

# Enhanced Supply Chain Security Between the United States and Taiwan

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# About ITIF

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- The world's leading science and technology policy think tank.
- Supports policies driving global, innovation-based economic growth.
- Focuses on a host of issues at the intersection of technology innovation and public policy across several sectors:
  - Innovation and competitiveness
  - IT and data
  - Telecommunications
  - Trade and globalization
  - Life sciences, agricultural biotech, and energy



# Examination of U.S. Trade with Taiwan (Korea and Mexico)

1. Trade in value added (TiVA).
2. Intra-industry trade in value added.
3. Composition of product trade: capital, intermediate, final goods.
4. Industry-level trade in value added across six key sub-industries.
5. Domestic value added as share of countries' gross exports and imports.



## Global Trade Interdependence: U.S. Trade Linkages with Korea, Mexico, and Taiwan

BY STEPHEN J. EZELL AND CALEB FOOTE | JUNE 2019

*Korea, Mexico, and Taiwan represent vital trade partners for the United States, not only as destinations for U.S. exports, but more importantly as key partners whose firms supply critical intermediate goods on which the health of America's advanced-technology industries depend.*

The global economy has become increasingly interlinked, as nations—and enterprises therein—specialize in productive activities wherein they enjoy the greatest levels of comparative advantage. This phenomenon has become especially pronounced in the globalization of value chains for sectors such as information and communications technologies (ICT), electronics, aerospace, and automotive, with Asia becoming a central player in many of these supply chains, especially for ICT products. This internationalization of supply chains means that the success of original equipment manufacturers (OEMs) depends greatly on the health and vitality of suppliers in other nations and the ability to pursue trade, ideally on mostly unimpeded terms, with them. This report examines trade linkages between the United States and three key partner nations—Mexico, Korea, and Taiwan—analyzing the extent of inter- and intra-industry trade across six key sectors: automobiles, chemicals, computers and electronics, machinery, other transportation equipment (including aerospace), and pharmaceuticals. The report demonstrates both that U.S. industries in these sectors depend greatly on trade with suppliers in study partner nations and that these nations are key importers of U.S. goods in these industries.

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Source: ITIF, “Global Trade Interdependence: U.S. Trade Linkages with Korea, Mexico, and Taiwan”



# U.S.-Taiwan Trade

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- Bilateral U.S.-Taiwan trade totaled \$95.5 billion in 2018.
- America is Taiwan's second-largest trading partner and largest source of FDI.
- Taiwan is America's 11th-largest trading partner.
- U.S. trade with Taiwan supported 210,000 U.S. jobs in 2018.

# U.S. Trade With Taiwan, Adjusted by Value Added, 2014 (\$M)

Taiwan	Gross			Value Added			Intra-industry		
Industry	Exports	Imports	Balance	Exports	Imports	Balance	Exports	Imports	Balance
TOTAL	\$24,088	\$40,584	-\$16,496	\$16,415	\$34,050	-\$17,635	\$5,304	\$4,951	\$352
Chemicals	\$3,346	\$1,302	\$2,044	\$3,068	\$2,891	\$176	\$1,875	\$822	\$1,053
Pharmaceuticals	\$420	\$202	\$218	\$267	\$135	\$132	\$41	\$3	\$38
Computers and Electronics	\$3,213	\$15,554	-\$12,341	\$2,563	\$8,274	-\$5,711	\$1,675	\$1,015	\$660
Machinery	\$4,133	\$3,628	\$505	\$985	\$2,676	-\$1,691	\$264	\$242	\$22
Automobiles	\$154	\$2,345	-\$2,191	\$195	\$2,558	-\$2,363	\$23	\$1,353	-\$1,329
Other Transportation (Including Aerospace)	\$3,365	\$1,333	\$2,032	\$812	\$903	-\$91	\$488	\$289	\$199

Source: ITIF, "Global Trade Interdependence: U.S. Trade Linkages with Korea, Mexico, and Taiwan"

# Conclusions from U.S.-Taiwan Intra-Industry Trade Analysis

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- ICT manufacturing is the most tightly-linked industry and constitutes the bulk of trade flows between U.S. and Taiwan.
- Taiwanese ICT manufacturers depend upon U.S. ICT goods inputs: The United States enjoys a \$660M trade surplus in intra-industry ICT goods trade.
  - E.g., Taiwan consumes 30% of U.S. exports of semiconductor manufacturing equipment.
- U.S. has deeper inter-industry trade linkages with Taiwan than virtually any other East Asian trade partner.

Sources: ITIF, “Global Trade Interdependence: U.S. Trade Linkages with Korea, Mexico, and Taiwan”;  
Jinin Chen, “Chen, “A New Dawn? The New Realities of U.S.-Taiwan Economic and Trade Relations”

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# U.S.-Taiwan Trade



- “U.S. data on trade with Taiwan may understate the importance of Taiwan to the U.S. economy because of the role of global value chains.” – CRS
- Taiwan’s role as key provider of competitively priced technologies and components indispensable to the competitive position of U.S. high-tech industries.



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## U.S.-Taiwan Trade Relations

### Overview

With a population of 23.6 million people, Taiwan has evolved to become a highly developed, dynamic, and globally competitive economy. In 2018, Taiwan’s gross domestic product (GDP) on a purchasing power parity (PPP) basis was \$1.25 trillion, making it the world’s 22<sup>nd</sup>-largest economy. Its per capita GDP on a PPP basis (a common measurement of living standards) was 19% greater than Japan’s and about 85% of the U.S. level. In 2018, Taiwan was the world’s 21<sup>st</sup>-largest trading economy for goods and services. The World Economic Forum ranked Taiwan as the world’s 13<sup>th</sup>-most competitive economy in 2018, and the World Bank ranked Taiwan the 15<sup>th</sup>-best economy in terms of the ease of doing business. Taiwan is a major global producer of information and communications technology (ICT) products and semiconductors.

### Taiwan’s Economic Challenges

Taiwan’s economy is very dependent on international trade. Taiwan’s exports of goods and services in 2018 totaled \$393 billion (equivalent to 67% of its nominal GDP), and were up 3.4% over 2017 levels. Taiwan’s real GDP growth averaged 2.9% from 2009 to 2018, and the International Monetary Fund projects that rate will average 2.1% over the next five years. Taiwan faces a number of economic challenges, including declining competitiveness for many industries, inability to participate in various regional trade agreements, stagnant wages, and a lack of job opportunities for some college graduates. A 2018 survey by the Importers and Exporters Association of Taipei assessed Taiwan to have the 17<sup>th</sup>-most competitive trading economy out of 54 major countries surveyed, which was down from 9<sup>th</sup> in its 2011 survey. While unemployment is low at 3.6% (January 2019), the rate for those aged 20-24 is 11.7%. The Taiwanese government estimates that in 2016, 728,000 Taiwanese citizens were employed overseas, of which 407,000 (56%) worked in China. The Taiwanese government has raised concerns over China’s attempts to expand incentives for Taiwanese people to move to China for work, investment, and study.

Many in Taiwan, especially those in the Democratic Progressive Party (DPP), view the slowing Taiwanese economy as a consequence of Taiwan becoming overly reliant on China for economic growth (In 2018, 41% of Taiwan’s merchandise exports went to mainland China and Hong Kong), and because closer cross-strait economic ties have led to the relocation of many Taiwanese industries to mainland China, which, many argue, may have contributed to lost jobs and stagnant wages in Taiwan. Others in Taiwan, especially those in the Kuomintang (KMT), contend that closer economic ties with China have benefited Taiwan’s economy and argue that boosting those ties further, such as through the implementation of new trade agreements, will put Taiwan in a good position to take advantage of opportunities that might arise as China

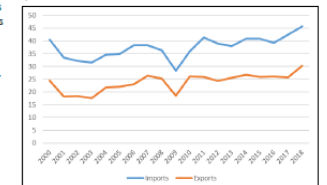
pursues new economic reforms and seeks to promote private consumption as the main driver of its economy.

Economic issues were a major focus of the January 2016 election in Taiwan, which resulted in a major victory for the DPP and its presidential candidate, Dr. Tsai Ing-wen. She proposed a “New Model for Economic Development” focused mainly on innovation, job creation, and addressing widening income gaps, such as by boosting social safety net policies. In an effort to lessen Taiwan’s reliance on China’s economy, Tsai has called for closer economic cooperation with the United States and has said that “there is an urgent need” for Taiwan to participate in the proposed Trans-Pacific Partnership (TPP), although the U.S. withdrawal from the TPP in January 2017 complicated this strategy.

### U.S.-Taiwan Trade Relations

U.S. trade data show that in 2018, Taiwan was the United States’ 11<sup>th</sup>-largest merchandise trading partner (at \$76 billion), 15<sup>th</sup>-largest export market (\$30 billion), and the 13<sup>th</sup>-largest source of imports (\$46 billion). From 2000 to 2018, U.S. exports to Taiwan grew by 24%, while imports grew by 13%. In comparison, U.S. global exports and imports rose by 113% and 109%, respectively.

Figure 1. U.S.-Taiwan Merchandise Trade: 2000-2018  
\$ in billions



Sources: U.S. International Trade Commission (USITC).

U.S. data on trade with Taiwan may understate the importance of Taiwan to the U.S. economy because of the role of global supply chains. For example, many of the consumer electronic products developed by Apple Inc. (such as iPads and iPhones) are assembled in China by Taiwanese-owned firms. Taiwan has moved a significant level of its labor-intensive manufacturing overseas, especially to China. This is reflected in Taiwan’s data on export orders received by its firms from abroad. That data indicate that the percentage of export orders produced abroad rose from 13% in 2000 to 52% in 2018; and for ICT products, this figure rose from 25% to 94%.

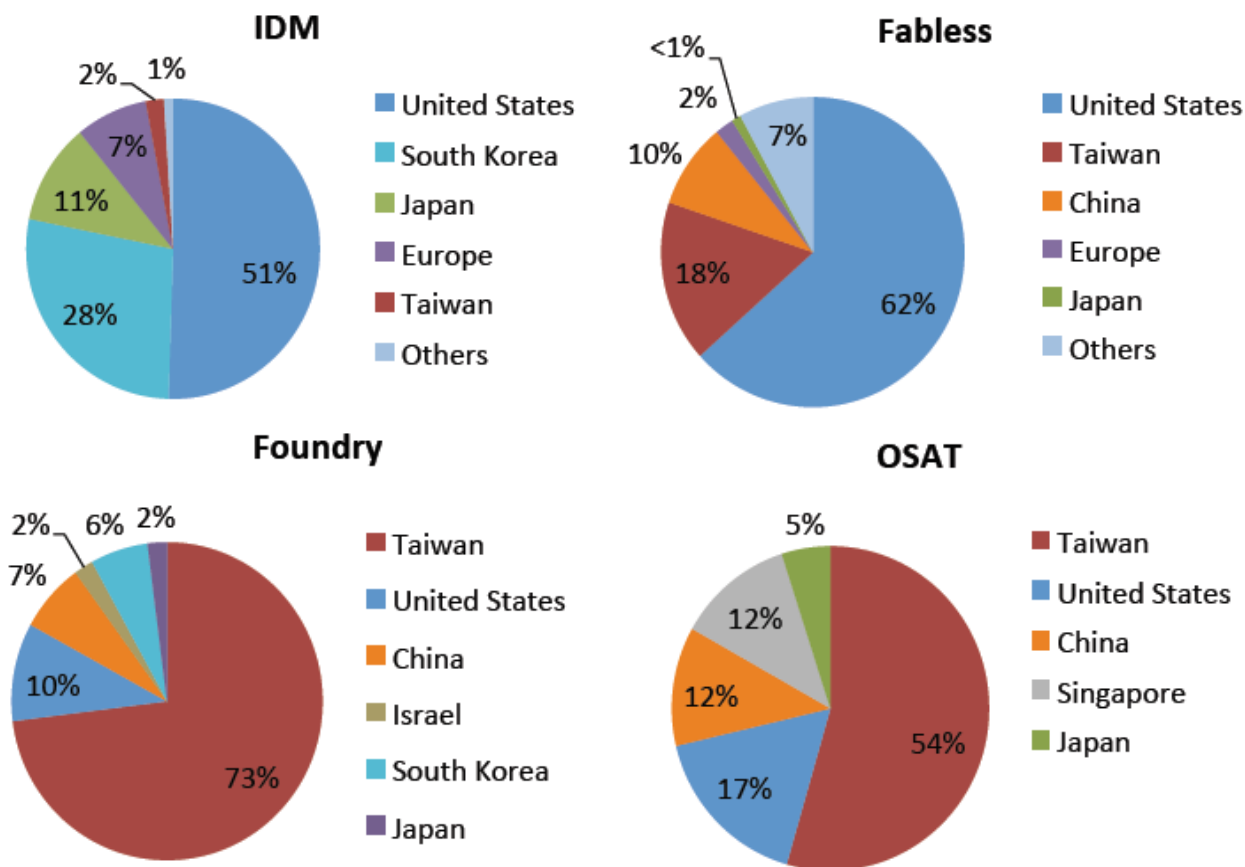
www.crs.gov | 7-5700

Source: Congressional Research Service, “U.S.-Taiwan Trade Relations”

# U.S. Semiconductor Industry Empowered by Taiwanese Partners

- U.S. ICT companies account for 65% of global demand for fabless semiconductor manufacturing.
- Taiwanese companies account for 73% of global foundry-based semi. revenues.
- The partnership has enabled continued U.S. leadership in the semiconductor industry.

Share of Revenues in Key Semiconductor Sectors

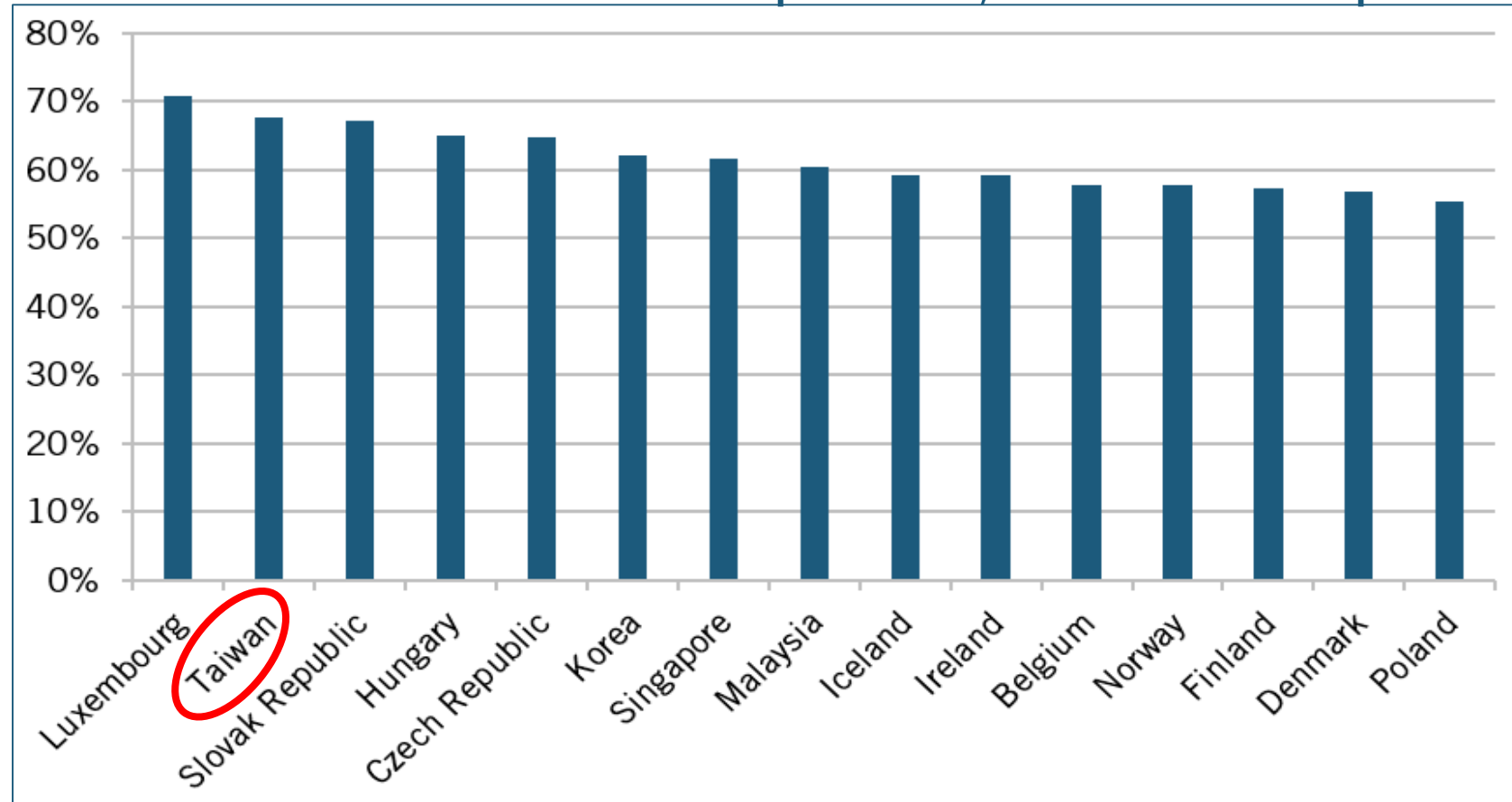


Source: Nathan Associates, "Beyond Borders: The Global Semiconductor Global Value Chain"



# Taiwan The World's Second-Most GVC-Dependent Nation

Countries' Global Value Chain Participation Rate, as Share of Total Exports



Source: World Trade Organization

# Yet Has Lost Share of Global Income From Mfg. GVCs

Country	Real Manufacturers' GVC Income		Share of World Manufacturers' GVC Income	
	1995	2011	1995	2011
<b>China</b>	280,325	1,626,578	4.1%	16.2%
India	124,482	336,877	1.8%	3.4%
Indonesia	84,716	168,601	1.2%	1.7%
Japan	1,159,456	734,694	16.9%	7.3%
Korea	156,577	214,578	2.3%	2.1%
<b>Taiwan</b>	88,338	85,086	1.3%	0.8%
Germany	663,129	682,369	9.7%	6.8%
<b>United States</b>	1,325,204	1,456,101	19.3%	14.5%

Source: Kiyota, Oikawa, and Yoshioka, "The Global Value Chain and the Competitiveness of Asian Countries"

# Observations and Insights

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1. U.S.-Taiwan trade relationship in advanced-technology industries is symbiotic and mutually beneficial.
2. U.S. security would benefit from integrating Taiwan and its enterprises more closely with the U.S. technology ecosystem.
3. Shifting manufacturing activity out of China matters, even in cases when it doesn't come all the way back to the United States.
4. U.S. can learn from Taiwanese manufacturing reshoring initiatives.

# Policy Recommendations

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1. Pursue a U.S.-Taiwan Bilateral Trade Agreement.
2. Join the CPTPP, and support Taiwan's participation therein.
3. Facilitate Taiwanese participation in international forums.
4. Establish an innovation experts working group.
5. Continue to confront Chinese innovation mercantilism.

# Thank You!

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