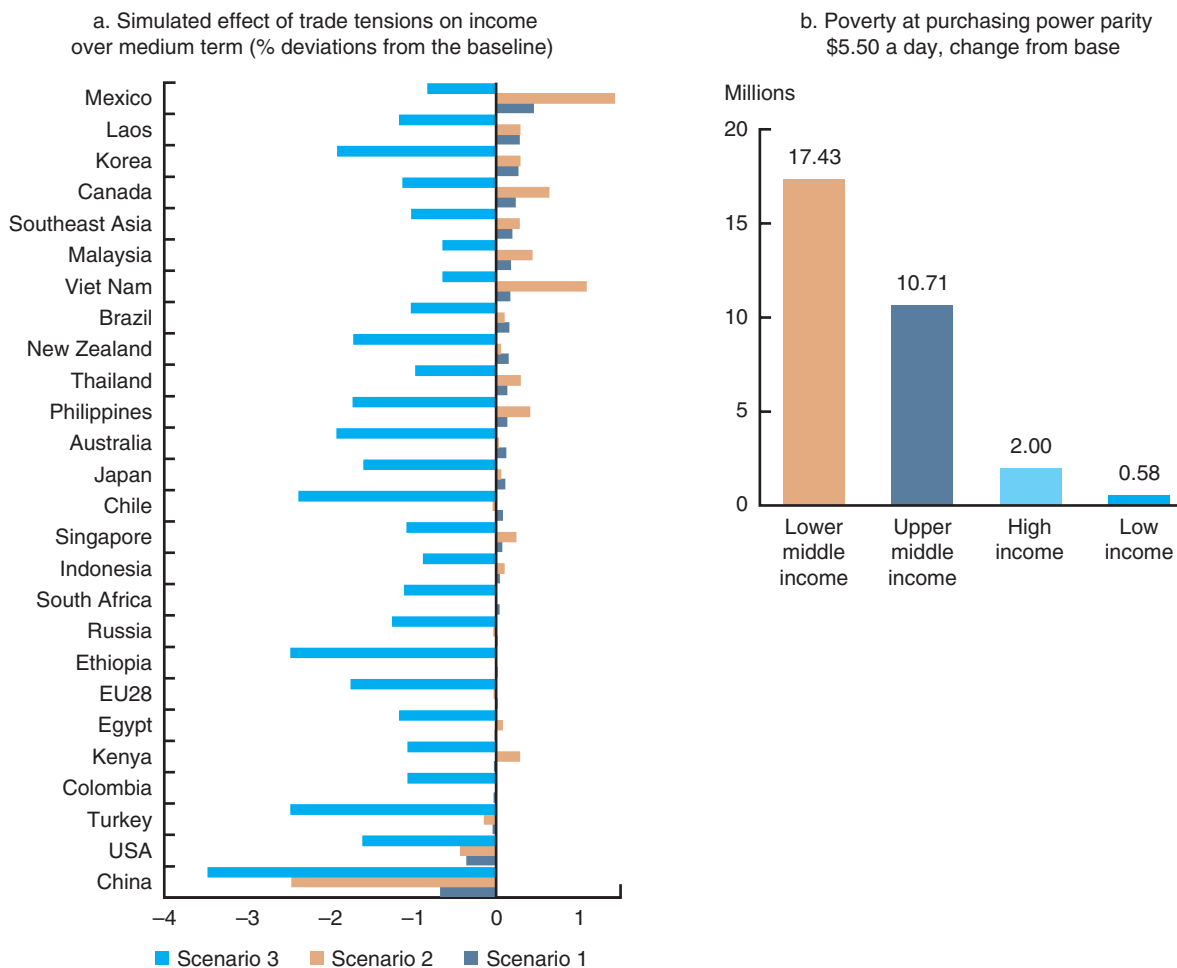
FIGURE 10: Count of products with increases or declines in import value, quantity, and price from January to March 2018 from January to March 2019, percentage of total



Sources: U.S. Census, China Customs Statistics, and authors' calculations.

Notes: Data points being counted represent tariff line HS 2017 product codes with U.S. import in the initial period exceeding \$5 million in the case of U.S. imports and \$1 million in the case of Chinese imports. D. Unit values do not include the tariff.

FIGURE 11: Trade and poverty



Sources:

a: Freund et al. (2018)

b: World Bank staff simulation results based on Freund et al. (2019), PovcalNet, and Global Micro Database.

Notes: Scenario 1: tariff surcharges imposed on bilateral Chinese-U.S. trade under lists 1, 2, and 3 up to September 2018; Scenario 2: 25 percent tariff surcharge imposed on all bilateral U.S.-Chinese trade; Scenario 3: Scenario 2 with decline in investor confidence.

be due to loss of income by developing countries (excluding China), and one-third of the global export decline of 2.7 percent would be due to loss of exports from developing countries (excluding China). The global supply chains would likely be disrupted as well, with much bigger reallocation of sourcing of intermediate inputs expected across value chains in the United States than in China (box 1).

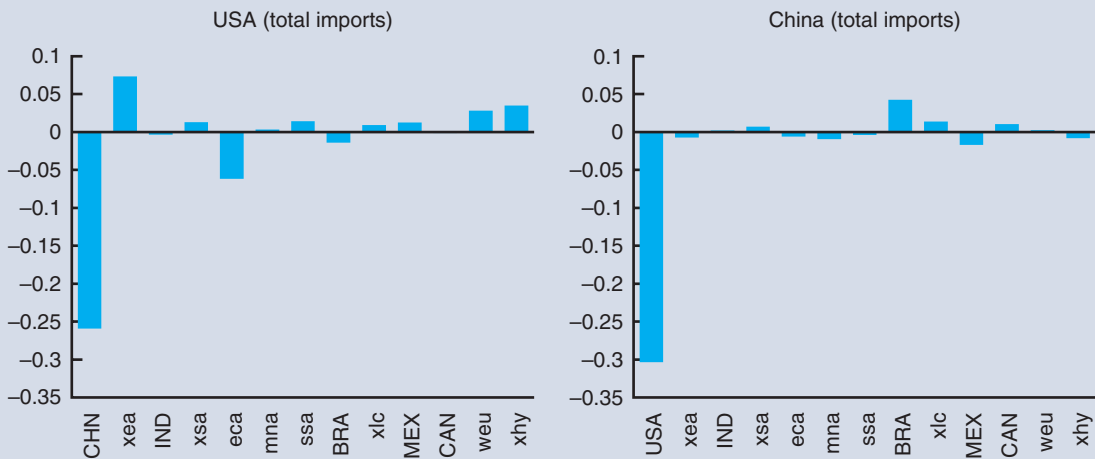
Although effects would vary according to country, income losses under the most-pessimistic scenario would risk pushing several million more people into poverty than under the baseline scenario.¹³ There will be winners and losers in the short to medium term, but with the loss of investment confidence, poor people in all countries would face negative consequences. Developing countries with

Box 1: Effects of current trade tensions on global value chains over the long term

If trade tensions are not resolved, global value chains are likely to see significant disruption in the coming years. Under the lists 1, 2 and 3 implemented in September 2018, tariffs applied by the United States on imports from China are biased heavily against intermediate goods, compared to China’s retaliatory tariffs against the US, which apply broadly to all product categories (final, intermediate and investment goods). The impact is therefore likely to lead to a reallocation of sourcing of intermediate inputs across value chains between the US and China (see Figure B1), causing potential adjustment costs in the sectors and locations affected by trade diversion.

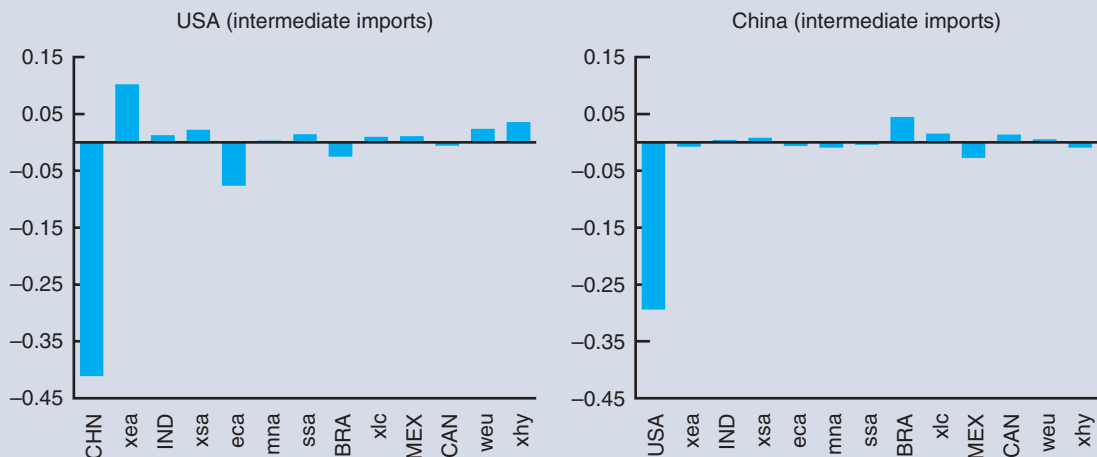
- As a result of higher tariffs, US imports of intermediate goods from China are likely to decline by over 41 percent with much smaller declines in consumption goods at 9 percent and investment goods at 26 percent. If trade tensions continue, the US is likely to reallocate its intermediate inputs sourcing from China to other trading partners in Asia, Europe as well as Canada and Mexico.
- Our results indicate that the decline in Chinese imports from the US would likely affect all product categories at around 30 percent, with the highest absolute impact on intermediate inputs due to the relative size of trade flows. China would likely divert its intermediate inputs imports away from the US and towards South America and Europe.

FIGURE B1: Effects of current trade tensions on U.S. and Chinese imports (percentage deviations from baseline)



Box 1: (Continued) Effects of current trade tensions on global value chains over the long term

FIGURE B1: (Continued) Effects of current trade tensions on U.S. and Chinese imports (percentage deviations from baseline)



Source: Corong et al. (2019).

Notes: CHN – China; USA – United States; xea – other East Asia and Pacific; IND – India; xsa – other South Asia; eca – Europe and Central Asia; mna – Middle East and North Africa; ssa – Sub-Saharan Africa; BRA – Brazil; xlc – rest of Latin America and Caribbean; MEX – Mexico; CAN – Canada; weu – Western Europe; xhy – other high-income countries

strong trade links to the United States and China will experience larger welfare losses. To evaluate the effect on poverty^{14,15} in countries that are likely to be the most affected (middle-income countries), the use of a higher international poverty line (purchasing power parity (PPP)\$5.50 a day) is preferred.¹⁶ Our analysis indicates that, around the world, the median country would face an increase of one-third of a percentage point in poverty headcount (at PPP\$5.50 a day), but some countries, such

¹³ In 2015, the World Bank estimated that 53.7 percent of the population of developing countries (3.4 billion people) lived on less than PPP\$5.50 a day. The baseline scenario, which contemplates a continuation of current demographic and economic trends, projects a reduction of 5.9 percentage points in the poverty headcount at PPP\$5.50 a day by 2019 and an additional reduction of 12.6 percentage points by 2030.

¹⁴ Poverty estimates were obtained by linking results of a computable general equilibrium model with those of a simple global microeconomic model. The initial global distribution of per capita consumption or income was constructed with household-based data. Country-specific growth rates in real per capita household consumption from the macro computable general equilibrium model are fully transmitted to households, assuming distribution neutrality. To calculate the number of poor people, the total population in each country is adjusted using World Bank population projections.

¹⁵ One hundred sixty-three countries are represented in the microeconomic model, with 146 harmonized, nationally representative household surveys obtained from the World Bank Global Micro Database. Additional per capita consumption and income distributions for 17 countries were obtained from the PovcalNet website.

as Mexico and the Philippines, which are heavily integrated in global value chains with the United States and China, would experience 1.4- and 1.2-percentage-point increases, respectively. Globally, 30.7 million additional people would be living in poverty at PPP\$5.50 a day than under baseline conditions; 17.4 million would come from lower-income countries and 10.8 million from upper-middle-income countries (figure 11B).

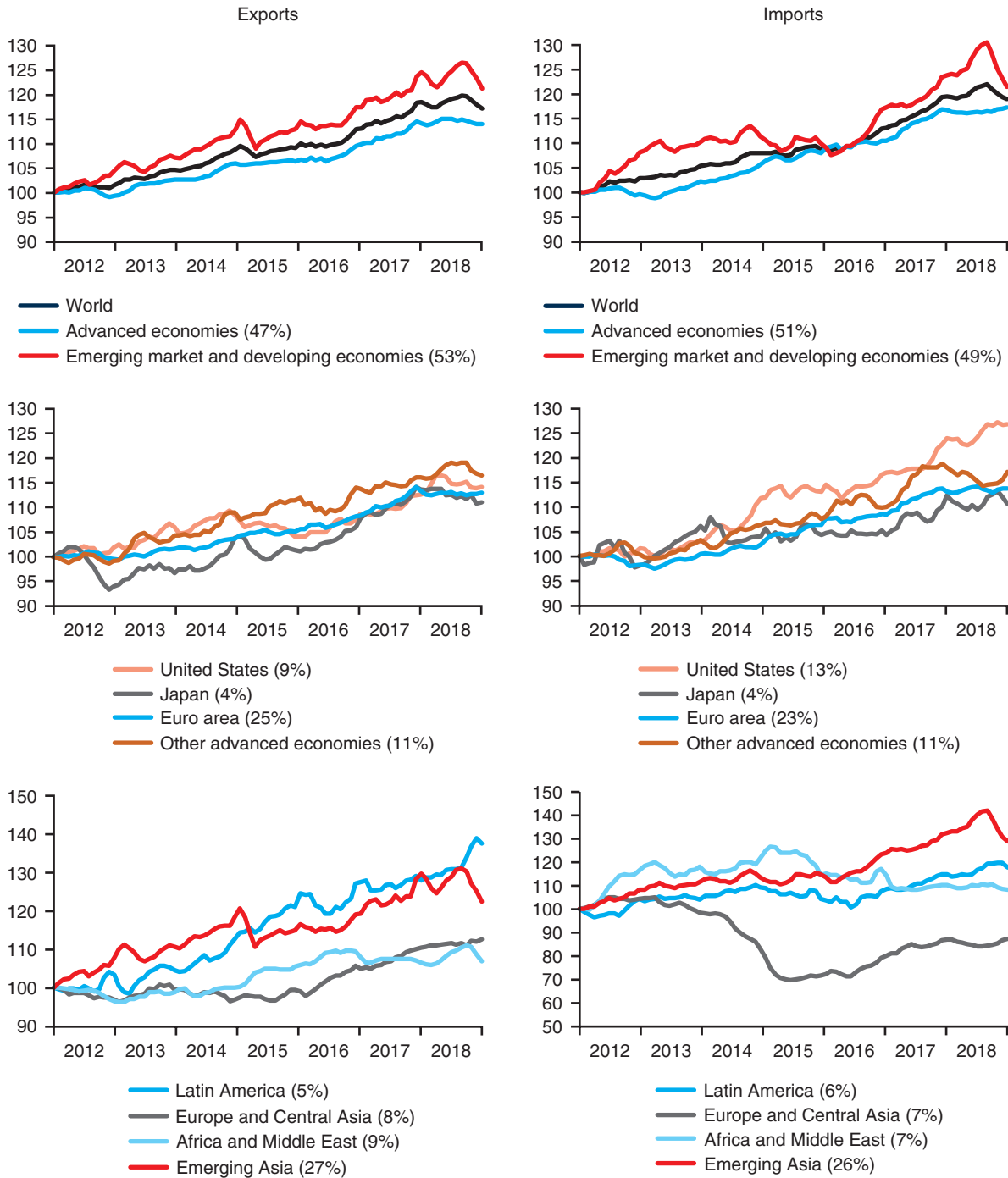
¹⁶ The World Bank now reports international poverty lines that are more closely related to national poverty standards. These poverty lines are set at \$1.90, \$3.20, \$5.50, and PPP\$21.70 for low-, lower-middle-, upper-middle-, and high-income countries, respectively.

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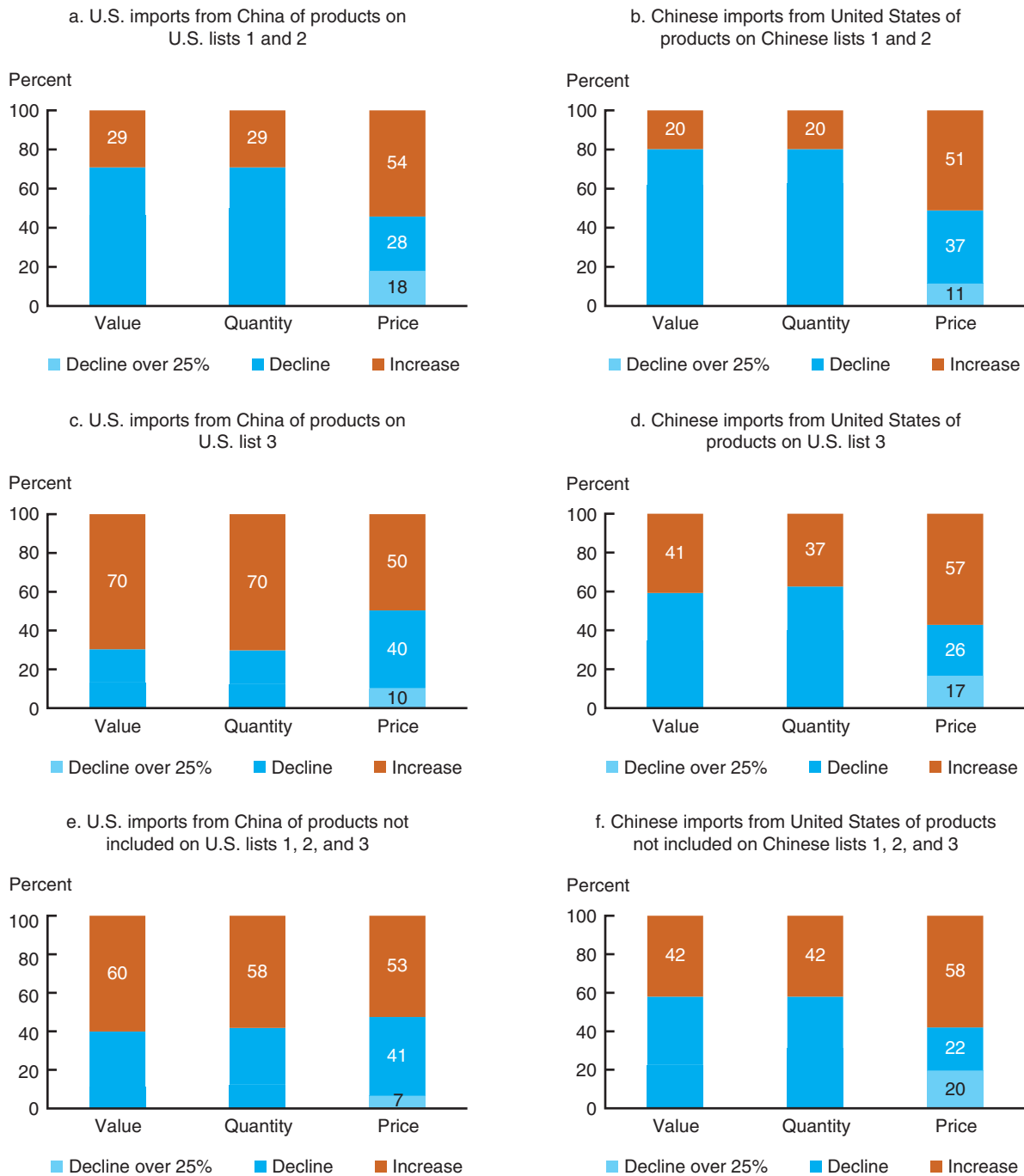
Annex A

FIGURE A1: Merchandise trade volume (3-month moving average, January 2012 = 100)



Source: CPB Netherlands Bureau of Economic Policy Analysis, World Trade Organization, and authors' calculations.
Notes: Seasonally adjusted data. In parentheses: share in world trade values in 2014. See CPB World Trade Monitor for group composition.

FIGURE A2: Changes in import values, quantity, and price from October to December 2017 to October to December 2018, percentage of total



Sources: U.S. Census, China Customs Statistics, and authors' calculations.

Notes: Data points being counted represent tariff-line HS 2017 product codes with U.S. imports in the initial period exceeding \$5 million and Chinese imports in the initial period exceeding \$1 million. D. Unit values do not include the tariff.

TABLE A1: Timeline of U.S. and trading partner trade policy measures

Date	Section 232 national security investigations Section 301 investigation of China Other investigations	Affected imports (billion U.S. dollars)
<ul style="list-style-type: none"> • 2017 Apr 	United States announces two Section 232 national security investigations, one into steel and one into aluminum imports United States announces Section 301 investigation of Chinese activities that may be harming U.S. intellectual property rights, innovation, or technology.	
<ul style="list-style-type: none"> • 2017 Oct/Nov 	Two U.S. industries petition U.S. International Trade Commission to investigate solar panel and washing machine imports (Section 201 of Trade Act in 1974).	
<ul style="list-style-type: none"> • 2018 Feb 	U.S. safeguard tariffs on imported solar cells and certain washing machines go into effect after being announced in Jan 2018.	10.3
<ul style="list-style-type: none"> • 2018 Mar 	United States announces forthcoming tariffs on steel and aluminum covering \$48 billion (25 percent for steel; 10 percent for aluminum). United States announces measures to be implemented in relation to Section 301 investigation: tariffs on \$50 billion imports from China, filing World Trade Organization dispute, new rules on investment. U.S. steel (25 percent) and aluminum (10 percent) tariffs go into effect with temporary exemptions for Canada, Mexico, European Union, South Korea, Brazil, Argentina, Australia, Canada, Mexico. South Korea receives permanent exception for steel but agrees to quota.	48
<ul style="list-style-type: none"> • 2018 Apr 	China imposes tariffs against United States in retaliation for U.S. steel and aluminum tariffs. United States releases \$50 billion preliminary lists of tariff-affected products. China releases \$50 billion preliminary retaliatory lists of tariff-affected products. U.S. aluminum tariffs go into effect for South Korea.	3
<ul style="list-style-type: none"> • 2018 May 	United States announces Section 232 national security investigation into imported autos and parts. India announces tariffs on selected U.S. products in retaliation against U.S. aluminum and steel tariffs.	
<ul style="list-style-type: none"> • 2018 Jun 	U.S. aluminum and steel tariffs go into effect for European Union, Canada, and Mexico. U.S. quotas for steel and aluminum go into effect for Argentina. U.S. quota for steel goes into effect for Brazil. Australia is permanently exempted. Rates are 25 percent for steel and 10 percent for aluminum.	

TABLE A1: (Continued) Timeline of U.S. and trading partner trade policy measures

Date	Section 232 national security investigations Section 301 investigation of China Other investigations	Affected imports (billion U.S. dollars)
	Turkey's retaliatory tariffs against U.S. aluminum and steel tariffs go into effect.	
	EU retaliatory tariffs against U.S. aluminum and steel tariffs announced in March 2018 go into effect (Annex A).	3.4
• 2018 Jul	Canadian and Mexican retaliatory tariffs against U.S. aluminum and steel tariffs go into effect.	12.8
	U.S. tariffs of 25 percent on \$34 billion of Chinese imports go into effect (first tranche of \$50 billion in imports – U.S. list 1).	34
	Chinese tariffs of 25 percent on \$34 billion of U.S. imports go into effect (first tranche of \$50 billion in imports – Chinese list 1).	34
	United States releases \$200 billion list of tariff-affected products.	
• 2018 Aug	Russian Federation retaliatory tariffs against U.S. aluminum and steel tariffs go into effect.	
	United States increases steel tariff rate against Turkey from 25 percent to 50 percent.	4.5
	Turkey imposes additional tariffs on imports from United States.	
	China releases \$60 billion list of tariff-affected products.	16
	U.S. tariffs of 25 percent on \$16 billion of imports from China go into effect (second tranche of \$50 billion of imports – U.S. list 1).	
	Chinese tariffs of 25 percent on \$16 billion of U.S. imports go into effect (second tranche of \$50 billion in imports – Chinese list 1).	16
• 2018 Sep	U.S. tariffs of 10 percent on \$200 billion of Chinese imports go into effect (U.S. list 3). Threat of rise in rate to 25 percent on January 1, 2019.	200
	Chinese tariffs on \$60 billion of U.S. imports go into effect (Chinese list 3). Rates range from 5 percent to 10 percent.	60
• 2018 Oct	South Africa receives exemption from United States on 161 aluminum and 36 steel products.	
• 2018 Dec	U.S. tariff hikes on U.S. list 3 delayed.	
• 2019 May	U.S. hikes tariffs on \$200 billion in Chinese imports, already imposed in September 2018, from 10 percent to 25 percent.	200
	China threatens to raise tariffs on \$60 billion of U.S. imports on June 1, already imposed in September 2018, from 5 percent to 10 percent to 10 percent to 25 percent.	

Sources: Bown and Kolb (2019); <https://www.cmtradelaw.com/2018/10/latest-u-s-trade-actions-tariffs-and-other-countries-retaliatory-measures/>.

Notes: Implemented measures are in bold.

