The Economics of Analyzing the TPP

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This note complements our recent estimates of the effects of the Trans-Pacific Partnership (TPP) agreement by reviewing their methodological underpinnings. Three issues are addressed. First, since trade agreements are implemented over long time periods and mainly affect economic structure, they require long-term microeconomic modeling. Second, while such long-term models cannot estimate short-term macroeconomic effects, they do yield information on the size of potential short-term demand shocks. In the case of the TPP in the United States, these appear to be at least neutral and small. Third, labor market adjustments represent the real potential costs of trade liberalization. These costs are also best estimated with microeconomic methods, but require additional information, including on the labor market experiences of displaced workers. The estimated adjustment burden appears to be small compared to benefits for the TPP, but nevertheless requires an effective policy response.

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In a recent paper we developed detailed, quantitative estimates of the effects of the TPP agreement, suggesting significant long-run contributions to US and world real incomes (Petri & Plummer, 2016). This work included much new empirical information, but built on the well-established methodology of computable general equilibrium modeling (CGE), also frequently used by the United States International Trade Commission (USITC).

Some commentators have questioned this assessment strategy. For example, at the USITC's Hearings in January 2016, opponents of the TPP argued that alternative methods should be used, including a study[2] that predicts large, persistent job losses across the entire world. Those results have been largely discounted by economists, but non-specialists are understandably puzzled.

This note complements our estimates with further discussion of their methodological basis. It explains why the analysis of trade agreements requires a long-term, microeconomic modeling approach. While such models cannot estimate short-term effects, this note shows that the demand shocks associated with the TPP—effects that could have macroeconomic implications in the near term—are likely to be small and probably positive. Instead, the costs of the TPP will depend on the difficulty of adjustment to inter-sectoral shifts in production, including especially in labor markets. Understanding those effects also requires micro- rather than macroeconomic analysis.

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[1] This is a revised version of testimony submitted to the USITC for its investigation of the TPP (Investigation 105-001). The authors are professors at Brandeis University and Johns Hopkins University, SAIS Europe, respectively. They are grateful for support from the Peterson Institute for International Economics, the East-West Center, and the Asia Pacific Center at Brandeis University.

[2] Capaldo, Izurieta & Sundaram (2016) use a macroeconomic model supposedly developed by the United Nations that is not available to the public. Capaldo previously used this model to project similarly dire consequences for the Trans-Atlantic Trade and Investment Partnership. Economists who have put their serious concerns about the transparency and credibility of this work into writing include Bauer & Erixon (2015), Erixon & Bauer (2015), Lawrence (2016), Mustilli (2015), and Pelkmans (2015).

The long-run micro- and macroeconomics of trade policy

Trade policy is granular (agreements contain hundreds of pages of text affecting products and services categorized by tens of thousands of tariff lines) and works by changing the decisions of consumers and producers. This requires the analysis of detailed microeconomic decisions and their reverberations through input-output connections to virtually all sectors of the economy. Computable general equilibrium (CGE) models have been developed precisely to address such policy changes and their microeconomic implications. Their structural mechanisms have been extensively estimated, tested and refined over three decades, making these models ubiquitous in policy fields ranging from trade and agriculture to energy and the environment.

Trade policy is also gradual—under the TPP some provisions will take as long as 30 years to implement—and the market reactions of firms, households and investors may take time as well. Thus, modeling must focus on long-term effects—for example, current assessments usually focus on 2030. In that context, a long line of trade policy analysis argues that the principal, persistent effects of trade policy will appear in gradual shifts in the *structure* of trade, output and employment (Krugman, 1993). If trade policy is properly designed, the possible short-term macroeconomic shocks will be small at any given time, and will have faded away by 2030 assuming that normal economic adjustment mechanisms are intact. The scale and likely direction of those short-term effects will be also discussed in this note.

The long-run framework for analyzing trade policy argues that two key macroeconomic variables—net national savings and overall employment—will converge to normal trend values whether or not the policy is implemented. First, since a trade agreement such as the TPP does not have provisions to change national savings,[3] it will not change trade balances in the long run, since savings and trade balances are connected by an identity (for example, any trade deficit needs to be financed by supplementing savings by selling assets or borrowing from abroad).

[3] There may be indirect effects on savings, for example, as incomes shift between borrowers and savers, but these second-order effects will by small given the limited role of trade in the US economy and the slight distributional changes projected for the TPP.

Thus net savings and the capital account will converge on trends determined by other variables. To bring the trade balance in line with the capital account, real exchange rates will adjust.[4]

Second, employment will also converge to trend levels determined by other variables. In the short run, aggregate demand could be affected by trade balance changes, should they occur, bumping overall employment below or above its normal trend. However, the design of the TPP suggests that trade balance effects will be small, generally neutral and transitional. (As argued below, they may be expansionary at first.) If macroeconomic effects did turn out to be larger and more persistent than expected, they would lead to offsetting wage and price reactions[5] and, if necessary, macroeconomic policy measures.

Critics of the microeconomic approach often challenge the plausibility of market adjustment even in the long term. Baker (2016) argues, for example, that mechanisms that may have once enabled the US economy to return to equilibrium are not working in the aftermath of the financial crisis. But the data tell a different story (Figure 1). Since 2010, the US economy has added 13 million jobs, a substantial gain compared to job growth episodes in recent decades, and by early 2016 the US civilian unemployment rate had declined from nearly 10 percent to under 5 percent. The broadest measure of unemployment (U6), which also includes part-time and discouraged workers, declined almost as sharply, from 17 to under 10 percent, and is now nearly back to average levels in pre-crisis, non-recession years.

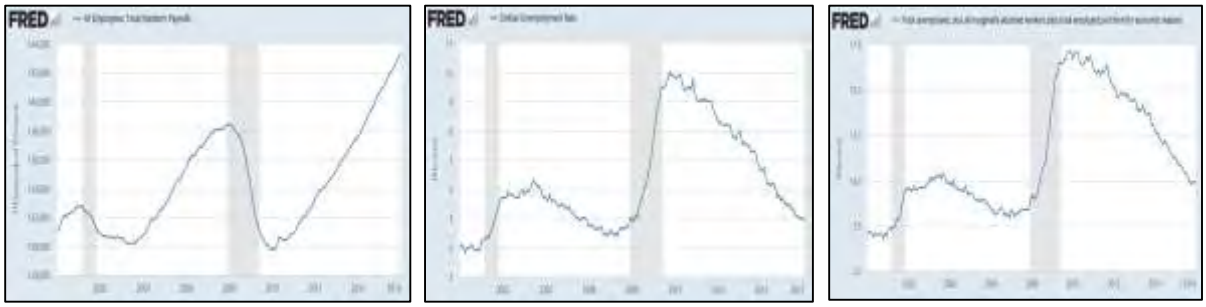
Given the extraordinary severity of the 2008-09 crisis, the data offer a sanguine view of US economic resilience, notwithstanding an unusually difficult global economic environment. In early 2016, there is still much concern that wages are rising too slowly. For reasons not well understood, productivity growth has slowed dramatically in recent years, in parallel with the

[4] The required exchange rate adjustments projected by the model turn out to be very small for the TPP; the US real exchange rate would decline by only 0.1 percent overall, over the entire 15 year horizon of the model.

[5] Specifically, upward pressures on wages and prices as a result of temporarily positive changes in the trade balance and *vice versa*.

deceleration of trade. While there is no demonstrated link between these trends, the TPP would likely help by increasing productivity and wages.

Figure 1. Resilience of US Employment Indicators, 2000-2016
A: Non-farm Payrolls, B: Civilian Unemployment Rate, C: Broad Unemployment Rate (U6)



Source: Federal Reserve Bank of St. Louis, https://research.stlouisfed.org/fred2/series/U6RATE. The horizontal axis runs from 2000 to 2016, and the shaded areas represent the 2001 and 2008-2009 recessions.

The short-run macroeconomics of the TPP

The process that leads economies toward normal savings and employment in the long run may not work in the short run, since markets and prices may be slow to adjust. Thus, short-run macroeconomic shocks cannot be ruled out. But will the TPP generate significant short-run demand shocks and, if so, what will be the direction of those shocks?

The potential for *macro*economic contraction—due to a negative demand shock caused by an increased trade deficit—can be roughly estimated from our current results. We show that the TPP will impact only 1.4 percent of US economic activity even in 2030 (the share of the projected increase in trade as a percentage of GDP). Since implementation will take a decade or more, only about 0.1 percent of US GDP will be exposed to change in any given year—we estimate that annual increases in US exports and imports will average $24 billion. Even if prices failed to balance changes in exports and imports in this timeframe, the potential *net* demand shock is unlikely to exceed $10 billion. That would make the *annual* effects of the TPP on

aggregate demand no greater than those of a *single* day's change in US equity prices—effects small enough to be routinely handled by market adjustments.[6]

Moreover, if trade growth should become imbalanced under the TPP in the near future, the results, if anything, are likely to be expansionary. Since reductions in US trade barriers will be smaller than reductions in the barriers of TPP partners (because initial US barriers are lower), the TPP should create more US exports than imports before such imbalances are eliminated by price adjustments. While short-run macroeconomic effects cannot be ruled out, they will be small and as likely positive as negative.

The adjustment implications of the TPP

Aside from macroeconomic reasons, unemployment will also arise if workers fail to transition smoothly from contracting firms to expanding ones. Adjustment-related unemployment may result from insufficient skills or geographical constraints, and could imply significant burdens for individuals and communities. This is emphasized in recent papers by Autor, Dorn, & Hanson (2014, 2016) that examine losses in US manufacturing employment mainly during the 2000s, when a large wave of Chinese imports affected US manufacturing industries. Their analysis highlights the immobility of labor across commuting zones, and hence relatively long periods of unemployment amplified by local multiplier effects. Even so, a study of the Chinese import wave that does take inter-regional labor market frictions into account finds short-term welfare losses to be small, and long-term welfare benefits to be large for the United States (Caliendo, Dvorkin, & Parro, 2015).

The Chinese import wave had unique historical features. On the Chinese side, it featured massive reforms and the migration of workers from the countryside to cities—trends that have since dramatically slowed. On the US side, the period saw a massive increase in net capital inflows or

[6] This is a simple "back of the envelope" estimate. US equity markets were capitalized at $26.3 trillion in 2014 (http://data.worldbank.org/indicator/CM.MKT.LCAP.CD) and using the ballpark estimate of daily volatility of one percent suggests a typical daily change of $263 billion. If a $1 change in asset values results in a 4 cent change in annual consumer expenditures, the expenditure impact of the daily change in equity prices will be $10.5 billion.

declines in national savings, as a result of two wars, sharply reduced taxes, and eased financial regulations. Charles, Hurst and Notowidigdo (2013) have shown that those inflows permitted significant increases in US expenditures and shifted production away from tradable manufactures toward non-tradable services. Manufacturing employment declines and construction employment increases roughly offset each other. Meanwhile, as Figure 1 shows, the overall US unemployment rate fell from around 6 percent to well below 5 percent from 2000 to 2007. (The more inclusive U6 unemployment rate also fell from 8 percent to around 6 percent.)

The net capital inflows of the 2000s were thus mainly the product of a historic transition now largely completed. The effects of that transition were reinforced by ill-fated macroeconomic decisions, on the Chinese side to accumulate reserves to keep the RMB undervalued, and on the US side to permit or encourage sharp increases in borrowing by all sectors of the economy. In fact, trade policy changes were very limited in this period; China's accession to the WTO did not affect trade US barriers, although it may have given Chinese exporters some additional confidence in targeting foreign markets.

The implications of the TPP are likely to be qualitatively different, especially in the short run. Export and import increases are likely to be at least balanced, as noted above, since America's TPP partners are typically committing to reducing higher initial barriers than the United States. At the same time, the policy conditions that led to the capital inflows of the 2000s no longer obtain, and the "Joint Declaration of the Macroeconomic Policy Authorities," signed alongside the agreement on currency manipulation, could also discourage new lurches in inflows. Also, trade growth under the TPP is projected to be slower than the growth of imports from China in the 2000s, and imports will be more widely distributed across sectors, rather than concentrated in a narrow range of low-wage manufacturing industries.

Far from ignoring the adjustment costs that arise from the resulting inter-sectoral changes, CGE results can provide a starting point for analyzing the trade-related labor market effects. By examining job additions and losses at sectoral and firm levels (Autor, Dorn, & Hanson, 2014 in fact use similar input-output tools), we estimate that some 53,700 job changes could be required

annually during the implementation of the TPP, amounting to 0.1 percent of routine annual job changes in the United States. But despite this small number, some transitions may be quite costly for individuals, involving wage losses and unemployment.

With additional information on the adjustment experiences of displaced workers, these microeconomic results also provide a basis for estimating adjustment costs. Using such data and our sectoral projections, Lawrence and Moran (2016) have constructed benefit-cost ratios for the TPP. These range from 3 to 20 (depending on assumptions) during the agreement's implementation period, and become much larger once the agreement is mostly in place. They also conclude that the agreement will have slightly positive effects on income distribution, contrary to the predictions of TPP pessimists.

Implications for the Commission's Work

In short, CGE modeling is the most appropriate tool available for analyzing the structural and productivity effects of trade policy. There is no evidence that the long-run adjustment mechanisms that these models use have become dysfunctional. Further, their microeconomic results enable researchers to trace the implications of trade policy across the economy, estimate sectoral and overall productivity gains, and show effects on wages and the income distribution. They offer indispensable information for identifying adjustment effects in labor markets.

The Commission's work will hopefully extend and refine microeconomic estimates of the consequences of the TPP. Ideally, it will supplement this research with narrower and deeper studies of important issues including:

- Sectoral studies to develop granular detail on how TPP provisions will affect specific business activities. Such analysis could yield "bottom up" estimates of benefits from TPP provisions such as access to telecommunications networks, enforcement of IP rights, more open government procurement, and prohibitions on data localization requirements.

- Labor market studies to provide a detailed assessment of adjustment implications. Sectoral or regional impediments to adjustment may be costly, even if economy-wide effects are positive. This work should place the TPP into the broader context of structural change in the US economy, alongside other factors such technology, demographics, and demand.

- Geopolitical analysis to explore the implications of the TPP, or its failure, for the global trading system. With clear comparative advantage in new sectors, the United States has a large stake in keeping innovative markets open. Its leadership on trade initiatives in the Asia-Pacific and beyond may well depend on the success of the TPP.

The Commission has set a high bar for its assessment of the TPP with its own excellent record in past studies. The stakes are high: the choices that Congress will soon make will shape the US economy, international cooperation on trade, and American leadership on economic issues for decades to come.

References

Autor, D., Dorn, D., & Hanson, G. (2013). The China syndrome: Local labor market effects of import competition in the united states. *American Economic Review*, *103*(6), 2121–2168.

Autor, D. H., Dorn, D., & Hanson, G. H. (2016). The China Shock: Learning from Labor Market Adjustment to Large Changes in Trade. Cambridge, Mass.: National Bureau of Economic Research.

Baker, D. (2016). Peterson Institute Study Shows TPP Will Lead to $357 Billion Increase in Annual Imports. *Medium*. Retrieved from https://medium.com/

Bauer, M., & Erixon, F. (2015). *"Splendid Isolation" as Trade Policy: Mercantilism and Crude Keynesianism in "the Capaldo Study" of TTIP*. Retrieved from http://ecipe.org/

Caliendo, L., Dvorkin, M., & Parro, F. (2015). Trade and Labor Market Dynamics. St. Louis: Federal Reserve Bank of St. Louis.

Capaldo, J., Izurieta, A., & Sundaram, J. K. (2016). *Trading down: Unemployment, Inequality and Other Risks of the Trans-Pacific Partnership Agreement* (No. 16-01).

Charles, K. K., Hurst, E., & Notowidigdo, M. J. (2013). Manufacturing Decline, Housing Booms, and Non-Employment. Cambridge, Mass.: National Bureau of Economic Research. doi:10.1017/CBO9781107415324.004

Erixon, F., & Bauer, M. (2015). Capaldo Fails to Convince. Retrieved from http://ecipe.org/blog/capaldo-fails-to-convince/

Krugman, P. R. (1993). What Do Undergrads Need to Know About Trade? *The American Economic Review*, *2*(May), 23–26.

Lawrence, R. Z. (2016). Studies of TPP: Which Is Credible ? Peterson Institute for International Economics. Retrieved from http://blogs.piie.com/trade/?p=553

Lawrence, R. Z., & Moran, T. (2016). Adjustment and Income Distribution Impacts of the TPP. In R. Z. Lawrence, T. Moran, & J. J. Schott (Eds.), *Assessing the Trans-Pacific Partnership, Volume 2* (pp. 5–19). Washington, D.C.: Peterson Institute for International Economics.

Mustilli, F. (2015). Estimating the Economic Gains of TTIP. *Intereconomics*, 321–327.

Pelkmans, J. (2015). An Overview and Comparison of TTIP Studies. In World Trade Institute (Ed.), *TTIP and the EU Member States*. Berne: University of Berne, World Trade Institute.

Petri, P. A., & Plummer, M. G. (2016). The Economic Effects of the TPP: New Estimates. In Peterson Institute for International Economics (Ed.), *Assessing the Trans-Pacific Partnership, Volume 1*. Washington, D.C.: Peterson Institute for International Economics.