THE ECONOMIC BENEFITS OF U.S. TRADE

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Ten Facts about U.S. Trade

President Obama's top priority is to make sure the United States builds on its economic momentum by continuing to grow businesses, create jobs, and expand the middle class. That is why the President is committed to free and fair trade agreements that level the playing field and benefit American businesses and workers. This report presents original empirical evidence, alongside a summary of the extensive economic literature, on a broad range of effects of enhanced U.S. trade and U.S. free trade agreements (FTAs).[1] Highlights from this report include:

1. **U.S. businesses must overcome an average tariff hurdle of 6.8 percent, in addition to numerous non-tariff barriers (NTBs), to serve the roughly 95 percent of the world's customers outside our borders.** The United States is already one of the most open markets in the world, meaning that the main impact of new trade agreements would be to decrease foreign barriers to U.S. exports. In 2014, almost 70 percent of U.S. imports crossed our borders duty-free, but many of our trading partners maintain higher tariffs that create steep barriers to U.S. exports.

2. **Exporters pay higher wages, and the average industry's export growth over the past twenty years translated into $1,300 higher annual earnings for the typical employee.** Studies of U.S. manufacturing industries document that, on average, export-intensive industries pay workers up to 18 percent more than non-export-intensive industries. Controlling for industry, location, and worker characteristics, CEA finds that the average industry's increase in exports in the 1990s and 2000s translated into an additional $1,300 in annual earnings for the typical middle-class worker.

3. **Middle-class Americans gain more than a quarter of their purchasing power from trade.** Trade allows U.S. consumers to buy a wider variety of goods at lower prices, raising real wages and helping families purchase more with their current incomes. This is especially important for middle-class consumers who spend a larger share of their disposable income on heavily-traded food and clothing items. Compared to a world with no trade, median-income consumers gain an estimated 29 percent of their purchasing power from trade.

4. **Over the past twenty years, the average industry's increase in exports translated into 8 percent higher labor productivity, or almost a quarter of the total productivity increase over that time.** About half of all U.S. imports are inputs that businesses use to produce final goods, which lowers firms' production costs by making a greater variety of inputs available at lower prices. Additionally, economic research shows that trade increases productivity for businesses and the economy as a whole.

5. **When countries make trade deals with China, outsourcing of American jobs increases, while U.S. trade agreements do not change the rate of U.S. investment abroad.** Trade agreements

with China offer countries preferential access to the vast Chinese market while accepting low labor and environmental standards. U.S. FTAs, on the other hand, raise standards across the board and help U.S. businesses export to foreign markets while still producing goods here. U.S. foreign direct investment (FDI) in FTA partner countries shows little to no change after completion of a trade agreement. However, China's completion of a trade agreement increases U.S. FDI in China's FTA partners.

6. **Trade raises labor standards and incomes abroad, helping developing countries lift people out of poverty and expanding markets for U.S. exports.** Research suggests that trade has helped decrease poverty by raising wages around the world and also finds that expanding U.S. market access promotes higher-quality employment in less-developed countries as workers shift from informal to formal employment. Enforceable labor standards, which form a central part of trade agreements the United States is currently negotiating, have also complemented trade's direct effects.

7. **For every 1 percent increase in income as a result of trade liberalization, pollution concentrations fall by 1 percent.** This happens because the adoption of clean technologies spread through trade more than offsets emissions resulting from increased transportation or production. Current trade agreements amplify these effects: the Administration includes environmental commitments as a core part of its values-driven trade approach, including commitments to protect oceans, combat wildlife trafficking, and eliminate illegal logging.

8. **Trade helps lower the gender wage gap, with a 10 percentage point decrease in tariffs leading to a 1 percentage point drop in the wage gap.** CEA studied the relationship between tariffs and the gender wage gap, finding that industries with larger tariff declines saw greater reductions in the wage gap. Trade also decreases discrimination based on race and immigration status and is correlated with better human-rights conditions.

9. **The United States has a $43 billion surplus in agricultural trade and is a worldwide leader in agriculture, employing almost 1.5 million American workers.** In 2014, one-half of the wheat, rice, and soybeans produced in the United States was exported, along with over two-thirds of almonds and walnuts and four-fifths of cotton and pistachios. The U.S. Department of Agriculture (USDA) estimates that every $1 in agricultural exports stimulates another $1.22 in related business activity, so that agricultural exports increased total economic output by almost $350 billion in 2014.

10. **The United States is the global leader in services exports.** Over the past 34 years, real U.S. services exports have grown more than seven-fold, particularly in areas like insurance and financial services. As a result, knocking down barriers to services trade is especially important for the American workforce. Compared to the average across 40 other countries, including most advanced economies and large emerging markets, the United States has lower trade barriers in 14 out of 18 different service sectors. By one estimate, if U.S. services reached the same export potential as manufactured goods, total U.S. exports could increase by as much as $800 billion.

I.   Introduction

The world's economies are more interconnected than ever before. Since the middle of the last century, declining policy barriers, transportation costs, and communication costs have driven a swift rise in world trade and foreign investment, far outpacing the growth in world output. Even so, the potential economic gains from trade for the United States are far from exhausted. U.S. businesses must overcome an average tariff hurdle near 6.8 percent and countless non-tariff measures to serve the roughly three-quarters of world purchasing power and more than 95 percent of world population that resides outside America's borders.

Expanding trade allows production inputs such as labor and capital to be used more efficiently, which raises overall productivity. U.S. businesses that grow in response to increased market access abroad support additional job opportunities. These firms are more productive and rely more on capital and skilled workers, on average, than similar non-exporting firms. Partly because of this, the wages paid by exporting firms tend to be higher than wages paid by non-exporters in the same industry. In particular, evidence for the United States suggests that, in manufacturing, average wages in exporting firms and industries are up to 18 percent higher than average wages in non-exporting firms and industries.

In addition, international trade helps U.S. households' budgets go further. Because our trading partners also specialize in the goods and services for which they are relatively more productive, the prices of those goods and services in the United States are lower than if we could only consume what we produce. Trade also offers a much greater diversity of consumption opportunities, from year-round fresh fruit to affordable clothing. In fact, research estimates that the variety of imported goods increased approximately three-fold between 1972 and 2001. This increase in variety provides U.S. consumers with value equivalent to 2.6 percent of gross domestic product (GDP). According to other estimates, the reduction in U.S. tariffs since World War II contributed an additional 7.3 percent to U.S. GDP, or approximately $1.3 trillion in 2014. Distributed equally, that translates into an additional over $10,000 in income per American household.

By increasing global production and consumption opportunities, international trade can promote world economic growth and development. Trade among nations offers a mechanism to reduce global poverty, which may decrease child labor and pull developing-country workers into jobs with improved working conditions. Trade can also be a force toward the empowerment of traditionally marginalized groups; for example, some empirical evidence suggests that decreased discrimination against women is related to the effects of global competition brought about by trade. Trade also facilitates the spread of new green technologies throughout the world, which decreases emissions and improves air and water quality.

Because the process of globalization shifts resources within national economies, however, it can also create challenges in areas like income inequality. For this reason, it is critical that globalization is managed—in terms of both the types of trade agreements the United States enters into and the domestic policies that are in place—in a way that ensures that more

Americans can take advantage of the opportunities afforded by trade, while being better able to meet any challenges trade creates. Therefore, President Obama's values-driven trade policy seeks to do what is best for U.S. businesses and workers by enforcing international agreements that improve labor and environmental standards around the world, combat corruption, and strengthen the rule of law abroad. Encouraging such trade agreements maximizes globalization's benefits while minimizing globalization's side effects. For example, new U.S. trade agreements promote and enforce the rights of workers abroad, "leveling up" rather than "leveling down" and risking workers' rights in the United States. The Administration's domestic policies, such as skills training, infrastructure investment, and business tax reform, allow workers and firms to take better advantage of the opportunities trade offers. At the same time, policies like Trade Adjustment Assistance and the Affordable Care Act help protect workers from some of the challenges associated with globalization.

The rest of this report is structured as follows. In Section II, we highlight the main economic benefits of U.S. trade integration, starting with a review of the classic gains from trade, such as higher productivity, faster innovation, lower prices, and more varieties. Next, we survey research showing how trade supports jobs in larger, more productive, and higher-paying exporting firms and comment on the role of U.S. FTAs in the outsourcing of jobs. The section ends with a discussion of often overlooked development effects of expanding trade relations. Section III presents a brief analysis of sector-specific trends in U.S. trade, highlighting separately manufacturing, agriculture, and services. Section IV focuses on current trade negotiations with countries in the Asia-Pacific (Trans-Pacific Partnership, TPP) and the European Union (Transatlantic Trade and Investment Partnership, T-TIP), and section V concludes.

II.   The Economic Effects of U.S. Trade Integration

The process of globalization offers many new economic opportunities, but it also has created challenges. Globalization is a result of both worldwide economic, social, and technological trends, as well as specific policy changes. Analyzing globalization's general impact is different from analyzing any particular trade agreement. Understanding the impact of any particular agreement requires both historical context, as well as an analysis of the relative tariffs of trading partners, NTBs, and the relevant standards (for instance, on labor, environment, and intellectual property).

Classic Gains from Trade

Nevertheless, historical experience does underscore the potentially large gains from trade. In the past half-century, as trade barriers around the world have diminished, these gains have multiplied and are increasingly shared across different countries and different industries. Among these classic gains from trade are enhanced productivity, increased innovative activity, and lower prices on and greater variety of goods and services for consumers and producers.

Enhanced Productivity

Defined as the amount of output that can be generated with a given level of inputs, total factor productivity (TFP) growth is historically associated with increasing real wages. Productivity growth is necessary for sustained faster income growth of U.S. workers and profoundly important for the living standards of middle-class Americans, in particular. Specifically, one of the major factors in disappointing middle-class income growth since the 1970s has been the slowdown in productivity growth that started around 1973. In fact, if productivity had continued growing at the same rate as it did between 1948 and 1973—that is to say, at 1.9 percent per year—and inequality followed its actual path, then Americans' annual incomes in 2013 would have been 58 percent higher, a fraction equivalent to roughly $30,000 per household.

There is a large body of economic research on the relationship between international trade and productivity growth, and its conclusions are generally positive for trade. For example, a recent review by De Loecker and Goldberg (2014) concludes that "there is one robust finding that emerges from this literature: globalization improves industry performance." However, this literature has not reached a consensus on *why* trade improves productivity. Long-established theories of international trade suggest that trade liberalization will improve a nation's economic productivity through several different channels.

Production Reallocation

First, trade can improve economy-wide productivity by allowing each country to focus on its comparative advantage. This benefit follows from the classic theory of trade gains first expounded by economist David Ricardo in 1817. Productivity gains can also occur within an industry if there is some heterogeneity between firms in that industry (Melitz 2003), as labor and resources shift in response to lower trade costs to the most efficient firms—those best able to take advantage of the opportunity to export. Several studies find evidence of this phenomenon in U.S. manufacturing. For example, one study compares high- and low-productivity plants during a time of falling tariffs and transportation costs and finds that industry productivity rises when

trade costs fall (Bernard et al. 2006). Additionally, trade may improve the productivity of specific firms in an industry or even a single factory. If increased trade liberalization creates more demand from overseas for certain products, firms may be induced to reallocate resources toward core products. Bernard et al. (2011) find evidence to this effect.

Increased Market Size

Beyond the productivity gains from reallocation, additional gains arise when firms' export markets expand as the foreign trade barriers they face fall. If these firms can become more efficient as they grow (a phenomenon known as economies of scale), their productivity will rise. Lileeva and Trefler (2010) find evidence that Canadian firms that received preferential access to the huge U.S. market under the terms of the 1989 Canada-U.S. FTA improved labor productivity by investing in productivity-enhancing activities. Bustos (2011) finds similar evidence from Argentina, which entered into a trade agreement with Brazil, Paraguay, and Uruguay in 1991. Across these studies, the common mechanism is that exporting induces investments in technology.

Learning-by-Exporting

Since the early 1990s, empirical research on trade has increasingly focused on firm-level data, and several recent studies have found evidence of a causal link from trade to increased productivity. Export activity offers firms opportunities to learn about foreign markets—perhaps even gaining technical expertise from foreign buyers—leading to increased productivity (De Loecker 2013). Productivity gains through exporting may also occur through increased competition from foreign producers. This "learning-by-exporting" theory has support in a literature spanning many countries and time periods. For example, De Loecker (2007) finds evidence of learning by exporting for Slovenia and Van Biesebroeck (2005) finds support in sub-Saharan Africa. A recent paper by Atkin, Khandelwal, and Osman (2014) experimentally manipulates access to trade so as to simulate a randomized trial, and finds strong evidence that Egyptian rug manufacturers (who randomly received an opportunity to export) became more productive as a consequence of foreign trading opportunities.

While these findings may or may not generalize to more technologically advanced U.S. exporters, they provide important evidence of a causal link between trade and productivity, suggesting that the productivity improvements associated with trade do not necessarily only come through domestic resource reallocation. Using data from the U.S. Census Bureau's Foreign Trade Statistics in combination with data from the National Bureau of Economic Research's (NBER) Manufacturing Industry Database (Becker, Gray, and Marvakov 2013) for the years 1989 to 2009, CEA's analysis confirms findings in the literature on the productivity-enhancing effects of international trade. Table 1 reports coefficient estimates for two different specifications relating trade to the level of labor productivity, defined as value-added per employee. Across the 377 6-digit North American Industry Classification System (NAICS) industries, CEA documents the positive association of international trade and labor productivity.

Table 1: Trade and Labor Productivity

	Log Labor Productivity	
Tariff	0.060	
	(0.047)	
Log Exports		0.022*
		(0.013)
Industry Fixed Effects	YES	YES
Year Fixed Effects	YES	YES
Control for Imports	NO	YES
Control for Industry Size	YES	YES
Observations	7,871	7,961

Note: Labor productivity is defined as value added per employee. Tariffs are the simple average of applied rates. Industry size is defined as the inflation-adjusted value of total shipments by U.S. firms. Robust standard errors, clustered at the industry level, are in parentheses. *** denotes significance at the 1-percent level, ** denotes significance at the 5-percent level, and * denotes significance at the 10-percent level. The panel dataset comprises over 370 industries over the 1989-2009 period. Industries are defined according to NAICS and are disaggregated to the six-digit level.

Source: Data on value added, employment, total shipments, and industry-specific price indices are from the NBER Manufacturing Industry Database. Data on tariff rates are from the World Integrated Trade Solution database maintained by the United Nations Statistical Division. Data on imports and exports by industry from 1989-2006 are from the U.C. Davis Center for International Data. Data on imports and exports by industry from 2007-2009 are from the Foreign Trade Division of the U.S. Census Bureau.

Relying on cross-industry and over-time variation in trade, our estimation includes industry fixed effects to control for time-invariant differences across industries, which may affect productivity levels, as well as year fixed effects to account for common cyclical variation, including in inflation. The estimation also controls for industry size and the level of importing, where relevant. Though the estimate implies that tariff reductions are associated with decreases in labor productivity, this measured effect is insignificantly different from zero. The estimates in the second column, however, point to a statistically and economically significant relationship. Industries with larger increases in exports report larger increases in labor productivity. A 10 percent increase in an industry's exports is associated with a 0.2 percent increase in the industry's labor productivity. Over the two decades between 1989 and 2009, based on the average industry's increase in exports, these estimates imply approximately an additional 8 percent labor productivity boost as compared to what would have happened with no change in international trade. Since average labor productivity in the United States increased by about 35 percent over these two decades, these estimates imply that international trade may have been responsible for about one quarter of total productivity growth over the 1990s and 2000s.

The literature also suggests that many productivity improvements associated with exporting are due to increased investments in technology. We provide some evidence for this hypothesis in Table 2, which documents that industries with larger increases in exports are also those industries with the largest increases in capital investment. Specifically, a 10 percent increase in exports is associated with about a 0.6 percent increase in investment. Therefore, the average industry invested about 22 percent more over the 1990s and 2000s, than would have been the case in a world with no change in exports.

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Table 2: Trade and Investment

	Log Investment
Log Exports	0.063*
	(0.034)
Industry Fixed Effects	YES
Year Fixed Effects	YES
Control for Imports	YES
Control for Industry Size	YES
Observations	7,961

Note: Investment is deflated using industry-specific price deflators. Industry size is defined as the inflation-adjusted value of total shipments by U.S. firms. Robust standard errors, clustered at the industry level, are in parentheses. *** denotes significance at the 1-percent level, ** denotes significance at the 5-percent level, and * denotes significance at the 10-percent level. The panel dataset comprises over 370 industries over the 1989-2009 period. Industries are defined according to NAICS and are disaggregated to the six-digit level.

Source: Data on investment, total shipments, and industry-specific price indices are from the NBER Manufacturing Industry Database. Data on imports and exports by industry from 1989-2006 are from the U.C. Davis Center for International Data. Data on imports and exports by industry from 2007-2009 are from the Foreign Trade Division of the U.S. Census Bureau.

Table 3 takes the analysis one step further to ask whether trade liberalization via decreases in tariffs increases the rate of productivity growth. Industries that faced larger tariff declines over the 1990s and 2000s experienced larger increases in both labor productivity growth and TFP growth. A 10 percentage point decrease in tariffs corresponds to about a 0.4 percentage point increase in labor productivity growth and about a half percentage point increase in TFP growth over the two decades. In an era of relatively low productivity growth, these are large changes.

Table 3: Trade and Productivity Growth

	Labor Productivity Growth	TFP Growth
Tariff	-0.041***	-0.048***
	(0.007)	(0.006)
Industry Fixed Effects	YES	YES
Year Fixed Effects	YES	YES
Control for Industry Size	YES	YES
Observations	7,867	7,867

Note: Labor productivity is defined as value added per employee. TFP is defined as in Becker et al. (2013). Labor productivity growth and TFP growth are defined as the one-year growth rate. Tariffs are the simple average of applied rates. Industry size is defined as the inflation-adjusted value of total shipments by U.S. firms. Robust standard errors, clustered at the industry level, are in parentheses. *** denotes significance at the 1-percent level, ** denotes significance at the 5-percent level, and * denotes significance at the 10-percent level. The panel dataset comprises over 370 industries over the 1989-2009 period. Industries are defined according to NAICS and are disaggregated to the six-digit level.

Source: Data on value added, employment, TFP growth, total shipments, and industry-specific price indices are from the NBER Manufacturing Industry Database. Data on tariff rates are from the World Integrated Trade Solution database maintained by the United Nations Statistical Division.

In summary, some studies conclude that trade leads to increased industry-wide productivity through a reallocation of market share towards more productive firms (Melitz 2003; Bernard and

Jensen 1999; 2004a; 2004b). In other words, the selection of the most productive firms into international markets means that productivity may cause trade. Other studies argue that the causality goes in the opposite direction, with global trade driving increases in productivity (for example, Lileeva and Trefler 2010 and Bloom, Draca, and Van Reenen 2011). It is difficult to distinguish between these two mechanisms empirically, since both suggest a positive relationship between trade and productivity. And in practice, *both* stories could be correct: trade may cause productivity, at the same time as productivity causes trade.

More Innovative Activity

Most people associate the term "innovation" with new tools and technologies that improve their daily lives. This makes sense; major innovations like the automobile or computer have a visible impact on living standards. Economists, on the other hand, tend to focus on aggregate innovation, as measured by TFP, as we touched on in the previous section. However, a growing body of work also considers the impact of trade on innovative activities, such as research and development (R&D) spending and patenting. Because there are several different mechanisms that could produce this effect, it is helpful to divide the relevant theoretical channels into two broad groups: (1) trade stimulates innovation directly, and (2) trade alters the incentives to innovate.

Innovation Production Function

Both exporters and importers are frequently exposed to new ideas and novel tools, materials, or techniques that make them more productive. Some of the learning that results is simply copying. For example, many multinational companies have systems and standards to promote the diffusion of "best practices" within their global supply chains (MacDuffie and Helper 1997 and Distelhorst, Hainmueller, and Locke 2014). Learning also occurs when a firm adapts novel ideas to suit its own operating environment, leading to both new goods and greater productivity. For example, many American manufacturers and businesses in other industries have adopted aspects of the "lean" production system, which was originally developed in Japan, and realized substantial productivity benefits by tailoring the underlying ideas to meet their own needs (Teich and Faddoul 2013).

Many of the new ideas that diffuse through trade are embodied in intermediate inputs. In fact, roughly half of all U.S. imports are inputs into the production of final goods. Increases in the quality and variety of these inputs can reduce domestic firms' production costs, thereby inducing American importers to expand production and employment. For example, Romer (1994) shows that a country's gains from international trade increase substantially when the benefits of cheaper and more varied imported production inputs are taken into account.

Trade can also increase innovative productivity by allowing innovators to specialize. Greater specialization can increase the amount of knowledge produced per unit of R&D investment if companies in different countries focus on innovating in the areas where they have a comparative advantage. For example, if engineers at one firm focus on improving memory chips, and engineers at another firm focus on improving microprocessors, the R&D productivity of each firm may be higher, leading to better and cheaper computers than if each company had to improve

both components simultaneously. Branstetter, Fisman, and Foley (2006) show that strengthening foreign intellectual property protection leads to more outward licensing from the United States, where U.S. companies allow other companies to use their ideas, products, or processes in exchange for royalty payments. Specifically, the authors find that royalty payments from foreign affiliates to U.S. parent companies increase by 16.6 percent on average following a reform that strengthens intellectual property rights in the affiliates' home country. This finding highlights the role of NTBs for shaping trade in ideas, particularly if one country specializes in the "R" and the other in the "D."[2]

The Incentives to Innovate

International trade allows companies to access a larger market, which yields more profit for a given level of innovation, and therefore raises the incentive to innovate. For example, the global reach of the "App Stores" managed by Apple and Google contributes to the large number of software developers who populate those distribution platforms. Aw, Roberts, and Xu (2008) find that firms with experience in foreign markets have a greater probability of R&D investment, consistent with the idea that accessing larger foreign markets translates into higher expected returns to R&D.

Even holding market size constant, increased trade can promote innovation by strengthening competition. More than fifty years ago, Arrow (1962) pointed out that a monopolist may have relatively weak incentives to innovate because its innovations do not allow it to "steal" business from competitors. A similar idea appears in more recent "Schumpeterian" models of innovation and economic growth (Aghion et al. 2005), where competition can promote growth by increasing the expected payoffs of successful innovation. By bringing companies into a worldwide marketplace, trade greatly increases the incentive for a firm to innovate in order to win business from its competitors (Bloom, Draca, and van Reenen 2011), reinforcing the market-size effects discussed above. However, Schumpeterian models also suggest that too much competition can reduce innovation, because firms will not wish to invest in R&D if their discoveries are easily copied and the resulting profits immediately dissipated.

Higher Living Standards

Perhaps the most broadly shared benefit of increased trade is lower prices for consumers and producers in the domestic market. By allowing our trading partners to produce the goods in which they are relatively more efficient, the United States can import at lower prices than would prevail if we were to use our scarce resources to produce the goods ourselves. This "specialize in what you do best, trade for the rest" philosophy makes everyday goods and services more affordable and enhances the real earning power of American workers' and families' current incomes.

Fajgelbaum and Khandelwal (2014) note that lower-income consumers spend a larger share of their disposable income on heavily-traded food and clothing items, while higher-income consumers devote a relatively larger share to spending on services, which can be harder or

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[2] For more analysis of trade in ideas, please see Box 7-1 in CEA (2015a).

impossible to trade. This implies that international trade is relatively more beneficial to middle-class consumers. Specifically, as is illustrated in Figure 1, the authors estimate that U.S. consumers at the 10th percentile of the income distribution would lose more than half of their purchasing power if the United States shut out all international trade, owing to higher prices. Median-income consumers would still lose more than a quarter of their purchasing power, as compared to only a 3 percent gain in purchasing power for Americans at the 90th percentile of the income distribution. Although these estimates are based on an extreme counterfactual, the numbers remind us of the potential for new trade agreements to reduce prices in the United States and raise consumers' purchasing power, particularly for middle-class consumers.

Figure 1: Gains from Trade Across the Income Distribution

Percent of Purchasing Power Gained from Trade

Source: Fajgelbaum and Khandelwal (2014).
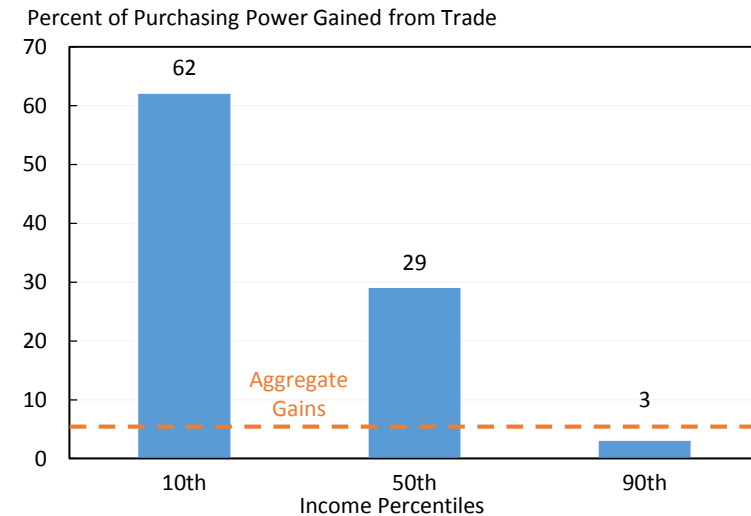
Another underappreciated benefit of trade liberalization is increased variety for domestic consumers and producers. With new importers come new products. This expanded selection increases the welfare of consumers who appreciate having more choice. Broda and Weinstein (2006) examine historical trade statistics and determine that the variety of imported goods increased approximately three-fold between 1972 and 2001. Conventional import price indices have trouble incorporating the value of increased choice, so this finding suggests that import prices have effectively fallen even further than the conventional import price index would suggest. The researchers estimate that this increased variety has provided U.S. consumers with value equivalent to 2.6 percent of GDP, or approximately $450 billion in 2014. Mostashari (2010) updates the calculations in Broda and Weinstein (2006) and reports that the number of varieties of goods imported into the United States increased 33 percent between 1989 and 2007.

In addition, recent estimates suggest that over one-half of all U.S. imports are intermediate inputs into the production process. The greater variety of imports available at lower prices reduces firms' production costs, thereby helping American businesses to expand production and employment and increase the wages they can afford to pay. Since World War II, reductions in U.S. tariffs are estimated to have contributed an additional 7.3 percent to U.S. GDP (Bradford, Grieco, and Hufbauer 2005).

Labor Market Implications of Trade and Trade Agreements

Trade also has notable impacts on labor markets, many of them a direct result of the classic gains from trade in terms of increased productivity and innovation. U.S. businesses that expand in response to the increased foreign market access due to U.S. trade agreements support additional jobs. The importance of such export-led job growth for the Nation's income is reinforced by the fact that wages in export-intensive manufacturing industries tend to be higher than wages in non-export-intensive manufacturing industries. Of course, while the aggregate benefits of trade may be large, they may also be unevenly distributed.[3] Trade, therefore, can also have adverse effects for some workers. Domestic policies the Administration supports, such as investment in infrastructure, worker training, and education, can help our labor force take advantage of the considerable opportunities that trade opens up. For displaced workers and their families, effective policies can help smooth the adjustment into new, potentially higher-paying jobs.

Higher Wages

Expanding U.S. market access abroad has important implications for the workforce at home. A very long literature spanning decades and many different countries highlights that exporting firms are systematically different from non-exporting firms even within the same industrial category. Bernard and Jensen (1995) were the first to document this fact for the United States. They note that exporting plants are larger in terms of employment, more productive in terms of value added per worker, more strongly capital-intensive, and pay higher wages. These differences persist even within detailed industrial categories, and controlling for firms' regional locations.

Figure 2 offers descriptive evidence relying on data from the U.S. Census Bureau's Foreign Trade Statistics matched to the NBER's Manufacturing Industry Database. Export-intensive industries are defined as those industries with above-average values of exports as a fraction of total shipments (the export share) in 1989, and non-export-intensive industries are those industries with below-average values of the export share in 1989.[4] For ease of illustration, in order to report the various characteristics in comparable units, the Figure reports the industry's characteristic as a ratio to the average industry's characteristic, calculated as described in the Figure note. On average over the 1989 to 2009 period of data availability, relative to non-export-intensive industries, export-intensive industries report 51 percent higher TFP growth, 17 percent higher average wages (total wage bill per worker), 10 percent higher levels of labor productivity (total shipments per worker), 17 percent higher value added per worker, and 31 percent higher capital intensity (total real capital stock per worker), consistent with the findings in the academic research.

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[3] For an examination of the relationship between trade and income inequality, refer to Chapter 7 of CEA (2015a). In addition, Harrison, McLaren, and McMillan (2011) provide a summary of the large literature on the links between globalization and inequality.
[4] The average export share across the 377 6-digit NAICS industries was 12.7 percent in 1989.

**Figure 2: Characteristics of Export-Intensive and
Non-Export-Intensive Industries, 1989-2009**

Ratio to the Industry Average
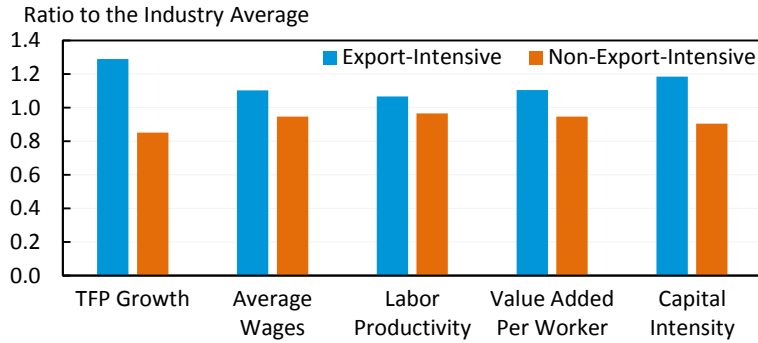
Note: The ratio to the industry average is calculated as follows. Each industry's
characteristic is measured relative to the industry average within the year and then averaged
over the 1989-2009 period and across export-intensive and non-export-intensive industry groups.
Source: National Bureau of Economic Research-Center for Economic Studies, Manufacturing
Industry Database; U.S. Census Bureau, Foreign Trade Statistics; CEA Calculations.

Exporter Wage Premium

That exporters pay higher wages than similar non-exporters is a well-established feature of the
data across many countries and over decades (see Table 1 in Schank, Schnabel, and Wagner
2004). For the United States, estimates for the exporter wage premium (the amount by which
exporting industries and firms pay higher wages than non-exporting industries and firms) are as
high as 18 percent. Riker (2010) estimates that workers employed in U.S. export-intensive
manufacturing industries earned approximately 18 percent more than similar workers employed
in domestically-oriented manufacturing industries between 2006 and 2008. In follow-up work,
Riker and Thurner (2011) demonstrate that the relationship holds in services industries as well.[5]
Controlling for industry differences, Bernard, Jensen, Redding, and Schott (2007) document a 6-
percent exporter wage premium in 2002: the average annual wage at exporting manufacturing
firms is 6 percent higher than the average annual wage at domestically-oriented manufacturing
firms.

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[5] In an update on this line of research, Riker (2015) estimates that workers employed in export-intensive
manufacturing industries earn a premium of 16.3 percent, and that workers employed in export-intensive services
industries earn a premium of 15.5 percent based on 2014 data.

Table 4: Summary of Export Wage Premium Literature

Source	Time Period (sector)	Wage Variable (aggregation)	Export Variable (aggregation)	Estimated Exporter Wage Premium (in percent)	Control Variables
Bernard and Jensen (1995)	1976-1987 (manufacturing)	Average annual wage (plant)	Exporter dummy (plant)	4.5	Capital per worker Hours per worker Plant size Plant age Multiplant dummy Industry Fixed Effects Region Fixed Effects Year Fixed Effects
Bernard and Jensen (1995)	1976-1987 (manufacturing)	Average annual wage (plant)	Exporter dummy (plant)	1.7	Capital per worker Hours per worker Plant size Firm Fixed Effects Year Fixed Effects
Bernard and Jensen (1999)	1984 (manufacturing)	Average annual wage (plant)	Exporter dummy (plant)	14.8	Plant size Industry Fixed Effects State Fixed Effects
Bernard and Jensen (1999)	1987 (manufacturing)	Average annual wage (plant)	Exporter dummy (plant)	9.3	Plant size Industry Fixed Effects State Fixed Effects
Bernard and Jensen (1999)	1992 (manufacturing)	Average annual wage (plant)	Exporter dummy (plant)	9.3	Plant size Industry Fixed Effects State Fixed Effects
Bernard, Jensen, Redding, and Schott (2007)	2002 (manufacturing)	Average annual wage (firm)	Exporter dummy (firm)	6.0	Firm size Industry Fixed Effects
Riker (2010)	2006-2008 (manufacturing)	Weekly earnings (individual)	Export share (industry)	18.0	Industry import share Individual education Individual age/age-squared Dummy for sales/office occupations Dummy for union participation Gender Race Dummy for lives in metro area
Riker and Thurner (2011)	2006-2008 (services)	Weekly earnings (individual)	Export-intensive dummy (industry)	15.8	Dummy for individual age>=35 Dummy for college graduate Dummy for white collar occupation Gender Race Year Fixed Effects
Riker (2015)	2014 (manufacturing)	Weekly earnings (individual)	Export-intensive dummy (industry)	16.3	Dummy for individual age>=35 Dummy for college graduate Dummy for graduate degree Gender Race State Fixed Effects
Riker (2015)	2014 (services)	Weekly earnings (individual)	Export-intensive dummy (industry)	15.5	Dummy for individual age>=35 Dummy for college graduate Dummy for graduate degree Gender Race State Fixed Effects

Note: The estimated exporter wage premia presented in this table are not directly comparable across rows, due to differences in the variables of interest, differences in control variables, and differences in the estimation methodology.

Table 4 summarizes the literature on the U.S. exporter wage premium, as adapted from Table 1 in Schank, Schnabel, and Wagner (2004). Bernard and Jensen (1995) consider plant-level data on the manufacturing industry, and ask how a given plant's export status (a binary indicator for whether the plant exports or not) relates to the plant's average wage payments, controlling for industry, region, and year effects, as well as other plant-specific variables (capital per worker, hours per worker, plant size, plant age, and whether the plant is part of a multi-plant firm). The interpretation of their estimated exporter wage premium is then that exporting plants pay higher average wages than observationally-equivalent non-exporting plants located in the same region and producing in the same industry and time-period. Riker (2010), by contrast, takes a different approach. The author matches individuals to the industries in which they work, and relates the individual's earnings to her industry's export share. His analysis controls for the worker's location, as well as several worker-level characteristics that influence wages, such as education, age, union participation, gender, race, and binary variables for whether the worker is employed in a white-collar profession and whether the worker lives in a metro area (both of which typically pay higher wages). The interpretation of his estimated exporter wage premium is then that workers employed in high export share industries report higher earnings than observationally-identical workers, living in the same state, who work for low export share industries.

Therefore, it is important to note that the estimated wage differentials reported in Table 4 are not directly comparable across rows, due to differences in the main variables of interest, differences in control variables, and differences in the estimation methodologies, and should be viewed as complementary estimates. On the one hand, estimates like those from Bernard and Jensen (1995) inform us about *average wages* at exporting plants relative to non-exporting plants, and estimates like those in Riker (2010) inform us about an *individual worker's wages* depending on whether the worker is employed in an exporting industry or not. In what follows, CEA considers both cases.

Average Wages

Table 5 reports coefficients relating trade to average wages, following the same estimation strategy that we employed in our analysis of trade and productivity—that is, we relate industry-level exports to the industry's average wage over the 1990s and 2000s, akin to the work in Bernard and Jensen (1995) given data constraints. Controlling for time-invariant industry and year factors, as well as industry size and imports, the results are suggestive of wage gains associated with exporting, including for production workers. Notably, a 10 percent increase in exports is correlated with a 0.1 percent increase in the industry average production wage, suggesting average wages for production workers were about 4 percent higher than they would have been in the absence of strong increases in U.S. export activity. This corresponds to about $1,380 in increased earnings (in 2009 dollars) for the average production worker in the average industry, or $1,520 in today's dollars.

Table 5: Trade and Average Wages

	Log Average Wage	Log Average Production Wage
Log Exports	0.007 (0.004)	0.010* (0.006)
Industry Fixed Effects	YES	YES
Year Fixed Effects	YES	YES
Control for Imports	YES	YES
Control for Industry Size	YES	YES
Observations	7,961	7,961

Note: Average wages are defined as total payroll per employee. Average production wages are defined as total production payroll per production worker. Industry size is defined as the inflation-adjusted value of total shipments by U.S. firms. Robust standard errors, clustered at the industry level, are in parentheses. *** denotes significance at the 1-percent level, ** denotes significance at the 5-percent level, and * denotes significance at the 10-percent level. The panel dataset comprises over 370 industries over the 1989-2009 period. Industries are defined according to NAICS and are disaggregated to the six-digit level.

Source: Data on payroll, production payroll, employment, production employment, total shipments, and industry-specific price indices are from the NBER Manufacturing Industry Database. Data on imports and exports by industry from 1989-2006 are from the U.C. Davis Center for International Data. Data on imports and exports by industry from 2007-2009 are from the Foreign Trade Division of the U.S. Census Bureau.

Individual Wages

How can exporters and non-exporters offer persistently different wages in the same product categories? Several explanations for this feature of the data have surfaced in the literature. If labor markets are assumed to be competitive, it is likely that while average wages at exporters are higher, individual wages at exporters are not. Instead, it is likely that exporters hire a systematically different type of worker; that is, more skilled workers who would earn higher wages on average regardless of where they work—that is, at both exporters and non-exporters. Explanations for why exporters require a higher-skilled labor force include the technological requirements of exporting (Yeaple 2005; Bustos 2007, 2011) and that exporters produce higher quality goods (Verhoogen 2008).

The point that wage differences between exporters and non-exporters persist even after controlling for the observable characteristics of workers suggests departures from perfect competition in the labor market. Amiti and Davis (2012) propose a fair-wages, rent-sharing story—that is, exporters earn higher profits than non-exporters, which are then shared with their workers. Alternatively, Davis and Harrigan (2011) and Frías, Kaplan, and Verhoogen (2009) suggest that exporters may pay efficiency wages—as higher quality products require higher quality workers, exporters pay efficiency wages to induce effort from workers. Finally, Davidson, Matusz, and Shevchenko (2008) and Helpman, Itskhoki, and Redding (2010) argue for search and matching frictions in the labor market. Due to complementarities between firm productivity and worker ability, the more productive exporting firms have an incentive to screen for workers above a given ability threshold. As higher ability workforces are harder to replace (i.e., the screening cost is higher), multilateral bargaining over wages leads to higher wages at exporting firms, even for very similar workers.

In order to account for some of the observable differences across workers who sort into exporting industries, in Table 6, we consider a simple analysis using data on individual-level annual earnings

from the Current Population Survey (CPS) for the years 1989 to 2009. Closely following the work in Riker (2010), the data match individual workers to the industries in which they work. The regression then relates the level of exports in an industry to the individual's earnings. Even when controlling for differences in worker characteristics such as gender, education, race, and age, differences in workers' employment through industry fixed effects, and differences in workers locations through state fixed effects, CEA confirms an exporter wage premium. CEA's analysis suggests that the strong increase in exports over the 1990s and 2000s translates into an additional $1,300 in annual earnings for workers in today's dollars.[6]

Table 6: Trade and Individual Wages

	Log Annual Earnings
Log Exports	0.012* (0.007)
Industry Fixed Effects	YES
State Fixed Effects	YES
Year Fixed Effects	YES
Control for Imports	YES
Control for Industry Size	YES
Observations	224,055

Note: Robust standard errors, clustered at the industry-year level, are in parentheses. *** denotes significance at the 1-percent level, ** denotes significance at the 5-percent level, and * denotes significance at the 10-percent level. The panel dataset comprises 75 industries over the 1989-2009 period. Industries are defined according to the 1990 Census Bureau industrial classification system.

Source: Data on earnings by industry are from the U.S. Census Bureau, Current Population Survey, as downloaded from the IPUMS-CPS, University of Minnesota. Data on imports and exports by industry from 1989-2006 are from the U.C. Davis Center for International Data. Data on imports and exports by industry from 2007-2009 are from the Foreign Trade Division of the U.S. Census Bureau. Data on total shipments by industry are from the NBER Manufacturing Industry Database.

Foster Access to Foreign Markets Without Outsourcing

A common criticism of U.S. FTAs is that U.S. firms will shift production and employment away from the United States to our trading partners, assumed to have lower labor standards and lower wages, in order to cut labor costs by effectively sending U.S. jobs abroad.

One motivation for FDI is to circumvent barriers to sales abroad—so to the degree that trade agreements eliminate these barriers they make it easier to produce in the United States and export abroad.
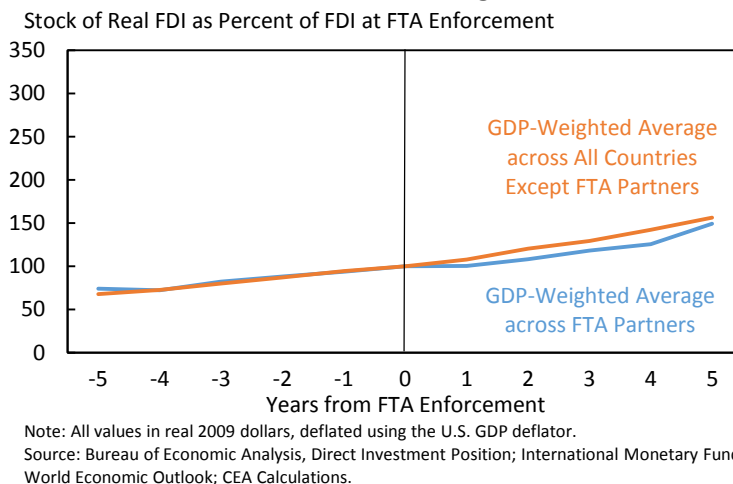
In addition, to the degree that trade agreements—directly or indirectly—raise labor standards they can reduce some of the incentives that lead to outsourcing. Relying on data across many countries over the 1980s and 1990s, Palley (2005) makes the case that higher labor standards are

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[6] More importantly, our analyses in Table 5 and Table 6 find no statistical relationship between increases in imports and earnings. Any potential downside to workers' wages due to import competition appears to be offset by the benefits of increased imports of intermediate inputs (Grossman and Rossi-Hansberg 2008).

associated with higher wages. Olney (2013) documents that foreign investment is responsive to labor market standards in other countries. Using data on FDI abroad by U.S. companies, the author finds that Organisation of Economic Co-operation and Development (OECD) countries with fewer employment protections received more U.S. FDI, offering some suggestive evidence of a wider globalization-inspired race-to-the-bottom on employment protections.[7] This logic is why current and future U.S. trade agreements directly embed strong and enforceable labor commitments into their main texts (see Section IV for more information on current trade negotiations). Moreover, the results in Palley (2005) and Olney (2013) together suggest that by increasing enforceable labor standards, and thus increasing wages, abroad though our trade agreements, the United States can potentially curb the outsourcing of American jobs.

Figure 3 summarizes the evolution of the stock of U.S. FDI in our free trade partners before and after the enactment of all 14 FTAs (across 20 countries).[8] For a baseline comparison, the analysis also presents the evolution of the stock of U.S. FDI in non-FTA partners before and after our FTAs entered into force. By construction, time zero is the date of entry into force of the agreement.

**Figure 3: Stock of Real U.S. FDI Abroad
Around U.S. Free Trade Agreements**

Stock of Real FDI as Percent of FDI at FTA Enforcement

Note: All values in real 2009 dollars, deflated using the U.S. GDP deflator.
Source: Bureau of Economic Analysis, Direct Investment Position; International Monetary Fund, World Economic Outlook; CEA Calculations.

Our analysis of the relationship between U.S. trade agreements and outsourcing documents that the stock of U.S. FDI in our FTA partners shows no notable increase after enactment of the agreement relative to the increase in U.S. FDI in our non-FTA partners post-enactment. Specifically, looking at GDP-weighted averages of the stock of investment over time, Figure 3 shows that, on average, U.S. FDI in our FTA partners grew by 6.3 percent per year in the five years

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[7] The employment protections measure used in the paper is only available for OECD countries, and thus many less-developed countries are not included in the sample. However, that the paper finds an economically significant relationship among OECD countries suggests that the relationship identified may be even stronger among a wider set of countries.

[8] The analysis that follows uses data from the Bureau of Economic Analysis (BEA) on direct investment positions valued on a historical cost basis. According to Ibarra-Caton and Mataloni (2014), the historical-cost value largely reflects prices at the time of the investment.

pre-FTA enforcement, close to the growth rate of U.S. FDI in our non-FTA partners in the five years leading up to FTA enforcement (8.1 percent per year). There was essentially no trajectory change in the annualized growth rate of U.S. FDI in our FTA partners in the five years following FTA enactment (at 8.4 percent).

Given that one motivation for FDI abroad is to circumvent foreign trade barriers in order to serve the foreign market, this is perhaps not surprising. In fact, some FDI may have been replaced by U.S. exports to those markets post-FTA enforcement (as is suggested in Figure 7-5 of CEA (2015a)), offsetting other potential increases in U.S. FDI associated with the liberalization of rules on overseas investment in the new FTA. Therefore, the evidence in Figure 3 suggests that U.S. firms do not increase net outsourcing when the United States enters FTAs. Although some production could shift offshore to take advantage of new FTA rules, other production that would have shifted offshore could end up staying in the United States, thanks to our improved access to foreign markets.

Figure 4 reports the stock of U.S. FDI in *China's* free trade partners. In this case, the data show unambiguously that when China enters into FTAs, U.S. firms send more foreign investment abroad (outsource more) to China's free trade partners. Likely, U.S. companies take advantage of the preferential access to the Chinese market—a key spoke in the global supply chain—without any countervailing incentives to increase production in the United States (due to reduced trade barriers abroad). Specifically, while the stock of U.S. FDI to China's FTA partners and non-FTA partners grew by around 9-10 percent per year before China's FTAs entered into force, real growth of U.S. FDI in Chinese FTA partners increased to 20 percent per year after China's agreements entered into force, without any comparable change in the growth rate of U.S. FDI in China's non-FTA partners.

Figure 4: Stock of Real U.S. FDI Abroad
Around Chinese Free Trade Agreements
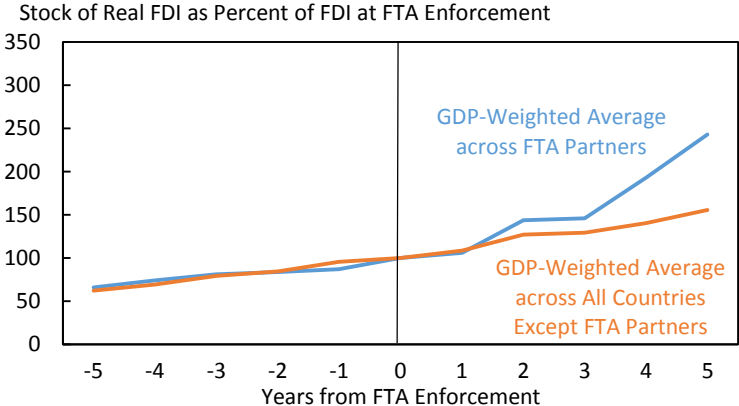
Stock of Real FDI as Percent of FDI at FTA Enforcement

Note: All values in real 2009 dollars, deflated using the U.S. GDP deflator.
Source: Bureau of Economic Analysis, Direct Investment Position; International Monetary Fund, World Economic Outlook; World Bank, World Development Indicators; CEA Calculations.

The trends documented in the previous two charts are further supported by data on other measures of multinational activity around U.S. and Chinese FTAs.

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There are many potential explanations for the descriptive evidence presented in the figures above—for example, there are differences in the types of countries that the U.S. engages with in FTAs as compared with the types of countries with which China engages. Nevertheless, the trends in the data are broadly consistent with the idea that U.S. FTAs do not actually encourage outsourcing abroad. Instead, what may increase the outsourcing of American jobs is to remain in the *status quo*; that is, without the United States to set high-quality labor standards around the world, other countries enter into FTAs of their own and become magnets for outsourcing from the United States. Further research on the relationship between trade agreements, FDI, and jobs can help to elucidate these effects.[9]

Development Effects of Trade

The United States engages in international trade and trade agreements to increase market-access opportunities for U.S. businesses and workers and to lower prices and increase options for U.S. consumers. In addition to these benefits, it is important to recognize the positive impact trade has on global growth and security. The United States benefits directly when the rest of the world is more prosperous and secure—providing a bigger and more stable market for American exports. U.S. trade policy also has implications for labor rights in our trading partners, gender equality, and environmental sustainability.

Increased Economic Growth

When countries specialize in the goods and services they can produce relatively efficiently and trade for the rest, world production and consumption increase as existing global resources are more effectively utilized. Simple international trade theory, therefore, suggests that increased international trade can boost incomes. However straightforward this may seem, it is actually quite difficult to discern empirically a causal relationship between trade and income. For instance, countries may trade more *because* they are richer. Richer countries have better trading infrastructure, such as good ports, and better access to information about opportunities abroad. The fundamental challenge for statistical inference, then, is that while trade may affect income, income also affects trade.

An extensive body of work examines the empirical association between trade openness and per capita income growth. Frankel and Romer (1999) were among the first to attempt to establish a causal picture of the impact of trade on income, arguing that the geographic placement of countries provides a way to isolate a component of trade that is unrelated to income except through its effect on trade. The authors use the distance between countries to predict the amount of their bilateral trade, relying on the well-established relationship that proximity is a strong predictor of trade flows (the so-called "gravity model"). Because a component of trade flows isolated in this manner is highly correlated with income, the authors conclude that trade has a positive causal effect on income.

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[9] Please see CEA (2015b) for further discussion of the relationship between FTAs and outsourcing.

Recent work argues that this approach should be refined to reflect that the distance between countries may be related to non-trade determinants of income. For example, as documented by Acemoglu et al. (2001), current economic development may depend directly on early economic differences that have persisted over time, for example, differences related to geography and climate. Changes in economic distance can help to isolate the impact of transportation costs on income as these operate through the trade channel. Feyrer (2009a) relies on a unique event in recent world history to identify changes in distance between country-pairs—the closure and re-opening of the Suez Canal between 1967 and 1975. For some countries, this increase in sea distance was substantial, and trade between such country-pairs dropped by 20 percent. Since some country-pairs were not affected by the closing, it offers a unique experiment to test how trade impacts income. The author concludes that every dollar of increased trade raises income by about 25 cents.

Relying on another unique measure of time-varying distance between countries to predict international trade, Feyrer (2009b) documents again the importance of international trade for incomes. In this second paper, the author recognizes that the rapid progress in aircraft technology in recent years dramatically changed the effective distances between countries— goods that previously had to circumvent large land masses by ship, can now travel by air via the great circle distance. These changes, therefore, differentially benefited pairs of countries linked by relatively short air routes as compared with sea routes. Using country-specific, time-varying measures of sea distance and air distance, the author concludes that trade has a significant positive effect on income, such that a 1 percent increase in trade raises real income by 0.5 percent.

Trade's potential to raise real income growth in U.S. trading partners holds substantial potential benefits for us. Growth in our trading partners increases the demand for U.S. exported goods. Figure 5 illustrates the strong correlation between growth in U.S. exports and growth in the rest of the world.

Figure 5: U.S. Export Growth vs. Foreign GDP Growth, 2000-2014

Note: Data displayed are quarterly year-over-year growth rates.
Source: Bureau of Economic Analysis, National Income and Product Accounts; National Sources via Haver Analytics.

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Poverty

The world has made historic progress in reducing poverty in recent decades. The total number of poor people around the world fell by nearly half a billion between 2005 and 2010, and the numbers are estimated to fall further in coming years at rates never before seen in history (Chandy and Gertz 2011). Largely due to growth in China and India, across-country global income inequality recently witnessed the first decline since the Industrial Revolution (Milanovic 2013). A range of research shows that trade has played a role in these developments.

Hanson (2007) investigates the case of Mexico in the decade surrounding the implementation of the North American Free Trade Agreement between Canada, Mexico, and the United States. Using state-level variation, the author documents that individuals born in states with high-exposure to globalization have relatively higher wages than individuals born in states with low-exposure to globalization. McCaig (2011) uses the 2001 U.S.-Vietnam Bilateral Trade Agreement (BTA) to study the effects of increased market access to rich countries on poverty in developing countries and finds that a one standard deviation decrease in provincial tariffs is associated with a two-year rate of poverty reduction of between 33 and 40 percent. By contrast, work by Topalova (2007, 2010) on India's 1991 trade liberalization provides a different view. Although the incidence of poverty in rural India fell 13 percentage points around the liberalization—from 37 percent in 1987 to 24 percent in 1999—areas of that country more exposed to trade experienced progress toward poverty reduction that was not as rapid as other areas.

Better Working Conditions

A common argument against trade integration with countries in the developing world is the poor labor standards of those countries. However, research finds that expanding access to U.S. markets promotes higher-quality employment in less-developed countries as workers shift from informal to formal employment, with little empirical evidence that local tariff reductions have an offsetting effect—meaning that the forces unleashed by trade itself complement the effort to include enforceable labor standards in our FTAs.

A recent paper by McCaig and Pavcnik (2014) finds that employment shifts from the household business (informal) sector to the formal enterprise sector in Vietnam in the aftermath of large U.S. tariff reductions as part of the U.S.-Vietnam BTA. Similarly, Paz (2014) reports that decreases in foreign market tariffs decrease domestic informal employment in Brazil, while early work by Goldberg and Pavcnik (2003), supported in Menezes-Filho and Muendler (2011), finds no evidence of a link between declining import tariffs in Brazil and informal employment. More importantly, work by Edmonds and Pavcnik (2005) documents a decrease in child labor associated with increased international trade in Vietnam.

This is important because jobs in the informal sector are associated with lower wages, lower employee benefits, worse working conditions, and lower job quality. McCaig and Pavcnik (2014) report that workers in household businesses earn about 14 percent less than observationally equivalent workers in the formal sector (in the same industry, province, and occupation). Workers that switch to formal work (controlling for unobserved worker characteristics) earn about 5 percent more than when they worked in a household business. Relying on information

from the Colombian National Household Survey, Goldberg and Pavcnik (2003) offer evidence that informal sector work is associated with lower job and workplace satisfaction, very few benefits, lower incidence of job training, and higher uncertainty about duration of employment. Formal workers are more likely to receive individual benefits such as health coverage, dental coverage, vacations, incentive bonuses, maternity leave, unemployment benefits and pensions, sick leave, transportation benefits, insurance, and family subsidies. In fact, 83 percent of informal workers report receiving no benefits through their job—this number is only 4 percent for formal workers.

Therefore, trade agreements that expand U.S. market access for countries at a lower level of development can provide a market-based approach to improving labor conditions in the developing world.[10] High standard U.S. trade agreements also contain commitments to promote and enforce workers' rights. In fact, Dewan and Ronconi (2014) analyze whether FTAs signed between the United States and Latin American countries during the last decade produced higher enforcement of labor regulations. Their estimates suggest that signing an FTA with the United States increased both inspection resources (the number of inspectors) and inspection activities (the number of inspections).

In addition, recent studies by the Bureau of International Labor Affairs (ILAB) of the U.S. Department of Labor (DOL) assess the advancement of U.S. preferential trading partners in combating the worst forms of child labor (ILAB 2012, 2013, 2014), as required by the Trade and Development Act of 2000. Table 7 presents simple statistics based on data in these reports.[11] Across all three years, U.S. FTA partners were more likely than non-FTA partners to be assessed by DOL as having "significantly advanced" in combating child labor. In particular, in 2013, 36 percent of U.S. FTA partners "significantly advanced," while only 7 percent of non-FTA partners "significantly advanced." In fact, five of the 13 countries that DOL assessed as having "significantly advanced" are U.S. FTA partners. Meanwhile, while approximately 11 percent of non-FTA partners were assessed in 2013 as having made "no advancement," no U.S. FTA partners were in this category. Over all three years of data availability, U.S. FTA partners were less likely to make "no advancement".

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[10] Salem and Rozental (2012) provide a review of the literature on labor standards and trade.
[11] Admittedly, these data provide only suggestive correlative evidence, and cannot be used by themselves to infer a causal relationship.

Table 7: U.S. Free Trade Agreements and Child Labor

	2011		2012		2013	
	FTA Partners	non-FTA Partners	FTA Partners	non-FTA Partners	FTA Partners	non-FTA Partners
Percent of Countries identified as:						
No Advancement	8.3	17.5	7.1	10.3	0.0	10.7
Minimal Advancement	33.3	44.4	14.3	37.6	21.4	28.1
Moderate Advancement	50.0	37.3	57.1	46.2	42.9	54.5
Significant Advancement	8.3	0.8	21.4	6.0	35.7	6.6
Observations	12	126	14	117	14	121

Source: U.S. Department of Labor, *Findings on the Worst Forms of Child Labor*, 2011-2013.

In addition to the assessments in each year, Table 7 also documents that as a group FTA partners were more likely to earn improved assessments over time. Notably, between 2011 and 2013, the likelihood that an FTA partner "significantly advanced" increased by 27 percentage points, as compared to only a 6 percentage point increase for non-FTA partners. Moreover, in the three years of data, no FTA partner was ever assessed to have regressed in combating child labor. By contrast, between 2011 and 2012, 9 percent of non-FTA partners regressed, and between 2012 and 2013, 16 percent of non-FTA partners saw downgraded assessments.

Finally, though most U.S. FTAs entered into force long before DOL began reporting on countries' advancement in combating the worst forms of child labor, two countries (Colombia and Panama) entered into free trading arrangements with the United States over the period of assessment. Interesting, although with no necessary implication of a causal relationship, is the fact that Colombia's assessment improved to "significantly advanced" in 2012, the year it entered into an FTA with the United States, from "minimal advancement" the year before. Similarly, Panama achieved "moderate advancement" in 2012, the year it entered into an FTA with the United States, as compared to "minimal advancement" the year before.

Stronger Environmental Protection

Trade agreements can raise environmental standards in countries that otherwise would not be motivated to raise standards on their own. In fact, the United States has a long history of pursuing mutually supportive trade and environmental policies, and has found that strong, enforceable environmental provisions pursued as part of our bilateral and regional trade agreements can help raise environmental standards in our trading partners, leveling the playing field for workers and businesses in America.

In addition to this values-driven approach to trade policy, there are two broad channels through which trade can impact the environment: by changing the *level* of economic activity within trading countries (known as the "scale effect"), and by changing the *composition* of economic activity among trading countries (known as the "composition effect"). In each channel, there are ways in which trade can help encourage sustainable development and promote environmental protection.
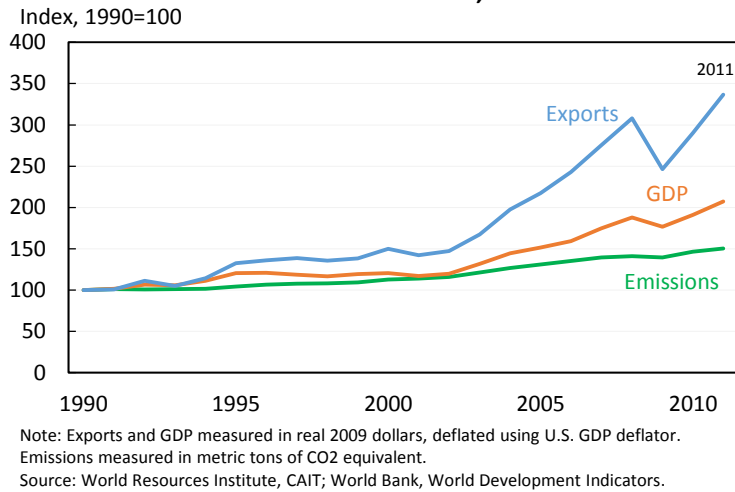
It is well-established that increases in trade activity among countries go hand in hand with increases in their overall economic activity. Environmentalists often point to this increase as a cause for worry. A greater scale of economic activity likely means increases in transportation, shipping, production, and consumption—all pollution-emitting activities. Note, however, that much of this concern would apply to any policy that increases productivity growth, including expanded research and education.

Higher productivity is associated with higher real incomes. Greater prosperity, in turn, can benefit the environment in multiple ways. Higher real incomes create opportunities for investment in R&D in clean technology, allowing countries to "clean-up" production techniques. Higher real incomes can also generate greater ability and willingness to adopt, enforce, and pay for higher standards of environmental quality. For example, with more disposable income, families might be willing to pay a little extra to buy a hybrid car, or install solar panels for home-electricity generation.

Ultimately, increased economic activity both generates and curbs pollution; the overall effect on the environment depends on the relative magnitudes of each change. Empirical studies have produced relatively consistent results showing that trade does increase pollution, but also that accompanying emissions reductions from cleaner technology are enough to offset that increase. For instance, Antweiler, Copeland, and Taylor (2001) remark that if trade liberalization raises GDP per capita by 1 percent, then pollution concentrations fall by about 1 percent. The authors decompose this effect as follows: a 1 percent increase in the scale of economic activity raises pollution by around 0.5 percent, but the increase in income associated with international trade drives down pollution by around 1.5 percent. Similarly, Copeland and Taylor (2003) estimate the technique elasticity of pollution reduction with respect to income to be negative and greater than 1 in absolute value; that is, a given increase in real income is associated with an even greater reduction in pollution in percentage terms. Grether, Mathys, and de Melo (2010) analyze data on 62 countries and 7 manufacturing sectors and show that increases in worldwide trade flows between 1990 and 2000 are associated with a 2 to 3 percent decrease in global sulfur dioxide emissions. Further, they show that manufacturing industries have become much cleaner over time—while, globally, manufacturing's employment and output levels rose 10 to 20 percent between 1990 and 2000, manufacturing emissions decreased by 10 percent. In other words, the evidence suggests that, likely due to a global shift toward cleaner technology, the net effect of increased trade on pollution is less than or equal to zero.
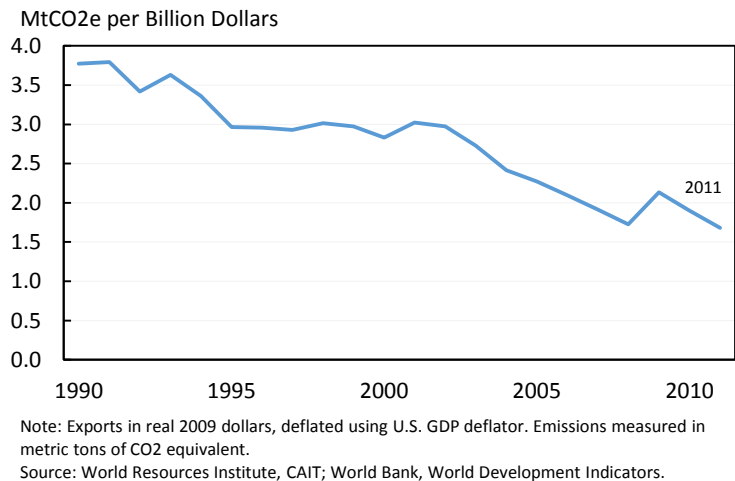
Figure 6 provides a basic visual illustration to support the findings of the existing academic literature. Looking at the relationship between the growth in world exports, world greenhouse gas emissions, and world output, it is clear that on a global scale, emissions have increased along with increases in trade and output, but at a much slower rate. Between 2002 and 2008, in particular, though exports surged, emissions did not.

**Figure 6: Global Exports, GDP, and
Greenhouse Gas Emissions, 1990-2011**

Index, 1990=100

Exports

GDP

Emissions

2011

Note: Exports and GDP measured in real 2009 dollars, deflated using U.S. GDP deflator.
Emissions measured in metric tons of CO2 equivalent.
Source: World Resources Institute, CAIT; World Bank, World Development Indicators.

Looking at the data another way, Figure 7 shows that emissions per dollar exported have actually decreased over time, illustrating the global shift toward cleaner production technologies.

**Figure 7: Global Emissions per
Billion Dollars of Exports, 1990-2011**

MtCO2e per Billion Dollars

2011

Note: Exports in real 2009 dollars, deflated using U.S. GDP deflator. Emissions measured in
metric tons of CO2 equivalent.
Source: World Resources Institute, CAIT; World Bank, World Development Indicators.

Composition Effect

Compositional changes that occur in the economies of trading partners as trade promotes production specialization are a second mechanism behind trade's environmental impacts. A popular assumption is that specialization will send the most heavily polluting industries from rich countries with stricter environmental regulation to poor countries, which have relatively lax regulation. Theoretically, this migration would lead to an increase in world pollution levels and the creation of "pollution havens" in developing countries that, as exporters of the "dirtiest" goods, would bear a disproportionate amount of global pollution burdens. In a worst-case scenario, environmentalists say, a race-to-the-bottom in environmental regulation could ensue

if developed countries were to see an incentive to slow down efforts to raise environmental protection in an effort to forestall the "dirty" industries' emigration. True, not all parties in a trade relationship can specialize in the cleanest industries, but concerns about "pollution havens" and races-to-the-bottom are belied by the empirical evidence. In fact, there is reason to believe that compositional changes could actually yield net environmental benefits.

Developed countries tend to be the best equipped for production of high-polluting goods since the most-polluting industries, which include the manufacture of chemicals, metals, and paper, and oil refining, are capital intensive. The basic economic theory of comparative advantage suggests that those industries belong in countries with abundant capital—the richer, developed countries. Poorer countries with less capital on hand are more likely to specialize in industries that are more service-oriented and labor-intensive, and less polluting. If this is true, the compositional effects of trade could actually lead to reductions in global emissions, as pollution-intensive production would occur in countries with stricter standards.

Of course, the issue is slightly more complicated, as environmental regulation can increase the marginal cost of production in polluting industries, driving them to less regulated countries. According to a 1999 World Trade Organization (WTO) report, however, the increased marginal cost of pollution abatement in developed countries is no more than 1 percent of production costs for the average polluter (a maximum of 5 percent for the worst polluters). Such small costs are likely not powerful enough to deter production and send it elsewhere and, according to the WTO, the developed-country share of global production in polluting industries has remained relatively constant at around 75 to 80 percent over the past few decades (Nordstrom and Vaughan 1999). Regardless of environmental regulation, standard non-environmental comparative advantage considerations seem to dominate location decisions.

Broader Inclusion and Participation

Trade promotes competition, which helps reduce discrimination and furthers social inclusion. Research has documented a decrease in discrimination-based wage gaps based on gender, race, and immigration status in the aftermath of increased trade. Research also confirms that greater openness to trade, as measured by lower tariff rates, is correlated with better human-rights conditions.[12]

Gender and Racial Equality

Promoting equality is a key development goal in both the developing world and in the United States. Importantly, since trade promotes international competition, it may also reduce firms' leeway to discriminate against women and other traditionally disadvantaged groups. The classic Becker (1957) model of discrimination predicts that costly discrimination cannot persist with increased market competition. Therefore, as trade liberalization results in increased competition in the domestic market, discrimination-based wage gaps should narrow.

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[12] Research also supports the idea that increased economic cooperation through trade improves political cooperation, reducing worldwide violent conflict. See Chapter 7 of CEA (2015a) for further discussion.

In line with the theory, by investigating trade-affected manufacturing industries in the United States between 1976 and 1993, Black and Brainerd (2004) find that the residual gender wage gap narrowed more rapidly in initially more concentrated industries that experienced larger increases in competition with trade reform than in initially more competitive industries. Klein, Moser, and Urban (2010) confirm this result for the case of Germany, demonstrating that increasing exports diminished the manufacturing gender wage gap in that country.

If trade promotes competition and reduces discrimination, we should see decreases in other non-productive wage gaps. In fact, Essaji, Sweeney, and Kotsopoulos (2010) found that trade exposure helped narrow the racial wage gap in the United States by about 1.4 percentage points between 1983 and 1993 and Klein, Moser, and Urban (2010) document a similar decrease in the wage discount suffered by immigrants in Germany.

Akin to our analysis of the exporter wage premium, CEA collected data from the CPS on annual earnings of women and men in 3-digit NAICS industries in order to assess the impact of increased international competition on the gender wage gap. For each industry, we calculate the gender earnings ratio as the average wage across all women employed in the industry relative to the average wage across all men employed in the industry. In the beverage and tobacco manufacturing industry, female earnings are particularly low, reported to be only 18.7 percent of average male earnings. Meanwhile, in textile product mills, average female wages are almost 3.5 times average male earnings. These industry-level gender wage gaps are then matched to industry-level tariff rates for the years 1989-2009.

Table 8 reports coefficient estimates for a panel estimation with industry and year fixed effects relating tariffs to the gender wage ratio, with the idea that decreasing tariffs increases foreign competition in the industry, thereby reducing the gender wage gap. CEA's estimates show that industries with larger tariff declines over the 1990s and 2000s experienced larger relative income gains for women. A 10 percentage point decrease in tariffs is associated with approximately a 1 percentage point increase in female annual earnings relative to male annual earnings. As we remark earlier, average tariffs in the United States are already very low, and therefore, changes in U.S. tariffs over this time period were also quite small. It is no surprise, then, that the improvement in the gender wage gap that can be attributed to tariff changes is also very small.

While not large, it is another way that expanded trade integration produces benefits for middle-class families. Moreover, the precision of our estimates is suggestive of the potentially larger impact of trade on middle-class families and gender income inequality, once the full range of competition-enhancing policy changes, beyond tariff changes, associated with new trade agreements come into effect.

Table 8: Trade and the Gender Wage Gap

	Gender Earnings Ratio
Tariff	-0.0741*** (0.0193)
Industry Fixed Effects	YES
Year Fixed Effects	YES
Control for Industry Size	YES
Observations	420

Note: Tariffs are the simple average of applied rates. Robust standard errors, clustered at the industry level, are in parentheses. *** denotes significance at the 1-percent level, ** denotes significance at the 5-percent level, and * denotes significance at the 10-percent level. The panel dataset comprises 21 industries over the 1990-2009 period. Industries are defined according to NAICS and are disaggregated to the three-digit level.

Source: Data on earnings by gender and industry are from the U.S. Census Bureau, Current Population Survey, as downloaded from the IPUMS-CPS, University of Minnesota. Data on total shipments by industry are from the NBER Manufacturing Industry Database. Data on tariff rates are from the World Integrated Trade Solution database maintained by the United Nations Statistical Division.

Democracy and Human Rights

Opponents of trade agreements with less-developed countries often point to human rights abuses in those countries as reasons not to engage economically. Though assessing a causal relationship between trade openness and democratic institutions, political liberties, or civil liberties is difficult, the idea that globalization can promote the spread of democratic ideas goes as far back as Kant (1795). The international exchange of goods and services allows for the exchange of ideas and methods, promoting political competition. Alongside the natural force of globalization, many current regional trade agreements also include provisions related to human rights, such as privacy rights, political participation, due process, access to information, cultural rights, indigenous rights, and access to affordable medicines (Aaronson and Chauffour 2011). Does international trade foster democracy and human rights? Rigorous empirical research in economics suggests the answer is yes.

López-Córdova and Meissner (2005) is among the best studies trying to estimate a link from trade openness to democracy. Following the long literature estimating the link between trade and income (discussed earlier), the authors employ a gravity model specification to obtain instruments for international trade openness, using information dating back to 1870. Their work reports a positive impact of trade openness on democratization. Democratization is proxied by the composite index score from the Polity IV data set, which summarizes a country's political system based on competitiveness in executive recruitment, constraints on the executive, and competitiveness in political participation. The authors note that "[b]etween 1920 and 1938 countries more exposed to international trade were less likely to become authoritarian."

Eichengreen and Leblang (2006) also rely on the gravity model for their instrumental variables analysis, which seeks to disentangle the two-way causality between democracy and trade. Like López-Córdova and Meissner (2005), they find that trade openness promotes democracy. In the Eichengreen and Leblang (2006) paper, a country is coded as democratic if it has elections where

more than one party competes. As this definition means that Croatia is as "democratic" as the United Kingdom, the authors also employ a continuous democracy variable that captures the length of time a country has been a democracy. Across both measures, trade is a strong predictor of democratic institutions.

Beyond democratic political institutions, Sykes (2003) provides a compelling argument for human rights as a "normal good"—that is, the growth in income that international trade provides will promote human rights. Relying on data for 195 countries on average tariff rates and four measures of the quality of human rights (the Humana Rating, from the 1991 Human Rights Guide; the Economic Freedom Rating for 2000, prepared by the *Wall Street Journal*; the Freedom House Political Rights Rating; and the Freedom House Civil Liberties Rating), Sykes (2003) confirms that greater openness to trade, as measured by lower tariff rates, is correlated with better human-rights conditions.

III.   Sector-Specific Trends in U.S. Trade

As policy barriers in the U.S. and around the world come down, the United States is increasingly more integrated with the rest of the world.[13] Exports and imports as a percentage of GDP have roughly tripled in the decades since 1970. Still, in 2014 the United States remains a relatively closed economy, as exports and imports represent only 13 percent and 16 percent of GDP, respectively.[14]

Part of this reflects still high NTBs to international trade and investment in the rest of the world, particularly for trade in services—a growing component of U.S. and international trade. Consider, for example, the changing composition of U.S. exports from 1980 to the present, as depicted in Figures 8a and 8b. Manufactured goods comprise the bulk of U.S. exports, consistently representing around 60 percent of total U.S. goods and services exports. By contrast, agriculture's share of total exports declined from 15 percent in 1980 to only 6 percent in 2014, while the share of services among total U.S. goods and services exports increased from 18 percent in 1980 to 30 percent in 2014. The share of other goods has also fallen over time, from 8 percent in 1980 to 4 percent in 2014.

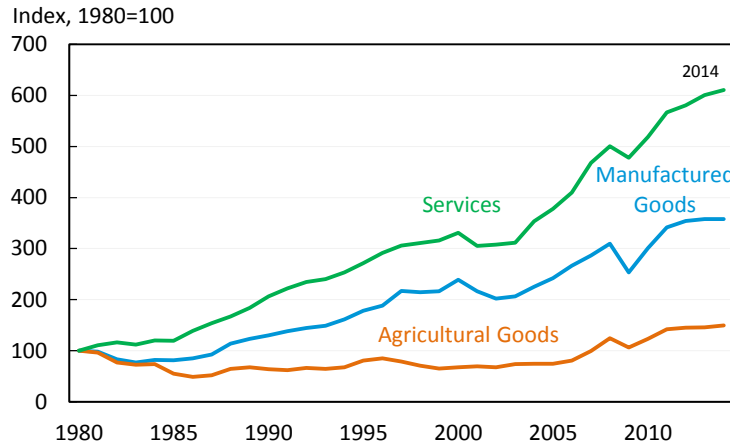**Figure 8a: Composition of U.S. Exports, 1980**
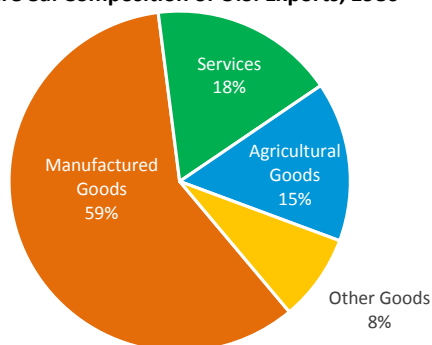
Source: U.S. Census Bureau, Foreign Trade Statistics; Bureau of Economic Analysis, International Services; U.S. Department of Agriculture, Foreign Agricultural Trade of the United States; CEA Calculations.

Figure 8b: Composition of U.S. Exports, 2014
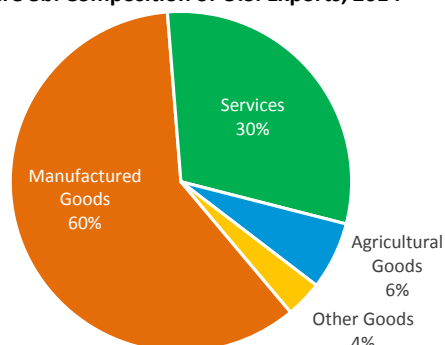
Source: U.S. Census Bureau, Foreign Trade Statistics; Bureau of Economic Analysis, International Services; U.S. Department of Agriculture, Foreign Agricultural Trade of the United States; CEA Calculations.

The relatively strong growth of U.S. services exports since 1980, as compared to merchandise exports (both manufactured and agricultural goods), is depicted in Figure 9. In real terms, U.S. services exports have grown 6-times over, this growth picking up speed in 2000 with the digital revolution. Real manufactured goods exports have almost quadrupled since 1980, while real agricultural exports have grown by about 50 percent in the last three-and-a-half decades.

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[13] Please see Chapter 7 of CEA (2015a) for further background on U.S. and world trade.

[14] By comparison, in 2014, respectively, Germany's exports and imports represent 46 percent and 39 percent of its GDP, and China's exports and imports represent 25 percent and 22 percent of its GDP, respectively.

Figure 9: U.S. Exports of Goods and Services, 1980-2014

Index, 1980=100

Note: All values in real 2009 dollars, deflated using the U.S. GDP deflator.
Source: U.S. Census Bureau, Foreign Trade Statistics; Bureau of Economic Analysis, International Services; U.S. Department of Agriculture, Foreign Agricultural Trade of the United States.

These sector-specific trends in U.S. exports are in part a reflection of broader changes in the U.S. economy. Figure 10 depicts sector-specific shares of total U.S. GDP and total civilian employment since 1947.

Figure 10: Share of Employment and GDP in the Services, Manufacturing, and Agricultural Sectors, 1947-2014
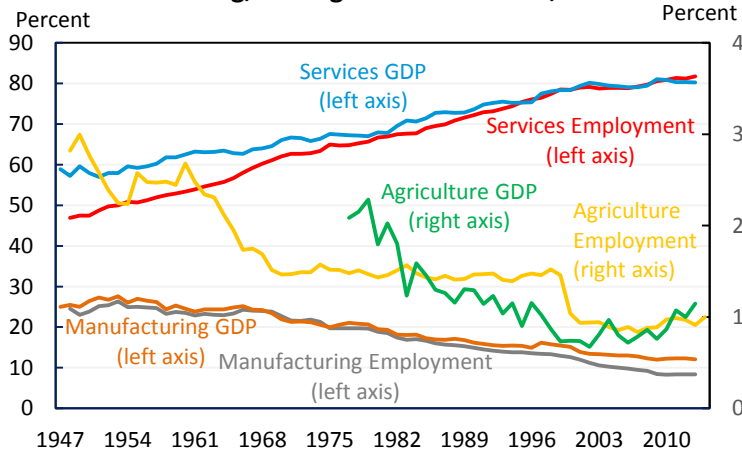
Source: Bureau of Economic Analysis, National Income and Product Accounts; Bureau of Labor Statistics, Household Survey and Payroll Survey.

Services industries comprise about four-fifths of the U.S. economy, and employ over 80 percent of American workers. More importantly, the shares of services in U.S. GDP and U.S. employment have been steadily rising since the middle of the last century, growing over 20 percentage points and almost 35 percentage points, respectively, since data collection began.

Meanwhile, the manufacturing sector currently makes up about 12 percent of the U.S. economy, and employs roughly 8 percent of American workers. In sharp contrast to services, the shares of manufacturing in U.S. GDP and U.S. employment have been steadily declining since the middle

of the last century. In fact, manufacturing's share of the U.S. economy has more than halved since its peak at around 28 percent of GDP in the early 1950s, when manufacturing employed roughly one in every four American workers. Agriculture's decline has been no less significant, though on a much smaller scale, with agriculture's share of the economy falling from 2 percent of GDP in 1977 to just over 1 percent of GDP in 2014, and agriculture's share of employment falling from around 3 percent since data collection began to around 1 percent today.

Part of the reason for these employment share trends is the comparatively rapid growth of labor productivity in manufacturing and agriculture, as compared to services (see Figure 11). This high productivity growth allows manufacturing prices to fall compared to the prices of services, thereby reducing the overall weight of manufacturing value-added in national value-added. Moreover, as people get richer, they increase spending on items like housing, as well as services like health care, travel, and restaurants, more than they increase their spending on manufactured goods such as cars or televisions. Therefore, services employment must increase to keep up with this growing demand. These trends are apparent in all industrial countries.

Figure 11: Labor Productivity in Services, Manufacturing, and Agricultural Sectors, 1947-2014
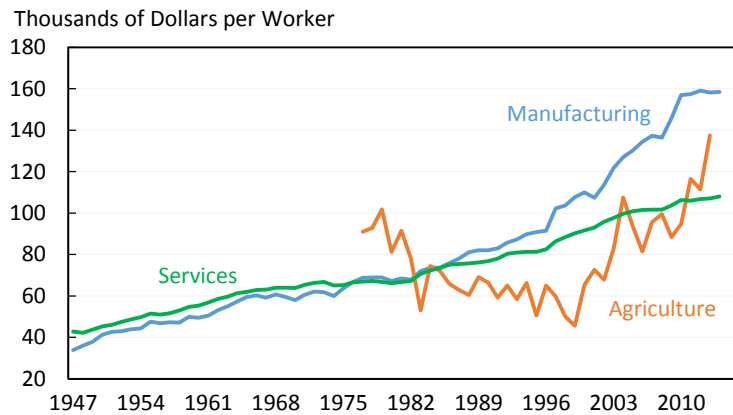
Note: All values in real 2009 USD, deflated using the U.S. GDP deflator.
Source: Bureau of Economic Analysis, National Income and Product Accounts; Bureau of Labor Statistics, Household Survey and Payroll Survey.

In what follows, we consider the role of international trade in each of these three major components of the U.S. economy.

The Rise of Services Trade

Despite the prevalence of services in the economy, there is a dearth of research investigating the impact of international trade in services. The cross-border flow of physical goods is easy to measure as goods pass through customs authorities. Services trade, on the other hand, is less straightforward to document, as many services are delivered digitally and thus have no single

point of crossing.[15] The General Agreement on Trade in Services, a WTO agreement that came into force in 1995, defines four modes of services trade:
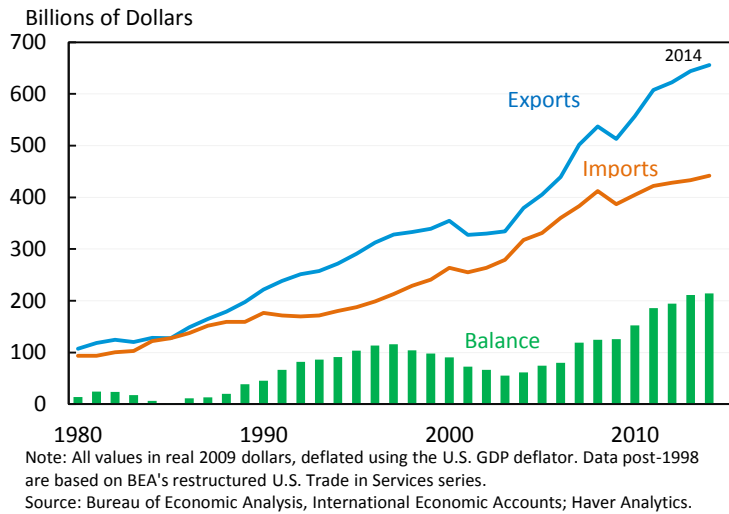
- First, services trade occurs when a service produced in one country is consumed in another country; for instance, when Hollywood movies show in theaters abroad.

- Second, services trade occurs when consumers from abroad purchase local services, such as when foreigners travel to the United States for vacation, for an education, or for health care services.

- The third mode of services trade occurs through FDI; for instance, when a U.S. bank opens a branch abroad to offer financial services in other countries.

- The fourth mode of services trade occurs when individual service providers from one country travel to supply services in another country. An example would be an American academic receiving a fee to present an educational seminar abroad.

Apart from limited data, the lack of research on services trade also reflects that services, which require interaction between producers and customers, were long thought to be non-tradable—the classic example of the non-tradable service being the haircut. While haircuts are still unlikely to be traded, the rapid rise in Internet access and capacity to move data around the world at low cost has created entirely new export opportunities for services providers and American small businesses. This growth in information technology and declining transportation costs have facilitated a strong rise in trade in services like education, health care, tourism, as well as the many business and professional services associated with trade in goods (telecommunications, finance, distribution, insurance, and more). The spread of multinational firms and the worldwide subdivision of production processes have also contributed to this rise.

In 2014, U.S. services exports measured approximately $710 billion, or 30 percent of total U.S. exports, while imports of services were about $480 billion, or 17 percent of total U.S. imports. Together, services trade accounted for almost 7 percent of U.S. GDP in 2014. As depicted in Figure 12, these levels reflect rapid growth since 1980; real U.S. services exports grew by 613 percent over the 34-year period to 2014, or at a 5.6-percent average annual rate. The United States maintains a strong and growing surplus in services.
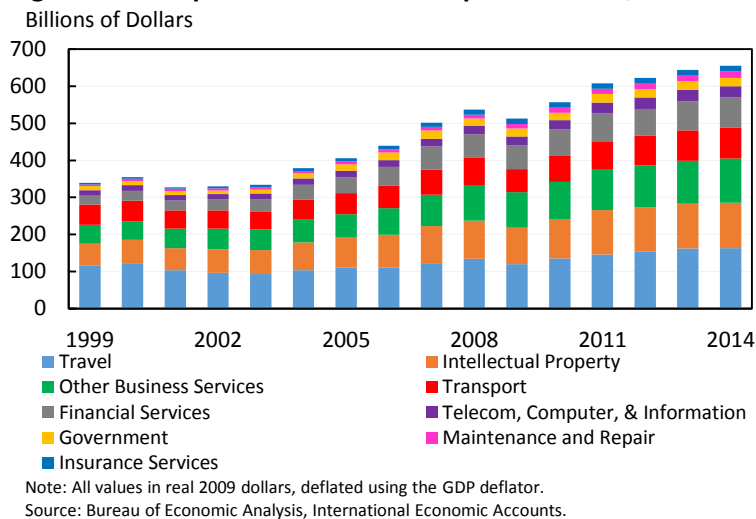
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[15] The Economics and Statistics Administration of the U.S. Department of Commerce estimates that in 2011 over 60 percent of U.S. services exports and about 17 percent of total U.S. goods and services exports are delivered digitally (Nicholson and Noonen 2014).

Figure 12: U.S. Trade in Services, 1980-2014

Billions of Dollars

Note: All values in real 2009 dollars, deflated using the U.S. GDP deflator. Data post-1998 are based on BEA's restructured U.S. Trade in Services series.
Source: Bureau of Economic Analysis, International Economic Accounts; Haver Analytics.

The BEA characterizes nine broad categories of tradable services: insurance; government; financial; travel; maintenance and repair; telecom, computer, and information; transport; intellectual property; and other business services. Figure 13 illustrates the composition of the growth in real U.S. services exports since 1999. Though all categories have been growing in the last decade and a half, contributing to the overall rise in U.S. services exports, real exports of insurance services have been growing at the fastest pace, quadrupling between 1999 and 2014. Real exports of financial services also increased, since detailed data collection began in 1999, by over 200 percent—from $24 billion to $82 billion in 2014, expressed in 2009 dollars.

Figure 13: Composition of Services Exports Growth, 1999-2014

Billions of Dollars

Legend:
- Travel
- Intellectual Property
- Other Business Services
- Transport
- Financial Services
- Telecom, Computer, & Information
- Government
- Maintenance and Repair
- Insurance Services

Note: All values in real 2009 dollars, deflated using the GDP deflator.
Source: Bureau of Economic Analysis, International Economic Accounts.

Like tariffs on goods trade, the United States already maintains a relatively open services trade regime. The OECD calculates a Services Trade Restrictiveness Index (STRI), to function as a tariff-equivalent for services trade. The United States has relatively low services barriers to trade,

according to the OECD (see Figure 14). In fact, as compared to the sector average across the 40 countries analyzed by the OECD (34 OECD members, plus Brazil, China, India, Indonesia, Russia, and South Africa), the United States has lower barriers to services trade in 14 out of 18 different service sectors. Liberalizing services trade through U.S. agreements around the world will unlock new opportunities for American workers and businesses. In fact, Jensen (2011) reports that services are still five times less likely to be exported than manufacturing products. If services reached the same export potential as manufactured goods, U.S. exports could increase by as much as $800 billion.

Figure 14: U.S. Services Trade Restrictiveness Index by Sector and Policy Area, 2014
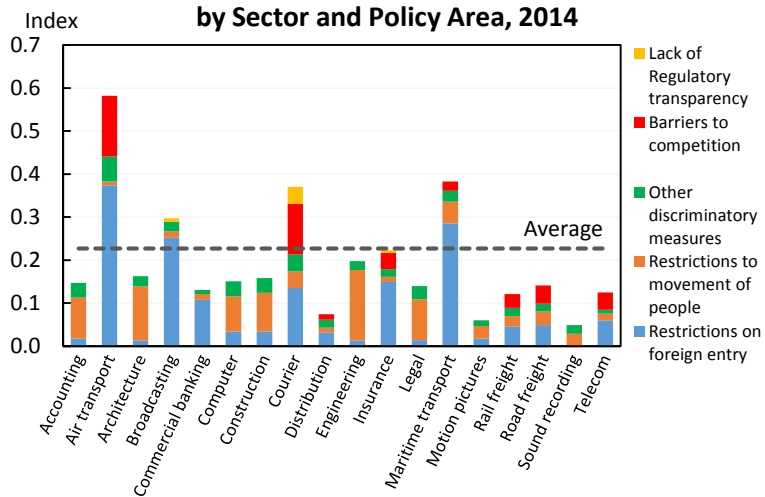
Source: Organisation for Economic Co-operation and Development.
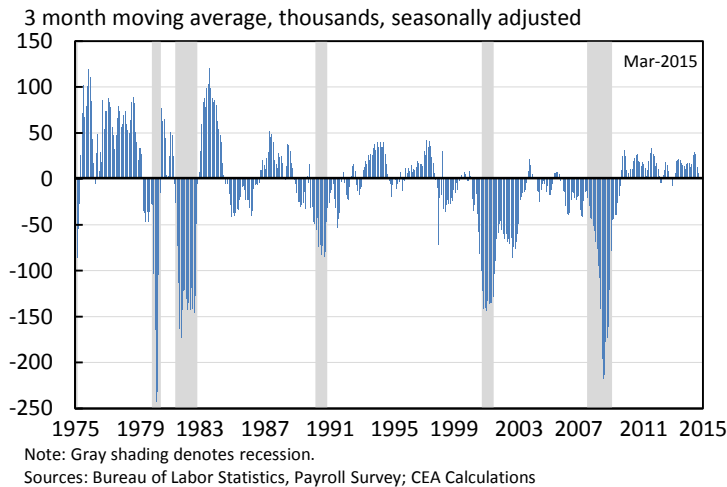
Manufacturing Rebound

In October 2014, President Obama issued a proclamation declaring a National Manufacturing Day. At that time, the U.S. labor market had witnessed 56 months of consecutive job growth and the unemployment rate stood at 5.8 percent, the lowest rate since before the Great Recession. Since then, the positive trend has continued, with manufacturers creating 866,000 new jobs since the sector's turning point in 2010.

Today, the United States is increasingly competitive for manufacturing jobs, investment, and exports. For the last three years, the United States has been ranked #1 in AT Kearney's FDI Confidence Index, and, in 2013, the United States surged past countries like China, Brazil, and India, for the first time since 2002, to become the most attractive country for investment globally (A.T. Kearney 2015). At the same time, U.S. exports of manufactured goods have increased by over 40 percent, from $918 billion in 2009 to $1.3 trillion (measured in 2009 dollars) in 2014— far outpacing growth in total U.S. goods and services exports. This growth has reduced the U.S. manufactured goods trade deficit by almost 20 percent since its peak in 2006.

However, despite the increasing competitiveness of U.S. manufacturing for investment and exports, among critics of international trade and trade agreements a central concern is that
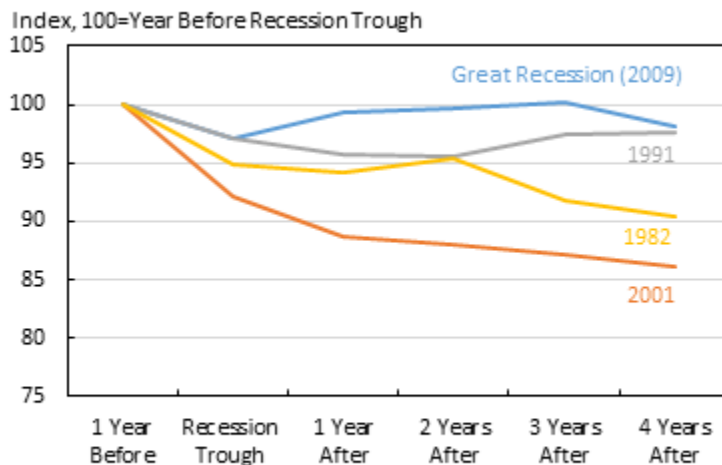
expanded trade might put the recent strength in U.S. manufacturing employment at risk.[16] But, as Figure 15 illustrates, the past periods of major decline in manufacturing employment largely coincide with economic recessions, not with new trade agreements. Conversely, manufacturing growth has been an important part of the most recent economic recovery, and it has been fueled by strong growth in manufacturing exports.

Figure 15: Monthly Change in Manufacturing Employment, 1975-2015

3 month moving average, thousands, seasonally adjusted

Note: Gray shading denotes recession.
Sources: Bureau of Labor Statistics, Payroll Survey; CEA Calculations

Manufacturing's rebound since the Great Recession can also be seen in Figure 16. Starting in 2009, manufacturing output has increased as a share of U.S. value-added, in marked contrast to the pattern seen in all other recent U.S. recessions.

Figure 16: Manufacturing Output Rebound by Recession

Index, 100=Year Before Recession Trough

Note: Index of the share of manufacturing value added to total output.
Source: United Nations, National Accounts Main Aggregates Database; Celasun, Di Bella, Mahedy, and Papageorgiou (2014).

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[16] For a discussion of the manufacturing employment effects of trade with China, please see Box 7-2 in CEA (2015a).

The rapid growth of U.S. manufacturing exports has helped support this dramatic rebound in the U.S. manufacturing sector coming out of the Great Recession. Sustaining this rapid growth in U.S. manufacturing exports is why it is so important to bring down foreign barriers to U.S. exports: increasing world demand for American-made manufactures is an integral component of growth in U.S. manufacturing jobs and manufacturing wages.

Robust Agricultural Trade

International trade has always been important to U.S. farm and rural economies, from early colonial days when tobacco and cotton were the most important export commodities, to today's exports of large amounts of grain, oilseeds, and processed foods. As documented in Figure 17, exports of agricultural goods have displayed robust growth since 1990, with the value of those exports more than doubling in real terms.

Figure 17: U.S. Agricultural Trade, 1980-2014

Billions of Dollars
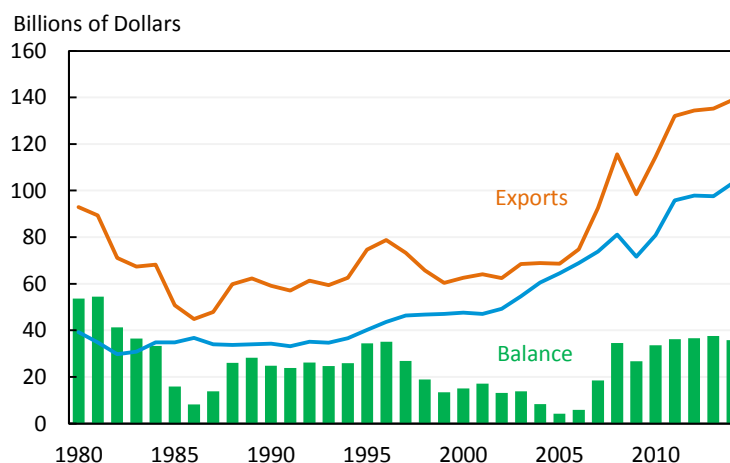
Note: All values in real 2009 dollars, deflated using the U.S. GDP deflator.
Source: U.S. Department of Agrigulture, Foreign Agricultural Trade of the United States.

Though today agriculture accounts for a relatively small share of U.S. GDP, U.S. agricultural trade accounts for 6 percent of all U.S. trade. In fact, agricultural exports have outpaced agricultural imports in recent years, generating a surplus in agricultural trade (see Figure 17). This agricultural trade surplus (at $43 billion in 2014) helps to offset some of the nonagricultural trade deficit. Moreover, USDA's Economic Research Service (ERS) estimates that each dollar of agricultural exports stimulated another $1.22 in related business activity (ERS 2013). Therefore, in 2014 when the United States exported $155 billion in agricultural goods, based on ERS calculations, total economic output increased by almost $350 billion.

Since 1995, U.S. exports have expanded across a number of bulk and high-value product categories, highlighting the importance of international trade for U.S. agriculture. In 2014, oilseeds and pulses, horticulture products, and grains and feeds represented the largest export categories for U.S. agriculture (see Figure 18).

Figure 18: Top U.S. Agricultural Exports, 2014

Billions of Dollars
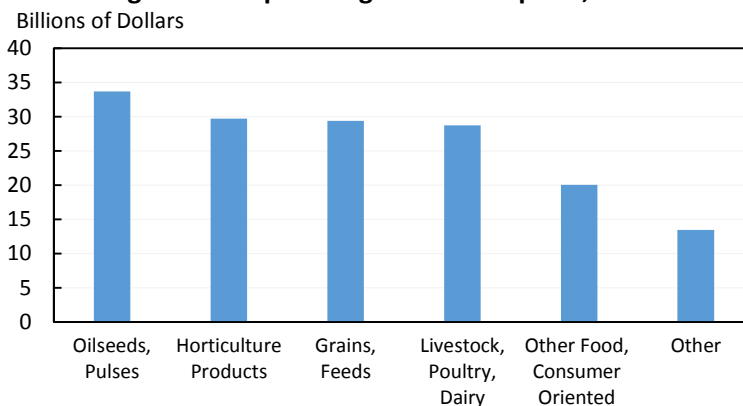
Note: Oilseeds include soybeans and soybean meal and oil. Horticulture products include fresh and processed vegetables and whole and processed nuts. Grains and feeds include wheat, rice, corn, feeds and fodders, and other coarse grains. Other includes cotton, tobacco, and other bulk commodities.
Source: U.S. Department of Agriculture, Foreign Agricultural Service.

Foreign buyers account for a substantial share of the current production volume for many U.S. commodities (see Figure 19). For example, in 2014 approximately one-half of the wheat, rice, and soybeans produced in the United States were exported. Even more impressive, over two-thirds of U.S. almond and walnut production was exported and about 80 percent of cotton and pistachios.

Figure 19: Select U.S. Agricultural Exports as a Share of Production, 2014

Percent
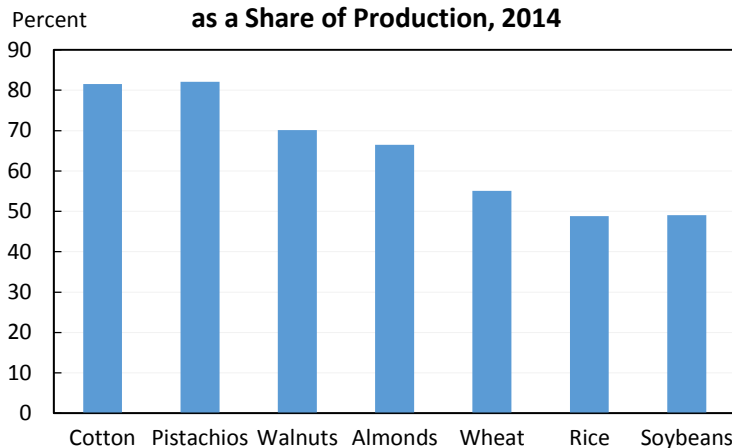
Note: Data are for marketing year 2013/14.
Source: U.S. Department of Agriculture, Foreign Agricultural Service.

In addition, trade opens up access to markets that put significantly higher value on products that have little demand in the United States, offering U.S. producers a new overseas market revenue source and further supporting farm and processor profitability. For example, according to the Office of the Chief Economist (OCE) at USDA, in the meat sector, parts of a carcass have little or no value to U.S. consumers, but are highly prized in some foreign markets. Chicken feet (or paws) provide a case in point. There is little demand for chicken paws in the United States, so their

domestic price is correspondingly low—only 10 to 12 cents per pound. Since the opening of China's market, however, the majority of chicken paws have been shipped to China and other overseas markets, where they can be sold for over 51 cents a pound—in the price range of some chicken leg quarters sold in the United States (OCE 2014). Beef trade offers similar examples, with beef livers, beef tongue, and beef tripe earning premium prices in Egypt, Japan, and China, respectively.

Finally, U.S. consumers benefit from the increased variety provided by imports (see Figure 20), particularly fresh fruits and vegetables. About half of all U.S. agricultural imports are fruit, vegetable, nut, and other horticultural products, which are now available year round thanks to trade.

**Figure 20: Top U.S. Agricultural Imports, 2014**
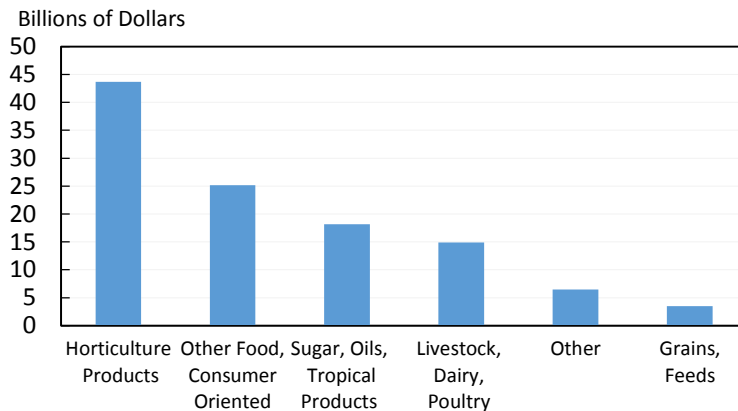
Note: Horticulture products include fresh and processed vegetables and whole and processed nuts. Grains and feeds include rice, feeds and fodders, and other course grains. Sugar, oils, and tropical products includes sweeteners and products, coffee, cocoa and chocolate, vegetable oils, and rubber. Other includes tobacco and planting seeds.
Source: U.S. Department of Agriculture, Foreign Agricultural Service.

IV. Current Trade Negotiations

Despite the strong increases in U.S. trade over the last decades,[17] the potential gains from trade for the United States are far from exhausted. Therefore, the United States has been focusing in recent years on negotiations toward two major multi-continental FTAs: TPP would encompass 12 Pacific nations across the Asia-Pacific, and T-TIP is a proposed FTA between the United States and the 28 member states of the European Union. The Administration's trade agenda seeks to put the United States at the center of an integrated trade zone covering nearly two-thirds of the global economy and almost 65 percent of U.S. goods trade (see the map below). That will help make America the world's production platform of choice, increasing U.S. exports and attracting more employers that want to invest in the United States, hire American workers, and sell American goods and services to the world.
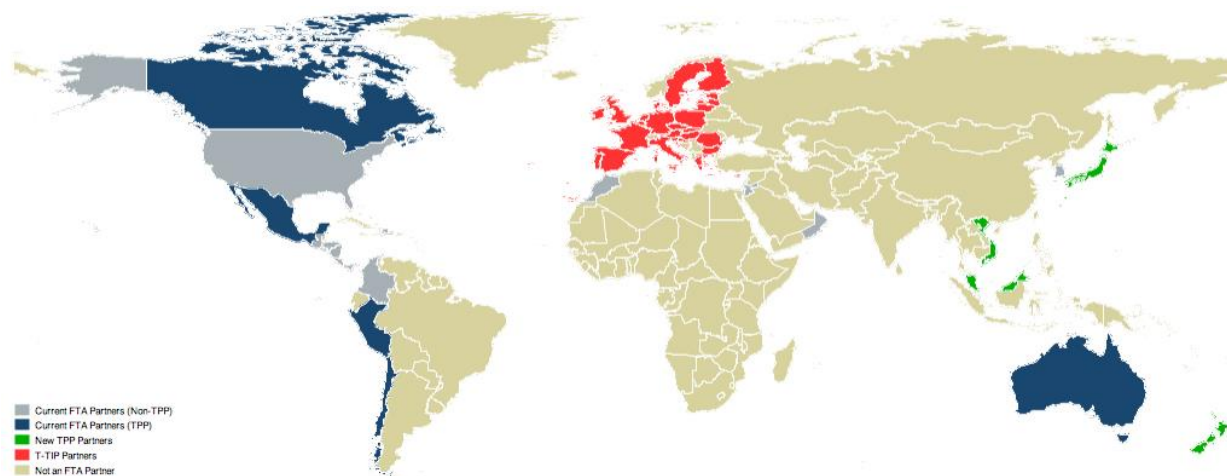

A key goal of U.S. FTAs is to secure tariff reductions abroad. The United States is already a very open country. With almost 70 percent of imports crossing our borders duty-free, the trade-weighted average applied tariff in the United States is a low 1.4 percent. By contrast, many of our trading partners maintain relatively high tariffs. According to the World Bank, Vietnam's simple average applied tariff rate was 7.1 percent in 2010, 4.2 percentage points above the equivalent U.S. tariff, and at 6.8 percent in 2009, Malaysia's average tariff is also well above the same rate in the United States. The spreads for specific industries can be much greater—for instance, U.S. businesses face tariffs of up to 30 percent on auto exports to Malaysia and over 700 percent on rice exports to Japan. Even among existing FTA partners, U.S. exporters to Canada still face over-quota tariffs as high as 313 percent on dairy products and as high as 249 percent on poultry products.

At the same time, tariffs are just one of many roadblocks to trade that governments put up. Trade agreements bring about reductions in NTBs, while also liberalizing investment regimes and services trade where NTBs are especially severe. Considering Figure 22, we note that the average

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[17] For more information on current U.S. trade and trade agreements, please refer to CEA (2015a).

STRI across TPP countries that belong to the OECD is higher than the STRI in the United States in nine out of 18 service sectors. This average across TPP partners hides the much larger variation in services barriers that the United States faces in serving TPP markets. For instance, the maximum services trade barrier that the United States currently faces in prospective TPP trading partners is higher than the U.S. STRI in 16 out of 18 service sectors. Note that the OECD reports information on only six out of the 11 other TPP countries, suggesting that these differentials could be even larger in the remaining five.

Figure 21: Services Trade Restrictiveness Index in the United States and non-U.S. OECD-Member TPP countries, 2014
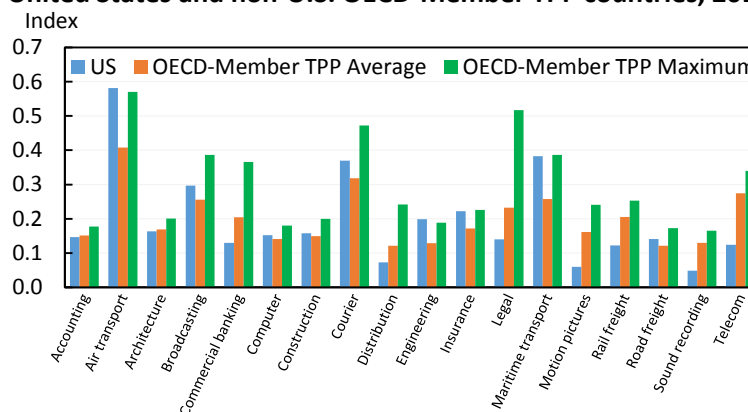
Note: Data for non-U.S. TPP include OECD members Australia, Canada, Chile, Japan, Mexico, and New Zealand only.
Source: Organisation for Economic Co-operation and Development, STRI.

As a result, the main impact of new FTAs will be to reduce foreign barriers to U.S. exports, rather than further opening U.S. markets to imports. Bringing down our trade partners' tariffs and NTBs is essential for American firms to be able to compete on a level playing field in the global economy.

The Administration's policy is to encourage trade *agreements* to promote a values-driven trade regime that maximizes globalization's benefits while addressing globalization's problematic side-effects. Enforceable environmental and labor commitments, included as a core part of our agreements, can help to level the playing field for U.S. businesses and workers, while also contributing to strong labor protections and greener policies worldwide. In addition, our trade agreements ensure that American businesses remain competitive in a global market in which our trading partners are also gaining preferential access to foreign markets through negotiations of their own bilateral and regional agreements. The Administration's efforts will also pave the way for future high-standard agreements around the world, and trade pacts with TPP and T-TIP countries will help advance U.S. strategic and geopolitical interests. Finally, it is important to understand that these agreements are not meant to represent the end of the process. TPP is explicitly designed to allow others to join in the future, and both TPP and T-TIP are intended to spur further multilateral trade liberalization.

Trans-Pacific Partnership

TPP is a proposed regional FTA that the United States is negotiating with 11 other countries: Australia, Brunei Darussalam, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore, and Vietnam. Based on the most recent data, TPP partners account for 37 percent of world GDP, 11 percent of the world's population, and 23 percent of world exports of goods and services. In 2013, TPP countries received $698 billion in U.S. merchandise exports and $199 billion in U.S. services exports, making the region as a whole the top export destination for the United States. In addition, included among the partners are some of the fastest-growing economies in the world; according to some measures, the number of middle-class consumers in Asia is expected to grow to 3.2 billion by 2030 (Kharas and Gertz 2010), roughly ten times the projected size of the North American middle class—an enormous increase in the potential export market for U.S. goods and services. The region is already an important location for U.S. investment; in 2013, U.S. companies invested $695 billion in the Asia-Pacific area. Petri, Plummer, and Zhai (2012, 2013) estimate that TPP would increase world income over $220 billion (about 0.2 percent) and increase world exports by over $300 billion, or 1.1 percent, in 2025. For the United States, the authors estimate TPP will increase GDP by over $75 billion, or approximately 0.4 percent, and U.S. exports by 4.4 percent, around $124 billion, by 2025.

TPP countries have expressed their intent to achieve a "comprehensive and high-standard" FTA that will broadly liberalize regional trade and investment, strengthening economic ties between the parties. In addition to addressing tariff barriers, TPP countries are seeking to address a range of outstanding NTBs, such as import licensing restrictions, as well as to open services and government procurement markets in the region. The United States and its partners are seeking to negotiate rules that will provide transparent protections for investors and citizens, support the digital economy by encouraging Internet access and cross-border data flows, address paperwork and customs issues that hamper small-business exporters, promote innovation through strong enforcement of intellectual property rights, and offer guidance on competitive practices associated with state-owned enterprises.

In addition, when concluded, TPP will place strong workers' rights commitments at the core of the agreement, making them enforceable and subject to dispute settlement, as with other commercial provisions. TPP will constitute the largest expansion of enforceable labor rights in history, more than quadrupling the number of people around the world covered by enforceable workplace standards. TPP will also contain strong commitments on the environment, including commitments to protect our oceans, combat wildlife trafficking, and eliminate illegal logging. As with the labor provisions of TPP, these commitments will be enforceable through dispute settlement, allowing for trade sanctions against countries that fail to abide by the commitments. TPP will also include a robust intellectual property rights framework to promote innovation, while supporting access to innovative and generic medicines; secure market access for U.S. service suppliers; include provisions that ensure that private sector workers and businesses are able to compete on fair terms with state-owned enterprises; and contain obligations that will promote a thriving digital economy, including rules on open Internet access.

Failing to secure a TPP agreement would place U.S. workers and businesses at a distinct disadvantage, by allowing other countries to set the rules of the global trading system—rules that would likely harm U.S. interests. Comprehensive trade agreements like TPP offer the United States a way to shape globalization's rules in the best interest of American workers and firms and to ensure that global standards cover critically important areas like worker and environmental protections.

Transatlantic Trade and Investment Partnership

The United States and the European Union already maintain the world's largest bilateral trade relationship. In 2013, together both regions account for nearly one-half of world GDP and about 42 percent of global exports of goods and services. Bilateral trade between the two regions amounts to about $1 trillion annually. Based on the most recent data, U.S. companies have approximately $2.4 trillion invested in the European Union, while European companies have $1.7 trillion invested in the United States. These already strong economic relationships would be strengthened through the formalization of T-TIP.

Despite their large size and close ties, the European Union and the United States have not achieved the full potential of their economic relationship. Therefore, negotiations toward the ambitious T-TIP began in earnest in June 2013. Since tariff barriers between the two partners are already relatively low, the agreement strives to increase market access by also addressing the main NTBs. Importantly, both sides seek agreement on cross-cutting disciplines on regulatory coherence and transparency—including early consultation on major regulations and use of regulatory impact assessment—for the development and implementation of efficient, cost-effective, and more-compatible regulations for goods and services. Adoption and use of good regulatory practices will ultimately raise the standards and promote trade beyond just the United States and the European Union. In addition, the governments intend to commit to liberalize services trade, promote FDI, and cooperate on the development of rules and policies on global issues of common concern.

V.   Conclusion

Through trade linkages, the world's economies are more interdependent than at any time in history. This interdependence has been supported not only by steep declines in the costs of international communication and shipping, but also by a reduction in governmental barriers to the cross-border movement of goods, services, and investment. Increasingly, economies are linked by production processes that cross international borders so as to minimize costs by better exploiting local comparative advantages.

The post-World War II process of globalization has delivered important benefits for U.S. consumers, workers, and businesses by increasing economies' productivity, opening new markets for exports, and expanding the range of products available for purchase. Expanded trade has also improved peoples' lives in other, indirect ways, for example, raising living and working standards in other countries, and locking in meaningful environmental protections.

Domestic U.S. policies that support the middle class are essential to help our economy take advantage of the opportunities afforded by trade along, as are measures to counteract potentially negative side effects. But beyond these purely domestic safeguards, an evolving structure of multilateral and regional agreements has worked to lower international trade barriers while reining in unfair trade practices. The WTO is central to that effort. In addition, the Administration is pursing comprehensive, high-quality trade agreements that provide U.S. exporters with enhanced market access while insisting that our trading partners do not compete on the basis of low labor or environmental standards.

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