

NAFTA in the Time of Trump

This is not your grandfather's manufacturing

Donald Trump may win his fight to change or cancel the North American Free Trade Agreement (NAFTA), but it is not going to create many new jobs for Americans. No matter what the pundits on either side are predicting, the reality is different from the rhetoric. Much has changed in the twenty years since NAFTA came into effect. Low-skilled and high-labor content jobs were sent to Mexico to take advantage of the low-cost environment. But the jobs needed in American advanced manufacturing today are fewer and very different than they were when companies headed south to Mexico and west to China in the 1990s and 2000s.

Returning manufacturing to anywhere in the United States is likely to provide opportunities for manufacturers to modernize and automate production, thereby reducing operating costs and enhancing productivity, and ultimately, requiring far fewer workers. Today's manufacturing jobs require a host of new skills and technologies, and workers will have to be retrained. Advanced skills, such as 3D printing, running computerized and sophisticated machine tools, and operating robots, will provide higher pay for workers, but fewer worker jobs. This is not your grandfather's manufacturing and it is not the low-cost manufacturing environment in Mexico.

THE NAFTA TREATY

NAFTA is a treaty negotiated by the governments of Canada, Mexico, and the United States that entered into force in January 1994. The framework for NAFTA was drafted by Ronald Reagan, negotiated by George H.W. Bush, and finally signed into law by Bill Clinton in 1993. NAFTA essentially eliminated nearly all tariffs among the three signatory nations, allowing for the flow of goods and supplies across borders without taxes or tariffs. Today, approximately \$1.4 billion in goods cross the US-Mexico border every day.

If the NAFTA treaty were to be rescinded, as Trump has indicated he wants to do, the United States would be free to increase tariff rates on imports, presumably to make manufacturing in the United States seem more cost-competitive.



Elissa Nadworny/NPR

But import tariffs only mask the true problem and allow companies to get lazy about becoming cost-efficient and more productive. Instead of focusing on productivity improvements and cost cutting, manufacturers wouldn't have to do things much differently to compete with tariff-laden, higher-priced imports. Prices are likely to increase across the board on imports of raw materials, subassemblies and consumer goods. As a result, US consumers will have to pay more for imported goods on par with American-made goods. The consumer loses both ways.

ANOTHER SMOOT-HAWLEY?

There are economists who say that NAFTA has caused the loss of countless jobs to the lower-cost environments in Mexico, and that these jobs will come back in a post-NAFTA trade environment. They argue that instead of doing nothing, the US should take every opportunity to raise all import tariffs, eliminate trade agreements, and close the borders to immigrants and trade. This, some say, will make America competitive, even though there is no gain in productivity or cost reduction in American manufacturing.

What they may be forgetting is that the US has gone down this pathway before with the Smoot-Hawley Tariff Act of 1930, which raised tariffs on about nine hundred products.

Historians blame Smoot-Hawley for triggering the Great Depression of the 1930s. They point out that Smoot-Hawley caused sharp increases in consumer prices, which led to consumers buying fewer products, which in turn led to low demand, lay-offs, high unemployment, and ultimately, the stock market crash.

For sure, NAFTA has its problems. The import/export paperwork required to track goods moving across the borders and the associated record-keeping can be onerous. Special rules for truckers from Mexico have taken a toll on American truckers, and the effects don't end there. But overall, most economists think NAFTA has had a net positive effect on the US economy.

TRADE WARS

Another concern is the likelihood of a trade war with Mexico and other countries. If tariffs are raised on imports to the United States, or if the proposed Border Adjustment Tax is imposed, our trading-partner countries are likely to raise tariffs on imports coming into their countries. Take fruits and vegetables for example. More than six billion pounds of fruits and vegetables were imported from Mexico in 2015-2016. Mexico provides 70% of fresh fruits and vegetables consumed in the United States. Corn and soybeans from

American farms move the other direction into Mexico. If a tariff is placed on fruits and vegetables from Mexico, and Mexico retaliates with a tariff of their own, American consumers will suffer from higher prices, and American farmers will find it harder to compete for business in Mexico.

But it is not always tit-for-tat when it comes to trade wars. When the United States places additional tariffs on imported products, America's trading partner countries may apply an import tariff on a completely different product. For example, the United States may apply countervailing duty to solar panels from China, and China may respond by placing additional duty on imported farm products, hurting American farmers.

Mexico and the United States trade much more than food products. In fact, industrial products are the largest sector for imports from Mexico. Manufacturing operations vary from Electronics Manufacturing Services (EMS), Contract Manufacturing (CMs), Original Equipment Manufacturing (OEMs), and Maquiladoras.

THE MAQUILADORA INDUSTRY

The industrial sector in Mexico has significantly developed around an export sector called the maquiladora industry. The maquiladora program was started in 1965 with the intent of giving US manufacturers a low-cost manufacturing base close to the United States and of providing jobs for Mexican citizens (Ramirez 2005). This arrangement was considered necessary for both Mexico and the United States because Mexico had a rising population with an industrial base and was not able to sufficiently provide jobs for their growing workforce. The US industry needed to reduce manufacturing cost to remain competitive with imports, primarily from Asia. The basis for this program was that US companies would establish an arms-length Mexican subsidiary that, for tax purposes, would operate as an "in bond" company. The maquila firm would be allowed to import equipment, raw materials, and in-process inventory into a special bonded zone along the border, then manufacture a finished product that would be exported back to the United States. The Mexican subsidiary firm would pay taxes only on the value added to the product.

By 2000, there were 3,717 maquiladora plants operating in Mexico employing over 1.2 million Mexican workers (Global Insight 2005). Approximately 75 percent of both the plants and employees were located in the states along the US-Mexican border (Twin Plant News 2005). In 2006, the maquiladora program was combined with the Mexican national exporting industries (PITEX) under one governmental program IMMEX (*Industria Manufacturera, Maquiladora y de Servicios de Exportación*) (Pavlovich-Kochi 2015). By 2006, the maquila sector had a total employment of 1.2 million employees; by 2014, the combined maquiladora and PITEX industries had grown to 6,171 firms, employing 2.4 million workers (North American Production Sharing, Inc. 2015). Approximately half of these employees are still in the maquila industries. Of the total maquila facilities, about 82 percent are located in border states. This contrasts with PITEX firms where 65 percent are located in the interior of Mexico (Pavlovich-Kochi 2015).

MAQUILADORA ADVANTAGES & DISADVANTAGES

As with any economic arrangement there are advantages and disadvantages. The maquila arrangement that the United States made with Mexico in 1965 paved the way to maintain more industry in the United States in the face of rising off-shore competition from Asia. During the 1960s, the predominant low-cost producing country was Japan. The United States needed a mechanism to counter Japanese imports; thus, the maquila program was developed. This was an effective mechanism to counter lower-cost imports because of the strategic objectives of manufacturing. Consider that the location of any manufacturing facility is based on location near a source of raw material (e.g., a copper smelter near a copper mine), location near a customer (e.g., automotive suppliers building a facility near an assembly plant), and lowest total cost. We will focus on cost.

When total market competition for any product lowers selling price below total delivered price, a firm is faced with only two options: 1) go out of business, or 2) reduce cost to match the market cost. Manufacturing

costs include direct labor, raw materials, and overhead. When making the complicated move-or-stay decision these factors must be considered. Raw materials are a function of the product and are not easily changeable in the short term and under the pressure of a competitive decision. Many of the components of overhead are not under total control of the firm. For example, insurance costs, taxes, regulatory and legal compliance, and customer support requirements are all costs of which firms have little or no control over, unless the firm can find a low-cost production location. This leaves direct labor as the biggest opportunity for cost reduction in a competitive situation. The firm is left with only one option, and that is to relocate to a low-cost labor and low-cost operating location.

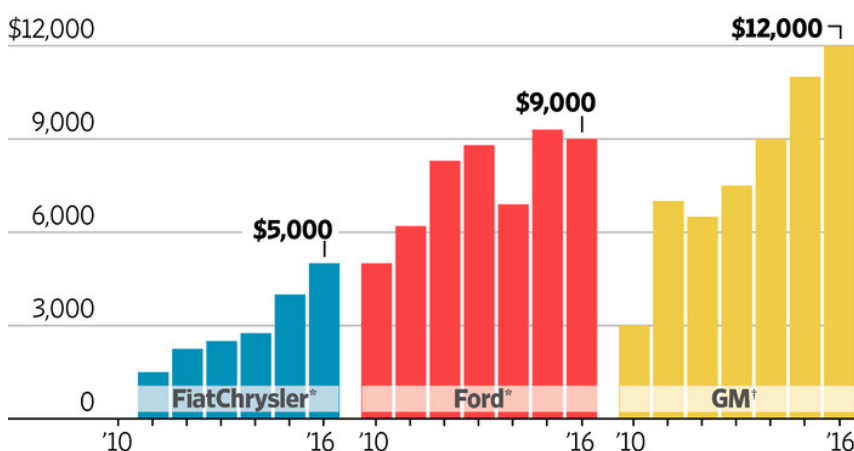
The most significant benefit of the maquiladora program (as it relates to US employment) is that a significant dollar value of the materials and equipment required to operate a maquila plant comes from the United States. The US Department of Commerce website provides a list of all goods exported to Mexico, and in 2015 the total exports to Mexico for industrial materials and equipment were just over 200 billion dollars. A report issued by the US Department of Commerce shows that the total number of US jobs directly supporting the exporting of these products to Mexico was 968,000 (Rasmussen and Xu 2016).

One of the benefits directly to US workers can be seen in Figure 1 below. These are the bonuses received by US automotive factory workers from the profits of their respective corporations. Note that Fiat-Chrysler, Ford, and General Motors have had profits rising in the last five years and, as a result, the bonuses of their factory employees have increased. In 2016, General Motors paid their US factory workers twelve thousand dollars in bonuses (Dawson, Rogers, and Stoll 2017).

Figure 1: U.S. Automotive Company Bonuses

Cashing In

UAW workers at Detroit's three auto makers have seen profit-sharing checks generally become bigger as demand for truck and SUVs has grown.



*Initial estimate released by companies based on maximum hours worked

†Estimate based on analyst projections for 2016 profit

Source: the companies

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Market Price Competition

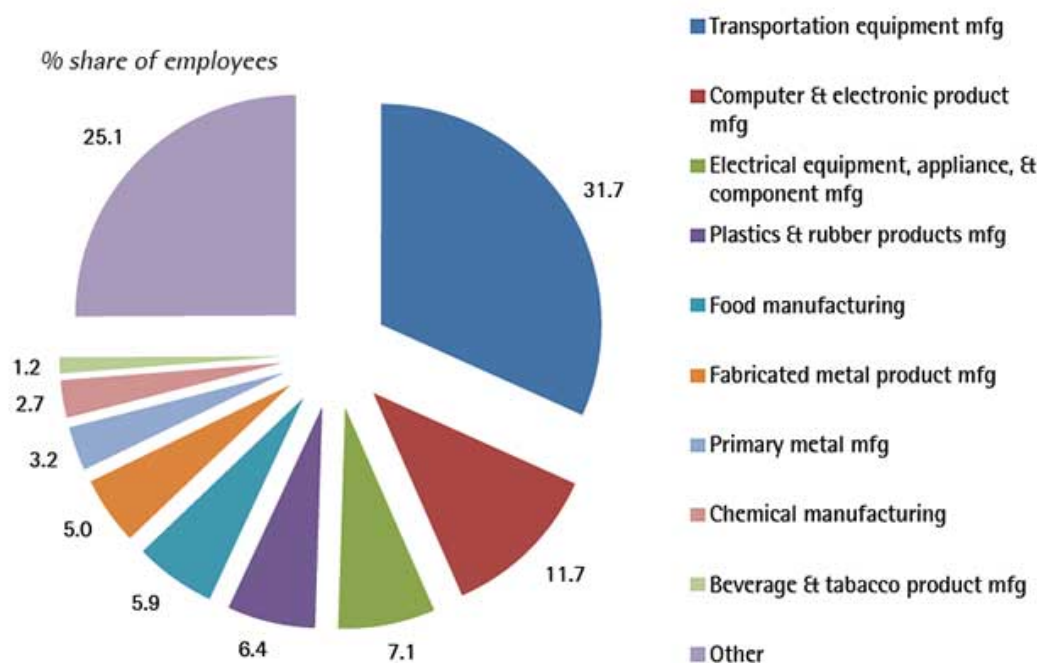
When total market competition for any product lowers selling price below total deliver price, a firm is faced with only two options:

- Go out of business, or
- Reduce cost to match the competitor's cost

The irony of this situation is that if all General Motor's operations were to leave Mexico and return to the United States, the company would not be profitable at all.

Figure 2: IMMEX Manufacturing Employment by Sector, 2014

Source: INEGI. Estadística Integral del programa de la Industria Manufacturera, maquiladora y de Servicios de Exportación (IMMEX), Feb. 2015. Data are averages January-November 2014. www.inegi.org.mx. Pavlakovich-Kochi (2015).



The irony of this situation is that, as the report indicates, if all of General Motor's operations were to leave Mexico and return to the United States, the company would not be profitable at all, and thus eliminating bonuses for their employees. The reality of the General Motors situation is very similar to any firm that has had to close manufacturing operations in the United States and relocate to a low-labor market. The reality is that once total cost is higher than the marketplace selling price, firms either reduce cost or go out of business.

There are disadvantages to having manufacturing jobs relocate to other countries. The first most obvious one is that unemployment increases in areas where factories close. There is also a less subtle problem—the loss of a high-wage skill support platform. In order for an industrial economy to sustain itself, it must have the mechanism to support value-adding industries that require skilled labor. The loss of manufacturing jobs greatly reduces the number of skilled labor jobs that, in turn, reduces the total dollar output of the work force.

INDUSTRIES OPERATING SOUTH OF THE BORDER

Figure 2 above shows the breakdown of industries in the Mexican export sector. The largest sector is the transportation sector. This includes companies like General Motors, Ford Motor Company, and Daimler Chrysler, as well as supporting companies supplying auto parts and subassemblies. Many of the supporting companies are not household names but are well known in automotive circles. These include Delphi, Gobar Manufacturing, and Autoliv. These companies operate facilities both along the US-Mexican border, as well as facilities in the auto industrial parks near the major assembly plants.

Another major industrial sector in Mexico is electronics and computer manufacturing. Companies like Intel and IBM are recognized firms and both operate chip fabrication facilities in Guadalajara, Mexico. General Electric has several divisions operating in Mexico in electrical parts and products manufacturing.

The benefit of having these companies this close to the United States is the proximity to US suppliers. The US Census Bureau, the organization responsible for maintaining US imports and exports, reported that in 2016, US manufacturers exported just over \$200 million to Mexico in industrial products alone (United States Census Bureau 2017). These products can broadly be divided into the categories *raw materials* and *equipment and spare parts and tooling*. The \$200 million support Mexican manufacturing that converts raw materials into finished products and returns them predominantly to the United States.

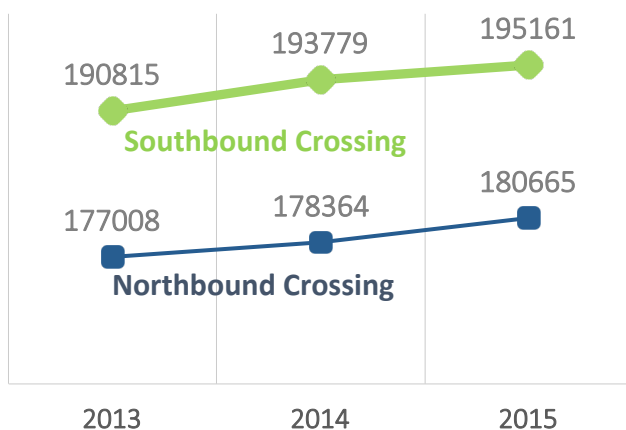
THE RIO GRANDE VALLEY

The Rio Grande Valley of Texas is a good example of the benefits of border trade. The two predominant cities in the Rio Grande Valley are Brownsville and McAllen. Across from Brownsville is the Mexican city of Matamoros, and across from McAllen is the Mexican city of Reynosa. Several factors contribute to the economic viability of any community. Along the Rio Grande Valley the number of maquiladora plants adds to the economy of all the communities on both sides of the Rio Grande River. In Matamoros, Mexico, there are approximately one hundred maquiladora plants employing almost sixty thousand employees, while in Reynosa, Mexico, there are almost two hundred maquiladora plants employing about 150,000 employees. These two manufacturing centers provide a base of support for numerous small support companies. Brownsville and McAllen have become the anchor cities of the Rio Grande Valley, a part of Texas that is now home to more than 1.3 million people. Along with the rest of the Valley, these two cities have become major retail centers for both the United States and Mexico.

Graph 1 and Graph 2 below show the total volume of truck traffic along the Rio Grande Valley. These trucks represent a combined commercial value of \$24 billion (City of Pharr 2016 and Texas Center for Border Economic and Enterprise Development 2016). As a result of this trade, numerous warehouses, customs brokers, and logistics companies now operate in the Rio Grande Valley.

Graph 1

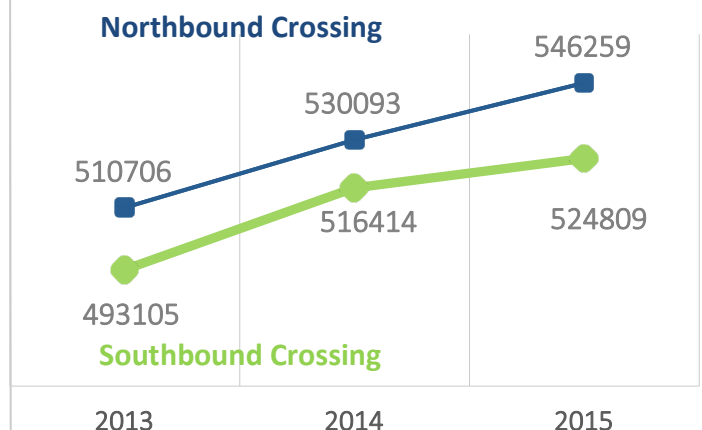
Veteran's International Bridge at Los Tomates
Crossing Numbers



Sources: Texas A&M International University Texas Center for Border Economic and Enterprise Development.

Graph 2

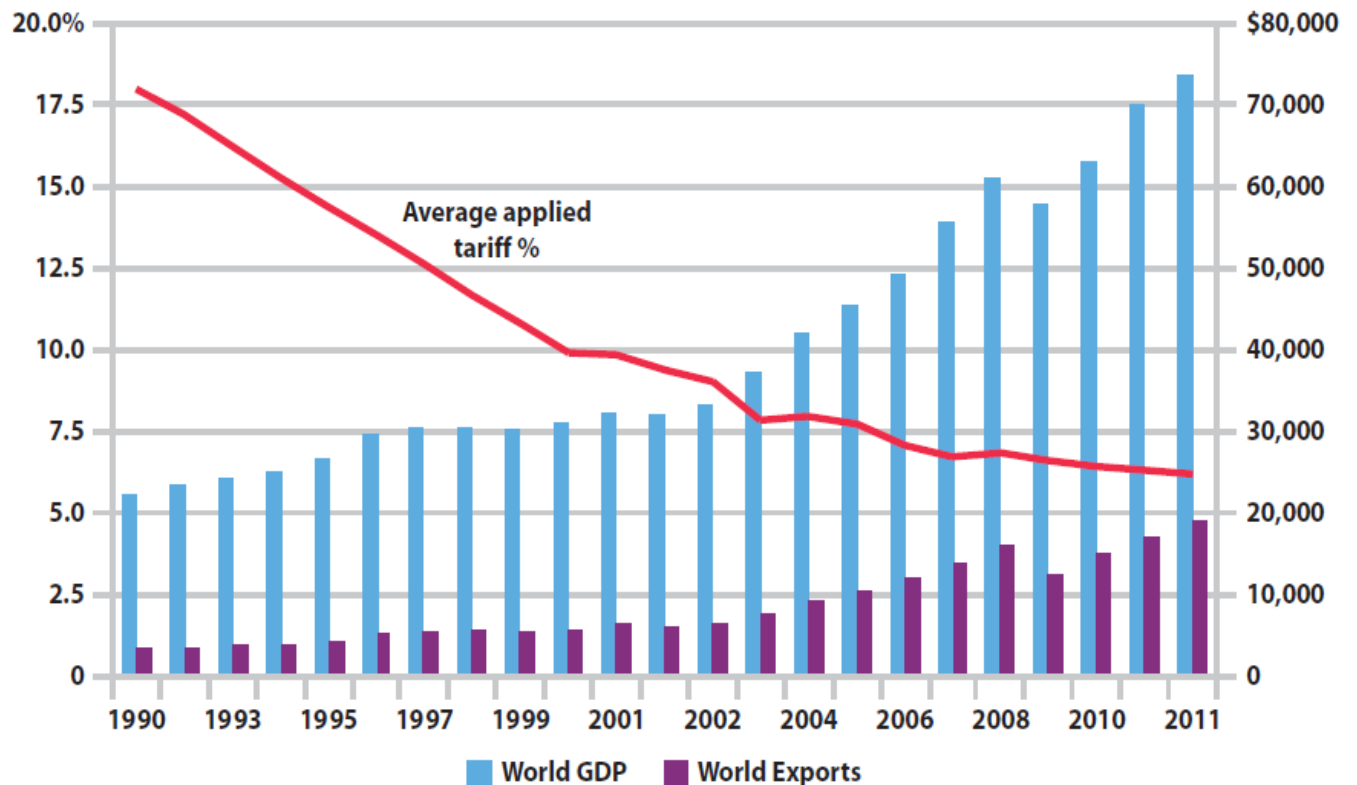
Pharr-Reynosa International Bridge Crossing
Numbers



Sources: Texas A&M International University Texas Center for Border Economic and Enterprise Development and City of Pharr (2016)

Graph 3

Average Applied Tariffs versus Exports and DBP



Source: International Business The New Realities, 4th Edition (2017). Pearson, New York

WILL MEXICO AND CANADA FIGHT BACK?

The Trump administration is currently discussing several options related to international trade, including renegotiating NAFTA and the establishment of import tariffs. The question is that if duties on products imported into the United States are increased, will other countries like Mexico and Canada retaliate? Unquestionably, history says that when Country A raises tariffs on Country B's products, Country B will retaliate. The effects of this type of action are clearly known. The most famous of these protectionist tariffs is the Smoot-Hawley Act of 1930 as mentioned above (Irwin 1998). Within the first two years of Smoot-Hawley being enacted total world trade plummeted by more than 40 percent (League of Nations Bulletin 1934). While there were several factors leading to world economic decline, the enactment of protective tariffs contributed significantly to the problem and prolonged the Great Depression. Graph 3 above best illustrates the effect of increasing tariffs on both world trade and the US economy.

As seen from the graph above, the average worldwide applied tariff rate has dropped from just over 17.5% to about 7.0% over a twenty-one year time frame. As a result, world GDP has three fold increase in world GDP which has risen from \$21 trillion in 1990 to \$72 trillion in 2011. The estimated world GDP for 2016 is expected to be just over \$75 trillion. If the United States raises tariffs on imports, there would be a real possibility of a trade war, which would have a

detrimental effect on total GDP. If the United States targets tariff increases on Mexico specifically, some companies would leave Mexico and relocate to Asia. US suppliers that now export materials to Mexico would lose business, triggering an opposite effect—job losses and higher unemployment rates. If the United States enacts protective tariffs against NAFTA partners then, there will most certainly be no winners, only losers.

DOES TRUMP HAVE THE POWER TO CHANGE NAFTA?

Donald Trump campaigned for the presidency by ridiculing NAFTA as a job killer and “the worst trade deal maybe ever signed anywhere, but certainly ever signed in this country.” (CNN Money). Now he says he’s ready to renegotiate it. But does he actually have the power to do it? Trump used his first full working day in office to pull out of the biggest free trade accord in history, the Trans-Pacific Partnership (TPP). Can he do the same with NAFTA?

On NAFTA, Trump says he will renegotiate its terms or withdraw from the treaty altogether, raise taxes, and fund the border wall with the rise in tariff revenue. If Trump simply wishes to negotiate tariffs on specific goods, that’s something he can do without Congress. But if he wants to change NAFTA more substantially, then Congress will most likely have to be involved. If America has to change US laws to effect the change to NAFTA, the president cannot do that alone.

The working assumption among trade analysts is that Trump has some latitude to renegotiate NAFTA using his existing Trade Promotion Authority. The Trade Promotion Authority is a policy that lets the White House negotiate trade agreements and submit them to Congress for a simple up-or-down vote. Congress granted this power to the president under the Obama administration—it lasts until 2018, and can be extended by Congress until 2021. Trump could submit a renegotiated NAFTA to Congress, which would then vote

either “yes” or “no” on it without the ability to offer any changes to the deal. But the politics of trade have changed dramatically in the past two years.

Establishment Republican lawmakers are still generally supportive of the free trade status quo, but the rise of Trump popularity with Republican voters has fueled the skepticism of multilateral free trade deals. Fear of reelection in the time of Trump may result in a more nationalistic approach by the Republican-controlled Congress.

It is still unclear how Trump actually wants to change free trade in North America. This lack of clarity regarding his goals is compounded by the fact that two out of three of his major trade administrators don’t have experience developing trade agreements. Secretary of Commerce, Wilbur Ross, and Peter Navarro, Trump’s pick for the newly created National Trade and Industrial Council, have opinions on trade policy but have no experience developing or negotiating them. Robert Lighthizer, Trump’s new US Trade Representative (USTR), has experience dealing with trade in the Regan Administration. With no experience, or at least no recent experience, it’s likely to be a rough time ahead in trade policy development and negotiation.

Section 301 of the US Trade Act of 1974 ([Pub.L. 93–618, 19 U.S.C. § 2411](#)), authorizes the president to take all appropriate action, including retaliation, to obtain the removal of any act, policy, or practice of a foreign government that violates an international trade agreement or is unjustified, unreasonable, or discriminatory, and that burdens or restricts US commerce. For cases involving trade agreements, the USTR is required to request formal dispute proceedings as provided by the trade agreements. The law does not require that the US government wait until it receives authorization from the World Trade Organization (WTO) to take enforcement actions.

Although it appears that the president has authority under Section 301 to back out of NAFTA, taking action this way is likely to cause controversy and the initiation of lawsuits. It is more likely that renegotiation of specific clauses within NAFTA will be the way forward.

BRINGING OUR JOBS BACK

The question of bringing jobs back to the United States is the subject of much talk under the Trump administration. Some politician currently believe that the US should tax firms that leave the United States and increase tariffs on imported goods from overseas manufacturers. These ideas generally have public appeal; however, they are the exact opposite of what it takes to create jobs in the United States. For any manufacturing enterprise there are three fundamentals that result in successful competition: cost, quality, and service. Excessive cost, poor quality, or poor service will eliminate a manufacturer from the marketplace. For this discussion, we will focus on the cost aspect. Sometimes the total cost is actually cheaper in a high-labor-cost environment. Consider that Chinese investment in the United States has been \$8.6 billion from 2000 to 2016 (Trentmann 2017). This investment has been in the form of 778 greenfield or new investments. Chinese manufacturers have invested in the United States to be near this market and because the total cost of delivering a product to market was less. In fact, *The Wall Street Journal* reported that Dongguan Winwin Industrial, a Taiwan-owned company operating in Dongguan, China, is planning to move to the United States to be nearer its major customers—including Skechers in California, Crocs in Colorado, and Nike in Oregon—and to reduce cost (Browne 2017).

Manufacturing costs can be broadly divided into direct labor, material, and overhead. For many manufacturing firms the single largest component of this equation is overhead. Miller and Vollmann (1985) call this “the hidden factory.” It is noteworthy that when then candidate Trump met with business leaders, they overwhelmingly asked for regulation relief over tax relief. These leaders wanted both tax relief and regulatory relief but noted that excess regulations were most oppressive. Firms do not move manufacturing facilities to make a few more dollars; if cost is the issue these firms move in order to survive. An easy mechanism for understanding this issue is to look at the World Bank’s Ease of Doing Business Index (World Bank 2017). From the index’s earliest days, the United States was ranked in the top three countries for ease of doing business. The 2017 ranking has the United States at number eight. It should be noted that in 2011 the United States was number four. There is a clear trend of losing competitiveness as a country. This index shows that the United States has the following rankings:

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Selected Rankings from The World Bank Ease of Doing Business Index-2017

US Ranking

36

Paying Taxes

35

Trading Across Borders

51

Starting a Business

39

Dealing with Construction Permits

36

Getting Electricity

The first item listed in Table 1 is taxes. The United States has the highest corporate tax rate in the world and is thirty-sixth in the world. The next four items all have to do with regulations, rules, and laws. When these activities are combined with regulator issues from the EPA, OSHA, IRS, and EEO, it is easy to see why the United States is losing its competitive edge. Therefore, the first component of cost that is driving US industry overseas is government taxes and regulations.

The second component of cost deals with direct labor. Many American factories are aging when faced with the issue of modernizing; most firms opt for relocation for all the previously stated reasons. However, plant modernization is a necessity in order to be competitive in a global market. For this reason, tax relief is an appropriate tool to incentivize factories to modernize. Modernization means automation, information technology upgrades, efficient heating and lighting systems, environmental controls, and the use of modern operations management techniques. These all cost money, and unless there is a financial incentive, the cost will be prohibitive.

The United States is the largest consumer-driven economy in the world and there is ample opportunity to make and sell products within the US. US manufacturers can also export our products if we are cost-competitive. However, cost-competitiveness has to start with a renewed focus in the United States to make us a world leader in manufacturing once again.

WHAT'S NEXT?

A radical change to tariffs on Mexican imports and a renegotiation of NAFTA or outright withdrawal from the treaty could cause much turbulence in the US economy. It could disrupt cross-border supply chains and transform import and export patterns with Mexico. It is unlikely to improve heartland and rustbelt manufacturing jobs that Trump has promised his voters he would bring back. In fact, the United States and Mexico have such tightly

interconnected economies that increased tariffs and trade barriers would likely end up causing more job losses all along the US-Mexico border.

And the turbulence doesn't stop there. Americans will likely end up paying more for everything coming from Mexico or manufactured in higher-cost American factories. ***Buckle your seatbelts.***

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References

Browne, Andrew. "China Sees a Manufacturing Future—In America." *The Wall Street Journal*. March 21, 2017. <https://www.wsj.com/articles/china-sees-a-manufacturing-futurein-america-1490087701>.

City of Pharr, Texas (2016). Office of the Pharr International Bridge.

Dawson, Chester, Christina Rogers, and John D. Stoll. "U.S. Auto Workers' Bonuses Surge as Companies Post Gains." *The Wall Street Journal*. January 26, 2017. <https://www.wsj.com/articles/u-s-auto-workers-bonuses-surge-as-companies-post-gains-1485469492>.

Global Insight. (2005). *LIII Maquiladora Industry Outlook Meeting: Mexico's Maquiladora Industry Outlook: 2005-2010. Conference in Brownsville, Texas*.

North American Production Sharing, Inc. "How Mexico's Manufacturing Industry Developed." October 15, 2015. <http://www.napsintl.com/mexico-manufacturing-news/how-mexicos-manufacturing-industry-developed-naps/>.

Pavlovich-Kochi, Ph.D., Vera. "IMMEX – Mexico's Export-Oriented Manufacturing and Services." *Arizona's Economy*. March 30, 2015. <https://www.azeconomy.org/2015/03/featured/immex-mexicos-export-oriented-manufacturing-and-services/>.

Ramirez, Tony M. (2005). A Brief History of the Maquiladora Industry. Retrieved July 24, 2007 from http://www.madeinmexicoinc.com/maquiladora_overview.htm.

Rasmussen, Chris, and Susan Xu. "Jobs Supported By Export Destination 2015." Office of Trade and Economic Analysis, International Trade Administration, US Department of Commerce, Washington, DC, November 8, 2016. http://www.trade.gov/mas/ian/build/groups/public/@tg_ian/documents/webcontent/tg_ian_005508.pdf.

Texas Center for Border Economic and Enterprise Development. Accessed November 10, 2016. <http://texascenter.tamtu.edu/index.asp>.

Twin Plant News. (2005). Maquila Scorecard 20:10. El Paso, Texas.

CNN Money September 27, 2016
<http://money.cnn.com/2016/09/27/news/economy/donald-trump-nafta-hillary-clinton-debate/>

"U.S. International Trade Data – Foreign Trade." *United States Census Bureau*. Accessed February 16, 2017. <http://www.census.gov/foreign-trade/data/index.html>

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