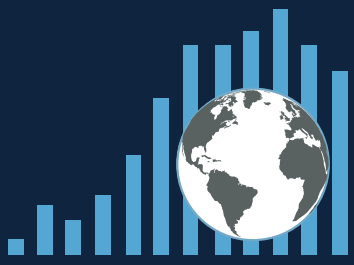

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The International Trade Commission's Assessment of the Trans-Pacific Partnership: Main Findings and Implications

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Executive Summary

In May of 2016 the United States International Trade Commission (ITC) issued its assessment of the impact of the Trans-Pacific Partnership (TPP). This paper highlights the main findings of the ITC report and explains their derivation and implications. It also examines several issues that were explicitly excluded from analysis in the ITC report.

The ITC report showed substantially smaller benefits from the TPP than the Petri and Plummer analysis released by the Peterson Institute for International Economics earlier this year. While the Petri and Plummer analysis projected an increase in national income of 0.5 percent by 2030, the ITC report projected an increase that was less than half this size, a gain of 0.23 percent by 2032. This implies an increment to the annual growth rate of 0.015 percentage point. This projected gain amounts to roughly one and a half month's growth. The ITC projection means that with the TPP the economy would be the same size on January 1, 2032 as it would be in February 15th 2032 without the TPP.

The ITC report also projected an increase in exports that is just over one fourteenth the size of the projection by Petri and Plummer. Also, in contrast to the result projected by standard trade theory, the Petri and Plummer study showed that labor would get a disproportionate share of the gains from the TPP, whereas the ITC analysis projected that the gains to capital and labor would be proportionate to current income shares.

GAINS FOUND ARE INHERENT IN USE OF CGE MODEL: This analysis notes that the positive effects that the ITC projected are virtually implied by the nature of the model used. The ITC used a computable general equilibrium model (CGE). Such models assume the economy is at full employment. Under fairly general circumstances, lower trade barriers will imply higher levels of GDP and employment. Since the ITC analysis did not incorporate the impact of higher prices due to increased patent and copyright protection under the TPP, it was virtually impossible that the model would not project gains.

ITC PROJECTIONS HAVE CONSISTENTLY FAILED TO PREDICT ACTUAL OUTCOMES: This report also notes that in the past, CGE models have generated very poor predictions of the impact of trade agreements. For example, the ITC projections for the U.S.-Korea trade agreement (KORUS) not only failed to pick up the large rise in the trade deficit (which is assumed in the ITC's TPP analysis to remain constant at 0.9 percent of GDP), it also failed to accurately project gaining and losing industries. There was virtually no correlation between the predicted and actual change in exports and imports by industry following the implementation of the KORUS.

By sector, the ITC report projects that agricultural employment will rise by 0.5 percent, while service sector employment will increase by 0.1 percent. Manufacturing employment is projected to fall by 0.2 percent. Even in agriculture, the projected impact of the TPP is limited. The ITC projects that output in the sector will be 0.5 percent higher in 2032 than in the baseline as a result of the TPP. With employment growth in agriculture projected to average 2.0 percent over this period, the gains to agriculture projected by the ITC are equivalent to three months of normal growth.

ITC TPP STUDY EXCLUDES TRANSITION COSTS: This analysis notes that the ITC study does not incorporate transition costs associated with the TPP, namely the potential losses associated with workers being displaced from jobs and being unable to find new employment. Based on other analyses, it concludes that these costs could be as much as one quarter to one half of the projected gains over the first decade of the TPP's implementation.

ITC TPP STUDY EXCLUDES EFFECTS OF CURRENCY POLICY: It also notes that the TPP does not include any provisions that would prevent the sort of currency management by TPP countries which has led to a sharp increase in the size of the U.S. trade deficit over the last two decades. It shows that increases in holdings of foreign reserves (the mechanisms for currency management) comparable to what we have seen in recent years, could lead to an increase in the size of the U.S. trade deficit that exceeds the size of the projected gains from the TPP.

COSTS RELATED TO TPP EXTENSION OF INTELLECTUAL PROPERTY MONOPOLIES EXCLUDED: The ITC report also makes no effort to assess any negative effects associated with higher prices that are from stronger patent and copyright and related protections. The impact of increased protection in these areas could lead to an increase in the size of the U.S. trade deficit in other areas that would far exceed the projected gains from the TPP. In addition, the higher prices from increased patent, copyright and related protections could do more to dampen growth in TPP countries than its tariff reductions do to increase growth, making the agreement a net loser for TPP countries. Since the ITC model did not include the impact of stronger protections in these areas, it cannot provide a basis for assessing this issue.

Because the ITC model explicitly ruled out the various ways in which a trade agreement could lead to negative economic outcomes, it is wrong to view the projections from the ITC model as a comprehensive assessment of the impact of the TPP. It is also important to note that the ITC is very clear on this point. The excluded factors noted above would be difficult to model and the ITC did not try. Indeed, the history of divergence between ITC projections of the impact of trade agreements and actual outcomes suggests that the impact of factors not included in the model is substantially larger than the factors that ITC has incorporated into its analysis.

Introduction

In May, the United States International Trade Commission (ITC) came out with its assessment of the Trans-Pacific Partnership (TPP) (ITC 2016). This report provides a useful platform for analyzing the impact of the TPP. The ITC is a non-partisan commission, which is committed to evaluating proposed trade agreements based on an objective reading of the agreements and its assessment of the relevant economic literature. This paper highlights the main findings of the ITC report and explains their derivation and implications. It also examines several issues that were explicitly excluded from analysis in the ITC report, specifically it examines:

1) the potential losses associated with workers being displaced from jobs and being unable to find new employment;
2) the potential impact of large increases in the trade deficit that could result if one or more of the parties to the TPP adopt a policy of managing its currency so as to sustain a large trade surplus; and
3) the potential impact from a substantial increase in payments from TPP partners for patents, royalties and licensing fees to U.S. firms as a result of the stronger intellectual property provisions in the pact.

The first section of the paper highlights the main findings of the ITC report. The next three sections examine these issues in order. The conclusion sums up the main findings.

Key Projections of the ITC Report

There is a considerable amount of confusion about the nature of the ITC report. The main highlights — the change in exports and imports (both in aggregate and by sector) and the impact on GDP, employment, and wages — were widely reported. However there was little appreciation of the extent to which much of the impact found by the study is necessitated by the design of the model. For example, the model used by the ITC in its TPP assessment simply cannot show a trade agreement leading to higher unemployment, since it assumes that the economy will be fully employed. And, under fairly general conditions, a reduction in tariff and other trade barriers can only lead to positive outcomes; the only question is the size of the benefits.[1] So the fact that the model showed gains, if modest, in employment and income should not have been a surprise. This was inevitable given the structure of the model.

However, in reality, there are reasons that a trade agreement like the TPP could lead to negative economic outcomes. For example it could result in a situation where one or more countries in the pact manage their currency to sustain large trade surpluses. In a context where the United States is experiencing secular stagnation, a prolonged period of below full employment levels of output, a larger U.S. trade deficit would

[1]It is possible to construct examples where a general opening to trade can hurt some countries in the Global Trade Analysis Project (GTAP) model used by the ITC, but these would have highly stylized and certainly unrealistic effects for the U.S. For example, if Country A only exported coffee, and coffee importing countries had large tariff barriers on the imports of coffee from this Country A's competitors, then the reduction in these tariffs would reduce the income that Country A gets from its coffee and therefore likely make it worse off as a result of generalized trade liberalization. Since the United States has a very diverse set of exports, it is implausible that it would find itself in this situation. However, particular export sectors may be hurt if tariffs against competitors' imports by TPP countries are reduced by larger amounts than already low tariffs against U.S. imports.

imply lower output and employment. It is possible that the higher prices implied by stronger and longer patent and copyright protections, as well as protection for other forms of intellectual property, could lead to economic losses for the U.S. and other countries. It is also possible that the restrictions on regulatory changes in the TPP block financial, health and safety, or environmental regulations that would have provided net economic gains. However, the ITC model explicitly ruled out these and other possibilities from consideration.

For this reason, it is wrong to view the projections from the ITC model as a comprehensive assessment of the impact of the TPP. It is also important to note that the ITC is very clear on this point. The factors noted above would be difficult to model and the ITC did not try.

The limits of the sort of modeling exercise performed by the ITC can be seen from the past track record. CGE models, like the one used by the ITC, have had an extraordinarily poor track record in projecting the patterns of trade following past agreements. For example, they failed to pick up the large increase in the trade deficits with Mexico following NAFTA, or the increase in the trade deficit with Korea following the implementation of the KORUS. Not only did they not pick up the overall change in trade balances, they have not been able to accurately identify winning and losing industries. In the case of the KORUS, there was essentially no correlation between the winning and losing industries as predicted by the ITC and the actual outcome after the deal took effect (Rosnick and Baker 2016). This history suggests that the impact of factors not included in the model is substantially larger than the factors that ITC has incorporated into its analysis.

With these qualifications, it is worth noting what the ITC projected as the impact of the TPP. **Table 1** shows the projected impact of the TPP on exports and imports by sector, the real trade balance, GDP, income, and employment.

TABLE 1

Economy-wide effects of TPP: Changes relative to baseline in 2032 and 2047

	2032		2047	
	(billions)	(percent)	(billions)	(percent)
Real income	$57.3	0.23	$82.5	0.28
Real GDP	$42.7	0.15	$67.0	0.18
Employment (full time equivalents, thousands)	$128.2	0.07	$174.3	0.09
Capital stock	$171.5	0.18	$343.5	0.24

Broad sector level effects of TPP on U.S. output, employment, and trade: Changes relative to baseline estimates in 2032

	Exports		Imports		Output		Employment
	(billions)	(percent)	(billions)	(percent)	(billions)	(percent)	(percent)
Agriculture and food	7.2	2.6	2.7	1.5	10.0	0.5	0.5
Manufacturing, natural resources, and energy	15.2	0.9	39.2	1.1	-10.8	-0.1	-0.2
Services	4.8	0.6	7.0	1.2	42.3	0.1	0.1

Source and notes: From ITC 2016, Tables ES1 and ES3. Dollar values are in 2017 prices.

The model projects that the TPP will in proportionate terms have by far the biggest impact on agriculture. It projects that agricultural exports will be 2.6 percent higher in 2032 than in the baseline, while imports will be 1.1 percent higher. By contrast, exports of manufactured goods and natural resources are projected to rise by just 0.9 percent and services by 0.6 percent. The corresponding projected changes on the import side are 1.1 percent and 1.2 percent. It is not surprising that the largest impact would be in the agricultural sector since

this is the only area in which substantial trade barriers still exist between the countries in the TPP. Trade barriers on manufactured goods are already very low between the United States and most of the countries in the TPP in large part because the U.S. already has trade agreements with six of the eleven other countries. This means that there is little potential gain from further reductions in these barriers. There are also few formal trade barriers to remove in the case of services. Most of the projected gains reported in the ITC study result from the ITC's attempt to model the effect of the removal of non-tariff measures that impede trade in services.

However, even in agriculture the projected impact of the TPP is limited. The ITC projects that output in the sector will be 0.5 percent higher in 2032 than in the baseline as a result of the TPP. It also projects that employment will be 0.5 percent higher. With growth in the agriculture sector projected to average 2.0 percent over this period, the gains to agriculture projected by the ITC are equivalent to three months of normal growth.

The ITC projects that manufacturing will see a small decline equal to 0.1 percent of total output, as import growth in the sector is projected to exceed the export growth that would result from the TPP. This is associated with a projected 0.2 percent decline in employment in the sector. The fact that the drop in employment exceeds the drop in output is likely in part due to rounding, but also the projection that the TPP will lead to a modest increase in productivity. As a result, the economy will need somewhat fewer workers to produce the same amount of manufacturing output in 2032.

Output in the service sector is projected to rise by 0.1 percent. This increase incurs in spite of the fact that imports are projected to rise very slightly more than exports. (The projected $2.2 billion rise in the trade deficit in services is slightly more than 0.01 percent of projected output in the sector.) The reason is that productivity in services is projected to rise slightly as result of more capital investment. In this case, the rise in productivity goes along with an increase in employment since it is assumed that wages in the sector will rise proportionately, leading to an increase in employment in the sector. As a practical matter these changes are quite modest. In a typical month, employment will increase by close to 0.1 percent so the projections in the ITC report imply a cumulative gain after 16 years in service sector employment that is roughly equal to one month's employment growth.

Summing the projected changes in the exports and imports across sectors implies an increase in the trade deficit of $21.7 billion. This is not actually the projected change in the trade deficit in 2032 as a result of the TPP. The ITC is very clear that the size of the trade deficit is an assumption built into the model. Based on its analysis of the relationship between the trade deficit and GDP, the ITC assumed that the trade deficit would be 0.9 percent of GDP in 2032 (ITC 2016, p. 93). This figure is independent of the impact of the TPP. The assumption is that if the reduction in trade barriers from the TPP pushes the deficit higher or lower than this amount, there would be adjustments in other factors, primarily exchange rates, which would act to offset the change.[2]

The projected increase in the real trade deficit of $21.7 billion is somewhat larger than would be implied by

[2]The adjustment could also take place through other channels. For example, within the Eurozone, the policy of the European Commission is to force deficit countries to move to more balanced trade by reducing their wage and price levels. This is referred to as "internal devaluation," where effects comparable to a currency devaluation are accomplished by changes in domestic prices.

the $42.7 billion or 0.15 percent projected growth in GDP as a result of the TPP. (The 0.9 percent assumption would imply an increase in the trade deficit of just $0.38 billion.) The reason for the difference is that the $21.7 billion figure is expressed in 2017 dollars. The model projects that the price of U.S. exports will rise relative to the price of the goods and services the United States imports. This means that measured in 2017 dollars, the trade deficit will rise under the TPP relative to the size of the nominal deficit, since we will be able to buy more imports for the same amount of exports. However, the nominal deficit in 2032 will be what matters for overall demand in the U.S. economy.

This gap between the change in the real and nominal trade deficit also explains the small gap between the projected increase in real income and the projected increase in real GDP. The ITC projects an increase in real income of 0.23 percent by 2032. This implies an increment to the annual growth rate of 0.015 percentage points. The projected increase in real GDP is 0.15 percent, implying an increment to annual GDP growth of 0.01 percentage point. Income is projected to increase slightly more rapidly than GDP since the study projects that households will be able to effectively buy foreign produced goods and services at a lower relative price.

The projected rise in income is associated with a projected increase in employment of 128,200 full-time equivalents or 0.07 percent of projected employment. This increase is all on the supply side in that it assumes that more people will be willing to work (or work more hours) due to the fact that the trade agreement has led to a modest increase in the real wage. It is not a case where the TPP is projected to create more jobs, since the model assumes that everyone who is willing to work at the prevailing wage is already employed. The model projected that real wages would be 0.19 percent higher on average in 2032 as a result of the agreement. It assumes a labor supply elasticity of 0.4 to get the projected increase in employment. The model projects that the impact on skilled and unskilled labor will be virtually identical, leaving little change in the distribution of wage income as shown in **Table 2**.

TABLE 2
Effect of TPP on U.S. employment and real wage rate: Changes relative to baseline in 2032
(percent)

	Employment	Real wage rate
Labor	0.07	0.19
Unskilled labor	0.07	0.18
Skilled labor	0.08	0.19

Source and notes: From ITC 2016, Table 2.9.

While the projected decline in manufacturing employment, which disproportionately hires less-educated workers, would lead to a relative decline in demand for less educated labor, this is largely offset by the projected increase in employment in agriculture, which is also disproportionately employs less-educated workers. As noted, the projected impact on wages in the model is small — it is not unusual for the average real wage to rise by 0.2 percent in a single month — so the difference between the projected impact on more and less skilled workers is far too trivial to make any difference in the economy. Of course, the actual impact of the TPP on wages and relative wages would be more substantial if patterns of trade proved to be substantially different than predicted in the model. This would be the case if, for example, the trade deficit in manufactured goods increased by more than projected in the model.

The model shows little difference in the distribution of income between capital and labor as a result of the

TPP. Labor is projected to receive 66 percent of the income gains that result from the TPP, while capital is projected to receive 34 percent. This is also a projection driven by the design of the model. For example, if the TPP were to create a situation where employers found it easier to threaten unions to make concessions on wages and benefits, this would not be picked up in the model. The model is not designed to pick up whatever impact workers' bargaining power may have on the distribution of income between labor and capital or between more highly educated and less highly educated workers.

Land rents are also projected to rise slightly but this is offset by a modest decline in the returns to natural resources like mining and forestry. The logic here is that the TPP will increase the value of land, for example by increasing agricultural output, while doing nothing to increase the value of natural resources. This means that some amount of land is likely to be diverted to agriculture and other uses, rather than mining or forestry.

The ITC Projections and Other Studies

The Peterson Institute Study

There have been several other efforts to model the impact of the TPP, most notably a model produced by the Peterson Institute (Petri and Plummer 2016). The Peterson Institute model showed income gains equal to 0.5 percent of GDP when the impact of the TPP was fully phased and realized (2030 in this analysis). These projected gains are more than twice the size of the projected gains from the ITC analysis, although still relatively modest by most standards. (The projection from the Peterson Institute model would imply an increase to the annual growth rate of 0.036 percentage points.)

The ITC report notes the projections from the Petri and Plummer analysis and points out some of the major differences (ITC 2016, p. 96–98). First, the ITC used assessments of the specific situations in each country to assess the likely impact of reductions in tariffs and non-tariff barriers. For example, the preference of Japanese consumers for Japanese beef, which will limit the extent to which reductions in trade barriers will lead to more consumption of U.S. beef. By contrast, the Peterson Institute model applied standard assumptions on the elasticity of demand with respect to price without taking such factors into account.

The second difference noted by the ITC is that the Peterson Institute model used a rule of thumb to determine the impact of the reductions of non-tariff barriers rather than doing an industry by industry examination.

The Peterson Institute analysis assumed that 75 percent of the non-tariff regulations on goods and services in the United States should be viewed as barriers to trade, as opposed to serving actual health, safety, or other legitimate purposes. Of these barriers, the analysis assumed that 50 percent of the barriers on services and 75 percent of the barriers on goods would be eliminated as a result of the TPP. By contrast, the ITC examined specific provisions for each sector. It is likely that this difference in approaches accounts for a substantial portion of the difference in the projected impact of the TPP. According to Petri and Plummer, the reduction or elimination of non-tariff barriers and increased foreign direct investment accounted for 88 percent of its projected gains for the United States (Petri and Plummer 2016, p. 15). This means that the model projected gains from the reductions of tariff barriers of just 0.06 percentage points.

The third difference is that the Peterson Institute model assumed that 20 percent of the reductions in non-tariff barriers applied to countries that were not in the TPP. In effect, it assumed that other countries would

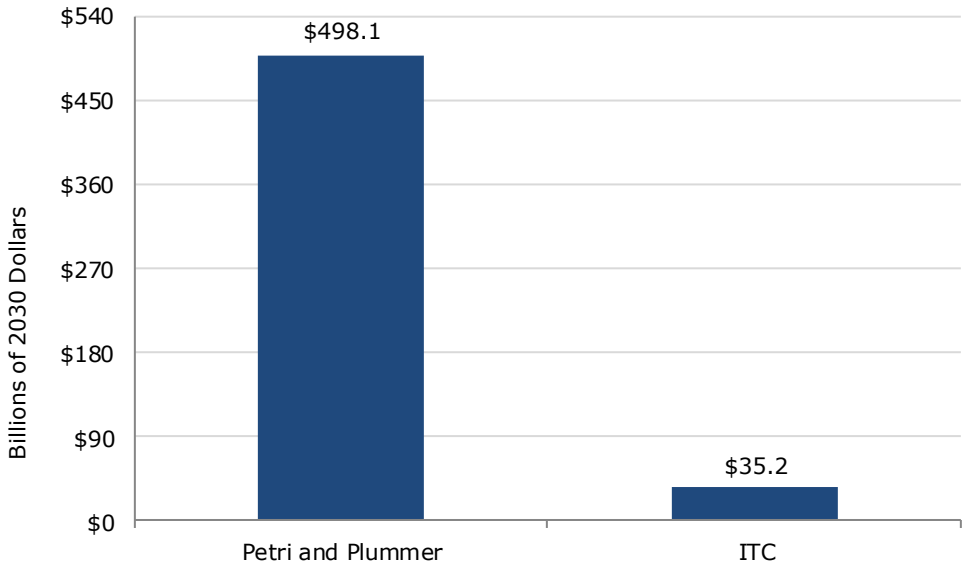
benefit from reductions in regulation in the United States, even if they were not parties to the pact. The ITC analysis did not assume any spillovers of this type.

The issue of spillovers is an interesting one from the standpoint of the political debate over the TPP. One of the arguments being put forward by proponents of the TPP is that the pact is an alternative to trade agreements being pushed by China. The implication is that the United States would be worse off in a world where China reduces trade barriers between itself and a number of countries in the region with a similar trade deal than in the current situation. However, if there are substantial spillovers in trade restrictions — in other words liberalization between China and its pact partners would also mean liberalization with other countries not in the pact — then the United States could very well benefit from a trade agreement between China and other countries in the region. Rather than being something to fear, if there are substantial spillovers, a China-led trade pact would be a desirable development from the standpoint of the U.S. economy. It would require a more thorough analysis of the specifics of any trade deal to make this sort of assessment, but the assumption in the Peterson Institute analysis certainly suggests that it is a possibility.

The fourth difference between the two analyses is that the Peterson Institute analysis assumes heterogeneity among firms within a sector. Under this assumption, the more efficient ones are better situated to increase output in response to increased demand for exports. This means that increased trade would lead to greater increases in productivity. The ITC analysis uses the standard assumption of perfectly competitive firms in each industry. This assumption in the Peterson Institute model would imply somewhat larger gains from expanded trade.

While the Peterson Institute projected gains in income from the TPP that were slightly more than twice as large as the gains projected by the ITC, it projected that the TPP's impact on the volume of trade would be more than an order of magnitude larger. The Peterson Institute's analysis projected exports would increase by 9.1 percent in 2030 relative to the baseline. This is more than ten times the increase in exports projected by the ITC. **Figure 1** below compares the projected increase in exports by the two models.

FIGURE 1
Change in Exports Due to TPP



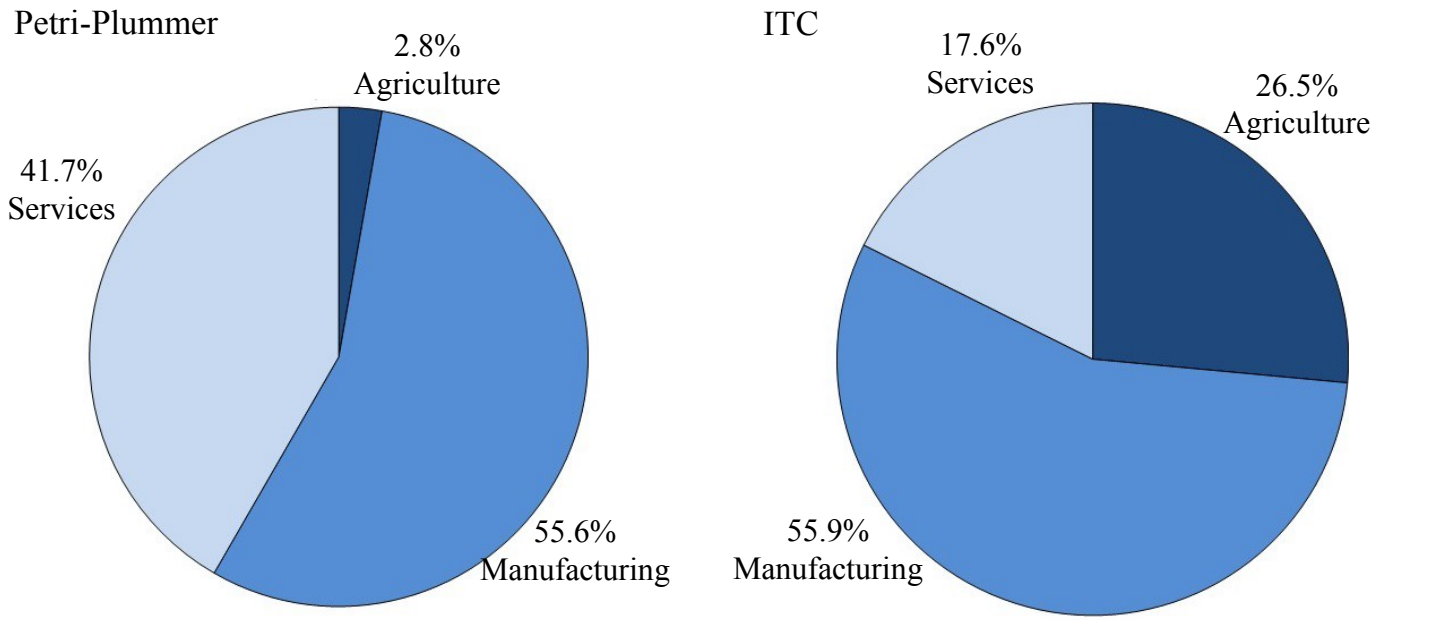
Source and notes: Petri and Plummer 2016 and ITC 2016.

As can be seen, the Peterson Institute analysis concluded that the TPP would have a far larger impact on the volume of trade than the ITC analysis.

Not only do the studies differ hugely in their projections of the impact on the volume of trade, there are large differences in the composition of the projected increase. In the case of the ITC study the agricultural sector is by far the largest gainer in exports in percentage terms, with a growth of 2.9 percent. With an increase in exports of 0.9 percent, the absolute size of the growth in exports in manufacturing is just over twice as large as the growth in exports in agriculture. Service exports increase by just 0.6 percent, for an absolute gain that is just two-thirds the size of the gain in agriculture. By contrast, the Peterson Institute analysis projected that the increase in manufacturing exports would be nearly twenty times as large as the increase in agricultural exports.[3] It projected that the increase in service exports would be roughly 15 times as large as the increase in services. These differences are shown in **Figure 2**.

FIGURE 2

Composition of Change in Exports Due to TPP



Source and notes: Petri and Plummer 2016 and USITC 2016.

The sharp differences between the two sets of projections on changes in both the volume and composition of exports resulting from the TPP raises questions about the usefulness of this sort of modeling exercise. As noted earlier, past projections from this type of CGE model have borne little relationship to actual changes in patterns of trade subsequent to the implementation of trade deals. In this case, there is an extraordinarily large gap between these analyses both in the projected size and composition of the change in exports resulting from the TPP. It's possible that one or the other model may prove to be close to the mark in projecting the actual impact of the deal, but they clearly cannot both be right since the projections are so far apart.

[3]This comparison actually understates the difference in export projections between the two studies. In the Peterson Institute study, mining and natural resource exports are counted with agriculture, inflating this sum. By contrast, in the ITC study these sectors are included with manufacturing.

The Tufts Study

Jeronim Capaldo and Alex Izurieta, a professor at Tufts University and a researcher at United Nations Conference on Trade and Development, respectively, did an analysis using a qualitatively different type of model (Capaldo and Izurieta 2016). They used a macroeconomic model which projected the impact of the TPP on aggregate demand and employment. Unlike both the models used in the ITC study and the Peterson Institute, the model used by Capaldo and Izurieta does not assume full employment. In this model, changes in net exports or their composition can raise or lower aggregate demand in the economy, thereby increasing or decreasing output and employment. The model also assesses the composition of employment by industry to determine the number and mix of workers associated with a specific change in output resulting from a trade deal.

Capaldo and Izurieta calibrated their model to lead to the same change in exports projected in the Peterson Institute study. However, the mechanism for obtaining this increase in exports was a reduction in real wages, to lower unit labor costs in the United States. This led to a shift from labor income to capital income. Since a smaller share of capital income is spent on consumption than labor income, this led to a reduction in aggregate demand and a fall in employment. As a result, the model projects that due to the TPP, by 2025, GDP in the United States will be 0.54 percentage points lower, employment will be 448,000 less, and the labor share of national income will fall by 1.31 percentage points.

While this modeling exercise is a sharp departure from the way in which economists have typically modeled trade agreements, there are a couple of points worth making about its approach even if the projections are not fully accepted. First, the assumption that the economy always returns to full employment following a shock, which is built into the models used by both the ITC and the Peterson Institute, seems considerably less credible following the downturn in 2008. We have seen a prolonged period in which the economy has remained below its potential level of output as estimated by authoritative sources, such as the Congressional Budget Office or the International Monetary Fund. The idea that the economy cannot experience a prolonged period of below full employment levels of output really should not be a debatable point.

Of course, this does not mean that a trade deal like the TPP will necessarily lead to a reduction in employment, but if it does, it is wrong to assume that there is a self-correcting mechanism to reverse the drop. Ordinarily we would expect a drop in the value of the dollar, which would boost net exports, or a decline in interest rates, to raise output in employment in response to a larger trade deficit. However, currency values have often not moved in the predicted direction following changes in trade flows. It cannot be assumed that the dollar would necessarily decline in value relative to other currencies if the trade deficit rose.

Similarly, the Federal Reserve Board (Fed) has been constrained in its ability to boost demand by the zero lower bound. It is difficult for the Fed to push the short-term interest rate that is directly under its control much below zero for the simple reason that people will not generally pay to lend money. This means that once the Fed has pushed the short-term interest to zero, that is pretty much as low as it can go. While the Fed can pursue quantitative easing and other non-standard policy tools, it has been hesitant in its steps in this direction. Barring a major change in Fed behavior, it cannot be assumed that the Fed would act to offset a reduction in output and employment resulting from a larger trade deficit.

In principle, it would be possible to boost the economy using a more stimulative fiscal policy, meaning either a tax cut or boost to spending or some combination. However as a practical matter, it certainly cannot be assumed that Congress would act to fill a demand gap created by a larger trade deficit.

In short, there is no obvious channel through which a reduction in demand caused by a rising trade deficit can be reversed. While the economy may again revert back toward its potential level of output over a long enough period of time, there is no reason to rule out by assumption the possibility that a trade deal can reduce demand and employment by either altering the distribution of income, as assumed in the Tufts study, or by increasing the trade deficit.

BOX 1

The Gains from the Trans-Pacific Partnership and the Gains from Lower Unemployment

In May of 2016, the International U.S. Trade Commission (ITC) came out with its assessment of the Trans-Pacific Partnership (TPP). It projected that in 2032, when the economy will have experienced most of the effects of the deal, income will be 0.23 percent higher than in a baseline without the TPP. This translates to an increase in the annual growth rate of 0.014 percentage point.

That is not the sort of thing that would likely get most people too excited. It means that with the TPP in place we will basically be as rich on January 1, 2032 as we would be in the middle of February of 2032 without the TPP. Still this is better than nothing, so why not take the gains the ITC is projecting?

The answer to that question is that the ITC projections are hardly a sure deal. Its past track record, like that of most modelers of trade agreements, has been pretty dismal. The actual patterns in trade have born essentially no relationship to the projected patterns.

This may be due to the possibility that the impact of factors not included in the models swamped the projected impact of the changes being modeled. That's an argument that can save the validity of the models used by the ITC and other economists, but doesn't change the fact that these models have not been useful guides to the future course of trade and economic growth.

It is easy to envision scenarios in which the loss of jobs and output resulting from a rise in the U.S. trade deficit following the implementation of the TPP, swamp the sort of gains projected by the ITC and other modelers. It is also possible to envision scenarios in which the TPP provisions not included in the ITC model have a larger impact in slowing growth than gains projected from the reduction in trade barriers included in the model. For example, the impact of higher prices for drugs and other items subject to stronger patent and copyright protection could well exceed the gains from lowering barriers that were in almost all cases already very low.

But it is useful to first get a perspective on how important the projected gains from the TPP are relative to other policies. The Federal Reserve Board's policy on interest rates provides a useful basis of comparison. There is currently a major debate both inside the Fed, and in economic policy circles more generally, as to whether the Fed should be trying to slow growth or instead should be looking to speed up the pace of recovery.

The issue is whether the labor market is getting so tight that it will begin to set the economy off on an inflationary spiral. The Fed is looking at the unemployment rate and other measures of the labor market's strength to determine when it should again raise interest rates to slow the rate of job creation.

We can't know with certainty how low the unemployment rate can go before inflation becomes a serious problem, but we can say how much it costs to err on the side of too much unemployment. Okun's Law equates a 1.0 percentage point drop in the unemployment rate with a 2.0 percentage point rise in GDP.

This means that if we want to see the unemployment rate drop by 1.0 percentage point over the next year, we would need GDP to grow 2.0 points more rapidly than in the baseline case where unemployment remains constant. In the current economy, this would mean GDP growth of around 4.0 percent rather than the 2.0 percent growth rate currently forecast for the year. This relationship allows us to approximate how much GDP we would forego if the Fed erred by keeping the unemployment rate higher than necessary.

For example, if it erred by a half percentage point, keeping the unemployment rate at 4.7 percent when it could actually fall to 4.2 percent without triggering inflation, the cost would be a full percentage point of GDP. This loss would be felt every year that the unemployment rate was at 4.7 percent.

BOX 1

The Gains from the Trans-Pacific Partnership and the Gains from Lower Unemployment

In fact, the size of the annual loss (measured as a share of GDP) would actually increase through time. The reason is that with lower GDP we would see less investment. Investment is roughly 13 percent of GDP. As a first approximation, it is reasonable to assume that if the Fed's error lowered GDP by 1.0 percentage point, then it would reduce investment by an amount equal to 0.13 percent of GDP.

Lower investment matters, because with less capital, the economy would be less productive than would otherwise be the case. Reducing investment by 0.13 percent of GDP may not matter much for one year, but over time this can have a substantial impact on reducing growth, adding to the loss of 1.0 percent of GDP directly associated with the lower level of employment.

This is shown in **Figure 1**. The gain from a 0.5 percentage point reduction in the unemployment rate rises from 1.0 percent of output in 2017 to more than 1.4 percent by 2032.[1]

It is worth noting that Figure 1 shows a very conservative estimate of the potential gains from lower rates of unemployment. It does not include any long-term gains associated with pulling more people into the labor force. The Congressional Budget Office and other forecasters have hugely reduced their projections of potential GDP under the assumption that many of the people who lost jobs in the downturn have permanently left the labor market. While these projections may prove to be incorrect (people may return to the labor market if there is demand for their work), if the logic is correct, by sustaining higher levels of employment, the Fed will be keeping more people in the labor market and thereby increasing potential GDP. The size of this effect could easily exceed the impact of more investment in raising potential output.

To get an assessment of the importance of the potential gains from lower unemployment relative to the gains from the TPP, **Figure 2** sums the gains from 0.5 percentage point reduction in the unemployment rate, sustained over the next 16 years, and compares it to the ITC projections of the gains from the TPP.

Figure 1: Impact of a Sustained 0.5 Percentage Point Reduction in Unemployment

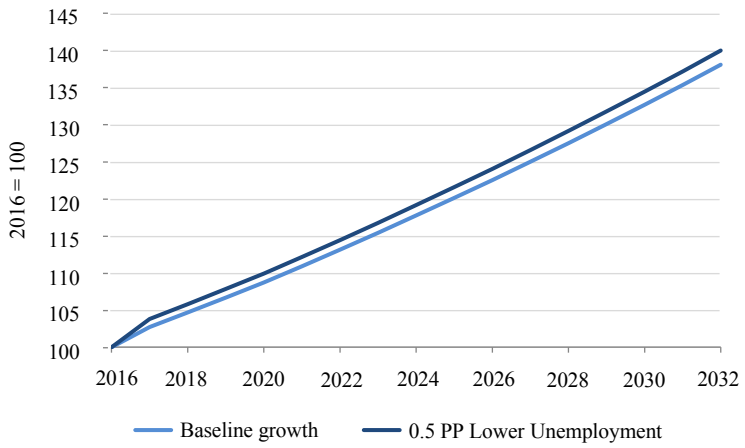
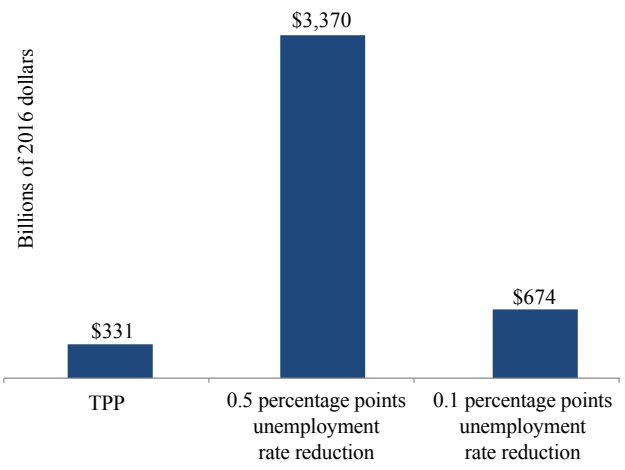


Figure 2: Cumulative Gains, 2017–2032



Following the ITC projections, it is assumed that the gain of 0.23 percentage points by 2032 is phased in over the next sixteen years at a rate of 0.014 percentage points annually. The future gains from the TPP and a reduction in the unemployment rate are both discounted at a 2.7 percent real rate.

As can be seen, the gains from sustaining an unemployment rate that is 0.5 percentage points lower than the baseline are more than an order of magnitude larger than the ITC's projections of gains from the TPP. Over the next decade, a sustained 0.5 percentage points reduction in the unemployment rate, relative to the baseline, would lead to a cumulative gain of $3.37 trillion. By contrast, the ITC projection implies that the gain from the TPP over this period would be $331 billion. Clearly, there is far more to be gained if we can sustain a lower level of unemployment than we can possibly hope to gain from the TPP.

To make this point even more clearly, Figure 2 also shows the cumulative gain from 2017 to 2032 of sustaining an unemployment rate that is just 0.1 percentage point below the baseline. This would be $674 billion, more than twice the projected gain from the TPP. These simple calculations suggest that there is much more to be gained by trying to push the unemployment rate as low as possible than anything we can hope to get by way of economic growth from the TPP.

Source and notes: Congressional Budget Office and author's calculations. [1] This calculation assumes that the capital output ratio is 1.6. It also assumes that the coefficient on capital in a Cobb–Douglas production function is 0.33. This means that the increase in output in the following year due to higher investment is equal to roughly 0.025 percent of the increase in GDP.

The other major point worth noting from the Tufts study is that trade can affect power relations between actors in the economy. Specifically, the increased ability of employers to outsource production to lower cost countries can be used as a bargaining chip to force workers to accept pay cuts. In this way, trade agreements can affect the distribution of income between labor and capital or between labor subject to international competition and to labor that is protected. (Most of the redistribution of the last four decades has between types of workers.) Whether the Tufts study has accurately quantified this effect is a debatable point, but the fact that the ability to outsource production increases the relative power of capital really should not be.

In short, the Tufts study makes a useful contribution in showing ways in which increasing trade can be harmful to the economy and especially to certain groups within the economy. As noted earlier, the assumptions in the CGE models of the type used by the ITC largely rule out the possibility that increased trade can negatively impact the economy and only under extraordinary circumstances will expanded trade hurt any large group of workers. The Tufts study describes a scenario in which a trade agreement does have a negative effect on both the economy as a whole and especially on working people.

Other Issues with the ITC Analysis

In addition to the items that will be addressed in somewhat more detail in the next section, there are a couple of other points worth making about the projections in the ITC study. First, the analysis is based on the assumption that the provisions in the TPP are strictly followed. This is an issue with the most obvious implications relating to the rules of origins provisions (ROO) of the TPP. The issue is that the TPP is supposed to give preferential access to goods produced in other TPP countries, but not to third party countries. However, most goods will have inputs from multiple countries, so that much of the value in items exported from TPP countries to the United States will come from third party countries.

The TPP rules of origin provisions limit the extent to which the value of a product can come from countries not in the TPP and still qualify for the preferential treatment provided by the agreement. This is likely to be an issue in many sectors, but it is especially important in the case of cars and car parts. The ROO in the TPP require originating content of between 45 percent and 55 percent for vehicles and engines and some other car parts. For most parts, the requirement is between 35 and 45 percent.[4] The TPP ROO are considerably weaker than the ones in NAFTA, which required 62.5 percent as the analysis notes (ITC 2016, p. 237). Furthermore, a part can be treated as 100 percent originating content in calculating the in-country value of an assembled car or larger part, if it meets the standard. (This means that the price of a part produced in Vietnam that has 35 percent domestic content can be counted in full as originating content when calculating whether an assembled car meets the rule of origin if the part is included in a vehicle assembled in Malaysia or some other TPP country.)

Rules of this sort are difficult to enforce and it is virtually certain that there will be some amount of cheating where companies over-report the originating content to enjoy the preferential treatment allowed under the TPP. Insofar as this is the case, it is likely that imports to the United States of cars and car parts will increase by somewhat more than the projections in the ITC report. The ITC report projected that the TPP would lead to a modest increase in output and employment in the vehicle sector of 0.3 percent for both after 15 years and

[4]The lower figure is for a calculation using the net cost method while the higher figure is for calculations using the build-down method.

0.2 percent after 30 years. It projected a modest decrease in employment in the parts sector of 0.3 percent for both after 15 years and 0.2 percent after 30 years (ITC 2016, p. 233).

In both cases, the impact is likely to be somewhat more negative insofar as companies are able to undercut the ROO minimums by misrepresenting the amount of originating content. It might have been reasonable to include some assumption on the magnitude of such misrepresentation since it is virtually certain it will occur given the incentives involved. In the same way that revenue estimates for tax increases always assume some amount of evasion, it would be appropriate when assessing the impact of trade provisions to recognize that they will not be followed exactly as written. It would be difficult to develop a basis that projected the effect of misreporting on trade flows, but it would almost certainly be a net negative from the standpoint of the auto industry. The adjustment for misrepresentations would quite likely be large enough to turn the small projected net positive for output and employment in the vehicle and parts sectors taken together into a small net negative.[5]

The other issue worth noting in this analysis is that there is no calculation for the possibility that the rules in the TPP could prevent an economically beneficial regulation from going into effect. While this is not supposed to be an outcome of the pact, it is certainly a possibility that cannot be ruled out. The TPP requires that new regulations relating to safety, food, plant and animal health, and the environment be supported by scientific evidence. It also requires governments to compensate foreign investors for regulatory takings. This means that foreign investors could demand compensation for the loss of prospective profits due to a regulation they claim violates their TPP investor rights. They would be entitled to compensation even if the regulation applies equally to domestic and foreign firms and is justified on health, safety, or other grounds. This means that governments could be required to pay companies for a new policy limiting their emissions of a pollutant if it is enacted after the TPP were to go into effect, even if the pollutant does in fact cause cancer or has other major health effects.

The change in the incentive structure created by the TPP is almost certainly going to result in weaker regulation in a number of areas. If it prevents regulations where the benefits outweigh the costs, then the economic losses from this effect of the TPP could be substantial. To take an extreme case, the Environmental Protection Agency estimated that the 1990 Clean Air Act will have produced cumulative benefits of almost $2 trillion by 2020 (in 2006 dollars) (Environmental Protection Agency 2011). It estimated the cumulative costs over this period at $65 billion. Based on these estimates, if TPP type rules had been in place in 1990 and discouraged Congress from approving the Clean Air Act, the loss to the economy would have been more than $1.9 trillion.

The Clean Air Act is undoubtedly an extreme case where the benefits of regulation were so lopsided and it is almost certainly not the intention of those crafting the TPP to prevent such beneficial regulation. However, it was certainly not clear at the time Congress approved the law that the benefits would outweigh the costs by such a large margin. For example, Robert Hahn, a leading conservative expert on regulation, was skeptical whether the benefits would exceed the costs at all (Hahn 1990). He saw the law as effectively imposing a large tax on the country's consumers. It is certainly possible that if legislators had to face the sort of additional scrutiny for new regulations required by the TPP, or the prospect of large compensation demands

[5]It is worth noting that the ITC analysis does not appear to assume any major changes in the technology of the auto sector. The mass introduction of self-driving cars would likely radically transform the industry so that in 15 years and certainly 30 years it looks quite different than it does today.

from foreign investors, they would have opted not to approve the Clean Air Act. And even if this measure would have still been approved, other measures that still offered benefits that exceed the costs, but not by as lopsided a margin as the TPP, would almost certainly not be approved.

Putting the issue slightly differently, the TPP imposes a higher burden for regulations that restrict corporate behavior of almost any type. In addition to a health and environmental measure like the Clean Air Act, the TPP makes it more difficult and almost certainly more expensive (because it requires compensation) for anti-trust measures, prudential measures in the financial sector, and consumer and labor protection measures. If it is the case that at the margin the regulations now in effect just balance benefits and costs, then the TPP is likely to tip the scales so that we are not implementing some number of regulations where the benefits would exceed the costs. If the scales were already tilted in that direction, since the power of corporate interest groups is sufficient to block beneficial regulation, the TPP would make the situation worse. Only if it is the case that the current balance leads the country to pursue regulations whose costs outweigh their benefits would the restrictions in the TPP lead to net benefits to the economy and society. In the other two cases, it will lead to net costs, the only question is how large those costs will be.

Other Items Not Addressed by the ITC Model

While the ITC projects relatively limited gains from the TPP, there are reasons for believing that its methodology may not have accurately captured aspects of the trade deal that could prove harmful to the economy. This section will discuss three issues in some detail:

1) the potential losses associated with workers being displaced from jobs and being unable to find new employment;
2) the potential impact of large increases in the trade deficit that could result if one or more of the parties to the TPP adopt a policy of managing its currency so as to sustain a large trade surplus; and
3) the potential impact from a substantial increase in payments from TPP partners for royalties and licensing fees to U.S. firms as a result of the stronger intellectual property provisions in the pact.

These three issues all involve some degree of speculation about the impact of the TPP which would be difficult to capture in the sort of CGE model used in the ITC analysis. Nonetheless, the impact in each area could be substantial with the potential costs comparable in size or larger than the gains from the TPP projected by the ITC. These issues are addressed in turn below.

Displacement

The ITC model is an equilibrium model that simply looks at endpoints. It does not address the adjustment process associated with gains in one sector and losses in another. The report notes this fact explicitly (ITC 2016, p. 22). If workers and capital could move from sector to sector without incurring any costs, there would be no problem with this assumption; however, this is far from the reality in the current economy.

As a practical matter, workers who lose their jobs, whether due to trade or other factors, often experience long periods of unemployment. Many older workers may never work again after being laid off. Others may find jobs, but only with a substantial reduction in pay. In addition, if the job loss from a trade agreement is concentrated in a particular city or region, then there will be large secondary effects. The public services — schools, health care services, parks and amenities — that were supported by the taxes paid by workers and their employers will be hard hit. Also, businesses in the area are likely to feel an impact as well. There are many examples of cities in the Midwest that have seen a substantial loss of jobs and population following the loss of major manufacturers. A serious analysis of the impact of the TPP should try to incorporate these transitional costs.

While the ITC acknowledged this issue, the report itself makes no effort to quantify the transitional impact from the job displacement from the agreement. Fortunately, a study published by the Peterson Institute for International Economics (Lawrence and Moran 2016) makes an effort to assess the costs associated with transitional job loss. While this study uses the projections from the Petri and Plummer study as its starting point, rather than the ITC report, it can still provide a useful framework for assessing the issue.

Lawrence and Moran (LM) construct projections of gross job displacement by going through the projections of import growth by major sector from Petri and Plummer. They then use the employment requirement tables from the Commerce Department to translate the projected rise in imports into job loss. This gives them the gross job loss projections shown in column 1 of **Table 3**. (LM shows a greater level of disaggregation, with nine manufacturing sectors and nine non-manufacturing sectors.)

TABLE 3
Job Displacement and its Cost
(thousands)

Industry Sector	Projected Job Growth 2015–2030	Direct and Indirect Displacement	Adjusted for Growth	Adjusted for Voluntary Quits	Multiplier Effect
Manufacturing	568	493	259	222	740
Apparel	5	28	24	21	
Chemicals	128	91	30	25	
Electrical Equipment	-80	16	16	14	
Food and beverages	-5	11	11	9	
Machinery	-21	98	98	84	
Metals	107	91	36	31	
Other manufacturing	281	91	10	8	
Textiles	-8	35	35	30	
Transportation equipment	160	32	0	0	
Other industries	15504	1196	19	16	1794
Communications	187	26	0	0	
Construction	2545	36	0	0	
Financial services	1318	270	0	0	
Mining	333	37	0	0	
Agriculture	-11	19	19	16	
Business services	1271	272	0	0	
Social services	6196	55	0	0	
Trade and transportation	3644	469	0	0	
Utilities	21	12	0	0	
Total	16072	1589	278	238	2384

Source and notes: From Lawrence and Moran (2016).

The Lawrence and Moran study treats these numbers as an upper bound. They argue that their numbers assume that the job loss in all the supplier industries associated with import displacement, which is clearly implausible. Also, in many cases some of the supplier industries will be overseas, since the inputs are imported. They then adjust this figure downward with the assumption that in growing industries most of the job loss will be offset by baseline job growth. The logic is that in a growing industry, the loss of some sales due to increased imports is likely to mean simply that jobs are added more slowly, not that workers are laid off. This assumption reduces the projection of job displacement by almost 83 percent, leaving a figure of 278,000 jobs, almost all of them in the manufacturing sector. (The remaining jobs are in agriculture.) These figures are shown in column 2.

Lawrence and Moran then make a further adjustment for voluntary attrition. They use data from the Bureau of Labor Statistics Job Openings and Labor Turnover Survey (JOLTS) which shows that voluntary job leavers in manufacturing were equal to 14.3 percent of total employment in 2015. This amount was subtracted from column giving the total 238,000 shown in column 3. This is their preferred estimate of the number of workers who will be displaced as a result of the TPP.

There are several reasons to believe that this may be an overly optimistic assessment of the number of workers who would be displaced by imports, if we start from the Petri and Plummer projections. (As noted, the ITC projections of trade growth are more than an order of magnitude smaller.) First, Lawrence and Moran do not assume any multiplier effects from these job losses. It is appropriate to ignore multiplier effects at end points given the structure of the model. It is a full employment model, so any additions in output (or subtractions) due to trade are offset by changes elsewhere so the multiplier would have to be zero. However, from the standpoint of measuring transitional impacts, the multiplier effects are likely to be important.

To take a hypothetical example, imagine a steel factory shutting down in a mid-sized city. If the factory is a major employer, the loss of the factory will lead to job losses not only for the factory workers but almost certainly for many of the businesses where the workers used to shop. Furthermore, the loss of tax revenue is likely to lead to cutbacks in city services and the layoff of public sector workers. The Lawrence and Moran study ignores this secondary effect when calculating the upper bound estimate of job loss shown in column 1. If we instead assume a multiplier of 1.5, where the full job loss is one and a half times the number of jobs directly lost due to higher imports, we get the figures shown in column four, with a total job loss of 2,384,000. (A multiplier of 1.5 is likely low given the fact that Lawrence and Moran implicitly assume that the value-added associated with each job displaced by imports is 35.5 percent higher than for the economy as a whole.)[6]

A second reason why the Lawrence and Moran numbers may substantially understate the amount of job displacement is that they are done at a high level of aggregation. This is important for purposes of their first and largest downward adjustment in which they assume that vast majority of the job loss will be offset by baseline job growth. While a sector as a whole may show baseline job growth, there will be more narrow subsectors which are experiencing job loss. It is also likely that the sector experiencing job loss will be the ones most affected by increased import competition, since the expected result of increased trade is that the U.S. will further specialize in the sectors in which it enjoys a comparative advantage.

[6]This calculation is obtained by dividing the projected increase in imports of $357 billion by the number of displaced workers calculated by LM (1,689,000). This is compared with the projection for GDP ($25,754 billion) divided by total employment (165.1 million).

This issue can be seen clearly if we just envisioned a further degree of aggregation in which we just use the two categories of manufacturing and other, as shown in Table 3. Since both categories are showing baseline job growth (manufacturing as a whole is projected to have baseline job growth of 568,000), using the Lawrence and Moran methodology we could just assume that all the job displacement would be met simply through a slower rate of job growth rather than by workers actually losing their jobs. It is only by moving to a greater level of disaggregation that Lawrence and Moran found that some of the displacement due to imports will occur in sectors that are losing jobs and therefore will have to result in layoffs. If these sectors were disaggregated further, there would be more sectors with displaced workers that are showing baseline job loss and therefore can only meet reduced demand by laying off workers.

In addition, further disaggregation is likely to show more sectors as job losers as a result of the TPP. While a larger sector may be relatively unaffected or even show gains from the TPP, there can be subsectors that still experience job losses. Since the point of this exercise is to measure the gross job displacement, we would in principle want to pick up the losses in these subsectors, even if they are offset by gains elsewhere.

Finally, the measure of voluntary quits is a nationwide average. The willingness to leave a job will depend to a substantial extent on the availability of alternative employment. If job loss is concentrated in areas of the country that are already suffering from the loss of large numbers of manufacturing jobs, then the percentage of people voluntarily quitting their jobs is likely to be substantially lower than for the country as a whole.

For these reasons, the Lawrence and Moran study's upper bound in column 1 is clearly not an actual upper bound. While it would require considerable further analysis and more industry detail than is available from the Petri and Plummer model to produce plausible projections of gross job loss, it is likely that projections calculated by Lawrence and Moran in columns 2 and 3 substantially understate gross loss given the projections from Petri and Plummer. To provide a recent basis of comparison, imports rose by 1.8 percentage points of GDP from 2000 to 2006. This was a period associated with a considerable amount of job displacement across the Midwest and Northeast. After remaining roughly constant for a decade, manufacturing employment fell by more than 3 million jobs over this six year period. It is also important to remember that the loss of jobs is a net figure, the gross job loss would have to be larger.

Petri and Plummer's analysis projects that imports will rise by almost 1.4 percentage points of GDP as a result of the TPP. This is almost 80 percent of the size of the increase in import shares over the years 2000−2006, yet Lawrence and Moran's analysis projects gross job loss of just 238,000. This seems implausibly low on its face. Lawrence and Moran 's upper bound, the 1,589,000 gross job loss number shown in column 1, is likely closer to amount of job loss that should be expected based on the Petri and Plummer projections.

The Lawrence and Moran study provides a basis for comparing the cost of job loss to the projected gains from the TPP. Based on an analysis from David and von Wachter (2011), Lawrence and Moran assume that the discounted value of job loss is equal to 1.4 times the annual wage of an experienced male worker. Using this assumption, they calculate that in their upper bound scenario (column 1), the cost of job loss over the first ten years of the TPP would be equal to 34.4 percent of the projected gains from the agreement. If a multiplier of 1.5 was applied this number, the losses from job loss would be over half the size of the projected gains from agreement over the transition period. (The analysis shows the losses falling sharply to less than 3.0 percent of the gains in subsequent years.)

There clearly is much room for uncertainty in this sort of calculation, but the projection of job loss and implied costs by Lawrence and Moran are likely too low by an order of magnitude in their preferred calculation. This figure is calculated using too high a level of aggregation and failing to account for multiplier effects which are likely to be important during the period of transition. A more realistic calculation, which would be consistent with their upper bound estimate, suggests that the costs of job loss could be equal to between one-third and one-half of the projected gains from the TPP over the first ten years of the agreement's implementation.

It is also worth remembering in this discussion that the Petri and Plummer analysis shows a much larger increase in imports than the ITC study, with the projected impact of the TPP more than an order of magnitude larger. Since the job loss and its cost would be roughly proportional to the growth in imports, the amount and cost of job loss would be considerably smaller using the ITC projections. Nonetheless, the ratio of the cost of job loss to the projected benefits from the agreement would likely be comparable. Based on this discussion, over an initial transition period, a large portion of the projected gains from the TPP are likely to be offset by losses to displaced workers and the communities in which they live.

There is one other point worth noting in this context in comparing the Petri and Plummer analysis and the ITC analysis. Petri and Plummer project that the benefits of the TPP would disproportionately go to labor. In Lawrence and Moran 's assessment of the Petri and Plummer analysis (Table 3), just 27.3 percent of the net gains from the TPP go to capital with 72.7 percent going to labor. By contrast, the ITC report (ITC 2016, p. 90) finds that the gains will be almost exactly in line with the current distribution of income, with capital getting 34.0 percent and labor getting 66.0 percent. This amounts to a substantial difference in the projection of the distribution of gains. In addition to being at odds with the ITC analysis on this point, the Petri and Plummer projection is also at odds with the standard prediction from trade theory. As a rich country in which capital is relatively abundant, we would expect returns to capital to rise in openings with less wealthy countries, not fall as Petri and Plummer project.

To sum up, it is likely that the cost of job loss in the transition will be equal to a substantial portion of the gains from the TPP, even assuming that the economy remains on a full employment course. Many of the workers in the sectors losing jobs are likely to not have the skills or be in the wrong location to benefit from the jobs that might be created as a result of the TPP. There could also be substantial secondary effects if job losses are concentrated geographically. While there is a large difference between the size of the gross effect on job loss between the projections from the Petri and Plummer analysis and the ITC analysis, the cost of the job loss in the transition period where the pact is being implemented (the first decade) could be between one-third and one half of the projected gains.

The Impact of Currency Management

One of the issues raised in the discussions around the negotiation of the TPP was the need for rules that prevented countries from managing their currency in order to sustain large trade surpluses (e.g. Bergsten 2015 and Bergsten and Gagnon 2012). This has been a major problem for the United States over the last two decades as many countries have deliberately held down the value of their currency by having their central banks buy up large amounts of foreign exchange, which mostly means U.S. dollars. By having their central banks buy dollars, instead of allowing them to be sold in international currency markets, the value of the dollar is

kept higher than would otherwise be the case. This makes U.S. goods and services less competitive in the world economy and makes the goods and services of the country buying the dollars more competitive. As a result, the United States has run large trade deficits for most of the last two decades, with a peak of almost 6.0 percent of GDP ($1,100 billion in the 2016 economy) in 2005. The current level of the trade deficit is near 3.0 percent of GDP.

There are two problems associated with this practice. The first is that it distorts patterns of trade leading to less efficient outcomes than would be the case if countries let the market determine the value of their currency.[7] If a country keeps its currency undervalued by 10 percent, it has roughly the same impact on trade patterns as if it was subsidizing all exports by 10 percent and taxing all imports by 10 percent. This leads to a less than optimal outcome for world trade.

In standard trade theory (which assumes full employment), most of the harm would be done to the country depressing the value of its currency, but other economies would suffer as well. For example, in general we expect that capital would flow from rich countries where capital is plentiful to developing countries where it is relatively scarce. If currency management leads developing countries to run trade surpluses, meaning they are exporters of capital, this means that investors in rich countries will get lower returns on their capital than if the market had been allowed to determine currency values. There are likely to be other costs as well as the distortion in currency values will lead to less than optimal patterns of specialization across countries, but the reversal of capital flows is the simplest problem to identify.

The other reason that currency management poses a problem is that we cannot assume that economies are at full employment. Most economists would agree that the United States economy has not been at full employment for most of the period since the recession began in 2007. Arguably, it is still far from full employment in 2016 as the employment rates of prime age workers remain well below pre-recession levels. While economists had previously assumed that departures from full employment were limited in size and quickly reversed, in the wake of the Great Recession many economists acknowledge that these assumptions are unwarranted. The idea that the economy can experience a prolonged period of secular stagnation — a shortfall in demand leading to higher unemployment and below full employments level of output — has become accepted by a large portion of the economics profession.

In this context, currency management poses an even more serious problem since it is not just an issue of misallocating resources from their best uses. The deliberate action by our trading partners to depress the value of their currency relative to the dollar can have the effect of increasing unemployment in the United States. In principle, the effect of a trade deficit can be offset by domestic policies designed to boost employment, such as a reduction in interest rates by the Federal Reserve Board and/or stimulative fiscal policy. However as a practical matter, both routes are likely to be severely limited for the foreseeable future. The short-term interest rate directly controlled by the Fed remains near zero. A reduction in the interest rate from its current level will only a have a limited impact on demand and growth. Similarly, there is little interest in Congress in running larger budget deficits as a way of boosting demand. This means that the loss of demand due to a larger trade deficit is unlikely to be offset, at least in the short-term, by increased demand in other sectors.

[7] Market determination doesn't mean that countries can't try to stabilize their currencies to limit fluctuations and the resulting uncertainty. The issue is whether countries deliberately try to maintain a value for their currency that is well below the market value.

If the TPP had strong rules on currency management, then this issue need not be a cause for concern in assessing the agreement. However, the TPP text itself does not include currency rules. The only mention of currency management among the countries involved in the TPP is contained in a declaration of understanding, which does not have any legal force, that was issued at the time that the actual text of the TPP agreement was made public. If one or more of the countries in the pact decided to embark on a strategy of maintaining large trade surpluses by buying up large amounts of reserves, the TPP provides no effective course of redress. Furthermore, by imposing further restrictions on possible forms of retaliation by the U.S. government, in addition to those provided by the WTO and other trade pacts, the TPP may make it more difficult for the United States to pressure a TPP country to stop accumulating reserves to hold down the value of its currency.

It is also important to note that the TPP is quite explicitly designed for additional countries to "dock on." This means that even if the current members are not likely to engage in currency management, it is possible that other countries that are more likely to do so will eventually enter the pact. For this reason, the lack of binding rules on currency can be viewed as a major flaw in the TPP.

While the potential impact of currency management on the U.S. economy can cover an enormous range of outcomes, a simple exercise can show its importance. **Table 4** shows the ratio of reserves to GDP for the TPP countries in the years from 1999 to 2014.

TABLE 4
Reserves as a Percent of GDP
(percent)

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Australia	5.6	4.5	4.9	5.5	7.1	6.0	6.2	7.4	3.2	3.1	4.5	3.7	3.4	3.2	3.4	3.7
Brunei Darussalam	11.2	6.8	6.8	7.7	7.2	6.2	5.2	4.5	5.4	5.2	12.6	12.6	15.5	20.3	22.2	21.3
Canada	4.2	4.4	4.7	4.9	4.1	3.4	2.8	2.7	2.8	2.8	4.0	3.5	3.7	3.7	3.9	4.2
Chile	20.5	19.0	19.9	21.6	20.4	15.9	13.6	12.5	9.7	12.8	14.7	12.8	16.7	15.7	14.9	15.7
Japan	6.6	7.6	9.7	11.8	15.7	18.1	18.5	20.6	22.3	21.3	20.8	19.9	21.9	21.3	25.8	27.4
Malaysia	39.1	30.5	32.2	33.5	40.2	53.2	49.1	50.9	52.7	39.9	47.8	41.8	44.8	44.4	41.7	34.3
Mexico	5.5	5.2	6.2	6.8	8.3	8.3	8.6	7.9	8.4	8.7	11.2	11.5	12.8	14.1	14.3	15.1
New Zealand	7.6	7.5	6.6	7.4	6.9	6.7	7.7	12.6	12.6	8.4	12.9	11.5	10.2	10.1	8.7	7.9
Peru	18.3	17.0	17.4	17.9	17.4	19.0	18.9	19.9	27.2	25.7	27.4	29.8	28.7	33.3	32.6	30.9
Singapore	89.3	84.6	85.8	90.7	100.8	100.0	92.7	93.8	92.3	92.4	99.8	97.8	88.5	91.7	91.9	85.0
United States	1.4	1.2	1.2	1.4	1.6	1.6	1.4	1.6	1.9	2.0	2.8	3.3	3.5	3.6	2.7	2.5

Source and notes: From Lawrence and Moran (2016).

As can be seen, there is an enormous difference over this period both across and within countries. At the low end, Canada and Australia have both maintained ratios of reserves to GDP of close to 4 percent over this period. By contrast, Malaysia's ratio has averaged over 40 percent, while Singapore's has averaged over 90 percent. There have also been large changes within countries. At the start of the period Japan's ratio of reserves to GDP was under 7.0 percent; in 2014, it was just under 28.0 percent, more than four times as large. Brunei, Mexico, and Peru have also had large increases in their ratio of reserves to GDP over this period.

Not all increases in reserves are efforts at currency management and there are reasons unrelated to currency management why some countries would hold larger ratios of reserves to GDP than others. Nonetheless, currency management clearly has been an important motivation for accumulating reserves in many cases.

Table 5 illustrates the possible impact of a situation in which TPP countries began to accumulate reserves in order to depress the value of their currency against the dollar. It assumes that each of the countries increase the size of their reserves by an amount equal to 10 percent of their GDP as shown in column 1. The second column shows the annual increase under the assumption that the accumulation of reserves takes place over a ten-year period, with the increase in each year being equal to one-tenth of the total accumulation. The third column shows the impact on the U.S. trade deficit. The assumption is that half of this rise in reserves corresponds to a larger trade surplus between these countries and the United States. As a practical matter, the relationship is not likely to be this direct. If a country depresses the value of its currency, it will run a larger trade surplus with all countries, not just the United States. However, other countries may respond to a country's decision to hold down the value of its currency by depressing the value of its own currency. This could mean that the trade deficit the United States runs with the first country may not increase much, but it could see large increases in its deficit with third countries as a result of its currency management. For this reason, the assumption that the impact will be half of the size of the increase in reserves is simply an approximation to get an idea of orders of magnitude.

TABLE 5
The Impact of Currency Management on the Trade Deficit
(billions of dollars, unless noted)

Country	Increase in Reserves	Annual Accumulation	Increase in U.S. Trade Deficit	Impact on U.S. GDP	Impact on Employment (thousands)
Australia	$145.5	$14.5	$7.3	-$10.9	-92.0
Brunei Darussalam	$1.7	$0.2	$0.1	-$0.1	-1.1
Canada	$178.5	$17.9	$8.9	-$13.4	-112.9
Chile	$25.8	$2.6	$1.3	-$1.9	-16.3
Japan	$460.1	$46.0	$23.0	-$34.5	-291.0
Malaysia	$33.8	$3.4	$1.7	-$2.5	-21.4
Mexico	$129.5	$12.9	$6.5	-$9.7	-81.9
New Zealand	$20.0	$2.0	$1.0	-$1.5	-12.6
Peru	$20.3	$2.0	$1.0	-$1.5	-12.8
Singapore	$30.8	$3.1	$1.5	-$2.3	-19.5
Vietnam	$18.6	$1.9	$0.9	-$1.4	-11.8
Total	**$1064.6**	**$106.5**	**$53.2**	**-$79.8**	**-673.4**

Source and notes: From Lawrence and Moran (2016).

The fourth column shows the impact on GDP assuming a multiplier of 1.5. The last column shows the impact on employment in the United States under the assumption that the impact on employment is proportional to the impact on GDP. In both cases, the table uses 2014 values since the GDP numbers are taken from 2014.

The implied loss of GDP in this case, $79.8 billion, or 0.46 percent of annual GDP, is roughly twice the gains from the TPP projected by the ITC. The resulting job loss shown in Table 5 is 673,000. Furthermore, these job losses would be disproportionately in manufacturing, since this sector accounts for the bulk of trade. This means that if manufacturing workers experience higher transition costs than most workers, this job loss will be especially costly.

This is of course a highly stylized example. All the countries in the TPP will not simultaneously decide to manage their currency to gain a trade advantage with the United States. However, some of these countries have engaged in currency management in the past and may again do so in the future. And, the rules of the TPP may make it more difficult for the United States to try to impose pressure for a country to change its currency practices. In the context of an economy experiencing below full employment levels of output, like the United States, the potential impact could be quite large. The lost GDP from currency management by one or more of the TPP countries could easily exceed the gains from the agreement projected by the ITC.

Stronger Rules on Intellectual Property

An explicit goal of the United States in negotiating the TPP was to impose stronger rules for patent and copyright protection and for other forms of intellectual property. There are a variety of measures that advance this end. The requirement of five to eight years of data and marketing exclusivity for biological drugs received the most attention, since this was one of the last major stumbling blocks to reaching an agreement. However, there are a variety of other measures which also create stronger and lengthier protections for intellectual property in prescription drugs and other sectors.

In the case of prescription drugs, in addition to the rules on biological drugs, the TPP requires countries to have periods of data exclusivity for test results more generally. It also requires patent extensions for cases where patent approvals are delayed. In addition, it requires that countries provide patent protection for combination drugs. Previously, many countries had required that a drug involve a new chemical entity in order to qualify for a patent.

Most of the countries already had provisions on protections that were similar to what is required by the TPP.[8] However, the TPP will make it more difficult for them to modify these provisions in favor of more competition and lower prices if they choose. Also it will effectively create an oversight mechanism to which foreign drug companies can turn, if they consider domestic enforcement inadequate. In addition, the an annex on "transparency" in medicine and medical device pricing can lead price control mechanisms, like those in place in New Zealand and Australia, to be called into question. Australia has a system where the government sets prices for drugs based on the extent to which they will increase the quality-adjusted life-years of its population. After setting the price, the drug company has a take-it-or-leave-it choice. The TPP would allow companies to produce their own evidence to dispute the judgement of Australia's health authorities and possibly force the country to offer a higher price.

In addition to the rules on drugs, the TPP includes a number of other provisions designed to make intellectual property protections stronger and longer. In the case of copyright, it requires a 70-year period. It also requires that countries have laws that allow for criminal prosecutions in copyright cases. The TPP also requires that countries have laws to protect industrial secrets. Article 18.78, requires countries to have laws allowing companies to protect trade secrets and imposing criminal penalties for violators.

This provision could be interpreted as requiring countries to enforce non-compete clauses in employment contracts. These clauses prohibit employees from starting their own firm or working with competitors for

[8]Bollyky (2016) has a useful summary of the extent to which some of the TPP provisions on prescription drugs are already in effect in the member countries

time periods as long as five years after the end of their employment. Such clauses have proliferated in recent years. Traditionally, companies engaged in research intensive sectors might have required employees with access to proprietary information to sign non-compete clauses as a condition of employment. More recently, employers doing far more menial jobs, with little access to any confidential information, have often been required to sign such clauses.[9] The effect of such clauses is to reduce labor mobility and lower wages. In addition, where they obstruct the ability of workers to strike out on their own and start a new firm, non-compete agreements can slow the pace of innovation. A recent study attributed part of the difference between the dynamism of the tech sectors in California and Michigan to the fact that California does not enforce non-compete agreements while Michigan does (Marx et al. 2015).

The full impact of the intellectual property provisions is difficult to quantify, in large part because it is not possible to know at this point how they will be enforced. However their impact on growth and distribution is likely to be substantial. As one example, New Zealand's government estimates that one narrow provision — the extension of copyright enforcement from 50 years to 70 years — would cost it the equivalent of 0.023 percent of GDP annually (Government of New Zealand 2015). This sum is equal to 10 percent of the size of the gains from the TPP projected by the ITC. This would be income that is transferred out of the pockets of consumers in New Zealand and into the pockets of the entertainment industry, with the U.S. industry likely being the biggest gainer.

While the intellectual property rules in the TPP are far-reaching, the largest impact is likely to be in the area of prescription drugs. This is both because this is a large sector of the economy and because intellectual property rules lead to an extraordinarily large gap between the protected price and the free market price. In the case of the United States, spending on prescription drugs is likely to exceed $430 billion in 2016, more than 2.3 percent of GDP.[10] In the absence of patents and related protections it is likely that these drugs would sell for less than one-tenth of this amount. Few drugs are expensive to manufacture, the high price is due to fact that the government grants companies monopolies with its intellectual property rules.

A major goal of the TPP is to make the other countries in the pact pay similar prices. This was an explicit instruction of Congress in granting trade authority, which instructs trade negotiators to seek, "a standard of protection similar to that found in U.S. law."[11] Even if the goal may be to force partner countries to pay more, the TPP will not lead to an overnight surge in drug prices for two reasons. First, the TPP rules will generally only affect the prices of newly introduced drugs. In some cases, they may allow for patent extensions for drugs that would not have been granted without the TPP, but this will only be for a small subset of drugs that would have been coming off patents and subject to generic competition.

The other reason why the full effect of the TPP will not be felt immediately is that much of the battle for stronger protections takes the form of trench warfare. We already see this in battles with other countries over rules on protecting pharmaceuticals. For example, Orin Hatch, the chair of the Senate Finance Committee,

[9]The President's Council of Economic Advisors recently released a short analysis documenting the spread of non-compete clauses, see: https://www.whitehouse.gov/blog/2016/05/05/what-you-need-know-about-non-compete-agreements-and-how-states-are-responding.

[10]National Income and Product Accounts, Table 2.4.5U, Line 121, BEA (2016).

[11]See: https://www.congress.gov/114/plaws/publ26/PLAW-114publ26.pdf.

threatened funding for Colombia's Peace Initiative if the country issued a compulsory license for an important cancer drug.[12] This is in spite of the fact that Colombia has this right under the World Trade Organization's Trade Related Aspects of Intellectual Property Rights (TRIPS) chapter and the related Doha Declaration on the TRIPs Agreement and Public Health. In the same vein, the United States has repeatedly placed India on its Intellectual Property watch list because it maintains high standards for issuing patents.[13] It was likely as a result of this pressure that India recently issued a patent for Sovaldi, after earlier rejecting it since it is a combination drug rather than a new chemical entity.[14]

The full impact of stronger IP rules on drug prices in the partner countries will only be felt over time as U.S. drug companies are able to take advantage of the provisions in the agreement, many of which were deliberately left ambiguous to paper over disagreements, to get stronger protections and higher prices. For this reason, it is not reasonable to expect an immediate impact of the deal on drug prices, but it is likely that over the 16-year time horizon examined in the ITC report there will be a substantial impact.

It is worth noting that the pact may also work to sustain high drug prices in the United States. Efforts to lower drug prices, such as having Medicare negotiate prices with the pharmaceutical industry or other forms of price regulation, could be contested under the Investor-State Dispute Settlement mechanism, especially given the provisions in the "Transparency" annex that call for prices to be set according to market forces. Similarly, the refusal to pay for a certain drug by an agency under the Center for Medicare or Medicaid Services, the Veterans Administration or some other federal agency, could be contested.

To get an idea of how much is potentially at stake in higher drug prices, **Table 6** compares spending on prescription drugs as a percentage of GDP among the TPP countries.

TABLE 6
Pharmaceutical Spending as Percentage of GDP in 2015
(percent)

Country	Pharmaceutical Spending
Australia	0.84
Brunei Darussalam	0.60
Canada	1.18
Chile	1.39
Japan	2.30
Malaysia	0.68
Mexico	0.98
New Zealand	0.60
Peru	0.81
Singapore	0.29
United States	2.26
Vietnam	2.18

Source and notes: BMI Research (2016), Bureau of Economic Analysis and World Bank..

[12]See: https://theintercept.com/2016/05/14/leaks-show-senate-aide-threatened-colombia-over-cheap-cancer-drug/.

[13]See http://www.thehindu.com/news/national/india-on-us-watch-list-for-harsh-ip-law/article8538554.ece.

[14]See: http://www.reuters.com/article/us-gilead-india-patent-idUSKCN0Y12NA

As can be seen in Table 7, Japan and the United States lead the group, spending roughly 2.3 percent of GDP on prescription drugs in 2015. Vietnam is close behind, spending 2.2 percent. There is then a sharp falloff to Chile at 1.4 percent and Canada at 1.2 percent of GDP. The rest of the countries all spend less than 1.0 percent of GDP on drugs, with Singapore taking the title of the lowest spender at less than 0.3 percent of GDP. These countries keep down drug spending with a variety measures, most importantly using various types of price controls. While these countries probably did not sign on to the TPP with the expectation that they would have to pay as large as a share of their GDP for prescription drugs as the United States, many of the provisions will push them in this direction.

Table 7 shows the additional amount that the TPP countries would be paying, based on their 2015 spending and GDP, if they ended up paying as large a share of their GDP on prescription drugs as the United States. The total comes to $77.5 billion, which is more than 0.4 percent of U.S. GDP in 2015.

TABLE 7
Additional Pharmaceutical Spending if Brought to U.S. Level

Country	2015 Spending as Share of GDP (percent)	Additional Spending (billions of 2015 dollars)
Australia	0.84	20.6
Brunei Darussalam	0.60	0.3
Canada	1.18	19.2
Chile	1.39	2.2
Japan	2.30	-2.0
Malaysia	0.68	20.4
Mexico	0.98	4.3
New Zealand	0.60	3.3
Peru	0.81	2.9
Singapore	0.29	6.1
United States	2.26	0.0
Vietnam	2.18	0.1
Total		**77.5**

Source and notes: Author's calculations, see text. Brunei Darussalam calculations are based on data from 2010.

It is worth working through the implications of an additional flow of licensing fees for drug patents of this amount to the United States. The assumption of the ITC model is that the TPP will not affect the overall balance of trade; rather the balance of trade is determined by national savings in the United States. If this assumption is accurate (i.e. the rules in the TPP neither increase nor decrease the balance of trade), then an inflow of licensing fees of $77.5 billion (0.4 percent of GDP) must be offset by a rise in the trade deficit in other categories.

The mechanism through which this would work is that the higher payments for drugs made our TPP partners would lead to a rise in the value of the dollar that would make our goods and traded services less competitive internationally. The dollar would rise enough so that our trade deficit in these other goods and services exactly increased in the inflow of $77.5 billion due to higher payments on prescription drugs. In effect, the higher payments for drugs by our TPP partners would mean fewer jobs for U.S. workers in manufacturing and in traded services sectors. The resulting losses in output in these sectors would be far larger than the cumulative gains to 0.23 percent of GDP projected by the ITC. This would likely mean the losses due to upward

redistribution to the beneficiaries of patent protection would exceed the gain from trade deal to most workers. It is worth noting that the ITC did not include this aspect of the TPP in its modeling (ITC 2016, p. 38).

As a practical matter, it is implausible that most of the countries in the TPP would allow for their spending on drugs to rise to the same share of GDP as in the United States. Also, the United States would not be the only country to receive higher licensing fees from drug patents insofar as the TPP did lead to stronger patent and related protections. However, the $77.5 billion figure is not implausible as an estimate of the total increase in intellectual property related payments to the United States as a result of the TPP. The Commission on the Theft of American Intellectual Property (2013) estimated that the total losses worldwide from countries not respecting U.S.-type rules could be as much as $300 billion a year.[15]

While higher licensing payments for drugs and other products may be a benefit for the companies receiving these payments, they are likely to be a loss to most workers through their effect on increasing the trade deficit in other areas.[16] Furthermore, if the rules in the TPP prevent measures in the United States that would lower drug prices, then this would be a direct transfer from the public as a whole to the pharmaceutical industry. As a practical matter, the impact of the TPP on drug prices and other areas subject to stronger intellectual property protections is difficult to determine at this point. However, the direction of the impact is clear in that it would redistribute income from the country as a whole to the benefits of these protections. The order of magnitude of this redistribution can certainly be of the same size of the cumulative gains from the TPP projected by the ITC. Furthermore, increased protection for intellectual property will act as a drag on growth in the same way that higher tariffs would be a drag on growth. The size of this drag on growth could be large relative to the modest gains projected as a result of the tariff reductions in the TPP.

[15]This figure is found in "TPP and the Conflict Over Drugs: Incentives for Innovation Versus Access to Medicines," Chapter II in Assessing the Trans-Pacific Partnership, Volume 2: Innovations in Trading Rules, edited by Jeffery J. Schott and Cathleen Cimino-Isaacs, Peterson Institute for International Economics, 2016.

[16]This would be offset to the extent that these payments actually led to more innovation. However give the enormous distortions in the pharmaceutical industry, the relationship between higher payments for patent rents and increased innovation is likely to be extremely indirect at best. In fact, higher patent rents provide increased incentive for all forms of rent-seeking behavior, including misrepresenting the safety and effectiveness of prescription drugs. There is evidence that patients already incur a substantial cost as a result of this practice (Katari and Baker 2015).

Conclusion

This paper reviewed the ITC report on the TPP and its assessment of the potential gains from the pact. It noted that the projected gains are relatively modest, at 0.23 percent of GDP when the impact of the agreement is mostly realized in 2032. This is approximately equal to one and a half month of normal GDP growth. The paper notes that this projection does not take account of transition costs, which could be as large as one-third to one half of the projected gains over the initial transition period. The projections from the ITC model also preclude the possibility that countries in the agreement may deliberately run-up large trade surpluses by managing the value of their currency, as many countries (including some in the TPP) have done in recent years or are now doing, which could result in substantial trade deficits and job loss for the United States.
The projection also does not take account of the distributional impact of stronger patent and copyright related protections, which are likely to be adverse for ordinary workers. Nor does it consider the possibility that strengthening these protections can reduce GDP in the same way that raising tariff barriers leads to lower GDP.

In sum, the projections from the ITC indicate that the TPP could lead to modest overall gains for the economy. However, several of the factors excluded from the analysis indicate that these gains could be even smaller than the report indicates and quite possibly negative for a large majority of the country's workers.

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